

# Rosemount™ 3051 Pressure Transmitter



**WirelessHART**

With the Rosemount 3051 Pressure Transmitter, you'll gain more control over your plant. You'll be able to reduce product variation and complexity as well as your total cost of ownership by leveraging one device across a number of pressure, level, and flow applications. You'll have access to information you can use to diagnose, correct, and even prevent issues. And with unparalleled reliability and experience, the Rosemount 3051 is the industry standard that will help you perform at higher levels of efficiency and safety so you can remain globally competitive.

# Setting the standard for pressure measurement

## Proven best-in-class performance, reliability, and safety



- More than seven million installed
- Reference accuracy 0.04 percent of span
- Installed total performance of 0.14 percent of span
- 10-year stability of 0.2 percent of URL
- SIL2/3 certified (IEC 61508)

## Maximize installation and application flexibility with the coplanar platform

- Improve reliability and performance with integrated DP Flow meters, DP Level solutions, and integral manifolds.
- Easy installation with all solutions fully assembled, leak-tested, and calibrated.
- Meet your application needs with an unsurpassed offering.

### Contents

Setting the standard for pressure measurement.....	2
Rosemount™ 3051C Coplanar™ Pressure Transmitter.....	5
Rosemount™ 3051T In-Line Pressure Transmitter.....	13
Rosemount™ 3051CF Flow meter selection guide.....	19
Rosemount™ 3051CFA Annubar Flow Meter.....	21
Rosemount™ 3051CFC Compact Flow Meter.....	30
Rosemount™ 3051CFP Integral Orifice Flow Meter.....	36
Rosemount™ 3051L Level Transmitter.....	43
Specifications.....	51
Rosemount™ 3051 product certifications.....	69
Rosemount 3051 Wireless product certifications.....	81
Dimensional drawings .....	86
Options.....	101

## Advanced functionality

### Loop Integrity diagnostics

- Detect on-scale failures caused by electrical loop issues before they impact your process operation.
- This capability is safety certified for your most critical applications.

### Local operator interface (LOI)

- Straightforward menus and built-in configuration buttons allow you commission the device in less than a minute.
- Configure in hazardous-area locations without removing the transmitter cover using external buttons.



## Industry Leading Capabilities Extended to IEC 62591 (*WirelessHART®*)



- Cost effectively implement wireless on the industry's most proven platform.
- Optimize safety with the industry's only intrinsically safe power module.
- Eliminate wiring design and construction complexities to lower costs by 40 to 60 percent.
- Quickly deploy new pressure, level, and flow measurements in 70 percent less time.

## Innovative, integrated DP flow meters



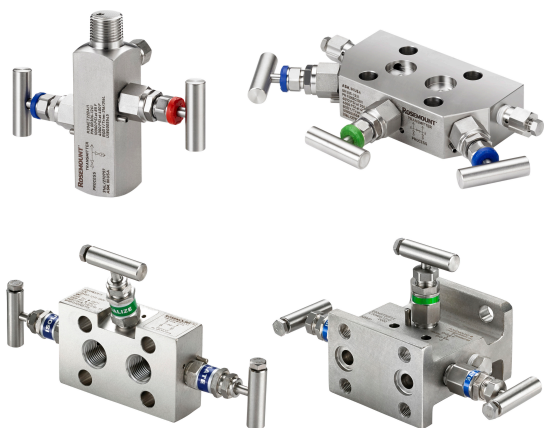
- Fully assembled, configured, and leak tested for out-of-the-box installation.
- Reduce straight pipe requirements, lower permanent pressure loss, and achieve accurate measurement in small line sizes.
- Up to 1.65 percent volumetric flow accuracy at 8:1 turndown.

## Proven, reliable, and innovative DP Level technologies



- Connect to virtually any process with a comprehensive offering of process connections, fill fluids, direct mount, or capillary connections and materials.
- Quantify and optimize total system performance with QZ option.
- Operate at higher temperature and in vacuum applications.
- Optimize level measurement with cost efficient Rosemount™ Tuned-System™ assemblies.

## Instrument manifolds – quality, convenient, and easy



- Designed and engineered for optimal performance with Rosemount transmitters.
- Save installation time and money with factory assembly.
- Offers a variety of styles, materials, and configurations.

# Rosemount™ 3051C Coplanar™ Pressure Transmitter



Rosemount 3051C Coplanar Pressure Transmitters are the industry standard for differential, gage, and absolute pressure measurement. The coplanar platform enables seamless integration with manifolds, flow, and level solutions.

Capabilities include:

- The Loop Integrity Diagnostic continuously monitors the electrical loop to detect changes that compromise the integrity of the transmitted 4-20 mA output signal (Option Code DA0).
- LOI with straightforward menus and built-in configuration buttons (option code M4).
- Safety certification (option code QT).

[CONFIGURE >](#)
[VIEW PRODUCT >](#)

See [Specifications](#) and options for more details on each configuration. Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [Material selection](#) for more information on material selection.

**Table 1: Rosemount 3051C Coplanar Pressure Transmitters Ordering Information**

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Transmitter type			
3051C	Coplanar pressure transmitter			
Measurement type				
D	Differential			
G	Gage			
A <sup>(1)</sup>	Absolute			
Pressure range				
	Differential (Rosemount 3051CD)	Gage (Rosemount 3051CG)	Absolute (Rosemount 3051CA)	
1	–25 to 25 inH <sub>2</sub> O (–62,16 to 62,16 mbar)	–25 to 25 inH <sub>2</sub> O (–62,16 to 62,16 mbar)	0 to 30 psia (0 to 2,06 bar)	★
2	–250 to 250 inH <sub>2</sub> O (–621,60 to 621,60 mbar)	–250 to 250 inH <sub>2</sub> O (–621,60 to 621,60 mbar)	0 to 150 psia (0 to 10,34 bar)	★
3	–1000 to 1000 inH <sub>2</sub> O (–2,48 to 2,48 bar)	–393 to 1000 inH <sub>2</sub> O (–0,97 to 2,48 bar)	0 to 800 psia (0 to 55,15 bar)	★
4	–300 to 300 psi (–20,68 to 20,68 bar)	–14.2 to 300 psi (–0,97 to 20,68 bar)	0 to 4000 psia (0 to 275,79 bar)	★
5	–2000 to 2000 psi (–137,89 to 137,89 bar)	–14.2 to 2000 psi (–0,97 to 137,89 bar)	N/A	★
0 <sup>(2)</sup>	–3 to 3 inH <sub>2</sub> O (–7,46 to 7,46 mbar)	N/A	N/A	
Transmitter output				
A <sup>(3)</sup>	4–20 mA with digital signal based on HART® Protocol			

**Table 1: Rosemount 3051C Coplanar Pressure Transmitters Ordering Information (continued)**

F	FOUNDATION™ Fieldbus Protocol			★
W <sup>(4)</sup>	PROFIBUS® PA Protocol			★
X <sup>(5)</sup>	Wireless (requires wireless options and engineered polymer housing)			★
M <sup>(6)</sup>	Low-power, 1–5 Vdc with digital signal based on HART Protocol			
Materials of construction				
	Process flange type	Flange material	Drain/vent	
2	Coplanar	SST	SST	★
3 <sup>(7)</sup>	Coplanar	Cast C-276	Alloy C-276	★
4	Coplanar	Alloy 400	Alloy 400/K-500	★
5	Coplanar	Plated CS	SST	★
7 <sup>(7)</sup>	Coplanar	SST	Alloy C-276	★
8 <sup>(7)</sup>	Coplanar	Plated CS	Alloy C-276	★
0	Alternate process connection			★
Isolating diaphragm				
2 <sup>(7)</sup>	316L SST			★
3 <sup>(7)</sup>	Alloy C-276			★
4 <sup>(8)</sup>	Alloy 400			
5 <sup>(8)</sup>	Tantalum (available on Rosemount 3051CD and CG, ranges 2–5 only; not available on Rosemount 3051CA)			
6 <sup>(8)</sup>	Gold-plated alloy 400 (use in combination with O-ring option code B)			
7 <sup>(8)</sup>	Gold-plated 316 SST			
O-ring				
A	Glass-filled PTFE			★
B	Graphite-filled PTFE			★
Sensor fill fluid				
1	Silicone			★
2 <sup>(8)</sup>	Inert (differential and gage only)			★
Housing material			Conduit entry size	
A	Aluminum		½–14 NPT	★
B	Aluminum		M20 x 1.5	★
E	Aluminum, ultra low copper		½–14 NPT	★
F	Aluminum, ultra low copper		M20 x 1.5	★
J	SST		½–14 NPT	★
K	SST		M20 x 1.5	★
P <sup>(9)</sup>	Engineered polymer		No conduit entries	★
D <sup>(10)</sup>	Aluminum		G½	

**Table 1: Rosemount 3051C Coplanar Pressure Transmitters Ordering Information (continued)**

M <sup>(10)</sup>	SST	G½	
<b>Wireless options<sup>(11)</sup></b>			
<b>Wireless transmit rate, operating frequency, and protocol</b>			
WA3	User Configurable Transmit Rate, 2.4 GHz WirelessHART		★
<b>Antenna and SmartPower™</b>			
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)		★
<b>Options</b>			
<b>Extended product warranty</b>			
WR3	3-year limited warranty		★
WR5	5-year limited warranty		★
<b>Plantweb™ control functionality</b>			
A01	FOUNDATION Fieldbus control function block suite		★
<b>Plantweb diagnostic functionality</b>			
DA0	Loop Integrity HART Diagnostic		★
D01	FOUNDATION Fieldbus Diagnostics Suite		★
<b>Alternate flange<sup>(12)</sup></b>			
H2	Traditional flange, 316 SST, SST drain/vent		★
H3 <sup>(7)</sup>	Traditional flange, alloy C, alloy C-276 drain/vent		★
H4	Traditional flange, cast alloy 400, alloy 400/K-500 drain/vent		★
H7 <sup>(7)</sup>	Traditional flange, 316 SST, alloy C-276 drain/vent		★
HJ	DIN-compliant traditional flange, SST, 7/16-in. (10 mm) adapter/manifold bolting		★
FA	Level flange, SST, 2-in. (51 mm), ANSI class 150, vertical mount 316 SST drain/vent		★
FB	Level flange, SST, 2-in. (51 mm), ANSI Class 300, vertical mount 316 SST drain/vent		★
FC	Level flange, SST, 3-in. (76 mm), ANSI Class 150, vertical mount 316 SST drain/vent		★
FD	Level flange, SST, 3-in. (76 mm), ANSI Class 300, vertical mount 316 SST drain/vent		★
FP	DIN level flange, SST, DN 50, PN 40, vertical mount 316 SST drain/vent		★
FQ	DIN level flange, SST, DN 80, PN 40, vertical mount 316 SST drain/vent		★
HK <sup>(13)</sup>	DIN compliant traditional flange, SST, .4 in. (10 mm) adapter/manifold bolting 316 SST		
HL	DIN compliant traditional flange, SST, .5 in. (12 mm) adapter/manifold bolting 316 SST		
<b>Manifold assembly<sup>(14)</sup></b>			
S5	Assemble to Rosemount 305 Integral Manifold		★
S6	Assemble to Rosemount 304 Manifold or Connection System		★
<b>Integral mount primary element<sup>(13)(14)</sup></b>			
S3	Assemble to Rosemount 405 Compact Orifice Plate		★
S4 <sup>(15)</sup>	Assemble to Rosemount Annubar™ or Rosemount 1195 Integral Orifice		★

**Table 1: Rosemount 3051C Coplanar Pressure Transmitters Ordering Information (continued)**

<b>Seal assemblies<sup>(14)</sup></b>		
S1 <sup>(16)</sup>	Assemble to one Rosemount 1199 seal	★
S2 <sup>(17)</sup>	Assemble to two Rosemount 1199 seals	★
<b>Mounting bracket<sup>(18)</sup></b>		
B4	Coplanar flange bracket, all SST, 2-in. pipe and panel	★
B1	Traditional flange bracket, CS, 2-in. pipe	★
B2	Traditional flange bracket, CS, panel	★
B3	Traditional flange flat bracket, CS, 2-in. (51 mm) pipe	★
B7	Traditional flange bracket, B1 with SST bolts	★
B8	Traditional flange bracket, B2 with SST bolts	★
B9	Traditional flange bracket, B3 with SST bolts	★
BA	Traditional flange bracket, B1, all SST	★
BC	Traditional flange bracket, B3, all SST	★
<b>Product certifications</b>		
E8	ATEX Flameproof and Dust Certification	★
I1 <sup>(19)</sup>	ATEX Intrinsic Safety and Dust	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION Fieldbus or PROFIBUS PA Protocol only	★
N1	ATEX Type n Certification and Dust	★
K8	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E8, I1 and N1)	★
E4 <sup>(20)</sup>	TIIS Flame-proof	★
E5	FM Explosion-proof, Dust Ignition-Proof	★
I5 <sup>(21)</sup>	FM Intrinsically Safe, Nonincendive	★
IE	FM FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocol only	★
K5	FM Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6 <sup>(9)</sup>	CSA Intrinsic Safety	★
K6	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6, E8, and I1)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n Certification	★
K7	IECEx Flame-proof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO intrinsically safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K2	INMETRO Flameproof, Intrinsic Safety	★



**Table 1: Rosemount 3051C Coplanar Pressure Transmitters Ordering Information (continued)**

E3	China Flameproof	★
I3	China Intrinsic Safety	★
N3	China Type n	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof and Intrinsic Safety	★
KB	FM and CSA Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
EP <sup>(22)</sup>	Republic of Korea Flameproof	★
IP <sup>(23)</sup>	Republic of Korea Intrinsic Safety	★
KP <sup>(24)</sup>	Republic of Korea Flameproof, Intrinsic Safety	★
<b>Drinking water approval<sup>(25)</sup></b>		
DW	NSF drinking water approval	★
<b>Shipboard approvals<sup>(8)</sup></b>		
SBS	American Bureau of Shipping	★
SBV <sup>(26)</sup>	Bureau Veritas (BV)	★
SDN	Det Norske Veritas	★
SLL <sup>(26)</sup>	Lloyds Register (LR)	★
<b>Custody transfer<sup>(27)</sup></b>		
C5	Measurement Canada Accuracy Approval (limited availability depending on transmitter type and range; contact an Emerson representative).	★
<b>Bolting material</b>		
L4	Austenitic 316 SST bolts	★
L5	ASTM A 193, grade B7M bolts	★
L6	Alloy K-500 bolts	★
<b>Display and interface options</b>		
M4 <sup>(28)</sup>	LCD display with LOI	★
M5	LCD display	★
<b>Calibration certificate</b>		
Q4	Calibration Certificate	★
QG <sup>(29)</sup>	Calibration Certificate and GOST Verification Certificate	★
QP	Calibration certification and tamper evident seal	★
<b>Material traceability certification</b>		
Q8	Material Traceability Certification per EN 10204 3.1	★
<b>Quality certification for safety<sup>(27)</sup></b>		
QS	Prior-use certificate of FMEDA data	★

**Table 1: Rosemount 3051C Coplanar Pressure Transmitters Ordering Information (continued)**

QT	Safety certified to IEC 61508 with certificate of FMEDA	★
<b>Configuration buttons</b>		
D4 <sup>(27)</sup>	Analog zero and span	★
DZ <sup>(30)</sup>	Digital zero trim	★
<b>Transient protection<sup>(8)</sup> (31)</b>		
T1	Transient protection terminal block	★
<b>Software configuration<sup>(30)</sup></b>		
C1	Custom software configuration (For wired, see the Rosemount 3051 <a href="#">Configuration Data Sheet</a> . For wireless, see the Rosemount 3051 Wireless <a href="#">Configuration Data Sheet</a> .)	★
<b>Low power output</b>		
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	★
<b>Gage pressure calibration</b>		
C3	Gage calibration (Rosemount 3051ca4 only)	★
<b>Alarm levels<sup>(27)</sup></b>		
C4 <sup>(32)</sup>	Analog output levels compliant with NAMUR recommendation NE 43, alarm high	★
CN <sup>(32)</sup>	Analog output levels compliant with NAMUR recommendation NE 43, alarm low	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Rosemount 3051 <a href="#">Configuration Data Sheet</a> )	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Rosemount 3051 <a href="#">Configuration Data Sheet</a> )	★
CT	Rosemount standard low alarm	★
<b>Pressure testing</b>		
P1	Hydrostatic testing with certificate	
<b>Cleaning process area</b>		
P2	Cleaning for special service	
P3 <sup>(33)</sup>	Cleaning for < 1 ppm chlorine/fluorine	
<b>Flange adapters<sup>(34)</sup></b>		
DF	½–14 NPT flange adapter(s)	★
<b>Vent/drain valves</b>		
D7	Coplanar flange without drain/vent ports	
DC	Ports left open - None	
<b>Conduit plug<sup>(8)</sup></b>		
DO	316 SST conduit plug	★
<b>RC¼ RC½ process connection<sup>(35)</sup></b>		
D9	RC¼ flange with RC½ flange adapter - SST	
<b>Max static line pressure</b>		
P9	4500 psig (310,26 bar) static pressure limit (Rosemount 3051CD Ranges 2–5 only)	★

**Table 1: Rosemount 3051C Coplanar Pressure Transmitters Ordering Information (continued)**

<b>Ground screw<sup>(8)(36)</sup></b>		
V5	External ground screw assembly	★
<b>Surface finish</b>		
Q16	Surface finish certification for sanitary remote seals	★
<b>Toolkit total system performance reports</b>		
QZ	Remote seal system performance calculation report	★
<b>Conduit electrical connector<sup>(8)</sup></b>		
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
<b>NACE® certificate<sup>(37)</sup></b>		
Q15	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of Compliance to NACE MR0103 for wetted materials	★
<b>Cold temperature<sup>(38)</sup></b>		
BR5 <sup>(39)</sup>	–58 °F (–50 °C) cold temperature operation	★
BR6 <sup>(40)</sup>	–76 °F (–60 °C) cold temperature operation	★
<b>HART revision configuration (requires HART Protocol output code A)<sup>(3)</sup></b>		
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★
<b>Typical Model Number: 3051CD 2 A 2 2 A 1 A B4</b>		

- (1) If ordered with Wireless output code X, only available with 316L stainless steel (SST) diaphragm material (code 2), and silicone fill fluid (code 1).
- (2) Rosemount 3051CD0 is only available with output code A and X. For output code A, only process flange code 0 (Alternate flange H2, H7, HJ, or HK), isolating diaphragm code 2, O ring code A, and bolting option L4 are available. For output code X, only process flange code 0 (Alternate flange H2), isolating diaphragm code 2, O ring code A, and bolting option L4 are available.
- (3) HART Revision 5 is the default HART output.
- (4) For local addressing and configuration, M4 (LOI) is required.
- (5) Available approvals are FM Intrinsically Safe, (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), IECEx Intrinsic Safety (option code I7) and EAC Intrinsic Safety (option code IM).
- (6) Only available with C6, E2, E5, I5, K5, KB and E8 product certifications. Not available with GE, GM, SBS, DA0, M4, D4, DZ, QT, HR5, HR7, CR, CS, CT.
- (7) 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.
- (8) Not available with wireless output (code X).
- (9) Only available with wireless output (code X).
- (10) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. Not available with product certifications options E8, K8, E5, K5, C6, K6, E7, K7, E2, K2, E3, KB, or KD.
- (11) Requires wireless output code X and engineered polymer housing code P.
- (12) Requires 0 code in materials of construction for alternate process connection.
- (13) Not valid with option code P9 for 4500 static pressure.
- (14) "Assemble-to" items are specified separately and require a completed model number.
- (15) Process flange limited to coplanar (option codes 2, 3, 5, 7, or 8) or traditional (option codes H2, H3, or H7).
- (16) Not valid with option code D9 for RC1/2 adapters.
- (17) Not valid for option codes DF and D9 for adapters.
- (18) Panel mounting bolts are not supplied.
- (19) Dust approval not applicable to output code X. See [C5 Custody Transfer - Measurement Canada Accuracy Approval](#) for wireless approvals.
- (20) Only available with output codes A - 4–20 mA HART, F - FOUNDATION Fieldbus, and W - PROFIBUS PA. Also only available with G½ housing thread types.
- (21) Nonincendive certification not provided with Wireless output option code (X).

- (22) Only available with HART 4-20 mA output (code A), FOUNDATION Fieldbus output (code F), and Low Power output (code M) and with housing codes A, B, E, F, J, and K. Not available with codes DZ, V5, GE, GM, BR5, or BR6.
- (23) Only available with HART 4-20 mA output (code A), FOUNDATION Fieldbus output (code F), Wireless output (code X), and PROFIBUS-PA output (code W) and with housing codes A, B, E, F, J, K, and P. Not available with codes V5, GE, or GM.
- (24) Only available with HART 4-20 mA output (code A) and FOUNDATION Fieldbus output (code F) and housing codes A, B, E, F, J, and K. Not available with codes DA0, DZ, V5, GE, GM, or BR6.
- (25) Not available with Alloy C-276 isolator (code 3), tantalum isolator (code 5), all cast C-276 flanges, all plated carbon steel (CS) flanges, all DIN flanges, all level flanges, assemble-to manifolds (codes S5 and S6), assemble-to seals (codes S1 and S2), assemble-to primary elements (codes S3 and S4), surface finish certification (code Q16), and remote seal system report (code QZ).
- (26) Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, N7
- (27) Only available with HART 4–20 mA output (code A).
- (28) Only available with 4-20 mA HART output (code A) and PROFIBUS-PA (code W).
- (29) Contact an Emerson representative for availability.
- (30) Only available with HART 4–20 mA output (output code A) and wireless output (output code X)
- (31) The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA, IB, and IE.
- (32) NAMUR-compliant operation is pre-set at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.
- (33) Not available with code S5.
- (34) Not valid with alternate process connection options S3, S4, S5, and S6.
- (35) Not available with alternate process connection, DIN flanges, and level flanges.
- (36) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (37) NACE-compliant wetted materials required. See <sup>(7)</sup>.
- (38) Only available for pressure type D and G, pressure ranges 1–5 with 4-20 mA HART protocol, and silicone sensor fill fluid. Available with 316SST, C-276, and gold plated SST isolating diaphragms. Available with process flange types 2, 7, and 0 (only for HJ, HK, and HL). BR5 and BR6 are not available with the following options: QS, DC, DF, D7, D9, P9, Q16, GE, and GM. See factory for available approvals.
- (39) BR5 option is only available with approval codes E2, E5, EM, I2, I5, I7, IM, IP, K5, KM, and KP.
- (40) BR6 option is only available with approval codes EM, I2, I7, IM, IP, and KM.

# Rosemount™ 3051T In-Line Pressure Transmitter



Rosemount 3051T In-Line Pressure Transmitters are the industry standard for gage and absolute pressure measurement. The in-line, compact design allows the transmitter to be connected directly to a process for quick, easy and cost effective installation. Capabilities include:

- The Loop Integrity Diagnostic continuously monitors the electrical loop to detect changes that compromise the integrity of the transmitted 4-20 mA output signal (Option Code DA0).
- LOI with straightforward menus and built-in configuration buttons (option code M4).
- Safety certification (option code QT).

[CONFIGURE >](#)
[VIEW PRODUCT >](#)

See [Specifications](#) and options for more details on each configuration. Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [Material selection](#) for more information on material selection.

