

Rosemount™ 3051 Pressure Transmitter



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.

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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.

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 to 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



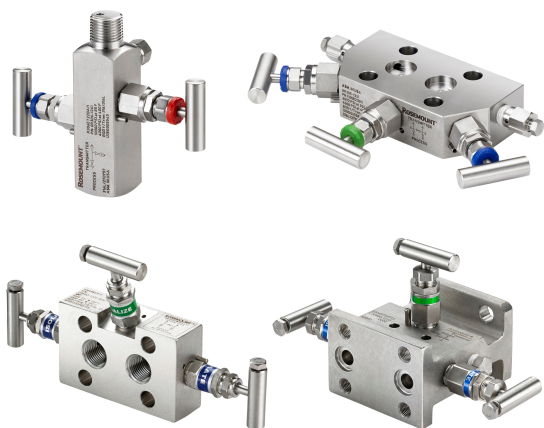
- Fully assembled, configured, and leak tested for out-of-the-box installation.
- Reduce straight pipe requirements, lower permanent pressure loss, and achieve accurate measurement in small line sizes.
- Up to 1.65 percent volumetric flow accuracy at 8:1 turndown.

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.

Access information when you need it with asset tags

Newly shipped devices include a unique QR code asset tag that enables you to access serialized information directly from the device. With this capability, you can:

- Access device drawings, diagrams, technical documentation, and troubleshooting information in your MyEmerson account
- Improve mean time to repair and maintain efficiency
- Ensure confidence that you have located the correct device
- Eliminate the time-consuming process of locating and transcribing nameplates to view asset information

Rosemount 3051C Coplanar Pressure Transmitter ordering information



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).

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Online Product Configurator

Many products are configurable online using our Product Configurator. Select the **Configure** button or visit our [website](#) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

See the Specifications and options section 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 the Material selection section for more information.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in [Figure 1](#).

Figure 1: Model Code Example

3051C D 2 X 2 2 M5 B4	
1	2

1. Required model components (choices available on most)
2. Additional options (variety of features and functions that may be added to products)

Optimizing lead time

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.

Required model components

Model

Code	Description	
3051C	Coplanar pressure transmitter	★

Measurement type

Code	Description	
D	Differential	★
G	Gage	★
A ⁽¹⁾	Absolute	

(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).

Pressure range

Code	Differential (Rosemount 3051CD)	Gage (Rosemount 3051CG)	Absolute (Rosemount 3051CA)	
1	–25 to 25 inH ₂ O (–62.16 to 62.16 mbar)	–25 to 25 inH ₂ O (–62.16 to 62.16 mbar)	0 to 30 psia (0 to 2.06 bar)	★
2	–250 to 250 inH ₂ O (–621.60 to 621.60 mbar)	–250 to 250 inH ₂ O (–621.60 to 621.60 mbar)	0 to 150 psia (0 to 10.34 bar)	★
3	–1000 to 1000 inH ₂ O (–2.48 to 2.48 bar)	–393 to 1000 inH ₂ 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 ⁽¹⁾	–3 to 3 inH ₂ O (–7.46 to 7.46 mbar)	N/A	N/A	

(1) Rosemount 3051CD0 is only available with output code A and X. For output code A, only transmitter 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 transmitter flange code 0 (Alternate flange H2), isolating diaphragm code 2, O ring code A, and bolting option L4 are available.

Transmitter output

Code	Description	
A ⁽¹⁾	4–20 mA with digital signal based on HART® Protocol	★
F	FOUNDATION™ Fieldbus Protocol	★
W ⁽²⁾	PROFIBUS® PA Protocol	★
X ⁽³⁾	Wireless (requires wireless options and engineered polymer housing)	★

M ⁽⁴⁾	Low-power, 1–5 Vdc with digital signal based on HART Protocol	
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- (1) HART Revision 5 is the default HART output.
 (2) For local addressing and configuration, M4 (LOI) is required. Not available with product certification codes E4, EM, EP, I6, IM, KD, KL, KM, KP, KS, N3.
 (3) This option is only available with intrinsically safe approvals.
 (4) Only available with C6, E2, E5, I5, K5, KB, EM, EP, and E8 product certifications.

Materials of construction

Code	Transmitter flange type	Flange material	Drain/vent	
2	Coplanar	SST	SST	★
3 ⁽¹⁾	Coplanar	Cast C-276	Alloy C-276	★
4	Coplanar	Alloy 400	Alloy 400/K-500	★
5	Coplanar	Plated CS	SST	★
7 ⁽¹⁾	Coplanar	SST	Alloy C-276	★
8 ⁽¹⁾	Coplanar	Plated CS	Alloy C-276	★
0	Alternate process connection			★

- (1) 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.

Isolating diaphragm

Code	Description	
2 ⁽¹⁾	316L SST	★
3 ⁽¹⁾	Alloy C-276	★
4 ⁽²⁾	Alloy 400	
5 ⁽²⁾	Tantalum (available on Rosemount 3051CD and CG, ranges 2–5 only; not available on Rosemount 3051CA)	
6 ⁽²⁾	Gold-plated alloy 400 (use in combination with O-ring option code B)	
7 ⁽²⁾	Gold-plated 316 SST	

- (1) 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.
 (2) Not available with wireless output (code X).

O-ring

Code	Description	
A	Glass-filled PTFE	★
B	Graphite-filled PTFE	★

Sensor fill fluid

Code	Description	
1	Silicone	★

2 ⁽¹⁾	Inert (differential and gage only)	★
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(1) Not available with wireless output (code X).

Housing material

Code	Description	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 ⁽¹⁾	Engineered polymer	No conduit entries	★
D ⁽²⁾	Aluminum	G½	
M ⁽²⁾	SST	G½	

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

(2) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. This option is only available with product certifications options I1, I2, I3, I7, IA, IB, IM, KA, N1, N3, N7. Housing code D is also available with E4, and IG.

Wireless options

Requires wireless output code X and engineered polymer housing code P.

Wireless transmit rate, operating frequency, and protocol

Code	Description	
WA3	User configurable transmit rate, 2.4 GHz WirelessHART ®	★

Antenna and SmartPower™

Code	Description	
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)	★

Additional options

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Plantweb™ control functionality

Code	Description	
A01	FOUNDATION™ Fieldbus control function block suite	★

Plantweb™ diagnostic functionality

Code	Description	
DA0	Loop Integrity HART® Diagnostic	★
D01	FOUNDATION™ Fieldbus Diagnostics Suite	★

Alternate flange

The alternate flange option code requires the 0 code in materials of construction for alternate process connection.

Code	Description	
H2	Traditional flange, 316 SST, SST drain/vent	★
H3 ⁽¹⁾	Traditional flange, alloy C, alloy C-276 drain/vent	★
H4	Traditional flange, cast alloy 400, alloy 400/K-500 drain/vent	★
H7 ⁽¹⁾	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 ⁽²⁾	DIN compliant traditional flange, SST, 0.40 in. (10 mm) adapter/manifold bolting 316 SST	
HL	DIN compliant traditional flange, SST, 0.50 in. (12 mm) adapter/manifold bolting 316 SST	

(1) 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.

(2) Not valid with option code P9 for 4500 static pressure.

Manifold assembly

“Assemble-to” items are specified separately and require a completed model number.

Code	Description	
S5	Assemble to Rosemount 305 Integral Manifold	★
S6	Assemble to Rosemount 304 Manifold or Connection System	★

Integral mount primary element

Not valid with option code P9 for 4500 static pressure. “Assemble-to” items are specified separately and require a completed model number.

Code	Description	
S3	Assemble to Rosemount 405 Compact Orifice Plate	★
S4 ⁽¹⁾	Assemble to Rosemount Annubar™ or Rosemount 1195 Integral Orifice	★

(1) Transmitter flange limited to coplanar (option codes 2, 3, 5, 7, or 8) or traditional (option codes H2, H3, or H7).

Seal assemblies

“Assemble-to” items are specified separately and require a completed model number.

Code	Description	
S1 ⁽¹⁾	Assemble to one Rosemount 1199 seal	★
S2 ⁽²⁾	Assemble to two Rosemount 1199 seals	★

(1) Not valid with option code D9 for RC½ adapters.

(2) Not valid for option codes DF and D9 for adapters.

Mounting bracket

Panel mounting bolts are not supplied.

Code	Description	
B4	Coplanar flange bracket, all SST, 2-in. (51 mm) pipe and panel	★
B1	Traditional flange bracket, CS, 2-in. (51 mm) 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	★

Product certifications

Code	Description	
E8	ATEX Flameproof and Dust Certification	★

I1 ⁽¹⁾	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	TIIS Flame-proof	★
E5	USA Explosion-proof, Dust Ignition-Proof	★
I5 ⁽²⁾	USA Intrinsically Safe, Nonincendive	★
IE	USA FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocol only	★
C6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
I6	Canada Intrinsic Safety	★
K6	Canada 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)	★
IG	IECEx FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	USA Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
E2	INMETRO Flameproof001	★
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	USA and Canada Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
KL ⁽³⁾	USA, Canada, IECEx, ATEX Intrinsic Safety Combination	★
KS	USA, Canada, IECEx, ATEX Explosion Proof, Intrinsically Safe, Dust, Non-Incendive, Type-N, Div. 2	★
EP	Republic of Korea Flameproof	★
IP	Republic of Korea Intrinsic Safety	★
KP	Republic of Korea Flameproof, Intrinsic Safety	★

(1) Dust approval not applicable to output code X.

(2) Nonincendive certification not provided with output code (X).

(3) Only available with output code X.

Drinking water approval

This approval is 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).

Code	Description	
DW	NSF drinking water approval	★

Shipboard approvals

Shipyard approvals are not available with wireless output (code X).

Code	Description	
SBS	American Bureau of Shipping	★
SBV ⁽¹⁾	Bureau Veritas (BV)	★
SDN	Det Norske Veritas	★
SLL ⁽¹⁾	Lloyds Register (LR)	★

⁽¹⁾ Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, N7

SST tagging

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	

Custody transfer

The custody transfer option is only available with HART 4–20 mA output (code A).

Code	Description	
C5	Measurement Canada Accuracy Approval (limited availability depending on transmitter type and range; contact an Emerson representative).	★

Bolting material

Code	Description	
L4 ⁽¹⁾	Austenitic 316 SST bolts	★
L5	ASTM A 193, grade B7M bolts	★
L6	Alloy K-500 bolts	★

⁽¹⁾ L4 bolting not required with S6 option.

Display and interface options

Code	Description	
M4 ⁽¹⁾	LCD display with LOI	★
M5	LCD display	★

(1) Only available with 4–20 mA HART output (code A) and PROFIBUS-PA (code W).

Calibration certificate

Code	Description	
Q4	Calibration certificate	★
QG ⁽¹⁾	Calibration certificate and GOST verification certificate	★
QP	Calibration certification and tamper evident seal	★

(1) Contact an Emerson representative for availability.

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Positive material identification (PMI)

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

The quality certification for safety is only available with HART 4–20 mA output (code A).

Code	Description	
QT	Safety certified to IEC 61508 with certificate of FMEDA	★

Configuration buttons

Code	Description	
D4 ⁽¹⁾	Analog zero and span	★
DZ ⁽²⁾	Digital zero trim	★

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

(2) Only available with HART 4–20 mA output (output code A) and wireless output (output code X)

Transient protection

The transient protection option is not available with wireless output (code X). The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA, IB, and IE.

Code	Description	
T1	Transient protection terminal block	★

Software configuration

The software configuration option is only available with HART 4–20 mA output (output code A) and wireless output (output code X).

Code	Description	
C1	Custom software configuration (For wired, see the Rosemount 3051 Configuration Data Sheet . For wireless, see the Rosemount 3051 Wireless Configuration Data Sheet .)	★

Low power output

Code	Description	
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	★

Gauge pressure calibration

Code	Description	
C3	Gauge calibration (Rosemount 3051CA only)	★

Alarm levels

The alarm levels option is only available with HART 4–20 mA output (code A).

Code	Description	
C4 ⁽¹⁾	Analog output levels compliant with NAMUR recommendation NE 43, alarm high	★
CN ⁽¹⁾	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 Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Rosemount 3051 Configuration Data Sheet)	★
CT	Rosemount standard low alarm	★

(1) NAMUR-compliant operation is preset at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	

Cleaning process area

Code	Description	
P2	Cleaning for special service	
P3 ⁽¹⁾	Cleaning for < 1 ppm chlorine/fluorine	

(1) Not available with code S5.

Flange adapters

This option is not valid with alternate process connection options S3, S4, S5, and S6.

Code	Description	
DF	½–14 NPT flange adapter(s)	★

Vent drain valves

Code	Description	
D7	Coplanar flange without drain/vent ports	
DC	Ports left open - None	

Conduit plug

The conduit plug option is not available with wireless output (code X).

Code	Description	
DO	316 SST conduit plug	★

RC¼ RC½ process connection

This option is not available with alternate process connection, DIN flanges, and level flanges.

Code	Description	
D9	RC¼ flange with RC½ flange adapter - SST	

Maximum static line pressure

Code	Description	
P9	4500 psig (310,26 bar) static pressure limit (Rosemount 3051CD ranges 2–5 only)	★

Ground screw

The ground screw option is not available with wireless output (code X). The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.

Code	Description	
V5	External ground screw assembly	★

Surface finish

Code	Description	
Q16	Surface finish certification for sanitary remote seals	★

Toolkit total system performance reports

Code	Description	
QZ	Remote seal system performance calculation report	★

Conduit electrical connector

The conduit electrical connector option is not available with wireless output (code X).

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★

NACE certificate

Note that NACE®-compliant wetted materials are required. Materials of construction must comply with recommendations per NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult the latest standard for details. All selected materials must also conform to NACE MR0103 for sour refining environments.

Code	Description	
Q15	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of Compliance to NACE MR0103 for wetted materials	★

Cold temperature

This option is only available for pressure type D and G, pressure ranges 1–5 with 4–20 mA HART® protocol, and silicone sensor fill fluid. It is available with 316SST, C-276, gold plated SST isolating diaphragms, and with transmitter flange types 2, 7, and 0 (only for HJ, HK, and HL). BR5 and BR6 are not available with the following options: DC, DF, D7, D9, P9, Q16, GE, and GM. Consult factory for available approvals.

Code	Description	
BR5 ⁽¹⁾	–58 °F (–50 °C) cold temperature operation	★
BR6 ⁽²⁾	–76 °F (–60 °C) cold temperature operation	★

(1) BR5 option is only available with approval codes C6, E2, E5, EM, I2, I5, I7, IM, IP, K5, KM, and KP.

(2) BR6 option is only available with approval codes EM, I2, I7, IM, IP, and KM.

HART revision configuration (requires HART Protocol output code A)

HART Revision 5 is the default HART output.

Code	Description	
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★

Wireless power accessory

This option is only available with output code X.

Code	Description	
HS	Hot swap power adapter for power module replacement	

Rosemount 3051T In-Line Transmitter ordering information



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).

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Online Product Configurator

Many products are configurable online using our Product Configurator. Select the **Configure** button or visit our [website](#) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

See the Specifications and options section 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 the Material selection section for more information.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in [Figure 2](#).

Figure 2: Model Code Example

3051C D 2 X 2 2 M5 B4

1

2

1. Required model components (choices available on most)
2. Additional options (variety of features and functions that may be added to products)

Optimizing lead time

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.

Required model components

Model

Code	Description
3051T	In-Line Pressure Transmitter

Pressure type

Code	Description	
G	Gage	★
A ⁽¹⁾	Absolute	★

(1) Wireless output (code X) available in absolute measurement type (code A) with only range 1–5, with 14-NPT process connection (code 2B) and housing (code P).

Pressure range

Code	Gage (Rosemount 3051TG) ⁽¹⁾	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 ⁽²⁾	–14.7 to 20000 psi (–1.01 to 1378.95 bar)	0 to 20000 psia (0 to 1378.95 bar)	

(1) Rosemount 3051TG lower range limit assumes atmospheric pressure of 14.7 psig.

(2) 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).

Transmitter output

Code	Description	
A ⁽¹⁾	4–20 mA with digital signal based on HART® Protocol	★
F	FOUNDATION™ Fieldbus Protocol	★
W ⁽²⁾	PROFIBUS® PA Protocol	★
X ⁽³⁾	Wireless (requires wireless options and engineered polymer housing)	★
M ⁽⁴⁾	Low-power, 1–5 Vdc with digital signal based on HART Protocol	

(1) HART Revision 5 is the default HART output.

