

# Rosemount 3051 Pressure Transmitter

## **THE PROVEN INDUSTRY LEADER IN PRESSURE MEASUREMENT**

- *Best-in-Class performance with 0.04% High Accuracy option*
- *Industry first installed five-year stability*
- *Unmatched Dynamic Performance*
- *Coplanar™ platform enables integrated pressure, flow, and level solutions*
- *Advanced PlantWeb® Functionality to increase plant productivity*



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## Setting the Standard for Pressure Measurement

Industry's best total performance, a flexible Coplanar platform, and installed five-year stability, has made the Rosemount 3051 the standard in pressure measurement.

### Industry's best-in-class total performance of $\pm 0.15\%$

Total performance is the true measure of "real-world" transmitter performance. Using superior sensor technology and engineered for optimal performance, the 3051 delivers unprecedented  $\pm 0.04\%$  reference accuracy, resulting in total operating performance of  $\pm 0.15\%$ . Superior total performance equates to reduced variability and improved plant safety.

### Installed five-year stability of $\pm 0.125\%$

Transmitter stability is a critical measure of transmitter performance over time. Through aggressive simulation testing beyond standard IEC 770 testing, the 3051 has proven its ability to maintain performance over a five year period under the most demanding process conditions. Superior transmitter stability reduces calibration frequency to save operation and maintenance costs.

### Unmatched dynamic performance

In dynamic applications, speed of measurement is as important as repeatability. The 3051 responds up to eight times faster than the typical pressure transmitter to detect and control variations quickly and efficiently. Superior dynamic response yields more accurate measurements to reduce variability and increase profitability.

### Coplanar platform enables complete point solutions

The versatile Coplanar platform design enables the best process connection for pressure, flow and level applications. Right out of the box, the solution arrives factory calibrated, pressure-tested, and ready to install. Only the 3051 has a flexible design to reduce engineering and inventory costs.

### Advanced PlantWeb Functionality



The 3051 powers the PlantWeb architecture by delivering the best sensor and transmitter, best installation practices, and best in class field intelligence. One component is the enhanced diagnostic capabilities in FOUNDATION fieldbus that provide an increase in process visibility, enabling proactive maintenance, improving process availability and plant productivity.

## Rosemount Pressure Solutions

### Rosemount 3051S Series of Instrumentation

Scalable pressure, flow and level measurement solutions improve installation and maintenance practices.

### Rosemount 3095MV Mass Flow Transmitter

Accurately measures differential pressure, static pressure and process temperature to dynamically calculate fully compensated mass flow.

### Rosemount 305 and 306 Integral Manifolds

Factory-assembled, calibrated and seal-tested manifolds reduce on-site installation costs.

### Rosemount 1199 Remote Seals

Provides reliable, remote measurements of process pressure and protects the transmitter from hot, corrosive, or viscous fluids.

### Orifice Plate Primary Element Systems: Rosemount 1495 and 1595 Orifice Plates, 1496 Flange Unions and 1497 Meter Sections

A comprehensive offering of orifice plates, flange unions and meter sections that is easy to specify and order. The 1595 Conditioning Orifice provides superior performance in tight fit applications.

### Annubar® Flowmeter Series: Rosemount 3051SFA, 3095MFA, and 485

The state-of-the-art, fifth generation Rosemount 485 Annubar combined with the 3051S or 3095MV MultiVariable transmitter creates an accurate, repeatable and dependable insertion-type flowmeter.

### Compact Orifice Flowmeter Series: Rosemount 3051SFC, 3095MFC, and 405

Compact Orifice Flowmeters can be installed between existing flanges, up to a Class 600 (PN100) rating. In tight fit applications, a conditioning orifice plate version is available, requiring only two diameters of straight run upstream.

### ProPlate® Flowmeter Series: Rosemount ProPlate, Mass ProPlate, and 1195

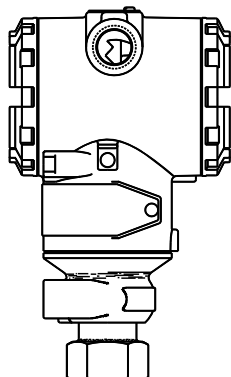
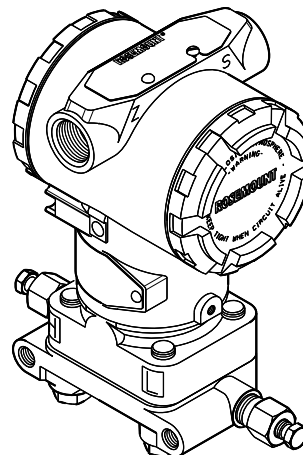
These integral orifice flowmeters eliminate the inaccuracies that become more pronounced in small orifice line installations. The completely assembled, ready to install flowmeters reduce cost and simplify installation.

## Product Offering

### Rosemount 3051C Differential, Gage, and Absolute

See ordering information on page 23.

- Performance up to 0.04% accuracy
- Installed five-year stability of 0.125%
- Coplanar platform enables integrated manifold, primary element and remote seal solutions
- Calibrated spans/ranges from 0.1 inH<sub>2</sub>O to 4000 psi (0,25 mbar to 276 bar)
- 316L SST, Alloy C-276, Monel®, Tantalum, Gold-plated Monel, or Gold-plated 316L SST process isolators



### Rosemount 3051T Gage and Absolute

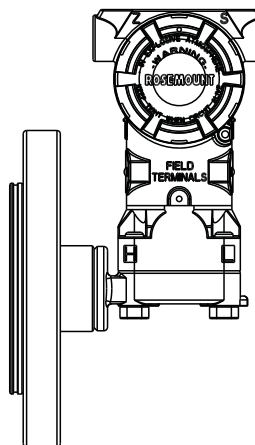
See ordering information on page 29.

- Performance up to 0.04% accuracy
- Installed five-year stability of 0.125%
- Calibrated spans from 0.3 to 10000 psi (10,3 mbar to 689 bar)
- Multiple process connections available
- 316L SST and Alloy C-276 process isolators

### Rosemount 3051L Liquid Level

See ordering information on page 33.

- Performance up to 0.075% accuracy
- Welded fill fluid system provides best-in-class system reliability
- Flush and extended diaphragms
- Multiple fill fluids and wetted materials available



## Specifications

### PERFORMANCE SPECIFICATIONS

Total Performance is based on combined errors of reference accuracy, ambient temperature effect, and static pressure effect.

This product data sheet covers both HART and fieldbus protocols unless specified.

### Conformance To Specification ( $\pm 3\sigma$ (Sigma))

Technology leadership, advanced manufacturing techniques and statistical process control ensure specification conformance to at least  $\pm 3\sigma$ .

### Reference Accuracy<sup>(1)</sup>

Models	Standard	High Accuracy Option
<b>3051CD, 3051CG</b> Range 0 (CD)	$\pm 0.10\%$ of span For spans less than 2:1, accuracy = $\pm 0.05\%$ of URL	
Range 1	$\pm 0.10\%$ of span For spans less than 15:1,  accuracy = $\pm \left[ 0.025 + 0.005 \left( \frac{URL}{Span} \right) \right] \%$ of Span	
Ranges 2-5	$\pm 0.065\%$ of span For spans less than 10:1,  accuracy = $\pm \left[ 0.015 + 0.005 \left( \frac{URL}{Span} \right) \right] \%$ of Span	Ranges 2-4 High Accuracy Option, P8 $\pm 0.04\%$ of span For spans less than 5:1,  accuracy = $\pm \left[ 0.015 + 0.005 \left( \frac{URL}{Span} \right) \right] \%$ of Span
<b>3051T</b> Ranges 1-4	$\pm 0.065\%$ of span For spans less than 10:1,  accuracy = $\pm \left[ 0.0075 \left( \frac{URL}{Span} \right) \right] \%$ of Span	Ranges 2-4 High Accuracy Option, P8 $\pm 0.04\%$ of span For spans less than 5:1,  accuracy = $\pm \left[ 0.0075 \left( \frac{URL}{Span} \right) \right] \%$ of Span
Range 5	$\pm 0.075\%$ of span For spans less than 10:1,  accuracy = $\pm \left[ 0.0075 \left( \frac{URL}{Span} \right) \right] \%$ of Span	
<b>3051CA</b> Ranges 1-4	$\pm 0.065\%$ of span For spans less than 10:1,  accuracy = $\pm \left[ 0.0075 \left( \frac{URL}{Span} \right) \right] \%$ of Span	Ranges 2-4 High Accuracy Option, P8 $\pm 0.04\%$ of span For spans less than 5:1,  accuracy = $\pm \left[ 0.0075 \left( \frac{URL}{Span} \right) \right] \%$ of Span
<b>3051L</b> All Ranges	$\pm 0.075\%$ of span For spans less than 10:1,  accuracy = $\pm \left[ 0.025 + 0.005 \left( \frac{URL}{Span} \right) \right] \%$ of Span	

(1) For FOUNDATION fieldbus transmitters, use calibrated range in place of span. For zero based spans, reference conditions, silicone oil fill, SST materials, Coplanar flange (3051C) or  $1/2$  in. - 18 NPT (3051T) process connections, digital trim values set to equal range points.

## Product Data Sheet

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# Rosemount 3051

## Total Performance

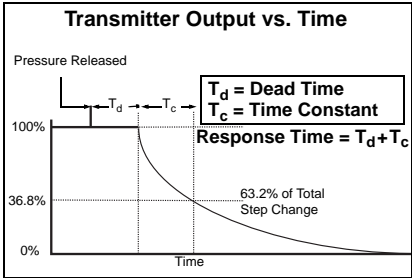
For  $\pm 50^\circ\text{F}$  ( $28^\circ\text{C}$ ) temperature changes, up to 1000 psi (6,9 MPa) line pressure (CD only), from 1:1 to 5:1 rangedown.

Models	Total Performance
<b>3051C</b>	
Ranges 2-5	$\pm 0.15\%$ of span
<b>3051T</b>	
Ranges 1-4	$\pm 0.15\%$ of span

## Long Term Stability

Models	Long Term Stability
<b>3051C</b>	
Ranges 2-5	$\pm 0.125\%$ of URL for 5 years $\pm 50^\circ\text{F}$ ( $28^\circ\text{C}$ ) temperature changes, and up to 1000 psi (6,9 MPa) line pressure.
<b>3051CD Low/Draft Range</b>	
Ranges 0-1	$\pm 0.2\%$ of URL for 1 year
<b>3051T</b>	
Ranges 1-4	$\pm 0.125\%$ of URL for 5 years $\pm 50^\circ\text{F}$ ( $28^\circ\text{C}$ ) temperature changes, and up to 1000 psi (6,9 MPa) line pressure.

## Dynamic Performance

	4 - 20 mA (HART protocol) <sup>(1)</sup>	Fieldbus protocol <sup>(3)</sup>	Typical HART Transmitter Response Time
<b>Total Response Time (<math>T_d + T_c</math>)<sup>(2)</sup>:</b>			
3051C, Ranges 2-5:	100 ms	152 ms	 <p><b>Transmitter Output vs. Time</b></p> <p>Pressure Released</p> <p>100%</p> <p>36.8%</p> <p>0%</p> <p>Time</p> <p><math>T_d</math> = Dead Time <math>T_c</math> = Time Constant Response Time = <math>T_d + T_c</math></p> <p>63.2% of Total Step Change</p>
Range 1:	255 ms	307 ms	
Range 0:	700 ms	752 ms	
3051T:	100 ms	152 ms	
3051L:	Consult factory	Consult factory	
<b>Dead Time (<math>T_d</math>)</b>	45 ms (nominal)	97 ms	
<b>Update Rate</b>	22 times per second	22 times per second	
<p>(1) Dead time and update rate apply to all models and ranges; analog output only</p> <p>(2) Nominal total response time at <math>75^\circ\text{F}</math> (<math>24^\circ\text{C}</math>) reference conditions.</p> <p>(3) Transmitter fieldbus output only, segment macro-cycle not included.</p>			

## Line Pressure Effect per 1000 psi (6,9 MPa)

For line pressures above 2000 psi (13,7 MPa) and Ranges 4-5, see user manual (Document number 00809-0100-4001).	
Models	Line Pressure Effect
<b>3051CD</b>	Zero Error <sup>(1)</sup>
Range 0	$\pm 0.125\%$ of URL/100 psi (6,89 bar)
Range 1	$\pm 0.25\%$ of URL/1000 psi (68,9 bar)
Ranges 2-3	$\pm 0.05\%$ of URL/1000 psi (68,9 bar) for line pressures from 0 to 2000 psi (0 to 13,7 MPa)
	Span Error
Range 0	$\pm 0.15\%$ of reading/100 psi (6,89 bar)
Range 1	$\pm 0.4\%$ of reading/1000 psi (68,9 bar)
Ranges 2-3	$\pm 0.1\%$ of reading/1000 psi (68,9 bar)

(1) Can be calibrated out at line pressure.

### Ambient Temperature Effect per 50°F (28°C)

Models	Ambient Temperature Effect
<b>3051CD, 3051CG</b>	
Range 0	$\pm(0.25\% \text{ URL} + 0.05\% \text{ span})$
Range 1	$\pm(0.1\% \text{ URL} + 0.25\% \text{ span})$
Ranges 2-5	$\pm(0.0125\% \text{ URL} + 0.0625\% \text{ span})$ from 1:1 to 5:1 $\pm(0.025\% \text{ URL} + 0.125\% \text{ span})$ from 5:1 to 100:1
<b>3051T</b>	
Range 1	$\pm(0.025\% \text{ URL} + 0.125\% \text{ span})$ from 1:1 to 10:1 $\pm(0.05\% \text{ URL} + 0.125\% \text{ span})$ from 10:1 to 100:1
Range 2-4	$\pm(0.025\% \text{ URL} + 0.125\% \text{ span})$ from 1:1 to 30:1 $\pm(0.035\% \text{ URL} + 0.125\% \text{ span})$ from 30:1 to 100:1
Range 5	$\pm(0.1\% \text{ URL} + 0.15\% \text{ span})$
<b>3051CA</b>	
All Ranges	$\pm(0.025\% \text{ URL} + 0.125\% \text{ span})$ from 1:1 to 30:1 $\pm(0.035\% \text{ URL} + 0.125\% \text{ span})$ from 30:1 to 100:1
<b>3051L</b>	See Rosemount Inc. Instrument Toolkit <sup>®</sup> software.

### Mounting Position Effects

Models	Mounting Position Effects
<b>3051C</b>	Zero shifts up to $\pm 1.25 \text{ inH}_2\text{O}$ (3,11 mbar), which can be calibrated out. No span effect.
<b>3051L</b>	With liquid level diaphragm in vertical plane, zero shift of up to $1 \text{ inH}_2\text{O}$ (2,49 mbar). With diaphragm in horizontal plane, zero shift of up to $5 \text{ inH}_2\text{O}$ (12,43 mbar) plus extension length on extended units. All zero shifts can be calibrated out. No span effect.
<b>3051CA, 3051T</b>	Zero shifts up to $2.5 \text{ inH}_2\text{O}$ (6,22 mbar), which can be calibrated out. No span effect.

### Vibration Effect

#### All Models

Measurement effect due to vibrations is negligible except at resonance frequencies. When at resonance frequencies, vibration effect is less than  $\pm 0.1\%$  of URL per g when tested between 15 and 2000 Hz in any axis relative to pipe-mounted process conditions.

### Power Supply Effect

#### All Models

Less than  $\pm 0.005\%$  of calibrated span per volt.

### RFI Effects

#### All Models

$\pm 0.1\%$  of span from 20 to 1000 MHz and for field strength up to 30 V/m.