**Table 2: Rosemount 3051T In-Line Pressure Transmitter Ordering Information**

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Transmitter type		
3051T	In-line pressure transmitter		
Pressure type			
G	Gage		★
A <sup>(1)</sup>	Absolute		★
Pressure range			
	Gage (Rosemount 3051TG) <sup>(2)</sup>	Absolute (Rosemount 3051TA)	
1	–14.7 to 30 psi (–1,01 to 2,06 bar)	0 to 30 psia (0 to 2,06 bar)	★
2	–14.7 to 150 psi (–1,01 to 10,34 bar)	0 to 150 psia (0 to 10,34 bar)	★
3	–14.7 to 800 psi (–1,01 to 55,15 bar)	0 to 800 psia (0 to 55,15 bar)	★
4	–14.7 to 4000 psi (–1,01 to 275,79 bar)	0 to 4000 psia (0 to 275,79 bar)	★
5	–14.7 to 10000 psi (–1,01 to 689,47 bar)	0 to 10000 psia (0 to 689,47 bar)	★
6 <sup>(3)</sup>	–14.7 to 20000 psi (–1,01 to 1378,95 bar)	0 to 20000 psia (0 to 1378,95 bar)	
Transmitter output			
A <sup>(4)</sup>	4–20 mA with digital signal based on HART® Protocol		★
F	FOUNDATION™ Fieldbus Protocol		★
W <sup>(5)</sup>	PROFIBUS® PA Protocol		★

**Table 2: Rosemount 3051T In-Line Pressure Transmitter Ordering Information (continued)**

X <sup>(6)</sup>	Wireless (requires wireless options and engineered polymer housing)		★
M <sup>(7)</sup>	Low-power 1–5 Vdc with digital signal based on HART Protocol		
Process connection style			
2B	½–14 NPT female (range 1–5 only)		★
2C <sup>(8)</sup>	G½ A EN837-1 male (range 1–4 only)		★
2F <sup>(9)</sup>	Coned and threaded, compatible with autoclave Type F-250-C (range 5–6 only)		
61 <sup>(10)(11)</sup>	Non-threaded Instrument flange (range 1–4 only)		
Isolating diaphragm <sup>(12)</sup>		Process connection wetted parts material	
2	316L SST	316L SST	★
3	Alloy C-276	Alloy C-276	★
7	Gold-plated 316 SST	316L SST	
Sensor fill fluid			
1	Silicone		★
2 <sup>(10)</sup>	Inert		★
Housing material		Conduit entry size	
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 x 1.5	★
E	Aluminum, ultra low copper	½–14 NPT	
F	Aluminum, ultra low copper	M20 x 1.5	
J	SST	½–14 NPT	★
K	SST	M20 x 1.5	★
P <sup>(13)</sup>	Engineered polymer	No conduit entries	★
D <sup>(14)</sup>	Aluminum	G½	
M <sup>(14)</sup>	SST	G½	
Wireless options (requires wireless output code X and engineered polymer housing code P)			
Wireless transmit rate, operating frequency, and protocol			
WA3	User configurable transmit rate, 2.4GHz WirelessHART		★
Antenna and SmartPower			
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)		★
Options (include with selected model number)			
Extended product warranty			
WR3	3-year limited warranty		★
WR5	5-year limited warranty		★
Plantweb™ control functionality			
A01	FOUNDATION Fieldbus control function block suite		★

**Table 2: Rosemount 3051T In-Line Pressure Transmitter Ordering Information (continued)**

<b>Plantweb diagnostic functionality</b>		
DA0	Loop Integrity HART diagnostic	★
D01	FOUNDATION Fieldbus diagnostics suite	★
<b>Integral assembly<sup>(15)</sup></b>		
S5	Assemble to Rosemount 306 integral manifold	★
<b>Diaphragm seal assemblies<sup>(15)</sup></b>		
S1	Assemble to one Rosemount 1199 seal	★
<b>Mounting bracket<sup>(16)</sup></b>		
B4	Bracket for 2-in. pipe or panel mounting, all SST	★
<b>Product certifications</b>		
E8	ATEX Flameproof and Dust Certification	★
I1 <sup>(17)</sup>	ATEX Intrinsic Safety and Dust	★
IA	ATEX Intrinsic Safety for FISCO; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
N1	ATEX Type n Certification and Dust	★
K8	ATEX Flame-proof, Intrinsic Safety, Type n, Dust (combination of E8, I1 and N1)	★
E4 <sup>(18)</sup>	TIIS Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5 <sup>(19)</sup>	FM Intrinsically Safe, Nonincendive	★
IE	FM FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6 <sup>(13)</sup>	CSA Intrinsic Safety	★
K6	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6, E8, and I1)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n Certification	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO intrinsically safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
N3	China Type n	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★

**Table 2: Rosemount 3051T In-Line Pressure Transmitter Ordering Information (continued)**

IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof and Intrinsic Safety	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
EP <sup>(20)</sup>	Republic of Korea Flameproof	
IP <sup>(21)</sup>	Republic of Korea Intrinsic Safety	
KP <sup>(22)</sup>	Republic of Korea Flameproof, Intrinsic Safety	
<b>Drinking water approval<sup>(23)</sup></b>		
DW	NSF drinking water approval	★
<b>Shipboard approvals<sup>(10)</sup></b>		
SBS	American Bureau of Shipping	★
SBV <sup>(24)</sup>	Bureau Veritas (BV)	★
SDN	Det Norske Veritas	★
SLL <sup>(24)</sup>	Lloyds Register (LR)	★
<b>Custody transfer</b>		
C5	Measurement Canada Accuracy Approval (limited availability depending on transmitter type and range. Contact an Emerson representative.)	★
<b>Calibration certification</b>		
Q4	Calibration certificate	★
QG	Calibration certificate and GOST verification certificate	★
QP	Calibration certification and tamper evident seal	★
<b>Material traceability certification</b>		
Q8	Material traceability certification per EN 10204 3.1	★
<b>Quality certification for safety<sup>(25)</sup></b>		
QS	Prior-use certificate of FMEDA Data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
<b>Configuration buttons</b>		
D4 <sup>(25)</sup>	Analog zero and span	★
DZ <sup>(26)</sup>	Digital zero trim	★
<b>Display and interface options</b>		
M4 <sup>(27)</sup>	LCD display with LOI	★
M5	LCD display	★
<b>Wireless stainless steel sensor module<sup>(13)</sup></b>		
WSM	Wireless SST sensor module	★
<b>Conduit plug<sup>(10)(28)</sup></b>		
DO	316 SST conduit plug	★



**Table 2: Rosemount 3051T In-Line Pressure Transmitter Ordering Information (continued)**

<b>Transient terminal block<sup>(10)(29)</sup></b>		
T1	Transient protection terminal block	★
<b>Software configuration<sup>(26)</sup></b>		
C1	Custom Software Configuration (For wired, see the Rosemount 3051 <a href="#">Configuration Data Sheet</a> . For wireless, see the Rosemount 3051 Wireless <a href="#">Configuration Data Sheet</a> .)	★
<b>Low power output</b>		
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	
<b>Alarm levels<sup>(25)</sup></b>		
C4 <sup>(30)</sup>	Analog output levels compliant with NAMUR recommendation NE 43, alarm high	★
CN <sup>(30)</sup>	Analog output levels compliant with NAMUR recommendation NE 43, low alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Rosemount 3051 <a href="#">Configuration Data Sheet</a> )	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Rosemount 3051 <a href="#">Configuration Data Sheet</a> )	★
CT	Rosemount standard low alarm	★
<b>Pressure testing</b>		
P1	Hydrostatic testing with certificate	
<b>Cleaning process area<sup>(31)</sup></b>		
P2	Cleaning for special service	
P3	Cleaning for <1 ppm chlorine/fluorine	
<b>Ground screw<sup>(10)(32)</sup></b>		
V5	External ground screw assembly	★
<b>Surface finish</b>		
Q16	Surface finish certification for sanitary remote seals	★
<b>Toolkit total system performance reports</b>		
QZ	Remote seal system performance calculation report	★
<b>Conduit electrical connector<sup>(10)</sup></b>		
GE	M12, 4-pin, male connector (eurofast)	★
GM	A size mini, 4-pin, male connector (minifast)	★
<b>NACE certificate<sup>(33)</sup></b>		
Q15	Certificate of Compliance to NACE MR0175/ISO15156 for wetted materials	★
Q25	Certificate of Compliance to NACE MR0103 for wetted materials	★
<b>Cold temperature<sup>(34)</sup></b>		
BR5 <sup>(35)</sup>	–58 °F (–50 °C) cold temperature	★
BR6 <sup>(36)</sup>	–76 °F (–60 °C) cold temperature	★
<b>HART Revision configuration (requires HART output code A)<sup>(4)</sup></b>		
HR5	Configured for HART Revision 5	★

**Table 2: Rosemount 3051T In-Line Pressure Transmitter Ordering Information (continued)**

HR7	Configured for HART Revision 7	★
<b>Typical model number: 3051T G 5 F 2A 2 1 A B4</b>		

- (1) Wireless output (code X) only available in absolute measurement type (code A) in range 1–5 with ½–14 NPT process connection (code 2B), and polymer housing (code P). Wireless output and range 6 is only available with coned and threaded process connection (code 2F) and polymer housing.
- (2) Rosemount 3051TG lower range limit assumes atmospheric pressure of 14.7 psig.
- (3) Not available with PROFIBUS PA or Low Power 1–5 Vdc transmitter output (option code W or M), inert sensor fill fluid (option code 2), NSW drinking water approval (option code DW), or assemble to manifolds (option code S5).
- (4) Option HR5 configures the HART output to HART Revision 5. Option HR7 configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 or 7 if desired. HART Revision 5 is the default HART output.
- (5) For local addressing and configuration, M4 (LOI) is required.
- (6) Available approvals are FM Intrinsically Safe, (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), IECEx Intrinsic Safety (option code I7), and EAC Intrinsic Safety (option code IM).
- (7) Only available with C6, E2, E5, I5, K5, KB, and E8 product certifications. Not available with GE, GM, SBS, DA0, M4, D4, DZ, QT, HR5, HR7, CR, CS, CT.
- (8) Wireless output (code X), not available with Absolute pressure type or C-276 diaphragm. Not available with S1, S5, or WSM. Only available in G½ A EN837-1 male process connection (code 2C) with range 1–4, 316 SST isolating diaphragm (code 2), silicone fill fluid (code 1), and housing (code P).
- (9) Not available with wireless output for range 5.
- (10) Not available with wireless output.
- (11) Only available with 316L SST isolating diaphragm.
- (12) 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.
- (13) Only available with wireless output. Not available with Absolute pressure type, range 1–4.
- (14) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. Not available with Product certifications options E8, K8, E5, K5, C6, K6, E7, K7, E2, K2, E3, KB, and KD.
- (15) “Assemble-to” items are specified separately and require a completed model number.
- (16) Panel mounting bolts are not supplied.
- (17) Dust approval not applicable to output code X. See [C5 Custody Transfer - Measurement Canada Accuracy Approval](#) for wireless approvals.
- (18) Only available with output codes A - 4–20mA HART, F - FOUNDATION Fieldbus, and W - PROFIBUS PA. Also only available with G1/2 housing thread types.
- (19) Nonincendive certification not provided with wireless output option code (X).
- (20) Only available with HART 4–20 mA output (code A), FOUNDATION Fieldbus output (code F), and Low Power output (code M). Available with process connection codes 2A, 2B, 2C, 2F, and 61. Available with housing material codes A, B, E, F, J, and K. Not available with codes DZ, V5, GE, GM, or BR6.
- (21) Only available with HART 4–20 mA output (code A), FOUNDATION Fieldbus output (code F), Wireless output (code X), and PROFIBUS-PA output (code W). Option IP is not available with 3051T Range 6 ordered with Wireless output. Available with process connection codes 2A, 2B, 2C, 2F, and 61. Available with housing material codes A, B, E, F, J, K, and P. Not available with code M4, V5, GE, or GM.
- (22) Only available with HART 4–20 mA output (code A) and FOUNDATION Fieldbus output (code F). Available with process connection codes 2A, 2B, 2C, 2F, and 61. Available with housing material codes A, B, E, F, J, and K. Not available with codes DA0, DZ, M4, V5, GE, GM, or BR6.
- (23) Not available with Alloy C-276 isolator (option code 3), assemble-to manifolds (option code S5), assemble-to seals (option code S1), surface finish certification (option code Q16), and remote seal system report (option code QZ).
- (24) Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, and N7.
- (25) Only available with HART 4–20 mA output code A.
- (26) Only available with HART 4–20 mA output code A and wireless output code X.
- (27) Only available with 4–20 mA HART output (code A) and PROFIBUS-PA output (code W).
- (28) Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard CS conduit plug.
- (29) The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA, IB, and IE.
- (30) NAMUR-compliant operation is pre-set at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.
- (31) Not valid with alternate process connection code S5.
- (32) The V5 option is not needed with T1 option; external ground screw assembly is included with the T1 option.
- (33) NACE compliant wetted materials are identified by footnote <sup>(12)</sup>.
- (34) Only available on pressure ranges 1–5, 4–20mA HART protocol, and silicone sensor fill fluid. Available with process connection style 2B and 2C. BR5 and BR6 are not available with the following options: QS, DF, D7, D9, P9, Q16, GE, and GM. See factory for available approvals.
- (35) BR5 option is only available with approval codes E2, E5, EM, I2, I5, I7, IM, IP, K5, KM, and KP.
- (36) BR6 option is only available with approval codes EM, I2, I7, IM, IP, and KM.

## Rosemount™ 3051CF Flow meter selection guide

Rosemount 3051CF Flow meters combine the proven Rosemount 3051 Pressure Transmitter and the latest primary element technologies. All flow meters are fully assembled, calibrated, configured, and leak tested for out-of-the-box installation and are available with wired or wireless capabilities to meet all of your application needs.

### Rosemount 3051CFA Annubar Flow meter



Rosemount Annubar technology minimizes permanent pressure loss while delivering best in class accuracy.

- Lowest material costs for large line sizes.
- Flo-tap enables installation without process shutdown.
- Realize up to 96 percent less permanent pressure loss compared to traditional orifice plate installations.

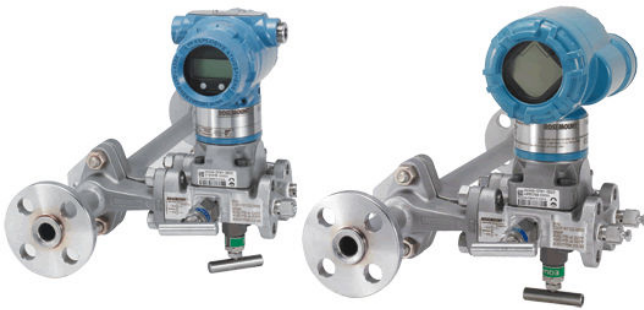
### Rosemount 3051CFC Compact Conditioning Flow meter



Rosemount Compact Conditioning technologies provide unprecedented performance with minimal straight-run requirements. Solutions include conditioning orifice plate or Rosemount Annubar primary elements.

- Conditioning orifice requires only two pipe diameters upstream and downstream.
- Eliminate swirl and regular profiles resulting in more stable and accurate flow measurement.
- Savings up to 55 percent when compared to a traditional orifice plate installation can be realized.

### Rosemount 3051CFP Integral Orifice Flow meter



Rosemount Integral Orifice Flow meters deliver highly accurate small-bore flow measurement capability with minimal installation and maintenance requirements.

- Best performance for small line sizes ½- to 1½-in. (15 to 40 mm).
- Precision honed pipe section and tight machining tolerances deliver higher installed performance.
- Reduces uncertainty by up to five percent compared to traditional orifice plate installation.

# Rosemount™ 3051CFA Annubar Flow Meter



The Rosemount 3051CFA Annubar Flow Meter uses the T-shaped sensor design that delivers best in class accuracy and performance while meeting the needs of diverse process applications, whether it is high accuracy for precision control or high strength for severe flow applications. Main capabilities include:

- Up to 1.8 percent of flow rate accuracy.
- Available in 2- to 96-in. (50 to 2400 mm) line.
- Fully assembled and leak tested for out-of-the-box installation.
- The Loop Integrity Diagnostic continuously monitors the electrical loop to detect changes that compromise the integrity of the transmitted 4-20 mA output signal (Option Code DA0).
- LOI with straightforward menus and built-in configuration buttons (option code M4).

[VIEW PRODUCT >](#)

See [Specifications](#) and options for more details on each configuration. Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [Material selection](#) for more information on material selection.

**Table 3: Rosemount 3051CFA Annubar Flow Meter Ordering Information**

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Product description	
3051CFA	Rosemount Annubar Flow Meter	
<b>Measurement type</b>		
D	Differential pressure	★
<b>Fluid type</b>		
L	Liquid	★
G	Gas	★
S	Steam	★
<b>Line size</b>		
020	2-in. (50 mm)	★
025	2½-in. (63.5 mm)	★
030	3-in. (80 mm)	★
035	3½-in. (89 mm)	★
040	4-in. (100 mm)	★
050	5-in. (125 mm)	★
060	6-in. (150 mm)	★
070	7-in. (175 mm)	★
080	8-in. (200 mm)	★

**Table 3: Rosemount 3051CFA Annubar Flow Meter Ordering Information (continued)**

100	10-in. (250 mm)	★
120	12-in. (300 mm)	★
140	14-in. (350 mm)	
160	16-in. (400 mm)	
180	18-in. (450 mm)	
200	20-in. (500 mm)	
240	24-in. (600 mm)	
300	30-in. (750 mm)	
360	36-in. (900 mm)	
420	42-in. (1066 mm)	
480	48-in. (1210 mm)	
600	60-in. (1520 mm)	
720	72-in. (1820 mm)	
780	78-in. (1950 mm)	
840	84-in. (2100 mm)	
900	90-in. (2250 mm)	
960	96-in. (2400 mm)	
<b>Pipe I.D. range</b>		
Z	Specify pipe I.D. and wall thickness	★
<b>Pipe material/mounting assembly material</b>		
C	CS (A105)	★
S	316 SST	★
O	No mounting (customer supplied)	★
G	Chrome-moly grade F-11	
N	Chrome-moly grade F-22	
J	Chrome-moly grade F-91	
<b>Piping orientation</b>		
H	Horizontal piping	★
D	Vertical piping with downwards flow	★
U	Vertical piping with upwards flow	★
<b>Annubar type</b>		
P	Pak-Lok	★
F	Flanged with opposite side support	★
L	Flange-Lok	
G	Gear-drive Flo-Tap	
M	Manual Flo-Tap	

**Table 3: Rosemount 3051CFA Annubar Flow Meter Ordering Information (continued)**

Sensor material				
S	316 SST			★
H	Alloy C-276			
Sensor size				
1	Sensor size 1 — line sizes 2- to 8-in. (50 to 200 mm)			★
2	Sensor size 2 — line sizes 6- to 96-in. (150 to 2400 mm)			★
3	Sensor size 3 — line sizes greater than 12-in. (300 mm)			★
Mounting type				
T1	Compression or threaded connection			★
A1	Class 150 RF ANSI			★
A3	Class 300 RF ANSI			★
A6	Class 600RF ANSI			★
D1	DN PN16 flange			★
D3	DN PN40 flange			★
D6	DN PN100 flange			★
A9 <sup>(1)</sup>	Class 900 RF ANSI			
AF <sup>(1)</sup>	Class 1500 RF ANSI			
AT <sup>(1)</sup>	Class 2500 RF ANSI			
R1	Class 150 RTJ flange			
R3	Class 300 RTJ flange			
R6	Class 600RTJ flange			
R9 <sup>(1)</sup>	Class 900 RTJ flange			
RF <sup>(1)</sup>	Class 1500 RTJ flange			
RT <sup>(1)</sup>	Class 2500 RTJ flange			
Opposite side support or packing gland				
0	No opposite side support or packing gland (required for Pak-Lok and Flange-Lok models)			★
Opposite side support – required for flanged models				
C	NPT threaded opposite support assembly – extended tip			★
D	Welded opposite support assembly – extended tip			★
Packing gland – required for Flo-Tap models				
	Packing gland material	Rod material	Packing material	
J <sup>(2)</sup>	SST packing gland/cage nipple	CS	PTFE	
K <sup>(2)</sup>	SST packing gland/cage nipple	SST	PTFE	
L <sup>(2)</sup>	SST packing gland/cage nipple	CS	Graphite	
N <sup>(2)</sup>	SST packing gland/cage nipple	SST	Graphite	
R	Alloy C-276 packing gland/cage nipple	SST	Graphite	

**Table 3: Rosemount 3051CFA Annubar Flow Meter Ordering Information (continued)**

Isolation valve for Flo-Tap models		
0	Not applicable or customer supplied	★
1	Gate valve, CS	
2	Gate valve, SST	
5	Ball valve, CS	
6	Ball valve, SST	
Temperature measurement		
T	Integral RTD – not available with flanged model greater than Class 600	★
0	No temperature sensor	★
R	Remote Thermowell and RTD	
Transmitter connection platform		
3	Direct-mount, integral 3-valve manifold– not available with flanged model greater than Class 600	★
5	Direct-mount, 5-valve manifold – not available with flanged model greater than Class 600	★
7	Remote-mount NPT connections (½-in. NPT)	★
6	Direct-mount, high temperature 5-valve manifold – not available with flanged model greater than Class 600	
8	Remote-mount SW connections (½-in.)	
Differential pressure range		
1	0 to 25 in H <sub>2</sub> O (0 to 62,16 mbar)	★
2	0 to 250 in H <sub>2</sub> O (0 to 621,60 mbar)	★
3	0 to 1000 in H <sub>2</sub> O (0 to 2,48 bar)	★
Transmitter output		
A <sup>(3)</sup>	4–20 mA with digital signal based on HART® Protocol	★
F	FOUNDATION™ Fieldbus Protocol	★
W <sup>(4)</sup>	PROFIBUS® PA Protocol	★
X <sup>(5)</sup>	Wireless (requires wireless options and engineered polymer housing)	★
M <sup>(6)</sup>	Low-power 1–5 Vdc with digital signal based on HART Protocol	
Transmitter housing material		Conduit entry size
A	Aluminum	½–14 NPT
B	Aluminum	M20 x 1.5
J	SST	½–14 NPT
E	Aluminum, ultra copper low	½–14 NPT
F	Aluminum, ultra copper low	M20 x 1.5
K	SST	M20 x 1.5
P <sup>(7)</sup>	Engineered polymer	No conduit entries
D <sup>(8)</sup>	Aluminum	G½
M <sup>(8)</sup>	SST	G½



**Table 3: Rosemount 3051CFA Annubar Flow Meter Ordering Information (continued)**

<b>Transmitter performance class</b>		
1	1.8 percent flow rate accuracy, 8:1 flow turndown, 5-yr. stability	★
<b>Wireless options (requires wireless output code X and Engineered Polymer Housing Code P)</b>		
<b>Wireless transmit rate, operating frequency, and protocol</b>		
WA3	User configurable transmit rate, 2.4 GHz WirelessHART	★
<b>Antenna and SmartPower</b>		
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)	★
<b>Options (include with selected model number)</b>		
<b>Extended product warranty</b>		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
<b>Pressure testing<sup>(9)</sup></b>		
P1	Hydrostatic testing with certificate	
PX	Extended hydrostatic testing	
<b>Special cleaning</b>		
P2	Cleaning for special services	
PA	Cleaning per ASTM G93 Level D (section 11.4)	
<b>Material testing</b>		
V1	Dye penetrant exam	
<b>Material examination</b>		
V2	Radiographic examination	
<b>Flow calibration</b>		
W1	Flow calibration (Average K)	
<b>Special inspection</b>		
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★
<b>Surface finish</b>		
RL	Surface finish for low pipe Reynolds number in gas and steam	★
RH	Surface finish for high pipe Reynolds number in liquid	★
<b>Material traceability certification<sup>(10)</sup></b>		
Q8	Material Traceability Certification per EN 10474:2004 3.1	★
<b>Code conformance<sup>(11)</sup></b>		
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
<b>Materials conformance<sup>(12)</sup></b>		
J5	NACE MR-0175 / ISO 15156	

**Table 3: Rosemount 3051CFA Annubar Flow Meter Ordering Information (continued)**

Country certification		
J6	European Pressure Directive (PED)	★
J1	Canadian Registration	
Installed in flanged pipe spool section		
H3	Class 150 flanged connection with Rosemount standard length and schedule	
H4	Class 300 flanged connection with Rosemount standard length and schedule	
H5	Class 600 flanged connection with Rosemount standard length and schedule	
Instrument connections for remote mount options		
G2	Needle valves, SST	★
G6	OS&Y gate valve, SST	★
G1	Needle valves, CS	
G3	Needle valves, alloy C-276	
G5	OS&Y gate valve, CS	
G7	OS&Y gate valve, alloy C-276	
Special shipment		
Y1	Mounting hardware shipped separately	★
Special dimensions		
VM	Variable mounting	
VT	Variable tip	
VS	Variable length spool section	
Plantweb™ control functionality <sup>(13)</sup>		
A01	FOUNDATION Fieldbus control function block suite	★
Plantweb diagnostic functionality		
DA0 <sup>(14)</sup>	Loop Integrity HART diagnostic	★
D01 <sup>(13)</sup>	FOUNDATION Fieldbus diagnostics suite	★
Product certifications		
E8	ATEX Flameproof, Dust	★
I1 <sup>(15)</sup>	ATEX Intrinsic Safety and Dust	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
N1	ATEX Type n and Dust	★
K8	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E8, I1, and N1)	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5 <sup>(16)</sup>	FM Intrinsically Safe, Nonincendive	★
IE	FM FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of E5 and I5)	★
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★

**Table 3: Rosemount 3051CFA Annubar Flow Meter Ordering Information (continued)**

I6 <sup>(7)</sup>	CSA Intrinsically Safe	★
K6	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6, E8, and I1)	★
E7	IECEX Flameproof, Dust Ignition-proof	★
I7	IECEX Intrinsic Safety	★
N7	IECEX Type n	★
K7	IECEX Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO intrinsically safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	CSA, FM, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
<b>Sensor fill fluid and O-ring options</b>		
L1 <sup>(17)</sup>	Inert sensor fill fluid (silicone fill fluid is standard)	★
L2	Graphite-filled (PTFE) O-ring	★
LA <sup>(17)</sup>	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★
<b>Shipboard approvals<sup>(17)</sup></b>		
SBS	American Bureau of Shipping	★
SLL <sup>(18)</sup>	Lloyds Register (LR)	
<b>Display and interface options</b>		
M4 <sup>(19)</sup>	LCD display with LOI	★
M5	LCD display	★
<b>Transmitter calibration certification</b>		
Q4	Calibration certificate for transmitter	★
<b>Quality certification for safety<sup>(14)</sup></b>		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
<b>Transient protection<sup>(17)</sup> (20)</b>		
T1	Transient terminal block	★
<b>Manifold for remote mount option</b>		
F2	3-valve manifold, SST	★
F6	5-valve manifold, SST	★
F1	3-valve manifold, CS	

**Table 3: Rosemount 3051CFA Annubar Flow Meter Ordering Information (continued)**

F3	3-valve manifold, alloy C-276	
F5	5-valve manifold, CS	
F7	5-valve manifold, alloy C-276	
<b>Lower power output</b>		
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	
<b>Alarm levels<sup>(14)</sup></b>		
C4 <sup>(21)</sup>	NAMUR alarm and saturation levels, high alarm	★
CN <sup>(21)</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	Rosemount standard low alarm	★
<b>Configuration buttons</b>		
D4 <sup>(14)</sup>	Analog zero and span	★
DZ <sup>(22)</sup>	Digital zero trim	★
<b>Ground screw<sup>(17)(23)</sup></b>		
V5	External ground screw assembly	★
<b>HART Revision configuration (requires HART Protocol output code A)<sup>(3)</sup></b>		
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★
<b>Typical model number: 3051CFA D L 060 D C H P S 2 T1 0 0 0 3 2 A A 1</b>		

(1) Available in remote mount applications only.

(2) The cage nipple is constructed of Rosemount 304 SST.

(3) Option HR5 configures the HART output to HART Revision 5. Option HR7 configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 or 7 if desired. HART Revision 5 is the default HART output.

(4) For local addressing and configuration, M4 (LOI) is required.

(5) Requires wireless options and engineered polymer housing. Available approvals are FM Intrinsically Safe, (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), and IECEx Intrinsic Safety (option code I7).

(6) Only available with C6, E2, E5, I5, K5, KB, and E8 approval. Not available with GE, GM, SBS, DA0, M4, D4, DZ, QT, HR5, HR7, CR, CS, or CT.

(7) Only available with wireless (output code X).

(8) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. Not available with Product certifications options E8, K8, E5, K5, C6, K6, E7, K7, E2, K2, E3, KB, or KD.

(9) Applies to assembled flow meter only, mounting not tested.

(10) Instrument connections for remote mount options and isolation valves for Flo-tap models are not included in the Material Traceability Certification.

(11) Not available with transmitter connection platform 6.

(12) Materials of Construction comply with metallurgical requirements within NACE MR0175/ISO 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.

(13) Only valid with FOUNDATION Fieldbus output code F.

(14) Only available with 4–20 mA HART (output code A).

(15) Dust approval not applicable to output code X. See [C5 Custody Transfer - Measurement Canada Accuracy Approval](#) for wireless approvals.

(16) Nonincendive certification not provided with wireless output code (X).

(17) Not available with wireless output code X.

(18) Only available with Product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, and N7.

(19) Not available with FOUNDATION Fieldbus (output code F) or Wireless (output code X) or low power (output code M).

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

*(21) NAMUR-compliant operation is pre-set at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.*

*(22) Only available with 4–20 mA Hart (output code A) and Wireless (output code X).*

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

# Rosemount™ 3051CFC Compact Flow Meter



Rosemount 3051CFC Compact Flow Meters provide a quick, reliable installation between existing raised face flanges. Depending on your application needs, you can reduce energy loss with the Compact Annubar or minimize straight run requirements with the Conditioning Orifice.

- Up to 1.8 percent of flow rate accuracy.
- Available in ½- to 12-in. (15 to 300 mm) line sizes.
- Fully assembled and leak tested for out-of-the-box installation.
- The Loop Integrity Diagnostic continuously monitors the electrical loop to detect changes that compromise the integrity of the transmitted 4-20 mA output signal (Option Code DA0).
- LOI with straightforward menus and built-in configuration buttons (option code M4).

[VIEW PRODUCT >](#)

See [Specifications](#) and options for more details on each configuration. Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [Material selection](#) for more information on material selection.