(2) For local addressing and configuration, M4 (LOI) is required. Not available with product certification codes E4, EM, EP, I6, IM, KD, KL, KM, KP, KS, N3.

(3) This option is only available with intrinsically safe approvals.

(4) Only available with C6, E2, E5, I5, K5, KB, EM, EP, and E8 product certifications.

Process connection style

Code	Description	
2B	½-14 NPT female (range 1-5 only)	★
2C ⁽¹⁾	G½ A EN837-1 male (range 1-4 only)	★
2F ⁽²⁾	Coned and threaded, compatible with autoclave Type F-250-C (range 5-6 only)	
61 ⁽³⁾⁽⁴⁾	Non-threaded instrument flange (range 1-4 only)	

(1) 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 stainless steel isolating diaphragm (code 2), silicone fill fluid (code 1), and housing (code P).

(2) Not available with wireless output for range 5.

(3) Not available with wireless output.

(4) Only available with 316L stainless steel isolating diaphragm.

Isolating diaphragm

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.

Code	Isolating diaphragm	Process connection wetted parts material	
2	316L stainless steel	316L stainless steel	★
3	Alloy	Alloy	★
7	Gold-plated 316 stainless steel	316L stainless steel	

Sensor fill fluid

Code	Description	
1	Silicone	★
2 ⁽¹⁾	Inert	

(1) Not available with wireless output.

Housing material

Code	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	Stainless steel	½-14 NPT	★
K	Stainless steel	M20 x 1.5	★
P ⁽¹⁾	Engineered polymer	No conduit entries	★
D ⁽²⁾	Aluminum	G½	
M ⁽²⁾	Stainless steel	G½	

(1) Only available with wireless output. Not available with absolute pressure type, range 1-4.

- (2) Transmitter conduit entry will be ½ NPT, and a ½ NPT to G½ thread adapter will be provided. Only available with product certifications options I1, I2, I3, I7, IA, IB, IM, KA, N1, N3, N7. Housing code D is also available with E4, and IG.

Wireless options

Requires wireless output code X and engineered polymer housing code P.

Wireless transmit rate, operating frequency, and protocol

Code	Description	
WA3	User configurable transmit rate, 2.4 GHz WirelessHART ®	★

Antenna and SmartPower

Code	Description	
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately).	★

Additional options

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Plantweb™ control functionality

Code	Description	
A01	FOUNDATION™ Fieldbus control function block suite	★

Plantweb™ diagnostic functionality

Code	Description	
DA0	Loop Integrity HART® Diagnostic	★
D01	FOUNDATION™ Fieldbus Diagnostics Suite	★

Integral assembly

“Assemble-to” items are specified separately and require a completed model number.

Code	Description	
S5	Assemble to Rosemount 306 Integral Manifold	★

Diaphragm seal assemblies

“Assemble-to” items are specified separately and require a completed model number.

Code	Description	
S1	Assemble to one Rosemount 1199 seal	★

Mounting bracket

Panel mounting bolts are not supplied.

Code	Description	
B4	Bracket for 2-in. pipe or panel mounting, all stainless steel	★

Product certifications

Code	Description	
E8	ATEX Flameproof and Dust Certification	★
I1 ⁽¹⁾	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	TIIS Flame-proof	★
E5	USA Explosion-proof, Dust Ignition-Proof	★
I5 ⁽²⁾	USA Intrinsically Safe, Nonincendive	★
IE	USA FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocol only	★
C6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
I6	Canada Intrinsic Safety	★
K6	Canada 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)	★
IG	IECEX FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	USA Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
E2	INMETRO Flameproof001	★
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	USA and Canada Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
KL ⁽³⁾	USA, Canada, IECEx, ATEX Intrinsic Safety Combination	★
KS	USA, Canada, IECEx, ATEX Explosion Proof, Intrinsically Safe, Dust, Non-Incendive, Type-N, Div. 2	★
EP	Republic of Korea Flameproof	★
IP	Republic of Korea Intrinsic Safety	★
KP	Republic of Korea Flameproof, Intrinsic Safety	★

(1) Dust approval not applicable to output code X.

(2) Nonincendive certification not provided with output code (X).

(3) Only available with output code X.

Drinking water approval

Not available with alloy 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).

Code	Description	
DW	NSF drinking water approval	★

Shipboard approvals

Shipyard approvals are not available with wireless output (code X).

Code	Description	
SBS	American Bureau of Shipping	★
SBV ⁽¹⁾	Bureau Veritas (BV)	★
SDN	Det Norske Veritas	★
SLL ⁽¹⁾	Lloyds Register (LR)	★

(1) Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, N7

SST tagging

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	

Custody transfer

The custody transfer option is only available with HART 4–20 mA output (code A).

Code	Description	
C5	Measurement Canada Accuracy Approval (limited availability depending on transmitter type and range; contact an Emerson representative).	★

Calibration certification

Code	Description	
Q4	Calibration certificate	★
QG	Calibration certificate and GOST verification certificate	★
QP	Calibration certificate and tamper evident seal	★

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1.B	★

Positive material identification (PMI)

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

The quality certification for safety is only available with HART 4–20 mA output (code A).

Code	Description	
QT	Safety certified to IEC 61508 with certificate of FMEDA	★

Configuration buttons

Code	Description	
D4 ⁽¹⁾	Analog zero and span	★
DZ ⁽²⁾	Digital zero trim	★

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

(2) Only available with HART 4–20 mA output (output code A) and wireless output (output code X).

Display and interface options

Code	Description	
M4 ⁽¹⁾	LCD display with LOI	★
M5	LCD display	★

(1) Only available with 4–20 mA HART output (code A) and PROFIBUS-PA (code W).

Wireless sensor module

Code	Description	
WSM	Wireless stainless steel sensor module	★

Transient protection

The transient protection option is not available with wireless output (code X). The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA, IB, and IE.

Code	Description	
T1	Transient protection terminal block	★

Conduit plug

The conduit plug option is not available with wireless output (code X).

Code	Description	
DO	316 SST conduit plug	★

Software configuration

Code	Description	
C1	Custom software configuration. (Completed Rosemount 3051 Wireless Configuration Data Sheet required with order.)	★

Low power output

Code	Description	
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	★

Alarm levels

The alarm levels option is only available with HART 4–20 mA output (code A).

Code	Description	
C4 ⁽¹⁾	Analog output levels compliant with NAMUR recommendation NE 43, alarm high	★
CN ⁽¹⁾	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 Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Rosemount 3051 Configuration Data Sheet)	★
CT	Rosemount standard low alarm	★

(1) NAMUR-compliant operation is preset at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	★

Cleaning process area

Not valid with alternate process connection S5.

Code	Description
P2	Cleaning for special service
P3	Cleaning for < 1 ppm chlorine/fluoride

Ground screw

The ground screw option is not available with wireless output (code X). The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.

Code	Description	
V5	External ground screw assembly	★

High accuracy

Only available with standard Rosemount 3051. See [Specifications](#) section for more information.

Code	Description	
P8	0.04% accuracy to 5:1 turndown (range 2-4)	★

Surface finish

Code	Description	
Q16	Surface finish certification for sanitary remote seals	★

Toolkit total system performance reports

Code	Description	
QZ	Remote seal system performance calculation report	★

Conduit electrical connector

The conduit electrical connector option is not available with wireless output (code X).

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★

NACE certificate

Note that NACE®-compliant wetted materials are required. Materials of construction must comply with recommendations per NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult the latest standard for details. All selected materials must also conform to NACE MR0103 for sour refining environments.

Code	Description	
Q15	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of Compliance to NACE MR0103 for wetted materials	★

Cold temperature

This option is only available for pressure type D and G, pressure ranges 1–5 with 4–20 mA HART® protocol, and silicone sensor fill fluid. It is available with 316SST, C-276, gold plated SST isolating diaphragms, and with transmitter flange types 2, 7, and 0 (only for HJ, HK, and HL). BR5 and BR6 are not available with the following options: DC, DF, D7, D9, P9, Q16, GE, and GM. Consult factory for available approvals.

Code	Description	
BR5 ⁽¹⁾	–58 °F (–50 °C) cold temperature operation	★
BR6 ⁽²⁾	–76 °F (–60 °C) cold temperature operation	★

(1) BR5 option is only available with approval codes C6, E2, E5, EM, I2, I5, I7, IM, IP, K5, KM, and KP.

(2) BR6 option is only available with approval codes EM, I2, I7, IM, IP, and KM.

HART revision configuration (requires HART Protocol output code A)

HART Revision 5 is the default HART output.

Code	Description	
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★

Wireless power accessory

This option is only available with output code X.

Code	Description	
HS	Hot swap power adapter for power module replacement	

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 ordering information



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 >](#)

Online Product Configurator

Many products are configurable online using our Product Configurator. Select the **Configure** button or visit our [website](#) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

See the Specifications and options section 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 the Material selection section for more information.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in Figure 3.

Figure 3: Model Code Example

3051C D 2 X 2 2 M5 B4

1 2

1. Required model components (choices available on most)
2. Additional options (variety of features and functions that may be added to products)

Optimizing lead time

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.

Required model components

Model

Code	Description	
3051CFA	Rosemount Annubar Flow Meter	★

Measurement type

Code	Description	
D	Differential pressure	★

Fluid type

Code	Description	
L	Liquid	★
G	Gas	★
S	Steam	★

Line size

Code	Description	
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)	★

Code	Description	
060	6-in. (150 mm)	★
070	7-in. (175 mm)	★
080	8-in. (200 mm)	★
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)	

Pipe I.D. range

All pipe I.D. ranges are available for both measurement types D and 1-7.

Code	Description	
Z	Specify pipe I.D. and wall thickness	★

Pipe material/mounting assembly material

All materials are available for both measurement types D and 1-7.

Code	Description	
C	CS (A105)	★
S	316 SST	★
0	No mounting (customer supplied)	★
G	Chrome-moly grade F-11	
N	Chrome-moly grade F-22	
J	Chrome-moly grade F-91	

Piping orientation

Code	Description	
H	Horizontal piping	★
D	Vertical piping with downward flow	★
U	Vertical piping with upward flow	★

Annubar type

Code	Description	
P	Pak-Lok	★
F	Flanged with opposite side support	★
L	Flange-Lok	
G	Gear-drive Flo-Tap	
M	Manual Flo-Tap	

Sensor material

Code	Description	
S	316 SST	★
H	Alloy C-276	

Sensor size

Code	Description	
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

Code	Description	
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 ⁽¹⁾	Class 900 RF ANSI	

Code	Description	
AF ⁽¹⁾	Class 1500 RF ANSI	
AT ⁽¹⁾	Class 2500 RF ANSI	
R1	Class 150 RTJ flange	
R3	Class 300 RTJ flange	
R6	Class 600RTJ flange	
R9 ⁽¹⁾	Class 900 RTJ flange	
RF ⁽¹⁾	Class 1500 RTJ flange	
RT ⁽¹⁾	Class 2500 RTJ flange	

(1) Available in remote mount applications only.

Opposite side support or packing gland

Code	Description	
0	No opposite side support or packing gland (required for Pak-Lok and Flange-Lok models)	★

Opposite side support - required for flanged models

Code	Description	
C	NPT threaded opposite support assembly – extended tip	★
D	Welded opposite support assembly – extended tip	★

Packing gland - required for Flo-Tap models

Code	Packing gland material	Rod material	Packing material	
J ⁽¹⁾	SST packing gland/cage nipple	CS	PTFE	
K ⁽¹⁾		SST	PTFE	
L ⁽¹⁾		CS	Graphite	
N ⁽¹⁾		SST	Graphite	
R	Alloy C-276 packing gland/cage nipple	SST	Graphite	

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

Isolation valve for Flo-Tap models

Code	Description	
0	Not applicable or customer supplied	★
1	Gate valve, CS	
2	Gate valve, SST	
5	Ball valve, CS	
6	Ball valve, SST	

Temperature measurement

Code	Description	
T	Integral RTD – not available with flanged model greater than Class 600	★
0	No temperature sensor	★
R	Remote thermowell and RTD	

Transmitter connection platform

Code	Description	
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

Code	Description	
1	0 to 25 in H ₂ O (0 to 62.16 mbar)	★
2	0 to 250 in H ₂ O (0 to 621.60 mbar)	★
3	0 to 1000 in H ₂ O (0 to 2.48 bar)	★

Transmitter output

Code	Description	
A ⁽¹⁾	4–20 mA with digital signal based on HART® Protocol	★
F	FOUNDATION™ Fieldbus Protocol	★
W ⁽²⁾	PROFIBUS® PA Protocol	★
X ⁽³⁾	Wireless (requires wireless options and engineered polymer housing)	★
M ⁽⁴⁾	Low-power, 1–5 Vdc with digital signal based on HART Protocol	

(1) HART Revision 5 is the default HART output.

(2) For local addressing and configuration, M4 (LOI) is required. Not available with product certification codes E4, EM, EP, I6, IM, KD, KL, KM, KP, KS, N3.

(3) This option is only available with intrinsically safe approvals.

(4) Only available with C6, E2, E5, I5, K5, KB, EM, EP, and E8 product certifications.

Housing material

Code	Description	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 ⁽¹⁾	Engineered polymer	No conduit entries	★
D ⁽²⁾	Aluminum	G½	
M ⁽²⁾	SST	G½	

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

(2) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. This option is only available with product certifications options I1, I2, I3, I7, IA, IB, IM, KA, N1, N3, N7. Housing code D is also available with E4, and IG.

Transmitter performance class

Code	Description	
1	1.8 percent flow rate accuracy, 8:1 flow turndown, 5-yr. stability	★

Wireless options

Wireless transmit rate, operating frequency, and protocol

Code	Description	
WA3	User configurable transmit rate, 2.4 GHz WirelessHART	★

Antenna and SmartPower™

Code	Description	
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)	★

Additional options

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Pressure testing

These options apply to assembled flow meter only, mounting not tested.

Code	Description	
P1	Hydrostatic testing with certificate	
PX	Extended hydrostatic testing	

Special cleaning

Code	Description	
P2	Cleaning for special services	

Code	Description	
PA	Cleaning per ASTM G93 Level D (section 11.4)	

Material testing

Code	Description	
V1	Dye penetrant exam	

Material examination

Code	Description	
V2	Radiographic examination	

Flow calibration

Code	Description	
W1	Flow calibration (Average K)	

Special inspection

Code	Description	
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★

Surface finish

Code	Description	
RL	Surface finish for low pipe Reynolds number in gas and steam	★
RH	Surface finish for high pipe Reynolds number in liquid	★

Material traceability certification

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

Code	Description	
Q8	Material Traceability Certification per EN 10474:2004 3.1	★

Positive material identification (PMI)

Code	Description	
Q76	PMI verification and certificate	★

Code conformance

This option is not available with transmitter connection platform 6.

Code	Description	
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	

Materials conformance

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.

Code	Description	
J5	NACE MR-0175/ISO 15156	

Country certification

Code	Description	
J6	European Pressure Directive (PED)	★
J1	Canadian registration	

Installed in flanged pipe spool section

Code	Description	
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

Code	Description	
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

Code	Description	
Y1	Mounting hardware shipped separately	★

Special dimensions

Code	Description	
VM	Variable mounting	

Code	Description	
VT	Variable tip	
VS	Variable length spool section	

Plantweb™ control functionality

Code	Description	
A01	FOUNDATION™ Fieldbus control function block suite	★

Plantweb™ diagnostic functionality

Code	Description	
DA0	Loop Integrity HART® Diagnostic	★
D01	FOUNDATION™ Fieldbus Diagnostics Suite	★

Product certifications

Code	Description	
E8	ATEX Flameproof and Dust Certification	★
I1 ⁽¹⁾	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	TIIS Flame-proof	★
E5	USA Explosion-proof, Dust Ignition-Proof	★
I5 ⁽²⁾	USA Intrinsically Safe, Nonincendive	★
IE	USA FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocol only	★
C6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
I6	Canada Intrinsic Safety	★
K6	Canada 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)	★
IG	IECEX FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	USA Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
E2	INMETRO Flameproof001	★
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	USA and Canada Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
KL ⁽³⁾	USA, Canada, IECEx, ATEX Intrinsic Safety Combination	★
KS	USA, Canada, IECEx, ATEX Explosion Proof, Intrinsically Safe, Dust, Non-Incendive, Type-N, Div. 2	★
EP	Republic of Korea Flameproof	★
IP	Republic of Korea Intrinsic Safety	★
KP	Republic of Korea Flameproof, Intrinsic Safety	★

(1) Dust approval not applicable to output code X.