### Transient Protection (Option Code T1)

All Models:

Meets IEEE C62.41, Category B

6 kV crest (0.5  $\mu\text{s}$  - 100 kHz)

3 kV crest (8  $\times$  20 microseconds)

6 kV crest (1.2  $\times$  50 microseconds)

Meets IEEE C37.90.1, Surge Withstand Capability

SWC 2.5 kV crest, 1.25 MHz wave form

General Specifications:

Response Time: < 1 nanosecond

Peak Surge Current: 5000 amps to housing

Peak Transient Voltage: 100 V dc

Loop Impedance: < 25 ohms

Applicable Standards: IEC61000-4-4,

IEC61000-4-5

#### NOTE:

Calibrations at 68 °F (20 °C) per ASME Z210.1 (ANSI)

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# Rosemount 3051

## FUNCTIONAL SPECIFICATIONS

### Range and Sensor Limits

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

Range	Minimum Span		Range and Sensor Limits			
	3051CD <sup>(1)</sup> , 3051CG, 3051L	Upper (URL)	Lower (LRL)			
			3051CD Differential	3051CG Gage	3051L Differential	3051L Gage
0	0.1 inH <sub>2</sub> O (0,25 mbar)	3.0 inH <sub>2</sub> O (7,47 mbar)	-3.0 inH <sub>2</sub> O (-7,47 mbar)	NA	NA	NA
1	0.5 inH <sub>2</sub> O (1,2 mbar)	25 inH <sub>2</sub> O (62,3 mbar)	-25 inH <sub>2</sub> O (-62,1 mbar)	-25 inH <sub>2</sub> O (-62,1 mbar)	NA	NA
2	2.5 inH <sub>2</sub> O (6,2 mbar)	250 inH <sub>2</sub> O (0,62 bar)	-250 inH <sub>2</sub> O (-0,62 bar)	-250 inH <sub>2</sub> O (-0,62 bar)	-250 inH <sub>2</sub> O (-0,62 bar)	-250 inH <sub>2</sub> O (-0,62 bar)
3	10 inH <sub>2</sub> O (24,9 mbar)	1000 inH <sub>2</sub> O (2,49 bar)	-1000 inH <sub>2</sub> O (-2,49 bar)	0.5 psia (34,5 mbar abs)	-1000 inH <sub>2</sub> O (-2,49 bar)	0.5 psia (34,5 mbar abs)
4	3 psi (0,20 bar)	300 psi (20,6 bar)	-300 psi (-20,6 bar)	0.5 psia (34,5 mbar abs)	-300 psi (-20,6 bar)	0.5 psia (34,5 mbar abs)
5	20 psi (1,38 bar)	2000 psi (137,9 bar)	-2000 psi (-137,9 bar)	0.5 psia (34,5 mbar abs)	NA	NA

(1) Range 0 only available with 3051CD. Range 1 only available with 3051CD or 3051CG.

TABLE 2. Range and Sensor Limits

Range	3051CA			Range	3051T			
	Minimum Span	Range and Sensor Limits			Minimum Span	Range and Sensor Limits		Lower <sup>(1)</sup> (LRL) (Gage)
		Upper (URL)	Lower (LRL)			Upper (URL)	Lower (LRL)	
1	0.3 psia (20,6 mbar)	30 psia (2,07 bar)	0 psia (0 bar)	1	0.3 psi (20,6 mbar)	30 psi (2,07 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
2	1.5 psia (0,103 bar)	150 psia (10,3 bar)	0 psia (0 bar)	2	1.5 psi (0,103 bar)	150 psi (10,3 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
3	8 psia (0,55 bar)	800 psia (55,2 bar)	0 psia (0 bar)	3	8 psi (0,55 bar)	800 psi (55,2 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
4	40 psia (2,76 bar)	4000 psia (275,8 bar)	0 psia (0 bar)	4	40 psi (2,76 bar)	4000 psi (275,8 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
				5	2000 psi (137,9 bar)	10000 psi (689,4 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)

(1) Assumes atmospheric pressure of 14.7 psig.

### Zero and Span Adjustment Requirements (HART and Low Power)

Zero and span values can be set anywhere within the range limits stated in Table 1 and Table 2.

Span must be greater than or equal to the minimum span stated in Table 1 and Table 2.

### Service

Liquid, gas, and vapor applications

### 4-20 mA (Output Code A)

#### Output

Two-wire 4-20 mA, user-selectable for linear or square root output. Digital process variable superimposed on 4-20 mA signal, available to any host that conforms to the HART protocol.

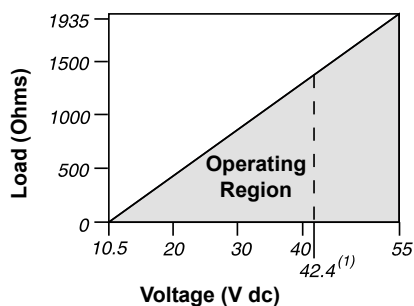
#### Power Supply

External power supply required. Standard transmitter (4-20 mA) operates on 10.5 to 55 V dc with no load.

#### Load Limitations

Maximum loop resistance is determined by the voltage level of the external power supply, as described by:

$$\text{Max. Loop Resistance} = 43.5 (\text{Power Supply Voltage} - 10.5)$$



(1) For CSA approval, power supply must not exceed 42.4 V.

### FOUNDATION fieldbus (output code F) and Profibus (output code W)

#### Power Supply

External power supply required; transmitters operate on 9.0 to 32.0 V dc transmitter terminal voltage.

#### Current Draw

17.5 mA for all configurations (including LCD display option)

### FOUNDATION fieldbus Function Block Execution Times

Block	Execution Time
Resource	-
Transducer	-
LCD Block	-
Analog Input 1, 2	30 milliseconds
PID	45 milliseconds
Input Selector	30 milliseconds
Arithmetic	35 milliseconds
Signal Characterizer	40 milliseconds
Integrator	35 milliseconds

### FOUNDATION fieldbus Parameters

Schedule Entries	7 (max.)
Links	20 (max.)
Virtual Communications Relationships (VCR)	12 (max.)

### Standard Function Blocks

#### Resource Block

Contains hardware, electronics, and diagnostic information.

#### Transducer Block

Contains actual sensor measurement data including the sensor diagnostics and the ability to trim the pressure sensor or recall factory defaults.

#### LCD Block

Configures the local display.

#### 2 Analog Input Blocks

Processes the measurements for input into other function blocks. The output value is in engineering units or custom and contains a status indicating measurement quality.

#### PID Block

Contains all logic to perform PID control in the field including cascade and feedforward.

### Backup Link Active Scheduler (LAS)

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

### Advanced Control Function Block Suite (Option Code A01)

#### Input Selector Block

Selects between inputs and generates an output using specific selection strategies such as minimum, maximum, midpoint, average or first "good."

#### Arithmetic Block

Provides pre-defined application-based equations including flow with partial density compensation, electronic remote seals, hydrostatic tank gauging, ratio control and others.

#### Signal Characterizer Block

Characterizes or approximates any function that defines an input/output relationship by configuring up to twenty X, Y coordinates. The block interpolates an output value for a given input value using the curve defined by the configured coordinates.

#### Integrator Block

Compares the integrated or accumulated value from one or two variables to pre-trip and trip limits and generates discrete output signals when the limits are reached. This block is useful for calculating total flow, total mass, or volume over time.

### FOUNDATION fieldbus Diagnostics Suite (Option Code D01)

The 3051C FOUNDATION fieldbus Diagnostics provide Abnormal Situation Prevention (ASP) indication. The integral statistical process monitoring (SPM) technology calculates the mean and standard deviation of the process variable 22 times per second. The 3051C ASP algorithm uses these values and highly flexible configuration options for customization to many user-defined or application specific abnormal situations. The detection of plugged impulse lines is the first available predefined application.



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## Low Power (Output Code M)

### Output

Three wire 1-5 V dc or 0.8-3.2 V dc (Option Code C2) user-selectable output. Also user selectable for linear or square root output configuration. Digital process variable superimposed on voltage signal, available to any host conforming to the *HART* protocol. Low-power transmitter operates on 6-12 V dc with no load.

### Power Consumption

3.0 mA, 18-36 mW

### Minimum Load Impedance

100 k $\Omega$  ( $V_{out}$  wiring)

### Indication

Optional 5-digit LCD display

### Overpressure Limits

#### Rosemount 3051CD/CG

- Range 0: 750 psi (51,7 bar)
- Range 1: 2000 psig (137,9 bar)
- Ranges 2-5: 3626 psig (250 bar)  
4500 psig (310,3 bar) for option code P9

#### Rosemount 3051CA

- Range 1: 750 psia (51,7 bar)
- Range 2: 1500 psia (103,4 bar)
- Range 3: 1600 psia (110,3 bar)
- Range 4: 6000 psia (413,7 bar)

#### Rosemount 3051TG/TA

- Range 1: 750 psi (51,7 bar)
- Range 2: 1500 psi (103,4 bar)
- Range 3: 1600 psi (110,3 bar)
- Range 4: 6000 psi (413,7 bar)
- Range 5: 15000 psi (1034,2 bar)

For 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 3. 3051L and Level Flange Rating Limits

Standard	Type	CS Rating	SST Rating
ANSI/ASME	Class 150	285 psig	275 psig
ANSI/ASME	Class 300	740 psig	720 psig
ANSI/ASME	Class 600	1480 psig	1440 psig
At 100 °F (38 °C), the rating decreases with increasing temperature, per ANSI/ASME B16.5.			
DIN	PN 10-40	40 bar	40 bar
DIN	PN 10/16	16 bar	16 bar
DIN	PN 25/40	40 bar	40 bar
At 248 °F (120 °C), the rating decreases with increasing temperature, per DIN 2401.			

### Static Pressure Limit

#### Rosemount 3051CD Only

Operates within specifications between static line pressures of 0.5 psia and 3626 psig (4500 psig (310, 3 bar) for Option Code P9).

Range 0: 0.5 psia and 750 psig (3, 4 bar and 51, 7 bar)

Range 1: 0.5 psia and 2000 psig (3, 4 bar and 137, 9 bar)

### Burst Pressure Limits

Burst pressure on Coplanar or traditional process flange is 10000 psig (69 MPa).

Burst pressure for the 3051T is

Ranges 1-4: 11000 psi (75,8 MPa)

Range 5: 26000 psig (179 MPa)

### Failure Mode Alarm

#### Output Code A

If self-diagnostics detect a gross transmitter failure, the analog signal will be driven either below 3.75 mA or to 21.75 mA to alert the user. NAMUR-compliant values are available, option code C4. High or low alarm signal is user-selectable by internal jumper.

#### Output Code M

If self-diagnostics detect a gross transmitter failure, the analog signal will be driven either below 0.94 V or above 5.4 V to alert the user (below 0.75 V or above 4.4 V for Option C2). High or low alarm signal is user-selectable by internal jumper.

#### Output Code F and W

If self-diagnostics detect a gross transmitter failure, that information gets passed as a status along with the process variable.

### Temperature Limits

#### Ambient

-40 to 185 °F (-40 to 85 °C)

With LCD display<sup>(1)</sup>: -4 to 175 °F (-20 to 80 °C)

#### Storage

-50 to 230 °F (-46 to 110 °C)

With LCD display: -40 to 185 °F (-40 to 85 °C)

#### Process

At atmospheric pressures and above. See Table 4

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

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TABLE 4. 3051 Process Temperature Limits

3051CD, 3051CG, 3051CA	
Silicone Fill Sensor <sup>(1)</sup>	
with Coplanar Flange	–40 to 250 °F (–40 to 121 °C) <sup>(2)</sup>
with Traditional Flange	–40 to 300 °F (–40 to 149 °C) <sup>(2)(3)</sup>
with Level Flange	–40 to 300 °F (–40 to 149 °C) <sup>(2)</sup>
with 305 Integral Manifold	–40 to 300 °F (–40 to 149 °C) <sup>(2)</sup>
Inert Fill Sensor <sup>(1)</sup>	0 to 185 °F (–18 to 85 °C) <sup>(4)(5)</sup>
3051T (Process Fill Fluid)	
Silicone Fill Sensor <sup>(1)</sup>	–40 to 250 °F (–40 to 121 °C) <sup>(2)</sup>
Inert Fill Sensor <sup>(1)</sup>	–22 to 250 °F (–30 to 121 °C) <sup>(2)</sup>
3051L Low-Side Temperature Limits	
Silicone Fill Sensor <sup>(1)</sup>	–40 to 250 °F (–40 to 121 °C) <sup>(2)</sup>
Inert Fill Sensor <sup>(1)</sup>	0 to 185 °F (–18 to 85 °C) <sup>(2)</sup>
3051L High-Side Temperature Limits (Process Fill Fluid)	
Syltherm <sup>®</sup> XLT	–100 to 300 °F (–73 to 149 °C)
D.C. Silicone 704 <sup>®</sup>	32 to 400 °F (0 to 205 °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)

(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) 3051CD0 process temperature limits are –40 to 212 °F (–45 to 100 °C)

(4) 160 °F (71 °C) limit in vacuum service.

(5) Not available for 3051CA.

## Humidity Limits

0–100% relative humidity

## Turn-On Time

Performance within specifications less than 2.0 seconds (10.0 s for Profibus protocol) after power is applied to the transmitter

## Volumetric Displacement

Less than 0.005 in<sup>3</sup> (0.08 cm<sup>3</sup>)

## Damping

Analog output response to a step input change is user-selectable from 0 to 36 seconds for one time constant. This software damping is in addition to sensor module response time.

## PHYSICAL SPECIFICATIONS

### Electrical Connections

<sup>1</sup>/<sub>2</sub>–14 NPT, PG 13.5, G<sup>1</sup>/<sub>2</sub>, and M20 × 1.5 (CM20) conduit. HART interface connections fixed to terminal block.

### Process Connections

All Models except 3051L and 3051T

<sup>1</sup>/<sub>4</sub>–18 NPT on 2<sup>1</sup>/<sub>8</sub>-in. centers

<sup>1</sup>/<sub>2</sub>–14 NPT on 2-, 2<sup>1</sup>/<sub>8</sub>-, or 2<sup>1</sup>/<sub>4</sub>-in. centers

#### Rosemount 3051L

High pressure side: 2-, 3-, or 4-in., ASME B 16.5 (ANSI) Class 150, 300 or 600 flange; 50, 80 or 100 mm, PN 40 or 10/16 flange

Low pressure side: <sup>1</sup>/<sub>4</sub>–18 NPT on flange <sup>1</sup>/<sub>2</sub>–14 NPT on adapter

#### Rosemount 3051T

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

### Process-Wetted Parts

#### Drain/Vent Valves

316 SST, Alloy C-276, or Monel material (Monel not available with 3051L)

#### Process Flanges and Adapters

Plated carbon steel, SST cast CF-8M (cast version of 316 SST, material per ASTM-A743), C-Type cast alloy CW12MW, or Monel cast alloy M30C

#### Wetted O-rings

Glass-filled PTFE or Graphite-filled PTFE

#### Process Isolating Diaphragms

Isolating Diaphragm Material	3051CD 3051CG	3051T	3051CA
316L SST	•	•	•
Alloy C-276	•	•	•
Monel	•		•
Tantalum	•		
Gold-plated Monel	•		•
Gold-plated SST	•		•

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# Rosemount 3051

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### Rosemount 3051L Process Wetted Parts

#### *Flanged Process Connection (Transmitter High Side)*

Process Diaphragms, Including Process Gasket Surface

- 316L SST, Alloy C-276, or Tantalum

Extension

- CF-3M (Cast version of 316L SST, material per ASTM-A743), or Alloy C-276. 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 Alloy C-276

Reference Flange and Adapter

- CF-8M (Cast version of 316 SST, material per ASTM-A743)

### Non-Wetted Parts

#### *Electronics Housing*

Low-copper aluminum or CF-3M (Cast version of 316L 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*

ASTM A449, Type 1 (zinc-cobalt plated carbon steel)

ASTM F593G, Condition CW1 (Austenitic 316 SST)

ASTM A193, Grade B7M (zinc plated alloy steel)

Monel K-500

#### *Sensor Module Fill Fluid*

Silicone oil (D.C. 200) or Fluorocarbon oil (Halocarbon or Fluorinert® FC-43 for 3051T)

#### *Process Fill Fluid (3051L only)*

Syltherm XLT, D.C. Silicone 704,

D.C. Silicone 200, inert, glycerin and water, Neobee M-20 or propylene glycol and water

#### *Paint*

Polyurethane

#### *Cover O-rings*

Buna-N

### Shipping Weights

Refer to "Shipping Weights" on page 39.

## Product Certifications

### Approved Manufacturing Locations

Rosemount Inc. — Chanhassen, Minnesota USA  
 Emerson Process Management GmbH & Co. — Wessling, Germany  
 Emerson Process Management Asia Pacific Private Limited — Singapore  
 Beijing Rosemount Far East Instrument Co., LTD — Beijing, China

### European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at [www.rosemount.com](http://www.rosemount.com). A hard copy may be obtained by contacting an Emerson Process Management representative.

