

Rosemount™ 2051 Pressure Transmitter



- Rosemount™ Coplanar™ platform enables integration of primary elements, manifolds, and remote seal solutions
- Best-in-class performance with up to 0.05 percent high accuracy option
- IEC 62591 (*WirelessHART*®) enables cost effective installations
- Local Operator Interface (LOI) offers easy to use configuration capabilities at the transmitter
- Protocols available include 4–20 mA HART®, FOUNDATION™ Fieldbus, PROFIBUS® PA, and HART 1–5 Vdc Low Power
- Selectable HART Revision prepares your plant for the latest HART capabilities while ensuring seamless integration with today's systems
- SIL2/3 safety certification to IEC 61508 is available with the full 4–20 mA HART offering to simplify compliance

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Rosemount™ 2051 Pressure Transmitter product offering



Foundation of reliable measurement

- Differential, gage, and absolute pressure measurement
- Select from an extensive offering of DP flow meters, liquid level, manifolds, and flanges
- Available with variety of protocols and materials

Best-in-class capabilities extended to IEC 62591 (WirelessHART® Protocol)

- 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 40–60 percent
- Quickly deploy new pressure, level, and flow measurements in 70 percent less time

Innovative, integrated DP flow meters

- Fully assembled 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 two percent volumetric flow accuracy at 5:1 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.
- Optimize level measurement with cost efficient Tuned-System™ Assemblies

Instrument manifolds — quality, convenient, and easy

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

Rosemount™ 2051C Coplanar™ Pressure Transmitter



Rosemount 2051C Coplanar Pressure Transmitter

Configuration	Transmitter output code
4–20 mA HART® Protocol	A
Rosemount 2051	
Rosemount 2051 with Selectable HART Protocol ⁽¹⁾	
Lower power	M
Rosemount 2051	
Rosemount 2051 with Selectable HART ⁽¹⁾ Protocol	
FOUNDATION™ Fieldbus Protocol	F
PROFIBUS® PA Protocol	W
Wireless	X

(1) The 4–20 mA with Selectable HART device can be ordered with transmitter output option code A plus any of the following options codes: M4, QT, DZ, CR, CS, CT, HR5, and HR7.

Additional information

Specifications: [Specifications](#) Certifications: [Rosemount™ 2051 Product Certifications](#) Dimensional drawings: [Dimensional drawings](#)

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

Table 1: Rosemount 2051C Coplanar Pressure Transmitters Ordering Information

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

Model	Transmitter type		
2051C	Rosemount Coplanar Pressure Transmitter		
Measurement type			
D	Differential		★
G	Gage		★
Pressure range			
	Rosemount 2051CD	Rosemount 2051CG	
1	–25 to 25 inH ₂ O (–62,2 to 62,2 mbar)	–25 to 25 inH ₂ O (–62,2 to 62,2 mbar)	★
2	–250 to 250 inH ₂ O (–623 to 623 mbar)	–250 to 250 inH ₂ O (–623 to 623 mbar)	★
3	–1000 to 1000 inH ₂ O (–2,5 to 2,5 bar)	–393 to 1000 inH ₂ O (–0,98 to 2,5 bar)	★
4	–300 to 300 psi (–20,7 to 20,7 bar)	–14.2 to 300 psi (–0,98 to 20,7 bar)	★
5	–2000 to 2000 psi (–137,9 to 137,9 bar)	–14.2 to 2000 psi (–0,98 to 137,9 bar)	★
Transmitter output			
A ⁽¹⁾	4–20 mA with digital signal based on HART Protocol		★
F	FOUNDATION™ Fieldbus Protocol		★
W	PROFIBUS PA Protocol		★

Table 1: Rosemount 2051C Coplanar Pressure Transmitters Ordering Information (continued)

X	Wireless			★
M	Low power, 1–5 Vdc with digital signal based on HART Protocol			
	Process flange type	Flange material	Drain/vent	
2	Coplanar	SST	SST	★
3 ⁽²⁾	Coplanar	Cast C-276	Alloy C-276	★
5	Coplanar	Plated CS	SST	★
7 ⁽²⁾	Coplanar	SST	Alloy C-276	★
8 ⁽²⁾	Coplanar	Plated CS	Alloy C-276	★
0	Alternate process connection			★
Isolating diaphragm				
2 ⁽²⁾	316L SST			★
3 ⁽²⁾	Alloy C-276			★
5 ⁽³⁾⁽⁴⁾	Tantalum			
O-ring				
A	Glass-filled PTFE			★
B	Graphite-filled PTFE			★
Sensor fill fluid				
1	Silicone			★
2 ⁽⁴⁾	Inert			★
Housing material			Conduit entry size	
A	Aluminum		½–14 NPT	★
B	Aluminum		M20 x 1.5	★
J	SST		½–14 NPT	★
K ⁽⁵⁾	SST		M20 x 1.5	★
P ⁽⁶⁾	Engineered polymer		No conduit entries	★
D	Aluminum		G½	
M ⁽⁵⁾	SST		G½	
Wireless options (requires wireless output code X and engineered polymer housing code P)				
Wireless transmit rate, operating frequency, and protocol				
WA3	User configurable transmit rate, 2.4 GHz WirelessHART® Protocol			★
Antenna and SmartPower™				
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)			★
Options (include with selected model number)				
Extended product warranty				
WR3	3-year limited warranty			★
WR5	5-year limited warranty			★

Table 1: Rosemount 2051C Coplanar Pressure Transmitters Ordering Information (*continued*)

HART revision configuration ⁽⁷⁾		
HR5 ⁽⁸⁾	Configured for HART Revision 5	★
HR7 ⁽⁹⁾	Configured for HART Revision 7	★
Plantweb control functionality		
A01	FOUNDATION Fieldbus advanced control function block suite	★
Alternate flange ⁽¹⁰⁾		
H2	Traditional flange, 316 SST, SST drain/vent	★
H3 ⁽²⁾	Traditional flange, cast C-276, alloy C-276 drain/vent	★
H7 ⁽²⁾	Traditional flange, 316 SST, alloy C-276 drain/vent	★
HJ	DIN compliant traditional flange, SST, 7/16-in. adapter/manifold bolting	★
FA	Level flange, SST, 2-in., ANSI Class 150, vertical mount	★
FB	Level flange, SST, 2-in., ANSI Class 300, vertical mount	★
FC	Level flange, SST, 3-in., ANSI Class 150, vertical mount	★
FD	Level flange, SST, 3-in., ANSI Class 300, vertical mount	★
FP	DIN level flange, SST, DN 50, PN 40, vertical mount	★
FQ	DIN level flange, SST, DN 80, PN 40, vertical mount	★
Alternate flange ⁽⁹⁾		
HK ⁽¹¹⁾	DIN compliant traditional flange, SST, 10 mm adapter/manifold bolting	
HL	DIN compliant traditional flange, SST, 12 mm adapter/manifold bolting	
Manifold assembly ⁽¹⁰⁾⁽¹²⁾		
S5	Assemble to Rosemount 305 Integral Manifold	★
S6	Assemble to Rosemount 304 Manifold or connection system	★
Integral mount primary element ⁽¹⁰⁾⁽¹¹⁾		
S4 ⁽¹³⁾	Assemble to Rosemount 405A, 485, or 585 Annubar™ Primary Element or 1195 Integral Orifice Primary Element	★
S3	Assemble to Rosemount 405C or 405P Compact Orifice Plate	★
Seal assemblies ⁽¹¹⁾		
S1 ⁽¹⁴⁾	Assemble to one Rosemount 1199 Diaphragm Seal	★
S2 ⁽¹⁵⁾	Assemble to two Rosemount 1199 Diaphragm Seals	★
Mounting brackets		
B1	Traditional flange bracket for 2-in. pipe mounting, CS bolts	★
B2	Traditional flange bracket for panel mounting, CS bolts	★
B3	Traditional flange flat bracket for 2-in. pipe mounting, CS bolts	★
B4	Coplanar flange bracket for 2-in. pipe or panel mounting, all SST	★
B7	B1 bracket with Series 300 SST bolts	★
B8	B2 bracket with Series 300 SST bolts	★
B9	B3 bracket with Series 300 SST bolts	★

Table 1: Rosemount 2051C Coplanar Pressure Transmitters Ordering Information (continued)

BA	SST B1 bracket with Series 300 SST bolts	★
BC	SST B3 bracket with Series 300 SST bolts	★
Product certifications		
E1 ⁽⁵⁾	ATEX Flameproof	★
E2 ⁽⁵⁾	INMETRO Flameproof	★
E3 ⁽⁵⁾	China Flameproof	★
E4 ⁽⁵⁾	TIIS Flameproof	★
E5	USA Explosion-proof, Dust Ignition-proof	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
E7 ⁽⁵⁾	IECEX Flameproof	★
EW	India (CCOE) Flameproof Approval	★
I1 ⁽⁵⁾	ATEX Intrinsic Safety	★
I2 ⁽⁵⁾	INMETRO Intrinsically Safe	★
I3 ⁽⁵⁾	China Intrinsic Safety	★
I4 ⁽⁵⁾⁽⁶⁾	TIIS Intrinsic Safety	★
I5	USA Intrinsically Safe, Division 2	★
I6	Canada intrinsically Safe	★
I7 ⁽⁵⁾	IECEX Intrinsic Safety	★
IA ⁽¹⁶⁾	ATEX FISCO Intrinsic Safety	★
IE ⁽¹⁵⁾	USA FISCO Intrinsically Safe	★
IF ⁽¹⁵⁾	Canada FISCO Intrinsically Safe	★
IG ⁽¹⁵⁾	IECEX FISCO Intrinsically Safe	★
IW ⁽⁵⁾	India (CCOE) Intrinsically Safe	★
K1 ⁽⁵⁾	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K2	INMETRO Flameproof and Intrinsic Safety	★
K5	USA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K7 ⁽⁵⁾	IECEX Flameproof, Intrinsic Safety, Type n and Dust	★
KA ⁽⁵⁾	ATEX and Canada Flameproof, Intrinsically Safe, Division 2	★
KB	USA and Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC ⁽⁵⁾	USA and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD ⁽⁵⁾	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe	★
N1 ⁽⁵⁾	ATEX Type n	★
N7 ⁽⁵⁾	IECEX Type n	★
ND ⁽⁵⁾	ATEX Dust	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★

Table 1: Rosemount 2051C Coplanar Pressure Transmitters Ordering Information (continued)

IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof and Intrinsic Safety	★
Drinking water approval⁽¹⁷⁾		
DW	NSF drinking water approval	★
Shipboard approvals⁽⁴⁾		
SBS	American Bureau of Shipping (ABS) type approval	★
SBV	Bureau Veritas (BV) type approval	★
SDN	Det Norske Veritas (DNV) type approval	★
SLL	Lloyds Register (LR) type approval	★
Bolting materials		
L4	Austenitic 316 SST bolts	★
L5	ASTM A 193, Grade B7M bolts	★
L6	Alloy K-500 bolts	★
L8	ASTM A 193 Class 2, Grade B8M bolts	★
Display and interface options		
M4 ⁽¹⁸⁾	LCD display with LOI	★
M5	LCD display	★
Hardware adjustments		
D4 ⁽¹⁸⁾	Zero and span configuration buttons	★
DZ ⁽¹⁹⁾	Digital zero trim	★
Flange adapters⁽²⁰⁾		
DF	½–14 NPT flange adapters	★
Conduit plug ⁽⁴⁾(21)		
DO	316 SST conduit plug	★
RC¼/RC½/process connection⁽²²⁾		
D9	RC¼ flange with RC½ flange adapter — SST	
Ground screw⁽⁴⁾(23)		
V5	External ground screw assembly	★
Performance⁽²⁴⁾		
P8	High performance option	★
Transient protection⁽⁴⁾(25)		
T1	Transient protection terminal block	★
Software configuration⁽¹⁹⁾		
C1	Custom Software Configuration (Completed Rosemount 2051 Configuration Data Sheet or Rosemount 3051 Configuration Data Sheet for Wireless required with order)	★

Table 1: Rosemount 2051C Coplanar Pressure Transmitters Ordering Information (continued)

Alarm limit⁽¹⁸⁾		
C4	NAMUR alarm and saturation levels, high alarm	★
CN	NAMUR alarm and saturation levels, low alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
Pressure testing		
P1	Hydrostatic testing with certificate	
Cleaning process area		
P2	Cleaning for special service	
P3	Cleaning for < 1 PPM chlorine/flourine	
Maximum static line pressure		
P9	4500 psig (310 bar) static pressure limit (Rosemount 2051CD ranges 2–5 only)	★
Calibration certification		
Q4	Calibration certificate	★
QG	Calibration certificate and GOST verification certificate	★
QP	Calibration certification and tamper evident seal	★
Material traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★
Quality certification for safety⁽²⁶⁾		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
Surface finish		
Q16	Surface finish certification for sanitary remote seals	★
Toolkit total system performance reports		
QZ	Remote seal system performance calculation report	★
Conduit electrical connection⁽⁴⁾		
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
NACE Certificate⁽²⁷⁾		
Q15	Certificate of compliance to NACE® MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103 for wetted materials	★
Typical model number: 2051CD 2 A 2 2 A 1 A B4 M5		

- (1) HART Revision 5 is the default HART output. The Rosemount 2051 with Selectable HART can be factory or field configured to HART Revision 7. To order HART Revision 7 factory configured, add option code HR7.
- (2) Materials of construction comply with recommendations per NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

- (3) Available in ranges 2–5 only.
- (4) Not available with output code X.
- (5) Not available with low power (output code M).
- (6) Only available with output code X.
- (7) Only Available with 4–20 mA HART (output code A).
- (8) Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
- (9) Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.
- (10) Requires 0 code in materials of construction for alternate process connection.
- (11) Not valid with optional code P9 for 4500 psi static pressure.
- (12) “Assemble-to” items are specified separately and require a completed model number.
- (13) Process flange limited to coplanar (codes 2, 3, 5, 7, and 8) or traditional (H2, H3, and H7).
- (14) Not valid with optional code D9 for RC½ adapters.
- (15) Not valid with optional codes DF or D9 for adapters.
- (16) Only valid with FOUNDATION Fieldbus (output code F).
- (17) Not available with alloy C-276 isolator (3 code), tantalum isolator (5 code), all cast C-276 flanges, all plated CS flanges, all DIN flanges, all Level flanges, assemble-to manifolds (S5 and S6 codes), assemble-to seals (S1 and S2 codes), assemble-to primary elements (S3 and S4 codes), surface finish certification (Q16 code), and remote seal system report (QZ code).
- (18) Not available with FOUNDATION Fieldbus (output code F) or wireless (output code X).
- (19) Only available with 4–20 mA HART (output codes A) and wireless (output code X).
- (20) Not valid with alternate process connection options S3, S4, S5, or S6.
- (21) Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard CS conduit plug.
- (22) Not available with alternate process connection: DIN flanges and level flanges.
- (23) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (24) Available with 4–20 mA HART (output code A), wireless (output code X), FOUNDATION Fieldbus (output code F), Rosemount 2051C Ranges 2–5 or Rosemount 2051T Ranges 1–4, SST and, alloy C-276 diaphragms and silicone fill fluid. High performance option includes 0.05 percent reference accuracy, and five year stability. See [Performance specifications](#) for details.
- (25) The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA and IE.
- (26) Only available with 4–20 mA HART (output code A).
- (27) NACE-Compliant wetted materials are identified by [Footnote 2](#).

Rosemount 2051T In-line Pressure Transmitter



Rosemount 2051T In-line Wireless Pressure Transmitter

Configuration	Transmitter output code
4–20 mA HART® Protocol	A
Rosemount™ 2051	
Rosemount 2051 with Selectable HART Protocol ⁽¹⁾	
Lower power	M
Rosemount 2051	
Rosemount 2051 with Selectable HART Protocol ⁽¹⁾	
FOUNDATION™ Fieldbus Protocol	F
PROFIBUS® PA Protocol	W
Wireless	X

- (1) The 4–20 mA with Selectable HART device can be ordered with transmitter output option code A plus any of the following options codes: M4, QT, DZ, CR, CS, CT, HR5, and HR7.