(2) Nonincendive certification not provided with output code (X).

(3) Only available with output code X.

Sensor fill fluid and O-ring options

Code	Description	
L1 ⁽¹⁾	Inert sensor fill fluid (silicone fill fluid is standard)	★
L2	Graphite-filled (PTFE) O-ring	★
LA ⁽¹⁾	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★

(1) Not available with wireless output code X.

Shipboard approvals

These options are not available with wireless output code X.

Code	Description	
SBS	American Bureau of Shipping	★
SLL ⁽¹⁾	Lloyds Register (LR)	

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

Display and interface options

Code	Description	
M4 ⁽¹⁾	LCD display with LOI	★
M5	LCD display	★

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

Transmitter calibration certification

Code	Description	
Q4	Calibration certificate for transmitter	★

Quality certification for safety

These options are only available with 4–20 mA HART (output code A).

Code	Description	
QT	Safety certified to IEC 61508 with certificate of FMEDA	★

Transient protection

This option is not available with wireless output code X. The T1 option is not needed with FISCO Product Certifications; transient protection is included with the FISCO Product Certification codes IA, IB, and IE.

Code	Description	
T1	Transient terminal block	★

Manifold for remote mount option

Code	Description	
F2	3-valve manifold, SST	★
F6	5-valve manifold, SST	★
F1	3-valve manifold, CS	
F3	3-valve manifold, alloy C-276	
F5	5-valve manifold, CS	
F7	5-valve manifold, alloy C-276	

Lower power output

Code	Description	
C2	0.8–3.2 Vdc output with digital signal based on HART® Protocol (available with output code M only)	

Alarm levels

These options are only available with 4–20 mA HART (output code A).

Code	Description	
C4 ⁽¹⁾	NAMUR alarm and saturation levels, high alarm	★
CN ⁽¹⁾	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	★

⁽¹⁾ NAMUR-compliant operation is preset at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.

Configuration buttons

Code	Description	
D4 ⁽¹⁾	Analog zero and span	★
DZ ⁽²⁾	Digital zero trim	★

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

(2) Only available with 4–20 mA HART (output code A) and Wireless (output code X).

Ground screw

This option is not available with wireless output code X. The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.

Code	Description	
V5	External ground screw assembly	★

HART® Revision configuration

These options require HART Protocol output code A. 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.

Code	Description	
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★

Rosemount 3051CFC Compact Flow Meter ordering information



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).

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Online Product Configurator

Many products are configurable online using our Product Configurator. Select the **Configure** button or visit our [website](#) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

See the Specifications and options section 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 the Material selection section for more information.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in Figure 4.

Figure 4: Model Code Example

3051C D 2 X 2 2 M5 B4

1 2

1. Required model components (choices available on most)
2. Additional options (variety of features and functions that may be added to products)

Optimizing lead time

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.

Required model components

Model

Code	Description	
3051CFC	Compact flow meter	★

Measurement type

Code	Description	
D	Differential pressure	★

Primary element technology

Code	Description	
A	Annubar averaging pitot tube	★
C	Conditioning orifice plate	★
P	Orifice plate	★

Material type

Code	Description	
S	316 SST	★

Line size

Code	Product description	
005 ⁽¹⁾	½-in. (15 mm)	★
010 ⁽¹⁾	1-in. (25 mm)	★
015 ⁽¹⁾	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)	★
100 ⁽²⁾	10-in. (250 mm)	★
120 ⁽²⁾	12-in. (300 mm)	★

(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.

Primary element type

Code	Description	
N000	Rosemount Annubar sensor size 1	★
N040	0.40 beta ratio	★
N050	0.50 beta ratio	
N065 ⁽¹⁾	0.65 beta ratio	★

(1) For 2-in. (50 mm) line sizes the Primary Element Type is 0.6 for Primary Element Technology Code C.

Temperature measurement

Code	Description	
0	No temperature sensor	★
R	Remote thermowell and RTD	

Transmitter connection platform

Code	Description	
3	Direct-mount	★
7	Remote-mount, NPT connections	★

Differential pressure range

Code	Description	
1	0 to 25 in H ₂ O (0 to 62.16 mbar)	★
2	0 to 250 in H ₂ O (0 to 621.60 mbar)	★
3	0 to 1000 in H ₂ O (0 to 2.48 bar)	★

Transmitter output

Code	Description	
A ⁽¹⁾	4–20 mA with digital signal based on HART® Protocol	★
F	FOUNDATION™ Fieldbus Protocol	★
W ⁽²⁾	PROFIBUS® PA Protocol	★
X ⁽³⁾	Wireless (requires wireless options and engineered polymer housing)	★
M ⁽⁴⁾	Low-power, 1–5 Vdc with digital signal based on HART Protocol	

(1) HART Revision 5 is the default HART output.

(2) For local addressing and configuration, M4 (LOI) is required. Not available with product certification codes E4, EM, EP, I6, IM, KD, KL, KM, KP, KS, N3.

(3) This option is only available with intrinsically safe approvals.

(4) Only available with C6, E2, E5, I5, K5, KB, EM, EP, and E8 product certifications.

Housing material

Code	Description	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 ⁽¹⁾	Engineered polymer	No conduit entries	★
D ⁽²⁾	Aluminum	G½	
M ⁽²⁾	SST	G½	

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

(2) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. This option is only available with product certifications options I1, I2, I3, I7, IA, IB, IM, KA, N1, N3, N7. Housing code D is also available with E4, and IG.

Transmitter performance class

Code	Description	
1	Up to ±1.65% flow rate accuracy, 8:1 flow turndown, 5-year stability	★

Wireless options

These options require wireless output code X and Engineered Polymer Housing code P.

Wireless transmit rate, operating frequency, and protocol

Code	Description	
WA3	User configurable transmit rate, 2.4 GHz WirelessHART®	★

Antenna and SmartPower

Code	Description	
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)	★

Additional options**Extended product warranty**

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Installation accessories

Code	Description	
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)	

Remote adapters

Code	Description	
FE	Flange adapters 316 SST (½-in NPT)	★

High temperature application

Code	Description	
HT	Graphite valve packing ($T_{\max} = 850^{\circ}\text{F}$)	

Flow calibration

Available with Primary Element Technology C only.

Code	Description	
WC	Flow calibration, 3 pt, conditioning orifice option C (all pipe schedules)	
WD ⁽¹⁾	Flow calibration, 10 pt, conditioning option C (all schedules), Annubar option A (schedule 40)	

(1) For Annubar option A, consult factory for pipe schedules other than schedule 40.

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	

Special cleaning

Code	Description	
P2 ⁽¹⁾	Cleaning for special services	
PA	Cleaning per ASTM G93 level D (section 11.4)	

(1) Available with Primary Element Technology C or P only.

Special inspection

Code	Description	
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★

Transmitter calibration certification

Code	Description	
Q4	Calibration certificate for transmitter	★

Quality certification for safety

Only available with HART® 4–20 mA output code A.

Code	Description	
QT	Safety certified to IEC 61508 with certificate of FMEDA	★

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204:2004 3.1	★

Positive material identification (PMI)

Code	Description	
Q76	PMI verification and certificate	★

Code conformance

Code	Description	
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
J4	ANSI/ASME B31.8	

Materials conformance

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.

Code	Description	
J5	NACE MR-0175/ISO 15156	

Country certification

Code	Description	
J1	Canadian registration	

Product certifications

Code	Description	
E8	ATEX Flameproof and Dust Certification	★
I1 ⁽¹⁾	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	TIIS Flame-proof	★
E5	USA Explosion-proof, Dust Ignition-Proof	★
I5 ⁽²⁾	USA Intrinsically Safe, Nonincendive	★
IE	USA FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocol only	★
C6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
I6	Canada Intrinsic Safety	★
K6	Canada 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)	★
IG	IECEX FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	USA Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
E2	INMETRO Flameproof001	★
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	USA and Canada Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
KL ⁽³⁾	USA, Canada, IECEx, ATEX Intrinsic Safety Combination	★
KS	USA, Canada, IECEx, ATEX Explosion Proof, Intrinsically Safe, Dust, Non-Incendive, Type-N, Div. 2	★
EP	Republic of Korea Flameproof	★
IP	Republic of Korea Intrinsic Safety	★
KP	Republic of Korea Flameproof, Intrinsic Safety	★

- (1) Dust approval not applicable to output code X.
 (2) Nonincendive certification not provided with output code (X).
 (3) Only available with output code X.

Sensor fill fluid and O-ring options

Code	Description	
L1 ⁽¹⁾	Inert sensor fill fluid	★
L2	Graphite-filled (PTFE) O-ring	★
LA ⁽¹⁾	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★

- (1) Not available with Wireless output code X.

Shipboard approvals

Not available with wireless output code X.

Code	Description	
SBS	American Bureau of Shipping	★
SLL ⁽¹⁾	Lloyds Register (LR)	★

- (1) Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, and N7.

Display and interface options

Code	Description	
M4 ⁽¹⁾	LCD display with LOI	★
M5	LCD display	★

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

Transient protection

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

Code	Description	
T1	Transient terminal block	★

Manifold for remote mount option

Code	Description	
F2	3-valve manifold, SST	★
F6	5-Valve Manifold, SST	★

Plantweb™ control functionality

Code	Description	
A01	FOUNDATION™ Fieldbus control function block suite	★

Plantweb™ diagnostic functionality

Code	Description	
DA0	Loop Integrity HART® Diagnostic	★
D01	FOUNDATION™ Fieldbus Diagnostics Suite	★

Low power output

Code	Description	
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	

Alarm levels

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

Code	Description	
C4 ⁽¹⁾	NAMUR alarm and saturation levels, high alarm	★
CN ⁽¹⁾	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	★

(1) NAMUR-compliant operation is preset at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.

Ground screw

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

Code	Description	
V5	External ground screw assembly	★

Configuration buttons

Code	Description	
D4 ⁽¹⁾	Analog zero and span	★
DZ ⁽²⁾	Digital zero trim	★

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

(2) Only available with 4–20 mA HART output code A and wireless output code X.

HART® Revision Configuration (requires HART Protocol output code A)

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.

Code	Description	
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★

Rosemount 3051CFP Integral Orifice Flow Meter ordering information



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 1 ½-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).

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Online Product Configurator

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Specifications and options

See the Specifications and options section 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 the Material selection section for more information.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in [Figure 5](#).

Figure 5: Model Code Example

3051C D 2 X 2 2 M5 B4

1

2

1. Required model components (choices available on most)

2. Additional options (variety of features and functions that may be added to products)

Optimizing lead time

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.

Required model components

Model

Code	Description	
3051CFP	Integral Orifice Flow Meter	★

Measurement type

Code	Product description	
D	Differential pressure	★

Body material

Code	Description	
F	316 SST, 4-bolt	★

Line size

Code	Description	
005	½-in. (15 mm)	★
010	1-in. (25 mm)	★
015	1½-in. (40 mm)	★

Process connection

Code	Description	
T1	NPT female body (not available with remote thermowell and RTD)	★
S1 ⁽¹⁾	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	★
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	★

Code	Description	
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	

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

Orifice plate material

Code	Description	
S	316 SST	★
H	Alloy C-276	
M	Alloy 400	

Bore size option

Code	Description	
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	

Code	Description	
0020	0.020-in. (0.51 mm) for ½-in. pipe	
0034	0.034-in. (0.86 mm) for ½-in. pipe	

Transmitter connection platform

Code	Description	
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 range

Code	Description	
1	0 to 25 in H ₂ O (0 to 62.16 mbar)	★
2	0 to 250 in H ₂ O (0 to 621.60 mbar)	★
3	0 to 1000 in H ₂ O (0 to 2.48 bar)	★

Transmitter output

Code	Description	
A ⁽¹⁾	4–20 mA with digital signal based on HART® Protocol	★
F	FOUNDATION™ Fieldbus Protocol	★
W ⁽²⁾	PROFIBUS® PA Protocol	★
X ⁽³⁾	Wireless (requires wireless options and engineered polymer housing)	★
M ⁽⁴⁾	Low-power, 1–5 Vdc with digital signal based on HART Protocol	

(1) HART Revision 5 is the default HART output.

(2) For local addressing and configuration, M4 (LOI) is required. Not available with product certification codes E4, EM, EP, I6, IM, KD, KL, KM, KP, KS, N3.

(3) This option is only available with intrinsically safe approvals.

(4) Only available with C6, E2, E5, I5, K5, KB, EM, EP, and E8 product certifications.

Housing material

Code	Description	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 ⁽¹⁾	Engineered polymer	No conduit entries	★
D ⁽²⁾	Aluminum	G½	
M ⁽²⁾	SST	G½	

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

(2) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. This option is only available with product certifications options I1, I2, I3, I7, IA, IB, IM, KA, N1, N3, N7. Housing code D is also available with E4, and IG.

Transmitter performance class

Code	Description	
1	Up to ±1.8% flow rate accuracy, 8:1 flow turndown, 5-year stability	★

Wireless options

These options require wireless output code X and engineered polymer housing code P.

Wireless transmit rate, operating frequency, and protocol

Code	Description	
WA3	User configurable transmit rate, 2.4 GHz WirelessHART®	★

Antenna and SmartPower

Code	Description	
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)	★

Additional options

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Transmitter body/bolt material

Code	Description	
GT	High temperature (850 °F/454 °C)	

Temperature sensor

Thermowell material is the same as the body material.

Code	Description	
RT	Thermowell and RTD	★

Optional connection

Code	Description	
G1	DIN 19213 transmitter connection	

Pressure testing

This option does not apply to process connection codes T1 and S1.

Code	Description	
P1	Hydrostatic testing with certificate	

Special cleaning

Code	Description	
P2	Cleaning for special services	
PA	Cleaning per ASTM G93 level D (section 11.4)	

Material testing

Code	Description	
V1	Dye penetrant exam	

Material examination

Code	Description	
V2	Radiographic examination	

Flow calibration

This option is not available for bore sizes 0010, 0014, 0020, 0034, 0066, or 0109.

Code	Description	
WD	Discharge coefficient verification	

Special inspection

Code	Description	
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204:2004 3.1	★

Positive material identification (PMI)

Code	Description	
Q76	PMI verification and certificate	★

Code conformance

This option is not available with DIN Process Connection codes D1, D2, or D3.

Code	Description	
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
J4	ANSI/ASME B31.8	

Materials conformance

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.

Code	Description	
J5	NACE MR-0175/ISO 15156	

Country certification

Code	Description	
J1	Canadian registration	★
J6	European Pressure Directive (PED)	★

Transmitter calibration certification

Code	Description	
Q4	Calibration certificate for transmitter	★

Quality certification for safety

This option is only available with HART® 4-20 mA output (option code A).

Code	Description	
QT	Safety certified to IEC 61508 with certificate of FMEDA	★

Product certifications

Code	Description	
E8	ATEX Flameproof and Dust Certification	★
I1 ⁽¹⁾	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	TIIS Flame-proof	★
E5	USA Explosion-proof, Dust Ignition-Proof	★
I5 ⁽²⁾	USA Intrinsically Safe, Nonincendive	★
IE	USA FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocol only	★
C6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
I6	Canada Intrinsic Safety	★
K6	Canada 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)	★
IG	IECEx FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	USA Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
E2	INMETRO Flameproof001	★
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	USA and Canada Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★
KD	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
KL ⁽³⁾	USA, Canada, IECEx, ATEX Intrinsic Safety Combination	★
KS	USA, Canada, IECEx, ATEX Explosion Proof, Intrinsically Safe, Dust, Non-Incendive, Type-N, Div. 2	★
EP	Republic of Korea Flameproof	★
IP	Republic of Korea Intrinsic Safety	★

KP	Republic of Korea Flameproof, Intrinsic Safety	★
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- (1) Dust approval not applicable to output code X.
 (2) Nonincendive certification not provided with output code (X).
 (3) Only available with output code X.

Sensor fill fluid and O-ring options

Code	Description	
L1 ⁽¹⁾	Inert sensor fill fluid (silicone fill fluid is standard)	★
L2	Graphite-filled (PTFE) O-ring	★
LA ⁽¹⁾	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★

- (1) Not available with wireless output code X.

Shipboard approvals

These options are not available with wireless output code X.