**Table 4: Rosemount 3051CFC Compact Flow Meter Ordering Information**

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Product description	
3051CFC	Compact flow meter	
<b>Measurement type</b>		
D	Differential pressure	★
<b>Primary element technology</b>		
A	Annubar averaging pitot tube	★
C	Conditioning orifice plate	★
P	Orifice plate	★
<b>Material type</b>		
S	316 SST	★
<b>Line size</b>		
005 <sup>(1)</sup>	½-in. (15 mm)	★
010 <sup>(1)</sup>	1-in. (25 mm)	★
015 <sup>(1)</sup>	1½-in. (40 mm)	★
020	2-in. (50 mm)	★
030	3-in. (80 mm)	★
040	4-in. (100 mm)	★
060	6-in. (150 mm)	★
080	8-in. (200 mm)	★

**Table 4: Rosemount 3051CFC Compact Flow Meter Ordering Information (continued)**

100 <sup>(2)</sup>	10-in. (250 mm)	★		
120 <sup>(2)</sup>	12-in. (300 mm)	★		
Primary element type				
N000	Rosemount Annubar sensor size 1	★		
N040	0.40 beta ratio	★		
N050	0.50 beta ratio			
N065 <sup>(3)</sup>	0.65 beta ratio	★		
Temperature measurement				
0	No temperature sensor	★		
R	Remote thermowell and RTD			
Transmitter connection platform				
3	Direct-mount	★		
7	Remote-mount, NPT connections	★		
Differential pressure range				
1	0 to 25 in H <sub>2</sub> O (0 to 62,16 mbar)	★		
2	0 to 250 in H <sub>2</sub> O (0 to 621,60 mbar)	★		
3	0 to 1000 in H <sub>2</sub> O (0 to 2,48 bar)	★		
Transmitter output				
A <sup>(4)</sup>	4–20 mA with digital signal based on HART® Protocol	★		
F	FOUNDATION™ Fieldbus Protocol	★		
W <sup>(5)</sup>	PROFIBUS® PA Protocol	★		
X <sup>(6)</sup>	Wireless (requires wireless options and engineered polymer housing)	★		
M <sup>(7)</sup>	Low-power 1–5 Vdc with digital signal based on HART Protocol			
Transmitter housing material		Conduit entry size		
A	Aluminum	½–14 NPT	★	
B	Aluminum	M20 x 1.5	★	
E	Aluminum, ultra low copper	½–14 NPT		
F	Aluminum, ultra low copper	M20 x 1.5		
J	SST	½–14 NPT	★	
K	SST	M20 x 1.5	★	
P <sup>(8)</sup>	Engineered polymer	No conduit entries	★	
D <sup>(9)</sup>	Aluminum	G½		
M <sup>(9)</sup>	SST	G½		
Transmitter performance class				
1	Up to ±1.65% flow rate accuracy, 8:1 flow turndown, 5-year stability			★

**Table 4: Rosemount 3051CFC Compact Flow Meter Ordering Information (continued)**

<b>Wireless options (requires wireless output code X and Engineered Polymer Housing code P)</b>		
<b>Wireless transmit rate, operating frequency, and protocol</b>		
WA3	User configurable transmit rate, 2.4 GHz WirelessHART	★
<b>Antenna and SmartPower</b>		
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)	★
<b>Extended product warranty</b>		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
<b>Installation accessories</b>		
AB	ANSI alignment ring (Class 150) (only required for 10-in. (250 mm) and 12-in. (300 mm) line sizes)	★
AC	ANSI alignment ring (Class 300) (only required for 10-in. (250 mm) and 12-in. (300 mm) line sizes)	★
AD	ANSI alignment ring (Class 600) (only required for 10-in. (250 mm) and 12-in. (300 mm) line sizes)	★
DG	DIN alignment ring (PN16)	★
DH	DIN alignment ring (PN40)	★
DJ	DIN alignment ring (PN100)	★
JB	JIS alignment ring (10K)	
JR	JIS alignment ring (20K)	
JS	JIS alignment ring (40K)	
<b>Remote adapters</b>		
FE	Flange adapters 316 SST (½-in NPT)	★
<b>High temperature application</b>		
HT	Graphite valve packing ( $T_{\max} = 850^{\circ}\text{F}$ )	
<b>Flow calibration<sup>(10)</sup></b>		
WC	Flow calibration, 3 pt, conditioning orifice option C (all pipe schedules)	
WD <sup>(11)</sup>	Flow calibration, 10 pt, conditioning option C (all schedules), Annubar option A (schedule 40)	
<b>Pressure testing</b>		
P1	Hydrostatic testing with certificate	
<b>Special cleaning</b>		
P2 <sup>(12)</sup>	Cleaning for special services	
PA	Cleaning per ASTM G93 level D (section 11.4)	
<b>Special inspection</b>		
QC1	Visual & dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★
<b>Transmitter calibration certification</b>		
Q4	Calibration certificate for transmitter	★



**Table 4: Rosemount 3051CFC Compact Flow Meter Ordering Information (continued)**

<b>Quality certification for safety<sup>(13)</sup></b>		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
<b>Material traceability certification</b>		
Q8	Material Traceability Certification per EN 10204:2004 3.1	★
<b>Code conformance</b>		
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
J4	ANSI/ASME B31.8	
<b>Materials conformance<sup>(14)</sup></b>		
J5	NACE MR-0175/ISO 15156	
<b>Country certification</b>		
J1	Canadian Registration	
<b>Product certifications</b>		
E8	ATEX Flameproof, Dust	★
I1 <sup>(15)</sup>	ATEX Intrinsic Safety and Dust	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
N1	ATEX Type n and Dust	★
K8	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E8, I1, and N1)	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5 <sup>(16)</sup>	FM Intrinsically Safe, Nonincendive	★
IE	FM FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of E5 and I5)	★
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
I6 <sup>(8)</sup>	CSA Intrinsically Safe	★
K6	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6, E8, and I1)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO intrinsically safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★

**Table 4: Rosemount 3051CFC Compact Flow Meter Ordering Information (continued)**

KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	CSA, FM, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
<b>Sensor fill fluid and O-ring options</b>		
L1 <sup>(17)</sup>	Inert sensor fill fluid	★
L2	Graphite-filled (PTFE) O-ring	★
LA <sup>(17)</sup>	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★
<b>Shipboard approvals<sup>(17)</sup></b>		
SBS	American Bureau of Shipping	★
SLL <sup>(18)</sup>	Lloyds Register (LR)	
<b>Display and interface options</b>		
M4 <sup>(19)</sup>	LCD display with LOI	★
M5	LCD display	★
<b>Transient protection<sup>(17)(20)</sup></b>		
T1	Transient terminal block	★
<b>Manifold for remote mount option</b>		
F2	3-valve manifold, SST	★
F6	5-Valve Manifold, SST	★
<b>Plantweb™ control functionality<sup>(21)</sup></b>		
A01	FOUNDATION Fieldbus Control Function Block Suite	★
<b>Plantweb diagnostic functionality</b>		
DA0 <sup>(13)</sup>	Loop Integrity HART Diagnostic	★
D01 <sup>(21)</sup>	FOUNDATION Fieldbus Diagnostic Suite	★
<b>Low power output</b>		
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	
<b>Alarm levels<sup>(13)</sup></b>		
C4 <sup>(22)</sup>	NAMUR alarm and saturation levels, high alarm	★
CN <sup>(22)</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	Rosemount standard low alarm	★
<b>Ground screw<sup>(17)(23)</sup></b>		
V5	External ground screw assembly	★
<b>Configuration buttons</b>		
D4 <sup>(13)</sup>	Analog zero and span	★
DZ <sup>(24)</sup>	Digital zero trim	★

**Table 4: Rosemount 3051CFC Compact Flow Meter Ordering Information (continued)**

<b>HART Revision Configuration (requires HART Protocol output code A)<sup>(4)</sup></b>		
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★
<b>Typical model number: 3051CFC D C S 060 N 065 0 3 2 A A 1 WC E5 M5</b>		

- (1) Available with Primary Element Technology P only.
- (2) 10-in. (250 mm) and 12-in. (300 mm) line sizes not available with Primary Element Technology A.
- (3) For 2-in. (50 mm) line sizes the Primary Element Type is 0.6 for Primary Element Technology Code C.
- (4) Option HR5 configures the HART output to HART Revision 5. Option HR7 configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 or 7 if desired. HART Revision 5 is the default HART output.
- (5) For local addressing and configuration, M4 (LOI) is required.
- (6) Requires wireless options and engineered polymer housing. Available approvals are FM Intrinsically Safe, (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), and IECEx Intrinsic Safety (option code I7).
- (7) Only available with C6, E2, E5, I5, K5, KB, and E8 approval. Not available with GE, GM, SBS, DA0, M4, D4, DZ, QT, HR5, HR7, CR, CS, or CT.
- (8) Only available with Wireless output code X.
- (9) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. Not available with product certifications options E8, K8, E5, K5, C6, K6, E7, K7, E2, K2, E3, KB, or KD.
- (10) Available with Primary Element Technology C only.
- (11) For Annubar option A, consult factory for pipe schedules other than schedule 40.
- (12) Available with Primary Element Technology C or P only.
- (13) Only available with HART 4–20 mA output code A.
- (14) Materials of construction comply with metallurgical requirements within NACE MR0175/ISO 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.
- (15) Dust approval not applicable to output code X. See [C5 Custody Transfer - Measurement Canada Accuracy Approval](#) for wireless approvals.
- (16) Nonincendive certification not provided with wireless option code (X).
- (17) Not available with Wireless output code X.
- (18) Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, and N7.
- (19) Not available with output code F- FOUNDATION Fieldbus or Wireless output code X or low power (output code M).
- (20) The T1 option is not needed with FISCO Product Certifications; transient protection is included with the FISCO Product Certification code IA, IB, and IE.
- (21) Only valid with FOUNDATION Fieldbus (output code F).
- (22) NAMUR-compliant operation is pre-set at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.
- (23) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (24) Only available with 4–20 mA HART output code A and wireless output code X.

# Rosemount™ 3051CFP Integral Orifice Flow Meter



Rosemount 3051CFP Integral Orifice Flow Meters enable highly accurate flow measurement in small line sizes. Integral Orifice Flow Meters use precision honed pipe section for increased accuracy and self-centering plate design to prevent alignment errors that magnify measurement inaccuracies in small line sizes.

- Up to 1.75 percent of flow rate accuracy.
- Available in ½- to 1½-in. (15 - 40 mm) line sizes.
- Fully assembled and leak tested for out-of-the-box installation.
- The Loop Integrity Diagnostic continuously monitors the electrical loop to detect changes that compromise the integrity of the transmitted 4-20 mA output signal (Option Code DA0).
- LOI with straightforward menus and built-in configuration buttons (option code M4).

[VIEW PRODUCT >](#)

See [Specifications](#) and options for more details on each configuration. Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [Material selection](#) for more information on material selection.

**Table 5: Rosemount 3051CFP Integral Orifice Flow Meter Ordering Information**

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Product description	
3051CFP	Integral orifice flow meter	
<b>Measurement type</b>		
D	Differential pressure	★
<b>Body material</b>		
S	316 SST	★
<b>Line size</b>		
005	½-in. (15 mm)	★
010	1-in. (25 mm)	★
015	1½-in. (40 mm)	★
<b>Process connection</b>		
T1	NPT female body (not available with remote thermowell and RTD)	★
S1 <sup>(1)</sup>	Socket weld body (not available with remote thermowell and RTD)	★
P1	Pipe ends: NPT threaded	★
P2	Pipe ends: beveled	★
D1	Pipe ends: Flanged, DIN PN16, slip-on	★
D2	Pipe ends: Flanged, DIN PN40, slip-on	★

**Table 5: Rosemount 3051CFP Integral Orifice Flow Meter Ordering Information (continued)**

D3	Pipe ends: Flanged, DIN PN100, slip-on	★
W1	Pipe ends: Flanged, RF, ANSI Class 150, weld-neck	★
W3	Pipe ends: Flanged, RF, ANSI Class 300, weld-neck	★
W6	Pipe ends: Flanged, RF, ANSI Class 600, weld-neck	★
A1	Pipe ends: Flanged, RF, ANSI Class 150, slip-on	
A3	Pipe ends: Flanged, RF, ANSI Class 300, slip-on	
A6	Pipe ends: Flanged, RF, ANSI Class 600, slip-on	
R1	Pipe ends: Flanged, RTJ, ANSI Class 150, slip-on	
R3	Pipe ends: Flanged, RTJ, ANSI Class 300, slip-on	
R6	Pipe ends: Flanged, RTJ, ANSI Class 600, slip-on	
<b>Orifice plate material</b>		
S	316 SST	★
H	Alloy C-276	
M	Alloy 400	
<b>Bore size option</b>		
0066	0.066-in. (1.68 mm) for ½-in. pipe	★
0109	0.109-in. (2.77 mm) for ½-in. pipe	★
0160	0.160-in. (4.06 mm) for ½-in. pipe	★
0196	0.196-in. (4.98 mm) for ½-in. pipe	★
0260	0.260-in. (6.60 mm) for ½-in. pipe	★
0340	0.340-in. (8.64 mm) for ½-in. pipe	★
0150	0.150-in. (3.81 mm) for 1-in. pipe	★
0250	0.250-in. (6.35 mm) for 1-in. pipe	★
0345	0.345-in. (8.76 mm) for 1-in. Pipe	★
0500	0.500-in. (12.70 mm) for 1-in. pipe	★
0630	0.630-in. (16.00 mm) for 1-in. pipe	★
0800	0.800-in. (20.32 mm) for 1-in. pipe	★
0295	0.295-in. (7.49 mm) for 1½-in. pipe	★
0376	0.376-in. (9.55 mm) for 1½-in. pipe	★
0512	0.512-in. (13.00 mm) for 1½-in. pipe	★
0748	0.748-in. (19.00 mm) for 1½-in. pipe	★
1022	1.022-in. (25.96 mm) for 1½-in. pipe	★
1184	1.184-in. (30.07 mm) for 1½-in. pipe	★
0010	0.010-in. (0.25 mm) for ½-in. pipe	
0014	0.014-in. (0.36 mm) for ½-in. pipe	
0020	0.020-in. (0.51 mm) for ½-in. pipe	

**Table 5: Rosemount 3051CFP Integral Orifice Flow Meter Ordering Information (continued)**

0034	0.034-in. (0.86 mm) for ½-in. pipe		
Transmitter connection platform			
D3	Direct-mount, 3-valve manifold, SST		★
D5	Direct-mount, 5-valve manifold, SST		★
R3	Remote-mount, 3-valve manifold, SST		★
R5	Remote-mount, 5-valve manifold, SST		★
D4	Direct-mount, 3-valve manifold, alloy C-276		
D6	Direct-mount, 5-valve manifold, alloy C-276		
D7	Direct-mount, high temperature, 5-valve manifold, SST		
R4	Remote-mount, 3-valve manifold, alloy C-276		
R6	Remote-mount, 5-valve manifold, alloy C-276		
Differential pressure ranges			
1	0 to 25 in H <sub>2</sub> O (0 to 62,16 mbar)		★
2	0 to 250 in H <sub>2</sub> O (0 to 621,60 mbar)		★
3	0 to 1000 in H <sub>2</sub> O (0 to 2,48 bar)		★
Transmitter output			
A <sup>(2)</sup>	4–20 mA with digital signal based on HART® Protocol		★
F	FOUNDATION™ Fieldbus Protocol		★
W <sup>(3)</sup>	PROFIBUS® PA Protocol		★
X <sup>(4)</sup>	Wireless		★
M <sup>(5)</sup>	Low-power 1–5 Vdc with digital signal based on HART Protocol		
Transmitter housing material		Conduit entry size	
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 x 1.5	★
E	Aluminum, ultra low copper	½–14 NPT	
F	Aluminum, ultra low copper	M20 x 1.5	
J	SST	½–14 NPT	★
K	SST	M20 x 1.5	★
P <sup>(6)</sup>	Engineered polymer	No conduit entries	★
D <sup>(7)</sup>	Aluminum	G½	
M <sup>(7)</sup>	SST	G½	
Transmitter performance class			
1	up to ±1.8% flow rate accuracy, 8:1 flow turndown, 5-year stability		★
Wireless options (requires wireless output code X and engineered polymer housing code P)			
Wireless transmit rate, operating frequency, and protocol			
WA3	User configurable transmit rate, 2.4GHz WirelessHART		★

**Table 5: Rosemount 3051CFP Integral Orifice Flow Meter Ordering Information (continued)**

<b>Antenna and SmartPower</b>		
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)	★
<b>Options (include with selected model number)</b>		
<b>Extended product warranty</b>		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
<b>Transmitter body/bolt material</b>		
GT	High temperature (850 °F/454 °C)	
<b>Temperature sensor<sup>(8)</sup></b>		
RT	Thermowell and RTD	
<b>Optional connection</b>		
G1	DIN 19213 transmitter connection	★
<b>Pressure testing<sup>(9)</sup></b>		
P1	Hydrostatic testing with certificate	
<b>Special cleaning</b>		
P2	Cleaning for special services	
PA	Cleaning per ASTM G93 level D (section 11.4)	
<b>Material testing</b>		
V1	Dye penetrant exam	
<b>Material examination</b>		
V2	Radiographic examination	
<b>Flow calibration<sup>(10)</sup></b>		
WD	Discharge coefficient verification	
<b>Special inspection</b>		
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★
<b>Material traceability certification</b>		
Q8	Material traceability certification per EN 10204:2004 3.1	★
<b>Code conformance<sup>(11)</sup></b>		
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
J4	ANSI/ASME B31.8	
<b>Materials conformance<sup>(12)</sup></b>		
J5	NACE MR-0175/ISO 15156	
<b>Country certification</b>		
J6	European Pressure Directive (PED)	★

**Table 5: Rosemount 3051CFP Integral Orifice Flow Meter Ordering Information (continued)**

J1	Canadian Registration	
<b>Transmitter calibration certification</b>		
Q4	Calibration Certificate for Transmitter	★
<b>Quality certification for safety<sup>(13)</sup></b>		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
<b>Product certifications</b>		
E8	ATEX Flameproof, Dust	★
I1 <sup>(14)</sup>	ATEX Intrinsic Safety and Dust	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
N1	ATEX Type n and Dust	★
K8	ATEX Flameproof, Intrinsic Safety, Type n, and Dust (combination of E8, I1, and N1)	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5 <sup>(15)</sup>	FM Intrinsically Safe, Nonincendive	★
IE	FM FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of E5 and I5)	★
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
I6 <sup>(6)</sup>	CSA Intrinsically Safe	★
K6	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6, E8, and I1)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO intrinsically safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	CSA, FM, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
<b>Sensor fill fluid and O-ring options</b>		
L1 <sup>(16)</sup>	Inert sensor fill fluid	★
L2	Graphite-filled (PTFE) O-ring	★
LA <sup>(16)</sup>	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★



**Table 5: Rosemount 3051CFP Integral Orifice Flow Meter Ordering Information (continued)**

<b>Shipboard approvals<sup>(16)</sup></b>		
SBS	American Bureau of Shipping	★
SLL <sup>(17)</sup>	Lloyds Register (LR)	
<b>Display and interface options</b>		
M4 <sup>(18)</sup>	LCD display with LOI	★
M5	LCD display	★
<b>Transient protection<sup>(16)(19)</sup></b>		
T1	Transient terminal block	★
<b>Plantweb™ control functionality<sup>(20)</sup></b>		
A01	FOUNDATION Fieldbus control function block suite	★
<b>Plantweb diagnostic functionality</b>		
DA0 <sup>(13)</sup>	Loop Integrity HART Diagnostic	★
D01 <sup>(20)</sup>	FOUNDATION Fieldbus diagnostic suite	★
<b>Low power output</b>		
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	
<b>Alarm levels<sup>(13)</sup></b>		
C4 <sup>(21)</sup>	NAMUR alarm and saturation levels, high alarm	★
CN <sup>(21)</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	Rosemount standard low alarm	★
<b>Ground screw<sup>(16) (22)</sup></b>		
V5	External ground screw assembly	★
<b>Configuration buttons</b>		
D4 <sup>(13)</sup>	Analog zero and span	★
DZ <sup>(23)</sup>	Digital zero trim	★
<b>Hart Revision configuration (requires HART Protocol output code A)<sup>(2)</sup></b>		
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★
<b>Typical model number: 3051CFP D S 010 W1 S 0500 D3 2 A A 1 E5 M5</b>		

(1) To improve pipe perpendicularity for gasket sealing, socket diameter is smaller than standard pipe O.D.

(2) Option HR5 configures the HART output to HART Revision 5. Option HR7 configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 or 7 if desired. HART Revision 5 is the default HART output.

(3) For local addressing and configuration, M4 (LOI) is required.

(4) Requires wireless options and engineered polymer housing. Available approvals are FM Intrinsically Safe, (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), and IECEx Intrinsic Safety (option code I7).

(5) Only available with C6, E2, E5, I5, K5, KB, and E8 approval. Not available with GE, GM, SBS, DA0, M4, D4, DZ, QT, HR5, HR7, CR, CS, or CT.

(6) Only available with wireless output code X.

(7) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. Not available with product certifications options E8, K8, E5, K5, C6, K6, E7, K7, E2, K2, E3, KB, or KD.

- (8) Thermowell Material is the same as the body material.
- (9) Does not apply to process connection codes T1 and S1.
- (10) Not available for bore sizes 0010, 0014, 0020, 0034, 0066, or 0109.
- (11) Not available with DIN Process Connection codes D1, D2, or D3.
- (12) Materials of Construction comply with metallurgical requirements within NACE MR0175/ISO 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.
- (13) Only available with HART 4–20 mA output (option code A).
- (14) Dust approval not applicable to output code X. See [C5 Custody Transfer - Measurement Canada Accuracy Approval](#) for wireless approvals.
- (15) Nonincendive certification not provided with Wireless output option code (X).
- (16) Not available with wireless output code X.
- (17) Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, and N7.
- (18) Not available with FOUNDATION Fieldbus (output code F) or wireless output code X or Low Power (output code M).
- (19) The T1 option is not needed with FISCO Product Certifications; transient protection is included with the FISCO Product Certification code IA, IB, and IE.
- (20) Only valid with FOUNDATION Fieldbus output code F.
- (21) NAMUR-compliant operation is pre-set at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.
- (22) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (23) Only available with 4–20 mA output code A and wireless output code X.

# Rosemount™ 3051L Level Transmitter



The Rosemount 3051L Level Transmitter combines the performance and capabilities of Rosemount 3051 Transmitters with the reliability and quality of a direct mount seal in one model number. Rosemount 3051L Level Transmitters offer a variety of process connections, configurations, and fill fluid types to meet a breadth of level applications. Capabilities of a Rosemount 3051L Level Transmitter include:

- Quantify and optimize total system performance (option code QZ).
- Tuned-system assembly (option code S1).
- The Loop Integrity Diagnostic continuously monitors the electrical loop to detect changes that compromise the integrity of the transmitted 4-20 mA output signal (Option Code DA0).
- LOI with straightforward menus and built-in configuration buttons (option code M4).

[CONFIGURE >](#)
[VIEW PRODUCT >](#)

See [Specifications](#) and options for more details on each configuration. Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [Material selection](#) for more information on material selection.

**Table 6: Rosemount 3051L Level Transmitter Ordering Information**

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Transmitter type		
3051L	Level transmitter		
Pressure range			
2	–250 to 250 in H <sub>2</sub> O (–621,60 to 621,60 mbar)		★
3	–1000 to 1000 in H <sub>2</sub> O (–2,48 to 2,48 bar)		★
4	–300 to 300 psi (–20,68 to 20,68 bar)		★
Transmitter output			
A <sup>(1)</sup>	4–20 mA with digital signal based on HART® Protocol		★
F	FOUNDATION™ Fieldbus Protocol		★
W <sup>(2)</sup>	PROFIBUS® PA Protocol		★
X <sup>(3)</sup>	Wireless (requires wireless options and engineered polymer housing)		★
M <sup>(4)</sup>	Low-power 1–5 Vdc with digital signal based on HART Protocol		
Process connection size, material, extension length (high side)			
Code	Process connection size	Material	Extension length
G0 <sup>(5)</sup>	2-in./DN 50/A	316L SST	Flush mount only

**Table 6: Rosemount 3051L Level Transmitter Ordering Information (continued)**

H0 <sup>(5)</sup>	2-in./DN 50	Alloy C-276	Flush mount only	★
J0	2-in./DN 50	Tantalum	Flush mount only	★
A0 <sup>(5)</sup>	3-in./DN 80	316L SST	Flush mount	★
A2 <sup>(5)</sup>	3-in./DN 80	316L SST	2-in./50 mm	★
A4 <sup>(5)</sup>	3-in./DN 80	316L SST	4-in./100 mm	★
A6 <sup>(5)</sup>	3-in./DN 80	316L SST	6-in./150 mm	★
B0 <sup>(5)</sup>	4-in./DN 100	316L SST	Flush mount	★
B2 <sup>(5)</sup>	4-in./DN 100	316L SST	2-in./50 mm	★
B4 <sup>(5)</sup>	4-in./DN 100	316L SST	4-in./100 mm	★
B6 <sup>(5)</sup>	4-in./DN 100	316L SST	6-in./150 mm	★
C0 <sup>(5)</sup>	3-in./DN 80	Alloy C-276	Flush mount	★
C2 <sup>(5)</sup>	3-in./DN 80	Alloy C-276	2-in./50 mm	★
C4 <sup>(5)</sup>	3-in./DN 80	Alloy C-276	4-in./100 mm	★
C6 <sup>(5)</sup>	3-in./DN 80	Alloy C-276	6-in./150 mm	★
D0 <sup>(5)</sup>	4-in./DN 100	Alloy C-276	Flush mount	★
D2 <sup>(5)</sup>	4-in./DN 100	Alloy C-276	2-in./50 mm	★
D4 <sup>(5)</sup>	4-in./DN 100	Alloy C-276	4-in./100 mm	★
D6 <sup>(5)</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	★
<b>Mounting flange size, rating, material (high side)</b>				
	Size	Rating	Material	
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>(5)</sup>	2-in.	ANSI/ASME B16.5 Class 150	316 SST	★
F <sup>(5)</sup>	3-in.	ANSI/ASME B16.5 Class 150	316 SST	★
G <sup>(5)</sup>	4-in.	ANSI/ASME B16.5 Class 150	316 SST	★
Y <sup>(5)</sup>	2-in.	ANSI/ASME B16.5 Class 300	316 SST	★
H <sup>(5)</sup>	3-in.	ANSI/ASME B16.5 Class 300	316 SST	★
J <sup>(5)</sup>	4-in.	ANSI/ASME B16.5 Class 300	316 SST	★

**Table 6: Rosemount 3051L Level Transmitter Ordering Information (continued)**

Z <sup>(5)</sup>	2-in.	ANSI/ASME B16.5 Class 600	316 SST	★
L <sup>(5)</sup>	3-in.	ANSI/ASME B16.5 Class 600	316 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>(5)</sup>	DN 50	PN 10-40 per EN 1092-1	316 SST	★
T <sup>(5)</sup>	DN 80	PN 40 per EN 1092-1	316 SST	★
U <sup>(5)</sup>	DN 100	PN 40 per EN 1092-1	316 SST	★
W <sup>(5)</sup>	DN 100	PN 10/16 per EN 1092-1	316 SST	★
7 <sup>(5)</sup>	4 in.	ANSI/ASME B16.5 Class 600	316 SST	★
1	N/A	10K per JIS B2238	CS	
2	N/A	20K per JIS B2238	CS	
3	N/A	40K per JIS B2238	CS	
4 <sup>(5)</sup>	N/A	10K per JIS B2238	316 SST	
5 <sup>(5)</sup>	N/A	20K per JIS B2238	316 SST	
6 <sup>(5)</sup>	N/A	40K per JIS B2238	316 SST	
<b>Seal fill fluid (high side)</b>		<b>Specific gravity</b>	<b>Temperature limits (ambient temperature of 70° F [21° C])</b>	
D	Silicone 200	0.93	–49 to 401 °F (–45 to 205 °C)	★
F	Silicone 200 for vacuum applications	0.93	For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification <a href="#">Technical Note</a> .	★
L	Dow Corning® 704 diffusion pump fluid	1.07	32 to 401 °F (0 to 205 °C)	★
C	D.C. Silicone 704 for vacuum applications	1.07	For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification <a href="#">Technical Note</a> .	★
A	SYLTHERM™ XLT	0.85	–102 to 293 °F (–75 to 145 °C)	★
H	Inert (halocarbon)	1.85	–49 to 320 °F (–45 to 160 °C)	★
G	Glycerin 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)	★
<b>Low pressure side</b>				
	<b>Configuration</b>	<b>Flange adapter</b>	<b>Diaphragm material</b>	<b>Sensor fill fluid</b>
11 <sup>(5)</sup>	Gage	SST	316L SST	Silicone
21	Differential	SST	316L SST	Silicone