Additional information

Specifications: [Specifications](#) Certifications: [Rosemount™ 2051 Product Certifications](#) Dimensional drawings: [Dimensional drawings](#)

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

Table 2: Rosemount 2051T In-line Pressure Transmitter Ordering Information

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

Model	Transmitter type		
2051T	In-line pressure transmitter		★
Pressure type			
G	Gage		★
A ⁽¹⁾	Absolute		★
Pressure range			
	Rosemount 2051TG	Rosemount 2051TA	★
1	–14.7 to 30 psi (–1,0 to 2,1 bar)	0 to 30 psi (0 to 2,1 bar)	★
2	–14.7 to 150 psi (–1,0 to 10,3 bar)	0 to 150 psi (0 to 10,3 bar)	★
3	–14.7 to 800 psi (–1,0 to 55 bar)	0 to 800 psi (0 to 55 bar)	★
4	–14.7 to 4000 psi (–1,0 to 276 bar)	0 to 4000 psi (0 to 276 bar)	★
5	–14.7 to 10000 psi (–1,0 to 689 bar)	0 to 10000 psi (0 to 689 bar)	★
Transmitter output			
A ⁽²⁾	4–20 mA with digital signal based on HART Protocol		★
F	FOUNDATION Fieldbus Protocol		★
W	PROFIBUS PA Protocol		★
X	Wireless		★
M	Low-power, 1–5 Vdc with digital signal based on HART Protocol		
Process connection style			
2B	½–14 NPT female		★
2C ⁽³⁾	G½ A DIN 16288 male		★
2F ⁽⁴⁾	Coned and threaded, compatible with autoclave type F-250-C (range 5 only)		
Isolating diaphragm ⁽⁵⁾		Process connection wetted parts material	
2	316L SST	316L SST	★
3	Alloy C-276	Alloy C-276	★
Sensor fill fluid			
1	Silicone		★
2 ⁽⁴⁾	Inert		★
Housing material		Conduit entry size	
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 x 1.5	★
J	SST	½–14 NPT	★
K ⁽⁶⁾	SST	M20 x 1.5	★
P ⁽⁷⁾	Engineered polymer	No conduit entries	★
D	Aluminum	G½	

Table 2: Rosemount 2051T In-line Pressure Transmitter Ordering Information (*continued*)

M ⁽⁶⁾	SST	G½	
Wireless options (requires wireless output code X and engineered polymer housing code P)			
Wireless transmit rate, operating frequency and protocol			
WA3	User configurable transmit rate, 2.4 GHz WirelessHART® Protocol		★
Antenna and SmartPower™			
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)		★
Options (include with selected model number)			
Extended product warranty			
WR3	3-year limited warranty		★
WR5	5-year limited warranty		★
HART Revision Configuration ⁽¹⁸⁾			
HR5 ⁽⁸⁾	Configured for HART Revision 5		★
HR7 ⁽⁹⁾	Configured for HART Revision 7		★
Plantweb™ Control functionality			
A01	FOUNDATION Fieldbus advanced control function block suite		★
Manifold assemblies ⁽¹⁰⁾			
S5	Assemble to Rosemount 306 Integral Manifold		★
Seal assemblies ⁽¹⁰⁾			
S1	Assemble to one Rosemount 1199 Diaphragm Seal		★
Mounting bracket			
B4	Bracket for 2-in. pipe or panel mounting, all SST		★
Product certifications			
E1 ⁽⁶⁾	ATEX Flameproof		★
E2 ⁽⁶⁾	INMETRO Flameproof		★
E3 ⁽⁶⁾	China Flameproof		★
E4 ⁽⁶⁾	TIIS Flameproof		★
E5	USA Explosion-proof, Dust Ignition-proof		★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2		★
E7 ⁽⁶⁾	IECEX Flameproof		★
EW ⁽⁶⁾	India (CCOE) Flameproof Approval		★
I1 ⁽⁶⁾	ATEX Intrinsic Safety		★
I2 ⁽⁶⁾	INMETRO Intrinsically Safe		★
I3 ⁽⁶⁾	China Intrinsic Safety		★
I4 ⁽⁶⁾⁽⁷⁾	TIIS Intrinsic Safety		★
I5	USA Intrinsically Safe, Division 2		★
I6	Canada Intrinsically Safe		★

Table 2: Rosemount 2051T In-line Pressure Transmitter Ordering Information (continued)

I7 ⁽⁶⁾	IECEX Intrinsic Safety	★
IA ⁽¹³⁾	ATEX FISCO Intrinsic Safety	★
IE ⁽¹¹⁾	USA FISCO Intrinsically Safe	★
IF ⁽¹¹⁾	Canada FISCO Intrinsically Safe	★
IG ⁽¹¹⁾	IECEX FISCO Intrinsically Safe	★
IW ⁽⁶⁾	India (CCOE) Intrinsic Safety Approval	★
K1 ⁽⁶⁾	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	USA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K7 ⁽⁶⁾	IECEX Flameproof, Intrinsic Safety, Type n, Dust	★
KA ⁽⁶⁾	ATEX and Canada Flameproof, Intrinsically Safe, Division 2	★
KB	USA and Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC ⁽⁶⁾	USA and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD ⁽⁶⁾	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe	★
N1 ⁽⁶⁾	ATEX Type n	★
N7 ⁽⁶⁾	IECEX Type n	★
ND ⁽⁶⁾	ATEX Dust	★
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	★
Drinking water approval⁽¹²⁾		
DW	NSF drinking water approval	★
Shipboard approvals⁽⁴⁾		
SBS	American Bureau of Shipping (ABS) type approval	★
SBV	Bureau Veritas (BV) type approval	★
SDN	Det Norske Veritas (DNV) type approval	★
SLL	Lloyds Register (LR) type approval	★
Display and interface options		
M4 ⁽¹³⁾	LCD display with LOI	★
M5	LCD display	★
Hardware adjustments		
D4 ⁽¹⁴⁾	Zero and span configuration buttons	★
DZ ⁽¹⁵⁾	Digital zero trim	★
Wireless SST sensor module⁽⁷⁾		
WSM	Wireless SST sensor module	★

Table 2: Rosemount 2051T In-line Pressure Transmitter Ordering Information (*continued*)

Conduit plug⁽⁴⁾⁽¹⁶⁾		
DO	316 SST conduit plug	★
Ground screw⁽⁴⁾⁽¹⁷⁾		
V5	External ground screw assembly	★
Performance⁽¹⁸⁾		
P8	High performance option	★
Terminal blocks⁽⁴⁾⁽¹⁹⁾		
T1	Transient protection terminal block	★
Software configuration⁽¹⁵⁾		
C1	Custom Software Configuration (completed Rosemount 2051 Configuration Data Sheet or Rosemount 3051 Configuration Data Sheet for wireless required with order)	★
Alarm limits⁽¹⁴⁾		
C4	Analog output levels compliant with NAMUR recommendation NE 43, alarm high	★
CN ⁽²⁰⁾	Analog output levels compliant with NAMUR recommendation NE 43, alarm low	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
Pressure testing		
P1	Hydrostatic testing with certificate	
Cleaning process area⁽²¹⁾		
P2	Cleaning for special service	
P3	Cleaning for <1 PPM chlorine/fluorine	
Calibration certification		
Q4	Calibration certificate	★
QG	Calibration certificate and GOST verification certificate	★
QP	Calibration certificate and tamper evident seal	★
Material traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★
Quality certification for safety⁽²⁰⁾		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
Surface finish		
Q16	Surface finish certification for sanitary remote seals	★
Toolkit total system performance reports		
QZ	Remote seal system performance calculation report	★

Table 2: Rosemount 2051T In-line Pressure Transmitter Ordering Information (continued)

Conduit electrical connector⁽⁴⁾		
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
NACE Certificate⁽²²⁾		
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103 for wetted materials	★
Typical model number: 2051T G 3 A 2B 2 1 A B4 M5		

- (1) Wireless (output code X) only available in absolute measurement type in range 1–5 with ½–14 NPT process connection (code 2B), and housing (code P).
- (2) HART Revision 5 is the default HART output. The Rosemount 2051 with Selectable HART can be factory or field configured to HART Revision 7. To order HART Revision 7 factory configured, add option code HR7.
- (3) Wireless (output code X) only available in G½ A DIN 16288 Male process connection (code 2C) with range 1–4, 316 SST isolating diaphragm (code 2), silicone fill fluid (code 1), and housing (code P).
- (4) Not available with output code X.
- (5) 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. Order with Q15 or Q25 to receive a NACE certificate.
- (6) Not available with low power (output code M).
- (7) Only available with output code X.
- (8) Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
- (9) Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.
- (10) "Assemble-to" items are specified separately and require a completed model number.
- (11) Only valid with FOUNDATION Fieldbus (output code F).
- (12) Not available with coned and threaded connection (2F code), assemble-to manifold (S5 code), assemble-to seal (S1 code), surface finish certification (Q16 code), remote seal system report (QZ code).
- (13) Not available with FOUNDATION Fieldbus (output code F) or wireless (output code X).
- (14) Only Available with HART (output codes A and M).
- (15) Only available with 4–20 mA HART (output code A) and wireless output (code X).
- (16) Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard carbon steel conduit plug.
- (17) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (18) Available with 4–20 mA HART (output code A), wireless (output code X), FOUNDATION Fieldbus (output code F), Rosemount 2051C Ranges 2–5 or Rosemount 2051T Ranges 1–4, SST and Alloy C 276 diaphragms and silicone fill fluid. High performance option includes 0.05 percent reference accuracy, and five year stability. See [Performance specifications](#) for details.
- (19) The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA and IE.
- (20) Only available with 4–20 mA HART (output code A).
- (21) Not valid with alternate process connection S5.
- (22) NACE Compliant wetted materials are identified by [Footnote 5](#).

Rosemount 2051G In-line Pressure Transmitter



Configuration

4–20 mA HART® Protocol

Transmitter output code

A

Rosemount™ 2051G In-line Pressure Transmitter

Additional information

Specifications: [Specifications](#) Certifications: [Rosemount™ 2051 Product Certifications](#) Dimensional drawings: [Dimensional drawings](#)

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

Table 3: Rosemount 2051G In-Line Pressure Transmitter Ordering Information

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

Model	Transmitter type		
2051G	In-line pressure transmitter		
Pressure type			
P	Gage		★
A	Absolute		★
	Rosemount 2051GP	Rosemount 2051GA	★
1	–14.7 to 30 psi (–1.0 to 2.1 bar)	0 to 30 psi (0 to 2.1 bar)	★
2	–14.7 to 150 psi (–1.0 to 10.3 bar)	0 to 150 psi (0 to 10.3 bar)	★
3	–14.7 to 800 psi (–1.0 to 55 bar)	0 to 800 psi (0 to 55 bar)	★
4	–14.7 to 4000 psi (–1.0 to 276 bar)	0 to 4000 psi (0 to 276 bar)	★
Transmitter output			
A	4–20 mA with digital signal based on HART Protocol		★
Process connection style			
2B	½–14 NPT female		★
2C	G½ DIN 16288 male		★
Isolating diaphragm ⁽¹⁾		Process connection wetted parts material	
2	316L SST	316L SST	★
3	Alloy C-276	Alloy C-276	★

Table 3: Rosemount 2051G In-Line Pressure Transmitter Ordering Information (continued)

Sensor fill fluid			
1	Silicone		★
2	Inert		★
Housing material		Conduit entry size	
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 x 1.5	★
D	Aluminum	G½	★
Options (include with selected model numbers)			
Extended product warranty			
WR3	3-year warranty		★
WR5	5-year warranty		★
Integral manifold assembly ⁽²⁾			
S5	Assemble to Rosemount 306 Integral Manifold		★
Seal assemblies ⁽²⁾			
S1	Assemble to one Rosemount 1199 Diaphragm Seal		★
Mounting bracket ⁽³⁾			
B4	Bracket for 2-in. pipe or panel mounting, all SST		★
BE	316 SST B4 bracket with 316 SST bolts		★
Product certifications ⁽⁴⁾			
E1	ATEX Flameproof		
E2	INMETRO Flameproof		
E3	China Flameproof		
E5	USA Explosion-proof, Dust Ignition-proof		
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2		
E7	IECEX Flameproof		
EM	Technical Regulations Customs Union (EAC) Flameproof		
EP	Republic of Korea Flameproof		
EW	India (CCOE) Flameproof		
I1	ATEX Intrinsic Safety		
I2	INMETRO Intrinsic Safety		
I3	China Intrinsic Safety		
I5	USA Intrinsic Safety, Nonincendive		
I6	Canada Intrinsic Safety		
I7	IECEX Intrinsic Safety		
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety		
IP	Republic of Korea Intrinsic Safety		

Table 3: Rosemount 2051G In-Line Pressure Transmitter Ordering Information (continued)

IW	India (CCOE) Intrinsic Safety	
K1	ATEX Flame-proof, Intrinsic Safety, Type n, Dust (combination of E1, I1, and N1)	
K2	INMETRO Flameproof, Intrinsic Safety	
K5	USA Explosion-proof, Dust Ignition-proof, Intrinsic Safety, and Nonincendive	
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsic Safety, and Division 2	
K7	IECEX Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combo of I7, E7, N7, and NK)	
KA	Canada and ATEX Explosion proof, Dust Ignition-proof, Intrinsic Safety, division (combo of E1, I1, and K6)	
KB	USA and Canada Explosion-proof, Dust Ignition-proof, Intrinsic Safety, and Division 2 (combo of K5 and K6)	
KD	USA, Canada and ATEX Explosion proof, Intrinsically Safety (combination of K5, K6 I1, and E1)	
KM	Technical Regulations Customs Union (EAC) Flame-proof, Intrinsic Safety	
KP	Republic of Korea Flame-proof, Intrinsic Safety	
N1	ATEX Type n	
N3	China Type n	
N7	IECEX Type n	
ND	ATEX Dust	
NK	IECEX Dust	
Drinking water approval⁽⁵⁾		
DW	NSF drinking water approval	★
Pressure testing		
P1	Hydrostatic testing with certificate	★
Cleaning process area⁽⁶⁾		
P2	Cleaning for special service	★
P3	Cleaning for < 1PPM chlorine/flourine	★
Calibration certification		
Q4	Calibration certificate	★
QG	Calibration certificate and GOST verification certificate	★
QP	Calibration certificate and tamper evident seal	★
Material traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★
Quality certification for safety		
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
QS	Prior-use certificate of FMEDA data	★
Configuration buttons		
D4	Analog zero and span	★
DZ	Digital zero trim	★

Table 3: Rosemount 2051G In-Line Pressure Transmitter Ordering Information (continued)

Conduit plug⁽⁷⁾		
DO	316 SST conduit plug	★
Ground screw⁽⁸⁾		
V5	External ground screw assembly	★
Performance⁽⁹⁾		
P8	High performance option	★
Display and interface options⁽¹⁰⁾		
M4	LCD display and LOI	★
M5	LCD display	★
Transient terminal block		
T1	Transient protection terminal block	★
Software configuration		
C1	Custom Software Configuration (requires Configuration Data Sheet)	★
Alarm levels		
C4	Analog output levels compliant with NAMUR recommendation NE 43, high alarm	★
CN	Analog output levels compliant with NAMUR recommendation NE 43, low alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
HART Revision configuration		
HR5 ⁽¹¹⁾	Configured for HART Revision 5	★
HR7 ⁽¹²⁾	Configured for HART Revision 7	★
Surface finish		
Q16	Surface finish certification for sanitary remote seals	★
Toolkit total system performance reports		
QZ	Remote seals system performance calculation report	★
Conduit electrical connection		
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★
NACE® certificate⁽¹³⁾		
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103 for wetted materials	★
SST tagging		
Y2	316 SST nameplates, labels, tags, and fasteners	
Typical model number: 2051G P 5 F 2A 2 1 A HR5 B4		

- (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) "Assemble-to" items are specified separately and require a completed model number.
- (3) Panel mounting bolts are not supplied.
- (4) Consult an Emerson representative for availability of product certifications.
- (5) Not available with assemble-to manifold (S5 code), assemble-to seal (S1 code), surface finish certification (Q16 code), remote seal system report (QZ code).
- (6) Not valid with alternate process connection S5.
- (7) Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard CS conduit plug.
- (8) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (9) High performance option includes 0.05 percent reference accuracy, and seven years stability. See [Performance specifications](#) for details.
- (10) Select configuration buttons (option code D4 or DZ) if local configuration buttons are required.
- (11) Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
- (12) Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.
- (13) NACE Compliant wetted materials are identified by [Footnote 1](#).

Rosemount 2051CF Flow Meters



Configuration	Transmitter output code
4–20 mA HART® Protocol	A
Rosemount™ 2051	
Rosemount 2051 with Selectable HART Protocol ⁽¹⁾	
Lower power	M
Rosemount 2051	
Rosemount 2051 with Selectable HART Protocol ⁽¹⁾	
FOUNDATION™ Fieldbus Protocol	F
PROFIBUS® PA Protocol	W
Wireless	X

- (1) The 4–20 mA with Selectable HART device can be ordered with transmitter output option code A plus any of the following options codes: M4, QT, DZ, CR, CS, CT, HR5, and HR7.

Rosemount 2051CFA Annubar Flow Meter



Additional information

Specifications: [Specifications](#) Certifications: [Rosemount™ 2051 Product Certifications](#) Dimensional drawings: [Dimensional drawings](#)

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

Table 4: Rosemount 2051CFA Annubar Flow Meter Ordering Information

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

Model	Product description	
2051CFA	Rosemount™ Annubar™ Flow Meter	
Measurement type		
D	Differential pressure	★
Fluid type		
L	Liquid	★
G	Gas	★
S	Steam	★
Line size		
020	2-in. (50 mm)	★
025	2½-in. (63,5 mm)	★
030	3-in. (80 mm)	★
035	3½-in. (89 mm)	★
040	4-in. (100 mm)	★
050	5-in. (125 mm)	★
060	6-in. (150 mm)	★
070	7-in. (175 mm)	★
080	8-in. (200 mm)	★
100	10-in. (250 mm)	★
120	12-in. (300 mm)	★
Pipe I.D. range⁽¹⁾		
C	Range C from the pipe I.D. table	★
D	Range D from the pipe I.D. table	★
A	Range A from the pipe I.D. table	
B	Range B from the pipe I.D. table	
E	Range E from the pipe I.D. table	
Z	Non-standard pipe I.D. range or line sizes greater than 12-in.	
Pipe material/mounting assembly material		
C	CS (A105)	★
S	316 SST	★

Table 4: Rosemount 2051CFA Annubar Flow Meter Ordering Information (continued)

0 ⁽²⁾	No mounting (customer supplied)	
G	Chrome-moly grade F-11	
N	Chrome-moly grade F-22	
J	Chrome-moly grade F-91	
Piping orientation		
H	Horizontal piping	★
D	Vertical piping with downwards flow	★
U	Vertical piping with upwards flow	★
Rosemount Annubar type		
P	Pak-lok	★
F	Flanged with opposite side support	★
Sensor material		
S	316 SST	★
Sensor size		
1	Sensor size 1 — line sizes 2- to 8-in. (50 to 200 mm)	★
2	Sensor size 2 — line sizes 6- to 96-in. (150 to 2400 mm)	★
3	Sensor size 3 — line sizes greater than 12-in. (300 mm)	★
Mounting type		
T1	Compression or threaded connection	★
A1	ANSI Class 150 RF	★
A3	ANSI Class 300 RF	★
A6	ANSI Class 600 RF	★
D1	DN PN 16 flange	★
D3	DN PN 40 flange	★
D6	DN PN 100 flange	★
R1	Class 150 RTJ flange	
R3	Class 300 RTJ flange	
R6	Class 600 RTJ flange	
Opposite side support or packing gland		
0	No opposite side support or packing gland (required for pak-lok and flange-lok models)	★
Opposite side support (required for flanged models)		
C	NPT threaded opposite support assembly — extended tip	★
D	Welded opposite support assembly — extended tip	★
Isolation valve for flo-tap models⁽²⁾		
0	Not applicable or customer supplied	★

Table 4: Rosemount 2051CFA Annubar Flow Meter Ordering Information (*continued*)