Code	Description	
SBS	American Bureau of Shipping	★
SLL ⁽¹⁾	Lloyds Register (LR)	

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

Display and interface options

Code	Description	
M4 ⁽¹⁾	LCD display with LOI	★
M5	LCD display	

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

Transient protection

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

Code	Description	
T1	Transient terminal block	★

Plantweb™ control functionality

Code	Description	
A01	FOUNDATION™ Fieldbus control function block suite	★

Plantweb™ diagnostic functionality

Code	Description	
DA0	Loop Integrity HART® Diagnostic	★
D01	FOUNDATION™ Fieldbus Diagnostics Suite	★

Low power output

Code	Description	
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	

Alarm levels

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

Code	Description	
C4 ⁽¹⁾	NAMUR alarm and saturation levels, high alarm	★
CN ⁽¹⁾	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	★

(1) NAMUR-compliant operation is preset at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.

Ground screw

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

Code	Description	
V5	External ground screw assembly	★

Configuration buttons

Code	Description	
D4 ⁽¹⁾	Analog zero and span	★
DZ ⁽²⁾	Digital zero trim	★

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

(2) Only available with 4–20 mA HART output code A and wireless output code X.

HART® Revision Configuration (requires HART Protocol output code A)

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.

Code	Description	
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★

Rosemount 3051L Level Transmitter ordering information



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 >](#)

Online Product Configurator

Many products are configurable online using our Product Configurator. Select the **Configure** button or visit our [website](#) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

See the Specifications and options section 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 the Material selection section for more information.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in [Figure 6](#).

Figure 6: Model Code Example

3051C D 2 X 2 2 M5 B4

1 2

1. Required model components (choices available on most)
2. Additional options (variety of features and functions that may be added to products)

Optimizing lead time

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.

Required model components

Model

Code	Description	
3051L	Level transmitter	★

Pressure range

Code	Description	
2	–250 to 250 inH ₂ O (–621.60 to 621.60 mbar)	★
3	–1000 to 1000 inH ₂ O (–2.48 to 2.48 bar)	★
4	–300 to 300 psi (–20.68 to 20.68 bar)	★

Transmitter output

Code	Description	
A ⁽¹⁾	4–20 mA with digital signal based on HART® Protocol	★
F	FOUNDATION™ Fieldbus Protocol	★
W ⁽²⁾	PROFIBUS® PA Protocol	★
X ⁽³⁾	Wireless (requires wireless options and engineered polymer housing)	★
M ⁽⁴⁾	Low-power, 1–5 Vdc with digital signal based on HART Protocol	

(1) HART Revision 5 is the default HART output.

(2) For local addressing and configuration, M4 (LOI) is required. Not available with product certification codes E4, EM, EP, I6, IM, KD, KL, KM, KP, KS, N3.

(3) This option is only available with intrinsically safe approvals.

(4) Only available with C6, E2, E5, I5, K5, KB, EM, EP, and E8 product certifications.

Process connection size, material, extension length (high side)

Mounting flange size, rating, material (high side)

Seal fill fluid

Code	Description	Specific gravity	Temperature limits (ambient temperature of 70° F [21° C])	
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 Technical Note .	★
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 Technical Note .	★
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)	★

Low pressure side

O-ring

Code	Description	
A	Glass-filled PTFE	★

Housing material

Code	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 ⁽¹⁾	Engineered polymer	No conduit entries	★
D ⁽²⁾	Aluminum	G½	
M ⁽²⁾	SST	G½	

(1) Only available with wireless output code X.

(2) Transmitter conduit entry will be ½ NPT and a ½ NPT to G½ thread adapter will be provided. Only available with product certifications options I1, I2, I3, I7, IA, IB, IM, KA, N1, N3, N7. Housing code D is also available with E4, and IG

Wireless options

Requires wireless output code X and Engineered Polymer Housing code P.

Wireless transmit rate, operating frequency, and protocol

Code	Description	
WA3	User configurable transmit rate, 2.4 GHz <i>WirelessHART</i>	★

Antenna and SmartPower

Code	Description	
WPS	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)	★

Additional options

Include with selected model number.

Extended product warranty

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Plantweb™ control functionality

Code	Description	
A01	FOUNDATION™ Fieldbus control function block suite	★

Plantweb™ diagnostic functionality

Code	Description	
DA0	Loop Integrity HART® Diagnostic	★
D01	FOUNDATION™ Fieldbus Diagnostics Suite	★

Seal assemblies

“Assemble-to” items are specified separately and require a completed model number.

Code	Description	
S1	Assembled to one Rosemount 1199 Seal	★

Remote seal diaphragm coating

Code	Description	
SZ	0.0002-in. (5 µm) gold-plated diaphragm	

Code	Description	
FP ⁽¹⁾	CorrosionShield PFA coated diaphragm	

(1) Not compatible with spiral wound gasket.

Product certifications

Code	Description	
E8	ATEX Flameproof and Dust Certification	★
I1 ⁽¹⁾	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	TIIS Flame-proof	★
E5	USA Explosion-proof, Dust Ignition-Proof	★
I5 ⁽²⁾	USA Intrinsically Safe, Nonincendive	★
IE	USA FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocol only	★
C6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
I6	Canada Intrinsic Safety	★
K6	Canada 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)	★
IG	IECEx FISCO Intrinsically Safe; for FOUNDATION Fieldbus or PROFIBUS PA Protocols only	★
K5	USA Explosion-proof, Dust Ignition-Proof, Intrinsically Safe, and Division 2	★
E2	INMETRO Flameproof001	★
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	USA and Canada Explosion-proof, Dust Ignition Proof, Intrinsically Safe, and Division 2 (combination of K5 and C6)	★

KD	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of K5, C6, I1, and E8)	★
KL ⁽³⁾	USA, Canada, IECEx, ATEX Intrinsic Safety Combination	★
KS	USA, Canada, IECEx, ATEX Explosion Proof, Intrinsically Safe, Dust, Non-Incendive, Type-N, Div. 2	★
EP	Republic of Korea Flameproof	★
IP	Republic of Korea Intrinsic Safety	★
KP	Republic of Korea Flameproof, Intrinsic Safety	★

(1) Dust approval not applicable to output code X.

(2) Nonincendive certification not provided with output code (X).

(3) Only available with output code X.

Shipboard approvals

Shipyard approvals are not available with wireless output (code X).

Code	Description	
SBS	American Bureau of Shipping	★
SBV ⁽¹⁾	Bureau Veritas (BV)	★
SDN	Det Norske Veritas	★
SLL ⁽¹⁾	Lloyds Register (LR)	★

(1) Only available with product certifications E7, E8, I1, I7, IA, K7, K8, KD, N1, N7

SST tagging

Code	Description	
Y2	316 SST nameplate, top tag, wire-on tag, and fasteners	

Bolting material

Code	Description	
L4	Austenitic 316 SST bolts	★

Display and interface options

Code	Description	
M4 ⁽¹⁾	LCD display with LOI	★
M5	LCD display	★

(1) Only available with 4-20 mA HART output (code A) and PROFIBUS-PA (code W).

Calibration certificate

Code	Description	
Q4	Calibration certificate	★
QG ⁽¹⁾	Calibration certificate and GOST verification certificate	★

QP	Calibration certification and tamper evident seal	★
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(1) Contact an Emerson representative for availability.

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Positive material identification (PMI)

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

The quality certification for safety is only available with HART 4–20 mA output (code A).

Code	Description	
QT	Safety certified to IEC 61508 with certificate of FMEDA	★

Toolkit total system performance reports

Code	Description	
QZ	Remote seal system performance calculation report	★

Conduit electrical connector

The conduit electrical connector option is not available with wireless output (code X).

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★

Configuration buttons

Code	Description	
D4 ⁽¹⁾	Analog zero and span	★
DZ ⁽²⁾	Digital zero trim	★

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

(2) Only available with HART 4–20 mA output (output code A) and wireless output (output code X)

Transient protection

The transient protection option is not available with wireless output (code X). The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA, IB, and IE.

Code	Description	
T1	Transient protection terminal block	★

Software configuration

The software configuration option is only available with HART 4–20 mA output (output code A) and wireless output (output code X).

Code	Description	
C1	Custom software configuration (For wired, see the Rosemount 3051 Configuration Data Sheet . For wireless, see the Rosemount 3051 Wireless Configuration Data Sheet .)	★

Low power output

Code	Description	
C2	0.8–3.2 Vdc output with digital signal based on HART Protocol (available with output code M only)	★

Alarm levels

The alarm levels option is only available with HART 4–20 mA output (code A).

Code	Description	
C4 ⁽¹⁾	Analog output levels compliant with NAMUR recommendation NE 43, alarm high	★
CN ⁽¹⁾	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 Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Rosemount 3051 Configuration Data Sheet)	★
CT	Rosemount standard low alarm	★

(1) NAMUR-compliant operation is preset at the factory and can be changed to standard operation in the field for the standard Rosemount 3051.

Conduit plug

The conduit plug option is not available with wireless output (code X).

Code	Description	
DO	316 SST conduit plug	★

Ground screw

The ground screw option is not available with wireless output (code X). The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.

Code	Description	
V5	External ground screw assembly	★

Lower housing flushing connection options

Code	Ring material	Number	Size (NPT)	
F1	316 SST	1	¼–18 NPT	★

Code	Ring material	Number	Size (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

Code	Description	
S0	No gasket for lower housing	★
SY ⁽¹⁾	Thermo-Tork® TN-9000	★

(1) Gasket provided when lower housing is ordered.

NACE certificate

Note that NACE®-compliant wetted materials are required. Materials of construction must comply with recommendations per NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult the latest standard for details. All selected materials must also conform to NACE MR0103 for sour refining environments.

Code	Description	
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 (requires HART Protocol output code A)

HART Revision 5 is the default HART output.

Code	Description	
HR5	Configured for HART Revision 5	★
HR7	Configured for HART Revision 7	★

Wireless power accessory

This option is only available with output code X.

Code	Description	
HS	Hot swap power adapter for power module replacement	

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®
Rosemount 3051C⁽¹⁾	
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 ⁽²⁾ For spans less than 10:1 ⁽³⁾ , 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
Rosemount 3051CA	
Ranges 1–4	$\pm 0.04\%$ of span ⁽²⁾ For spans less than 10:1, accuracy = $\pm \left[0,0075 \left(\frac{URL}{Span} \right) \right] \% \text{ of Span}$

Rosemount 3051T ⁽⁴⁾	
Ranges 1–4	$\pm 0.04\%$ of span ⁽²⁾ For spans less than 10:1, accuracy = $\pm \left[0,0075 \left(\frac{URL}{Span} \right) \right] \% \text{ of Span}$
Range 5–6 ⁽⁵⁾	$\pm 0.075\%$ 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, ± 0.065 percent 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.

(5) Atmospheric pressure variation is not included in this 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 ⁽¹⁾		
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°C) temperature changes; 0–100 percent relative humidity, from 1:1 to 5:1 rangedown

Models	Total performance ⁽¹⁾
Rosemount 3051C Ranges 2–5	$\pm 0.14\%$ 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 ± 0.15 percent 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°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°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°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 _d + T _c)(3):			
Rosemount 3051C			
Ranges 2-5	100 ms	152 ms	
Range 1	255 ms	307 ms	
Range 0	700 ms	N/A	
Rosemount 3051T	100 ms	152 ms	

	4 - 20 mA HART [®] (1)	FOUNDATION [™] Fieldbus and PROFIBUS [®] PA Protocols(2)	Typical HART transmitter response time
Rosemount 3051L	See Instrument Toolkit.	See Instrument Toolkit.	Transmitter output vs. Time Pressure released T_d = Dead time T_c = Time constant Response time = $T_d + T_c$ 63.2% of total step change
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[®], see the Rosemount 3051 [Reference Manual](#). For WirelessHART[®], see the Rosemount 3051 Wireless [Reference Manual](#).

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

Table 1: 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
Rosemount 3051C	
Ranges 2–5	$\pm(0.0125\% \text{ URL} + 0.0625\% \text{ span})$ from 1:1 to 5:1 $\pm(0.025\% \text{ URL} + 0.125\% \text{ span})$ from 5:1 to 150:1
Range 1	$\pm(0.1\% \text{ URL} + 0.25\% \text{ span})$ from 1:1 to 30:1 $\pm(0.14\% \text{ URL} + 0.15\% \text{ span})$ from 30:1 to 50:1
Range 0	$\pm(0.25\% \text{ URL} + 0.05\% \text{ span})$ from 1:1 to 30:1

Models	Ambient temperature effect
Rosemount 3051CA	
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
Rosemount 3051T	
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
Rosemount 3051L	See Instrument Toolkit™ software.

Mounting position effects

Models	Mounting position effects
Rosemount 3051C	Zero shifts up to ± 1.25 in H_2O (3.11 mbar), which can be calibrated out. No span effect.
Rosemount 3051CA, 3051T	Zero shifts up to ± 2.5 in H_2O (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 ± 1 in H_2O (2.49 mbar). With diaphragm in horizontal plane, zero shift of up to ± 5 in H_2O (12.43 mbar) plus extension length on extended units. All zero shifts can be calibrated out. No span effect.

Vibration effect

Less than ± 0.1 percent 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 ± 0.005 percent of calibrated span per volt change.

Electromagnetic compatibility

Meets all industrial environment requirements of EN61326 and NAMUR NE-21. Maximum deviation <1 percent Span during EMC disturbance.

Note

NAMUR NE-21 does not apply to Low-Power (Transmitter output option code M) or Wireless (Transmitter output code X).

Note

During surge event, device with 4–20 mA (Transmitter output option code A) may exceed maximum EMC deviation limit or reset; however, device will self-recover and return to normal operation within specified start-up time.

Transient protection (option code T1)

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

- 6 kV crest (0.5 μs - 100 kHz)
- 3 kA crest (8 x 20 μs)
- 6 kV crest (1.2 x 50 μs)

Functional specifications

Range and sensor limits

Table 2: Rosemount 3051CD, 3051CG, 3051CF, and 3051L Range and Sensor Limits

Range ⁽¹⁾	Minimum span	Range and sensor limits				
	Rosemount 3051CD, 3051CG, 3051CF, 3051L ⁽²⁾	Upper (URL)	Lower (LRL)			
			Rosemount 3051CD Differential, 3051CF Flow Meters	Rosemount 3051CG Gage ⁽³⁾	Rosemount 3051L Differential	Rosemount 3051L Gage ⁽³⁾
0	0.10 inH ₂ O (0.24 mbar)	3.00 inH ₂ O (7.45 mbar)	–3.00 inH ₂ O (–7.45 mbar)	N/A	N/A	N/A
1	0.50 inH ₂ O (1.24 mbar)	25.00 inH ₂ O (62.16 mbar)	–25.00 inH ₂ O (–62.16 mbar)	–25.00 inH ₂ O (–62.16 mbar)	N/A	N/A
2	1.67 inH ₂ O (4.15 mbar)	250.00 inH ₂ O (621.60 mbar)	–250.00 inH ₂ O (–621.60 mbar)	–250.00 inH ₂ O (–621.60 mbar)	–250.00 inH ₂ O (–621.60 mbar)	–250.00 inH ₂ O (–621.60 mbar)
3	6.67 inH ₂ O (16.58 mbar)	1000.00 inH ₂ O (2.48 bar)	–1000.00 inH ₂ O (–2.48 bar)	0.50 psia (34.47 mbar)	–1000.00 inH ₂ 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. inH₂O referenced at 68 °F (20 °C).

(2) For outputs options W and M, minimum span are: range 1 - 0.50 inH₂O (1.24 mbar), range 2 - 2.50 inH₂O (6.21 mbar), range 3 - 10.00 inH₂O (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 3: Rosemount 3051CA and 3051T Range and Sensor Limits

Range	Rosemount 3051CA			Rosemount 3051T			
	Minimum span ⁽¹⁾	Range and sensor limits		Minimum span ⁽¹⁾	Range and sensor limits		Lower ⁽²⁾ (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)	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)	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)	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)	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	66.67 psi (4.60 bar)	10000.00 psi (689.47 bar)	0 psia (0 bar)	–14.70 psig (–1.01 bar)

Table 3: Rosemount 3051CA and 3051T Range and Sensor Limits (*continued*)

Range	Rosemount 3051CA			Rosemount 3051T			
	Minimum span ⁽¹⁾	Range and sensor limits		Minimum span ⁽¹⁾	Range and sensor limits		Lower ⁽²⁾ (LRL) (gage)
	Upper (URL)		Lower (LRL)	Upper (URL)		Lower (LRL) (absolute)	
6	N/A	N/A	N/A	133.33 psi (9.19 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

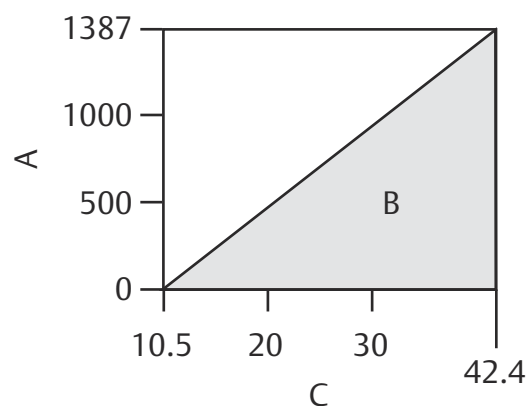
External power supply required. Standard transmitter (4–20 mA) operates on 10.5–42.4 Vdc with no load.