**Table 6: Rosemount 3051L Level Transmitter Ordering Information (continued)**

22 <sup>(5)</sup>	Differential	SST	Alloy C-276	Silicone	★
2A <sup>(6)</sup>	Differential	SST	316L SST	Inert (halocarbon)	★
2B <sup>(5) (6)</sup>	Differential	SST	Alloy C-276	Inert (halocarbon)	★
31 <sup>(5)</sup>	Tuned-system assembly with remote seal	None	316L SST	Silicone (requires option code S1)	★
O-ring					
A	Glass-filled PTFE				★
Housing material			Conduit entry size		
A	Aluminum		½–14 NPT		★
B	Aluminum		M20 x 1.5		★
E	Aluminum, ultra low copper		½–14 NPT		
F	Aluminum, ultra low copper		M20 x 1.5		
J	SST		½–14 NPT		★
K	SST		M20 x 1.5		★
P <sup>(7)</sup>	Engineered polymer		No conduit entries		★
D <sup>(8)</sup>	Aluminum		G½		
M <sup>(8)</sup>	SST		G½		
Wireless options (requires wireless output code X and Engineered Polymer Housing code P)					
Wireless transmit rate, operating frequency, and protocol					
WA3	User configurable transmit rate, 2.4 GHz WirelessHART				★
Antenna and SmartPower					
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)				★
Options (include with selected model number)					
Extended product warranty					
WR3	3-year limited warranty				★
WR5	5-year limited warranty				★
Plantweb™ control functionality <sup>(9)</sup>					
A01	FOUNDATION Fieldbus Control Function Block Suite				★
Plantweb diagnostic functionality					
DA0 <sup>(20)</sup>	Loop Integrity HART Diagnostic				★
D01 <sup>(9)</sup>	FOUNDATION Fieldbus diagnostics suite				★
Seal assemblies <sup>(10)</sup>					
S1	Assembled to One Rosemount 1199 Seal				★
Product certifications					
E8	ATEX Flameproof and Dust Certification				★

**Table 6: Rosemount 3051L Level Transmitter Ordering Information (continued)**

I1 <sup>(11)</sup>	ATEX Intrinsic Safety and Dust	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
N1	ATEX Type n Certification and Dust	★
K8	ATEX Flameproof, Intrinsic Safety, Type n, and Dust (combination of E8, I1, and N1)	★
E4 <sup>(12)</sup>	TIIS Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5 <sup>(13)</sup>	FM Intrinsically Safe, Nonincendive	★
IE	FM FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	FM Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
I6 <sup>(7)</sup>	CSA Intrinsic Safety	★
K6	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6, E8, and I1)	★
E7	IECEX Flameproof, Dust Ignition-proof	★
I7	IECEX Intrinsic Safety	★
N7	IECEX Type n Certification	★
K7	IECEX Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO intrinsically safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
N3	China Type n	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof and Intrinsic Safety	★
KB	FM and CSA Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
EP <sup>(14)</sup>	Republic of Korea Flameproof	★
IP <sup>(15)</sup>	Republic of Korea Intrinsic Safety	★
KP <sup>(16)</sup>	Republic of Korea Flameproof, Intrinsic Safety	★
<b>Shipboard approvals<sup>(7)</sup></b>		
SBS	American Bureau of Shipping	★
SBV <sup>(17)</sup>	Bureau Veritas (BV)	
SDN	Det Norske Veritas	
SLL <sup>(17)</sup>	Lloyds Register (LR)	

**Table 6: Rosemount 3051L Level Transmitter Ordering Information (continued)**

<b>Bolting material</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 and interface options</b>		
M4 <sup>(18)</sup>	LCD display with LOI	★
M5	LCD display	★
<b>Calibration certification</b>		
Q4	Calibration Certificate	★
QP	Calibration Certificate and tamper evident seal	★
QG <sup>(19)</sup>	Calibration Certificate and GOST Verification Certificate	★
<b>Material traceability certification</b>		
Q8	Material Traceability Certification per EN 10204 3.1	★
<b>Quality certification for safety<sup>(20)</sup></b>		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
<b>Toolkit total system performance reports</b>		
QZ	Seal system performance calculation report	★
<b>Conduit electrical connector<sup>(6)</sup></b>		
GE	M12, 4-pin, male connector (eurofast)	★
GM	A size Mini, 4-pin, male connector (minifast)	★
<b>Configuration buttons</b>		
D4 <sup>(20)</sup>	Analog zero and span	★
DZ <sup>(21)</sup>	Digital zero trim	★
<b>Transient protection<sup>(6)(22)</sup></b>		
T1	Transient protection	★
<b>Software configuration<sup>(21)</sup></b>		
C1	Custom Software Configuration (For wired, see the Rosemount 3051 <a href="#">Configuration Data Sheet</a> . For wireless, see the Rosemount 3051 Wireless <a href="#">Configuration Data Sheet</a> .)	★
<b>Low power output</b>		
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	
<b>Alarm levels<sup>(20)</sup></b>		
C4 <sup>(23)</sup>	NAMUR alarm and saturation levels, high alarm	★
CN <sup>(23)</sup>	NAMUR alarm and saturation levels, low alarm	★



**Table 6: Rosemount 3051L Level Transmitter Ordering Information (continued)**

CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Rosemount 3051 <a href="#">Configuration Data Sheet</a> )			★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Rosemount 3051 <a href="#">Configuration Data Sheet</a> )			★
CT	Rosemount Standard low alarm			★
Conduit plug				
DO	316 SST Conduit Plug			★
Ground screw <sup>(6)(24)</sup>				
V5	External ground screw assembly			★
Lower housing flushing connection options				
	Ring material	Number	Size (NPT)	
F1	316 SST	1	¼–18 NPT	★
F2	316 SST	2	¼–18 NPT	★
F3	Alloy C-276	1	¼–18 NPT	★
F4	Alloy C-276	2	¼–18 NPT	★
F7	316 SST	1	½–14 NPT	★
F8	316 SST	2	½–14 NPT	★
F9	Alloy C-276	1	½–14 NPT	★
F0	Alloy C-276	2	½–14 NPT	★
Lower housing intermediate gasket material				
S0	No gasket for lower housing			★
SY <sup>(25)</sup>	Thermo-Tork® TN-9000			★
NACE certificate <sup>(26)</sup>				
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials			★
Q25	Certificate of compliance to NACE MR0103 for wetted materials			★
HART Revision configuration <sup>(1)</sup> (requires HART protocol output code A)				
HR5	Configured for HART Revision 5			★
HR7	Configured for HART Revision 7			★
Typical model number: 3051L 2 A A0 D 21 A A F1				

(1) Option HR5 configures the HART output to HART Revision 5. Option HR7 configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 or 7 if desired. HART Revision 5 is the default HART output.

(2) Option code M4 - LCD display with LOI required for local addressing and configuration.

(3) Requires wireless options and engineered polymer housing. Available approvals are FM Intrinsically Safe, (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), IECEx Intrinsic Safety (option code I7), and EAC Intrinsic Safety (option code IM).

(4) Only available with C6, E2, E5, I5, K5, KB, and E8 approval. Not available with GE, GM, SBS, DA0, M4, D4, DZ, QT, HR5, HR7, CR, CS, or CT.

(5) 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.

(6) Not available with wireless output code X.

(7) Only available with wireless output code X.

(8) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. Not available with product certifications options E8, K8, E5, K5, C6, K6, E7, K7, E2, K2, E3, KB, or KD.

- (9) Only valid with FOUNDATION Fieldbus output code F.
- (10) "Assemble-to" items are specified separately and require a completed model number.
- (11) Dust approval not applicable to output code X. See [C5 Custody Transfer - Measurement Canada Accuracy Approval](#) for wireless approvals.
- (12) Only available with output codes A - 4–20 mA HART, F - FOUNDATION Fieldbus, and W - PROFIBUS PA. Also only available with G½ housing thread types.
- (13) Nonincendive certification not provided with Wireless output code X.
- (14) Only available with HART 4-20 mA output (code A), FOUNDATION Fieldbus output (code F), and Low Power output (code M). Available with housing material codes A, B, E, F, J, and K. Not available with codes DA0, DZ, CR, CS, CT, V5, GE, or GM.
- (15) Only available with HART 4-20 mA output (code A), FOUNDATION Fieldbus output (code F), Wireless output (code X), and PROFIBUS-PA output (code W). Available with housing material codes A, B, J, K, and P. Not available with codes M4, CR, CS, CT, V5, GE, or GM.
- (16) Only available with HART 4-20 mA output (code A) and FOUNDATION Fieldbus output (code F). Available with housing material codes A, B, E, F, J, and K. Not available with codes DA0, M4, DZ, CR, CS, CT, V5, GE, or GM.
- (17) Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, and N7.
- (18) Not available with FOUNDATION Fieldbus (output code F) or wireless (output code X) or Low Power (output code M).
- (19) Contact an Emerson representative for availability.
- (20) Only available with HART 4–20 mA (output code A).
- (21) Only available with 4–20 mA HART (output code A) and Wireless (output code X).
- (22) The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA, IB, and IE.
- (23) NAMUR-compliant operation is pre-set at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.
- (24) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (25) Gasket provided when lower housing is ordered.
- (26) NACE compliant wetted materials are identified by <sup>(5)</sup>.

# Specifications

## Performance specifications

This product data sheet covers HART®, WirelessHART, FOUNDATION™ Fieldbus, and PROFIBUS® PA Protocols unless specified otherwise.

For zero-based spans, reference conditions, silicone oil fill, glass-filled PTFE O-rings, SST materials, coplanar flange, or ½–14 NPT process connections, digital trim values set to equal range points.

## Conformance to specifications ( $\pm 3\sigma$ [Sigma])

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

## Reference accuracy

Stated reference accuracy equations include terminal based linearity, hysteresis, and repeatability. For wireless, FOUNDATION™ Fieldbus, and PROFIBUS® PA devices, use calibrated range in place of span.

Models	Rosemount™ 3051 and WirelessHART®
<b>Rosemount 3051C<sup>(1)</sup></b>	
Range 5	$\pm 0.065\%$ of span For spans less than 10:1, accuracy = $\pm \left[ 0,015 + 0,005 \left( \frac{URL}{Span} \right) \right] \% \text{ of Span}$
Ranges 2–4	$\pm 0.04\%$ of span <sup>(2)</sup> For spans less than 10:1 <sup>(3)</sup> , accuracy = $\pm \left[ 0,015 + 0,005 \left( \frac{URL}{Span} \right) \right] \% \text{ of Span}$
Range 1	$\pm 0.10\%$ of span For spans less than 15:1, accuracy = $\pm \left[ 0,025 + 0,005 \left( \frac{URL}{Span} \right) \right] \% \text{ of Span}$
Range 0 (CD)	$\pm 0.10\%$ of span For spans less than 2:1, accuracy = $\pm 0.05\%$ of URL
<b>Rosemount 3051CA</b>	
Ranges 1–4	$\pm 0.04\%$ of span <sup>(2)</sup> For spans less than 10:1, accuracy = $\pm \left[ 0,0075 \left( \frac{URL}{Span} \right) \right] \% \text{ of Span}$

Rosemount 3051T <sup>(4)</sup>	
Ranges 1–4	$\pm 0.04\%$ of span <sup>(2)</sup> For spans less than 10:1, accuracy = $\pm \left[ 0,0075 \left( \frac{URL}{Span} \right) \right] \% \text{ of Span}$
Range 5–6	$\pm 0.075\%$ of span For spans less than 10:1, accuracy = $\pm \left[ 0,0075 \left( \frac{URL}{Span} \right) \right] \% \text{ of Span}$
Rosemount 3051L	
Ranges 2-4	$\pm 0.075\%$ of span For spans less than 10:1, accuracy = $\pm \left[ 0,025 + 0,005 \left( \frac{URL}{Span} \right) \right] \% \text{ of Span}$

(1) For Rosemount 3051C and 3051T with 1199 assemble to code S1, use 3051L specification.

(2) For output code W and M,  $\pm 0.065\%$  span.

(3) For output code F, for span less than 5:1.

(4) For Rosemount 3051C and 3051T with 1199 assemble to code S1, use Rosemount 3051L specification.

## Flow Performance - Flow Reference Accuracy

### Note

Accuracy over range of use is always application dependent. Range 1 flow meters may experience an additional uncertainty up to 0.9 percent. Consult your Emerson representative for exact specifications.

Rosemount 3051CFA Annubar Flow Meter		
Ranges 2–3		$\pm 1.80\%$ of flow rate at 8:1 flow turndown
Rosemount 3051CFC_A Compact Annubar Flow Meter – Rosemount Annubar Option A		
Ranges 2–3	Uncalibrated	$\pm 2.10\%$ of flow rate at 8:1 flow turndown
	Calibrated	$\pm 1.80\%$ of Flow Rate at 8:1 flow turndown
Rosemount 3051CFC_C Compact Orifice Flow Meter – Conditioning Option C		
Ranges 2–3	$\beta = 0.4$	$\pm 1.75\%$ of flow rate at 8:1 flow turndown
	$\beta = 0.50, 0.65$	$\pm 1.95\%$ of flow rate at 8:1 flow turndown
Rosemount 3051CFC_P Compact Orifice Flow Meter – Orifice Type Option P <sup>(1)</sup>		
Ranges 2–3	$\beta = 0.4$	$\pm 2.00\%$ of flow rate at 8:1 flow turndown
	$\beta = 0.65$	$\pm 2.00\%$ of flow rate at 8:1 flow turndown
Rosemount 3051CFP Integral Orifice Flow Meter		
Ranges 2–3	$\beta < 0.1$	$\pm 3.00\%$ of flow rate at 8:1 flow turndown
	$0.1 < \beta < 0.2$	$\pm 1.95\%$ of flow rate at 8:1 flow turndown

	$0.2 < \beta < 0.6$	$\pm 1.75\%$ of flow rate at 8:1 flow turndown
	$0.6 < \beta < 0.8$	$\pm 2.15\%$ of flow rate at 8:1 flow turndown

(1) Applicable to 2- to 12-in. line sizes. For smaller line sizes, see the Rosemount DP Flow Meters and Primary Elements [Product Data Sheet](#).

## Total performance

Total performance is based on combined errors of reference accuracy, ambient temperature effect, and static pressure effect at normal operating conditions (70 percent of span typical reading, 740 psi (51,02 bar) line pressure).

For  $\pm 50^\circ\text{F}$  ( $28^\circ\text{C}$ ) temperature changes; 0–100% relative humidity, from 1:1 to 5:1 rangedown

Models	Total performance <sup>(1)</sup>
Rosemount™ 3051C Ranges 2–5	$\pm 0.14\%$ of span
Rosemount 3051T Ranges 1–4	$\pm 0.14\%$ of span
Rosemount 3051L Ranges 2–4	Use Instrument Toolkit™ or the QZ option to quantify the total performance of a remote seal assembly under operating conditions.

(1) For output code W, F, and M, total performance is  $\pm 0.15\%$  of span.

## Long term stability

Models	Long term stability
Rosemount™ 3051C Ranges 2–5	$\pm 0.2\%$ of URL for 10 years $\pm 50^\circ\text{F}$ ( $28^\circ\text{C}$ ) temperature changes, and up to 1000 psi (68,95 bar) line pressure.
Rosemount 3051CD, 3051CG Low/ Draft Range Ranges 0–1	$\pm 0.2\%$ of URL for 1 year
Rosemount 3051CA Low Range Range 1	$\pm 0.2\%$ of URL for 10 years $\pm 50^\circ\text{F}$ ( $28^\circ\text{C}$ ) temperature changes, and up to 1000 psi (68,95 bar) line pressure.
Rosemount 3051T Ranges 1–4	$\pm 0.2\%$ of URL for 10 years $\pm 50^\circ\text{F}$ ( $28^\circ\text{C}$ ) temperature changes, and up to 1000 psi (68,95 bar) line pressure.
Rosemount 3051L Ranges 2–3 Ranges 4–5	$\pm 0.1\%$ of URL for 1 year $\pm 0.2\%$ of URL for 1 year

## Dynamic performance

	4 - 20 mA HART®(1)	FOUNDATION™ Fieldbus and PROFIBUS® PA Protocols(2)	Typical HART transmitter response time
Total Response Time (T <sub>d</sub> + T <sub>c</sub> )(3):			
Rosemount 3051C			
Ranges 2-5	100 ms	152 ms	
Range 1	255 ms	307 ms	

	4 - 20 mA HART <sup>®</sup> (1)	FOUNDATION <sup>™</sup> Fieldbus and PROFIBUS <sup>®</sup> PA Protocols(2)	Typical HART transmitter response time
Range 0	700 ms	N/A	<p>Transmitter output vs. Time</p> <p>Pressure released</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>
Rosemount 3051T	100 ms	152 ms	
Rosemount 3051L	See Instrument Toolkit.	See Instrument Toolkit.	
Dead time ( $T_d$ )	45 ms (nominal)	97 ms	
Update rate(4)	22 times per second	22 times per second	

(1) Dead time and update rate apply to all models and ranges; analog output only.

(2) Transducer block response time, Analog Input block execution time not included.

(3) Nominal total response time at 75 °F (24 °C) reference conditions.

(4) Does not apply to wireless (output code X). See [Wireless \(output code X\)](#) for wireless update rate.

## Line pressure effect per 1000 psi (68,95 bar)

For line pressures above 2000 psi (137,90 bar) and Ranges 4–5, see the following documents. For HART<sup>®</sup>, see the Rosemount<sup>™</sup> 3051 [Reference Manual](#). For WirelessHART, see the Rosemount 3051 Wireless [Reference Manual](#).

For FOUNDATION<sup>™</sup> Fieldbus, see the Rosemount 3051 [Reference Manual](#). For PROFIBUS<sup>®</sup> PA, see the Rosemount 3051 [Reference Manual](#).

**Table 7: Rosemount 3051CD and 3051CF Line Pressure Effect**

Range	Line pressure effect
Zero error	
Ranges 2–3	±0.05% of URL/1000 psi (68,95 bar) for line pressures from 0 to 2000 psi (0 to 137,90 bar)
Range 1	±0.25% of URL/1000 psi (68,95 bar) for line pressures from 0 to 2000 psi (0 to 137,90 bar)
Range 0	±0.125% of URL/100 psi (6,89 bar) for line pressures from 0 to 750 psi (0 to 51,71 bar)
Span error	
Ranges 2–3	±0.1% of reading/1000 psi (68,95 bar)
Range 1	±0.4% of reading/1000 psi (68,95 bar)
Range 0	±0.15% of reading/100 psi (6,895 bar)

## Ambient temperature effect per 50 °F (28 °C)

Models	Ambient temperature effect
<b>Rosemount<sup>™</sup> 3051C</b>	
Ranges 2–5	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from 5:1 to 150:1
Range 1	±(0.1% URL + 0.25% span) from 1:1 to 30:1 ±(0.14% URL + 0.15% span) from 30:1 to 50:1
Range 0	±(0.25% URL + 0.05% span) from 1:1 to 30:1

Models	Ambient temperature effect
<b>Rosemount 3051CA</b>	
Ranges 1–4	$\pm(0.025\% \text{ URL} + 0.125\% \text{ span})$ from 1:1 to 30:1 $\pm(0.035\% \text{ URL} + 0.125\% \text{ span})$ from 30:1 to 150:1
<b>Rosemount 3051T</b>	
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 150:1
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 5–6	$\pm(0.1\% \text{ URL} + 0.15\% \text{ span})$ from 1:1 to 5:1
<b>Rosemount 3051L</b>	<b>See Instrument toolkit software.</b>

### Mounting position effects

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

### Vibration effect

Less than  $\pm 0.1\%$  of URL when tested per the requirements of IEC60770-1: 1999 field or pipeline with high vibration level (10–60 Hz 0.21 mm displacement peak amplitude/60–2000 Hz 3g).

### Power supply effect

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

### Electromagnetic compatibility (EMC)

Meets all relevant requirements of EN61326-1:2006 and NAMUR NE-21.<sup>(1)</sup>

### Transient protection (option code T1)

Tested in accordance with IEEE C62.41.2-2002, location category B

- 6 kV crest (0.5  $\mu$ s - 100 kHz)
- 3 kA crest (8 x 20  $\mu$ s)
- 6 kV crest (1.2 x 50  $\mu$ s)

(1) NAMUR NE-21 does not apply to wireless output code X.

## Functional specifications

### Range and sensor limits

**Table 8: Rosemount™ 3051CD, 3051CG, 3051CF, and 3051L Range and Sensor Limits**

Range <sup>(1)</sup>	Minimum span	Range and sensor limits				
		Upper (URL)	Lower (LRL)			
			Rosemount 3051CD Differential, 3051CF Flow Meters	Rosemount 3051CG Gage <sup>(3)</sup>	Rosemount 3051L Differential	Rosemount 3051L Gage <sup>(3)</sup>
0	0.10 inH <sub>2</sub> O (0,24 mbar)	3.00 inH <sub>2</sub> O (7,45 mbar)	–3.00 inH <sub>2</sub> O (–7,45 mbar)	N/A	N/A	N/A
1	0.50 inH <sub>2</sub> O (1,24 mbar)	25.00 inH <sub>2</sub> O (62,16 mbar)	–25.00 inH <sub>2</sub> O (–62,16 mbar)	–25.00 inH <sub>2</sub> O (–62,16 mbar)	N/A	N/A
2	1.67 inH <sub>2</sub> O (4,15 mbar)	250.00 inH <sub>2</sub> O (621,60 mbar)	–250.00 inH <sub>2</sub> O (–621,60 mbar)	–250.00 inH <sub>2</sub> O (–621,60 mbar)	–250.00 inH <sub>2</sub> O (–621,60 mbar)	–250.00 inH <sub>2</sub> O (–621,60 mbar)
3	6.67 inH <sub>2</sub> O (16,58 mbar)	1000.00 inH <sub>2</sub> O (2,48 bar)	–1000.00 inH <sub>2</sub> O (–2,48 bar)	0.50 psia (34,47 mbar)	–1000.00 inH <sub>2</sub> O (–2,48 bar)	0.50 psia (34,47 mbar)
4	2.00 psi (137,89 mbar)	300.00 psi (20,68 bar)	–300.00 psi (–20,68 bar)	0.50 psia (34,47 mbar)	–300.00 psi (–20,68 bar)	0.50 psia (34,47 mbar)
5	13.33 psi (919,01 mbar)	2000.00 psi (137,89 bar)	–2000.00 psi (–137,89 bar)	0.50 psia (34,47 mbar)	N/A	N/A

(1) Range 0 only available with Rosemount 3051CD. Range 1 only available with 3051CD, 3051CG, or 3051CF. inH<sub>2</sub>O referenced at 68 °F (20 °C).

(2) For outputs options W and M, minimum span are: range 1 - 0.50 inH<sub>2</sub>O (1,24 mbar), range 2 - 2.50 inH<sub>2</sub>O (6,21 mbar), range 3 - 10.00 inH<sub>2</sub>O (24,86 mbar), range 4 - 3.00 psi (0,21 bar), range 5 - 20.00 psi (1,38 bar).

(3) Assumes atmospheric pressure of 14.7 psig.

**Table 9: Rosemount 3051CA and 3051T Range and Sensor Limits**

Range	Rosemount 3051CA			Range	Rosemount 3051T			
	Minimum span <sup>(1)</sup>	Range and sensor limits			Minimum span <sup>(1)</sup>	Range and sensor limits		Lower <sup>(2)</sup> (LRL) (gage)
Upper (URL)	Lower (LRL)	Upper (URL)	Lower (LRL) (absolute)					
1	0.30 psi (20,68 mbar)	30 psia (2,06 bar)	0 psia (0 bar)	1	0.30 psi (20,68 mbar)	30.00 psi (2,06 bar)	0 psia (0 bar)	–14.70 psig (–1,01 bar)
2	1.00 psi (68,94 mbar)	150 psia (10,34 bar)	0 psia (0 bar)	2	1.00 psi (68,94 mbar)	150.00 psi (10,34 bar)	0 psia (0 bar)	–14.70 psig (–1,01 bar)
3	5.33 psi (367,49 mbar)	800 psia (55,15 bar)	0 psia (0 bar)	3	5.33 psi (367,49 mbar)	800.00 psi (55,15 bar)	0 psia (0 bar)	–14.70 psig (–1,01 bar)
4	26.67 psi (1,83 bar)	4000 psia (275,79 bar)	0 psia (0 bar)	4	26.67 psi (1,83 bar)	4000.00 psi (275,79 bar)	0 psia (0 bar)	–14.70 psig (–1,01 bar)
5	N/A	N/A	N/A	5	2000.00 psi (137,89 bar)	10000.00 psi (689,47 bar)	0 psia (0 bar)	–14.70 psig (–1,01 bar)



**Table 9: Rosemount 3051CA and 3051T Range and Sensor Limits (continued)**

Range	Rosemount 3051CA			Range	Rosemount 3051T			
	Minimum span <sup>(1)</sup>	Range and sensor limits			Minimum span <sup>(1)</sup>	Range and sensor limits		Lower <sup>(2)</sup> (LRL) (gage)
	Upper (URL)		Lower (LRL)		Upper (URL)		Lower (LRL) (absolute)	
6	N/A	N/A	N/A	6	4000.00 psi (275,79 bar)	20000.00 psi (1378,95 bar)	0 psia (0 bar)	−14.70 psig (−1,01 bar)

(1) For output options W and M, minimum span are: range 2 – 1.50 psi (0,10 bar), range 3 – 8.00 psi (0,55 bar), range 4 – 40.00 psi (2,75 bar), range 5 for 3051T – 2000.00 psi (137,89 bar).

(2) Assumes atmospheric pressure of 14.7 psig.

## Service

Liquid, gas, and vapor applications.

## 4–20 mA HART® (output code A)

### Power supply

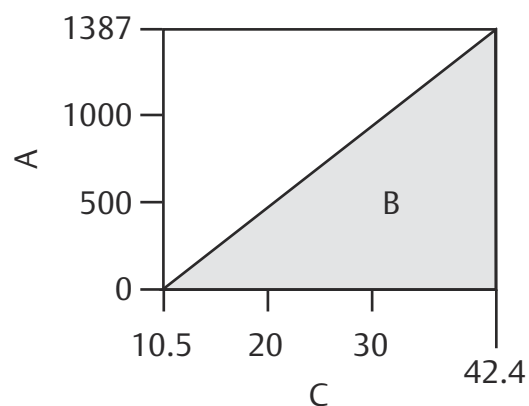
External power supply required. Standard transmitter (4–20 mA) operates on 10.5–42.4 Vdc with no load.