Temperature measurement			
T	Integral RTD – not available with flanged model greater than Class 600		★
0	No temperature sensor		★
R	Remote thermowell and RTD		
Transmitter connection platform			
3	Direct mount, Integral 3-valve manifold — not available with flanged model greater than Class 600		★
5	Direct mount, 5-valve manifold — not available with flanged model greater than Class 600		★
7	Remote mount NPT connections (½-in. FNPT)		★
8	Remote mount SW connections (½-in.)		
Differential pressure range			
1	0 to 25 in H ₂ O (0 to 62,3 mbar)		★
2	0 to 250 in H ₂ O (0 to 623 mbar)		★
3	0 to 1000 in H ₂ O (0 to 2,5 bar)		★
Transmitter output			
A ⁽³⁾	4–20 mA with digital signal based on HART™ Protocol		★
F	FOUNDATION™ Fieldbus Protocol		★
W	PROFIBUS® PA Protocol		★
X	Wireless		★
M	Low-power, 1–5 Vdc with digital signal based on HART Protocol		
Transmitter housing material		Conduit entry size	
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 x 1.5	★
J	SST	½–14 NPT	★
K ⁽⁴⁾	SST	M20 x 1.5	★
P ⁽⁵⁾	Engineered polymer	No conduit entries	★
D	Aluminum	G½	
M ⁽⁴⁾	SST	G½	
Transmitter performance class			
1	2.0 percent flow rate accuracy, 5:1 flow turndown, 2-year stability		★
Wireless options (requires wireless output code X and engineered polymer housing code P)			
Wireless transmit rate, operating frequency and protocol			
WA3	User configurable transmit rate, 2.4 GHz <i>Wireless</i> HART® Protocol		★
Antenna and SmartPower™			
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)		★

Table 4: Rosemount 2051CFA Annubar Flow Meter Ordering Information (*continued*)

Options (include with selected model number)		
Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
Special cleaning ⁽⁴⁾		
P2	Cleaning for special services	
PA	Cleaning per ASTM G93 Level D (section 11.4)	
Material testing ⁽⁴⁾		
V1	Dye penetrant exam	
Material examination ⁽⁴⁾		
V2	Radiographic examination	
Special inspection ⁽⁴⁾		
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★
Surface finish ⁽⁴⁾		
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 ⁽⁴⁾⁽⁶⁾		
Q8	Material traceability certification per EN 10474:2004 3.1	★
Code conformance ⁽⁴⁾		
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
Materials conformance ⁽⁴⁾⁽⁶⁾		
J5	NACE MR-0175/ISO 15156	
Country certification ⁽⁴⁾		
J6	European Pressure Directive (PED)	★
J1	Canadian registration	
Instrument connections for remote mount options ⁽⁴⁾		
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 ⁽⁴⁾		
Y1	Mounting hardware shipped separately	★

Table 4: Rosemount 2051CFA Annubar Flow Meter Ordering Information (continued)

Product certifications		
E1 ⁽⁴⁾	ATEX Flameproof	★
E2 ⁽⁴⁾	INMETRO Flameproof	★
E3 ⁽⁴⁾	China Flameproof	★
E5	USA Explosion-proof, Dust Ignition-proof	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
E7 ⁽⁴⁾	IECEX Flameproof	★
I1 ⁽⁴⁾	ATEX Intrinsic Safety	★
I2 ⁽⁴⁾	INMETRO Intrinsically Safe	★
I3 ⁽⁴⁾	China Intrinsic Safety	★
I5	USA Intrinsically Safe, Division 2	★
I6	Canada Intrinsically Safe	★
I7 ⁽⁴⁾	IECEX Intrinsic Safety	★
IA ⁽⁴⁾⁽⁶⁾	ATEX FISCO Intrinsic Safety; for FOUNDATION Fieldbus protocol only	★
IE ⁽⁴⁾⁽⁶⁾	USA FISCO Intrinsically Safe	★
IF ⁽⁴⁾⁽⁶⁾	Canada FISCO Intrinsically Safe	★
IG ⁽⁴⁾⁽⁶⁾	IECEX FISCO Intrinsically Safe	★
K1 ⁽⁴⁾	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	USA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	★
K7 ⁽⁴⁾	IECEX Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	★
KA ⁽⁴⁾	ATEX and Canada Flameproof, Intrinsically Safe, Division 2	★
KB	USA and Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC ⁽⁴⁾	USA and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD ⁽⁴⁾	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, I5, E6, I6, E1, and I1)	★
N1 ⁽⁴⁾	ATEX Type n	★
N7 ⁽⁴⁾	IECEX Type n	★
ND ⁽⁴⁾	ATEX Dust	★
Sensor fill fluid and O-ring options⁽⁴⁾		
L1 ⁽⁷⁾	Inert sensor fill fluid	★
L2	Graphite-filled (PTFE) O-ring	★
LA ⁽⁷⁾	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★
Display and interface options⁽⁴⁾		
M4 ⁽⁸⁾	LCD display with LOI	★
M5	LCD display	★

Table 4: Rosemount 2051CFA Annubar Flow Meter Ordering Information (*continued*)

Transmitter calibration certification⁽⁴⁾		
Q4	Calibration certificate for transmitter	★
Quality certification for safety⁽⁹⁾		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
Transient protection⁽⁴⁾⁽⁷⁾⁽¹⁰⁾		
T1	Transient terminal block	★
Manifold for remote mount option⁽⁴⁾		
F2	3-valve manifold, SST	★
F6	5-valve manifold, SST	★
F1	3-valve manifold, CS	
F5	5-valve manifold, CS	
Plantweb control functionality⁽⁴⁾⁽⁶⁾		
A01	FOUNDATION Fieldbus advanced control function block suite	★
Hardware adjustments⁽⁴⁾		
D4 ⁽¹¹⁾	Zero and span hardware adjustments	★
DZ ⁽¹²⁾	Digital zero trim	★
Alarm limit⁽⁴⁾⁽¹¹⁾		
C4	NAMUR alarm and saturation levels, high alarm	★
CN	NAMUR alarm and saturation levels, low alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
Ground screw⁽⁴⁾⁽⁷⁾⁽¹³⁾		
V5	External ground screw assembly	H
HART Revision Configuration⁽⁴⁾⁽¹¹⁾		
HR5 ⁽¹⁴⁾	Configured for HART Revision 5	★
HR7 ⁽¹⁵⁾	Configured for HART [®] Revision 7	★
Typical model number: 2051CFA D L 060 D C H P S 2 T1 0 0 0 3 2A A 1A 3		

(1) See the [Rosemount DP Flow Meters and Primary Elements Product Data Sheet](#) for pipe I.D. table.

(2) Provide the "A" dimension for flanged (Figure 18) and pak-lok (Table 31).

(3) HART Revision 5 is the default HART output. The Rosemount 2051 with Selectable HART can be factory or field configured to HART Revision 7. To order HART Revision 7 factory configured, add option code HR7.

(4) Not available with low power (output code M).

(5) Only available with output code X.

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

(7) Not available with output code X.

(8) Not available with FOUNDATION Fieldbus (output code F) or wireless (output code X).

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

- (10) Not available with housing code 00, 5A, or 7J. The T1 option is not needed with FISCO Product Certifications, transient protection is included with the FISCO Product Certification code IA.
- (11) Only available with 4–20 mA HART (output codes A and M).
- (12) Only available with 4–20 mA HART (output codes A and M) and wireless output (code X).
- (13) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (14) Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
- (15) Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.

Rosemount 2051CFC Compact Flow Meter



Additional information

Specifications: [Specifications](#) Certifications: [Rosemount™ 2051 Product Certifications](#) Dimensional drawings: [Dimensional drawings](#)

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

Table 5: Rosemount 2051CFC Compact Flow Meter Ordering Information

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

Model	Product description	
2051CFC	Compact flow meter	
Measurement type		
D	Differential pressure	★
Primary element technology		
A	Rosemount™ Annubar™ averaging pitot tube	
C	Conditioning orifice plate	★
P	Orifice plate	★
Material type		
S	316 SST	★
Line size		
005 ⁽¹⁾	½-in. (15 mm)	★
010 ⁽¹⁾	1-in. (25 mm)	★

Table 5: Rosemount 2051CFC Compact Flow Meter Ordering Information (continued)

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⁾⁽³⁾	10-in. (250 mm)	★	
120 ⁽¹⁾⁽³⁾	12-in. (300 mm)	★	
Primary element type			
N000	Rosemount Annubar sensor size 1	★	
N040	0.40 beta ratio	★	
N050	0.50 beta ratio	★	
N065 ⁽⁴⁾	0.65 beta ratio	★	
Temperature measurement			
0	No temperature sensor	★	
T ⁽⁵⁾	Integral RTD		
R	Remote thermowell and RTD		
Transmitter connection platform			
3	Direct mount	★	
7	Remote mount, NPT connections	★	
Differential pressure range			
1	0 to 25 in H ₂ O (0 to 62,3 mbar)	★	
2	0 to 250 in H ₂ O (0 to 623 mbar)	★	
3	0 to 1000 in H ₂ O (0 to 2,5 bar)	★	
Transmitter output			
A ⁽⁶⁾	4–20 mA with digital signal based on HART® Protocol	★	
F	FOUNDATION™ Fieldbus Protocol	★	
W	PROFIBUS® PA Protocol	★	
X	Wireless	★	
M	Low-power, 1–5 Vdc with digital signal based on HART Protocol		
Transmitter housing material		Conduit entry size	
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 x 1.5	★
J	SST	½–14 NPT	★
K ⁽⁷⁾	SST	M20 x 1.5	★
P ⁽⁸⁾	Engineered polymer	No conduit entries	★

Table 5: Rosemount 2051CFC Compact Flow Meter Ordering Information (continued)

D	Aluminum	G½	
M ⁽⁷⁾	SST	G½	
Transmitter performance class			
1	up to ±2.25 percent flow rate accuracy, 5:1 flow turndown, 2-year stability		★
Wireless options (requires wireless output code X and engineered polymer housing code P)			
Wireless transmit rate, operating frequency, and protocol			
WA3	User configurable transmit rate, 2.4 GHz WirelessHART® Protocol		★
Antenna and SmartPower™			
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)		★
Options (include with selected model number)			
Extended product warranty			
WR3	3-year limited warranty		★
WR5	5-year limited warranty		★
Installation accessories ⁽⁷⁾			
AB	ANSI alignment ring (Class 150) [only required for 10- and 12-in. (250 and 300 mm) line sizes]		★
AC	ANSI alignment ring (Class 300) [only required for 10- and 12-in. (250 and 300 mm) line sizes]		★
AD	ANSI alignment ring (Class 600) [only required for 10- and 12-in. (250 and 300 mm) line sizes]		★
DG	DIN alignment ring (PN 16)		★
DH	DIN alignment ring (PN 40)		★
DJ	DIN alignment ring (PN 100)		★
JB	JIS alignment ring (10K)		
JR	JIS alignment ring (20K)		
JS	JIS alignment ring (40K)		
Remote adapters ⁽⁷⁾			
FE	Flange adapters 316 SST (½-in. NPT)		★
High temperature application ⁽⁷⁾			
HT	Graphite valve packing (T _{max} = 850 °F)		
Flow calibration ⁽⁷⁾⁽⁹⁾			
WC	Flow calibration, 3 Pt, conditioning orifice option C (all pipe schedules)		
WD	Flow calibration, 10 Pt, conditioning option C (all schedules), Rosemount Annubar option A (schedule 40)		
Pressure testing ⁽⁷⁾			
P1	Hydrostatic testing with certificate		
Special cleaning ⁽⁷⁾			
P2	Cleaning for special services		
PA	Cleaning per ASTM G93 level D (section 11.4)		

Table 5: Rosemount 2051CFC Compact Flow Meter Ordering Information (*continued*)

Special inspection ⁽⁷⁾		
QC1	Visual and dimensional inspection with certificate	★
QC7	Inspection and performance certificate	★
Transmitter calibration certification ⁽⁷⁾		
Q4	Calibration certificate for transmitter	★
Quality certification for safety ⁽⁷⁾⁽¹⁰⁾⁽¹¹⁾⁽¹²⁾		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
Material traceability certification ⁽⁷⁾		
Q8	Material traceability certification per EN 10204:2004 3.1	★
Code conformance ⁽⁷⁾		
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
J4	ANSI/ASME B31.8	
Materials conformance ⁽⁷⁾⁽¹³⁾		
J5	NACE MR-0175/ISO 15156	
Country certification ⁽⁷⁾		
J1	Canadian registration	
Product certifications		
E1 ⁽⁷⁾	ATEX Flameproof	★
E2 ⁽⁷⁾	INMETRO Flameproof	★
E3 ⁽⁷⁾	China Flameproof	★
E5	USA Explosion-proof, Dust Ignition-proof	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
E7 ⁽⁷⁾	IECEx Flameproof	★
I1 ⁽⁷⁾	ATEX Intrinsic Safety	★
I2 ⁽⁷⁾	INMETRO Intrinsically Safe	★
I3 ⁽⁷⁾	China Intrinsic Safety	★
I5	USA Intrinsically Safe, Division 2	★
I6	Canada Intrinsically Safe	★
I7 ⁽⁷⁾	IECEx Intrinsic Safety	★
IA ⁽⁷⁾⁽¹⁴⁾	ATEX FISCO Intrinsic Safety; for FOUNDATION Fieldbus Protocol only	★
IE ⁽⁷⁾⁽¹⁴⁾	USA FISCO Intrinsically Safe	★
IF ⁽⁷⁾⁽¹⁴⁾	Canada FISCO Intrinsically Safe	★
IG ⁽⁷⁾⁽¹⁴⁾	IECEx FISCO Intrinsically Safe	★
K1 ⁽⁷⁾	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★

Table 5: Rosemount 2051CFC Compact Flow Meter Ordering Information (continued)

K5	USA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	★
K7 ⁽⁷⁾	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	★
KA ⁽⁷⁾	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB	USAM and Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC ⁽⁷⁾	USA and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD ⁽⁷⁾	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, I5, E6, I6, E1, and I1)	★
N1 ⁽⁷⁾	ATEX Type n	★
N7 ⁽⁷⁾	IECEx Type n	★
ND ⁽⁷⁾	ATEX Dust	★
Sensor fill fluid and O-ring options⁽⁷⁾		
L1 ⁽¹¹⁾	Inert sensor fill fluid	★
L2	Graphite-filled (PTFE) O-ring	★
LA ⁽¹¹⁾	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★
Display and interface options⁽⁷⁾		
M ⁽¹⁰⁾	LCD display with LOI	★
M5	LCD display	★
Transient protection⁽⁷⁾⁽¹¹⁾⁽¹⁵⁾		
T1	Transient terminal block	★
Manifold for remote mount option⁽⁷⁾		
F2	3-valve manifold, SST	★
F6	5-valve manifold, SST	★
Alarm limit⁽⁷⁾⁽¹²⁾		
C4	NAMUR alarm and saturation levels, high alarm	★
CN	NAMUR alarm and saturation levels, low alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
Plantweb control functionality⁽⁷⁾⁽¹⁴⁾		
A01	FOUNDATION Fieldbus advanced control function block suite	★
Hardware adjustments⁽⁷⁾		
D4 ⁽¹²⁾	Zero and span hardware adjustments	★
DZ ⁽¹⁶⁾	Digital zero trim	★
Ground screw⁽⁷⁾⁽¹¹⁾⁽¹⁷⁾		
V5	External ground screw assembly	H

Table 5: Rosemount 2051CFC Compact Flow Meter Ordering Information (continued)

HART Revision configuration ⁽⁷⁾⁽¹²⁾		
HR5 ⁽¹⁸⁾	Configured for HART Revision 5	★
HR7 ⁽¹⁹⁾	Configured for HART Revision 7	★
Typical model number: 2051CFC D C S 060 N 065 0 3 2 A A 1 WC E5 M5		

- (1) Not available for primary element technology C.
- (2) For the 10- and 12-in. (250 and 300 mm) line size, the alignment ring must be ordered (installation accessories).
- (3) 10- and 12-in. (250 and 300 mm) line sizes not available with primary element technology A.
- (4) For 2-in. (50 mm) line sizes the primary element type is 0.6 for primary element technology code C.
- (5) Available with primary element technology A only.
- (6) HART Revision 5 is the default HART output. The Rosemount 2051 with Selectable HART can be factory or field configured to HART Revision 7. To order HART Revision 7 factory configured, add option code HR7.
- (7) Not available with low power (output code M).
- (8) Only available with output code X.
- (9) Not available with primary element technology P.
- (10) Not available with FOUNDATION Fieldbus (output code F) or wireless (output code X).
- (11) Not available with output code X.
- (12) Only available with 4–20 mA HART (output codes A and M).
- (13) 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.
- (14) Only valid with FOUNDATION Fieldbus (output code F).
- (15) Not available with housing code 00, 5A, or 7J. The T1 option is not needed with FISCO Product Certifications, transient protection is included with the FISCO Product Certification code IA.
- (16) Only available with 4–20 mA HART (output codes A and M) and wireless (output code X).
- (17) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (18) Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
- (19) Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.