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 4–20 mA, user selectable for linear or square root output. Digital process variable superimposed on 4–20 mA signal, available to any host that conforms to 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
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)

Resource block	The resource block contains diagnostic, hardware, and electronics information. There are no linkable inputs or outputs to the resource block.
Sensor transducer block	The sensor transducer block contains sensor information and the ability to calibrate the pressure sensor or recall factory calibration.
LCD transducer block	The LCD display transducer block is used to configure the LCD display meter.
Analog input block	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.
Input selector block	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.
Integrator block	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.
Arithmetic block	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.
Signal characterizer block	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.
PID block	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.
Control selector block	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.
Output splitter block	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 block

Analog input (AI block)	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. The AI block is widely used for scaling functionality.
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Note

The channel, Set XD_Scale, Set L_Type, and sometimes Set Out_Scale are typically configured by instrument personnel. Other AI block parameters, block links, and schedule are typically configured by the control systems configuration engineer.

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 percent of URL.

Update rate

User selectable 1 second to 60 minute.

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. ⁽¹⁾

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 Ω (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)

Rosemount 3051TG/TA

- Range 1: 750 psi (51.71 bar)
- Range 2: 1500 psi (103.42 bar)
- Range 3: 1600 psi (110.32 bar)

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

- 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 4: 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 transmitter 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	≥ 21.75 mA	≤ 3.75 mA
NAMUR compliant ⁽¹⁾	≥ 22.5 mA	≤ 3.6 mA

	High alarm	Low alarm
Custom levels ⁽²⁾	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⁽¹⁾⁽²⁾: –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 5](#).

Table 5: Process Connection Temperature Limits

Rosemount 3051CD, 3051CG, 3051CF, 3051CA	
Silicone fill sensor ⁽¹⁾	
With coplanar flange	–40 to 250 °F (–40 to 121 °C) ⁽²⁾
With traditional flange	–40 to 300 °F (–40 to 149 °C) ⁽²⁾⁽³⁾
With level flange	–40 to 300 °F (–40 to 149 °C) ⁽²⁾
With Rosemount 305 Integral Manifold	–40 to 300 °F (–40 to 149 °C) ⁽²⁾
Inert fill sensor ⁽¹⁾⁽⁴⁾	–40 to 185 °F (–40 to 85 °C) ⁽⁵⁾⁽⁶⁾
With Option Code BR6, coplanar flange	–76 to 250 °F (–60 to 121 °C) ⁽²⁾
With Option Code BR6, traditional flange	–75 to 300 °F (–60 to 149 °C) ⁽²⁾

Table 5: Process Connection Temperature Limits (continued)

Rosemount 3051T (process fill fluid)	
Silicone fill sensor ⁽¹⁾	–40 to 250 °F (–40 to 121 °C) ⁽²⁾
With Option Code BR6	–76 to 250 °F (–60 to 121 °C) ⁽²⁾
Inert fill sensor ⁽¹⁾	–22 to 250 °F (–30 to 121 °C) ⁽²⁾
Rosemount 3051L low-side temperature limits	
Silicone fill sensor ⁽¹⁾	–40 to 250 °F (–40 to 121 °C) ⁽²⁾
Inert fill sensor ⁽¹⁾	–40 to 185 °F (–40 to 85 °C) ⁽⁵⁾
Rosemount 3051L high-side temperature limits (process fill fluid)	
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-in³ (0.08 cm³)

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-, 2⅝-, 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)

Transmitter 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	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)

Process diaphragms, including process gasket surface 316L SST, Alloy C-276, or Tantalum

Extension CF-3M (Cast version of 316L SST, material per ASTM-A743), or Alloy C-276. Fits schedule 40 and 80 pipe.

Mounting flange Zinc-cobalt plated CS or SST

Reference process connection (transmitter low side)

Isolating diaphragms 316L SST or Alloy C-276

Reference flange and adapter CF-8M (cast version of 316 SST, material per ASTM-A743)

Non-wetted parts**Electronics housing**

Low-copper aluminum or CF-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 6: 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	Table 7	Table 7

Table 7: 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)
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 8: 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 2.13

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.

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)

Ranges 1-5 (HART)

Certificate FM16US0121

Standards FM Class 3600 – 2018, FM Class 3615 – 2018, FM Class 3616 - 2011, FM Class 3810 – 2005, ANSI/NEMA 250 – 2008

Markings XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III; T5(-50 °C ≤ T_a ≤ +85 °C); Factory Sealed; Type 4X

Range 6 (HART/Fieldbus/)

Certificate 1053834

Standards ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2 No. 213 - M1987

Markings XP Class I, Division 1, Groups B, C and D, T5, (-50 °C ≤ T_a ≤ 85 °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 °C ≤ T_a ≤ 85 °C) ; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

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

Range 1-5 (HART)

Certificate FM16US0120X

Standards FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3611 - 2004, FM Class 3810 - 2005, ANSI/NEMA 250 - 2008

Markings IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; DIV 1 when connected per Rosemount drawing 03031-1019; NI CL 1, DIV 2, GP A, B, C, D; T4 (-50 °C ≤ T_a ≤ +70 °C) [HART], T4 (-50 °C ≤ T_a ≤ +60 °C) [Fieldbus/ PROFIBUS]; Type 4X

Special Conditions for Safe Use (X):

1. The Rosemount 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 Rosemount 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.

Range 1-6 (HART/Fieldbus/PROFIBUS)

Certificate 1053834

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

Markings 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

Range 1-5 (HART)

Certificate FM16US0120X

Standards FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3611 - 2004, FM Class 3810 - 2005

Markings IS CL I, DIV 1, GP A, B, C, D when connected per Rosemount drawing 03031-1019 ($-50^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$); Type 4X

Special Conditions for Safe Use (X):

1. The Rosemount 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 Rosemount 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.

Range 1-6 (HART/Fieldbus/PROFIBUS)

Certificate 1053834

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

Markings 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

Certificate 1053834

Standards ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2. No.157-92, CSA Std. C22.2 No. 213 - M1987

Markings 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

Certificate 1053834

Standards ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2 No. 213 -M1987

Markings 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 ½ 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 °C T₅₀₀ 105 °C Da ($-20^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$)

Table 9: Process Temperature

Temperature class	Process connection temperature
T6	-60°C to $+70^{\circ}\text{C}$
T5	-60°C to $+80^{\circ}\text{C}$
T4	-60°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 °C T₅₀₀ 105 °C Da ($-20^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$)

Table 10: 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 μ F	0 μ 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

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

Table 11: 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

Certificate	BAS00ATEX3105X; Baseefa11ATEX0275X
Standards	EN60079-0:2012 + A11:2013, EN60079-15:2010, EN60079-31:2014
Markings	Ⓔ II 3 G Ex nA IIC T5 Gc ($-40\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$); Ⓔ II 1 D Ex ta IIIC T95 $^{\circ}\text{C}$ T ₅₀₀ 105 $^{\circ}\text{C}$ 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.
2. 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 °C ≤ T_a ≤ +70 °C), T4/T5(-60 °C ≤ T_a ≤ +80 °C); Ex ta IIIC T95 °C T₅₀₀ 105 °C Da (-20 °C ≤ T_a ≤ +85 °C)

Table 12: Process Temperature

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

Special Conditions for Safe Use (X):

1. 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.
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.

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 °C ≤ T_a ≤ +40 °C), T4 (-60 °C ≤ T_a ≤ +70 °C)
Fieldbus/PROFIBUS: Ex ia IIC T4(-60 °C ≤ T_a ≤ +60 °C)

Table 13: Input Parameters

Parameter	HART	Fieldbus/PROFIBUS
Voltage U _i	30 V	30 V

Table 13: Input Parameters (continued)

Parameter	HART	Fieldbus/PROFIBUS
Current I_i	200 mA	300 mA
Power P_i	0.9 W	1.3 W
Capacitance C_i	0.012 μ F	0 μ F
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)

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

Table 14: 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 μ F	0 μ F	<5 nF
Inductance L_i	0 mH	0 mH	<10 μ 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

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

Table 15: Input Parameters

Parameters	Fieldbus/PROFIBUS
Voltage U_i	17.5 V

Table 15: Input Parameters (continued)

Parameters	Fieldbus/PROFIBUS
Current I_i	380 mA
Power P_i	5.32 W
Capacitance C_i	≤ 5 nF
Inductance L_i	≤ 10 μ 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

Certificate	IECEx BAS 09.0077X
Standards	IEC60079-0:2011, IEC60079-15:2010
Markings	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**

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

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

Certificate	UL-BR 13.0584X
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Standards	ABNT NBR IEC60079-0:2013, ABNT NBR IEC60079-11:2013
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 Ga ($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$)

Table 16: Input Parameters

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

Special Conditions for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is 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

Certificate	UL-BR 13.0584X
Standards	ABNT NBR IEC60079-0:2013, ABNT NBR IEC60079-11:2013
Markings	Ex ia IIC T4 Ga ($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$)

Table 17: Input Parameters

Parameter	FISCO
Voltage U_i	17.5 V
Current I_i	380 mA
Power P_i	5.32 W
Capacitance C_i	≤ 5 nF
Inductance L_i	≤ 10 μH

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**

Certificate	GYJ19.1056X [Transmitters]; GYJ20.1486X [Flow meters]
--------------------	---

Standards	GB3836.1-2010, GB3836.2-2010, GB3836.20-2010, GB12476.1-2013, GB12476.5-2013
Markings	3051 Series: Ex d IIC T6 ~ T4 Ga/Gb, Ex tD A20 IP66 T95 °C T ₅₀₀ 105 °C (-20 °C ≤ T _a ≤ +85 °C) 3051CF Series: Ex d IIC T5/T6 Ga/Gb

I3 China Intrinsic Safety

Certificate	GYJ18.1419X; GYJ20.1488X [Flow meters]
Standards	GB3836.1-2010, GB3836.4-2010, GB3836.20-2010, GB12476.1-2000
Markings	3051 Series: Ex ia IIC T4/T5 Ga, DIP A20 T _A 80 °C IP66 3051 CF Series: Ex ia IIC T4/T5 Ga

N3 China Type n

Certificate	GYJ20.1110X
Standards	GB3836.1-2010, GB3836.8-2014
Markings	Ex nA IIC T5 Gc (-40 °C ≤ T _a ≤ +70 °C)

Japan

E4 Japan Flameproof

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

Republic of Korea

EP Republic of Korea Flameproof

Certificate	11-KB4BO-0188X [Mfg Singapore], 19-KA4BO-079X [Mfg USA]
Markings	Ex d IIC T6...T4 Ga/Gb

IP Republic of Korea Intrinsic Safety

Certificate	13-KB4BO-0203X [HART – Mfg USA], 13-KB4BO-0204X [Fieldbus – Mfg USA], 10-KB4BO-0138X [HART – Mfg Singapore], 13-KB4BO-0206X [Fieldbus – Mfg Singapore] 18-KA4BO-0354X [HART – Mfg USA], 18-KA4BO-0355X [Fieldbus – Mfg USA]
Markings	Ex ia IIC T5/T4 (HART); Ex ia IIC T4 (Fieldbus)

Technical Regulations Customs Union (EAC)

EM EAC Flameproof

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

Special Condition for Safe Use (X):

See certificate for special conditions.

IM EAC Intrinsically Safe

Markings HART: 0Ex ia IIC T4/T5 Ga X, T4(-60 °C ≤ T_a ≤ +70 °C), T5(-60 °C ≤ T_a ≤ +40 °C)
Fieldbus/PROFIBUS: 0Ex ia IIC T4 Ga X (-60 °C ≤ T_a ≤ +60 °C)

Special Condition for Safe Use (X)

See certificate for special conditions.

Combinations

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

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 18: 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
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Rosemount 3051 Wireless product certifications

Rev 1.10

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](https://emerson.com/rosemount).

Telecommunications compliance

All wireless devices require certification to ensure they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification.

Emerson 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 equipment 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)

**Ranges 1-5
Certificate**

FM19US0050X

Standards

FM Class 3600:2018, FM Class 3610:2018, FM Class 3810:2018, ANSI/ISA 60079-0:2013, ANSI/UL 60079-11:2014, NEMA 250:2003, ANSI/IEC 60529:2014, ANSI/UL 61010:2016

Markings IS CL I, DIV 1, GP A, B, C, D T4; CL 1, Zone 0 AEx ia IIC T4; T4(-40 °C ≤ T_a ≤ +70 °C) when installed per Rosemount drawing 03031-1062; Type 4X/IP66/IP68

Special Conditions for Safe Use (X):

1. The Rosemount 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 percent 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.

Range 6 Certificate CSA 2526009

Standards 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)

Markings IS CL I, DIV 1, GP A, B, C, D T4; CL 1, Zone 0 AEx ia IIC T4; T4(-40 °C ≤ T_a ≤ +70 °C) when installed per Rosemount drawing 03031-1063; Type 4X/IP66/IP68

Canada

I6 Canada Intrinsically Safe

Certificate CSA 2526009

Standards 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

Markings 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

Certificate Baseefa12ATEX0228X

Standards EN 60079-0: 2012, EN 60079-11: 2012

Markings ⓈEx II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C) 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

Certificate	IECEX BAS 12.0124X
Standards	IEC 60079-0: 2011, IEC 60079-11: 2011
Markings	Ex ia IIC T4 Ga, T4(−60 °C ≤ T _a ≤ +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 Emerson 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

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

Special Condition for Safe Use (X):

See certificate for special conditions.

China

I3 China Intrinsic Safety

Certificate	: GYJ18.1419X; GYJ20.1488X [Flow Meters]
Standards	GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
Markings	Ex ia IIC T4 Ga, T4(−60 ~ +70 °C)

Special Conditions for Safe Use (X):

See certificate for special conditions.

Japan

I4 TIIS Intrinsic Safety

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

Special Conditions for Safe Use (X):

See certificate for special conditions.

EAC – Belarus, Kazakhstan, Russia**IM Technical Regulation Customs Union (EAC) Intrinsic Safety**

Certificate	EAEC RU C-US.EX01.B.00176/20
Markings	0Ex ia IIC T4 Ga X; $(-60\text{ °C} \leq T_a \leq +70\text{ °C})$

Special Condition for Safe Use (X):

See certificate for special conditions.

Korea**IP Korea Intrinsic Safety**

Certificate	13-KB4BO-0295X
Markings	Ex ia IIC T4 $(-40\text{ °C} \leq T_a \leq +70\text{ °C})$

Special Conditions for Safe Use (X):

See certificate for special conditions.