### Load limitations

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

Max. loop resistance =  $43.5 (\text{power supply voltage} - 10.5)$

Communication requires a minimum loop resistance of 250 ohms.



- A. Load (Ωs)
- B. Operating region
- C. Voltage (Vdc)

### Note

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

### Indication

Optional 2-line LCD/LOI Display

## Optional configuration buttons

Configuration buttons need to be specified:

- Digital Zero trim (option code DZ) changes digital value of the transmitter and is used for performing a sensor zero trim.
- Analog Zero Span (option code D4) changes analog value and can be used to rerange the transmitter with an applied pressure.

## Output

Two-wire 4–20mA, user selectable for linear or square root output. Digital process variable superimposed on 4–20 mA signal, available to any host that conforms to HART® Protocol. The Rosemount™ 3051 comes with Selectable HART Revisions. Digital communications based on HART Revision 5 (default) or Revision 7 (option code HR7) protocol can be selected. The HART revision can be switched in the field using any HART based configuration tool or the optional LOI (M4).

## Loop Integrity diagnostics

The Loop Integrity diagnostic continuously monitors the electrical loop to detect changes that compromise the integrity of the transmitter 4-20 mA output signal. The diagnostics can detect loop problems such as water in the terminal compartment, corrosion of terminals, improper grounding, and unstable power supplies.

The device dashboard presents the diagnostics in a graphical, task-based interface that provides single-click access to critical process/device information and descriptive graphical troubleshooting.

## LOI

The LOI uses a two button menu with internal and external configuration buttons. Internal buttons are always configured for LOI. External buttons can be configured for either LOI (option code M4), analog zero and span (option code D4), or digital zero trim (option code DZ). See Rosemount 3051 [Reference Manual](#) for LOI configuration menu.

## FOUNDATION™ Fieldbus (output code F)

### Power supply

External power supply required; transmitters operate on 9.0 to 32.0 Vdc transmitter terminal voltage. FISCO transmitters operate on 9.0 to 17.5 Vdc.

### Current draw

17.5 mA for all configurations (including LCD display option)

### Indication

Optional two-line LCD display

## FOUNDATION Fieldbus block execution times

Block	Execution time
Resource	N/A
Sensor and SPM Transducer	N/A
LCD Display	N/A
Analog Input 1, 2	20 milliseconds
PID	25 milliseconds
Input Selector	20 milliseconds
Arithmetic	20 milliseconds
Signal Characterizer	20 milliseconds
Integrator	20 milliseconds

Block	Execution time
Output Splitter	20 milliseconds
Control Selector	20 milliseconds

## FOUNDATION Fieldbus parameters

Links: 25 (max.)

Virtual communications relationship (VCR): 20 (max.)

## FOUNDATION Fieldbus function blocks (option A01)

<b>Resource block</b>	The resource block contains diagnostic, hardware, and electronics information. There are no linkable inputs or outputs to the resource block.
<b>Sensor transducer block</b>	The sensor transducer block contains sensor information and the ability to calibrate the pressure sensor or recall factory calibration.
<b>LCD transducer block</b>	The LCD display transducer block is used to configure the LCD display meter.
<b>Analog input block</b>	The analog input (AI) function block processes the measurements from the sensor and makes them available to other function blocks. The output value from the AI block is in engineering units and contains a status indicating the quality of the measurement. The AI block is widely used for scaling functionality.
<b>Input selector block</b>	The input selector (ISEL) function block can be used to select the first good, hot backup, maximum, minimum, or average of as many as eight input values and place it at the output. The block supports signal status propagation.
<b>Integrator block</b>	The integrator (INT) function block integrates one or two variables over time. The block compares the integrated or accumulated value to pre-trip and trip limits and generates discrete output signals when the limits are reached. The INT function block is used as a totalizer. This block will accept up to two inputs, has six options how to totalize the inputs, and two trip outputs.
<b>Arithmetic block</b>	The arithmetic (ARTH) function block provides the ability to configure a range extension function for a primary input. It can also be used to compute nine different arithmetic functions including flow with partial density compensation, electronic remote seals, hydrostatic tank gaging, ratio control, and others.
<b>Signal characterizer block</b>	The signal characterizer (SGCR) function block characterizes or approximates any function that defines an input/output relationship. The function is defined by configuring as many as 20 X,Y coordinates. The block interpolates an output value for a given input value using the curve defined by the configured coordinates. Two separate analog input signals can be processed simultaneously to give two corresponding separate output values using the same defined curve.
<b>PID block</b>	The PID function block combines all of the necessary logic to perform proportional/integral/derivative (PID) control. The block supports mode control, signal scaling and limiting, feed forward control, override tracking, alarm limit detection, and signal status propagation.
<b>Control selector block</b>	The control selector function block selects one of two or three inputs to be the output. The inputs are normally connected to the outputs of PID or other function blocks. One of the inputs would be considered normal and the other two overrides.
<b>Output splitter block</b>	The output splitter function block provides the capability to drive two control outputs from a single input. It takes the output of one PID or other control block to control two valves or other actuators.

## 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.

## FOUNDATION Fieldbus Diagnostics Suite (option code D01)

The Rosemount™ 3051C FOUNDATION Fieldbus Diagnostics Suite features SPM technology to detect changes in the process, process equipment, or installation conditions (such as plugged impulse lines) of the transmitter. This is done by modeling the

process noise signature (using the statistical values of mean and standard deviation) under normal conditions and then comparing the baseline values to current values over time. If a significant change in the current values is detected, the transmitter can generate an alert.

## PROFIBUS® PA (output code W)

### Profile version

3.02

### Power supply

External power supply required; transmitters operate on 9.0 to 32.0 Vdc transmitter terminal voltage. FISCO transmitters operate on 9.0 to 17.5 Vdc.

### Current draw

17.5 mA for all configurations (including LCD display option)

### Output update rate

Four times per second

### Standard function blocks

<b>Analog input (AI block)</b>	The AI function block processes the measurements and makes them available to the host device. The output value from the AI block is in engineering units and contains a status indicating the quality of the measurement.
<b>Physical block</b>	The physical block defines the physical resources of the device including type of memory, hardware, electronics, and diagnostic information.
<b>Transducer block</b>	Contains actual sensor measurement data including the sensor diagnostics and the ability to trim the pressure sensor or recall factory defaults.

### Indication

Optional two-line LCD display

### LOI

The LOI uses a two-button menu with external configuration buttons.

## Wireless (output code X)

### Output

IEC 62591 (*WirelessHART*®), 2.4 GHz DSSS

### Wireless radio (internal antenna, WP5 option)

- Frequency: 2.400 – 2.485 GHz
- Channels: 15
- Modulation: IEEE 802.15.4 compliant DSSS
- Transmission: Maximum of 10 dBm EIRP

### Local display

The optional three-line, seven-digit LCD display can display user-selectable information, such as primary variable in engineering units, scaled variable, percent of range, sensor module temperature, and electronics temperature. The display updates based on the wireless update rate.

**Digital zero trim**

Digital zero trim (option DZ) is an offset adjustment to compensate for mounting position effects, up to 5% of URL.

**Update rate**

User selectable 1 sec. to 60 min.

**Wireless sensor module for in-line transmitters**

The Rosemount™ 3051 Wireless Transmitter requires the engineered polymer housing to be selected. The standard sensor module will come with aluminum material. If SST is required, you must select the option WSM.

**Power module**

Field replaceable, keyed connection eliminates the risk of incorrect installation, Intrinsically Safe Lithium-thionyl chloride Power Module with PBT/PC enclosure. Ten-year life at one minute update rate. <sup>(2)</sup>

**Note**

Continuous exposure to ambient temperature limits of -40 °F or 185 °F (-40 °C or 85 °C) may reduce specified life by less than 20 percent.

---

**Low power output****1–5 Vdc HART® low power (output code M)****Output**

The default three-wire 1–5 Vdc is a 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 Vdc with no load. Option code C2 changes the output from 1–5 Vdc to 0.8–3.2 Vdc.

**Power consumption**

3.0 mA, 18–36 mW

**Minimum load impedance**

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

**Indication**

Optional five-digit LCD display

**Overpressure limits****Rosemount 3051CD/CG/CF**

- Range 0: 750 psi (51,71 bar)
- Range 1: 2000 psig (137,90 bar)
- Ranges 2–5: 3626 psig (250,00 bar), 4500 psig (310,26 bar) for option code P9

**Rosemount 3051CA**

- Range 1: 750 psia (51,71 bar)
- Range 2: 1500 psia (103,42 bar)
- Range 3: 1600 psia (110,32 bar)
- Range 4: 6000 psia (413,69 bar)

(2) Reference conditions are 70 °F (21 °C), and routing data for three additional network devices.

**Rosemount 3051TG/TA**

- Range 1: 750 psi (51,71 bar)
- Range 2: 1500 psi (103,42 bar)
- Range 3: 1600 psi (110,32 bar)
- Range 4: 6000 psi (413,69 bar)
- Range 5: 15000 psi (1034,21 bar)
- Range 6: 24000 psi (1654,74 bar)

For Rosemount 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 10: Rosemount 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, 26 bar) for option code P9).

Range 0: 0.5 psia and 750 psig (0,03 bar and 51,71 bar)

Range 1: 0.5 psia and 2000 psig (0,03 bar and 137, 90 bar)

**Burst pressure limits****Rosemount™ 3051C, 3051CF coplanar or traditional process flange**

10081 psig (695,06 bar)

**Rosemount 3051T in-line**

- Ranges 1–4: 11016 psi (759,53 bar)
- Range 5: 26016 psig (1793,74 bar)
- Range 6: 46092 psi (3177,93 bar)

**Failure mode alarm****HART® 4–20 mA (output option code A)**

If self-diagnostics detect a sensor or microprocessor failure, the analog signal is driven either high or low to alert the user. High or low failure mode is user-selectable with a jumper/switch on the transmitter. The values to which the transmitter drives its output in

failure mode depend on whether it is configured to standard, NAMUR-compliant, or custom levels (see alarm configuration below). The values for each are as follows:

	High alarm	Low alarm
Default	$\geq 21.75$ mA	$\leq 3.75$ mA
NAMUR compliant <sup>(1)</sup>	$\geq 22.5$ mA	$\leq 3.6$ mA
Custom levels <sup>(2)</sup>	20.2 – 23.0 mA	3.4 – 3.8 mA

(1) Analog output levels are compliant with NAMUR recommendation NE 43; see option codes C4 or C5.

(2) Low alarm must be 0.1 mA less than low saturation and high alarm must be 0.1 mA greater than high saturation.

### 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, W, and X

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

## Temperature limits

### Ambient

- –40 to 185 °F (–40 to 85 °C)
- With LCD display<sup>(1)(2)</sup>: –40 to 176 °F (–40 to 80 °C)
- With option code BR5: –58 to 185 °F (–50 to 85 °C)
- With option code BR6: –76 to 185 °F (–60 to 85 °C)

(1) For the output code M and W, LCD display may not be readable, and LCD display updates will be slower at temperatures below –22 °F (–30 °C).

(2) Wireless LCD display may not be readable, and LCD display updates will be slower at temperature below –4 °F (–20 °C).

### Storage

#### Note

If storage temperature is above 185 °F (85 °C), perform a sensor trim prior to installation.

- –76 to 230 °F (–60 to 110 °C)
- With LCD display: –76 to 185 °F (–60 to 85 °C)
- With wireless output: –40 °F to 185 °F (–40 °C to 85 °C)

### Process

At atmospheric pressures and above. See [Table 11](#).

**Table 11: Rosemount™ 3051 Process Connection Temperature Limits**

Rosemount 3051CD, 3051CG, 3051CF, 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 Rosemount 305 Integral Manifold	–40 to 300 °F (–40 to 149 °C) <sup>(2)</sup>

**Table 11: Rosemount™ 3051 Process Connection Temperature Limits (continued)**

Inert fill sensor <sup>(1)(4)</sup>	–40 to 185 °F (–40 to 85 °C) <sup>(5)(6)</sup>
With Option Code BR6, coplanar flange	–76 to 250 °F (–60 to 121 °C) <sup>(2)</sup>
With Option Code BR6, traditional flange	–75 to 300 °F (–60 to 149 °C) <sup>(2)</sup>
<b>Rosemount 3051T (process fill fluid)</b>	
Silicone fill sensor <sup>(1)</sup>	–40 to 250 °F (–40 to 121 °C) <sup>(2)</sup>
With Option Code BR6	–76 to 250 °F (–60 to 121 °C) <sup>(2)</sup>
Inert fill sensor <sup>(1)</sup>	–22 to 250 °F (–30 to 121 °C) <sup>(2)</sup>
<b>Rosemount 3051L low-side temperature limits</b>	
Silicone fill sensor <sup>(1)</sup>	–40 to 250 °F (–40 to 121 °C) <sup>(2)</sup>
Inert fill sensor <sup>(1)</sup>	–40 to 185 °F (–40 to 85 °C) <sup>(5)</sup>
<b>Rosemount 3051L high-side temperature limits (process fill fluid)</b>	
SYL THERM™ XLT	–102 to 293 °F (–75 to 145 °C)
D.C. Silicone 704	32 to 401 °F (0 to 205 °C)
D.C. Silicone 200	–49 to 401 °F (–45 to 205 °C)
Inert	–49 to 320 °F (–45 to 160 °C)
Glycerin and water	5 to 203 °F (–15 to 95 °C)
Neobee® M-20	5 to 401 °F (–15 to 205 °C)
Propylene glycol and water	5 to 203 °F (–15 to 95 °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) Rosemount 3051CD0 process temperature limits are –40 to 212 °F (–40 to 100 °C).

(4) Inert fill with traditional flange on Range 0: limits are 32 to 185 °F (0 to 85 °C).

(5) 160 °F (71 °C) limit in vacuum service.

(6) Not available for Rosemount 3051CA.

## Humidity limits

0–100 percent relative humidity

## Turn-on time

Performance within specifications less than 2.0 seconds (20.0 seconds for PROFIBUS® PA and FOUNDATION™ Fieldbus Protocols) after power is applied to the transmitter.

### Note

Does not apply to wireless option code X.

## Volumetric displacement

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



## Damping

### 4–20 mA HART®

Analog output response to a step input change is user-enterable from 0.0 to 60 seconds for one time constant. This software damping is in addition to sensor module response time.

### FOUNDATION™ Fieldbus

- Transducer block: User configurable
- AI Block: User configurable

### PROFIBUS® PA

AI Block only: User configurable

## Physical specifications

### Material selection

Emerson provides a variety of Rosemount™ products with various product options and configurations including materials of construction that can be expected to perform well in a wide range of applications. The Rosemount product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product materials, options, and components for the particular application. Emerson is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product options, configuration, or materials of construction selected.

### Electrical connections

½–14 NPT, G½, and M20 x 1.5 conduit. The polymer housing (code P) has no conduit entries. HART® interface connections fixed to terminal block for output code A and to 701P Power Module for output code X.

### Process connections

#### Rosemount™ 3051C

- ¼–18 NPT on 2½-in. centers
- ½–14 NPT on 2-, 2½-, or 2¼-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: ¼–18 NPT on flange ½–14 NPT on adapter

#### Rosemount 3051T

- ½–14 NPT female
- G½ A DIN 16288 male (range 1–4 only)
- Autoclave type F-250-C (pressure relieved 9/16–18 gland thread; ¼ OD high pressure tube 60° cone; available for range 5–6 transmitters only).

#### Rosemount 3051CF

- For Rosemount 3051CFA, see Rosemount 485 Annubar [Product Data Sheet](#).
- For Rosemount 3051CFC, see Rosemount 405 Compact Orifice Plate [Product Data Sheet](#).

- For Rosemount 3051CFP, see Rosemount 1195 Integral Orifice [Product Data Sheet](#).

## Process-wetted parts

### Drain/vent valves

316 SST, alloy C-276, or alloy 400 material (alloy 400 not available with Rosemount™ 3051L)

### Process flanges and adapters

- Plated CS
- SST: CF-8M (Cast 316 SST) per ASTM A743
- Cast C-276: CW-12MW per ASTM A494
- Cast Alloy 400: M-30C per ASTM A494

### Wetted O-rings

Glass-filled PTFE or graphite-filled PTFE

### Process isolating diaphragms

Isolating diaphragm material	Rosemount™ model		
	3051CD, 3051CG	3051T	3051CA
316L SST (UNS S31603)	•	•	•
Alloy C-276 (UNS N10276)	•	•	•
Alloy 400 (UNS N04400)	•	N/A	•
Tantalum (UNS R05440)	•	N/A	N/A
Gold-plated alloy 400	•	N/A	•
Gold-plated 316L SST	•	•	•

### Rosemount 3051L process wetted parts

Flanged process connection (transmitter high side)

<b>Process diaphragms, including process gasket surface</b>	316L SST, Alloy C-276, or Tantalum
<b>Extension</b>	CF-3M (Cast version of 316L SST, material per ASTM-A743), or Alloy C-276. Fits schedule 40 and 80 pipe.
<b>Mounting flange</b>	Zinc-cobalt plated CS or SST

Reference process connection (transmitter low side)

<b>Isolating diaphragms</b>	316L SST or Alloy C-276
<b>Reference flange and adapter</b>	CF-8M (cast version of 316 SST, material per ASTM-A743)

## Non-wetted parts

### Electronics housing

Low-copper aluminum or CF-8M (cast version of 316 SST)

Enclosure type 4X, IP65, IP66, IP68

Housing material code P: PBT/PC with NEMA 4X and IP66/67/68

## Coplanar sensor housing module

SST: CF-3M (Cast 316L SST)

### Bolts

- Plated CS per ASTM A449, Type 1
- Austenitic 316 SST per ASTM F593
- ASTM A193, Grade B7M alloy steel
- Alloy K-500

### Sensor module fill fluid

- Coplanar: silicone or inert halocarbon
- In-line: silicone or Fluorinert™ FC-43

### Process fill fluid (Rosemount™ 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
- Silicone (for wireless option code X)

### Power module

Field replaceable, keyed connection eliminates the risk of incorrect installation, Intrinsically Safe lithium-thionyl chloride power module with PBT enclosure.

## Shipping weights

### Note

Transmitter weights include the sensor module and housing only (aluminum for Rosemount™ 3051 and polymer for wireless).

**Table 12: Transmitter Weights without Options**

Rosemount transmitter	Rosemount 3051 in lb. (kg)	Wireless in lb. (kg)
3051C	6.0 (2,7)	3.9 (1,8)
3051T	3.0 (1,4)	1.9 (0,86)
3051L	<a href="#">Table 13</a>	<a href="#">Table 13</a>

**Table 13: Rosemount 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., Class 150	12.5 (5,7)	N/A	N/A	N/A
3-in., Class 150	17.5 (7,9)	19.5 (8,8)	20.5 (9,3)	21.5 (9,7)
4-in., Class 150	23.5 (10,7)	26.5 (12,0)	28.5 (12,9)	30.5 (13,8)
2-in., Class 300	17.5 (7,9)	N/A	N/A	N/A
3-in., Class 300	22.5 (10,2)	24.5 (11,1)	25.5 (11,6)	26.5 (12,0)
4-in., Class 300	32.5 (14,7)	35.5 (16,1)	37.5 (17,0)	39.5 (17,9)

**Table 13: Rosemount 3051L Weights without Options (continued)**

Flange	Flush lb. (kg)	2-in. ext. lb. (kg)	4-in. ext. lb. (kg)	6-in. ext. lb. (kg)
2-in., Class 600	15.3 (6,9)	N/A	N/A	N/A
3-in., Class 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)	N/A	N/A	N/A
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 14: Transmitter Option Weights**

Code	Option	Add lb. (kg)
J, K, L, M	SST housing (T)	3.9 (1,8)
J, K, L, M	SST housing (C, L, H, P)	3.1 (1,4)
M4/M5	LCD display for wired transmitter	0.5 (0,2)
M5	LCD display for wireless output	0.1 (0,04)
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)
WSM	SST sensor module	1.0 (0,45)
N/A	Power module (701PGNKF)	0.4 (0,18)

# Rosemount™ 3051 product certifications

Rev 2.6

## European directive information

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

## Ordinary location certification

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

## North America

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

<b>Ranges 1-5 Certificate</b>	FM16US0121
<b>Standards</b>	FM Class 3600 - 2011, FM Class 3615 - 2006, FM Class 3810 - 2005, ANSI/NEMA 250 - 2003
<b>Markings</b>	XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III; T5 ( $-50^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ ); Factory Sealed; Type 4X
<b>Range 6 Certificate</b>	1053834
<b>Standards</b>	ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2 No. 213 - M1987
<b>Markings</b>	XP Class I, Division 1, Groups B, C, and D, T5, ( $-50^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ ) Suitable for Class I, Zone 1, Group IIB+H2, T5; DIP Class II and Class III, Division 1, Groups E, F, and G, T5, ( $-50^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ ); Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

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

<b>Range 1-5 (HART) Certificate</b>	FM16US0120X
<b>Standards</b>	FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3611 - 2004, FM Class 3810 - 2005, ANSI/NEMA 250 - 2008
<b>Markings</b>	IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; DIV 1 when connected per Rosemount drawing 03031-1019; NI CL 1, DIV 2, GP A, B, C, D; T4 ( $-50^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ ) [HART], T4 ( $-50^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ ) [Fieldbus/PROFIBUS]; Type 4X

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

1. The Model 3051 transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.
2. The Model 3051 transmitter with the transient terminal block (Option code T1) will not pass the 500 Vrms dielectric strength test, and this must be taken into account during installation.

<b>Range 6 (HART)/ Range 1-6 (Fieldbus/ PROFIBUS) Certificate</b>	1053834
<b>Standards</b>	ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2. No.157-92
<b>Markings</b>	IS Class I, II, III, Division 1 Groups A, B, C, D, E, F, and G when connected in accordance with Rosemount drawing 03031-1024, Suitable for Class I, Zone 0 Group IIC; Class I, Division 2, Groups A, B, C, and D; NIFW; Suitable for Class I, Zone 2, Group IIC; HART: T4 ( $-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ ), T5 ( $-60^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$ ) Fieldbus/PROFIBUS: T4 ( $-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ ) Type 4X

## IE USA FISCO

<b>Range 1-5 (HART) Certificate</b>	FM16US0120X
<b>Standards</b>	FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3611 - 2004, FM Class 3810 - 2005
<b>Markings</b>	IS CL I, DIV 1, GP A, B, C, D when connected per Rosemount™ drawing 03031-1019 ( $-50^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ ); Type 4X

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

1. The Model 3051 transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.
2. The Model 3051 transmitter with the transient terminal block (Option code T1) will not pass the 500 Vrms dielectric strength test, and this must be taken into account during installation.

<b>Range 6 (HART)/ Range1-6 (Fieldbus/ PROFIBUS) Certificate</b>	1053834
<b>Standards</b>	ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2. No.157-92
<b>Markings</b>	IS Class I, Division 1 Groups A, B, C, D, T4 ( $-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ ) when connected in accordance with Rosemount drawing 03031-1024, Suitable for Class I, Zone 0 Group IIC; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

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

<b>Certificate</b>	1053834
<b>Standards</b>	ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2. No.157-92, CSA Std. C22.2 No. 213 - M1987
<b>Markings</b>	Explosionproof for Class I, Division 1, Groups B, C and D; Suitable for Class I, Zone 1, Group IIB+H2, T5 ( $-50^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ ); Dust-Ignitionproof Class II, III Division 1, Groups E, F, G; T5 ( $-50^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ ); Intrinsically Safe Class I, Division 1, Groups A, B, C, D when connected in accordance with Rosemount drawing 03031-1024, Temperature Code T4; Suitable for Class I, Zone 0; Class I Division 2 Groups A, B, C, and D, T5; Suitable for Class I Zone 2, Group IIC; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

## E6 Canada Explosionproof, Dust-Ignitionproof and Division 2

<b>Certificate</b>	1053834
<b>Standards</b>	ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2 No. 213 - M1987



**Markings** Explosionproof Class I, Division 1, Groups B, C, and D; Suitable for Class I, Zone 1, Group IIB+H2, T5; Dust-Ignitionproof for Class II and Class III, Division 1, Groups E, F, and G; T5 ( $-50^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ ); Class I, Division 2, Groups A, B, C, and D; T5; Suitable for Class I Zone 2, Group IIC; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

## Europe

### E8 ATEX Flameproof and Dust

**Certificate** KEMA00ATEX2013X; Baseefa11ATEX0275X

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

**Markings**  II 1/2 G Ex db IIC T6...T4 Ga/Gb T6 ( $-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ ), T4/T5 ( $-60^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$ );  II 1 D Ex ta IIIC T95  $^{\circ}\text{C}$  T<sub>500</sub> 105  $^{\circ}\text{C}$  Da ( $-20^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ )

**Table 15: Process Temperature**

Temperature class	Process connection temperature
T6	$-60^{\circ}\text{C}$ to $+70^{\circ}\text{C}$
T5	$-60^{\circ}\text{C}$ to $+80^{\circ}\text{C}$
T4	$-60^{\circ}\text{C}$ to $+120^{\circ}\text{C}$




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

1. This device contains a thin wall diaphragm less than 1 mm thick that forms a boundary between Category 1 (process connection) and Category 2 (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. During installation, maintenance, and use, the environmental conditions to which the diaphragm will be subjected shall be taken into account. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. Flameproof joints are not intended for repair.
3. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.
4. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

### I1 ATEX Intrinsic Safety and Dust

**Certificate** BAS97ATEX1089X; Baseefa11ATEX0275X

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

**Markings** HART:  II 1 G Ex ia IIC T5/T4 Ga, T5 ( $-60^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$ ), T4 ( $-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ )  
 Fieldbus/PROFIBUS:  II 1 G Ex ia IIC Ga T4 ( $-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ )  
 DUST:  II 1 D Ex ta IIIC T95  $^{\circ}\text{C}$  T<sub>500</sub> 105  $^{\circ}\text{C}$  Da ( $-20^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ )

**Table 16: Input Parameters**

Parameter	HART	Fieldbus/PROFIBUS
Voltage $U_i$	30 V	30 V
Current $I_i$	200 mA	300 mA

**Table 16: Input Parameters (continued)**

Parameter	HART	Fieldbus/PROFIBUS
Power $P_i$	0.9 W	1.3 W
Capacitance $C_i$	0.012 $\mu\text{F}$	0 $\mu\text{F}$
Inductance $L_i$	0 mH	0 mH

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

1. The apparatus is not capable of withstanding the 500 V insulation test required by clause 6.3.12 of EN60079-11: 2012. This must be taken into account when installing the apparatus.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion of located in Zone 0.
3. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

**IA ATEX FISCO**

<b>Certificate</b>	BAS97ATEX1089X
<b>Standards</b>	EN60079-0:2012 + A11:2013, EN60079-11:2012
<b>Markings</b>	Ex II 1 G Ex ia IIC T4 Ga ( $-60\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$ )

**Table 17: Input Parameters**

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

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

1. The apparatus is not capable of withstanding the 500 V insulation test required by clause 6.3.12 of EN60079-11: 2012. This must be taken into account when installing the apparatus.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion of located in Zone 0.