Rosemount 2051CFP Integral Orifice Flow Meter



Additional information

Specifications: [Specifications](#) Certifications: [Rosemount™ 2051 Product Certifications](#) Dimensional drawings: [Dimensional drawings](#)

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

Table 6: Rosemount 2051CFP Integral Orifice Flow Meter Ordering Information

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

Model	Product description	
2051CFP	Integral orifice flow meter	
Measurement type		
D	Differential pressure	★
Material type		
S	316 SST	★
Line size		
005	½-in. (15 mm)	★
010	1-in. (25 mm)	★
015	1½-in. (40 mm)	★
Process connection		
T1	NPT female body (not available with thermowell and RTD)	★
S1 ⁽¹⁾	Socket weld body (not available with thermowell and RTD)	★
P1	Pipe ends: NPT threaded	★
P2	Pipe ends: beveled	★
D1	Pipe ends: flanged, DIN PN 16, slip-on	★
D2	Pipe ends: flanged, DIN PN 40, slip-on	★
D3	Pipe ends: flanged, DIN PN 100, slip-on	★
W1	Pipe ends: flanged, RF, ANSI Class 150, weld-neck	★
W3	Pipe ends: flanged, RF, ANSI Class 300, weld-neck	★
W6	Pipe ends: flanged, RF, ANSI Class 600, weld-neck	★
A1	Pipe ends: flanged, RF, ANSI Class 150, slip-on	
A3	Pipe ends: flanged, RF, ANSI Class 300, slip-on	
A6	Pipe ends: flanged, RF, ANSI Class 600, slip-on	
R1	Pipe ends: flanged, RTJ, ANSI Class 150, slip-on	
R3	Pipe ends: flanged, RTJ, ANSI Class 300, slip-on	
R6	Pipe ends: flanged, RTJ, ANSI Class 600, slip-on	
Orifice plate material		
S	316 SST	★
Bore size option		
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	★

Table 6: Rosemount 2051CFP Integral Orifice Flow Meter Ordering Information (continued)

0340	0.340-in. (8,64 mm) for ½-in. pipe	★	
0150	0.150-in. (3,81 mm) for 1-in. pipe	★	
0250	0.250-in. (6,35 mm) for 1-in. pipe	★	
0345	0.345-in. (8,76 mm) for 1-in. pipe	★	
0500	0.500-in. (12,70 mm) for 1-in. pipe	★	
0630	0.630-in. (16,00 mm) for 1-in. pipe	★	
0800	0.800-in. (20,32 mm) for 1-in. pipe	★	
0295	0.295-in. (7,49 mm) for 1½-in. pipe	★	
0376	0.376-in. (9,55 mm) for 1½-in. pipe	★	
0512	0.512-in. (13,00 mm) for 1½-in. pipe	★	
0748	0.748-in. (19,00 mm) for 1½-in. pipe	★	
1022	1.022-in. (25,96 mm) for 1½-in. pipe	★	
1184	1.184-in. (30,07 mm) for 1½-in. pipe	★	
0010	0.010-in. (0,25 mm) for ½-in. pipe		
0014	0.014-in. (0,36 mm) for ½-in. pipe		
0020	0.020-in. (0,51 mm) for ½-in. pipe		
0034	0.034-in. (0,86 mm) for ½-in. pipe		
Transmitter connection platform			
D3	Direct mount, 3-valve manifold, SST	★	
D5	Direct mount, 5-valve manifold, SST	★	
R3	Remote mount, 3-valve manifold, SST	★	
R5	Remote mount, 5-valve manifold, SST	★	
Differential pressure ranges			
1	0 to 25 in H ₂ O (0 to 62,3 mbar)	★	
2	0 to 250 in H ₂ O (0 to 623 mbar)	★	
3	0 to 1000 in H ₂ O (0 to 2,5 bar)	★	
Transmitter output			
A ⁽²⁾	4–20 mA with digital signal based on HART Protocol	★	
F	FOUNDATION™ Fieldbus Protocol	★	
W	PROFIBUS® PA Protocol	★	
X	Wireless	★	
M	Low-power, 1–5 Vdc with digital signal based on HART Protocol		
Transmitter housing material		Conduit entry size	
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 x 1.5	★
J	SST	½–14 NPT	★

Table 6: Rosemount 2051CFP Integral Orifice Flow Meter Ordering Information (continued)

K ⁽³⁾	SST	M20 x 1.5	★
P ⁽⁴⁾	Engineered polymer	No conduit entries	★
D	Aluminum	G½	
M ⁽³⁾	SST	G½	
Transmitter performance class			
1	up to ±2.25 percent flow rate accuracy, 5:1 flow turndown, 2-year stability		★
Wireless options (requires wireless output code X and engineered polymer housing code P)			
Wireless transmit rate, operating frequency and protocol			
WA3	User configurable transmit rate, 2.4 GHz WirelessHART® Protocol		★
Antenna and SmartPower™			
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)		★
Options (include with selected model number)			
Extended product warranty			
WR3	3-year limited warranty		★
WR5	5-year limited warranty		★
Temperature sensor ⁽³⁾⁽⁵⁾			
RT	Thermowell and RTD		
Optional connection ⁽³⁾			
G1	DIN 19213 transmitter connection		★
Pressure testing ⁽³⁾⁽⁶⁾			
P1	Hydrostatic testing with certificate		
Special cleaning ⁽³⁾			
P2	Cleaning for special services		
PA	Cleaning per ASTM G93 level D (section 11.4)		
Material testing ⁽³⁾			
V1	Dye penetrant exam		
Material examination ⁽³⁾			
V2	Radiographic examination		
Flow calibration ⁽³⁾⁽⁷⁾			
WD	Discharge coefficient verification		
Special inspection ⁽³⁾			
QC1	Visual and dimensional inspection with certificate		★
QC7	Inspection and performance certificate		★
Material traceability certification ⁽³⁾			
Q8	Material traceability certification per EN 10204:2004 3.1		★

Table 6: Rosemount 2051CFP Integral Orifice Flow Meter Ordering Information (*continued*)

Code onformance ⁽³⁾⁽⁸⁾		
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
J4	ANSI/ASME B31.8	
Materials conformance ⁽³⁾⁽⁹⁾		
J5	NACE MR-0175/ISO 15156	
Country certification ⁽³⁾		
J6	European Pressure Directive (PED)	★
J1	Canadian registration	
Transmitter calibration certification ⁽³⁾		
Q4	Calibration certificate for transmitter	★
Quality certification for safety ⁽³⁾⁽¹⁰⁾⁽¹¹⁾⁽¹²⁾		
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
Product certifications		
E1 ⁽³⁾	ATEX Flameproof	★
E2 ⁽³⁾	INMETRO Flameproof	★
E3 ⁽³⁾	China Flameproof	★
E5	USA Explosion-proof, Dust Ignition-proof	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
E7 ⁽³⁾	IECEx Flameproof	★
I1 ⁽³⁾	ATEX Intrinsic Safety	★
I2 ⁽³⁾	INMETRO Intrinsically Safe	★
I3 ⁽³⁾	China Intrinsic Safety	★
I5	USA Intrinsically Safe, Division 2	★
I6	Canada Intrinsically Safe	★
I7 ⁽³⁾	IECEx Intrinsic Safety	★
IA ⁽³⁾⁽¹⁰⁾	ATEX FISCO Intrinsic Safety; for FOUNDATION Fieldbus Protocol only	★
IE ⁽³⁾⁽¹⁰⁾	USA FISCO Intrinsically Safe	★
IF ⁽³⁾⁽¹⁰⁾	Canada FISCO Intrinsically Safe	★
IG ⁽³⁾⁽¹⁰⁾	IECEx FISCO Intrinsically Safe	★
K1 ⁽³⁾⁽¹⁰⁾	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	USA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	★
K7 ⁽³⁾	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	★
KA ⁽³⁾	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★

Table 6: Rosemount 2051CFP Integral Orifice Flow Meter Ordering Information (continued)

KB	USA and Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC ⁽³⁾	USA and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD ⁽³⁾	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, I5, E6, I6, E1, and I1)	★
N1 ⁽³⁾	ATEX Type n	★
N7 ⁽³⁾	IECEX Type n	★
ND ⁽³⁾	ATEX Dust	★
Sensor fill fluid and O-ring options⁽³⁾		
L1 ⁽¹³⁾	Inert sensor fill fluid	★
L2	Graphite-filled (PTFE) O-ring	★
LA ⁽¹³⁾	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	★
Display and interface options⁽³⁾		
M4 ⁽¹¹⁾	LCD display with LOI	★
M5	LCD display	★
Transient protection⁽³⁾⁽¹³⁾⁽¹¹⁾		
T1	Transient terminal block	★
Alarm limit⁽³⁾⁽¹²⁾		
C4	NAMUR alarm and saturation levels, high alarm	★
CN	NAMUR alarm and saturation levels, low alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
Plantweb control functionality⁽³⁾⁽¹⁰⁾		
A01	FOUNDATION Fieldbus advanced control function block suite	★
Hardware adjustments⁽³⁾		
D4 ⁽¹²⁾	Zero and span hardware adjustments	★
DZ ⁽¹⁴⁾	Digital zero trim	★
Ground screw^{(3)(13) (15)}		
V5	External ground screw assembly	★
HART Revision Configuration⁽³⁾⁽¹²⁾		
HR5 ⁽¹⁶⁾	Configured for HART Revision 5	★
HR7 ⁽¹⁷⁾	Configured for HART Revision 7	★
Typical model number: 2051CFP D S 010 W1 S 0500 D3 2 A A 1 E5 M5		

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

(2) HART® Revision 5 is the default HART output. The Rosemount™ 2051 with Selectable HART can be factory or field configured to HART Revision 7. To order HART Revision 7 factory configured, add option code HR7.

(3) Not available with low power (output code M).

(4) Only available with output code X.

- (5) Thermowell material is the same as the body material.
- (6) Does not apply to process connection codes T1 and S1.
- (7) Not available for bore sizes 0010, 0014, 0020, or 0034.
- (8) Not available with DIN process connection codes D1, D2, or D3.
- (9) 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.
- (10) Only valid with FOUNDATION Fieldbus (output code F).
- (11) Not available with housing code 00, 5A, or 7J. The T1 option is not needed with FISCO Product Certifications, transient protection is included with the FISCO Product Certification code IA.
- (12) Only available with 4–20 mA HART (output codes A).
- (13) Not available with output code X.
- (14) Only available with 4–20 mA HART (output codes A and M) and wireless (output code X).
- (15) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (16) Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
- (17) Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.

Rosemount 2051L Liquid Level Transmitter



Configuration	Transmitter output Code
4–20 mA HART® Protocol	A
Rosemount™ 2051	
Rosemount 2051 with Selectable HART Protocol ⁽¹⁾	
Lower power	M
Rosemount 2051	
Rosemount 2051 with Selectable HART Protocol ⁽¹⁾	
FOUNDATION™ Fieldbus Protocol	F
PROFIBUS® PA Protocol	W

Rosemount 2051L Liquid Level Transmitter	Wireless	X
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- (1) The 4–20 mA with Selectable HART device can be ordered with transmitter output option code A plus any of the following options codes: M4, QT, DZ, CR, CS, CT, HR5, and HR7.

Additional information

Specifications: [Specifications](#) Certifications: [Rosemount™ 2051 Product Certifications](#) Dimensional drawings: [Dimensional drawings](#)

Table 7: Rosemount 2051L Liquid Level Transmitter Ordering Information

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

Model	Transmitter type	
2051L	Liquid level transmitter	★
Pressure range		
2	–250 to 250 inH ₂ O (–0,6 to 0,6 bar)	★
3	–1000 to 1000 inH ₂ O (–2,5 to 2,5 bar)	★
4	–300 to 300 psi (–20,7 to 20,7 bar)	★

Table 7: Rosemount 2051L Liquid Level Transmitter Ordering Information (continued)

Transmitter output				
A ⁽¹⁾	4–20 mA with digital signal based on HART Protocol			★
F	FOUNDATION Fieldbus Protocol			★
W	PROFIBUS PA Protocol			★
X	Wireless			★
M	Low-power, 1–5 V dc with digital signal based on HART Protocol			
	Process connection size		Diaphragm	
G ⁽²⁾	2-in./DN 50	316L SST		★
H ⁽²⁾	2-in./DN 50	Alloy C-276		★
J	2-in./DN 50	Tantalum		★
A ⁽²⁾	3-in./DN 80	316L SST		★
B ⁽²⁾	4-in./DN 100	316L SST		★
C ⁽²⁾	3-in./DN 80	Alloy C-276		★
D ⁽²⁾	4-in./DN 100	Alloy C-276		★
E	3-in./DN 80	Tantalum		★
F	4-in./DN 100	Tantalum		★
Extension length (high side)				
0	None, flush mount			★
2	2-in./50 mm			★
4	4-in./100 mm			★
6	6-in./150 mm			★
Mounting flange size, rating, material (high side)				
	Size	Rating	Material	
M	2-in.	ANSI/ASME B16.5 Class 150	CS	★
A	3-in.	ANSI/ASME B16.5 Class 150	CS	★
B	4-in.	ANSI/ASME B16.5 Class 150	CS	★
N	2-in.	ANSI/ASME B16.5 Class 300	CS	★
C	3-in.	ANSI/ASME B16.5 Class 300	CS	★
D	4-in.	ANSI/ASME B16.5 Class 300	CS	★
X ⁽²⁾	2-in.	ANSI/ASME B16.5 Class 150	SST	★
F ⁽²⁾	3-in.	ANSI/ASME B16.5 Class 150	SST	★
G ⁽²⁾	4-in.	ANSI/ASME B16.5 Class 150	SST	★
Y ⁽²⁾	Displayed	ANSI/ASME B16.5 Class 300	SST	★
H ⁽²⁾	3-in.	ANSI/ASME B16.5 Class 300	SST	★
J ⁽²⁾	4-in.	ANSI/ASME B16.5 Class 300	SST	★
Q	DN 50	PN 10-40 per EN 1092-1	CS	★

Table 7: Rosemount 2051L Liquid Level Transmitter Ordering Information (*continued*)

R	DN 80	PN 40 per EN 1092-1	CS	★
K ⁽²⁾	DN 50	PN 1040 per EN 1092-1	SST	★
T ⁽²⁾	DN 80	PN 40 per EN 1092-1	SST	★
Seal fill fluid (high side)		Specific gravity at 77 °F (25 °C)	Temperature limits (ambient temperature of 70 °F [21 °C])	
A	Syltherm™ XLT	0.85	–157 to 293 °F (–105 to 145 °C)	★
C	Silicone 704	1.07	32 to 401 °F (0 to 205 °C)	★
D	Silicone 200	0.93	–49 to 401 °F (–45 to 205 °C)	★
F	Silicone 200 for vacuum applications limits: 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 .			
H	Inert (halocarbon)	1.85	5 to 401 °F (–15 to 205 °C)	★
G	Glycerin and water	1.13	–49 to 320 °F (–45 to 160 °C)	★
L	Silicone 704 for vacuum applications limits: 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 .			
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)	★
Sensor module configuration, flange adapter (low side)				
	Configuration	Flange adapter		
1	Gage	SST		★
2	Differential	SST		★
3 ⁽³⁾	Tuned-System™ with remote seal	None		★
Sensor module diaphragm material, sensor fill fluid (low side)				
	Diaphragm material	Sensor fill fluid		
1	316L SST	Silicone		★
2	Alloy C-276 (SST valve seat)	Silicone		★
7	Alloy C-276 (alloy C-276 valve seat)	Silicone		★
A ⁽⁴⁾	316L SST	Inert (halocarbon)		★
B ^{(2) (4)}	Alloy C-276 (SST valve seat)	Inert (halocarbon)		★
G ⁽⁴⁾	Alloy C-276 (alloy C-276 valve seat)	Inert (halocarbon)		★
O-ring				
A	Glass-filled PTFE			★
Housing material		Conduit entry size		
A	Aluminum	½–14 NPT		★
B	Aluminum	M20 x 1.5		★
J	SST	½–14 NPT		★
K ⁽⁵⁾	SST	M20 x 1.5		★
p ⁽⁶⁾	Engineered polymer	No conduit entries		★

Table 7: Rosemount 2051L Liquid Level Transmitter Ordering Information (continued)

D	Aluminum	G½	
M ⁽⁵⁾	SST	G½	
Wireless options (requires wireless output code X and engineered polymer housing code P)			
Wireless transmit rate, operating frequency and protocol			
WA3	User configurable transmit rate, 2.4 GHz WirelessHART® Protocol		★
Antenna and SmartPower			
WP5	Internal antenna, compatible with Green Power Module (I.S. Power Module sold separately)		★
Options (include with selected model number)			
Extended product warranty			
WR3	3-year limited warranty		★
WR5	5-year limited warranty		★
Plantweb™ control functionality ⁽⁷⁾			
A01	FOUNDATION Fieldbus advanced control function block suite		★
Seal assemblies ⁽⁸⁾			
S1	Assemble to one Rosemount 1199 Seal (requires Rosemount 1199M)		★
Product certifications			
E1 ⁽⁵⁾	ATEX Flameproof		★
E2 ⁽⁵⁾	INMETRO Flameproof		★
E3 ⁽⁵⁾	China Flameproof		★
E4	TIIS Flameproof		★
E5	USA Explosion-proof, Dust Ignition-proof		★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2		★
E7 ⁽⁵⁾	IECEX Flameproof		★
EW ⁽⁵⁾	India (CCOE) Flameproof Approval		★
I1 ⁽⁵⁾	ATEX Intrinsic Safety		★
I2 ⁽⁵⁾	INMETRO Intrinsically Safe		★
I3 ⁽⁵⁾	China Intrinsic Safety		★
I4 ⁽⁵⁾⁽⁶⁾	TIIS Intrinsic Safety		★
I5	USA Intrinsically Safe, Division 2		★
I6	Canada Intrinsically Safe		★
I7 ⁽⁵⁾	IECEX Intrinsic Safety		★
IA ⁽⁷⁾	ATEX FISCO Intrinsic Safety		★
IE ⁽⁷⁾	USA FISCO Intrinsically Safe		★
IF ⁽⁷⁾	Canada FISCO Intrinsically Safe		★
IG ⁽⁷⁾	IECEX FISCO Intrinsically Safe		★
IW ⁽⁵⁾	India (CCOE) Intrinsically Safety Approval		★

Table 7: Rosemount 2051L Liquid Level Transmitter Ordering Information (continued)

K1 ⁽⁵⁾	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K2	INMETRO Flameproof and Intrinsic Safety	★
K5	USA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K7 ⁽⁵⁾	IECEx Flameproof, Intrinsic Safety, Type n and Dust	★
KA ⁽⁵⁾	ATEX and Canada Flameproof, Intrinsically Safe, Division 2	★
KB	USA and Canada Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC ⁽⁵⁾	USA and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD ⁽⁵⁾	USA, Canada, and ATEX Explosion-proof, Intrinsically Safe	★
N1 ⁽⁵⁾	ATEX Type n	★
N7 ⁽⁵⁾	IECEx Type n	★
ND ⁽⁵⁾	ATEX Dust	★
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	★
Shipboard approvals⁽⁴⁾		
SBS	American Bureau of Shipping (ABS) type approval	★
SBV	Bureau Veritas (BV) type approval	★
SDN	Det Norske Veritas (DNV) type approval	★
SLL	Lloyds Register (LR) type approval	★
Display and interface options		
M4 ⁽⁹⁾	LCD display with local operator interface	★
M5	LCD display	★
Hardware adjustments		
D4 ⁽¹⁰⁾	Zero and span configuration buttons	★
DZ ⁽¹¹⁾	Digital zero trim	★
Flange adapters⁽¹²⁾		
DF	½–14 NPT flange adapters	★
Conduit plug⁽⁴⁾ (13)		
DO	316 SST conduit plug	★
Ground screw⁽⁴⁾(14)		
V5	External ground screw assembly	★
Transient protection⁽⁴⁾(15)		
T1	Transient terminal block	★
Software configuration⁽¹¹⁾		
C1	Custom software configuration (requires completed Configuration Data Sheet)	★