Additional Certifications**SBS American Bureau of Shipping (ABS) Type Approval**

Certificate	15-HS1405241-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:

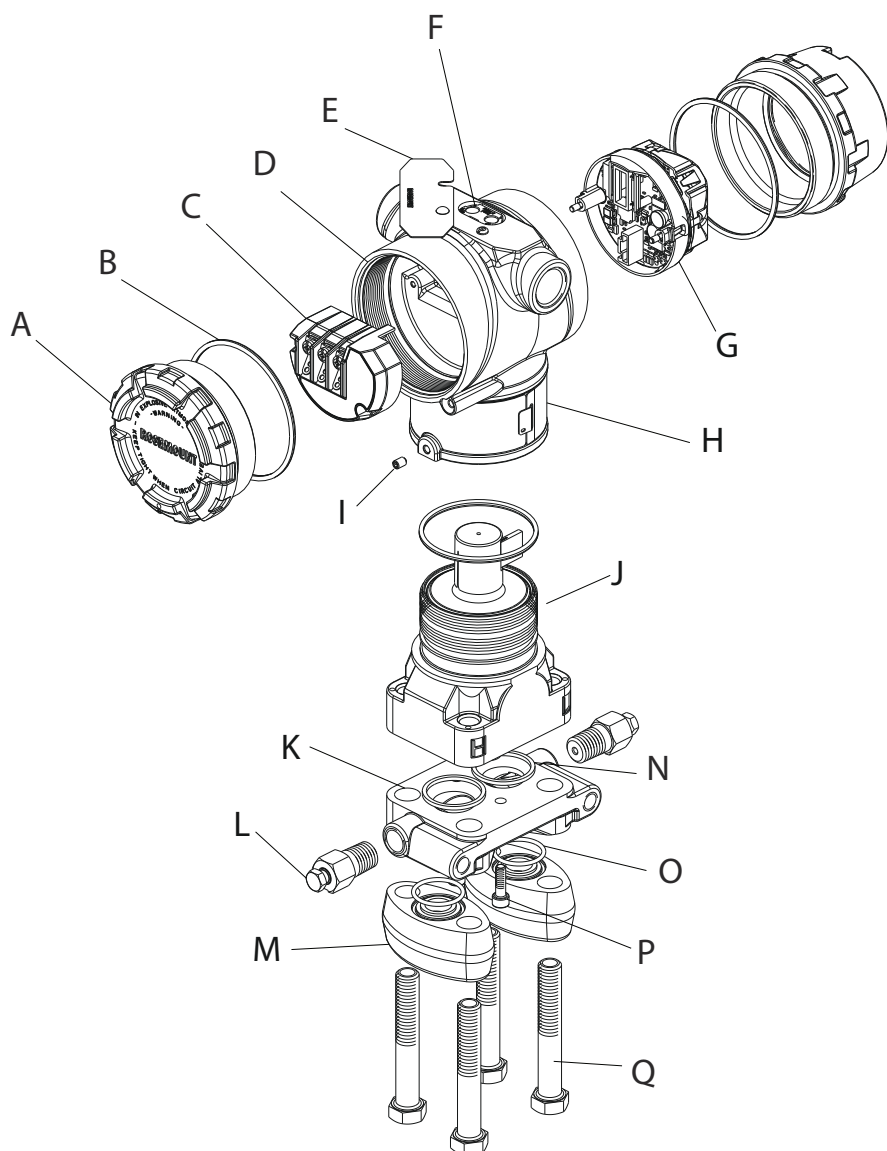
Location classes	
Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	D

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 7: 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

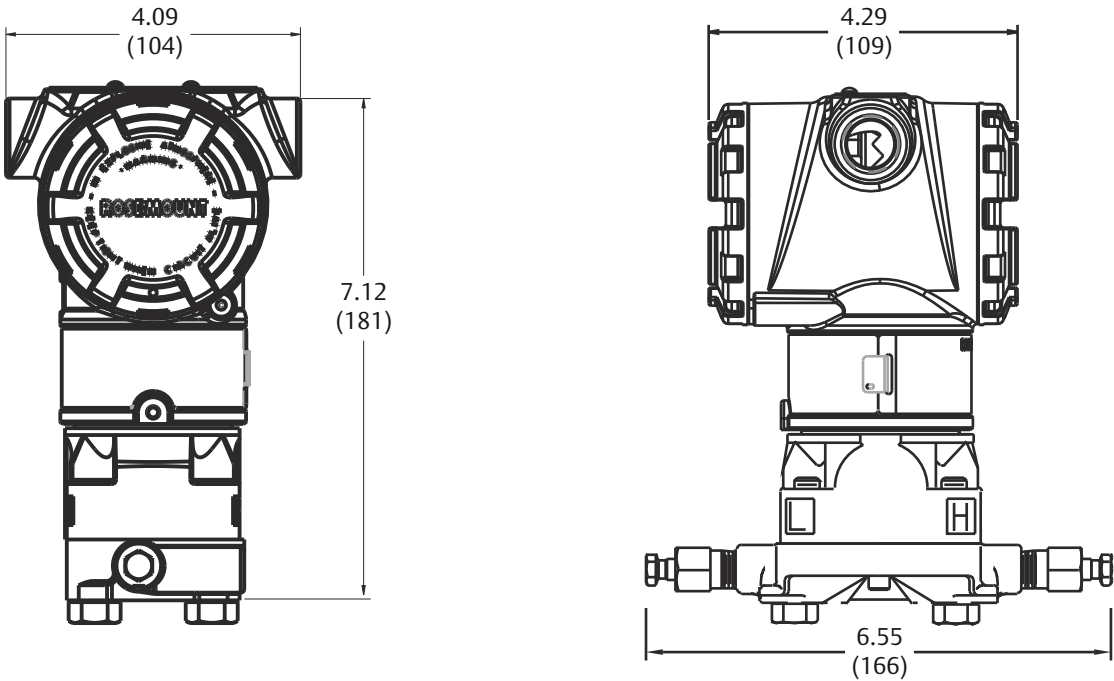
N. Process O-ring

O. Flange adapter O-ring

P. Flange alignment screw (not pressure retaining)

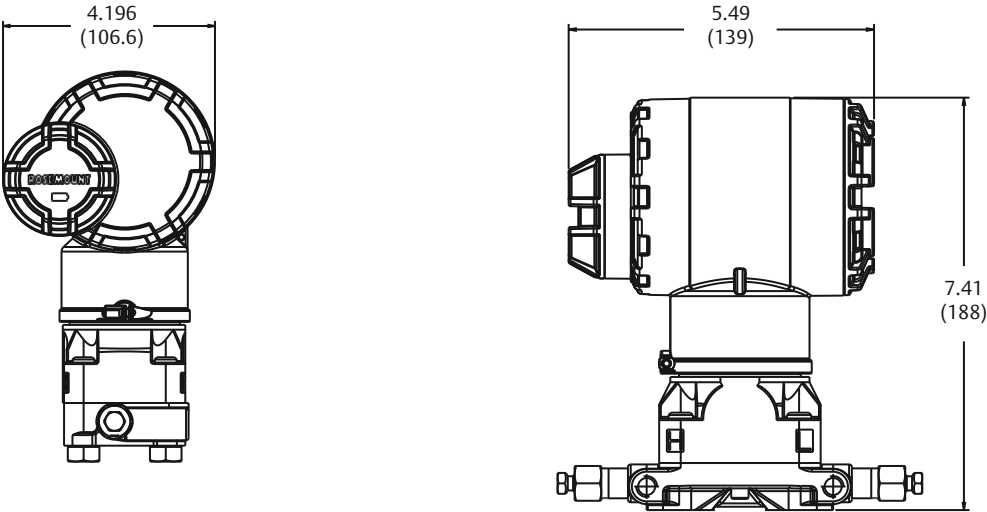
Q. Flange bolts

Figure 8: Rosemount 3051C Coplanar Flange



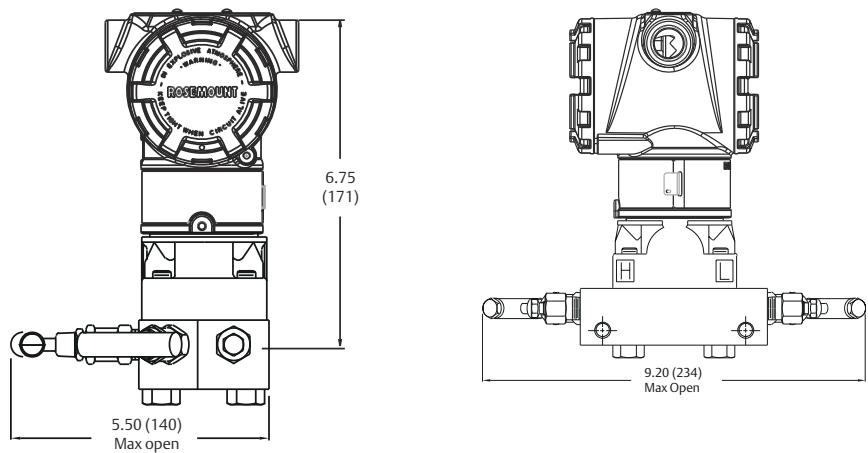
Dimensions are in inches (millimeters).

Figure 9: Rosemount 3051 Wireless Housing with Coplanar Flange



Dimensions are in inches (millimeters).

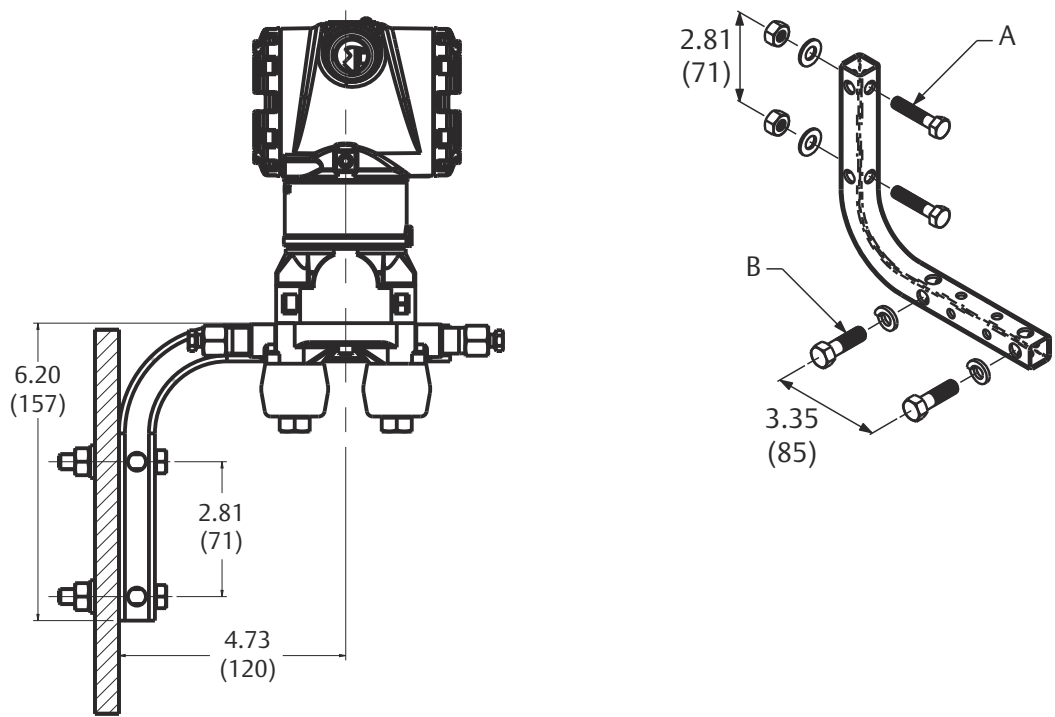
Figure 10: Rosemount 3051C Coplanar Flange with Rosemount 305RC3 3-Valve Coplanar Integral Manifold

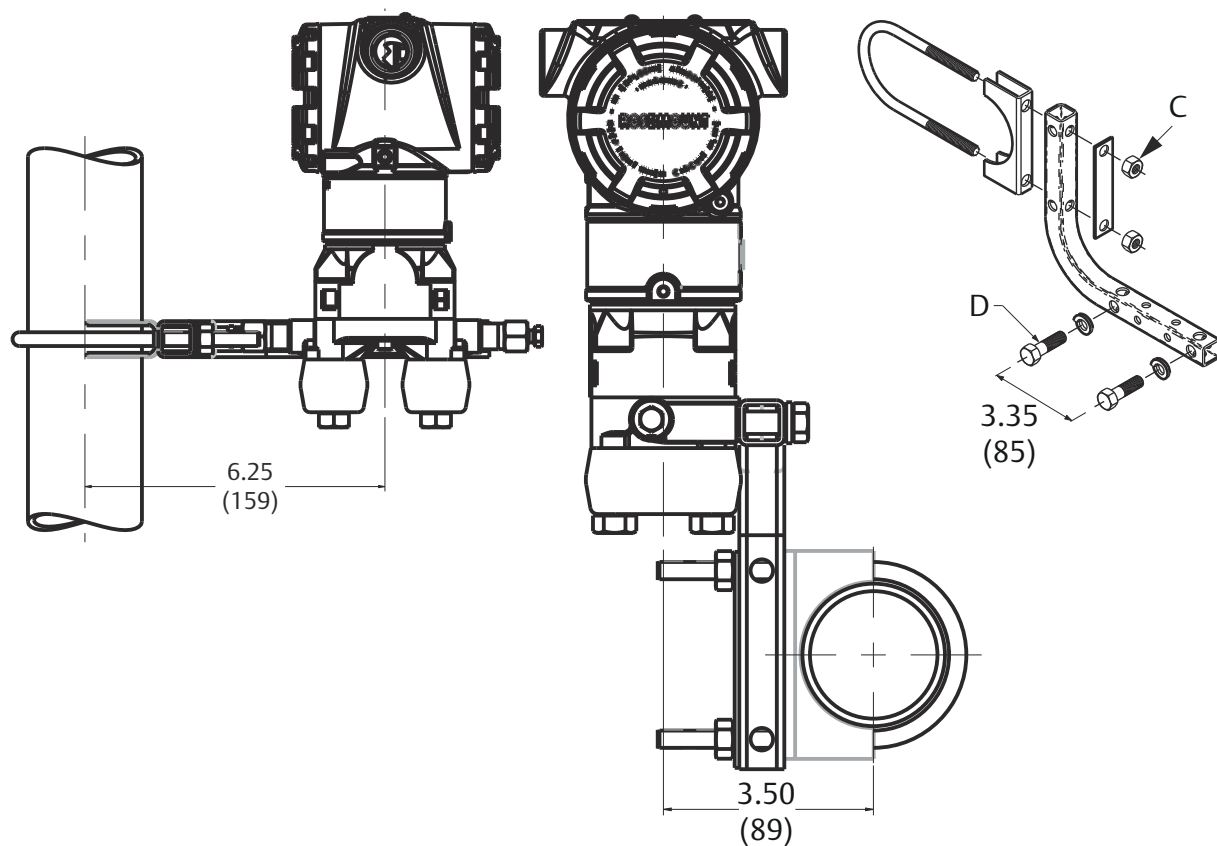


Dimensions are in inches (millimeters).

Figure 11: 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)

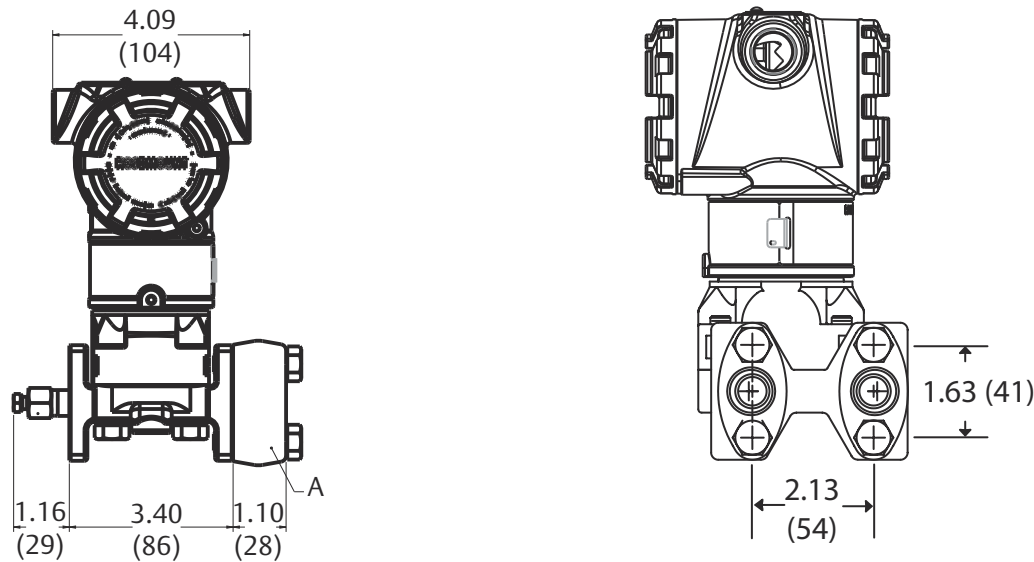
B. 3/8-16 bolts

C. 2-in. U-bolt

D. 3/8-16 bolts

Dimensions are in inches (millimeters).