**N1 ATEX Type n and Dust**

<b>Certificate</b>	BAS00ATEX3105X; Baseefa11ATEX0275X
<b>Standards</b>	EN60079-0:2012 + A11:2013, EN60079-15:2010, EN60079-31:2014
<b>Markings</b>	Ex II 3 G Ex nA IIC T5 Gc ( $-40\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$ ); Ex II 1 D Ex ta IIIC T95 $^{\circ}\text{C}$ T <sub>500</sub> 105 $^{\circ}\text{C}$ Da ( $-20\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$ )

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

1. This apparatus is not capable of withstanding the 500 V insulation test that is required by clause 6.8.1 of EN60079-15. This must be taken into account when installing the apparatus.



- Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

## International

### E7 IECEx Flameproof and Dust

**Certificate** IECEx KEM 09.0034X; IECEx BAS 10.0034X

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

**Markings** Ex db IIC T6...T4 Ga/Gb T6( $-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ ), T4/T5( $-60^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$ ); Ex ta IIIC T95  $^{\circ}\text{C}$  T<sub>500</sub> 105  $^{\circ}\text{C}$  Da ( $-20^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ )

**Table 18: Process Temperature**

Temperature class	Process connection temperature
T6	$-60^{\circ}\text{C}$ to $+70^{\circ}\text{C}$
T5	$-60^{\circ}\text{C}$ to $+80^{\circ}\text{C}$
T4	$-60^{\circ}\text{C}$ to $+80^{\circ}\text{C}$

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

- This device contains a thin wall diaphragm less than 1 mm thick that forms a boundary between EPL Ga (process connection) and EPL Gb (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. During installation, maintenance, and use, the environmental conditions to which the diaphragm will be subjected shall be taken into account. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
- Flameproof joints are not intended for repair.
- Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.
- Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

### I7 IECEx Intrinsic Safety

**Certificate** IECEx BAS 09.0076X

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

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

**Table 19: Input Parameters**

Parameter	HART	Fieldbus/PROFIBUS
Voltage $U_i$	30 V	30 V
Current $I_i$	200 mA	300 mA
Power $P_i$	0.9 W	1.3 W
Capacitance $C_i$	0.012 $\mu\text{F}$	0 $\mu\text{F}$

**Table 19: Input Parameters (continued)**

Parameter	HART	Fieldbus/PROFIBUS
Inductance $L_i$	0 mH	0 mH

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

1. If the apparatus is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by clause 6.3.12 of IEC 60079-11. This must be taken into account when installing the apparatus.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion of located in Zone 0.

**IECEx Mining (Special A0259)**

<b>Certificate</b>	IECEx TSA 14.0001X
<b>Standards</b>	IEC60079-0:2011, IEC60079-11:2011
<b>Markings</b>	Ex ia I Ma ( $-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ )

**Table 20: Input Parameters**

Parameter	HART	Fieldbus/PROFIBUS	FISCO
Voltage $U_i$	30 V	30 V	17.5 V
Current $I_i$	200 mA	300 mA	380 mA
Power $P_i$	0.9 W	1.3 W	5.32 W
Capacitance $C_i$	0.012 $\mu\text{F}$	0 $\mu\text{F}$	<5 nF
Inductance $L_i$	0 mH	0 mH	<10 $\mu\text{H}$

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

1. If the apparatus is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by IEC60079-11. This must be taken into account when installing the apparatus.
2. It is a condition of safe use that the above input parameters shall be taken into account during installation.
3. It is a condition of manufacture that only the apparatus fitted with housing, covers, and sensor module housing made out of stainless steel are used in Group 1 applications.

**IG IECEx FISCO**

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

**Table 21: Input Parameters**

Parameters	Fieldbus/PROFIBUS
Voltage $U_i$	17.5 V
Current $I_i$	380 mA
Power $P_i$	5.32 W
Capacitance $C_i$	$\leq 5$ nF

**Table 21: Input Parameters (continued)**

Parameters	Fieldbus/PROFIBUS
Inductance $L_i$	$\leq 10 \mu\text{H}$

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

1. If the apparatus is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by clause 6.3.12 of IEC 60079-11. This must be taken into account when installing the apparatus.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion of located in Zone 0.

**N7 IECEx Type n**

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

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

1. This apparatus is not capable of withstanding the 500 V insulation test required by clause 6.5.1 of IEC 60079-15. This must be taken into account when installing the apparatus.

**Brazil****E2 INMETRO Flameproof**

<b>Certificate</b>	UL-BR 13.0643X
<b>Standards</b>	ABNT NBR IEC 60079-0:2013; ABNT NBR IEC 60079-1:2016; ABNT NBR IEC 60079-26:2016
<b>Markings</b>	Ex db IIC T6...T4 Ga/Gb, T6( $-60^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ ), T4/T5 ( $-60^\circ\text{C} \leq T_a \leq +80^\circ\text{C}$ )

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

1. This device contains a thin wall diaphragm with less than 1 mm thickness that forms a boundary between zone 0 (process connection) and zone 1 (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. Installation, maintenance, and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. Flameproof joints are not intended for repair.
3. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

**I2 INMETRO Intrinsic Safety**

<b>Certificate</b>	UL-BR 13.0584X
<b>Standards</b>	ABNT NBR IEC60079-0:2013, ABNT NBR IEC60079-11:2013
<b>Markings</b>	HART: Ex ia IIC T5/T4 Ga, T5( $-60^\circ\text{C} \leq T_a \leq +40^\circ\text{C}$ ), T4 ( $-60^\circ\text{C} \leq T_a \leq +70^\circ\text{C}$ ) Fieldbus/PROFIBUS: Ex ia IIC T4 Ga ( $-60^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$ )

**Table 22: Input Parameters**

Parameter	HART	Fieldbus/PROFIBUS
Voltage $U_i$	30 V	30 V
Current $I_i$	200 mA	300 mA
Power $P_i$	0.9 W	1.3 W
Capacitance $C_i$	0.012 $\mu$ F	0 $\mu$ F
Inductance $L_i$	0 mH	0 mH

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

1. If the equipment is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by ABNT NBR IEC 60079-11. This must be taken into account when installing the equipment.
2. The enclosure may be made of aluminum alloy and given protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if equipment requires EPL Ga.

**IB INMETRO FISCO**

<b>Certificate</b>	UL-BR 13.0584X
<b>Standards</b>	ABNT NBR IEC60079-0:2013, ABNT NBR IEC60079-11:2013
<b>Markings</b>	Ex ia IIC T4 Ga (-60 °C $\leq$ Ta $\leq$ +60 °C)

**Table 23: Input Parameters**

Parameter	FISCO
Voltage $U_i$	17.5 V
Current $I_i$	380 mA
Power $P_i$	5.32 W
Capacitance $C_i$	$\leq 5$ nF
Inductance $L_i$	$\leq 10$ $\mu$ H

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

1. If the equipment is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by ABNT NBR IEC 60079-11. This must be taken into account when installing the equipment.
2. The enclosure may be made of aluminum alloy and given protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if equipment requires EPL Ga.

**China****E3 China Flameproof**

<b>Certificate</b>	GYJ19.1056X [Transmitters]; GYJ15.1368X [Flow meters]
<b>Standards</b>	GB3836.1-2010, GB3836.2-2010, GB3836.20-2010, GB12476.1-2013, GB12476.5-2013
<b>Markings</b>	3051 Series: Ex d IIC T6 ~ T4 Ga/Gb, Ex tD A20 IP66 T95 °C T <sub>500</sub> 105 °C (-20 °C $\leq$ Ta $\leq$ +85 °C) 3051CF Series: Ex d IIC T5/T6 Ga/Gb

### I3 China Intrinsic Safety

<b>Certificate</b>	GYJ13.1362X; GYJ15.1367X [Flow meters]
<b>Standards</b>	GB3836.1-2010, GB3836.4-2010, GB3836.20-2010, GB12476.1-2000
<b>Markings</b>	3051 Series: Ex ia IIC T4/T5 Ga, DIP A20 T <sub>A</sub> 80 °C IP66 3051 CF Series: Ex ia IIC T4/T5 Ga

### N3 China Type n

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

## Japan

### E4 Japan Flameproof

<b>Certificate</b>	TC20577, TC20578, TC20583, TC20584 [HART]; TC20579, TC20580, TC20581, TC20582 [Fieldbus]
<b>Markings</b>	Ex d IIC T5

## Republic of Korea

### EP Republic of Korea Flameproof

<b>Certificate</b>	11-KB4BO-0188X [Mfg Singapore]
<b>Markings</b>	Ex d IIC T6...T4

### IP Republic of Korea Intrinsic Safety

<b>Certificate</b>	13-KB4BO-0203X [HART – Mfg USA], 13-KB4BO-0204X [Fieldbus – Mfg USA], 10-KB4BO-0138X [HART – Mfg Singapore], 13-KB4BO-0206X [Fieldbus – Mfg Singapore]
<b>Markings</b>	Ex ia IIC T5/T4 (HART); Ex ia IIC T4 (Fieldbus)

## Technical Regulations Customs Union (EAC)

### EM EAC Flameproof

<b>Markings</b>	Ga/Gb Ex db IIC T4...T6 X, T4/T5(-60 °C ≤ Ta ≤ +80 °C), T6(-60 °C ≤ Ta ≤ +70 °C)
-----------------	--

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

See certificate for special conditions.

## IM EAC Intrinsically Safe

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

### Special Conditions for Safe Use (X)

See certificate for special conditions.

## Combinations


<b>K2</b>	Combination of E2 and I2
<b>K5</b>	Combination of E5 and I5
<b>K6</b>	Combination of C6, E8, and I1
<b>K7</b>	Combination of E7, I7, and N7
<b>K8</b>	Combination of E8, I1, and N1
<b>KB</b>	Combination of E5, I5, and C6
<b>KD</b>	Combination of E8, I1, E5, I5, and C6
<b>KM</b>	Combination of EM and IM
<b>KP</b>	Combination of EP and IP

## Conduit plugs and adapters

### IECEx Flameproof and Increased Safety

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

### ATEX Flameproof and Increased Safety

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

**Table 24: Conduit Plug Thread Sizes**

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

**Table 25: Thread Adapter Thread Sizes**

Male thread	Identification mark
M20 × 1.5 – 6H	M20

**Table 25: Thread Adapter Thread Sizes (continued)**

½–14 NPT	½–14 NPT
¾–14 NPT	¾–14 NPT
<b>Female thread</b>	<b>Identification mark</b>
M20 × 1.5 – 6H	M20
½–14 NPT	½–14 NPT
G½	G½

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

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

## Additional certifications

### SBS American Bureau of Shipping (ABS) Type Approval

**Certificate** 18-HS1814795-PDA**Intended use** Marine & Offshore Applications – Measurement of either gauge or absolute pressure for liquid, gas and vapor.

### SBV Bureau Veritas (BV) Type Approval

**Certificate** 23155**Requirements** Bureau Veritas rules for the classification of steel ships**Application** Class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS; Pressure transmitter type 3051 cannot be installed on diesel engines

### SDN Det Norske Veritas (DNV) Type Approval

**Certificate** TAA000004F**Intended Use** DNV GL rules for classification - ships and offshore units**Application****Table 26: Location Classes**

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	D

### **SLL Lloyds Register (LR) Type Approval**

**Certificate** 11/60002

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

### **C5 Custody Transfer - Measurement Canada Accuracy Approval**

**Certificate** AG-0226; AG-0454; AG-0477



# Rosemount 3051 Wireless product certifications

Rev 1.5

## European Directive Information

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

## Telecommunication compliance

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

## FCC and IC

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

## Ordinary Location Certification

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

## Installing in North America

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

## USA

### I5 U.S.A. Intrinsically Safe (IS)

<b>Ranges 1-5 Certificate</b>	FM 3046325
<b>Standards</b>	FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3810 - 2005, ANSI/ISA 60079-0 - 2009, ANSI/ISA 60079-11 - 2009, NEMA® 250 - 2003, ANSI/IEC 60529
<b>Markings</b>	IS CL I, DIV 1, GP A, B, C, D T4; CL 1, Zone 0 AEx ia IIC T4; T4(−40 °C ≤ T <sub>a</sub> ≤ +70 °C) when installed per Rosemount drawing 03031-1062; Type 4X/IP66/IP68

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

1. The Model 3051 Wireless Pressure Transmitter shall only be used with the 701PGNKF Rosemount SmartPower Battery Pack.
2. The inline pressure sensor may contain more than 10% aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and used to prevent impact and friction.
3. The surface resistivity of the transmitter housing is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

<b>Range 6 Certificate</b>	CSA 2526009
<b>Standards</b>	FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3810 - 2005, ANSI/ISA 60079-0 - 2009, ANSI/ISA 60079-11 - 2009, UL 61010-1 (3rd edition), UL50E (1st Edition)
<b>Markings</b>	IS CL I, DIV 1, GP A, B, C, D T4; CL 1, Zone 0 AEx ia IIC T4; T4(-40 °C ≤ T <sub>a</sub> ≤ +70 °C) when installed per Rosemount drawing 03031-1063; Type 4X/IP66/IP68

## Canada

### I6 Canada Intrinsically Safe

<b>Certificate</b>	CSA 2526009
<b>Standards</b>	CAN/CSA C22.2 No. 0-M91, CAN/CSA C22.2 No.94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, CSA Std C22.2 No. 60529:05
<b>Markings</b>	Intrinsically Safe for Class I, Division 1, Groups A, B, C, D, T4 when installed per Rosemount drawing 03031-1063; Type 4X/IP66/IP68

## Europe

### I1 ATEX Intrinsic Safety

<b>Certificate</b>	Baseefa12ATEX0228X
<b>Standards</b>	EN 60079-0: 2012, EN 60079-11: 2012
<b>Markings</b>	ⒺEx II 1 G Ex ia IIC T4 Ga, T4(-40 °C ≤ T <sub>a</sub> ≤ +70 °C) IP66/IP68

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

1. The plastic enclosure may constitute a potential electrostatic ignition risk and must not be rubbed or cleaned with a dry cloth.
2. The Model 701PGNKF Power Module may be replaced in a hazardous area. The power module has a surface resistivity greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.

## International

### I7 IECEx Intrinsic Safety

<b>Certificate</b>	IECEx BAS 12.0124X
<b>Standards</b>	IEC 60079-0: 2011, IEC 60079-11: 2011
<b>Markings</b>	Ex ia IIC T4 Ga, T4(-40 °C ≤ T <sub>a</sub> ≤ +70 °C) IP66/IP68

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

1. The plastic enclosure may constitute a potential electrostatic ignition risk and must not be rubbed or cleaned with a dry cloth.
2. The Model 701PGNKF Power Module may be replaced in a hazardous area. The power module has a surface resistivity greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.

## Brazil

### I2 INMETRO Intrinsic Safety

<b>Certificate</b>	UL-BR 13.0534X
<b>Standards</b>	ABNT NBR IEC 60079-0:2008 + Errata 1:2011, ABNT NBR IEC 60079-11:2009
<b>Markings</b>	Ex ia IIC T4 IP66 Ga, T4(−40 °C ≤ T <sub>a</sub> ≤ +70 °C)

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

1. See certificate for special conditions.

## China

### I3 China Intrinsic Safety

<b>Certificate</b>	GYJ13.1362X, GYJ15.1367X [Flow Meters]
<b>Standards</b>	GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
<b>Markings</b>	Ex ia IIC T4 Ga, T4(−40 ~ +70 °C)

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

1. See certificate for special conditions.

## Japan

### I4 TIIS Intrinsic Safety

<b>Certificate</b>	TC22022X (Rosemount 3051C/L), TC22023X (Rosemount 3051T), TC22024X (Rosemount 3051CFx)
<b>Markings</b>	Ex ia IIC T4 Ga, T4(−20 ~ +60 °C)

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

1. See certificate for special conditions.

## EAC – Belarus, Kazakhstan, Russia

### IM Technical Regulation Customs Union (EAC) Intrinsic Safety

<b>Certificate</b>	TU RU C-US.AA87.B.00534
<b>Markings</b>	0Ex ia IIC T4 Ga X; $(-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C})$

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

1. See certificate for special conditions.

## Korea

### IP Korea Intrinsic Safety

<b>Certificate</b>	13-KB4BO-0295X
<b>Markings</b>	Ex ia IIC T4 $(-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C})$

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

1. See certificate for special conditions.

## Additional Certifications

### SBS American Bureau of Shipping (ABS) Type Approval

<b>Certificate</b>	15-HS1405241-PDA
<b>Intended Use</b>	Marine & Offshore Applications - Measurement of either gauge or absolute pressure for liquid, gas and vapor.

### SBV Bureau Veritas (BV) Type Approval

<b>Certificate</b>	23155
<b>Requirements</b>	Bureau Veritas Rules for the Classification of Steel Ships
<b>Application</b>	Class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS; Pressure transmitter type 3051 cannot be installed on diesel engines

### SDN Det Norske Veritas (DNV) Type Approval

<b>Certificate</b>	TAA000004F
<b>Intended Use</b>	DNV GL Rules for Classification - Ships and offshore units

Application:

Location classes	
Temperature	D
Humidity	B
Vibration	A

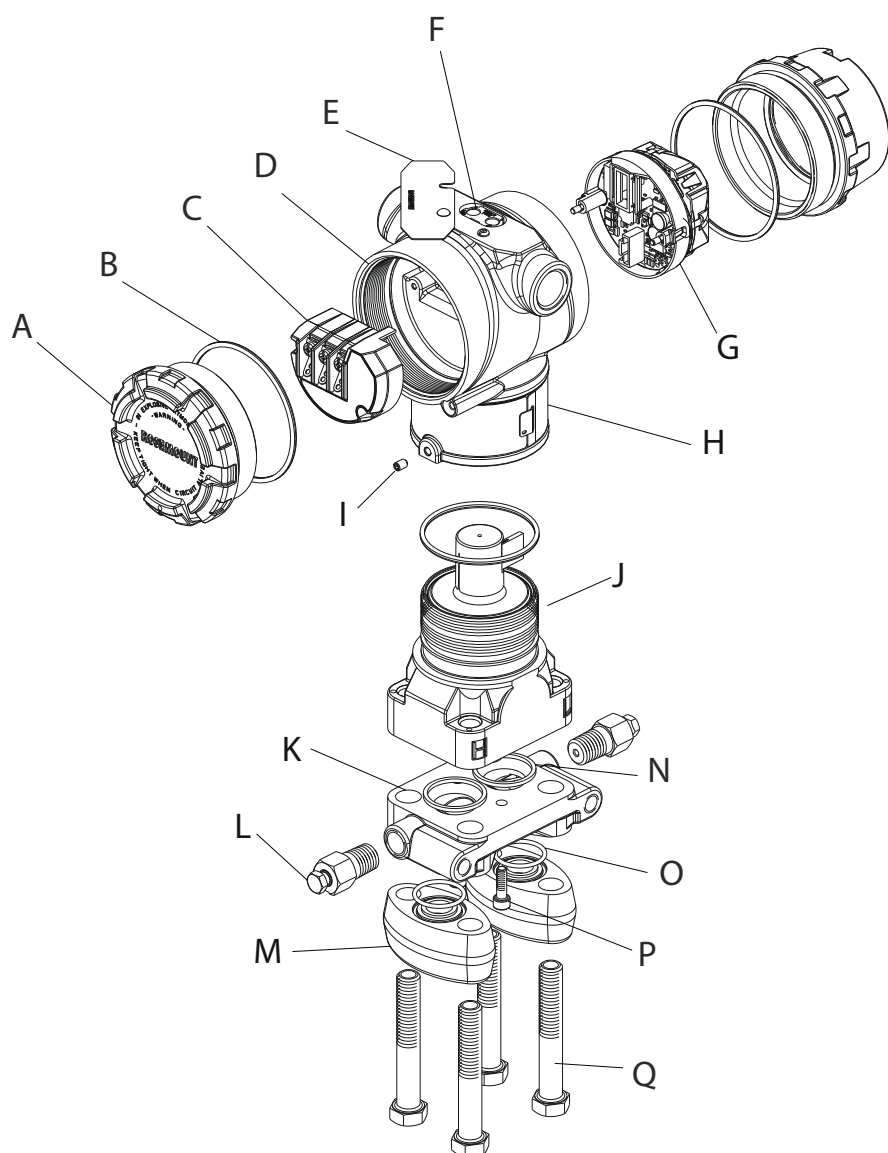
EMC	B
Enclosure	D

## Dimensional drawings

### Note

This section contains dimensional drawings for output codes A, F and X. For output codes W and M, visit [Emerson.com/en-us/support](https://emerson.com/en-us/support).

**Figure 1: Rosemount™ 3051C Exploded View**



A. Cover

B. Cover O-ring

C. Terminal block

D. Electronics housing

E. Configuration buttons cover

F. Local configuration buttons

G. Electronics board

H. Name plate

I. Housing rotation set screw (180 degree maximum rotation without further disassembly)

J. Sensor module

K. Coplanar flange

L. Drain/vent valve

M. Flange adapters

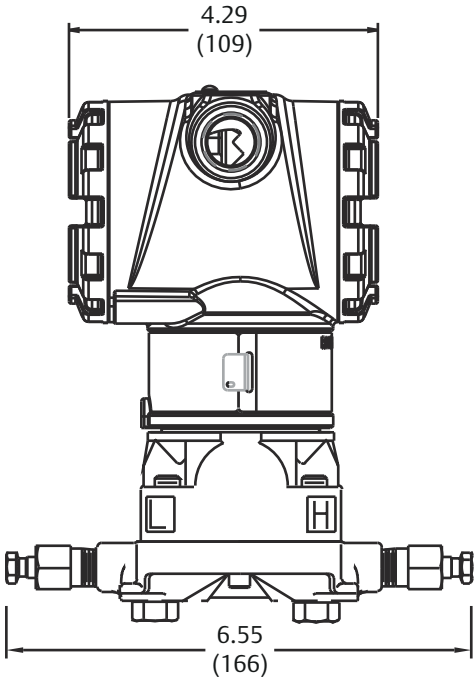
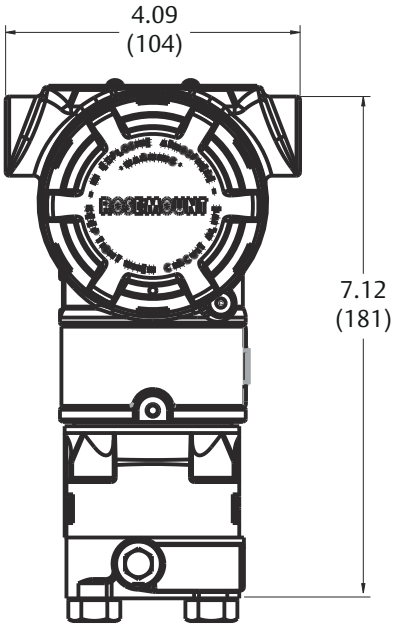
N. Process O-ring

O. Flange adapter O-ring

P. Flange alignment screw (not pressure retaining)

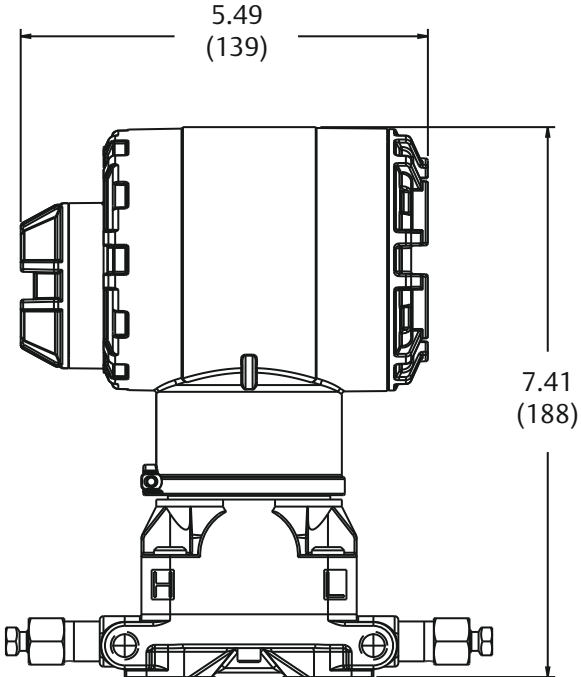
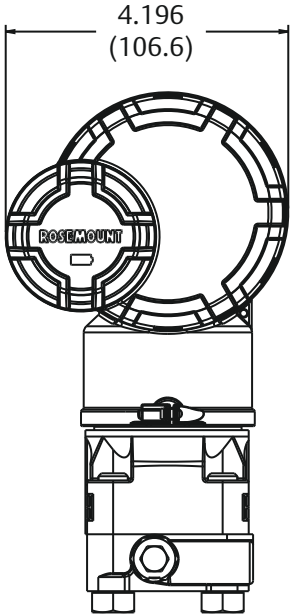
Q. Flange bolts

Figure 2: Rosemount 3051C Coplanar Flange



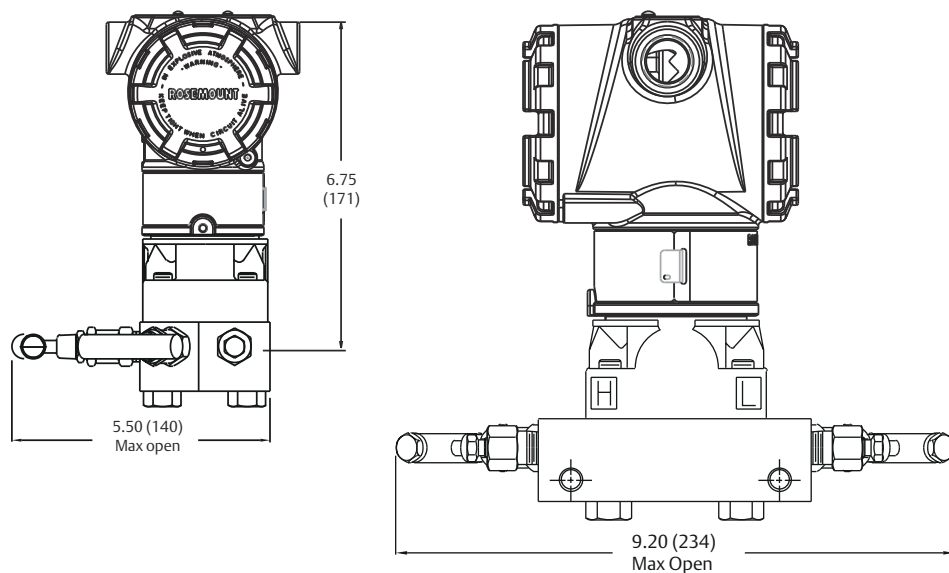
Dimensions are in inches (millimeters).

Figure 3: Rosemount 3051 Wireless Housing with Coplanar Flange



Dimensions are in inches (millimeters).