Table 7: Rosemount 2051L Liquid Level Transmitter Ordering Information (*continued*)

Alarm limit ⁽¹⁰⁾				
C4 ⁽¹⁶⁾	NAMUR alarm and saturation levels, high alarm			★
CN ⁽¹⁶⁾	NAMUR alarm and saturation levels, low alarm			★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)			★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)			★
CT	Low alarm (standard Rosemount alarm and saturation levels)			★
Calibration certification				
Q4	Calibration certificate			★
QG	Calibration certificate and GOST verification certificate			★
GP	Calibration certificate and tamper evident seal			★
Material traceability certification				
Q8	Material traceability certification per EN 10204 3.1			★
Quality certification for safety ⁽¹⁷⁾				
QS	Prior-use certificate of FMEDA data			★
QT	Safety certified to IEC 61508 with certificate of FMEDA			★
Toolkit total system performance reports				
QZ	Remote seal system performance calculation report			★
Conduit electrical connector ⁽⁴⁾				
GE	M12, 4-pin, male connector (eurofast)			★
GM	A size mini, 4-pin, male connector (minifast)			★
NACE® certificate ⁽¹⁸⁾				
Q15	Certificate of compliance to NACE MR0175/ISO 15156 for wetted materials			★
Q25	Certificate of compliance to NACE MR0103 for wetted materials			★
Lower housing alignment clamp				
SA	Lower housing alignment clamp			★
Lower housing flushing connection options				
	Ring material	Number	Size (NPT)	
F1	316 SST	1	¼–18 NPT	★
F2	316 SST	2	¼–18 NPT	★
F3 ⁽¹⁹⁾	Alloy C-276	1	¼–18 NPT	★
F4 ⁽¹⁹⁾	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	★
Typical model number: 2051L 2 A A0 X D 21 A A B4 M5 F1				

- (1) HART Revision 5 is the default HART output. The Rosemount 2051 with Selectable HART can be factory or field configured to HART Revision 7. To order HART Revision 7 factory configured, add option code HR7.
- (2) Materials of construction comply with metallurgical requirements highlighted within NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.
- (3) Requires option code S1.
- (4) Not available with output code X.
- (5) Not available with low power output code M.
- (6) Only available with output code X.
- (7) Only valid with FOUNDATION Fieldbus output code F.
- (8) "Assemble-to" items are specified separately and require a completed model number.
- (9) Not valid with FOUNDATION Fieldbus output code F and wireless output code X.
- (10) Only available with 4–20 mA HART (output codes A and M).
- (11) Only available with 4–20 mA HART output (codes A) and wireless output (code X).
- (12) Not available with remote mount seal assembly option S1.
- (13) Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard CS conduit plug.
- (14) The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.
- (15) The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA, IE, IF, and IG.
- (16) NAMUR-Compliant operation is pre-set at the factory.
- (17) Only available with 4–20 mA HART output (code A).
- (18) NACE Compliant wetted materials are identified by ⁽²⁾
- (19) Not available with option codes A0, B0, and G0.

Specifications

Performance specifications

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

Conformance to specification ($\pm 3\sigma$ [sigma])

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

Reference accuracy

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	Standard	High performance option, P8	
Rosemount 2051C3			
Range 1	±0.10 percent of span For spans less than 15:1, accuracy = $\pm\left(0.025 + 0.005\left[\frac{URL}{Span}\right]\right)\% \text{ of span}$	N/A	N/A
Ranges 2–4	±0.065 percent of span For spans less than 10:1, accuracy = $\pm\left(0.025 + 0.005\left[\frac{URL}{Span}\right]\right)\% \text{ of span}$	Ranges 2–4	High accuracy option, P8 ±0.05 percent of span For spans less than 10:1 ⁽¹⁾ , accuracy = $\pm\left(0.015 + 0.005\left[\frac{URL}{Span}\right]\right)\% \text{ of span}$

Models	Standard	High performance option, P8	
Range 5	±0.075 percent of span For spans less than 10:1, accuracy = $\pm \left(0.025 + 0.005 \left[\frac{URL}{Span} \right] \right) \% \text{ of span}$	Range 5	High performance option, P8 ±0.065 percent of span For spans less than 10:1, accuracy = $\pm \left(0.015 + 0.005 \left[\frac{URL}{Span} \right] \right) \% \text{ of span}$
Rosemount™ 2051T, 2051G⁽²⁾			
Ranges 1–4	±0.065 percent of span For spans less than 10:1, accuracy = $\pm \left(0.0075 \left[\frac{URL}{Span} \right] \right) \% \text{ of span}$	Ranges 1–4	High accuracy option, P8 ±0.05 percent of span For spans less than 10:1 ⁽¹⁾ , accuracy = $\pm \left(0.0075 \left[\frac{URL}{Span} \right] \right) \% \text{ of span}$
Range 5 ⁽³⁾	±0.075 percent of span For spans less than 10:1, accuracy = $\pm \left(0.0075 \left[\frac{URL}{Span} \right] \right) \% \text{ of span}$	N/A	N/A
Rosemount 2051L			
Ranges 2–4	±0.075 percent of span For spans less than 10:1, accuracy = $\pm \left(0.025 + 0.005 \left[\frac{URL}{Span} \right] \right) \% \text{ of span}$	N/A	N/A

(1) For protocol code F, accuracy specification is for spans less than 7:1. Not available with output code W.

(2) For Rosemount 2051C, 2051T, and 2051G with 1199 assemble to code S1, use 3051L specification.

(3) Rosemount 2051G is not available with range 5.

Flow performance

Flow reference accuracy

Rosemount™ 2051CFA Annubar™ Flow Meter		
Ranges 2–3		±2.00 percent of flow rate at 5:1 flow turndown
Rosemount 2051CFC_A Compact Annubar Flow Meter — Annubar option A		
Ranges 2–3	Standard	±2.60 percent of flow rate at 5:1 flow turndown
	Calibrated	±2.30 percent of flow rate at 5:1 flow turndown
Rosemount 2051CFC Compact Orifice Flow Meter — conditioning option C		
Ranges 2–3	β = 0.4	±2.25 percent of flow rate at 5:1 flow turndown

	$\beta = 0.65$	± 2.45 percent of flow rate at 5:1 flow turndown
Rosemount 2051CFC Compact Orifice Flow Meter — Orifice Type Option P⁽¹⁾		
Ranges 2–3	$\beta = 0.4$	± 2.50 percent of flow rate at 5:1 flow turndown
	$\beta = 0.65$	± 2.50 percent of flow rate at 5:1 flow turndown
Rosemount 2051CFP Integral Orifice Flow Meter		
Ranges 2–3	Bore < 0.1	± 3.10 percent of flow rate at 5:1 flow turndown
	0.1 < bore < 0.2	± 2.75 percent of flow rate at 5:1 flow turndown
	0.2 < bore < 0.6	± 2.25 percent of flow rate at 5:1 flow turndown
	0.6 < bore < 0.8	± 3.00 percent of flow rate at 5:1 flow turndown

(1) For smaller line sizes, see Rosemount Compact Orifice.

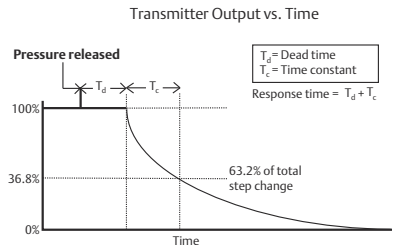
Long-term stability

± 50 °F (28 °C) temperature changes and up to 1000 psi. (6,9 MPa) line pressure.

Models	Standard	High performance option, P8
Rosemount™ 2051C		
Range 1 (CD)	±0.2 percent of URL for 1 year	±0.175 percent of URL for 7 years
Ranges 2–5	±0.125 percent of URL for 5 years	
Rosemount 2051T, 2051G		
Ranges 1–5 ⁽¹⁾	±0.125 percent of URL for 5 years	±0.15 percent of URL for 7 years

(1) Rosemount 2051G is not available with range 5.

Dynamic performance

	4–20 mA HART [®] (1) 1–5 Vdc HART Low Power	FOUNDATION™ Fieldbus and PROFIBUS® PA Protocols(2)	Typical HART Transmitter Response Time
Total response time ($T_d + T_c$):			 <p>Transmitter Output vs. Time</p> <p>Pressure released</p> <p>100% 36.8% 0%</p> <p>Time</p> <p>T_d = Dead time T_c = Time constant Response time = $T_d + T_c$</p> <p>63.2% of total step change</p>
Rosemount 2051C Range 3–5: Range 1: Range 2: 2051T and 2051G: 2051L:	115 ms 270 ms 130 ms 100 ms See Instrument Toolkit™	152 ms 307 ms 152 ms 152 ms See Instrument Toolkit	
Dead time (T_d)	60 ms (nominal ⁽³⁾)	97 ms	

	4–20 mA HART [®] (1) 1–5 Vdc HART Low Power	FOUNDATION [™] Fieldbus and PROFIBUS [®] PA Protocols(2)	Typical HART Transmitter Response Time
Update rate (4)	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 (6,9 MPa)

For line pressures above 2000 psi (13,7 MPa) and ranges 4–5, see [Rosemount 2051 Reference Manual](#) for HART[®], Rosemount[™] 2051 [Reference Manual](#) for WirelessHART[®], Rosemount 2051 [Reference Manual](#) for FOUNDATION[™] Fieldbus, and Rosemount 2051 [Reference Manual](#) PROFIBUS[®] PA.

Models	Line pressure effect	
Rosemount 2051CD, 2051CF	Zero Error ⁽¹⁾	Span error
Range 1	±0.25 percent of URL/1000 psi (68,9 bar)	±0.4 percent of reading/1,000 psi (68,9 bar)
Ranges 2–3	±0.05 percent of URL/1000 psi (68,9 bar) for line pressures from 0 to 2000 psi (0 to 13,7 MPa)	±0.1 percent of reading/1,000 psi (68,9 bar)

(1) Can be calibrated out at line pressure.

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

Models	Ambient temperature effect
Rosemount [™] 2051C, 2051CF	
Ranges 2–5	±(0.025% URL + 0.125% span) from 1:1 to 5:1 ±(0.05% URL + 0.25% span) from 5:1 to 100:1
Range 1	±(0.1% URL + 0.25% span) from 1:1 to 30:1
Rosemount 2051T, 2051G	
Range 2–4	±(0.05% URL + 0.25% span) from 1:1 to 10:1 ±(0.07% URL + 0.125% span) from 10:1 to 100:1
Range 1	±(0.05% URL + 0.25% span) from 1:1 to 5:1 ±(0.10% URL + 0.125% span) from 5:1 to 100:1
Range 5 ⁽¹⁾	±(0.1% URL + 0.15% span)
Rosemount 2051L	See Instrument Toolkit [™]

(1) Rosemount 2051G is not available with range 5.

Mounting position effects

Models	Mounting position effects
Rosemount 2051C	Zero shifts up to ± 1.25 inH ₂ O (3,1 mbar), which can be calibrated out. No span effect.
Rosemount 2051T and 2051G	Zero shifts up to ± 2.5 inH ₂ O (6,2 mbar), which can be calibrated out. No span effect.
Rosemount 2051L	With liquid level diaphragm in vertical plane, zero shift of up to 1 inH ₂ O (2,49 mbar). With diaphragm in horizontal plane, zero shift of up to 5 inH ₂ O (12,43 mbar) plus extension length on extended units. 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 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.

Electromagnetic compatibility (EMC)

Meets all industrial environment requirements of EN61326 and NAMUR NE-21. Maximum deviation $< 1\%$ 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 4-20mA (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)

Meets IEEE C62.41, category location B

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

Functional specifications

Range and sensor limits

Table 8: Range and Sensor Limits for Rosemount 2051CD, 2051CF, 2051CG, 2051L models

Range	Minimum span	Upper (URL)	Lower (LRL)			
			Rosemount™ 2051C Differential, 2051CF flow meters	Rosemount 2051C Gage ⁽¹⁾	Rosemount 2051L Differential	Rosemount 2051L Gage ⁽¹⁾
1	0.5 inH ₂ O (1,2 mbar)	25 inH ₂ O (62,3 mbar)	–25 inH ₂ O (–62,1 mbar)	–25 inH ₂ O (–62,1 mbar)	N/A	N/A
2	2.5 inH ₂ O (6,2 mbar)	250 inH ₂ O (0,62 bar)	–250 inH ₂ O (–0,62 bar)	–250 inH ₂ O (–0,62 bar)	–250 inH ₂ O (–0,62 bar)	–250 inH ₂ O (–0,62 bar)
3	10 inH ₂ O (24,9 mbar)	1000 inH ₂ O (2,49 bar)	–1000 inH ₂ O (–2,49 bar)	–393 inH ₂ O (–979 mbar)	–1000 inH ₂ O (–2,49 bar)	–393 inH ₂ O (–979 mbar)
4	3 psi (0,207 bar)	300 psi (20,7 bar)	–300 psi (–20,7 bar)	–14.2 psig (–979 mbar)	–300 psi (–20,7 bar)	–14.2 psig (–979 mbar)
5	20 psi (1,38 bar)	2000 psi (137,9 bar)	–2000 psi (–137,9 bar)		N/A	N/A

(1) Assumes atmospheric pressure of 14.7 psig.

Table 9: Range and Sensor Limits for Rosemount 2051T and 2051G Model

Range	Minimum span	Upper (URL)	Lower (LRL)(Abs)	Lower ⁽¹⁾ (LRL)(Gage)
1	0.3 psi (20,7 mbar)	30 psi (2,07 bar)	0 psia (0 bar)	–14.7 psig (–1,01 bar)
2	1.5 psi (0,103 bar)	150 psi (10,3 bar)		
3	8 psi (0,55 bar)	800 psi (55,2 bar)		
4	40 psi (2,76 bar)	4000 psi (275,8 bar)		
5 ⁽²⁾	2,000 psi (137,9 bar)	10,000 psi (689,5 bar)		

(1) Assumes atmospheric pressure of 14.7 psig.

(2) Rosemount 2051G is not available with range 5.

Service

Liquid, gas, and vapor applications

Protocols

4–20 mA HART(output code A)

Power supply

External power supply required. Standard transmitter 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, as described by:

Indication

Optional two line LOI/LCD display

Zero and span adjustment requirements

Zero and span values can be set anywhere within the range limits stated in [Table 8](#) and [Table 9](#).

Span must be greater than or equal to the minimum span stated in [Table 8](#) and [Table 9](#).

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.

Rosemount 2051

Digital communications based on HART Revision 5 Protocol.

Rosemount 2051 with Selectable HART

The Rosemount™ 2051 with Selectable HART 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.

LOI

The LOI utilizes 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 2051 with Selectable HART Reference Manual](#) for LOI configuration menu.

FOUNDATION Fieldbus (output code F)

Power supply

External power supply required; transmitters operate on 9.0–32.0 Vdc transmitter terminal voltage for non-I.S. applications, 9.0–30 Vdc for entity model intrinsically safe applications and 9.0–17.5 Vdc for FISCO intrinsically safe applications.

Current draw

17.5 mA for all configurations (including LCD display option)

Indication

Optional two-line LCD display

FOUNDATION™ Fieldbus Function block Execution times

Block	Execution time
Resource	N/A
Transducer	N/A
LCD display block	N/A
Analog input 1, 2	20 milliseconds
PID	25 milliseconds
Arithmetic	20 milliseconds
Input selection	20 milliseconds
Signal characterizer	20 milliseconds
Integrator	20 milliseconds
Output splitter	20 milliseconds
Control selector	20 milliseconds

FOUNDATION Fieldbus parameters

Schedule entries	7 (max.)
Links	25 (max.)
Virtual communications relationships (VCR)	20 (max.)

Standard function blocks**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 including the sensor diagnostics and the ability to trim the pressure sensor or recall factory calibration.

LCD display transducer block

The LCD display transducer block is used to configure the LCD display meter.

Analog input (AI) block

The 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.

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.

Input selector (ISEL) block

The 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 (INT) block

The 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 Integrator 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 (ARTH) block

The 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 gauging, ratio control and others.

Signal characterizer (SGCR) block

The SGCR function block characterizes or approximates any function that defines an input/output relationship. The function is defined by configuring as many as twenty 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.

Proportional/integral/derivative (PID) block

The PID function block combines all of the necessary logic to perform 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 LAS if the current link master device fails or is removed from the segment.

PROFIBUS® PA (output code W)**Profile version**

3.02

Power supply

External power supply required; transmitters operate on 9.0–32.0 Vdc transmitter terminal voltage for non-I.S. applications, 9.0–30 Vdc for entity model intrinsically safe applications and 9.0–17.5 Vdc for FISCO intrinsically safe applications.

Current draw

17.5 mA for all configurations (including LCD display option)

Output update rate

Four times per second

Standard function blocks**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 including the sensor diagnostics and the ability to trim the pressure sensor or recall factory calibration.

LCD display transducer block

The LCD display transducer block is used to configure the LCD display meter.

Analog input (AI) block

The 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.

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.

Input selector (ISEL) block

The 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 (INT) block

The 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 Integrator 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 (ARTH) block

The 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 gauging, ratio control and others.

Signal characterizer (SGCR) block

The SGCR function block characterizes or approximates any function that defines an input/output relationship. The function is defined by configuring as many as twenty 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.

Proportional/integral/derivative (PID) block

The PID function block combines all of the necessary logic to perform 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.

Indication

Optional two-line LCD display

LOI

Optional 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 minutes

Wireless sensor module for in-line transmitters

The Rosemount™ 2051 Wireless Transmitter requires the engineered polymer housing to be selected. The standard sensor module will come with aluminum material. If SST is required, the option WSM must be selected.

Power module

Field replaceable, keyed connection eliminates the risk of incorrect installation, Intrinsically Safe Lithium-thionyl chloride Power Module with PBT/PC enclosure. 10-year life at one minute update rate.⁽¹⁾

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

Note

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

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

Three-wire 1–5 Vdc output, user-selectable for linear or square root output. Digital process variable superimposed on voltage signal, available to any host conforming to the HART® Protocol.