#### ATEX Directive (94/9/EC)

All 3051 transmitters comply with the ATEX Directive.

#### European Pressure Equipment Directive (PED) (97/23/EC)

3051CA4; 3051CG2, 3, 4, 5; 3051CD2, 3, 4, 5  
 (also with P9 option); Pressure Transmitters  
 — QS Certificate of Assessment - EC No. PED-H-100  
 Module H Conformity Assessment

#### All other 3051/3001 Pressure Transmitters

— Sound Engineering Practice

#### Transmitter Attachments: Diaphragm Seal - Process Flange - Manifold

— Sound Engineering Practice

#### Electro Magnetic Compatibility (EMC) (2004/108/EC)

All 3051 Pressure Transmitters meet all of the requirements of EN61326: 1997 - A1, A2, and A3 and NAMUR NE-21

#### Ordinary Location Certification for Factory Mutual

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

### HART PROTOCOL

### Hazardous Locations Certifications

#### North American Certifications

##### FM Approvals

- E5** Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition-Proof for Class II, Division 1, Groups E, F, and G. Dust-Ignition-Proof for Class III, Division 1. Factory Sealed, Enclosure Type 4X
- 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 per Rosemount drawing 03031-1019; Non-incendive for Class I, Division 2, Groups A, B, C, and D. Temperature Code: T4 (Ta = 40 °C), T3 (Ta = 85 °C), Enclosure Type 4X  
 For input parameters see control drawing 03031-1019.

##### Canadian Standards Association (CSA)

- E6** 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 Class I, Division 2 Groups A, B, C, and D for indoor and outdoor hazardous locations. Enclosure type 4X, factory sealed
- C6** Explosion-Proof and intrinsically safe approval. 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. 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 Class I, Division 2 Groups A, B, C, and D hazardous locations. Enclosure type 4X, factory sealed  
 For input parameters see control drawing 03031-1024.

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### European Certifications


- I1** ATEX Intrinsic Safety and Dust  
Certification No.: BAS 97ATEX1089X  II 1 GD  
Ex ia IIC T4 ( $-60 \leq T_a \leq +70^\circ\text{C}$ )  
Dust Rating: Ex tD A20 T80  $^\circ\text{C}$  ( $-20 \leq T_a \leq 40^\circ\text{C}$ ) IP66  
**CE** 1180

TABLE 5. Input Parameters


$U_i = 30\text{V}$
$I_i = 200\text{ mA}$
$P_i = 0.9\text{W}$
$C_i = 0.012\text{ }\mu\text{F}$

TABLE 6. RTD Assembly (3051CFx Option T or R)

$U_i = 5\text{ Vdc}$
$I_i = 500\text{ mA}$
$P_i = 0.63\text{W}$


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

When the optional transient protection terminal block is installed, the apparatus is not capable of withstanding the 500V insulation test required by Clause 6.4.12 of EN50020:1994. This must be taken into account when installing the apparatus.

- N1** ATEX Type n and Dust  
Certification No.: BAS 00ATEX3105X  II 3 GD  
 $U_i = 55\text{ Vdc max}$   
Ex nA nL T5 ( $-40^\circ\text{C} \leq T_{amb} \leq 70^\circ\text{C}$ )  
Dust rating: Ex tD A22 T80  $^\circ\text{C}$  ( $-20 \leq T_a \leq 40^\circ\text{C}$ ) IP66  
**CE**

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

When the optional transient protection terminal block is installed, the apparatus is not capable of withstanding a 500V r.m.s. test to case. This must be taken into account on any installation in which it is used, for example by assuring that the supply to the apparatus is galvanically isolated.

- E8** ATEX Flame-Proof and Dust  
Certification No.: KEMA 00ATEX2013X  II 1/2 GD  
Ex d IIC T6 ( $-50 \leq T_a \leq 65^\circ\text{C}$ )  
Dust rating: Ex tD A20/A21 T90  $^\circ\text{C}$ , IP66  
**CE** 1180  
 $V_{max} = 55\text{ V dc}$

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

This 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.

### Japanese Certifications

- E4** TIIS Flame-Proof  
Ex d IIC T6

Certificate	Description
C15850	3051C/D/1 4–20 mA HART — no display
C15851	3051C/D/1 4–20 mA HART — with display
C15854	3051T/G/1 4–20 mA HART, SST, Silicon — no display
C15855	3051T/G/1 4–20 mA HART, Alloy C-276, Silicon — no display
C15856	3051T/G/1 4–20 mA HART, SST, Silicon — with display
C15857	3051T/G/1 4–20 mA HART, Alloy C-276, Silicon — with display

- I4** TIIS Intrinsic Safety  
Ex ia IIC T4

Certificate	Description
C16406	3051CD/CG

### Australian Certifications

- I7** SAA Intrinsic Safety  
Certification No.: AUS Ex 1249X  
Ex ia IIC T4 ( $T_{amb} = 70^\circ\text{C}$ )  
IP66  
When connected per Rosemount drawing 03031-1026

TABLE 7. Input Parameters

$U_i = 30\text{V}$
$I_i = 200\text{ mA}$
$I_i = 160\text{ mA}$ (output code A with T1)
$P_i = 0.9\text{W}$
$C_i = 0.01\text{ }\mu\text{F}$
$C_i = 0.042\text{ }\mu\text{F}$ (output code M)
$L_i = 10\text{ }\mu\text{H}$
$L_i = 1.05\text{ mH}$ (output code A with T1)
$L_i = 0.75\text{ mH}$ (output code M with T1)

TABLE 8. RTD Assembly (3051CFx Option T or R)

$U_i = 5\text{ Vdc}$
$I_i = 500\text{ mA}$
$P_i = 0.63\text{W}$

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

The apparatus may only be used with a passive current limited power source Intrinsic Safety application. The power source must be such that  $P_o \leq (U_o * I_o) / 4$ . Modules using transient protection in the terminal assembly (T1 transient protection models) the apparatus enclosure is to be electrically bonded to the protective earth. The conductor used for the connection shall be equivalent to a copper conductor of  $4\text{ mm}^2$  minimum cross-sectional area.

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**E7** SAA Explosion-Proof (Flame-Proof)  
 Certification No.: AUS Ex 03.1347X  
 Ex d IIC T6 ( $T_{amb} = 40\text{ }^{\circ}\text{C}$ )  
 DIP A21 T6 ( $T_{amb} = 40\text{ }^{\circ}\text{C}$ )  
 IP66

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

It is a condition of safe use for transmitter enclosures having cable entry thread other than metric conduit thread that the equipment be utilized with an appropriate certified thread adaptor.

**N7** SAA Type n (Non-sparking)  
 Certification No.: AUS Ex 1249X  
 Ex n IIC T4 ( $T_{amb} = 70\text{ }^{\circ}\text{C}$ )  
 IP66

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

Where the equipment is installed such that there is an unused conduit entry, it must be sealed with a suitable blanking plug to maintain the IP66 degree of protection. Any blanking plug used with the equipment shall be of a type which requires the use of a tool to effect its removal. Voltage source shall not exceed 55V dc.

## Combinations of Certifications

Stainless steel certification tag is provided when optional approval is specified. Once a device labeled with multiple approval types is installed, it should not be reinstalled using any other approval types. Permanently mark the approval label to distinguish it from unused approval types.

- K5** E5 and I5 combination
- KB** K5 and C6 combination
- KD** K5, C6, I1, and E8 combination
- K6** C6, I1, and E8 combination
- K8** E8 and I1 combination
- K7** E7, I7, and N7 combination

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# Rosemount 3051

## FIELDBUS PROTOCOL

### Hazardous Locations Certifications

#### North American Certifications

##### FM Approvals

**E5** Explosion-Proof for Class I, Division 1, Groups B, C, and D.  
Dust-Ignition-Proof for Class II, Division 1, Groups E, F, and G.  
Dust-Ignition-Proof for Class III, Division 1.

**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 per Rosemount drawing 03031-1019; Non-incendive for Class I, Division 2, Groups A, B, C, and D.

Temperature Code: T4 (Ta = 60 °C), T3 (Ta = 85 °C),

Enclosure Type 4X

For input parameters see control drawing 03031-1019.

##### Canadian Standards Association (CSA)

**E6** 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 Class I, Division 2 Groups A, B, C, and D for indoor and outdoor hazardous locations.  
Enclosure type 4X, factory sealed

**C6** Explosion-Proof and intrinsically safe approval. 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.

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 Class I, Division 2 Groups A, B, C, and D hazardous locations. Enclosure type 4X, factory sealed

For input parameters see control drawing 03031-1024.

#### European Certifications


**I1** ATEX Intrinsic Safety and Dust  
Certification No.: BAS 98ATEX1355X  II 1 GD  
Ex ia IIC T4 (T<sub>amb</sub> = -60 to +60 °C)  
Dust Rating: Ex tD A20 T70 °C (T<sub>amb</sub> -20 to 40 °C) IP66  
**CE** 1180

TABLE 9. Input Parameters


U <sub>i</sub> = 30V
I <sub>i</sub> = 300 mA
P <sub>i</sub> = 1.3 W
C <sub>i</sub> = 0 µF

TABLE 10. RTD Assembly (3051CFx Option T or R)

U <sub>i</sub> = 5 Vdc
I <sub>i</sub> = 500 mA
P <sub>i</sub> = 0.63W

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

The device is not capable of withstanding the 500V insulation test required by Clause 6.4.12 of EN50020:1994. This must be taken into account when installing the apparatus.

**IA** ATEX FISCO Intrinsic Safety  
Certification No.: BAS 98ATEX1355X  II 1 G  
Ex ia IIC T4 (T<sub>amb</sub> = -60 to +60 °C)  
IP66


**CE** 1180

TABLE 11. Input Parameters

U <sub>i</sub> = 17.5 V
I <sub>i</sub> = 380 mA
P <sub>i</sub> = 5.32 W
C <sub>i</sub> = ≤ 5 µF
L <sub>i</sub> = ≤ 10 µH


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

The device is not capable of withstanding the 500V insulation test required by Clause 6.4.12 of EN50020:1994. This must be taken into account when installing the apparatus.

**N1** ATEX Type n and Dust  
Certification No.: BAS 98ATEX3356X  II 3 GD  
U<sub>i</sub> = 40 Vdc max  
Ex nA nL IIC T5 (T<sub>a</sub> = -40°C to 70 °C)  
Dust rating: Ex tD A22 T80 °C (T<sub>amb</sub> = -20 to 40 °C) IP66

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

The device is not capable of withstanding the 500V insulation test required by Clause 6.4.12 of EN50020:1994. This must be taken into account when installing the apparatus.

**E8** ATEX Flame-Proof and Dust  
Certification No.: KEMA 00ATEX2013X  II 1/2 GD  
Ex d IIC T6 (T<sub>amb</sub> = -50 to 65 °C)  
Dust rating: Ex tD A20/21 T90 °C, IP66  
**CE** 1180  
V<sub>max</sub> = 55 V dc

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

This 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.

### Japanese Certifications

- E4** TIIS Flame-Proof  
Ex d IIC T6

Certificate	Description
C15852	3051C/D/1 FOUNDATION Fieldbus — no display
C15853	3051C/D/1 FOUNDATION Fieldbus — with display
C15858	3051T/G/1 FOUNDATION Fieldbus, SST, Silicon — no display
C15859	3051T/G/1 FOUNDATION Fieldbus, Alloy C-276, Silicon — no display
C15860	3051T/G/1 FOUNDATION Fieldbus, SST, Silicon — with display
C15861	3051T/G/1 FOUNDATION Fieldbus, Alloy C-276, Silicon — with display

### Australian Certifications

- I7** SAA Intrinsic Safety  
Certification No.: AUS Ex 1249X  
Ex ia IIC T4 ( $T_{amb} = 60^{\circ}\text{C}$ )  
IP66

When connected per Rosemount drawing 03031-1026.

TABLE 12. Input Parameters

$U_i = 30\text{ V}$
$I_i = 300\text{ mA}$
$P_i = 1.3\text{ W}$
$C_i = 0\text{ }\mu\text{F}$
$L_i = 0\text{ }\mu\text{H}$

TABLE 13. RTD Assembly (3051CFx Option T or R)

$U_i = 5\text{ Vdc}$
$I_i = 500\text{ mA}$
$P_i = 0.63\text{ W}$

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

The apparatus may only be used with a passive current limited power source Intrinsic Safety application. The power source must be such that  $P_o \leq (U_o * I_o) / 4$ . Modules using transient protection in the terminal assembly (T1 transient protection models) the apparatus enclosure is to be electrically bonded to the protective earth. The conductor used for the connection shall be equivalent to a copper conductor of 4 mm<sup>2</sup> minimum cross-sectional area.

- E7** SAA Explosion-Proof (Flame-Proof)  
Certification No.: AUS Ex 1347X  
Ex d IIC T6 ( $T_{amb} = 40^{\circ}\text{C}$ )  
DIP A21 T6 ( $T_{amb} = 40^{\circ}\text{C}$ )  
IP66

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

It is a condition of safe use for transmitter enclosures having cable entry thread other than metric conduit thread that the equipment be utilized with an appropriate certified thread adaptor.

- N7** SAA Type n (Non-sparking)  
Certification No.: AUS Ex 1249X  
Ex n IIC T4 ( $T_{amb} = 70^{\circ}\text{C}$ )  
IP66

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

Where the equipment is installed such that there is an unused conduit entry, it must be sealed with a suitable blanking plug to maintain the IP40 degree of protection. Any blanking plug used with the equipment shall be of a type which requires the use of a tool to effect its removal. Voltage source shall not exceed 35V dc.

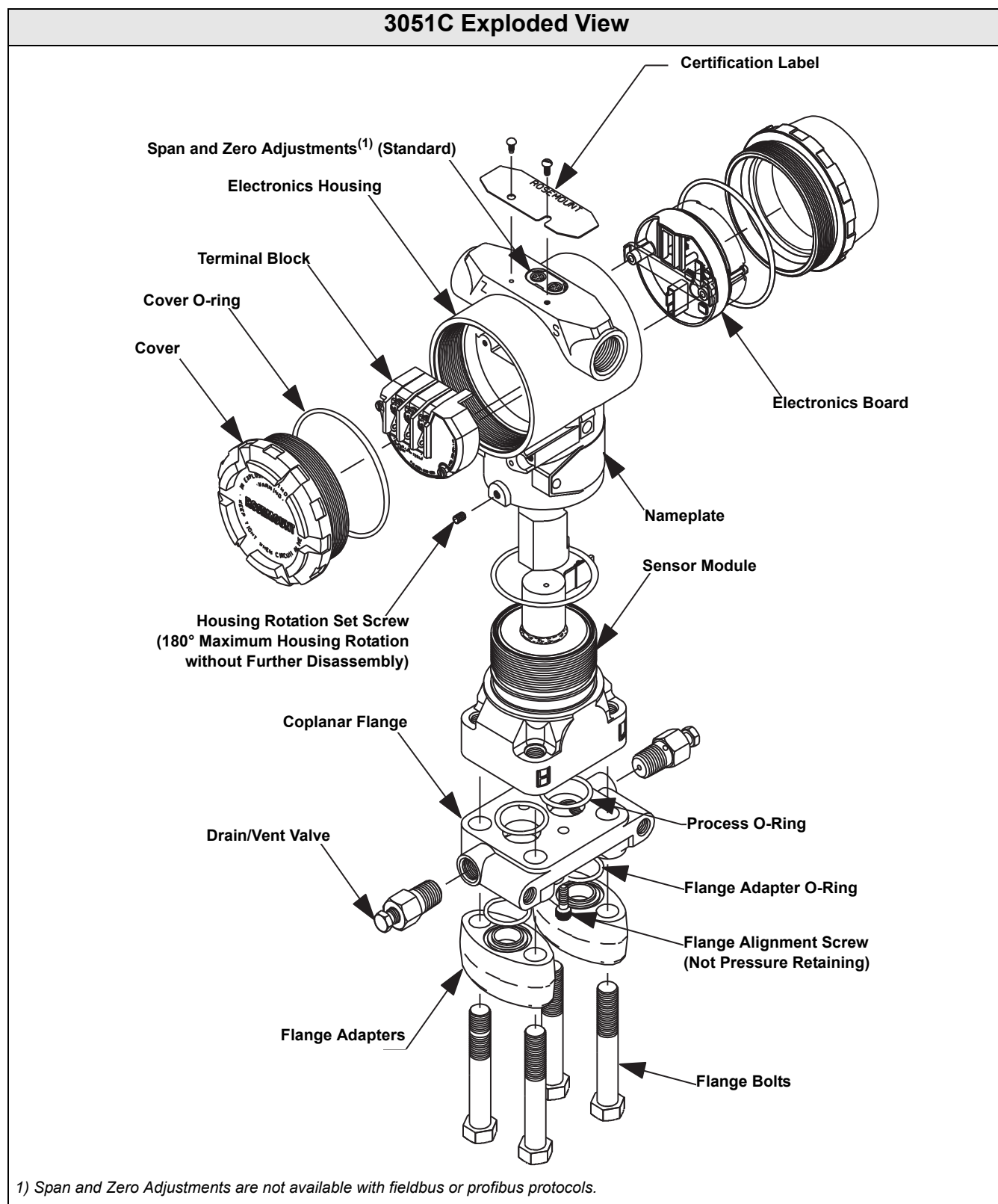
### Combinations of Certifications

Stainless steel certification tag is provided when optional approval is specified. Once a device labeled with multiple approval types is installed, it should not be reinstalled using any other approval types. Permanently mark the approval label to distinguish it from unused approval types.