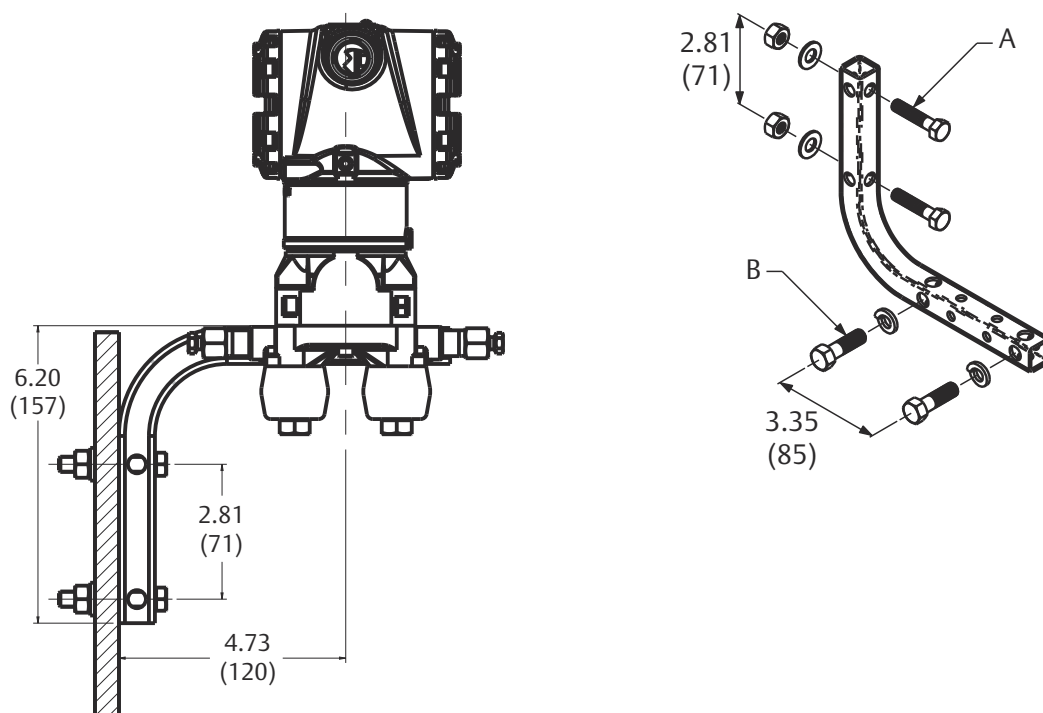
**Figure 4: Rosemount 3051C Coplanar Flange with Rosemount 305RC3 3-Valve Coplanar Integral Manifold**



Dimensions are in inches (millimeters).

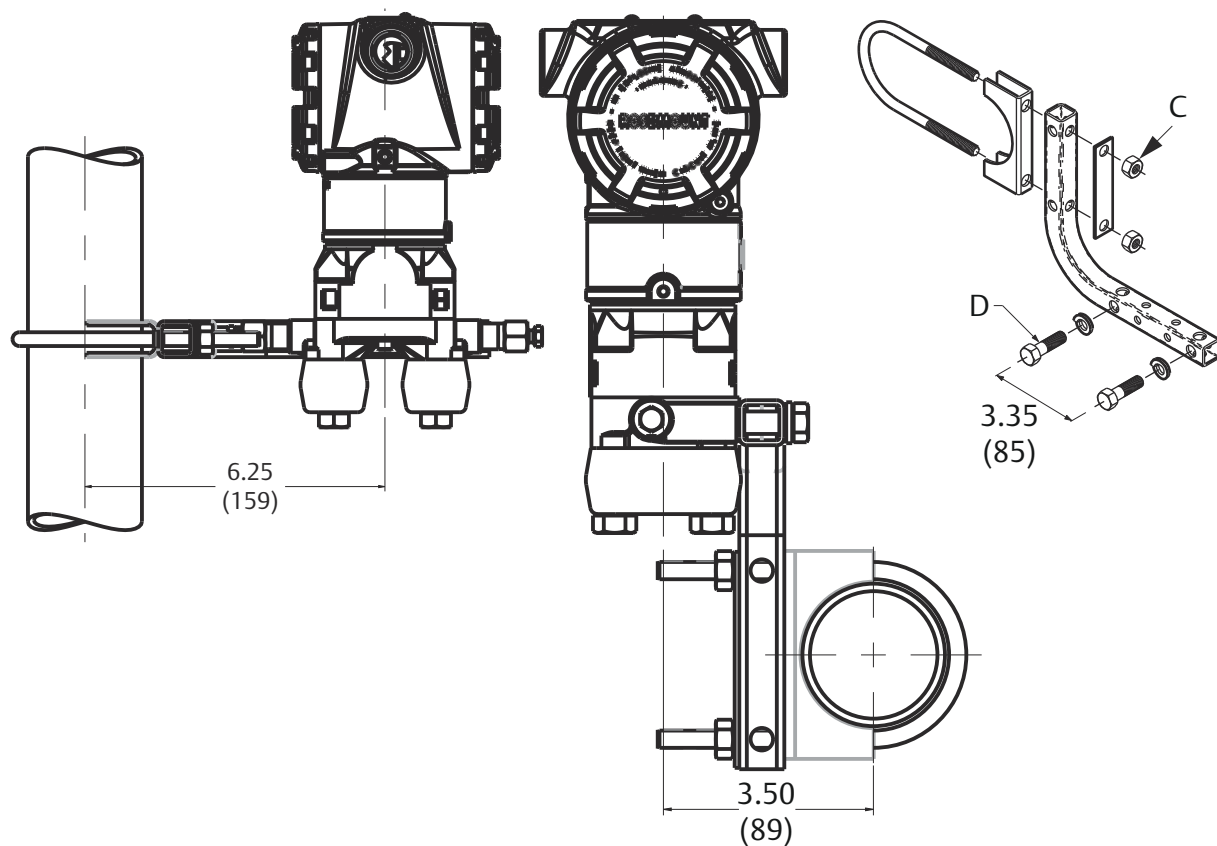
**Figure 5: Coplanar Flange Mounting Configurations with Optional Bracket (B4) for 2-in. Pipe or Panel Mounting**

Panel  
mounting





Pipe  
mounting



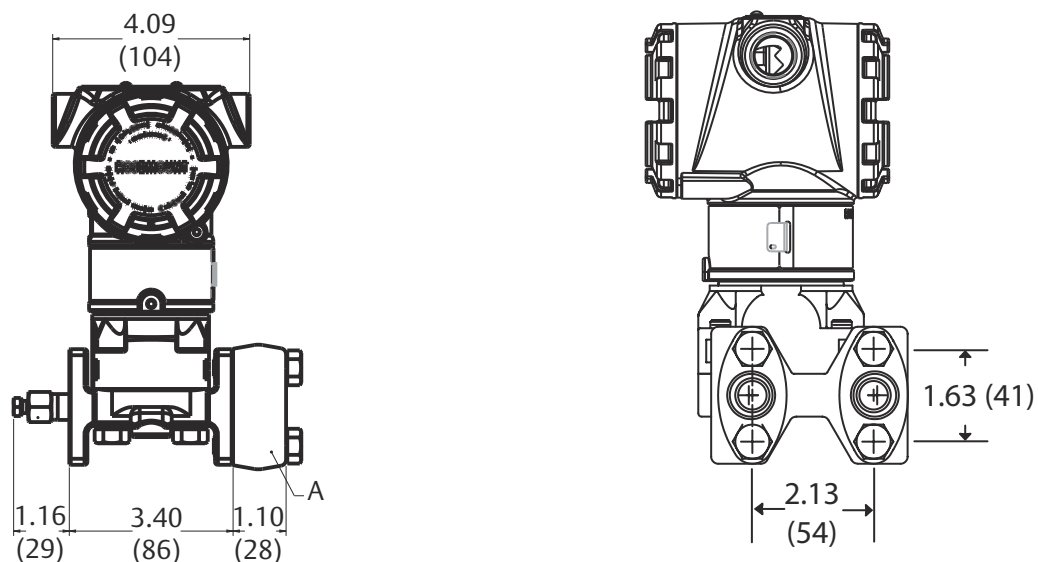
A. 5/16-18 bolts (not supplied)

B. 3/8-16 bolts

C. 2-in. U-bolt

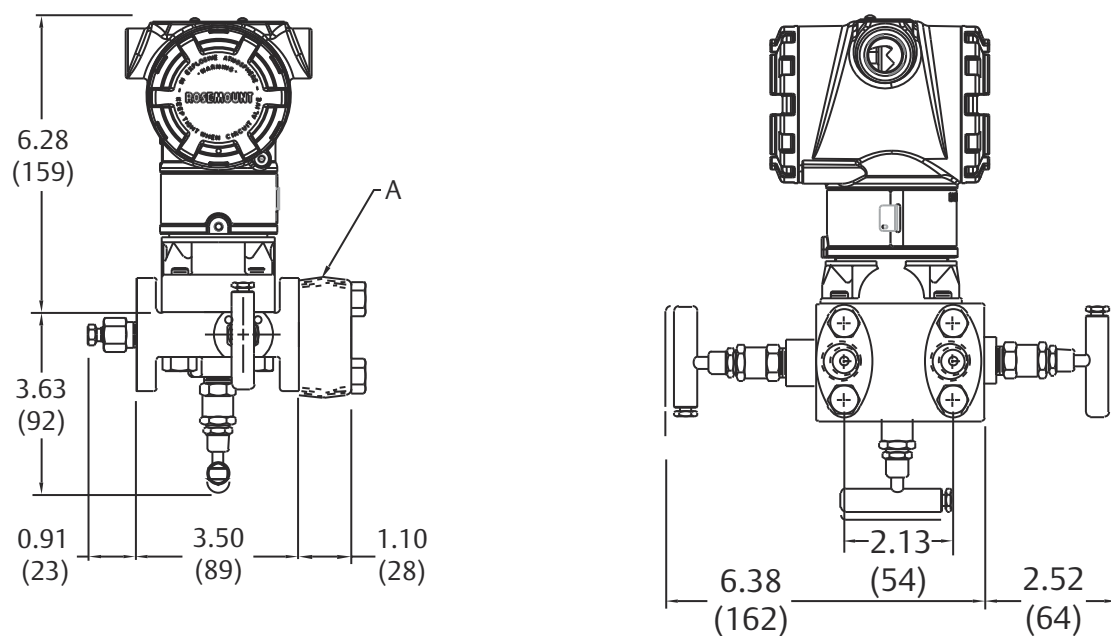
D. 3/8-16 bolts

Dimensions are in inches (millimeters).

**Figure 6: Rosemount 3051C Coplanar with Traditional Flange**

A. Flange adapters (optional)

Dimensions are in inches (millimeters).

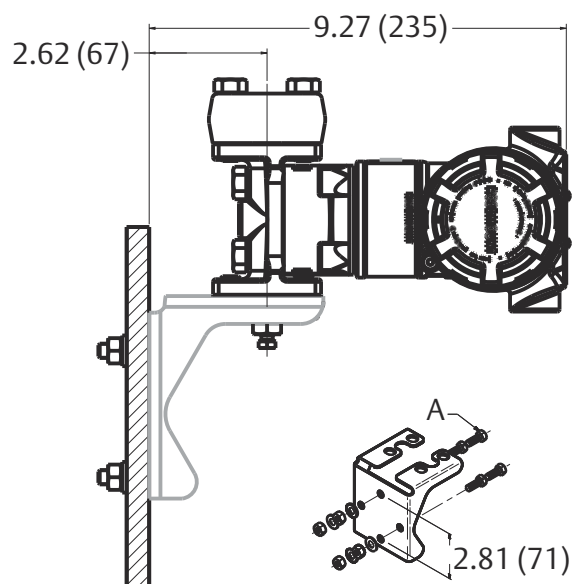
**Figure 7: Rosemount 3051C Coplanar with Rosemount 305RT3 3-Valve Traditional Integral Manifold**

A. 1/2-14 NPT flange adapter (optional)

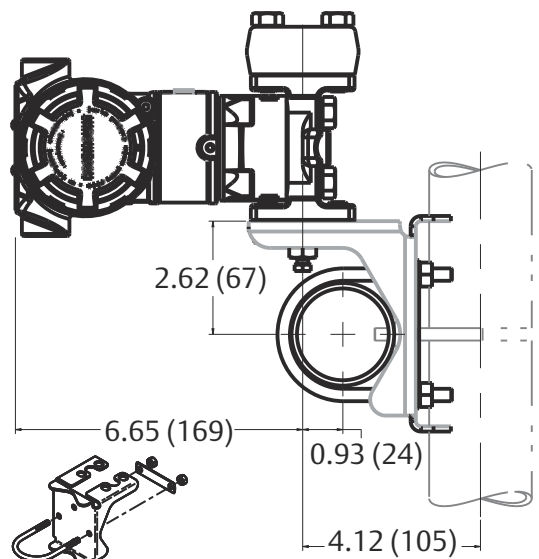
Dimensions are in inches (millimeters).

**Figure 8: Traditional Flange Mounting Configurations with Optional Brackets for 2-in. Pipe or Panel Mounting**

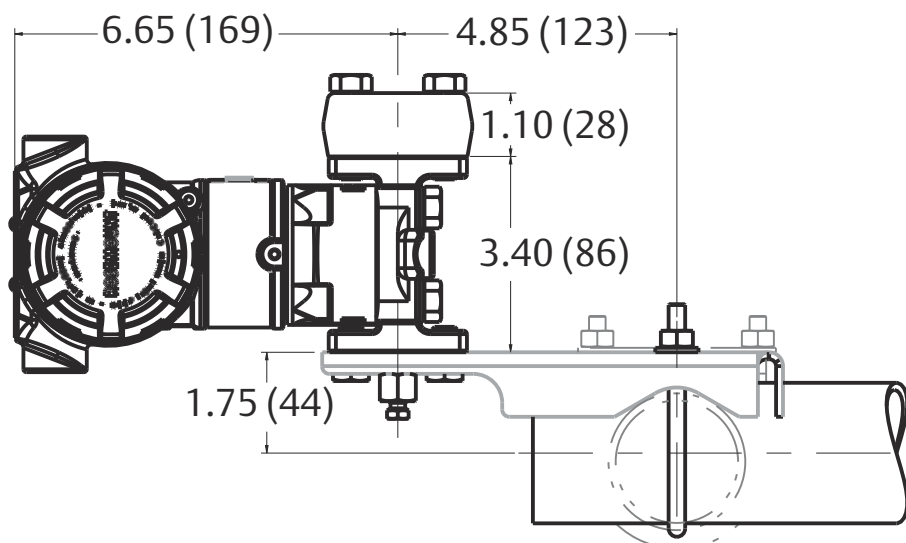
Panel mounting bracket (option B2/B8)



Pipe mounting bracket (option B1/B7/BA)



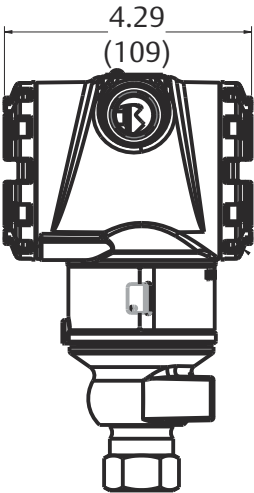
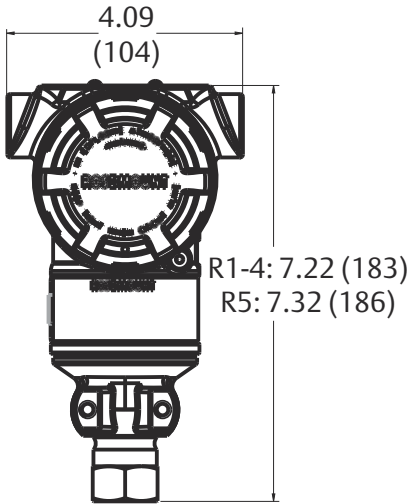
Pipe mounting bracket (option B3/B9/BC)



A. 5/16-18 bolts (not supplied)

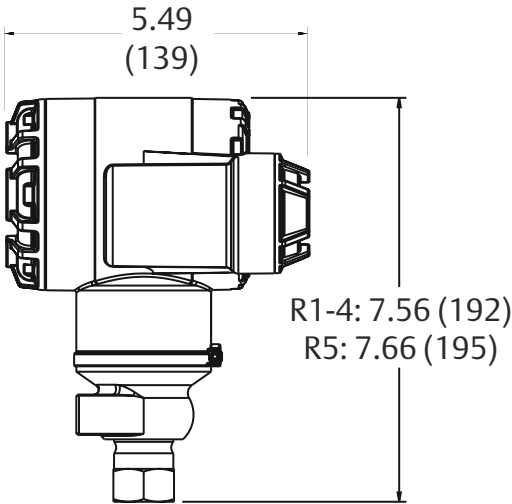
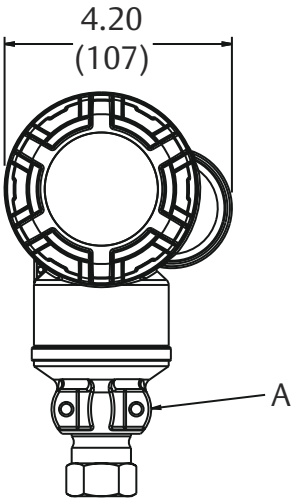
Dimensions are in inches (millimeters).

Figure 9: Rosemount 3051T



Dimensions are in inches (millimeters).

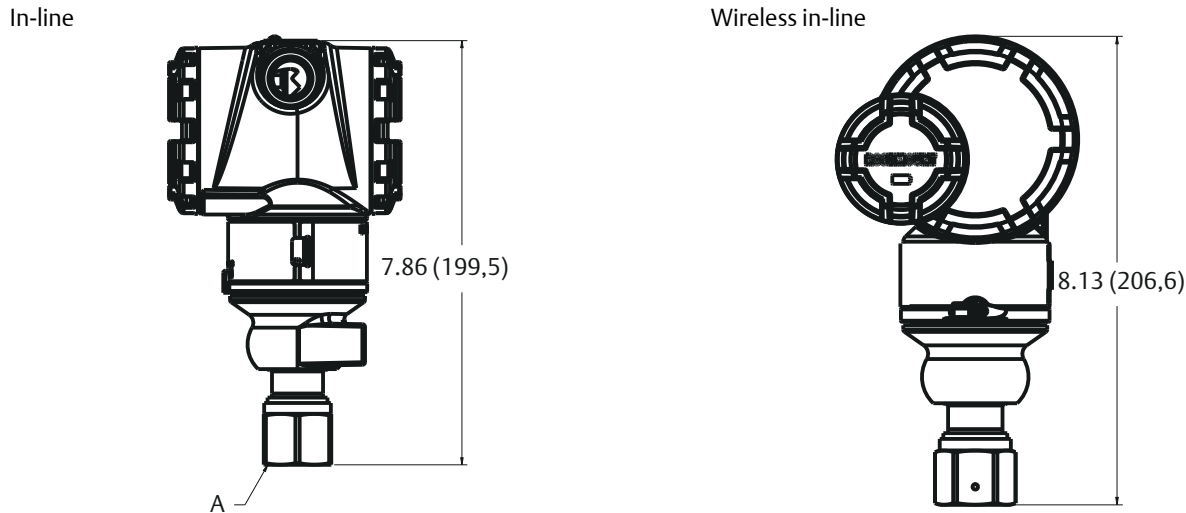
Figure 10: Rosemount 3051T Wireless Housing



A. U-Bolt bracket

Dimensions are in inches (millimeters).

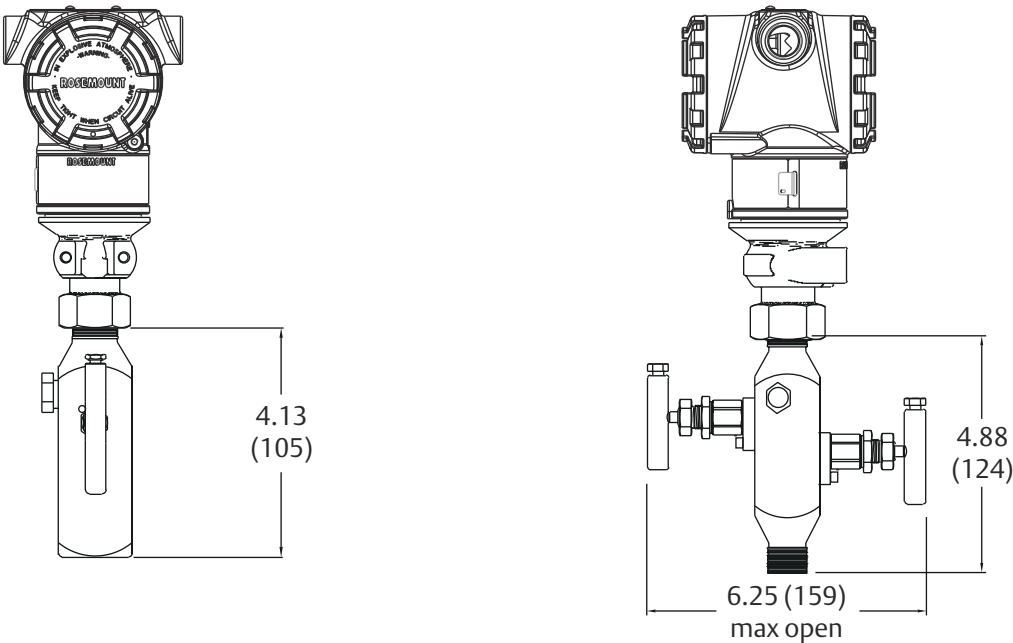
Figure 11: Rosemount 3051T In-Line Range 6



A. Autoclave type F-250-C

Dimensions are in inches (millimeters).

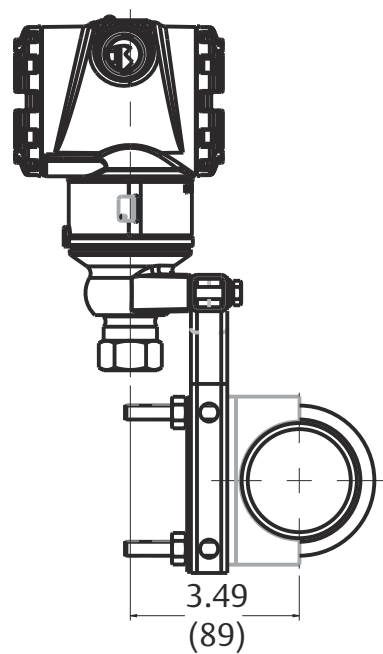
Figure 12: Rosemount 3051T with Rosemount 306 2-Valve Integral Manifold



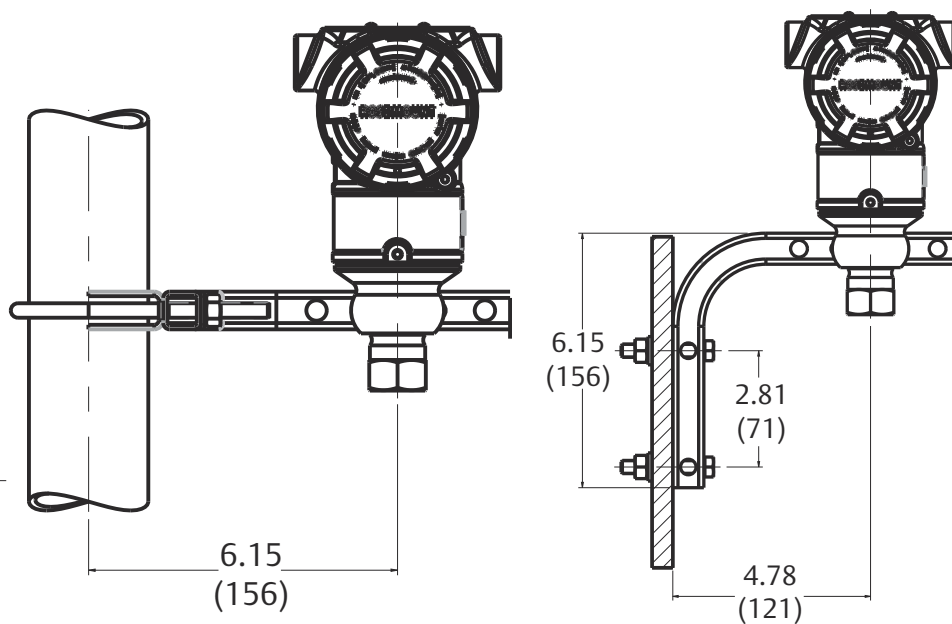
Dimensions are in inches (millimeters).

**Figure 13: Rosemount 3051T Typical Mounting Configurations with Optional Mounting Bracket**

Pipe mounting



Panel mounting



Dimensions are in inches (millimeters).

Figure 14: Rosemount 3051CFA Pak-Lok Annubar Flow meter

**Note**

The Pak-Lok Annubar model is available up to ASME B16.5 Class 600 rating (1440 psig at 100 °F [99 bar at 38 °C]).