Rosemount 2051

Digital communications based on HART Revision 5 Protocol.

Rosemount 2051 with Selectable HART

The Rosemount™ 2051 with Selectable HART 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.

LOI

The LOI utilizes 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 2051 with Selectable HART Reference Manual](#) for LOI configuration menu.

Power supply

External power supply required. Standard transmitter operates on 90–28 Vdc with no load.

Power consumption

3.0 mA, 27–84 mW

Output load

100 kΩ or greater (meter input impedance)

Turn-on time

Performance within specifications less than two seconds after power is applied to the transmitter.

Output

IEC 62591 (WirelessHART®), 2.4 GHz DSSS

LOI

Optional external configuration buttons

Power supply

External power supply required; transmitters operate on 9.0–32.0 Vdc transmitter terminal voltage for non-I.S. applications, 9.0–30 Vdc for entity model intrinsically safe applications and 9.0–17.5 Vdc for FISCO intrinsically safe applications.

Overpressure limits

Transmitters withstand the following limits without damage:

Rosemount 2051C, 2051CF

- Ranges 2–5: 3,626 psig (250 bar) 4,500 psig (310,3 bar) for option code P9
- Range 1: 2,000 psig (137,9 bar)

Rosemount 2051T, 2051G

- Range 1: 750 psi (51,7 bar)
- Range 2: 1,500 psi (103,4 bar)
- Range 3: 1,600 psi (110,3 bar)
- Range 4: 6,000 psi (413,7 bar)
- Range 5: 15,000 psi (1034,2 bar)⁽¹⁾

Rosemount 2051L

Limit is flange rating or sensor rating, whichever is lower (See [Table 10](#)).

⁽¹⁾ The Rosemount™ 2051G is not available with range 5.

Table 10: Rosemount 2051L Flange Rating

Standard	Type	CS rating	SST rating
ANSI/ASME	Class 150	285 psig	275 psig
ANSI/ASME	Class 300	740 psig	720 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
At 248 °F (120 °C), the rating decreases with increasing temperature, per DIN 2401.			

Static pressure limit

Rosemount™ 2051CD, 2051CF

- Operates within specifications between static line pressures of –14.2 and 3626 psig (0,034 and 250 bar)
- For option code P9, 4500 psig (310,3 bar)
- Range 1: 0.5 psia to 2000 psig (34 mbar and 137,9 bar)

Burst pressure limits

Rosemount 2051C, 2051CF coplanar or traditional process flange

10,000 psig (689.5 bar)

Rosemount™ 2051T in-line

- Ranges 1–4: 11000 psi (758,4 bar)
- Range 5: 26000 psi (1792,6 bar)

Temperature limits

Ambient

–40 to 185 °F (–40 to 85 °C)

with LCD display: –40 to 175 °F (–40 to 80 °C)

Note

Rosemount® 2051 LCD display may not be readable and LCD display updates may be slower at temperatures below –22 °F (–30 °C).

Note

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

Storage

–50 to 230 °F (–46 to 110 °C)

Note

Rosemount 2051 LCD display may not be readable and LCD display updates may be slower at temperatures below –22 °F (–30 °C).

with LCD display: –40 to 185 °F (–40 to 85 °C)

with Wireless output: –40 to 185 °F (–40 to 85 °C)

Process

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

Table 11: Process Temperature Limits

Rosemount™ 2051C, 2051CF	
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⁾	–40 to 185 °F (–40 to 85 °C) ⁽³⁾
Rosemount 2051T (process fill fluid)	
Silicone fill sensor ⁽¹⁾	–40 to 250 °F (–40 to 121 °C) ⁽²⁾
Inert fill sensor ⁽¹⁾	–22 to 250 °F (–30 to 121 °C) ⁽²⁾
Rosemount 2051L 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) ⁽²⁾
Rosemount 2051L High Side Temperature Limits (process fill fluid)	
Syltherm™ XLT	–102 to 293 °F (–75 to 145 °C)
Silicone 704	32 to 401 °F (0 to 205 °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) 160 °F (71 °C) limit in vacuum service.

Humidity limits

0–100 percent relative humidity

Volumetric displacement

Less than 0.005 in³ (0,08 cm³)

Damping

4–20 mA HART Protocol

Rosemount™ 2051 with selectable HART®

Analog output response to a step input change is user-enterable from 0–60 seconds for one time constant. This software damping is in addition to sensor module response time.

Rosemount 2051

Analog output response to a step input change is user-selectable from 0.4–60 seconds for one time constant. This software damping is in addition to sensor module response time.

FOUNDATION™ Fieldbus Protocol

Transducer block: User configurable

AI block: User configurable

PROFIBUS® PA Protocol

AI block only: User configurable

Failure mode alarm

4–20 mA HART® Protocol (output 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 on the transmitter. The values to which the transmitter drives its output in failure mode depend on whether it is factory-configured to standard or NAMUR-compliant operation. The values for each are as follows:

Table 12: Standard Operation

Output code	Linear output	Fail high	Fail low
A	$3.9 \leq I \leq 20.8$	$I \geq 21.75 \text{ mA}$	$I \leq 3.75 \text{ mA}$
M	$0.97 \leq V \leq 5.2$	$V \geq 5.4 \text{ V}$	$V \leq 0.95 \text{ V}$

Table 13: NAMUR-Compliant Operation

Output code	Linear output	Fail high	Fail low
A	$3.8 \leq I \leq 20.5$	$I \geq 22.5 \text{ mA}$	$I \leq 3.6 \text{ mA}$

Output code F and X

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

Physical specifications

Material selection

Emerson provides a variety of Rosemount™ product 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

Process connections

Rosemount 2051C

- ¼–18 NPT on 2½-in. centers
- ½–14 NPT and RC½ on 2-in. (50,8 mm), 2½-in. (54,0 mm), or 2¼-in. (57,2 mm) centers (process adapters)

Rosemount 2051T, 2051G

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

Rosemount 2051L

- High pressure side: 2-in. (50,8 mm), 3-in. (72 mm), or 4-in. (102 mm), ASME B 16.5 (ANSI) Class 150 or 300 flange; 50, 80, or 100 mm, DIN 2501 PN 40 or 10/16 flange
- Low pressure side: ¼–18 NPT on flange, ½–14 NPT on process adapter

Rosemount 2051CF

- For Rosemount™ 2051CFA wetted parts, see [Rosemount DP Flow Meters and Primary Elements Product Data Sheet](#) in the 485 section
- For Rosemount 2051CFC wetted parts, see [Rosemount DP Flow Meters and Primary Elements Product Data Sheet](#) in the 405 section
- For Rosemount 2051CFP wetted parts, see [Rosemount DP Flow Meters and Primary Elements Product Data Sheet](#) in the 1195 section

Rosemount™ 2051C process wetted parts

Drain/vent valves

316 SST or alloy C-276

Process flanges and adapters

Plated CS, SST CF-8M (cast version of 316 SST, material per ASTM-A743), or CW2M (cast version of alloy C)

Wetted O-rings

Glass-filled PTFE or graphite-filled PTFE

Process isolating diaphragms

316L SST, alloy C-276, or tantalum

Rosemount™ 2051T process wetted parts**Process connections**

316L SST or alloy C-276

Process Isolating diaphragms

316L SST or alloy C-276

Rosemount™ 2051L 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 cast 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 for Rosemount 2051C, 2051T, 2051L, 2051G**Electronics housing**

Low-copper aluminum or CF-8M (cast version of 316 SST) Enclosures meet NEMA® Type 4X, IP66, and IP68 when properly installed.
Housing material code P: PBT/PC with NEMA 4X and IP66/67/68

Paint for aluminum housing

Polyurethane

Coplanar sensor module housing

CF-3M (cast version of 316L SST)

Bolts

ASTM A449, Type 1 (zinc-cobalt plated CS) ASTM F593G, Condition CW1 (austenitic 316 SST) ASTM A193, Grade B7M (zinc plated alloy steel) Alloy K-500

Sensor module fill fluid

Silicone or inert halocarbon

In-line series uses Fluorinert® FC-43

Process fill fluid (Rosemount™ 2051L only)

Syltherm™ XLT, Silicone 704, Silicone 200, inert, glycerin and water, Neobee® M-20, or propylene glycol and water

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

Table 14: Transmitter Weights without Options

Transmitter weights include the sensor module and housing only (aluminum for standard Rosemount™ 2051 and polymer for wireless).

Transmitter	Standard lb (kg)	Wireless lb (kg)
Rosemount 2051C	4.9 (2.2)	3.9 (1,8)
Rosemount 2051L	See Table 15	See Table 15
Rosemount 2051T	3.1 (1.4)	1.9 (0,86)
Rosemount 2051G	2.4 (1,1)	N/A

Table 15: Rosemount 2051L 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)
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 16: Transmitter Options Weights

Code	Option	Add lb (kg)
J, K, L, M	SST housing	3.9 (1,8)
M5	LCD display for aluminum housing	0.5 (0,2)

Table 16: Transmitter Options Weights (continued)

Code	Option	Add lb (kg)
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	2.6 (1,2)
H3	Traditional flange	3.0 (1,4)
H4	Traditional flange	3.0 (1,4)
H7	Traditional flange	2.7 (1,2)
FC	Level flange—3-in., Class 150	12.7 (5,8)
FD	Level flange—3-in., Class 300	15.9 (7,2)
FA	Level flange—2-in., Class 150	8.0 (3,6)
FB	Level flange—2-in., Class 300	8.4 (3,3)
FP	DIN level flange, SST, DN 50, PN 40	7.8 (3,5)
FQ	DIN level flange, SST, DN 80, PN 40	12.7 (5,8)
WSM	SST sensor module	1.0 (0,45)
	Power Module (701PGNKF)	0.4 (0,18)

Rosemount™ 2051 Product Certifications

Rev 1.11

European directive information

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

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).

Hazardous location certifications

Note

Device ambient temperature ratings and electrical parameters may be limited to the levels dictated by the hazardous location certificate parameters.

Rosemount™ 2051C/T/L

Rev 1.5

European Directive Information

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

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)

Certificate: FM16US0232

Standards: FM Class 3600 – 2011, FM Class 3615 – 2006, FM Class 3616 – 2011, FM Class 3810 – 2005, ANSI/NEMA 250 – 2008, ANSI/IEC 60529 2004

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

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

Certificate: FM16US0231X

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 02051-1009; Class I, Zone 0; AEx ia IIC T4; NI CL 1, DIV 2, GP A, B, C, D; T4(–50 °C ≤ T_a ≤ +70 °C); Type 4X

Special Condition for Safe Use (X):

1. The Rosemount 2051 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.

IE USA FISCO

Certificate: FM16US0231X

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 02051-1009 (–50 °C ≤ T_a ≤ +60 °C); Type 4X

E6 Canada Explosion-Proof, Dust Ignition Proof

Certificate: 2041384

Standards: CAN/CSA C22.2 No. 0-10,
CSA Std C22.2 No. 25-1966,
CSA Std C22.2 No. 30-M1986,
CAN/CSA-C22.2 No. 94-M91,
CSA Std C22.2 No.142-M1987,
CAN/CSA-C22.2 No.157-92,
CSA Std C22.2 No. 213-M1987,
CAN/CSA-E60079-0:07,
CAN/CSA-E60079-1:07,
CAN/CSA-E60079-11-02,
CAN/CSA-C22.2 No. 60529:05,
ANSI/ISA-12.27.01–2003

Markings: Explosion-Proof for Class I, Divisions 1, Groups B, C, and D. Dust-Ignition Proof for Class II and Class III, Division 1, Groups E, F, and G. Suitable for Class I, Division 2; Groups A, B, C, and D for indoor and outdoor hazardous locations. Class I Zone 1 Ex d IIC T5. Enclosure type 4X, factory sealed. Single Seal.

I6 Canada Intrinsic Safety

Certificate: 2041384

Standards: CSA Std. C22.2 No. 142 - M1987,
CSA Std. C22.2 No. 213 - M1987,
CSA Std. C22.2 No. 157 - 92,
CSA Std. C22.2 No. 213 - M1987,
ANSI/ISA 12.27.01 – 2003,
CAN/CSA-E60079-0:07,
CAN/CSA-E60079-11:02

Markings: Intrinsically safe for Class I, Division 1, Groups A, B, C, and D when connected in accordance with Rosemount drawing 02051-1008. Ex ia IIC T3C. Single Seal. Enclosure Type 4X

Europe

E1 ATEX Flameproof

Certificate: KEMA 08ATEX0090X

Standards: EN 60079-0:2012 + A11:2013, EN 60079-1:2014, EN 60079-26:2015


Markings:  II 1/2 G Ex db IIC Ga/Gb T6 (–60 °C ≤ T_a ≤ +70 °C), T4/T5 (–60 °C ≤ T_a ≤ +80 °C)

Table 17: Process Connection Temperature

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

Special Conditions for Safe Use (X):

1. Appropriate cable, glands and plugs need to be suitable for a temperature of 5 °C greater than maximum specified temperature for location where installed.
2. 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.
3. The device contains a thin wall diaphragm 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 data sheet 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 shall be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
4. Flameproof joints are not intended for repair.

I1 ATEX Intrinsic Safety

Certificate: Baseefa08ATEX0129X

Standards: EN60079-0:2012, EN60079-11:2012

Markings: Ⓔ II 1 G Ex ia IIC T4 Ga ($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Table 18: Input Parameters

Parameter	HART®	FOUNDATION™ Fieldbus/PROFIBUS® PA
Voltage U_i	30 V	30 V
Current I_i	200 mA	300 mA
Power P_i	1.0 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 incapable of withstanding the 500 V isolation from earth test and this must be taken into account during installation.
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 and abrasion when located in Zone 0.

IA ATEX FISCO

Certificate: Baseefa08ATEX0129X

Standards: EN60079-0:2012, EN60079-11:2012

Markings: Ⓔ II 1 G Ex ia IIC T4 Ga ($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$)

Table 19: Input Parameters

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

Special Conditions for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test and this must be taken into account during installation.
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 and abrasion when located in Zone 0.

N1 ATEX Type n

Certificate: Baseefa08ATEX0130X

Standards: EN60079-0:2012, EN60079-15:2010

Markings: Ⓔ II 3G Ex nA IIC T4 Gc ($-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Condition for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V electrical strength test as defined in clause 6.5.1 of by EN 60079-15:2010. This must be taken into account during installation.

ND ATEX Dust

Certificate: Baseefa08ATEX0182X
Standards: EN60079-0:2012, EN60079-31:2009
Markings: Ⓔ II 1 D Ex ta IIIC T95 °C T₅₀₀ 105 °C Da (–20 °C ≤ T_a ≤ +85 °C)

Special Condition for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test and this must be taken into account during installation.

International**E7 IECEx Flameproof**

Certificate: IECExKEM08.0024X
Standards: IEC 60079-0:2011, IEC 60079-1:2014-06, IEC 60079-26:2014-10
Markings: Ex db IIC T6...T4 Ga/Gb; T6(–60 °C ≤ T_a ≤ +70 °C), T4/ T5(–60 °C ≤ T_a ≤ +80 °C)

Table 20: Process Connection Temperature

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

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm 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 data sheet 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 shall be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. Appropriate cable, glands and plugs need to be suitable for a temperature of 5 °C greater than maximum specified temperature for location where installed.
3. Flameproof joints are not intended for repair.
4. 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.

I7 IECEx Intrinsic Safety

Certificate: IECExBAS08.0045X
Standards: IEC60079-0:2011, IEC60079-11:2011
Markings: Ex ia IIC T4 Ga (–60 °C ≤ T_a ≤ +70 °C)

Table 21: Input Parameters

Parameter	HART®	FOUNDATION™ Fieldbus/PROFIBUS® PA
Voltage U _i	30 V	30 V
Current I _i	200 mA	300 mA

Table 21: Input Parameters (continued)

Parameter	HART®	FOUNDATION™ Fieldbus/PROFIBUS® PA
Power P_i	1.0 W	1.3 W
Capacitance C_i	0.012 μ F	0 μ F
Inductance L_i	0 mH	0 mH

Special Condition for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test and this must be taken into account during installation.
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 and abrasion when located in Zone 0.

IG IECEx FISCO

Certificate:	IECExBAS08.0045X
Standards:	IEC60079-0:2011, IEC60079-11:2011
Markings:	Ex ia IIC T4 Ga ($-60\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$)

Table 22: Input Parameters

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

Special Condition for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test and this must be taken into account during installation.
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 and abrasion when located in Zone 0.

N7 IECEx Type n

Certificate:	IECExBAS08.0046X
Standards:	IEC60079-0:2011, IEC60079-15:2010
Markings:	Ex nA IIC T4 Gc ($-40\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$)

Special Condition for Safe Use (X):

1. If fitted with a 90 V transient suppressor, the equipment is not capable of withstanding the 500 V electrical strength test as defined in clause 6.5.1 of IEC60079-15:2010. This must be taken into account during installation.

Brazil

E2 INMETRO Flameproof

Certificate: UL-BR 14.0375X

Standards: ABNT NBR IEC60079-0:2008 + Errata 1:2011, ABNT NBR IEC 60079-1:2009 + Errata 1:2011, ABNT NBR IEC 60079-26:2008 + Errata 1:2009

Markings: Ex d IIC T6/T5 Gb IP66, T6($-50^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$), T5($-50^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. The Ex d blanking elements, cable glands, and wiring shall be suitable for a temperature of 90 °C.
3. In case of repair, contact the manufacturer for information on the dimensions of the flameproof joints.

I2 INMETRO Intrinsic Safety

Certificate: UL-BR 14.0759X

Standards: ABNT NBR IEC 60079-0:2008 + Errata 1:2011; ABNT NBR IEC 60079-11:2009

Markings: Ex ia IIC T4 Ga ($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Table 23: Input Parameters

Parameter	HART	FOUNDATION™ Fieldbus/ PROFIBUS® PA
Voltage U_i	30 V	30 V
Current I_i	200 mA	300 mA
Power P_i	1 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 incapable of withstanding the 500 V insulation from earth test and this must be taken into account during installation.
2. The enclosure may be made of aluminium alloy and given a protective polyurethane paint finish; however care should be taken to protect it from impact and abrasion when located in atmospheres that require ELP Ga.