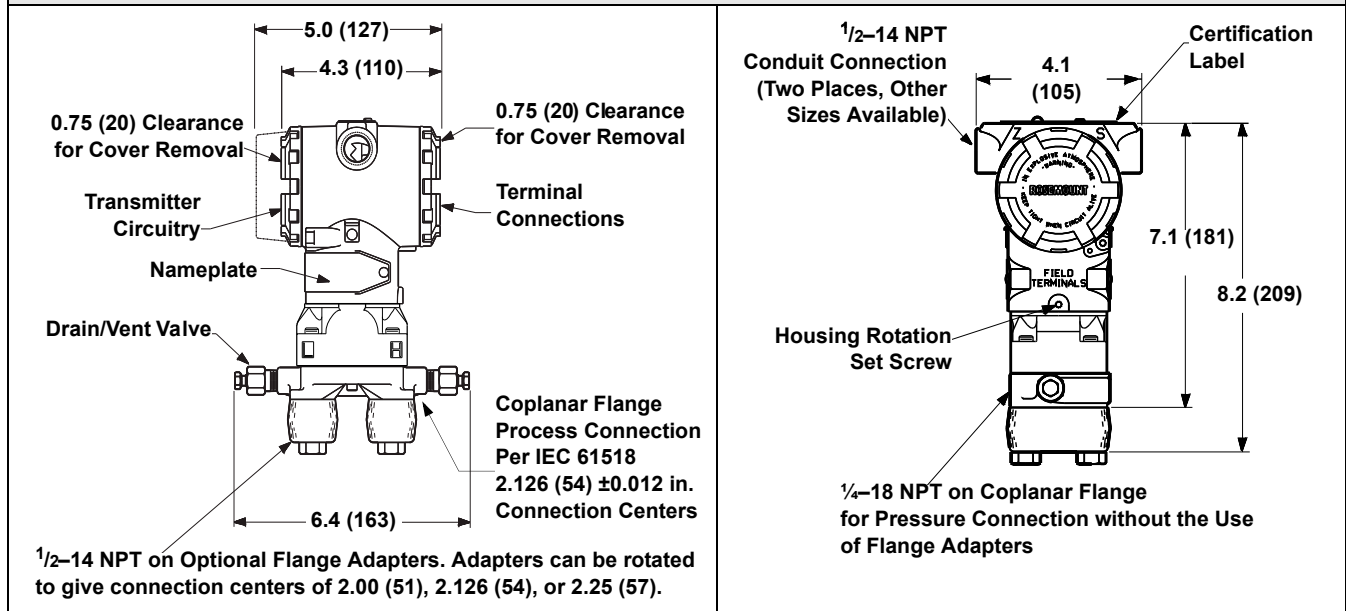
- K5** E5 and I5 combination  
**KB** K5 and C6 combination  
**KD** K5, C6, I1, and E8 combination  
**K6** C6, I1, and E8 combination  
**K8** E8 and I1 combination  
**K7** E7, I7, and N7 combination



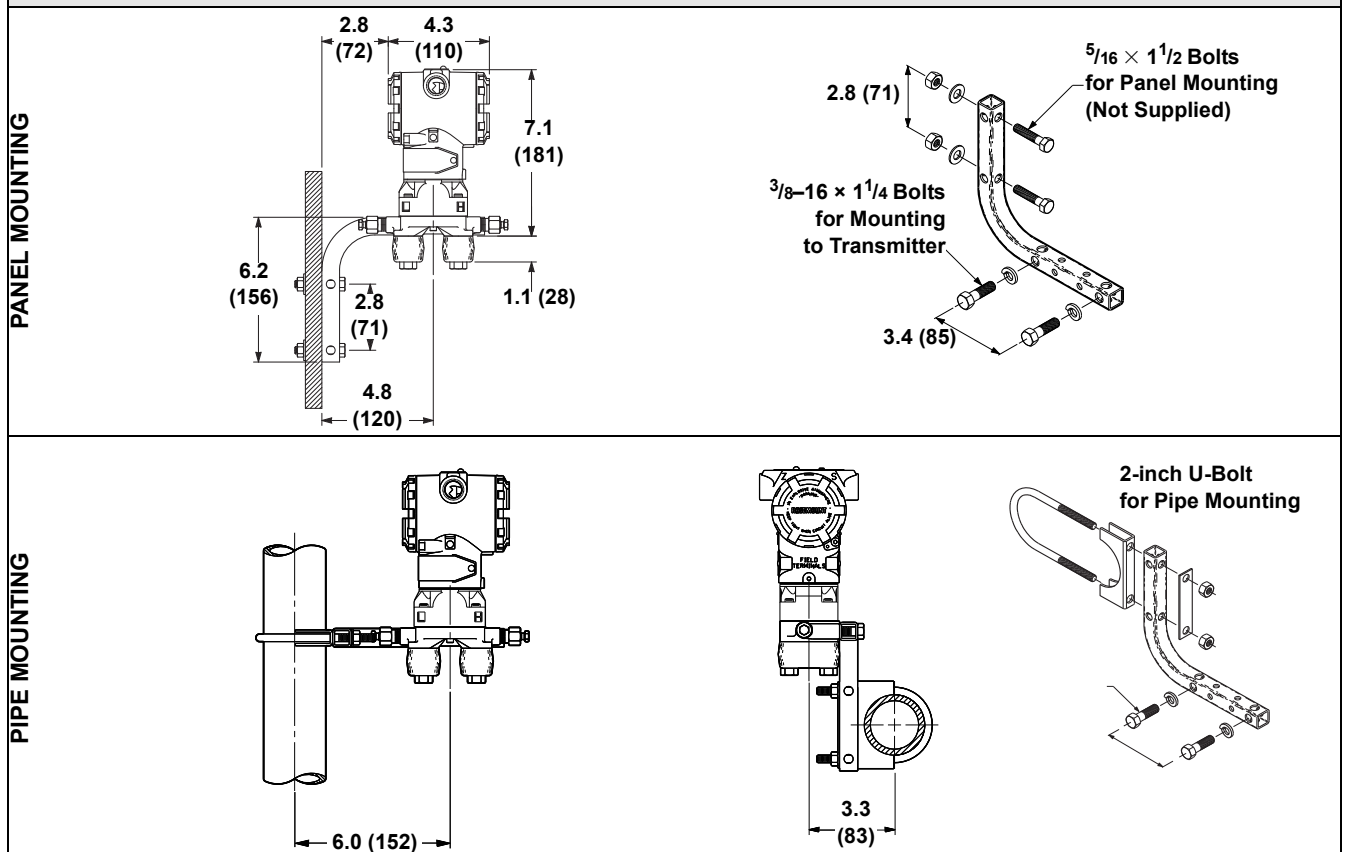
## Dimensional Drawings



### 3051C Coplanar Flange Dimensional Drawing (Differential Pressure Transmitter Shown)



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



Dimensions are in inches (millimeters)

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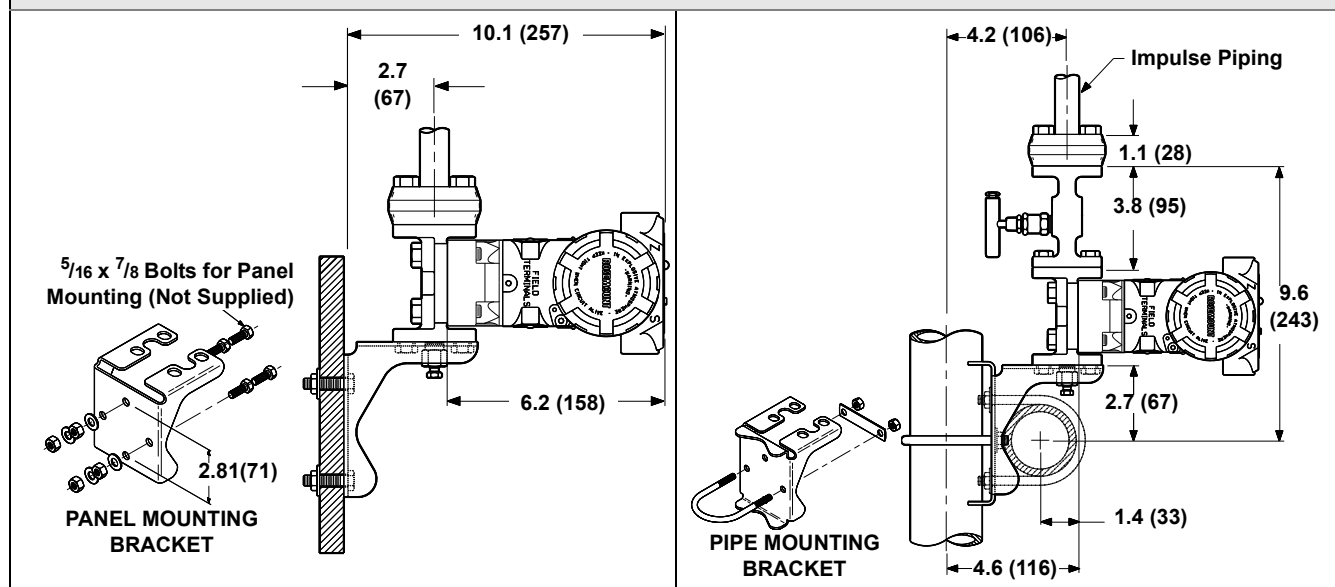
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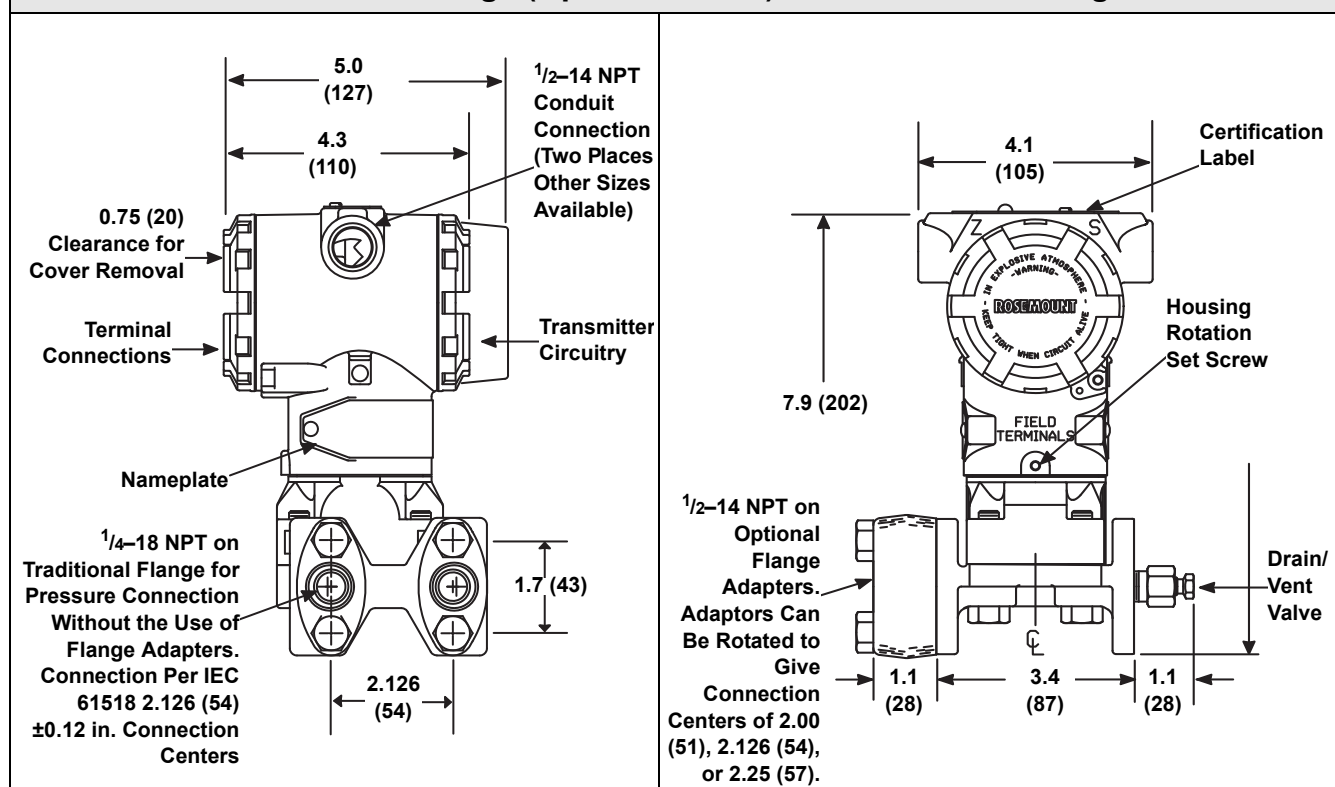
## Traditional Flange Mounting Configurations with Optional Brackets for 2-in. Pipe or Panel Mounting

Traditional Flange Panel Mounting Bracket (option B2/B8)

Traditional Flange 2-in. Pipe Mounting Bracket (option B1/B7/BA)