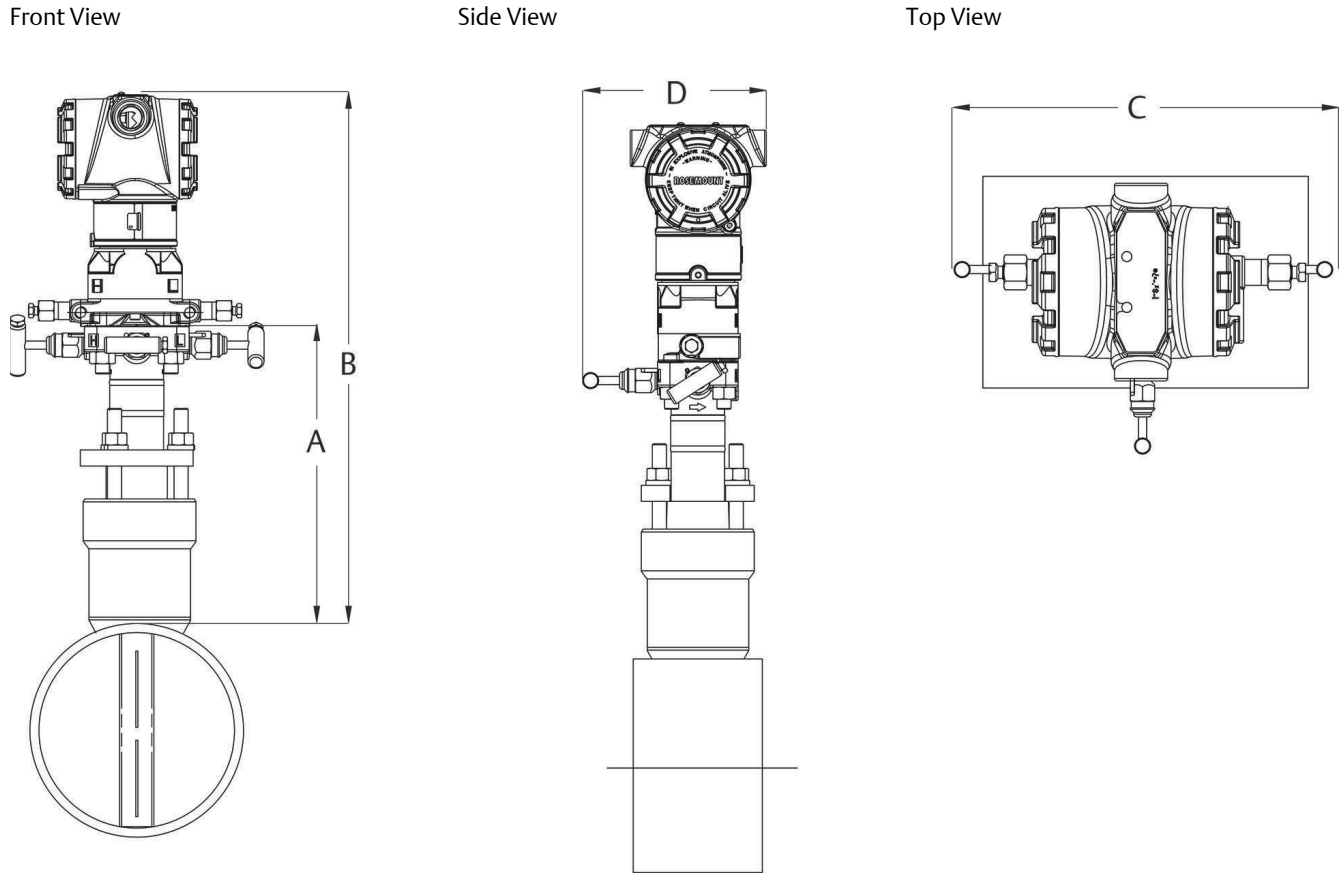
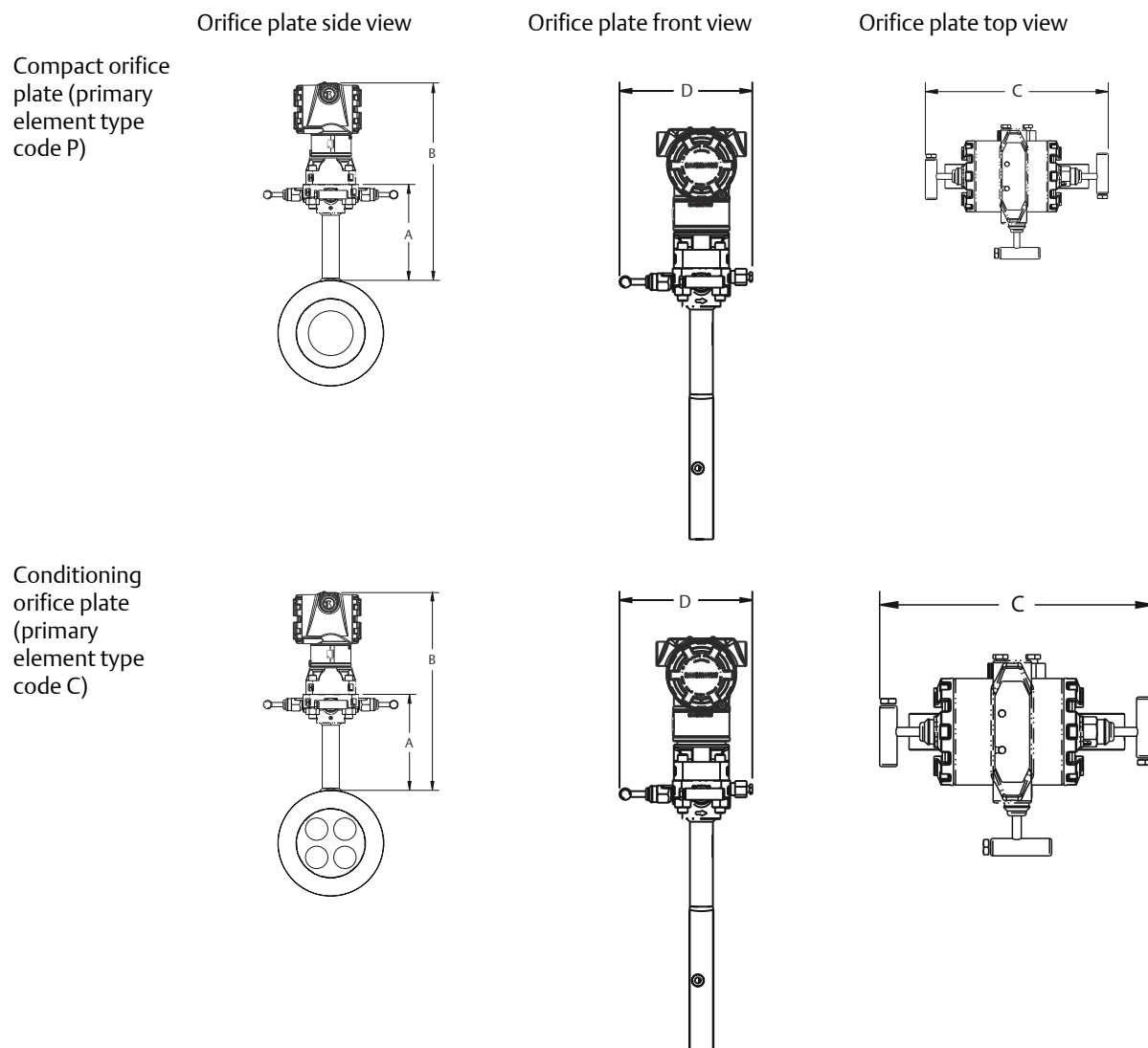


Table 27: Rosemount 3051CFA Pak-Lok Annubar Flow meter Dimensional Data (Maximum Dimensions)

Sensor size	A	B	C	D
1	8.50 (215.9)	15.60 (396.9)	9.00 (228.6)	6.00 (152.4)
2	11.00 (279.4)	18.10 (460.4)	9.00 (228.6)	6.00 (152.4)
3	12.00 (304.8)	19.10 (485.8)	9.00 (228.6)	6.00 (152.4)

Dimensions are in inches (millimeters).

**Figure 15: Rosemount 3051CFC Compact Orifice Flow meter**

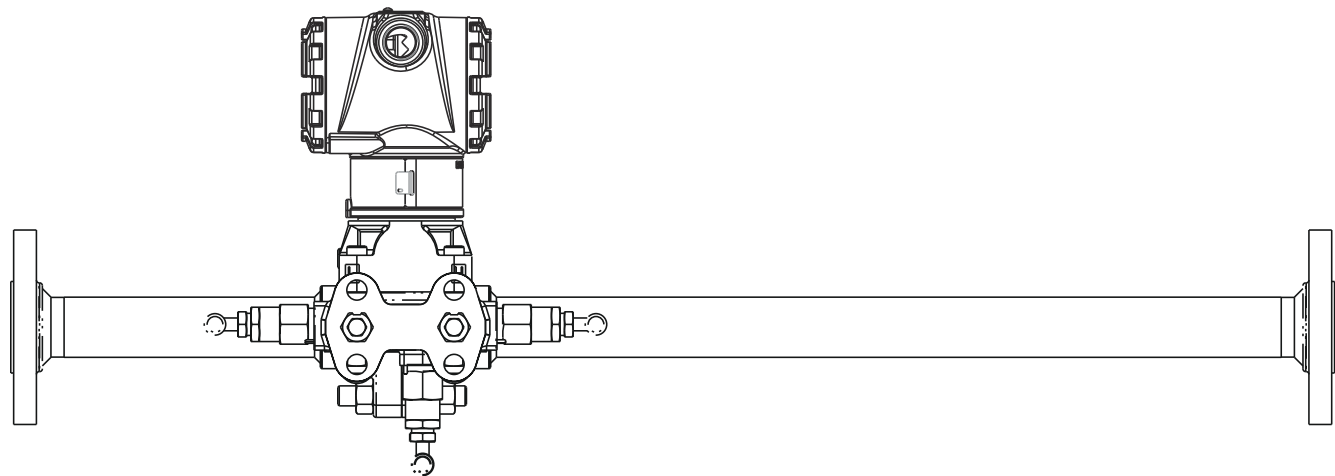
Primary element type	A	B	Transmitter height	C	D
Type P and C	5.62 (143)	Transmitter height + A	6.27 (159)	7.75 (197) - closed 8.25 (210) - open	6.00 (152) - closed 6.25 (159) - open

Dimensions are in inches (millimeters).

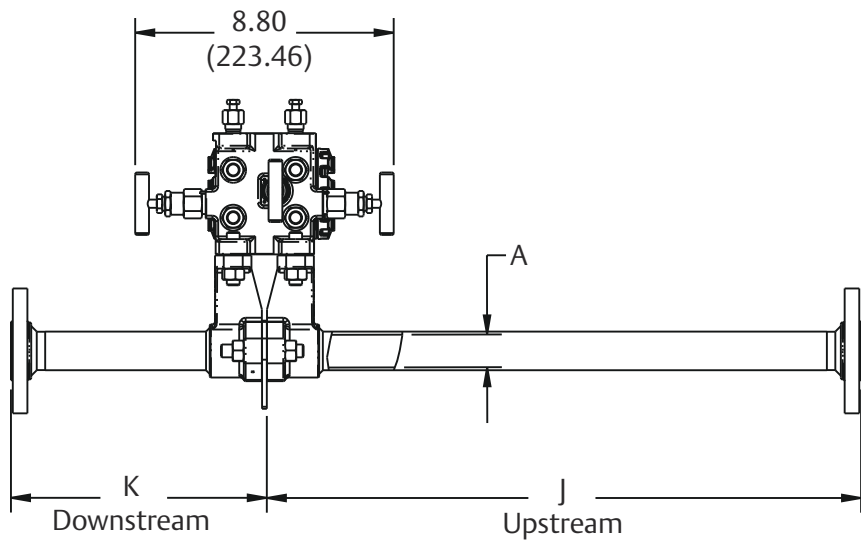


Figure 16: Rosemount 3051CFP Integral Orifice Flow meter

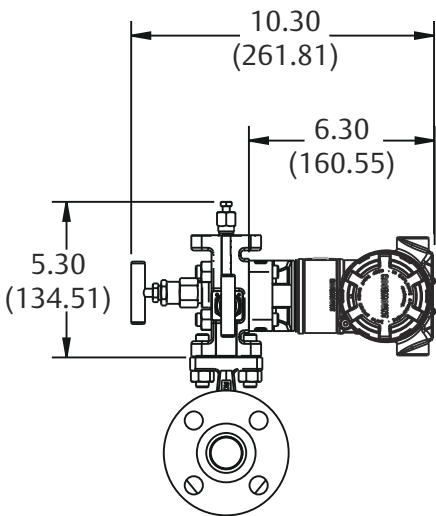
Side view



Bottom view



Front view



A. B.D. (bore diameter)  
Dimensions are in inches (millimeters).

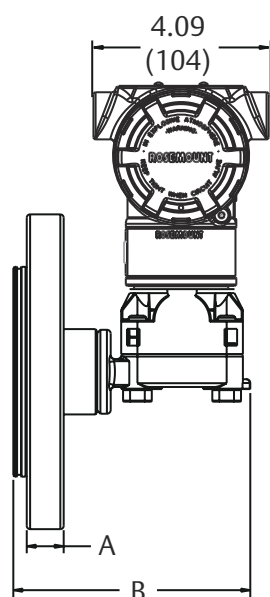
	Line size		
Dimension	½ -in. (15 mm)	1-in. (25 mm)	1½-in. (40 mm)
J (Beveled/threaded pipe ends)	12.54 (318.4)	20.24 (514.0)	28.44 (722.4)
J (RF slip-on, RTJ slip-on, RF-DIN slip on)	12.62 (320.4)	20.32 ( 516.0)	28.52 (724.4)
J (RF Class 150, weld neck)	14.37 (364.9)	22.37 (568.1)	30.82 (782.9)
J (RF Class 300, weld neck)	14.56 (369.8)	22.63 (574.7)	31.06 (789.0)
J (RF Class 600, weld neck)	14.81 (376.0)	22.88 (581.0)	31.38 (797.1)

Dimension	Line size		
	½-in. (15 mm)	1-in. (25 mm)	1½-in. (40 mm)
K (Beveled/threaded pipe ends)	5.74 (145.7)	8.75 (222.2)	11.91 (302.6)
K (RF slip-on, RTJ slip-on, RF-DIN slip on) <sup>(1)</sup>	5.82 (147.8)	8.83 (224.2)	11.99 (304.6)
K (RF Class 150, weld neck)	7.57 (192.3)	10.88 (276.3)	14.29 (363.1)
K (RF Class 300, weld neck)	7.76 (197.1)	11.14 (282.9)	14.53 (369.2)
K (RF Class 600, weld neck)	8.01 (203.4)	11.39 (289.2)	14.85 (377.2)
B.D. (Bore diameter)	0.664 (16.87)	1.097 (27.86)	1.567 (39.80)
Dimensions are in inches (millimeters).			

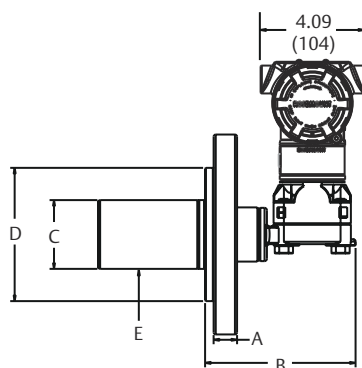
(1) Downstream length shown here includes plate thickness of 0.162-in. (4.11 mm).

**Figure 17: Rosemount 3051L Configurations**

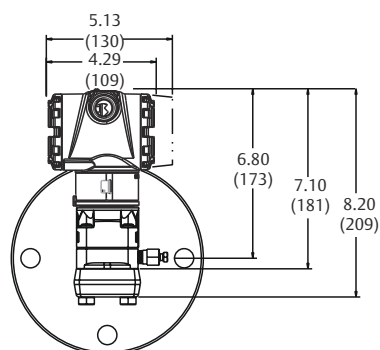
2-in. flange Configuration (flush mount only)



3- and 4-in. flange configuration



Diaphragm assembly and mounting flange



E. 2-, 4-, or 6-in. extension (only available with 3- and 4-in., DN80, and DN100 flange configurations)

**Table 28: Rosemount 3051L Dimensional Specifications**

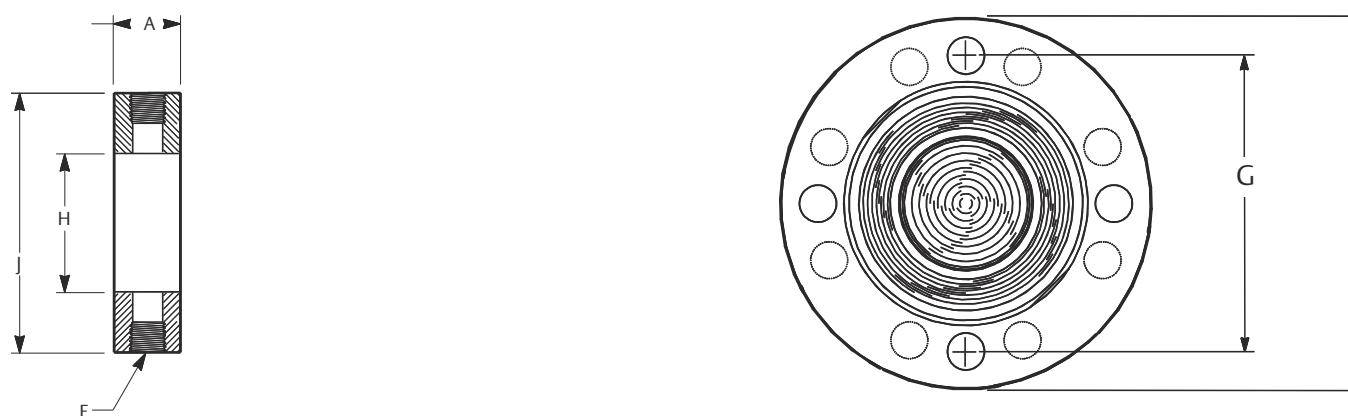
Class <sup>(1)</sup>	Pipe size	Flange thickness A	B	Extension diameter <sup>(1)</sup> C	O.D. gasket surface D
ASME B16.5 (ANSI) 150	2 (51)	0.69 (18)	5.65 (143)	N/A	3.6 (92)
	3 (76)	0.88 (22)	5.65 (143)	2.58 (66)	5.0 (127)
	4 (102)	0.88 (22)	5.65 (143)	3.5 (89)	6.2 (158)
ASME B16.5 (ANSI) 300	2 (51)	0.82 (21)	5.65 (143)	N/A	3.6 (92)
	3 (76)	1.06 (27)	5.65 (143)	2.58 (66)	5.0 (127)

**Table 28: Rosemount 3051L Dimensional Specifications (continued)**

Class <sup>(1)</sup>	Pipe size	Flange thickness A	B	Extension diameter <sup>(1)</sup> C	O.D. gasket surface D
	4 (102)	1.19 (30)	5.65 (143)	3.5 (89)	6.2 (158)
ASME B16.5 (ANSI) 600	2 (51)	1.00 (25)	7.65 (194)	N/A	3.6 (92)
	3 (76)	1.25 (32)	7.65 (194)	2.58 (66)	5.0 (127)
DIN 2501 PN 10–40	DN 50	0.79 (20)	5.65 (143)	N/A	4.0 (102)
DIN 2501 PN 25/40	DN 80	0.94 (24)	5.65 (143)	2.6 (66)	5.4 (138)
	DN 100	0.94 (24)	5.65 (143)	3.5 (89)	6.2 (158)
DIN 2501 PN 10/16	DN 100	0.79 (20)	5.65 (143)	3.5 (89)	6.2 (158)

Dimensions are in inches (millimeters).

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

**Figure 18: Optional Flushing Connection Ring (Lower Housing) for Rosemount 3051L**

Class <sup>(1)</sup>	Pipe size	Flange thickness A	Lower housing F		Bolt circle diameter G	No. of bolts	Bolt hole diameter	Process side H	Outside diameter J
			¼-in. NPT	½-in. NPT					
ASME B16.5 (ANSI) 150	2 (51)	0.69 (18)	0.97 (25)	1.31 (33)	4.75 (121)	4	0.75 (19)	2.12 (54)	6.0 (152)
	3 (76)	0.88 (22)	0.97 (25)	1.31 (33)	6.0 (152)	4	0.75 (19)	3.60 (91)	7.5 (191)
	4 (102)	0.88 (22)	0.97 (25)	1.31 (33)	7.5 (191)	8	0.75 (19)	3.60 (91)	9.0 (229)
ASME B16.5 (ANSI) 300	2 (51)	0.82 (21)	0.97 (25)	1.31 (33)	5.0 (127)	8	0.75 (19)	2.12 (54)	6.5 (165)
	3 (76)	1.06 (27)	0.97 (25)	1.31 (33)	6.62 (168)	8	0.88 (22)	3.60 (91)	8.25 (210)
	4 (102)	1.19 (30)	0.97 (25)	1.31 (33)	7.88 (200)	8	0.88 (22)	3.60 (91)	10.0 (254)
ASME B16.5 (ANSI) 600	2 (51)	1.00 (25)	0.97 (25)	1.31 (33)	5.0 (127)	8	0.75 (19)	2.12 (54)	6.5 (165)
	3 (76)	1.25 (32)	0.97 (25)	1.31 (33)	6.62 (168)	8	0.88 (22)	3.60 (91)	8.25 (210)
DIN 2501 PN 10–40	DN 50	0.79 (20)	0.97 (25)	1.31 (33)	4.92 (125)	4	0.71 (18)	2.40 (61)	6.5 (165)
DIN 2501 PN 25/40	DN 80	0.94 (24)	0.97 (25)	1.31 (33)	6.3 (160)	8	0.71 (18)	3.60 (91)	7.87 (200)

Class <sup>(1)</sup>	Pipe size	Flange thickness A	Lower housing F		Bolt circle diameter G	No. of bolts	Bolt hole diameter	Process side H	Outside diameter J
			¼-in. NPT	½ -in. NPT					
	DN 100	0.94 (24)	0.97 (25)	1.31 (33)	7.48 (190)	8	0.88 (22)	3.60 (91)	9.25 (235)
DIN 2501 PN 10/16	DN 100	0.79 (20)	0.97 (25)	1.31 (33)	7.09 (180)	8	0.71 (18)	3.60 (91)	8.66 (220)

# Options

## Standard configuration

Unless otherwise specified, transmitter is shipped as follows:

Engineering units	Setting
Differential/Gage	inH <sub>2</sub> O (Range 0, 1, 2, and 3)
Absolute/Rosemount™ 3051A/3051TG	psi (all ranges)
4 mA <sup>(1)</sup>	0 (engineering units above)
20 mA <sup>(1)</sup>	Upper range limit
Output	Linear
External buttons	None
Flange type	Specified model code option
Flange material	Specified model code option
O-ring material	Specified model code option
Drain/vent	Specified model code option
LCD display	None
Alarm <sup>(1)</sup>	High
Software tag	(Blank)
Damping	0.4 seconds <sup>(2)</sup>

(1) Not applicable to FOUNDATION™ Fieldbus, PROFIBUS® PA, or wireless.

(2) For Fieldbus Protocols, default damping is one second.

## Custom configuration

### Note

Not applicable to FOUNDATION™ Fieldbus or PROFIBUS® PA Protocols.

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
- Wireless information
- Scaled variable

Refer to the Rosemount™ 3051 [Configuration Data Sheet](#) for Rosemount 3051 HART® Protocol.

For Wireless, refer to the Rosemount 3051 Wireless [Configuration Data Sheet](#).

## Tagging (three options available)

- Standard SST hardware tag is stamped on the transmitter, 56 characters maximum.
- Tag may be wired to the transmitter upon request. Tag character height is 0.125 in. (3.18 mm), 56 characters maximum.
- Tag may be stored in transmitter memory. Character limit is dependent on protocol.
  - HART® Revision 5: 8 characters
  - HART Revision 7 and Wireless: 32 characters
  - FOUNDATION™ Fieldbus: 32 characters
  - PROFIBUS® PA: 32 characters

## Commissioning tag

### Note

Only applicable to FOUNDATION Fieldbus.

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

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

Factory assembled to Rosemount 3051C and 3051T transmitters. Refer to the following [Product Data Sheet](#) for Rosemount 304, 305, and 306 for additional information.

## Other seals

Refer to Rosemount DP Level Transmitters and 1199 Diaphragm Seal System [Product Data Sheet](#) for additional information.

## Output information

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

Pressure			
atm	inH <sub>2</sub> O at 4 °C <sup>(2)</sup>	g/cm <sup>2</sup>	psi
mbar	mm H <sub>2</sub> O	kg/cm <sup>2</sup>	torr
bar	mm Hg	Pa	cm H <sub>2</sub> O at 4 °C <sup>(1)(2)</sup>
inH <sub>2</sub> O	mm H <sub>2</sub> O @4 °C <sup>(2)</sup>	kPa	m H <sub>2</sub> O at 4 °C <sup>(1)(2)</sup>
inHg	ft H <sub>2</sub> O	MPa <sup>(2)</sup>	ft H <sub>2</sub> O at 60 °F <sup>(1)(2)</sup>
hPa <sup>(1)(2)</sup>	inH <sub>2</sub> O at 60 °F <sup>(2)</sup>	kg/m <sup>2</sup> <sup>(1)(2)</sup>	cmHg at 0 °C <sup>(1)(2)</sup>
m Hg at 0 °C <sup>(1)(2)</sup>	psf <sup>(1)(2)</sup>	ft H <sub>2</sub> O at 4 °C <sup>(1)(2)</sup>	

(1) Field configurable only; not available for factory calibration or custom configuration (option code C1 “Software configuration”).

(2) Not available with Low Power (output code M) or PROFIBUS PA (output option code W).

## Display and interface options

M4 Digital display with LOI

- Available for 4–20 mA HART and PROFIBUS PA

M5 Digital display

- Two-line, five-digit LCD display for low power output
- Two-line, eight-digit LCD display for 4–20 mA HART, FOUNDATION Fieldbus, and PROFIBUS PA
- Three-line, seven-digit LCD display for Wireless
- 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

### **Configuration buttons**

Rosemount 3051 will ship with no buttons unless option D4 (analog zero and span), DZ (digital zero), or M4 (LOI) for local configuration buttons are specified.

The Rosemount 3051 Wireless Transmitter is available with a Digital zero button installed with or without the LCD display digital display.

### **Transient protection (option code T1)**

Tested in accordance with IEEE C62.41.2-2002, location category B

6 kV crest (0.5  $\mu$ s–100 kHz)

3 kA crest (8 x 20  $\mu$ s)

6 kV crest (1.2 x 50  $\mu$ s)

### **Bolts for flanges and adapters**

- Options permit bolts for flanges and adapters to be obtained in various materials
- Standard material is plated CS per ASTM A449, Type 1
- L4 austenitic 316 SST bolts
- L5 ASTM A 193, Grade B7M bolts
- L6 alloy k-500 bolts

### **Conduit plug**

DO option replaces the standard CS plug with 316 SST plug.

### **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
- SST construction with SST bolts

### **Rosemount 3051C 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
- CS construction with CS 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
- CS construction with CS 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
- CS construction with CS bolts
- Coated with polyurethane paint

B7 B1 Bracket with SST bolts

- Same bracket as the B1 option with Series 300 SST bolts

B8 B2 Bracket with SST bolts

- Same bracket as the B2 option with Series 300 SST bolts

B9 B3 Bracket with SST bolts

- Same bracket as the B3 option with Series 300 SST bolts

BA SST B1 bracket with SST bolts

- B1 bracket in SST with Series 300 SST bolts

BC SST B3 Bracket with SST bolts

- B3 bracket in SST with Series 300 SST bolts









#### Global Headquarters

Emerson Automation Solutions  
6021 Innovation Blvd.  
Shakopee, MN 55379, USA

+1 800 999 9307 or +1 952 906 8888

+1 952 949 7001

RFQ.RMD-RCC@Emerson.com

#### North America Regional Office

Emerson Automation Solutions  
8200 Market Blvd.  
Chanhassen, MN 55317, USA

+1 800 999 9307 or +1 952 906 8888

+1 952 949 7001

RMT-NA.RCCRF@Emerson.com

#### Latin America Regional Office

Emerson Automation Solutions  
1300 Concord Terrace, Suite 400  
Sunrise, FL 33323, USA

+1 954 846 5030

+1 954 846 5121

RFQ.RMD-RCC@Emerson.com

#### Europe Regional Office

Emerson Automation Solutions Europe  
GmbH  
Neuhofstrasse 19a P.O. Box 1046  
CH 6340 Baar  
Switzerland

+41 (0) 41 768 6111

+41 (0) 41 768 6300

RFQ.RMD-RCC@Emerson.com

#### Asia Pacific Regional Office

Emerson Automation Solutions  
1 Pandan Crescent  
Singapore 128461

+65 6777 8211

+65 6777 0947

Enquiries@AP.Emerson.com


#### Middle East and Africa Regional Office

Emerson Automation Solutions  
Emerson FZE P.O. Box 17033  
Jebel Ali Free Zone - South 2  
Dubai, United Arab Emirates

+971 4 8118100

+971 4 8865465

RFQ.RMTMEA@Emerson.com

 [Linkedin.com/company/Emerson-Automation-Solutions](https://www.linkedin.com/company/Emerson-Automation-Solutions)

 [Twitter.com/Rosemount\\_News](https://twitter.com/Rosemount_News)

 [Facebook.com/Rosemount](https://www.facebook.com/Rosemount)

 [Youtube.com/user/RosemountMeasurement](https://www.youtube.com/user/RosemountMeasurement)

©2019 Emerson. All rights reserved.

Emerson Terms and Conditions of Sale are available upon request. The Emerson logo is a trademark and service mark of Emerson Electric Co. Rosemount is mark of one of the Emerson family of companies. All other marks are the property of their respective owners.