IB INMETRO FISCO

Certificate: UL-BR 14.0759X

Standards: ABNT NBR IEC 60079-0:2008 + Errata 1:2011; ABNT NBR IEC 60079-11:2009

Markings: Ex ia IIC T4 Ga ($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$)

Table 24: Input Parameters

Parameter	FISCO
Voltage U_i	17.5 V
Current I_i	380 mA

Table 24: Input Parameters
(continued)

Parameter	FISCO
Power P_i	5.32 W
Capacitance C_i	0 μ F
Inductance L_i	0 mH

Special Conditions for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V insulation from earth test and this must be taken into account during installation.
2. The enclosure may be made of aluminium alloy and given a protective polyurethane paint finish; however care should be taken to protect it from impact and abrasion when located in atmospheres that require ELP Ga.

China**E3 China Flameproof**

Certificate: GYJ13.1386X; GYJ5.1366X [Flow meters]

Standards: GB3836.1-2010, GB3836.2-2010, GB3836.20-2010-2010

Markings: Pressure transmitter: Ex d IIC Gb, T6($-50\text{ }^{\circ}\text{C} \leq T_a \leq +65\text{ }^{\circ}\text{C}$), T5($-50\text{ }^{\circ}\text{C} \leq T_a \leq +80\text{ }^{\circ}\text{C}$)
Flow Meter: Ex d IIC Ga/Gb, T6($-50\text{ }^{\circ}\text{C} \leq T_a \leq +65\text{ }^{\circ}\text{C}$), T5($-50\text{ }^{\circ}\text{C} \leq T_a \leq +80\text{ }^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

1. Symbol "X" is used to denote specific conditions of use:
 - The Ex d blanking elements, cable glands, and wiring shall be suitable for a temperature of 90 °C.
 - This device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environment conditions to which the diaphragm will be subjected.
2. The relation between T code and ambient temperature range is:

T_a	Temperature class
$-50\text{ }^{\circ}\text{C} \leq T_a \leq +80\text{ }^{\circ}\text{C}$	T5
$-50\text{ }^{\circ}\text{C} \leq T_a \leq +65\text{ }^{\circ}\text{C}$	T6

3. The earth connection facility in the enclosure should be connected reliably.
4. During installation, use and maintenance of the product, observe the warning "Don't open the cover when the circuit is alive."
5. During installation, there should be no mixture harmful to flameproof housing.
6. Cable entry and conduit, certified by NEPSI with type of protection Ex d IIC and appropriate thread form, should be applied when installed in a hazardous location. Blanking elements should be used on the redundant cable entries.
7. End users are not permitted to change any internal components, but to settle the problem in conjunction with the manufacturer to avoid damage to the product.
8. Maintenance should be done in a non-hazardous location.
9. During installation, use and maintenance of this product, observe the following standards: GB3836.13-2013, GB3836.15-2000, GB3836.16-2006, GB50257-2014.

I3 China Intrinsic Safety

Certificate: GYJ12.1295X; GYJ15.1365X [Flow meters]
Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
Markings: Ex ia IIC T4 Ga ($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

- Symbol "X" is used to denote specific conditions of use:
 - If the apparatus is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test for 1 minute. This must be taken into account when installing the apparatus.
 - 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 if located in Zone 0.
- The relation between T code and ambient temperature range is:

Model	T code	Temperature range
HART®, FOUNDATION™ Fieldbus, PROFIBUS® PA, and low power	T4	$-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$

- Intrinsically safe parameters:

Parameter	HART	FOUNDATION Fieldbus/ PROFIBUS PA	FISCO
Voltage U_i	30 V	30 V	17.5 V
Current I_i	200 mA	300 mA	380 mA
Power P_i	1 W	1.3 W	5.32 W
Capacitance C_i	0.012 μF	0 μF	0 nF
Inductance L_i	0 mH	0 mH	0 μF

Note 1: FISCO parameters comply with the requirements for FISCO field devices in GB3836.19-2010. Note 2: [For flow meters] When Rosemount™ 644 Temperature Transmitter is used, the transmitter should be used with Ex-certified associated apparatus to establish explosion protection system that can be used in explosive gas atmospheres. Wiring and terminals should comply with the instruction manual of both Rosemount 644 and associated apparatus. The cables between Rosemount 644 and associated apparatus should be shielded cables (the cables must have insulated shield). The shielded cable has to be grounded reliably in a non-hazardous area.

- The product should be used with Ex-certified associated apparatus to establish explosion protection system that can be used in explosive gas atmospheres. Wiring and terminals should comply with the instruction manual of the product and associated apparatus.
- The cables between this product and associated apparatus should be shielded cables (the cables must have insulated shield). The shielded cable has to be grounded reliably in a non-hazardous area.
- End users are not permitted to change any internal components, and needs to settle the problem in conjunction with the manufacturer to avoid damage to the product.
- During installation, use and maintenance of this product, observe the following standards: GB3836.13-2013, GB3836.15-2000, GB3836.16-2006, GB3836.18-2010, GB50257-2014.

Japan**E4 Japan Flameproof**

Certificate: TC20598, TC20599, TC20602, TC20603 [HART®];

TC20600, TC20601, TC20604, TC20605 [FOUNDATION™ Fieldbus]

Markings: Ex d IIC T5

Technical Regulations Customs Union (EAC)

EM EAC Flameproof

Certificate: RU C-US.GB05.B.01199

Markings: Ga/Gb Ex d IIC T5/T6 X, T5($-50^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$), T6($-50^{\circ}\text{C} \leq T_a \leq +65^{\circ}\text{C}$)

Special Condition for Safe Use (X):

1. See certificate for special conditions.

IM EAC Intrinsically Safe

Certificate: RU C-US.GB05.B.01199

Markings: 0Ex ia IIC T4 Ga X ($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Combinations

K1 Combination of E1, I1, N1, and ND

K2 Combination of E2 and I2

K5 Combination of E5 and I5

K6 Combination of E6 and I6

K7 Combination of E7, I7, N7 and IECEx Dust

IECEx Dust

Certificate: IECExBAS08.0058X

Standards: IEC60079-0:2011, IEC60079-15:2010

Markings: Ex nA IIIC T95 °C T₅₀₀ 105 °C Da ($-20^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$)

Special Condition for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding a 500 V isolation from earth test and this must be taken into account during installation.

KA Combination of E1, I1, and K6

KB Combination of K5 and K6

KC Combination of E1, I1, and K5

KD Combination of K1, K5, and K6

KM Combination of EM and IM

Additional certifications

SBS American Bureau of Shipping (ABS) Type Approval

Certificate: 09-HS446883B-3-PDA

Intended use: Marine and Offshore Applications Measurement of either Gauge or Absolute Pressure for Liquid, Gas, and Vapor

ABS Rules: 2013 Steel Vessels Rules 1-1-4/7.7, 1-1-Appendix 3, 4-8-3/1.7, 4-8-3/13.1

SBV Bureau Veritas (BV) Type Approval

Certificate: 23157/B0 BV

BV Rules: Bureau Veritas Rules for the Classification of Steel Ships

Application: Class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS; Rosemount 2051 cannot be installed on diesel engines.

SDN Det Norske Veritas (DNV) Type Approval

Certificate: TAA00004F

Intended use: DNV GL Rules for Classification — Ships and offshore units

Application:

Locations classes	
Type	2051
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

Rosemount™ 2051G

Rev 1.5

European Directive Information

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

International

E7 IECEx Flameproof

Certificate:	IECEx KEM 06.0021X
Standards:	IEC 60079-0:2011, IEC 60079-1:2014, IEC 60079-26:2014
Markings:	Ex db IIC T6...T4 Ga/Gb T6($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$), T5/T4($-60^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$)

Table 25: Process Connection Temperature

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

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm 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 data sheet 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.
4. Appropriate cable, glands and plugs need to be suitable for a temperature of 5°C greater than maximum specified temperature for location where installed.

I7 IECEx Intrinsic Safety

Certificate:	IECEx BAS 12.0071X
Standards:	IEC60079-0:2011, IEC60079-11:2011
Markings:	Ex ia IIC T4 Ga ($-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Table 26: Input Parameters

Voltage U_i	30 V
Current I_i	200 mA
Power P_i	0.9 W
Capacitance C_i	0.012 μF

Special Conditions for Safe Use (X):

1. When fitted with a transient suppression terminal block, the Rosemount™ 2088 is incapable of passing the 500 V isolation test. This must be taken into account during installation.
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 if located in a Zone 0 environment.

N7 IECEx Type n

Certificate: IECEx BAS 12.0072X
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. When fitted with a transient suppression terminal block, the Rosemount 2088 is incapable of passing the 500 sV isolation test. This must be taken into account during installation.

NK IECEx Dust

Certificate: IECEx BAS12.0073X
Standards: IEC60079-0:2011, IEC60079-31:2008
Markings: Ex t IIIC T55 $^{\circ}\text{C} \leq T_{500} 60^{\circ}\text{C}$ Da

Table 27: Input Parameters

	HART®
Voltage U_i	36 V
Current I_i	24 mA

Special Conditions for Safe Use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient range of the apparatus and capable of withstanding a 7J impact test.

Brazil**E2 INMETRO Flameproof**

Certificate: UL-BR 15.0728X
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 T4/T5 ($-60^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$),
T6 ($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm 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 data sheet 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 13.0246X

Standards: ABNT NBR IEC60079-0:2008 + Errata 1:2011, ABNT NBR IEC60079-11:2009

Markings: Ex ia IIC T4 Ga ($-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$),
T6($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Table 28: Input Parameters

Voltage U_i	30 V
Current I_i	200 mA
Power P_i	0.9 W
Capacitance C_i	0.012 μF
Inductance L_i	0 mH

Special Conditions for Safe Use (X):

1. When fitted with a transient suppression terminal block, the Rosemount™ 2088 is incapable of passing the 500 V isolation test. This must be taken into account during installation.
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 if located in a zone 0 environment (areas that require EPL Ga).

China

E3 China Flameproof

Certificate: GYJ17.1158X

Standards: GB3836.1-2010, GB3836.2-2010, GB3836.20-2010

Markings: : Ex d IIC T6~T4 Ga/Gb, T5/T4($-60^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$), T6($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Condition for Safe Use (X):

1. Contact the original manufacturer when repair work relates to the flamepath.

I3 China Intrinsic Safety

Certificate: GYJ17.1157X

Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010

Markings: Ex ia IIC T4 Ga ($-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

1. The enclosure may contain light metal, attention should be taken to avoid ignition hazard due to impact or friction when used in Zone 0.
2. When transient protection board is chosen (option code T1), this apparatus is not capable of withstanding the 500 V r.m.s insulation test required by clause 6.3.12 of GB3836.4-2010.

N3 China Type n

Certificate: GYJ17.1159X
Standards: GB3836.1-2010, GB3836.8-2014
Markings: Ex nA IIC T5 Gc ($-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Condition for Safe Use (X):

- When transient protection board is chosen (option code T1), this apparatus is not capable of withstanding the 500 V r.m.s insulation test required by Clause 6.3.12 of GB3836.4-2010.

Technical Regulations Customs Union (EAC)**EM EAC Flameproof**

Certificate: TC RU C-US.AA87.B.00534
Standards: GB3836.1-2010, GB3836.2-2010, GB3836.20-2010
Markings: :Ga/Gb Ex db IIC T5/T6 X, T5($-60^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$), T6($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Condition for Safe Use (X):

- See certificate for special conditions.

IM EAC Intrinsic Safety

Certificate: TC RU C-US.AA87.B.00534
Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
Markings: 0Ex ia IIC T4 Ga X, T4($-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

- See certificate for special conditions.

Conduit plugs and adapters**IECEx Flameproof and Increased Safety**

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

ATEX Flameproof and Increased Safety

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

Table 29: Conduit Plug Thread Sizes

Thread	Identification mark
M20 x 1.5	M20
½ – 14 NPT	½NPT
G½	

Table 30: Thread Adapter Thread Sizes

Male thread	Identification mark
M20 x 1.5 – 6H	M20
½ – 14 NPT	
¾ – 14 NPT	
Female thread	Identification mark
M20 x 1.5 – 6H	M20
½ – 14 NPT	
G½	

Special Conditions for Safe Use (X):

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

Rosemount™ 2051 Wireless

Rev 1.2

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.

Telecommunication compliance

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

FCC and IC

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

Ordinary Location Certification

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

Installing in North America

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

USA

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

Certificate: FM 3046325

Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3810 – 2005, ANSI/ISA 60079-0 – 2009, ANSI/ISA 60079-11 – 2009, NEMA 250 – 2003, ANSI/IEC 60529

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 2051 Wireless Pressure Transmitter shall only be used with the 701PGNKF Rosemount SmartPower Battery Pack.
2. The in-line 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.

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: Ⓔ II 1 G Ex ia IIC T4 Ga, T4(–40 °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 Rosemount™ 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(–40 °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 Rosemount™ 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):

1. See certificate for special conditions.

China**I3 China Intrinsic Safety**

Certificate: GYJ12.1295X GYJ15.1365X [Flow meters]

Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010

Markings: Ex ia IIC Ga T4, −40 ~ +70°C

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Japan**I4 TIIS Intrinsic Safety**

Certificate: TC22022X (Rosemount™ 2051C/L) TC22023X (Rosemount 2051T) TC22024X (Rosemount 2051CFx)

Markings: Ex ia IIC T4 Ga, T4(−20 ~ +60 °C)

Special Condition for Safe Use (X):

1. See certificate for special conditions.

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

Certificate: RU C-US.ГБ05.B.00390

Markings: 0Ex ia IIC T4 Ga X;

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Korea**IP Korea Intrinsic Safety**

Certificate: 13-KB4BO-0295X

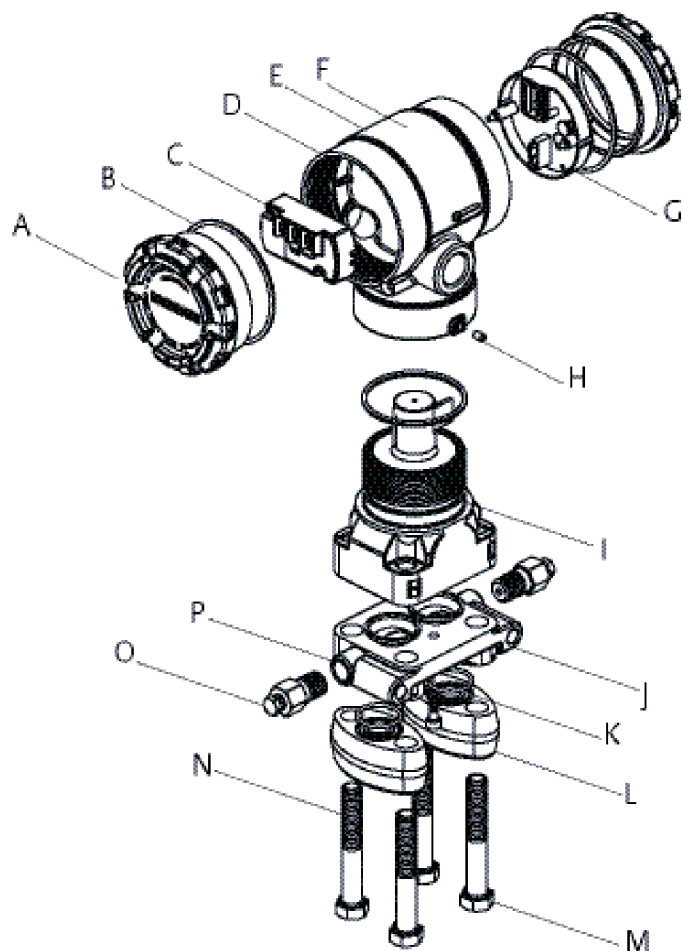
Markings: Ex ia IIC T4 ($-40\text{ °C} \leq T_a \leq +70\text{ °C}$)

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Dimensional drawings

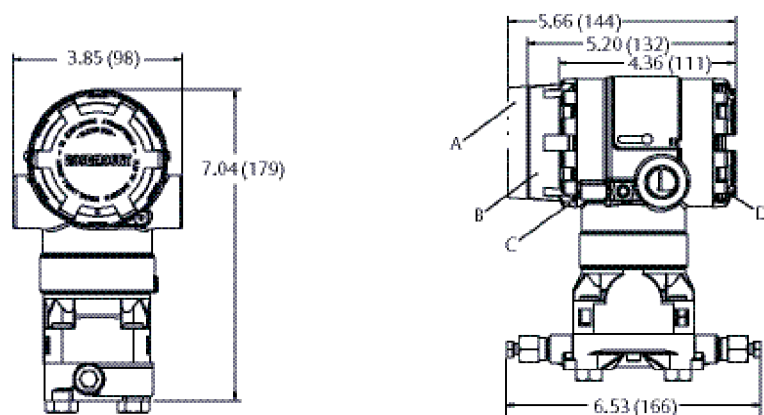
Figure 1: Rosemount 2051C Exploded View



- A. Cover
- B. Cover O-ring
- C. Terminal block
- D. Electronics housing
- E. Local configuration buttons
- F. Nameplate
- G. Electronics board
- H. Housing rotation set screw (180° maximum housing rotation without further disassembly)
- I. Sensor module
- J. Process O-ring
- K. Flange adapter O-ring
- L. Flange alignment screw (not pressure retaining)
- M. Flange bolts
- N. Flange adapters
- O. Drain/vent valve
- P. Coplanar flange

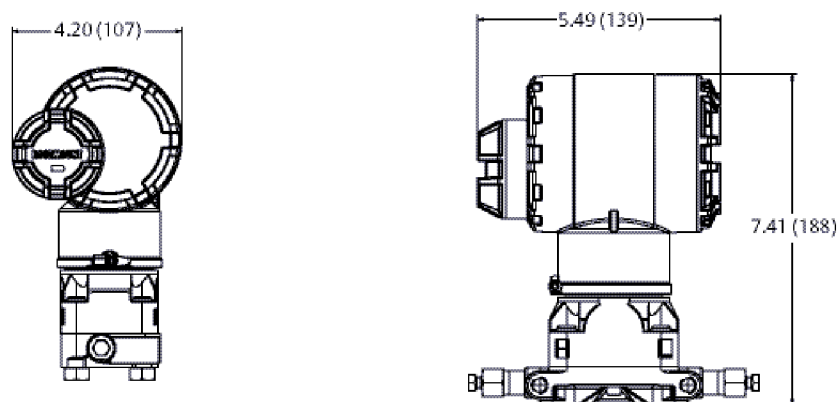
Note

Local configuration buttons: Span and zero adjustment buttons are optional with 4–20 mA and 1–5 Vdc HART™ Protocol. LOI buttons are optional for PROFIBUS® PA Protocol. Local configuration buttons are not available with FOUNDATION™ Fieldbus Protocol.