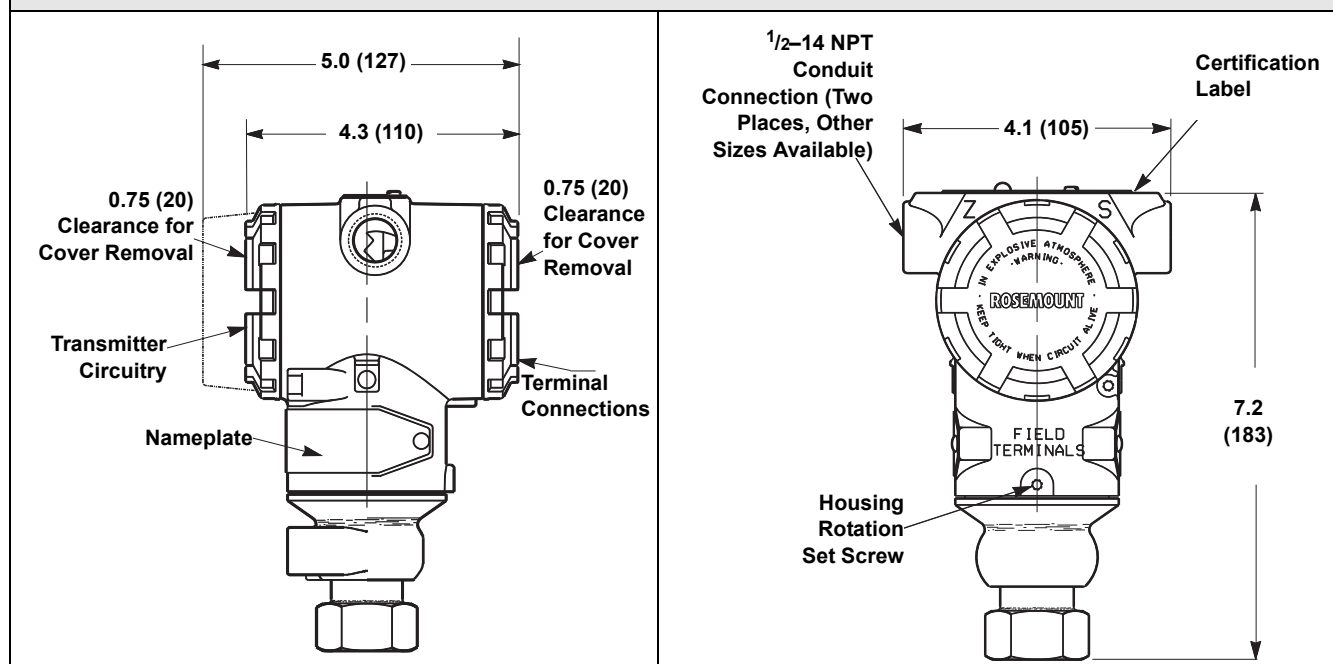


## Traditional Flange (Options H2–H7) Dimensional Drawing

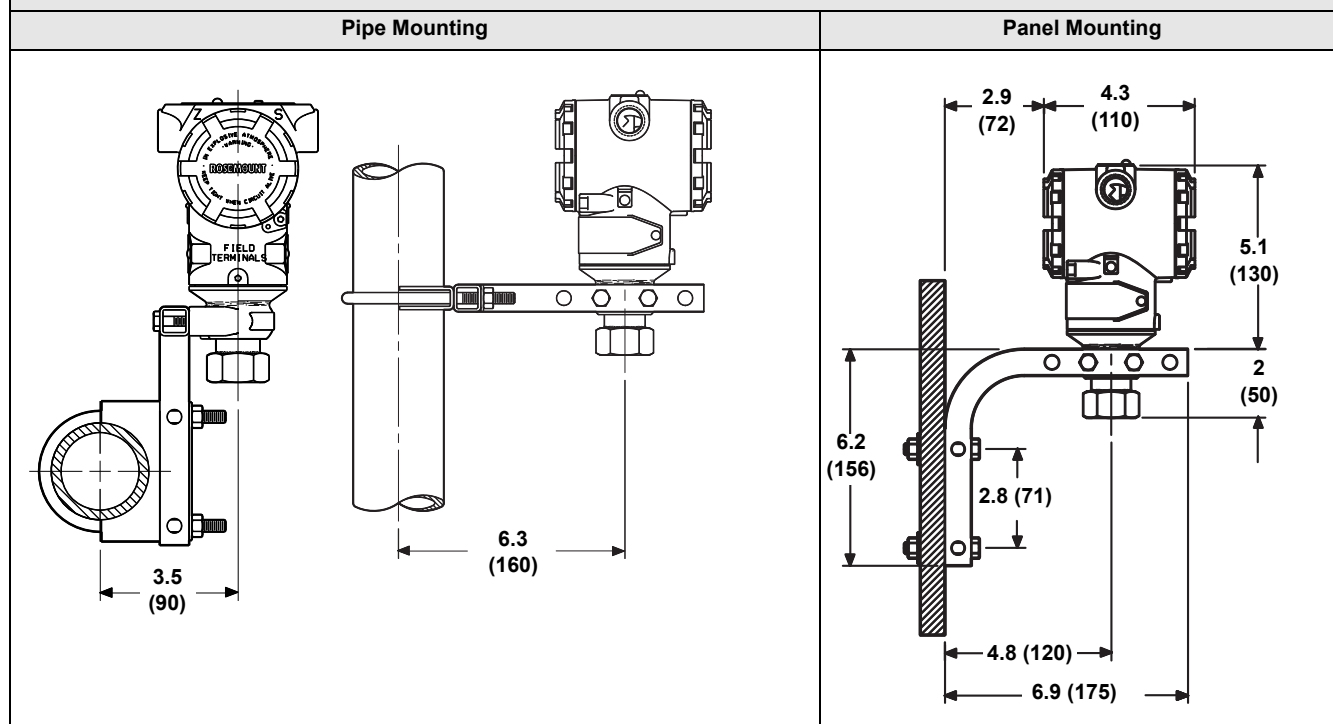


Dimensions are in inches (millimeters)

### 3051T Dimensional Drawings



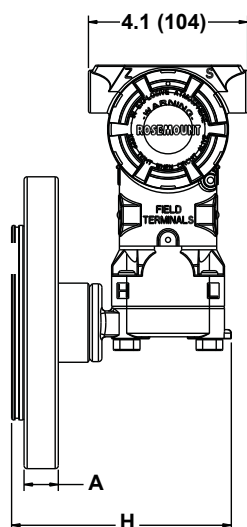
### 3051T Typical Mounting Configurations with Optional Mounting Bracket



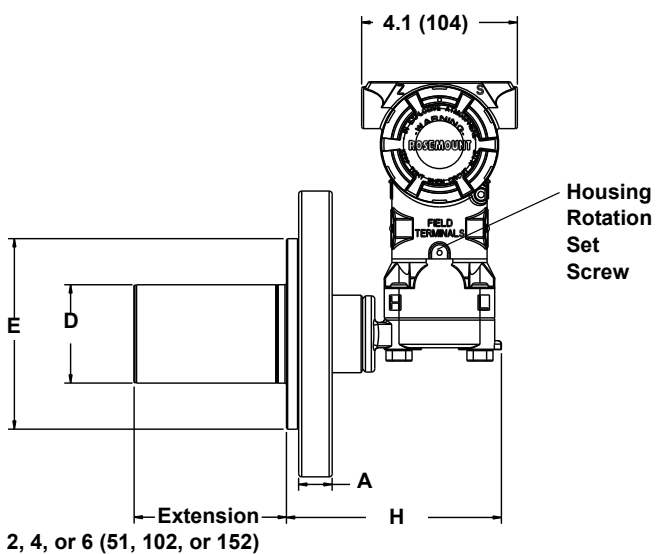
Dimensions are in inches (millimeters)

### 3051L Dimensional Drawings

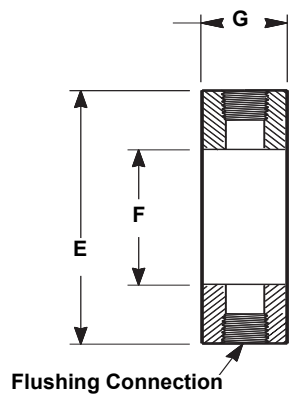
**2-in. Flange Configuring (Flush Mount Only)**



**3- and 4-in. Flange Configuration**

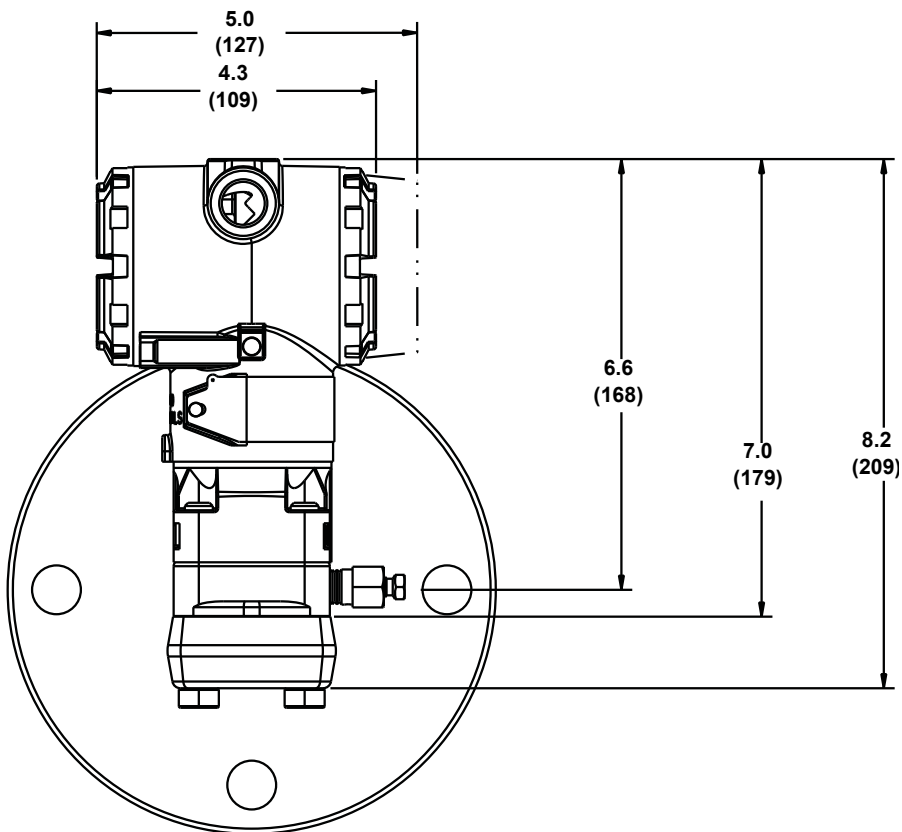
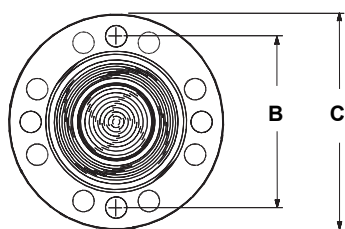


**Optional Flushing Connection Ring (Lower Housing)**



Flushing Connection

**Diaphragm Assembly and Mounting Flange**



*Dimensions are in inches (millimeters)*

TABLE 14. 3051L Dimensional Specifications

Except where indicated, dimensions are in inches (millimeters).

Class	Pipe Size	Flange Thickness A	Bolt Circle Diameter B	Outside Diameter C	No. of Bolts	Bolt Hole Diameter	Extension Diameter <sup>(1)</sup> D	O.D. Gasket Surface E
ASME B16.5 (ANSI) 150	2 (51)	0.69 (18)	4.75 (121)	6.0 (152)	4	0.75 (19)	NA	3.6 (92)
	3 (76)	0.88 (22)	6.0 (152)	7.5 (191)	4	0.75 (19)	2.58 (66)	5.0 (127)
	4 (102)	0.88 (22)	7.5 (191)	9.0 (229)	8	0.75 (19)	3.5 (89)	6.2 (158)
ASME B16.5 (ANSI) 300	2 (51)	0.82 (21)	5.0 (127)	6.5 (165)	8	0.75 (19)	NA	3.6 (92)
	3 (76)	1.06 (27)	6.62 (168)	8.25 (210)	8	0.88 (22)	2.58 (66)	5.0 (127)
	4 (102)	1.19 (30)	7.88 (200)	10.0 (254)	8	0.88 (22)	3.5 (89)	6.2 (158)
ASME B16.5 (ANSI) 600	2 (51)	1.00 (25)	5.0 (127)	6.5 (165)	8	0.75 (19)	NA	3.6 (92)
	3 (76)	1.25 (32)	6.62 (168)	8.25 (210)	8	0.88 (22)	2.58 (66)	5.0 (127)
DIN 2501 PN 10–40	DN 50	20 mm	125 mm	165 mm	4	18 mm	NA	4.0 (102)
DIN 2501 PN 25/40	DN 80	24 mm	160 mm	200 mm	8	18 mm	65 mm	5.4 (138)
	DN 100	24 mm	190 mm	235 mm	8	22 mm	89 mm	6.2 (158)
DIN 2501 PN 10/16	DN 100	20 mm	180 mm	220 mm	8	18 mm	89 mm	6.2 (158)

Class	Pipe Size	Process Side F	Lower Housing G		H
			1/4 NPT	1/2 NPT	
ASME B16.5 (ANSI) 150	2 (51)	2.12 (54)	0.97 (25)	1.31 (33)	5.65 (143)
	3 (76)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
	4 (102)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
ASME B16.5 (ANSI) 300	2 (51)	2.12 (54)	0.97 (25)	1.31 (33)	5.65 (143)
	3 (76)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
	4 (102)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
ASME B16.5 (ANSI) 600	2 (51)	2.12 (54)	0.97 (25)	1.31 (33)	7.65 (194)
	3 (76)	3.6 (91)	0.97 (25)	1.31 (33)	7.65 (194)
DIN 2501 PN 10–40	DN 50	2.4 (61)	0.97 (25)	1.31 (33)	5.65 (143)
DIN 2501 PN 25/40	DN 80	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
	DN 100	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
DIN 2501 PN 10/16	DN 100	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)

(1) Tolerances are 0.040 (1.02), –0.020 (0.51).

## Ordering Information

TABLE 15. 3051C Coplanar Pressure Transmitters 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	Transmitter Type			
3051C	Coplanar Pressure Transmitter			
Measurement Type				
Standard				Standard
D	Differential			★
G	Gage			★
Expanded				
A	Absolute			
Pressure Ranges (Range/Min. Span)				
	3051CD	3051CG <sup>(1)</sup>	3051CA	
Standard				Standard
1	–25 to 25 inH <sub>2</sub> O/0.5 inH <sub>2</sub> O (–62,2 to 62,2 mbar/1,2 mbar)	–25 to 25 inH <sub>2</sub> O/0.5 inH <sub>2</sub> O (–62,1 to 62,2 mbar/1,2 mbar)	0 to 30 psia/0.3 psia (0 to 2,1 bar/20,7 mbar)	★
2	–250 to 250 inH <sub>2</sub> O/2.5 inH <sub>2</sub> O (–623 to 623 mbar/6,2 mbar)	–250 to 250 inH <sub>2</sub> O/2.5 inH <sub>2</sub> O (–621 to 623 mbar/6,2 mbar)	0 to 150 psia/1.5 psia (0 to 10,3 bar/0,1 bar)	★
3	–1000 to 1000 inH <sub>2</sub> O/10 inH <sub>2</sub> O (–2,5 to 2,5 bar/25 mbar)	–393 to 1000 inH <sub>2</sub> O/10in H <sub>2</sub> O (–0,98 to 2,5 bar/25 mbar)	0 to 800 psia/8 psia (0 to 55,2 bar/0,55 bar)	★
4	–300 to 300 psi/3 psi (–20,7 to 20,7 bar/0,2 bar)	–14.2 to 300 psi/3 psi (–0,98 to 20,7 bar/0,2 bar)	0 to 4000 psia/40 psia (0 to 275,8 bar/2,8 bar)	★
5	–2000 to 2000 psi/20 psi (–137,9 to 137,9 bar/1,4 bar)	–14.2 to 2000 psig/20 psi (–0,98 to 137,9 bar/1,4 bar)	Not Applicable	★
Expanded				
0 <sup>(2)</sup>	–3 to 3 inH <sub>2</sub> O/0.1 inH <sub>2</sub> O (–7,5 to 7,5 mbar/0,25 mbar)	Not Applicable	Not Applicable	
Output				
Standard				Standard
A	4–20 mA with Digital Signal Based on HART Protocol			★
F	FOUNDATION fieldbus Protocol			★
W	Profibus - PA Protocol			★
Expanded				
M <sup>(3)</sup>	Low-Power, 1–5 V dc with Digital Signal Based on HART Protocol (See Option C2 for 0.8–3.2 V dc)			
Materials of Construction				
	Process Flange Type	Flange Material	Drain/Vent	
Standard				Standard
2	Coplanar	SST	SST	★
3 <sup>(4)</sup>	Coplanar	Cast C-276	Alloy C-276	★
4	Coplanar	Cast Alloy 400	Alloy 400/K-500	★
5	Coplanar	Plated CS	SST	★
7 <sup>(4)</sup>	Coplanar	SST	Alloy C-276	★
8 <sup>(4)</sup>	Coplanar	Plated CS	Alloy C-276	★
0	Alternate Flange—See Options on page 24			★
Isolating Diaphragm				
Standard				Standard
2 <sup>(4)</sup>	316L SST			★
3 <sup>(4)</sup>	Alloy C-276			★

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TABLE 15. 3051C Coplanar Pressure Transmitters 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.