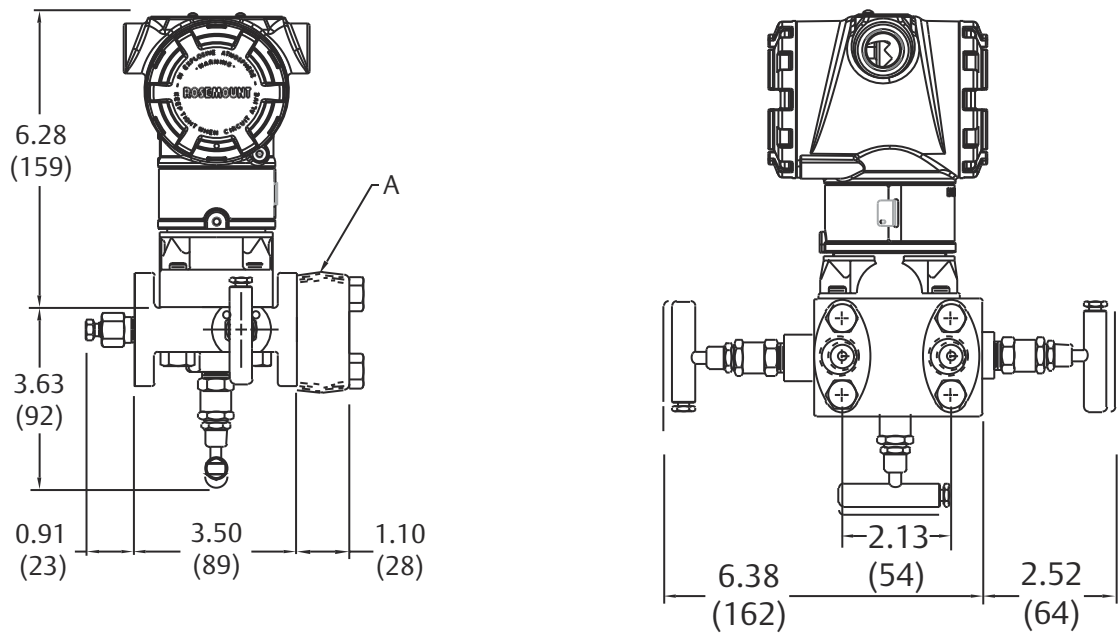
Figure 12: Rosemount 3051C Coplanar with Traditional Flange



A. Flange adapters (optional)

Dimensions are in inches (millimeters).

Figure 13: Rosemount 3051C Coplanar with Rosemount 305RT3 3-Valve Traditional Integral Manifold

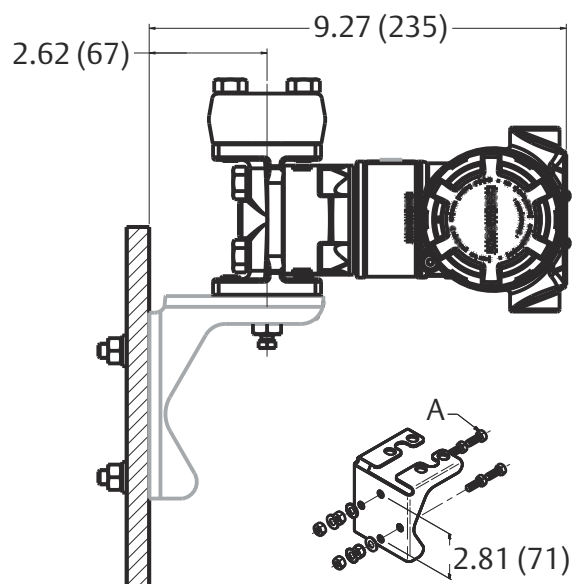


A. 1/2-14 NPT flange adapter (optional)

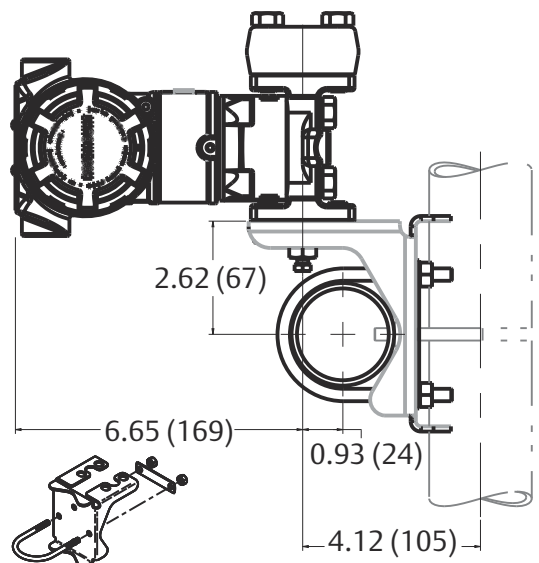
Dimensions are in inches (millimeters).

Figure 14: Traditional Flange Mounting Configurations with Optional Brackets for 2-in. Pipe or Panel Mounting

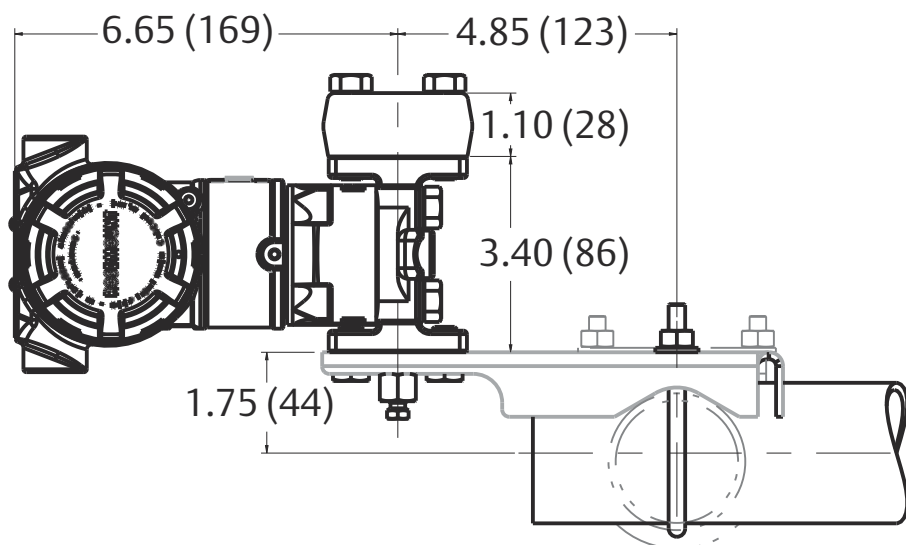
Panel mounting bracket (option B2/B8)



Pipe mounting bracket (option B1/B7/BA)



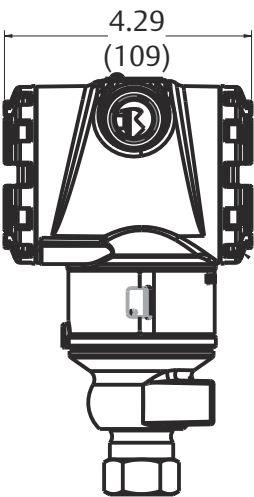
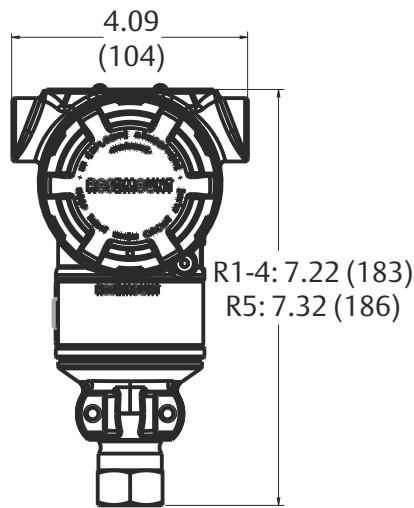
Pipe mounting bracket (option B3/B9/BC)



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

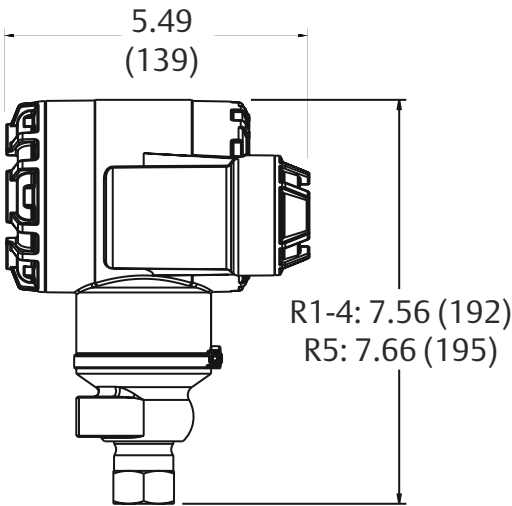
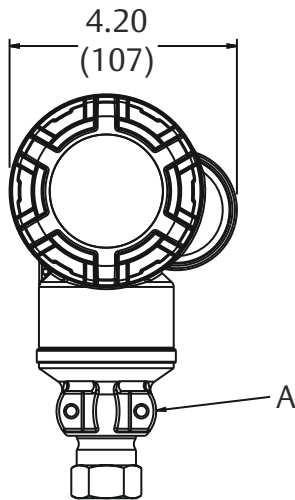
Dimensions are in inches (millimeters).

Figure 15: Rosemount 3051T



Dimensions are in inches (millimeters).

Figure 16: Rosemount 3051T Wireless Housing

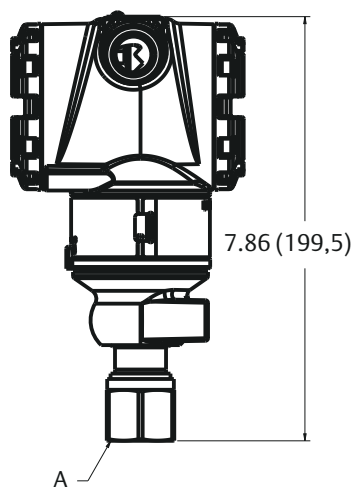


A. U-Bolt bracket

Dimensions are in inches (millimeters).

Figure 17: Rosemount 3051T In-Line Range 6

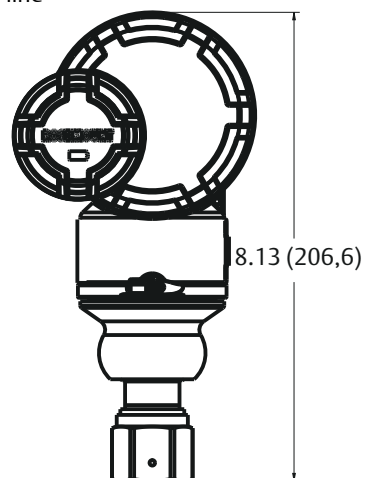
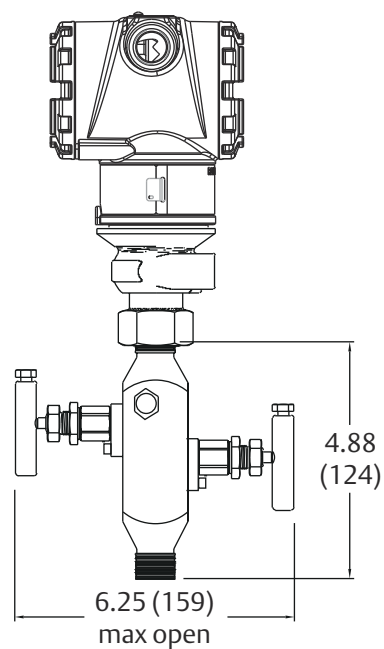
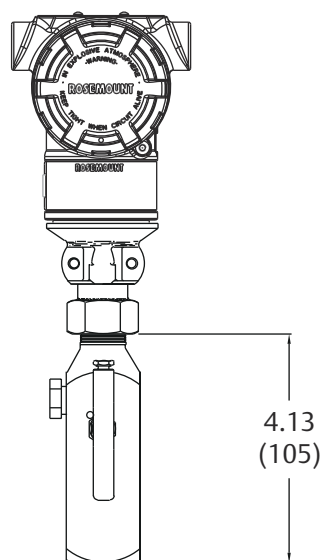
In-line



A. Autoclave type F-250-C

Dimensions are in inches (millimeters).

Wireless in-line

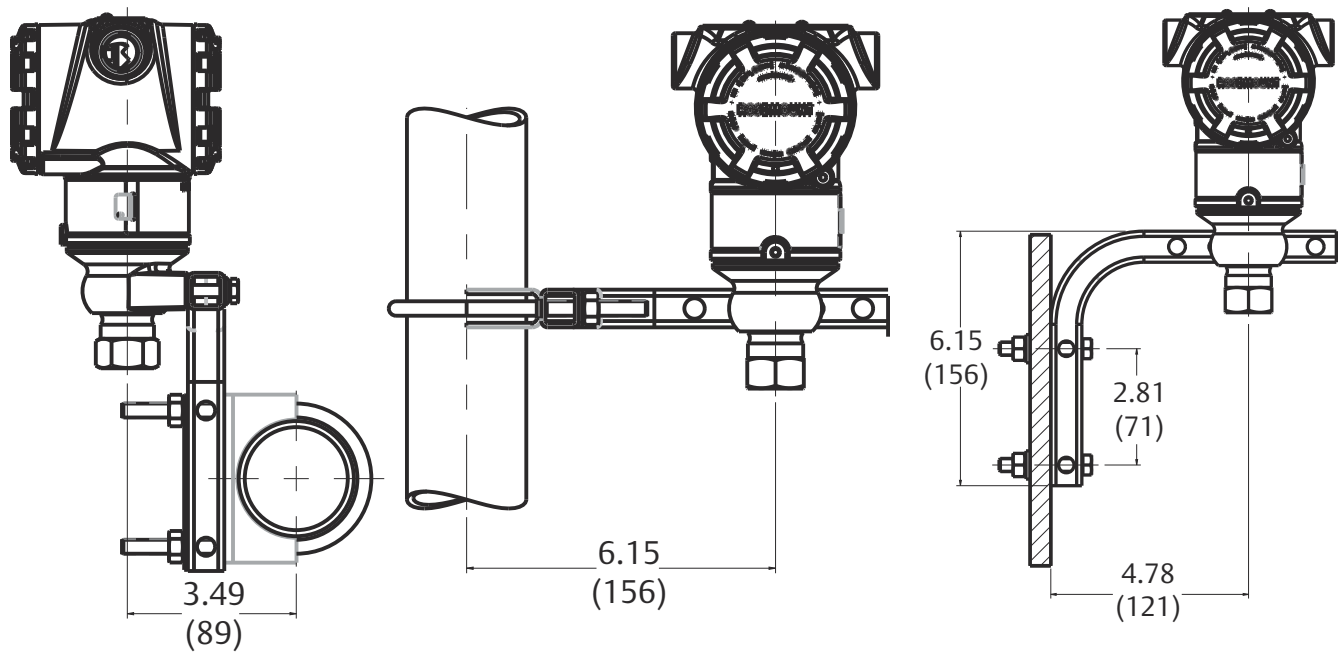
**Figure 18: Rosemount 3051T with Rosemount 306 2-Valve Integral Manifold**

Dimensions are in inches (millimeters).

Figure 19: Rosemount 3051T Typical Mounting Configurations with Optional Mounting Bracket

Pipe mounting

Panel mounting



Dimensions are in inches (millimeters).

Figure 20: 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]).