Expanded			
4	Alloy 400		
5	Tantalum (Available on 3051CD and CG, Ranges 2–5 only. Not available on 3051CA)		
6	Gold-plated Alloy 400 (Use in combination with O-ring Option Code B.)		
7	Gold-plated SST		
O-ring			
Standard			Standard
A	Glass-filled PTFE		★
B	Graphite-filled PTFE		★
Sensor Fill Fluid			
Standard			Standard
1	Silicone		★
2	Inert fill (Differential and Gage only)		★
Housing Material		Conduit Entry Size	
Standard			Standard
A	Polyurethane-covered Aluminum	½–14 NPT	★
B	Polyurethane-covered Aluminum	M20 × 1.5 (CM20)	★
J	SST	½–14 NPT	★
K	SST	M20 × 1.5 (CM20)	★
Expanded			
D	Polyurethane-covered Aluminum	G½	
M	SST	G½	

## Options (Include with selected model number)

Plantweb Control Functionality		
Standard		Standard
A01	FOUNDATION fieldbus Advanced Control Function Block Suite	★
Plantweb Diagnostic Functionality		
Standard		Standard
D01	FOUNDATION fieldbus Diagnostics Suite	★
Alternate Flange		
Standard		Standard
H2	Traditional Flange, 316 SST, SST Drain/Vent	★
H3 <sup>(4)</sup>	Traditional Flange, Alloy C, Alloy C-276 Drain/Vent	★
H4	Traditional Flange, Monel, Monel Drain/Vent	★
H7 <sup>(4)</sup>	Traditional Flange, 316 SST, Alloy C-276 Drain/Vent	★
HJ	DIN Compliant Traditional Flange, SST, <sup>1</sup> / <sub>16</sub> in. Adapter/Manifold Bolting	★
FA	Level Flange, SST, 2 in., ANSI Class 150, Vertical Mount	★
FB	Level Flange, SST, 2 in., ANSI Class 300, Vertical Mount	★
FC	Level Flange, SST, 3 in., ANSI Class 150, Vertical Mount	★
FD	Level Flange, SST, 3 in., 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	★
Expanded		
HK	DIN Compliant Traditional Flange, SST, 10 mm Adapter/Manifold Bolting	
HL	DIN Compliant Traditional Flange, SST, 12mm Adapter/Manifold Bolting (Not available on 3051CD0)	



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TABLE 15. 3051C Coplanar Pressure Transmitters 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.

Integral Assembly		
Standard		Standard
S3 <sup>(5)</sup>	Assemble to Rosemount 405 Compact Orifice Plate	★
S5 <sup>(5)</sup>	Assemble to Rosemount 305 Integral Manifold (specified separately, see the Rosemount 305 and 306 Integral Manifolds PDS (document number 00813-0100-4733))	★
S6 <sup>(5)</sup>	Assemble to Rosemount 304 Manifold or Connection System	★
Integral Mount Primary Element		
Standard		Standard
S4 <sup>(5)</sup>	Assemble to Rosemount Annubar or Rosemount 1195 Integral Orifice <i>(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)</i>	★
Seal Assemblies		
Standard		Standard
S1 <sup>(5)</sup>	Assemble to one Rosemount 1199 seal	★
S2 <sup>(5)</sup>	Assemble to two Rosemount 1199 seals	★
All-Welded Seal Assemblies (for high vacuum applications)		
Standard		Standard
S0 <sup>(5)</sup>	One Seal, All-Welded System (Direct Mount Connection Type)	★
S7 <sup>(5)</sup>	One Seal, All-Welded System (Capillary Connection Type)	★
S8 <sup>(5)</sup>	Two Seals, All-Welded System (Capillary Connection Type)	★
S9 <sup>(5)</sup>	Two Seals, All-Welded System (One Direct Mount and One Capillary Connection Type)	★
Mounting Bracket		
Standard		Standard
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	★
B4	Coplanar Flange Bracket for 2-in. Pipe or Panel Mounting, all SST	★
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	★
Product Certifications		
Standard		Standard
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E2	INMETRO Flameproof	★
E4 <sup>(10)</sup>	TIIS Flame-proof	★
E5	FM Explosion-proof, Dust Ignition-Proof	★
E7	SAA Flameproof, Dust Ignition-proof	★
E8	ATEX Flameproof and Dust Certification	★
I1 <sup>(6)</sup>	ATEX Intrinsic Safety and Dust	★
I2	INMETRO Intrinsic Safety	★
I5	FM Intrinsically Safe, Division 2	★
I7	SAA Intrinsic Safety	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION fieldbus protocol only	★

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TABLE 15. 3051C Coplanar Pressure Transmitters 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.

IE	FM FISCO Intrinsically Safe; for FOUNDATION fieldbus protocol only	★
K2	INMETRO Flameproof, Intrinsic Safety	★
K5	FM Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
K6 <sup>(10)</sup>	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6 and K8)	★
K7	SAA Flame-proof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
K8 <sup>(10)</sup>	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E8, I1 and N1)	★
KB	FM and CSA Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD <sup>(10)</sup>	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
N1 <sup>(10)</sup>	ATEX Type n Certification and Dust	★
N7	SAA Type N Certification	★
<b>Custody Transfer</b>		
<b>Standard</b>		<b>Standard</b>
C5 <sup>(7)</sup>	Measurement Canada Accuracy Approval ( <i>Limited availability depending on transmitter type and range. Contact an Emerson Process Management representative</i> )	★
<b>Bolting Material</b>		
<b>Standard</b>		<b>Standard</b>
L4	Austenitic 316 SST Bolts	★
L5	ASTM A 193, Grade B7M Bolts	★
L6	Alloy K-500 Bolts	★
<b>Display Type</b>		
<b>Standard</b>		<b>Standard</b>
M5	LCD display for Aluminum Housing (Housing Codes A, B, C, and D only)	★
M6	LCD display for SST Housing (Housing Codes J, K, L, and M only)	★
<b>Calibration Certificate</b>		
<b>Standard</b>		<b>Standard</b>
Q4	Calibration Certificate	★
QG	Calibration Certificate and GOST Verification Certificate	★
QP	Calibration certification and tamper evident seal	★
<b>Material Traceability Certification</b>		
<b>Standard</b>		<b>Standard</b>
Q8	Material Traceability Certification per EN 10204 3.1.B ( <i>Only available for the sensor module housing and Coplanar or traditional flanges and adapters (3051C), and for the sensor module housing and low-volume Coplanar flange and adapter (3051C with Option Code S1)</i> )	★
<b>Quality Certification for Safety</b>		
<b>Standard</b>		<b>Standard</b>
QS	Certificate of FMEDA Data	★
<b>Zero/Span Adjustment</b>		
<b>Standard</b>		<b>Standard</b>
J1 <sup>(7)(8)</sup>	Local Zero Adjustment Only	★
J3 <sup>(7)(8)</sup>	No Local Zero or Span Adjustment	★
<b>Transient Protection Terminal Block</b>		
<b>Standard</b>		<b>Standard</b>
T1	Transient Protection Terminal Block	★
<b>Software Configuration</b>		
<b>Standard</b>		<b>Standard</b>
C1 <sup>(7)</sup>	Custom Software Configuration (Completed CDS 00806-0100-4001 required with order)	★

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TABLE 15. 3051C Coplanar Pressure Transmitters 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.

<b>Low Power Output</b>		
<b>Expanded</b>		
C2 <sup>(7)</sup>	0.8–3.2 V dc Output with Digital Signal Based on HART Protocol (Output Code M only)	
<b>Gage Pressure Calibration</b>		
<b>Standard</b>		<b>Standard</b>
C3	Gage Calibration (Model 3051CA4 only)	★
<b>Alarm Limit</b>		
<b>Standard</b>		<b>Standard</b>
C4 <sup>(7)(9)</sup>	Analog Output Levels Compliant with NAMUR Recommendation NE 43, Alarm High	★
CN <sup>(7)(9)</sup>	Analog Output Levels Compliant with NAMUR Recommendation NE 43, Alarm Low	★
<b>Pressure Testing</b>		
<b>Expanded</b>		
P1	Hydrostatic Testing with Certificate	
<b>Cleaning Process Area</b>		
<b>Expanded</b>		
P2	Cleaning for Special Service	
P3	Cleaning for <1 PPM Chlorine/Fluorine	
<b>Pressure Calibration</b>		
<b>Expanded</b>		
P4	Calibrate at Line Pressure ( <i>Specify Q48 on order for corresponding certificate</i> )	
<b>High Accuracy</b>		
<b>Standard</b>		<b>Standard</b>
P8	0.04% accuracy to 5:1 turndown (Range 2-4)	★
<b>Flange Adapters</b>		
<b>Standard</b>		<b>Standard</b>
DF	$\frac{1}{2}$ -14 NPT flange adapter(s)	★
<b>Vent/Drain Valves</b>		
<b>Expanded</b>		
D7	Coplanar Flange Without Drain/Vent Ports	
<b>Conduit Plug</b>		
<b>Standard</b>		<b>Standard</b>
DO	316 SST Conduit Plug	★
<b>RC<sup>1</sup>/<sub>4</sub> RC<sup>1</sup>/<sub>2</sub> Process Connection</b>		
<b>Expanded</b>		
D9	JIS Process Connection—RC $\frac{1}{4}$ Flange with RC $\frac{1}{2}$ Flange Adapter	
<b>Max Static Line Pressure</b>		
<b>Standard</b>		<b>Standard</b>
P9	4500 psig Static Pressure Limit (3051CD Ranges 2–5 only)	★
<b>Ground Screw</b>		
<b>Standard</b>		<b>Standard</b>
V5 <sup>(10)</sup>	External Ground Screw Assembly	★
<b>Drinking Water Approval</b>		
<b>Standard</b>		<b>Standard</b>
DW	NSF drinking water approval	★

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TABLE 15. 3051C Coplanar Pressure Transmitters 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.

Surface Finish		
Standard		Standard
Q16	Surface finish certification for sanitary remote seals	★
Toolkit Total System Performance Reports		
Standard		Standard
QZ	Remote Seal System Performance Calculation Report	★
Conduit Electrical Connector		
Standard		Standard
GE	M12, 4-pin, Male Connector (eurofast®)	★
GM	A size Mini, 4-pin, Male Connector (minifast®)	★
Typical Model Number: 3051CD 2 A 2 2 A 1 A B4		

(1) 3051CG lower range limit varies with atmospheric pressure.

(2) 3051CD0 is available only with Output Code A, Process Flange Code 0 (Alternate Flange H2, H7, HJ, or HK), Isolating Diaphragm Code 2, O-ring Code A, and Bolting Option L4.

(3) Not available with hazardous locations certification Options Codes I1, N1, E4, K6 and K8.

(4) Materials of Construction comply with recommendations per NACE MR0175/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 MR0103 for sour refining environments.

(5) "Assemble-to" items are specified separately and require a completed model number.

(6) Not available with Low Power code M.

(7) Not available with Fieldbus (output code F) or Profibus (output code W).

(8) Local zero and span adjustments are standard unless Option Code J1 or J3 is specified

(9) NAMUR-Compliant operation is pre-set at the factory and cannot be changed to standard operation in the field.

(10) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.

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TABLE 16. 3051T Gage and Absolute 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		Transmitter Type		
3051T		Pressure Transmitter		
Pressure Type				
Standard				Standard
G	Gage			★
A	Absolute			★
Pressure Upper Range Limit - Configurable Description				
	3051TG <sup>(1)</sup>		3051TA	
Standard				Standard
1	30 psi (2,1 bar)		30 psia (2,1 bar)	★
2	150 psi (10,3 bar)		150 psia (10,3 bar)	★
3	800 psi (55,2 bar)		800 psia (55,2 bar)	★
4	4000 psi (275,8 bar)		4000 psia (275,8 bar)	★
5	10000 psi (689,5 bar)		10000 psia (689,5 bar)	★
Transmitter Output				
Standard				Standard
A	4–20 mA with Digital Signal Based on HART Protocol			★
F	FOUNDATION fieldbus Protocol			★
W	Profibus — PA			★
Expanded				
M	Low-Power 1–5 V dc with Digital Signal Based on HART Protocol			
Process Connection Style				
Standard				Standard
2B	1/2–14 NPT Female			★
2C	G½ A DIN 16288 Male (Available in SST for Range 1–4 only)			★
Expanded				
2F	Coned and Threaded, Compatible with Autoclave Type F-250-C ( <i>Includes Gland and Collar, Available in SST for Range 5 only</i> )			
61	Non-threaded Instrument flange (Range 1-4 only)			
Isolating Diaphragm			Process Connection Wetted Parts Material	
Standard				
2 <sup>(2)</sup>	316L SST		316L SST	★
3 <sup>(2)</sup>	Alloy C-276		Alloy C-276	★
Sensor Fill Fluid				
Standard				Standard
1	Silicone			★
2	Inert (Fluorinert® FC-43)			★
Housing Material			Conduit Entry Size	
Standard				
A	Polyurethane-covered Aluminum		½–14 NPT	★
B	Polyurethane-covered Aluminum		M20 × 1.5 (CM20)	★
J	SST		½–14 NPT	★
K	SST		M20 × 1.5 (CM20)	★
Expanded				
D	Polyurethane-covered Aluminum		G½	
M	SST		G½	

### Options (Include with selected model number)

<b>PlantWeb Control Functionality</b>			
<b>Standard</b>			<b>Standard</b>
A01	Advanced Control Function Block Suite		★

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TABLE 16. 3051T Gage and Absolute 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.

PlantWeb Diagnostic Functionality		
<b>Standard</b>		<b>Standard</b>
D01	FOUNDATION fieldbus Diagnostics Suite	★
Integral Assembly		
<b>Standard</b>		<b>Standard</b>
S5 <sup>(3)</sup>	Assemble to Rosemount 306 Integral Manifold	★
Seal Assemblies		
<b>Standard</b>		<b>Standard</b>
S1 <sup>(3)</sup>	Assemble to one Rosemount 1199 seal	★
Mounting Bracket		
<b>Standard</b>		<b>Standard</b>
B4	Bracket for 2-in. Pipe or Panel Mounting, All SST	★
Product Certifications		
<b>Standard</b>		<b>Standard</b>
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E2	INMETRO Flameproof	★
E4 <sup>(4)</sup>	TIIS Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
E7	SAA Flameproof, Dust Ignition-proof	★
E8	ATEX Flameproof and Dust Certification	★
I1 <sup>(4)</sup>	ATEX Intrinsic Safety and Dust	★
I2	INMETRO Intrinsic Safety	★
I5	FM Intrinsically Safe, Division 2	★
I7	SAA Intrinsic Safety	★
IA	ATEX Intrinsic Safety for FISCO; for FOUNDATION fieldbus protocol only	★
IE	FM FISCO Intrinsically Safe; for FOUNDATION fieldbus protocol only	★
K2	INMETRO Flameproof, Intrinsic Safety	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
K6 <sup>(4)</sup>	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6 and K8)	★
K7	SAA Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
K8 <sup>(4)</sup>	ATEX Flame-proof, Intrinsic Safety, Type n, Dust (combination of E8, I1 and N1)	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD <sup>(4)</sup>	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
N1 <sup>(4)</sup>	ATEX Type n Certification and Dust	★
N7	SAA Type n Certification	★
Custody Transfer		
<b>Standard</b>		<b>Standard</b>
C5	Measurement Canada Accuracy Approval ( <i>Limited availability depending on transmitter type and range. Contact an Emerson Process Management representative</i> )	★
Calibration Certification		
<b>Standard</b>		<b>Standard</b>
Q4	Calibration Certificate	★
QG	Calibration Certificate and GOST Verification Certificate	★
QP	Calibration Certification and tamper evident seal	★
Material Traceability Certification		
<b>Standard</b>		<b>Standard</b>
Q8	Material Traceability Certification per EN 10204 3.1.B <i>NOTE: This option applies to the process connection only.</i>	★
Quality Certification for Safety		
<b>Standard</b>		<b>Standard</b>
QS	Certificate of FMEDA Data	★
QT	Safety certified to IEC 61508 with Certificate of FMEDA data	★

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Rosemount 3051

TABLE 16. 3051T Gage and Absolute 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.

Zero/Span Adjustment		
<b>Standard</b>		<b>Standard</b>
J1 <sup>(5)(6)</sup>	Local Zero Adjustment Only	★
J3 <sup>(5)(6)</sup>	No Local Zero or Span Adjustment	★
<b>Expanded</b>		
D1	Hardware adjustments (zero, span, alarm, security)	
<b>Display Type</b>		
<b>Standard</b>		<b>Standard</b>
M5	LCD display	★
M6	LCD display for SST Housing (Housing Codes J, K, L and M only)	★
<b>Conduit Plug</b>		
<b>Standard</b>		<b>Standard</b>
DO	316 SST Conduit Plug	★
<b>Transient Terminal Block</b>		
<b>Standard</b>		<b>Standard</b>
T1	Transient Protection Terminal Block	★
<b>Software Configuration</b>		
<b>Standard</b>		<b>Standard</b>
C1 <sup>(5)</sup>	Custom Software Configuration (Completed CDS 00806-0100-4001 required with order)	★
<b>Expanded</b>		
C2 <sup>(5)</sup>	0.8–3.2 V dc Output with Digital Signal Based on HART Protocol (Output Code M only)	
<b>Alarm Limit</b>		
<b>Standard</b>		<b>Standard</b>
C4 <sup>(5)(7)</sup>	Analog Output Levels Compliant with NAMUR Recommendation NE 43, Alarm High	★
CN <sup>(5)(7)</sup>	Analog Output Levels Compliant with NAMUR Recommendation NE 43, Low Alarm	★
CR	Custom alarm and saturation signal levels, high alarm	★
CS	Custom alarm and saturation signal levels, low alarm	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
<b>Pressure Testing</b>		
<b>Expanded</b>		
P1	Hydrostatic Testing with Certificate	
<b>Cleaning Process Area</b>		
<b>Expanded</b>		
P2	Cleaning for Special Service	
P3	Cleaning for <1 PPM Chlorine/Fluorine	
<b>High Accuracy</b>		
<b>Standard</b>		<b>Standard</b>
P8	0.04% accuracy to 5:1 turndown (Range 2-4)	★
<b>Ground Screw</b>		
<b>Standard</b>		<b>Standard</b>
V5 <sup>(8)</sup>	External Ground Screw Assembly	★
<b>Drinking Water Approval</b>		
<b>Standard</b>		<b>Standard</b>
DW	NSF drinking water approval	★
<b>Surface Finish</b>		
<b>Standard</b>		<b>Standard</b>
Q16	Surface finish certification for sanitary remote seals	★
<b>Toolkit Total System Performance Reports</b>		
<b>Standard</b>		<b>Standard</b>
QZ	Remote Seal System Performance Calculation Report	★

# Rosemount 3051

TABLE 16. 3051T Gage and Absolute 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.

Conduit Electrical Connector		
Standard		Standard
GE	M12, 4-pin, Male Connector (eurofast <sup>®</sup> )	★
GM	A size Mini, 4-pin, Male Connector (minifast <sup>®</sup> )	★
Typical Model Number:		3051T G 5 F 2A 2 1 A B4

(1) 3051TG lower range limit varies with atmospheric pressure.

(2) Materials of Construction comply with recommendations per NACE MR0175/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 MR0103 for sour refining environments.

(3) "Assemble-to" items are specified separately and require a completed model number.

(4) Not available with low-power Option Code M.

(5) Not available with fieldbus (output code F) or Profibus protocols (output code W).

(6) Local zero and span adjustments are standard unless Option Code J1 or J3 is specified.

(7) NAMUR-Compliant operation is pre-set at the factory and cannot be changed to standard operation in the field.

(8) The V5 option is not needed with T1 option; external ground screw assembly is included with the T1 option.



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# Rosemount 3051

Table 17. Rosemount 3051L Liquid Level 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	Transmitter Type			
3051L	Liquid Level Transmitter			
Pressure Range				
Standard				Standard
2	–250 to 250 inH <sub>2</sub> O (–0,6 to 0,6 bar)			★
3	–1000 to 1000 inH <sub>2</sub> O (–2,5 to 2,5 bar)			★
4	–300 to 300 psi (–20,7 to 20,7 bar)			★
Transmitter Output				
Standard				Standard
A	4–20 mA with Digital Signal Based on <i>HART</i> Protocol			★
F	FOUNDATION fieldbus Protocol			★
W	Profibus – PA Protocol			★
Expanded				
M <sup>(1)</sup>	Low-Power 1–5 V dc with Digital Signal Based on <i>HART</i> Protocol (See Option Code C2 for 0.8–3.2 V dc Output)			
Process Connection Size, Material, Extension length (High Side)				
Standard				Standard
Code	Process Connection Size	Material	Extension Length	★
G0 <sup>(2)</sup>	2-in./DN 50	316L SST	Flush Mount Only	★
H0 <sup>(2)</sup>	2-in./DN 50	Alloy C-276	Flush Mount Only	★
J0	2-in./DN 50	Tantalum	Flush Mount Only	★
A0 <sup>(2)</sup>	3-in./DN 80	316L SST	Flush Mount	★
A2 <sup>(2)</sup>	3-in./DN 80	316L SST	2-in./50 mm	★
A4 <sup>(2)</sup>	3-in./DN 80	316L SST	4-in./100 mm	★
A6 <sup>(2)</sup>	3-in./DN 80	316L SST	6-in./150 mm	★
B0 <sup>(2)</sup>	4-in./DN 100	316L SST	Flush Mount	★
B2 <sup>(2)</sup>	4-in./DN 100	316L SST	2-in./50 mm	★
B4 <sup>(2)</sup>	4-in./DN 100	316L SST	4-in./100 mm	★
B6 <sup>(2)</sup>	4-in./DN 100	316L SST	6-in./150 mm	★
C0 <sup>(2)</sup>	3-in./DN 80	Alloy C-276	Flush Mount	★
C2 <sup>(2)</sup>	3-in./DN 80	Alloy C-276	2-in./50 mm	★
C4 <sup>(2)</sup>	3-in./DN 80	Alloy C-276	4-in./100 mm	★
C6 <sup>(2)</sup>	3-in./DN 80	Alloy C-276	6-in./150 mm	★
D0 <sup>(2)</sup>	4-in./DN 100	Alloy C-276	Flush Mount	★
D2 <sup>(2)</sup>	4-in./DN 100	Alloy C-276	2-in./50 mm	★
D4 <sup>(2)</sup>	4-in./DN 100	Alloy C-276	4-in./100 mm	★
D6 <sup>(2)</sup>	4-in./DN 100	Alloy C-276	6-in./150 mm	★
E0	3-in./DN 80	Tantalum	Flush Mount Only	★
F0	4-in./DN 100	Tantalum	Flush Mount Only	★

# Rosemount 3051

Table 17. Rosemount 3051L Liquid Level 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.

Mounting Flange Size, Rating, Material (High Side)				
	Size	Rating	Material	
Standard				Standard
M	2-in.	ANSI/ASME B16.5 Class 150	CS	★
A	3-in.	ANSI/ASME B16.5 Class 150	CS	★
B	4-in.	ANSI/ASME B16.5 Class 150	CS	★
N	2-in.	ANSI/ASME B16.5 Class 300	CS	★
C	3-in.	ANSI/ASME B16.5 Class 300	CS	★
D	4-in.	ANSI/ASME B16.5 Class 300	CS	★
P	2-in.	ANSI/ASME B16.5 Class 600	CS	★
E	3-in.	ANSI/ASME B16.5 Class 600	CS	★
X <sup>(2)</sup>	2-in.	ANSI/ASME B16.5 Class 150	SST	★
F <sup>(2)</sup>	3-in.	ANSI/ASME B16.5 Class 150	SST	★
G <sup>(2)</sup>	4-in.	ANSI/ASME B16.5 Class 150	SST	★
Y <sup>(2)</sup>	2-in.	ANSI/ASME B16.5 Class 300	SST	★
H <sup>(2)</sup>	3-in.	ANSI/ASME B16.5 Class 300	SST	★
J <sup>(2)</sup>	4-in.	ANSI/ASME B16.5 Class 300	SST	★
Z <sup>(2)</sup>	2-in.	ANSI/ASME B16.5 Class 600	SST	★
L <sup>(2)</sup>	3-in.	ANSI/ASME B16.5 Class 600	SST	★
Q	DN 50	PN 10-40 per EN 1092-1	CS	★
R	DN 80	PN 40 per EN 1092-1	CS	★
S	DN 100	PN 40 per EN 1092-1	CS	★
V	DN 100	PN 10/16 per EN 1092-1	CS	★
K <sup>(2)</sup>	DN 50	PN 10-40 per EN 1092-1	SST	★
T <sup>(2)</sup>	DN 80	PN 40 per EN 1092-1	SST	★
U <sup>(2)</sup>	DN 100	PN 40 per EN 1092-1	SST	★
W <sup>(2)</sup>	DN 100	PN 10/16 per EN 1092-1	SST	★
7 <sup>(2)</sup>	4 in.	ANSI/ASME B16.5 Class 600	SST	★
Expanded				
1	—	10K per JIS B2238	CS	
2	—	20K per JIS B2238	CS	
3	—	40K per JIS B2238	CS	
4 <sup>(2)</sup>	—	10K per JIS B2238	316 SST	
5 <sup>(2)</sup>	—	20K per JIS B2238	316 SST	
6 <sup>(2)</sup>	—	40K per JIS B2238	316 SST	
Process Fill-High Pressure Side		Specific Gravity	Temperature Limits (Ambient Temperature of 70° F (21° C))	
Standard				Standard
A	Syltherm XLT	0.85	-102 to 293 °F (-75 to 145 °C)	★
C	Silicone 704	1.07	32 to 401 °F (0 to 205 °C)	★
D	Silicone 200	0.93	-49 to 401 °F (-45 to 205 °C)	★
H	Inert (Halocarbon)	1.85	-49 to 320 °F (-45 to 160 °C)	★
G	Glycerine and Water	1.13	5 to 203 °F (-15 to 95 °C)	★
N	Neobee M-20	0.92	5 to 401 °F (-15 to 205 °C)	★
P	Propylene Glycol and Water	1.02	5 to 203 °F (-15 to 95 °C)	★

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# Rosemount 3051

Table 17. Rosemount 3051L Liquid Level 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.

Low Pressure Side					
	Configuration	Flange Adapter	Diaphragm Material	Sensor Fill Fluid	
Standard					Standard
11 <sup>(2)</sup>	Gage	SST	316L SST	Silicone	★
21 <sup>(2)</sup>	Differential	SST	316L SST	Silicone	★
22 <sup>(2)</sup>	Differential	SST	Alloy C-276	Silicone	★
2A <sup>(2)</sup>	Differential	SST	316L SST	Inert (Halocarbon)	★
2B <sup>(2)</sup>	Differential	SST	Alloy C-276	Inert (Halocarbon)	★
31 <sup>(2)</sup>	Tuned-System Assembly with Remote Seal	None	316L SST	Silicone <i>(Requires Option Code S1)</i>	★
O-ring					
Standard					Standard
A	Glass-filled PTFE				★
Housing Material			Conduit Entry Size		
Standard					Standard
A	Aluminum		½–14 NPT		★
B	Aluminum		M20 × 1.5		★
J	SST		½–14 NPT		★
K	SST		M20 × 1.5		★
Expanded					
D	Aluminum		G½		
M	SST		G½		

## Options (Include with selected model number)

PlantWeb Control Functionality		
Standard		Standard
A01	FOUNDATION fieldbus Advanced Control Function Block Suite	★
PlantWeb Diagnostic Functionality		
Standard		Standard
D01	FOUNDATION fieldbus Diagnostics Suite	★
Seal Assemblies		
Standard		Standard
S1 <sup>(3)</sup>	Assembled to One Rosemount 1199 Seal (Requires 1199M)	★
Product Certifications		
Standard		Standard
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe, Division 2	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
I1 <sup>(4)</sup>	ATEX Intrinsic Safety and Dust	★
N1 <sup>(4)</sup>	ATEX Type n Certification and Dust	★
E8	ATEX Flameproof and Dust Certification	★
E4 <sup>(4)</sup>	TIIS Flameproof	★
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
K6 <sup>(4)</sup>	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6 and K8)	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
K7	SAA Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7 and E7)	★
K8 <sup>(4)</sup>	ATEX Flame-proof and Intrinsic Safety Approvals (combination of I1 and E8)	★
KD <sup>(4)</sup>	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★

# Rosemount 3051

Table 17. Rosemount 3051L Liquid Level 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.

I7	SAA Intrinsic Safety	★
E7	SAA Flameproof, Dust Ignition-proof	★
N7	SAA Type n Certification	★
IA	ATEX FISCO Intrinsic Safety	★
IE	FM FISCO Intrinsically Safe	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
K2	INMETRO Flameproof, Intrinsic Safety	★
<b>Bolting Material</b>		
<b>Standard</b>		<b>Standard</b>
L4	Austenitic 316 SST Bolts	★
L5	ASTM A 193, Grade B7M bolts	★
L6	Alloy K-500 Bolts	★
L8	ASTM A 193 Class 2, Grade B8M Bolts	★
<b>Display Type</b>		
<b>Standard</b>		<b>Standard</b>
M5	LCD Display for Aluminum Housing (Housing Codes A, B, C, and D only)	★
M6	LCD Display for SST Housing (Housing Codes J, K, L, and M only)	★
<b>Calibration Certification</b>		
<b>Standard</b>		<b>Standard</b>
Q4	Calibration Certificate	★
QP	Calibration Certificate and tamper evident seal	★
QG	Calibration Certificate and GOST Verification Certificate	★
<b>Material Traceability Certification</b>		
<b>Standard</b>		<b>Standard</b>
Q8	Material Traceability Certification per EN 10204 3.1	★
<b>Quality Certification for Safety</b>		
<b>Standard</b>		<b>Standard</b>
QS <sup>(5)</sup>	Prior-use certificate of FMEDA data	★
<b>Toolkit Total System Performance Reports</b>		
<b>Standard</b>		<b>Standard</b>
QZ	Remote Seal System Performance Calculation Report	★
<b>Conduit Electrical Connector</b>		
<b>Standard</b>		<b>Standard</b>
GE	M12, 4-pin, Male Connector (eurofast <sup>®</sup> )	★
GM	A size Mini, 4-pin, Male Connector (minifast <sup>®</sup> )	★
<b>Hardware Adjustments</b>		
<b>Standard</b>		<b>Standard</b>
J1 <sup>(6)(7)</sup>	Local Zero Adjustment Only	★
J3 <sup>(6)(7)</sup>	No Local Zero or Span Adjustment	★
<b>Transient Protection</b>		
<b>Standard</b>		<b>Standard</b>
T1 <sup>(8)</sup>	Transient Protection Terminal Block	★
<b>Software Configuration</b>		
<b>Standard</b>		<b>Standard</b>
C1 <sup>(6)</sup>	Custom Software Configuration (Completed CDS 00806-0100-4001 required with order)	★

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# Rosemount 3051

Table 17. Rosemount 3051L Liquid Level 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.

Low Power Output				
Standard				Standard
C2 <sup>(6)</sup>	0.8–3.2 V dc Output with Digital Signal Based on HART Protocol (Available with Output code M only)			★
Alarm Limit				
Standard				Standard
C4 <sup>(6)(9)</sup>	NAMUR alarm and saturation levels, high alarm			★
CN <sup>(6)(9)</sup>	NAMUR alarm and saturation levels, low alarm			★
CR	Custom alarm and saturation signal levels, high alarm			★
CS	Custom alarm and saturation signal levels, low alarm			★
CT	Low alarm (standard Rosemount alarm and saturation levels)			★
Conduit Plug				
Standard				Standard
D0	316 SST Conduit Plug			★
Ground Screw				
Standard				Standard
V5 <sup>(10)</sup>	External Ground Screw Assembly			★
Lower Housing Flushing Connection Options				
	Ring Material	Number	Size (NPT)	
Standard				Standard
F1	316 SST	1	1/4-18 NPT	★
F2	316 SST	2	1/4-18 NPT	★
F3	Alloy C-276	1	1/4-18 NPT	★
F4	Alloy C-276	2	1/4-18 NPT	★
F7	316 SST	1	1/2-14 NPT	★
F8	316 SST	2	1/2-14 NPT	★
F9	Alloy C-276	1	1/2-14 NPT	★
F0	Alloy C-276	2	1/2-14 NPT	★
Typical Model Number: 3051L 2 A A0 D 21 A A F1				

(1) Not available with hazardous certification Option Codes I1, N1, E4, K6, and K8.