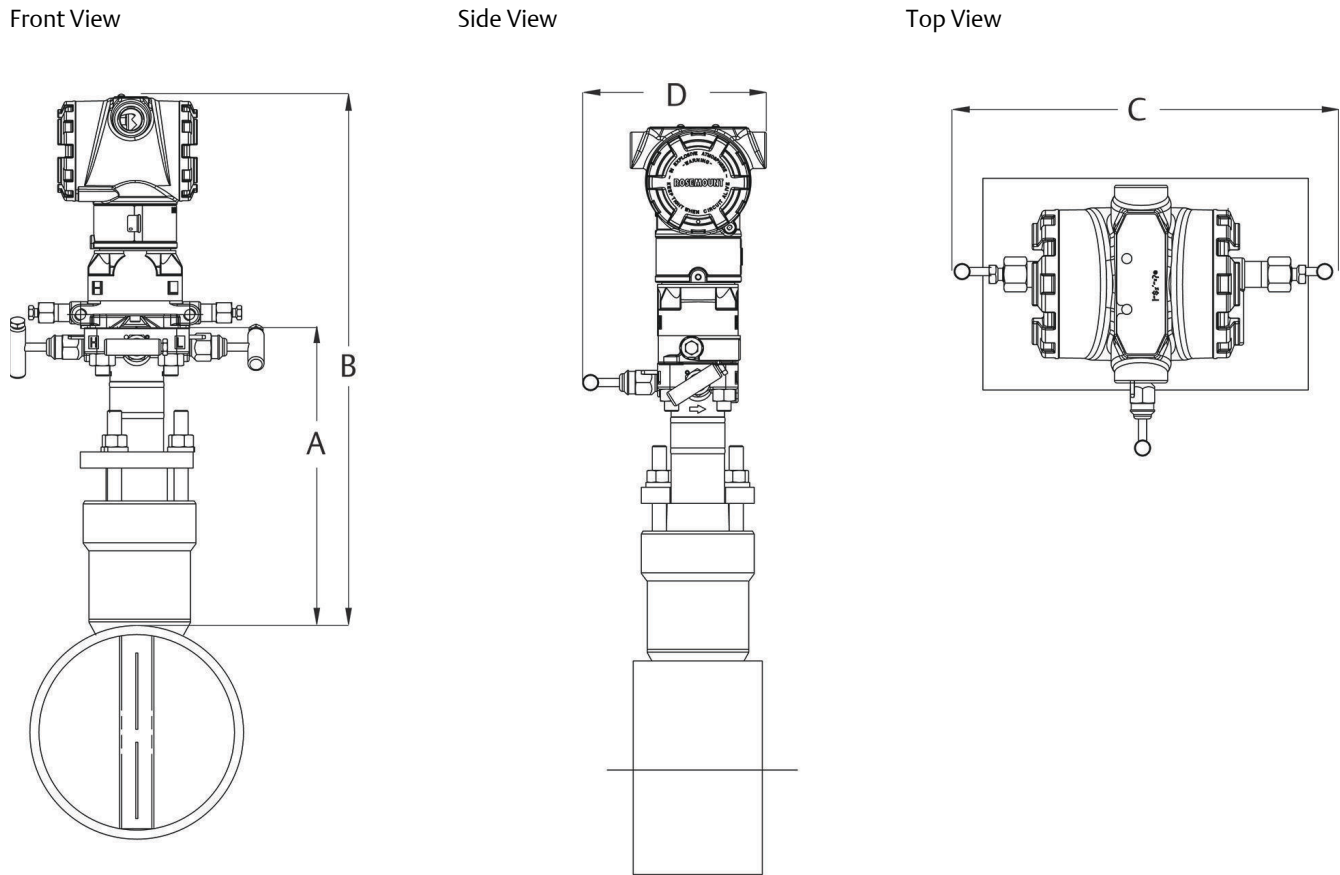
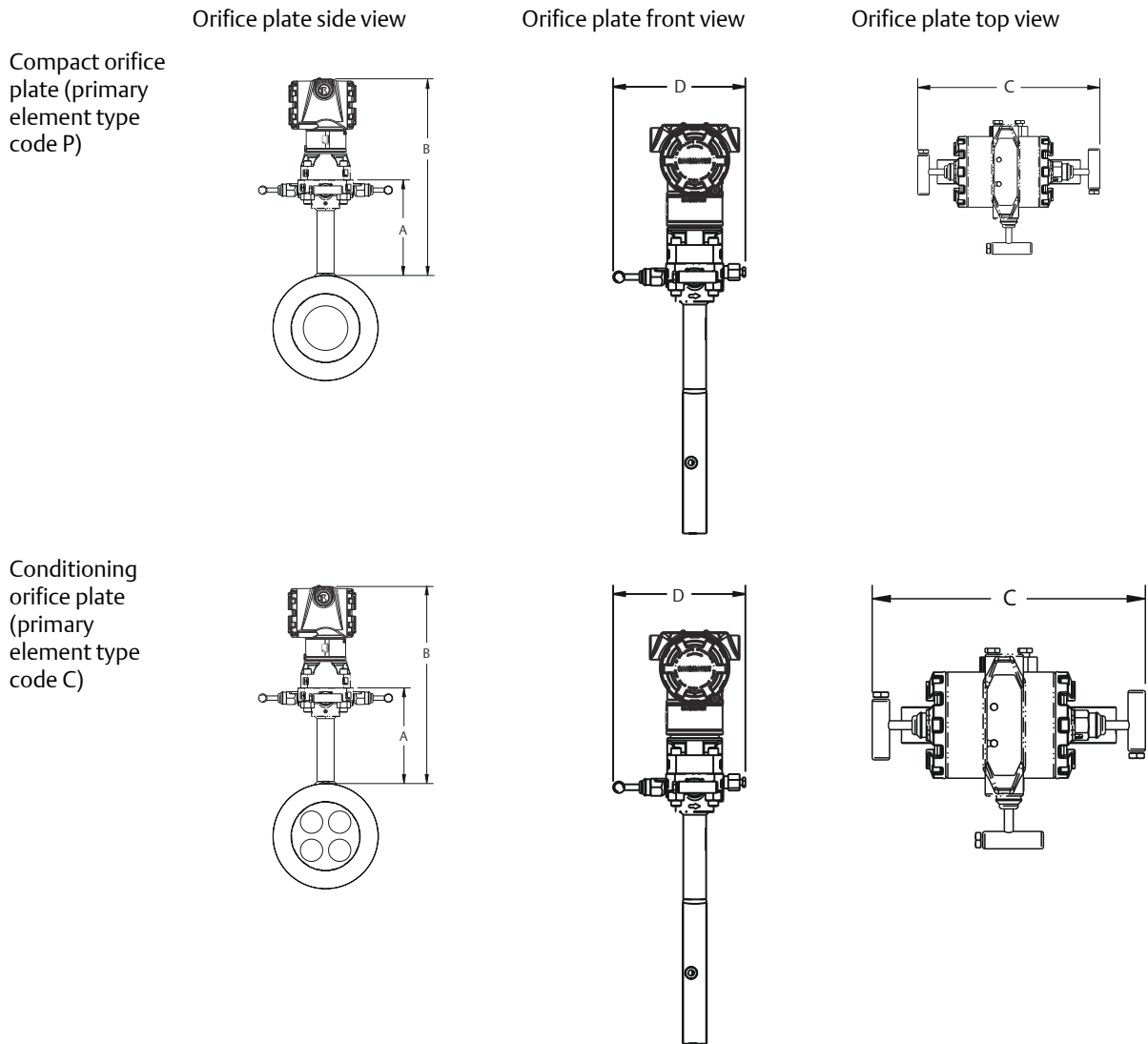


Table 19: Rosemount 3051CFA Pak-Lok Annubar Flow meter Dimensional Data (Maximum Dimensions)

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 21: Rosemount 3051CFC Compact Orifice Flow meter

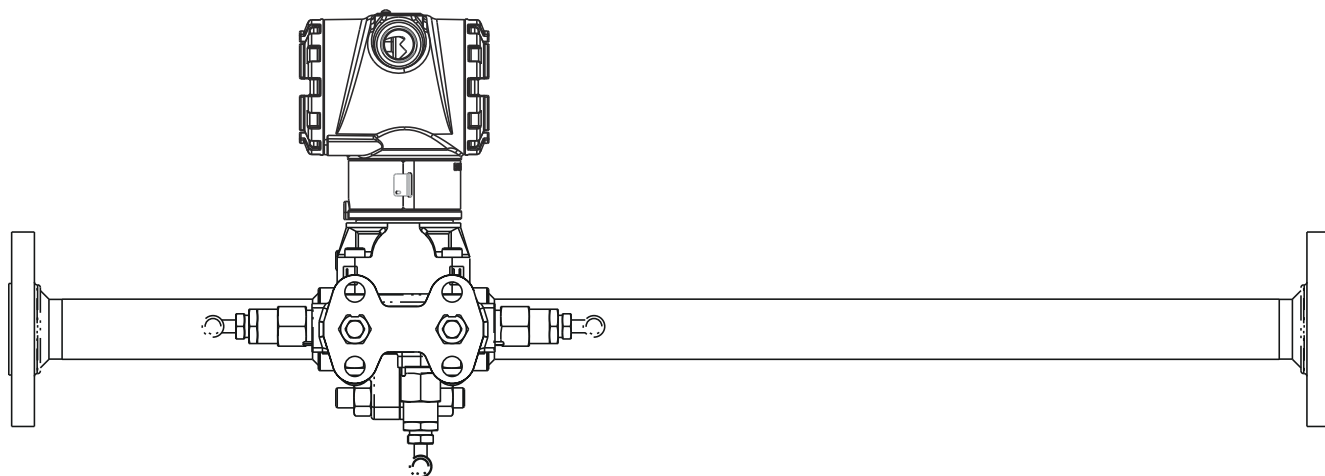


Primary element type	A	B	Transmitter height	C	D
Type P and C	5.62 (143)	Transmitter height + A	6.27 (159)	7.75 (197) - closed 8.25 (210) - open	6.00 (152) - closed 6.25 (159) - open

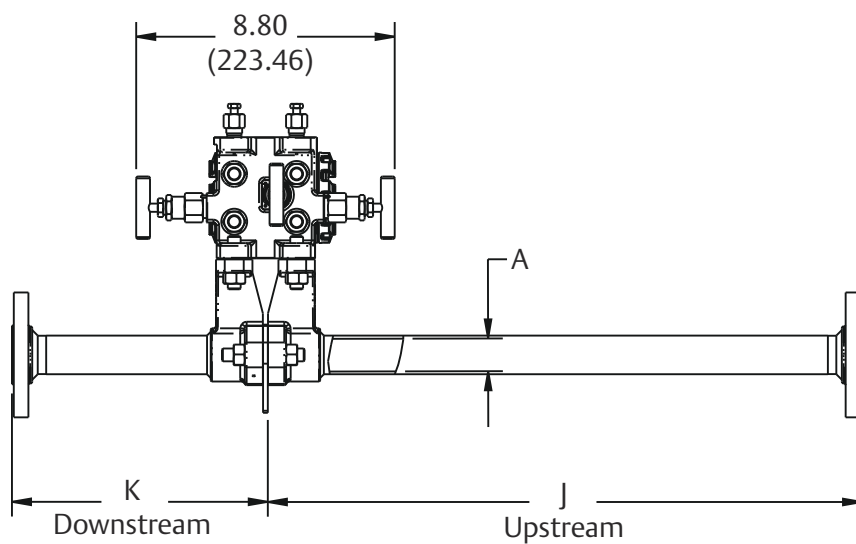
Dimensions are in inches (millimeters).

Figure 22: Rosemount 3051CFP Integral Orifice Flow meter

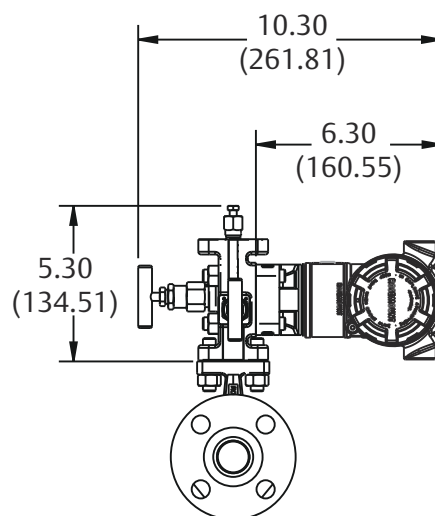
Side view



Bottom view



Front view



A. B.D. (bore diameter)

Dimensions are in inches (millimeters).

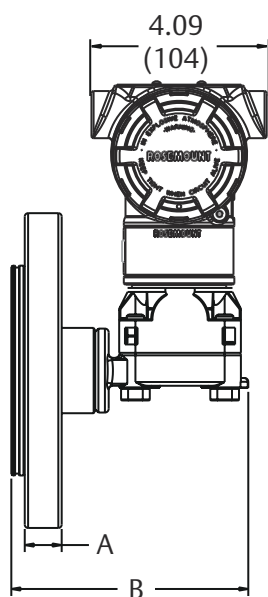
Dimension	Line size		
	½-in. (15 mm)	1-in. (25 mm)	1½-in. (40 mm)
J (Beveled/threaded pipe ends)	12.54 (318.4)	20.24 (514.0)	28.44 (722.4)
J (RF slip-on, RTJ slip-on, RF-DIN slip on)	12.62 (320.4)	20.32 (516.0)	28.52 (724.4)
J (RF Class 150, weld neck)	14.37 (364.9)	22.37 (568.1)	30.82 (782.9)
J (RF 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) ⁽¹⁾	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).			

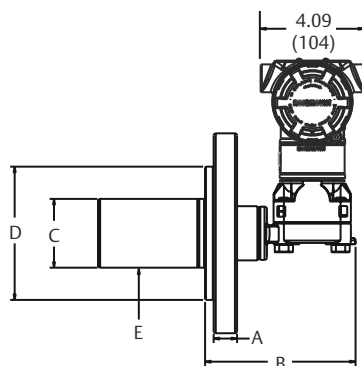
(1) Downstream length shown here includes plate thickness of 0.162-in. (4.11 mm).

Figure 23: Rosemount 3051L Configurations

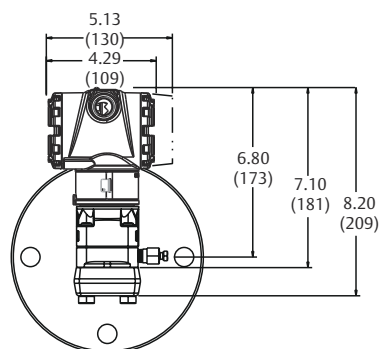
2-in. flange Configuration (flush mount only)



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 20: Rosemount 3051L Dimensional Specifications

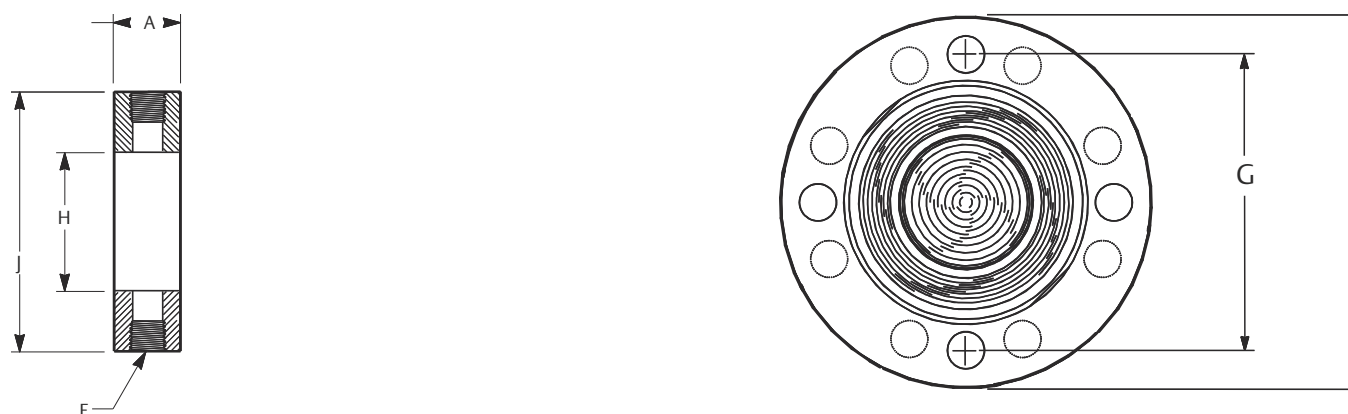
Class ⁽¹⁾	Pipe size	Flange thickness A	B	Extension diameter ⁽¹⁾ C	O.D. gasket surface D
ASME B16.5 (ANSI) 150	2 (51)	0.69 (18)	5.65 (143)	N/A	3.6 (92)
	3 (76)	0.88 (22)	5.65 (143)	2.58 (66)	5.0 (127)
	4 (102)	0.88 (22)	5.65 (143)	3.5 (89)	6.2 (158)
ASME B16.5 (ANSI) 300	2 (51)	0.82 (21)	5.65 (143)	N/A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

Table 20: Rosemount 3051L Dimensional Specifications (continued)

Class ⁽¹⁾	Pipe size	Flange thickness A	B	Extension diameter ⁽¹⁾ 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 24: Optional Flushing Connection Ring (Lower Housing) for Rosemount 3051L

Class ⁽¹⁾	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 ⁽¹⁾	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 ₂ O (Range 0, 1, 2, and 3)
Absolute/Rosemount 3051A/3051TG	psi (all ranges)
4 mA ⁽¹⁾	0 (engineering units above)
20 mA ⁽¹⁾	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 ⁽¹⁾	High
Software tag	(Blank)
Damping	0.4 seconds ⁽²⁾

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

(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 digital display.

Transient protection (option code T1)

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

- 6 kV crest (0.5 μ s–100 kHz)
- 3 kA crest (8 x 20 μ s)
- 6 kV crest (1.2 x 50 μ 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

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