(2) Materials of Construction comply with metallurgical requirements highlighted within NACE MR0175/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 MR0103 for sour refining environments.

(3) "Assemble-to" items are specified separately and require a completed model number.

(4) Not available with low-power Option Code M

(5) Only available with HART 4-20 mA output (output code A).

(6) Not available with fieldbus (output code F) or profibus protocols (output code W).

(7) Local zero and span adjustments are standard unless Option Code J1 or J3 is specified.

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

(9) NAMUR-Compliant operation is pre-set at the factory and cannot be changed to standard operation in the field.

(10) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.

## OPTIONS

### Standard Configuration

Unless otherwise specified, transmitter is shipped as follows:

<b>ENGINEERING UNITS</b>	
<b>Differential/Gage:</b>	inH <sub>2</sub> O (Range 0, 1, 2, and 3) psi (Range 4 and 5)
<b>Absolute/3051TA:</b>	psi (all ranges)
<b>4 mA (1 V dc)<sup>(1)</sup>:</b>	0 (engineering units above)
<b>20 mA (5 V dc):</b>	Upper range limit
<b>Output:</b>	Linear
<b>Flange type:</b>	Specified model code option
<b>Flange material:</b>	Specified model code option
<b>O-ring material:</b>	Specified model code option
<b>Drain/vent:</b>	Specified model code option
<b>Integral meter:</b>	Installed or none
<b>Alarm<sup>(1)</sup>:</b>	Upscale
<b>Software tag:</b>	(Blank)

(1) Not applicable to fieldbus.

### Custom Configuration HART protocol only<sup>(1)</sup>

If Option Code C1 is ordered, the customer may specify the following data in addition to the standard configuration parameters.

- Output Information
- Transmitter Information
- LCD display Configuration
- Hardware Selectable Information
- Signal Selection

Refer to the "HART Protocol C1 Option Configuration Data Sheet" document number 00806-0100-4001.

### Tagging (3 options available)

- Standard SST hardware tag is wired to the transmitter. Tag character height is 0.125 in. (3,18 mm), 56 characters maximum.
- Tag may be permanently stamped on transmitter nameplate upon request, 56 characters maximum.
- Tag may be stored in transmitter memory (30 characters maximum). Software tag is left blank unless specified.

### Commissioning tag (fieldbus only)

A temporary commissioning tag is attached to all transmitters. The tag indicates the device ID and allows an area for writing the location.

(1) Not applicable to fieldbus.

### Optional Rosemount 304, 305 or 306 Integral Manifolds

Factory assembled to 3051C and 3051T transmitters. Refer to the following Product Data Sheet (document number 00813-0100-4839 for Rosemount 304 and 00813-0100-4733 for Rosemount 305 and 306) for additional information.

### Other Seals

Refer to Product Data Sheet 00813-0100-4016 or 00813-0201-4016. for additional information.

### Output Information<sup>(1)</sup>

Output range points must be the same unit of measure. Available units of measure include:

inH <sub>2</sub> O	inH <sub>2</sub> O@4 °C <sup>(1)</sup>	psi	Pa
inHg	ftH <sub>2</sub> O	bar	kPa
mmH <sub>2</sub> O	mmH <sub>2</sub> O@4 °C <sup>(1)</sup>	mbar	torr
mmHg	g/cm <sup>2</sup>	kg/cm <sup>2</sup>	atm

(1) Not available on low power or previous versions.

### LCD display

M5 Digital Display, 5-Digit, 2-Line LCD

- Direct reading of digital data for higher accuracy
- Displays user-defined flow, level, volume, or pressure units
- Displays diagnostic messages for local troubleshooting
- 90-degree rotation capability for easy viewing

M6 Digital Display with 316 Stainless Steel Cover

- For use with stainless steel housing option (housing codes J, K, and L)

### Local Span and Zero Adjustment<sup>(2)</sup>

Transmitters ship with local span and zero adjustments standard unless otherwise specified.

- Non-interactive external zero and span adjustments ease calibration
- Magnetic switches replace standard potentiometer adjustments to optimize performance

J1 Local Zero Adjustment Only<sup>(1)</sup>

J3 No Local Zero or Span Adjustment<sup>(1)</sup>

(2) Not applicable to fieldbus.

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# Rosemount 3051

### Transient Protection

#### T1 Integral Transient Protection Terminal Block

- Integral transient protection terminal block
- Meets IEEE Standard 587, Category B  
1 kV crest (10 × 1 000 microseconds)  
3 kV crest (8 × 20 microseconds)  
6 kV crest (1.2 × 50 microseconds)
- Meets IEEE Standard 472,  
Surge Withstand Capability  
SWC 2,5 kV crest, 1 MHz wave form
- Applicable standards: IEC 801-4, 801-5

### Bolts for Flanges and Adapters

- Options permit bolts for flanges and adapters to be obtained in various materials
- Standard material is plated carbon steel per ASTM A449, Type 1

#### L4 Austenitic 316 Stainless Steel Bolts

#### L5 ASTM A 193, Grade B7M Bolts

#### L6 Monel Bolts

### Rosemount 3051C Coplanar Flange and 3051T Bracket Option

#### B4 Bracket for 2-in. Pipe or Panel Mounting

- For use with the standard Coplanar flange configuration
- Bracket for mounting of transmitter on 2-in. pipe or panel
- Stainless steel construction with stainless steel bolts

### Traditional Flange Bracket Options

#### B1 Bracket for 2-in. Pipe Mounting

- For use with the traditional flange option
- Bracket for mounting on 2-in. pipe
- Carbon steel construction with carbon steel bolts
- Coated with polyurethane paint

#### B2 Bracket for Panel Mounting

- For use with the traditional flange option
- Bracket for mounting transmitter on wall or panel
- Carbon steel construction with carbon steel bolts
- Coated with polyurethane paint

#### B3 Flat Bracket for 2-in. Pipe Mounting

- For use with the traditional flange option
- Bracket for vertical mounting of transmitter on 2-in. pipe
- Carbon steel construction with carbon steel bolts
- Coated with polyurethane paint

#### B7 B1 Bracket with SST Bolts

- Same bracket as the B1 option with Series 300 stainless steel bolts

#### B8 B2 Bracket with SST Bolts

- Same bracket as the B2 option with Series 300 stainless steel bolts

#### B9 B3 Bracket with SST Bolts

- Same bracket as the B3 option with Series 300 stainless steel bolts

#### BA Stainless Steel B1 Bracket with SST Bolts

- B1 bracket in stainless steel with Series 300 stainless steel bolts

#### BC Stainless Steel B3 Bracket with SST Bolts

- B3 bracket in stainless steel with Series 300 stainless steel bolts

### Shipping Weights

TABLE 18. Transmitter Weights without Options

Transmitter	Add Weight In lb (kg)
3051C	6.0 (2,7)
3051T	3.0 (1,4)
3051L	Table 19 on page 39

TABLE 19. 3051L Weights without Options

Flange	Flush lb. (kg)	2-in. Ext. lb (kg)	4-in. Ext. lb (kg)	6-in. Ext. lb (kg)
2-in., 150	12.5 (5,7)	—	—	—
3-in., 150	17.5 (7,9)	19.5 (8,8)	20.5 (9,3)	21.5 (9,7)
4-in., 150	23.5 (10,7)	26.5 (12,0)	28.5 (12,9)	30.5 (13,8)
2-in., 300	17.5 (7,9)	—	—	—
3-in., 300	22.5 (10,2)	24.5 (11,1)	25.5 (11,6)	26.5 (12,0)
4-in., 300	32.5 (14,7)	35.5 (16,1)	37.5 (17,0)	39.5 (17,9)
2-in., 600	15.3 (6,9)	—	—	—
3-in., 600	25.2 (11,4)	27.2 (12,3)	28.2 (12,8)	29.2 (13,2)
DN 50/PN 40	13.8 (6,2)	—	—	—
DN 80/PN 40	19.5 (8,8)	21.5 (9,7)	22.5 (10,2)	23.5 (10,6)
DN 100/PN 10/16	17.8 (8,1)	19.8 (9,0)	20.8 (9,5)	21.8 (9,9)
DN 100/PN 40	23.2 (10,5)	25.2 (11,5)	26.2 (11,9)	27.2 (12,3)

TABLE 20. Transmitter Options Weights

Code	Option	Add lb (kg)
J, K, L, M	Stainless Steel Housing(T)	3.9 (1,8)
J, K, L, M	Stainless Steel Housing (C, L, H, P)	3.1 (1,4)
M5	LCD display for Aluminum Housing	0.5 (0,2)
M6	LCD display for SST Housing	1.25 (0,6)
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)
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)
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)

3051C Differential/Gage Pressure Transmitter Range Limits										
	Range 1 Span		Range 2 Span		Range 3 Span		Range 4 Span		Range 5 Span	
Units	min	max	min	max	min	max	min	max	min	max
inH <sub>2</sub> O	0.5	25	2.5	250	10	1000	83.040	8304	553.60	55360
inHg	0.03678	1.8389	0.18389	18.389	0.73559	73.559	6.1081	610.81	40.720	4072.04
ftH <sub>2</sub> O	0.04167	2.08333	0.20833	20.8333	0.83333	83.3333	6.9198	691.997	46.13	4613.31
mmH <sub>2</sub> O	12.7	635.5	63.553	6355	254	25421	2110.95	211095	14073	1407301
mmHg	0.93416	46.7082	4.67082	467.082	18.6833	1868.33	155.145	15514.5	1034.3	103430
psi	0.01806	0.903	0.0902	9.03183	0.36127	36.127	3	300	20	2000
bar	0.00125	0.06227	0.00623	0.62272	0.02491	2.491	0.20684	20.6843	1.37895	137.895
mbar	1.2454	62.2723	6.22723	622.723	24.9089	2490.89	206.843	20684.3	1378.95	137895
g/cm <sup>2</sup>	1.26775	63.3875	6.33875	633.875	25.355	2535.45	210.547	21054.7	1406.14	140614
kg/cm <sup>2</sup>	0.00127	0.0635	0.00635	0.635	0.0254	2.54	0.21092	21.0921	1.40614	140.614
Pa	124.545	6227.23	622.723	62160.6	2490.89	249089	20684.3	2068430	137895	13789500
kPa	0.12545	6.2272	0.62272	62.2723	2.49089	249.089	20.6843	2068.43	137.895	13789.5
torr	0.93416	46.7082	4.67082	467.082	18.6833	1868.33	155.145	15514.5	1034.3	103430
atm	0.00123	0.06146	0.00615	0.61460	0.02458	2.458	0.20414	20.4138	1.36092	136.092

When using a HART communicator, ±5% adjustment is allowed on the sensor limit to allow for unit conversions.

3051L Pressure Transmitter Range Limits								
	Range 2 Span		Range 3 Span		Range 4 Span		Range 5 Span	
Units	min	max	min	max	min	max	min	max
inH <sub>2</sub> O	2.5	250	10	1000	83.040	8304	553.60	55360
inHg	0.18389	18.389	0.73559	73.559	6.1081	610.81	40.720	4072.04
ftH <sub>2</sub> O	0.20833	20.8333	0.83333	83.3333	6.9198	691.997	46.13	4613.31
mmH <sub>2</sub> O	63.553	6355	254	25421	2110.95	211095	14073	1407301
mmHg	4.67082	467.082	18.6833	1868.33	155.145	15514.5	1034.3	103430
psi	0.0902	9.03183	0.36127	36.127	3	300	20	2000
bar	0.00623	0.62272	0.02491	2.491	0.20684	20.6843	1.37895	137.895
mbar	6.22723	622.723	24.9089	2490.89	206.843	20684.3	1378.95	137895
g/cm <sup>2</sup>	6.33875	633.875	25.355	2535.45	210.547	21054.7	1406.14	140614
kg/cm <sup>2</sup>	0.00635	0.635	0.0254	2.54	0.21092	21.0921	1.40614	140.614
Pa	622.723	62160.6	2490.89	249089	20684.3	2068430	137895	13789500
kPa	0.62272	62.2723	2.49089	249.089	20.6843	2068.43	137.895	13789.5
torr	4.67082	467.082	18.6833	1868.33	155.145	15514.5	1034.3	103430
atm	0.00615	0.61460	0.02458	2.458	0.20414	20.4138	1.36092	136.092

When using a HART communicator, ±5% adjustment is allowed on the sensor limit to allow for unit conversions.



## Product Data Sheet

00813-0100-4001, Rev JA

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# Rosemount 3051

3051T Gage and Absolute Pressure Transmitter Range Limits										
	Range 1 Span		Range 2 Span		Range 3 Span		Range 4 Span		Range 5 Span	
Units	min	max	min	max	min	max	min	max	min	max
inH <sub>2</sub> O	8.30397	831.889	41.5198	4159.45	221.439	22143.9	1107.2	110720	55360	276799
inHg	0.61081	61.0807	3.05403	305.403	16.2882	1628.82	81.441	8144.098	4072.04	20360.2
ftH <sub>2</sub> O	0.69199	69.3241	3.45998	345.998	18.4533	1845.33	92.2663	9226.63	4613.31	23066.6
mmH <sub>2</sub> O	211.10	21130	1054.60	105460.3	5634.66	563466	28146.1	2814613	1407301	7036507
mmHg	15.5145	1551.45	77.5723	7757.23	413.72	41372	2068.6	206860.0	103430	517151
psi	0.3	30	1.5	150	8	800	40	4000	2000	10000
bar	0.02068	3.06843	0.10342	10.3421	0.55158	55.1581	2.75791	275.7905	137.895	689.476
mbar	20.6843	2068.43	103.421	10342.11	551.581	55158.1	2757.91	275790.5	137895	689476
g/cm <sup>2</sup>	21.0921	2109.21	105.461	10546.1	561.459	56145.9	2807.31	280730.6	140614	703067
kg/cm <sup>2</sup>	0.02109	2.10921	0.10546	10.5461	0.56246	56.2456	2.81228	281.228	140.614	701.82
Pa	2068.43	206843	10342.1	1034212	55158.1	5515811	275791	27579054	13789500	68947600
kPa	2.06843	206.843	10.3421	1034.21	55.1581	5515.81	275.791	27579.05	13789.5	68947.6
torr	15.5145	1551.45	77.5726	7757.26	413.721	413721	2068.6	206859.7	103430	517151
atm	0.02041	2.04138	0.10207	10.2069	0.54437	54.4368	2.72184	272.1841	136.092	680.46
When using a HART communicator, ±5% adjustment is allowed on the sensor limit to allow for unit conversions.										

3051C Absolute Pressure Transmitter Range Limits								
	Range 1 Span		Range 2 Span		Range 3 Span		Range 4 Span	
Units	min	max	min	max	min	max	min	max
inH <sub>2</sub> O	8.30397	831.889	41.5198	4151.98	221.439	22143.9	1107.2	110720
inHg	0.61081	61.0807	3.05403	305.403	16.2882	1628.82	81.441	8144.098
ftH <sub>2</sub> O	0.69199	69.3241	3.45998	345.998	18.4533	1845.33	92.2663	9226.63
mmH <sub>2</sub> O	211.10	21130	6.35308	635.308	5634.66	563466	28146.1	2814613
mmHg	15.5145	1551.45	1055.47	105547	413.72	41372	2068.6	206860.0
psi	0.3	30	1.5	150	8	800	40	4000
bar	0.02068	2.06843	0.10342	10.342	0.55158	55.1581	2.75791	275.7905
mbar	20.6843	2068.43	103.421	10342.1	551.581	55158.1	2757.91	275790.5
g/cm <sup>2</sup>	21.0921	2109.21	105.27	105.27	561.459	56145.9	2807.31	280730.6
kg/cm <sup>2</sup>	0.02109	2.10921	0.10546	10.546	0.56246	56.2456	2.81228	281.228
Pa	2068.43	206843	10342.1	1034210	55158.1	5515811	275791	27579054
kPa	2.06843	206.843	10.3421	1034.21	55.1581	5515.81	275.791	27579.05
torr	15.5145	1551.45	77.5726	7757.26	413.721	413721	2068.6	206859.7
atm	0.02041	2.04138	0.10207	10.207	0.54437	54.4368	2.72184	272.1841
When using a HART communicator, ±5% adjustment is allowed on the sensor limit to allow for unit conversions.								

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