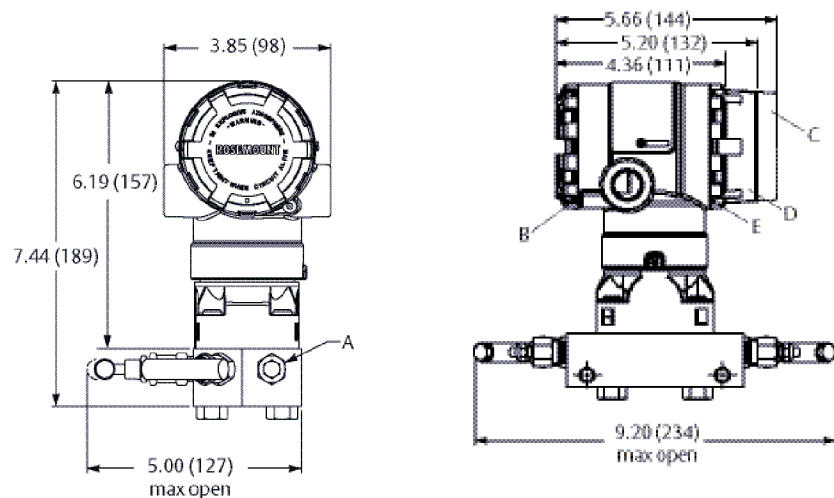
Figure 2: Rosemount 2051C Coplanar Flange

- A. FOUNDATION Fieldbus display cover
- B. HART display cover
- C. Transmitter circuitry
- D. Terminal connections

Dimensions are in inches (millimeters).

Figure 3: Rosemount 2051 Wireless Housing with Coplanar Platform

Dimensions are in inches (millimeters).

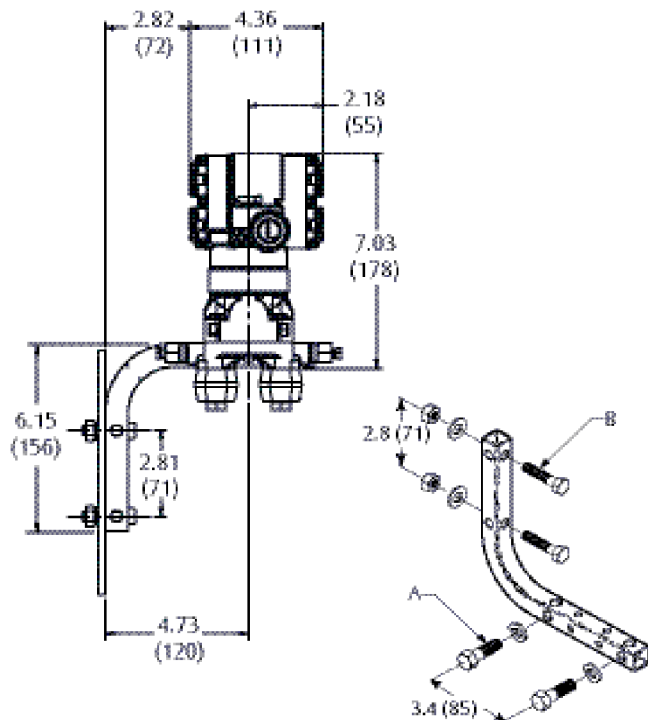
Figure 4: Rosemount 2051C Coplanar with Rosemount 305 Three-Valve Coplanar Integral Manifold

- A. Drain/vent valve
- B. Terminal connections
- C. FOUNDATION Fieldbus display cover

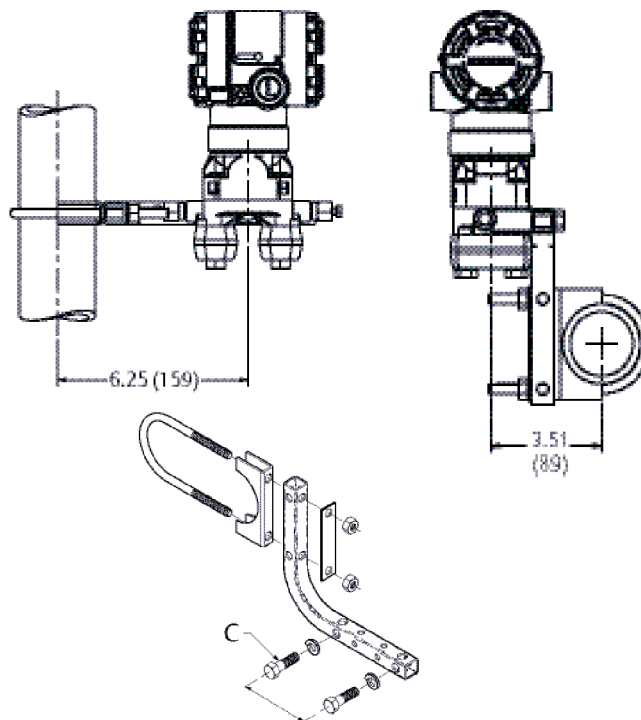
Dimensions are in inches (millimeters).

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

Panel mounting



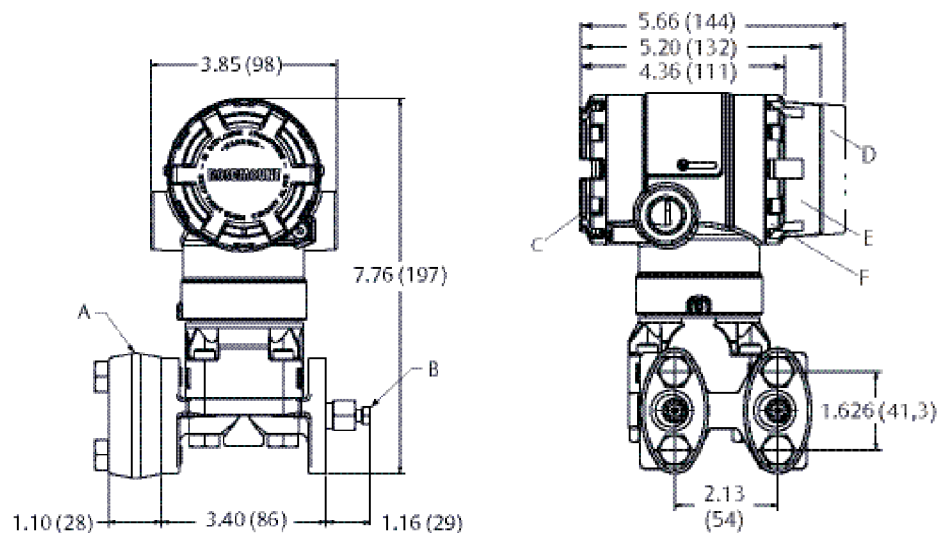
Pipe mounting



- A. 3/8-16 x 11/4 bolts for mounting to transmitter
- B. 5/16 x 11/2 bolts for panel mounting (not supplied)
- C. 2-in. U-bolt for pipe mounting

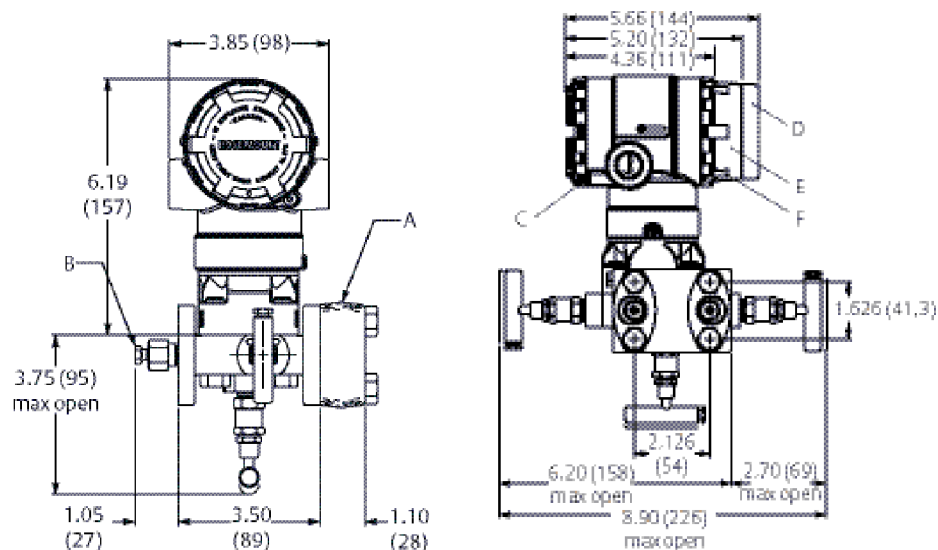
Dimensions are in inches (millimeters).

Figure 6: Rosemount 2051C Coplanar with Traditional Flange



- A. 1/2-14 NPT flange adapter (optional)
- B. Drain/vent valve
- C. Terminal connections
- D. FOUNDATION Fieldbus display cover
- E. HART display cover
- F. Transmitter circuitry

Dimensions are in inches (millimeters).

Figure 7: Rosemount 2051C Coplanar with Rosemount 305 Three-Valve Traditional Integral Manifold

- A. 1/2-14 NPT flange adapter (optional)
- B. Drain/vent valve
- C. Terminal connections
- D. FOUNDATION Fieldbus display cover
- E. HART display cover
- F. Transmitter circuitry

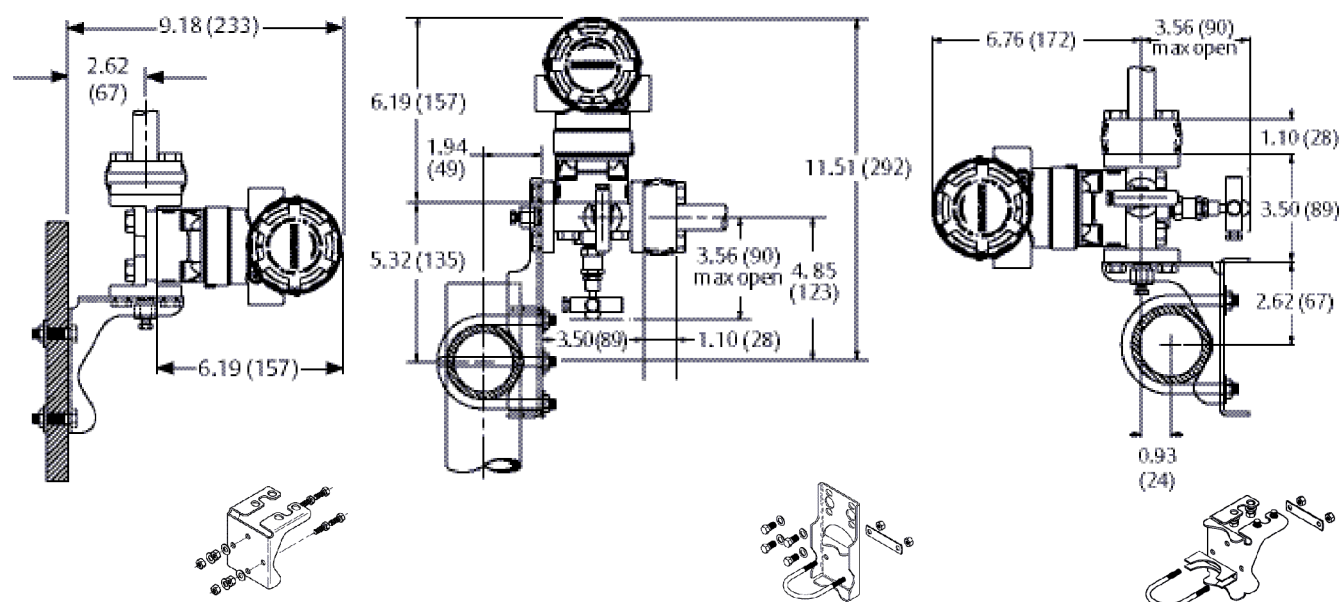
Dimensions are in inches (millimeters).

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

Panel mount (bracket option B2/B8)

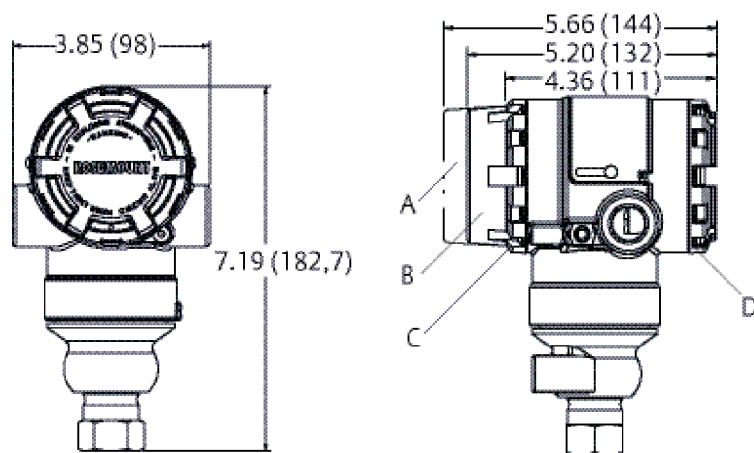
Pipe mount (bracket option B3/B9/BC)

Pipe mount (bracket option B1/B7/BA)



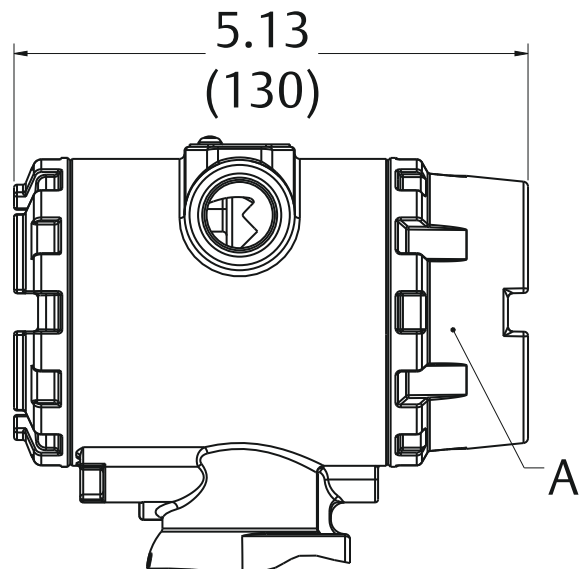
Dimensions are in inches (millimeters).

Figure 9: Rosemount 2051T

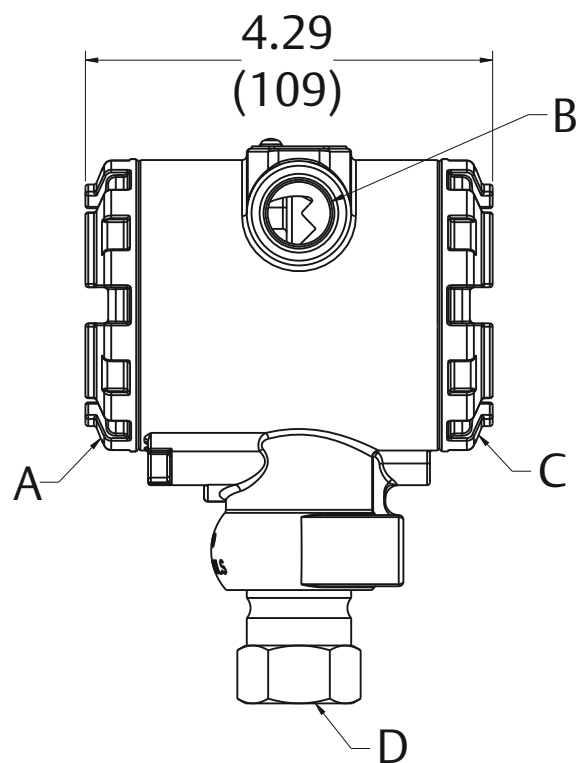


- A. FOUNDATION Fieldbus display cover
- B. HART display cover
- C. Transmitter circuitry
- D. Terminal connections

Dimensions are in inches (millimeters).

Figure 10: Rosemount 2051G with Optional Display

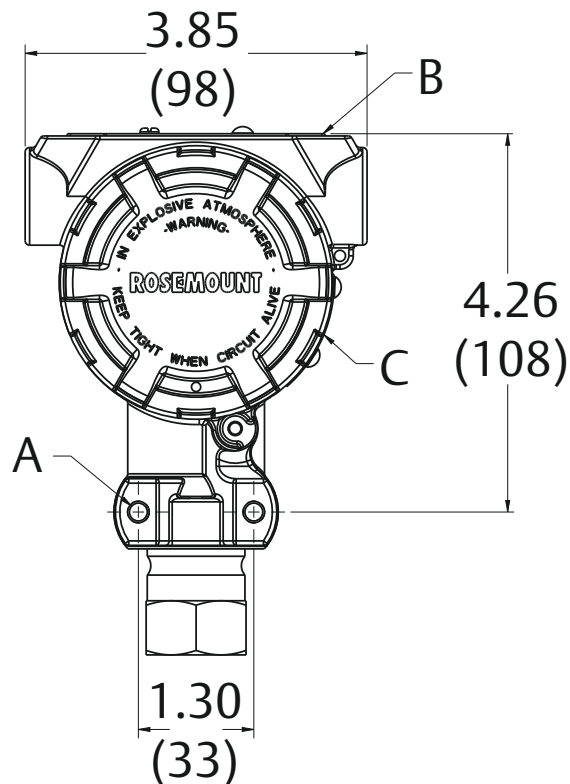
A. Digital display cover

Figure 11: Rosemount 2051G Process Connection

- A. Field terminals
- B. Conduit connection
- C. Transmitter electronics
- D. $\frac{1}{2}$ -14 NPT female connection⁽²⁾

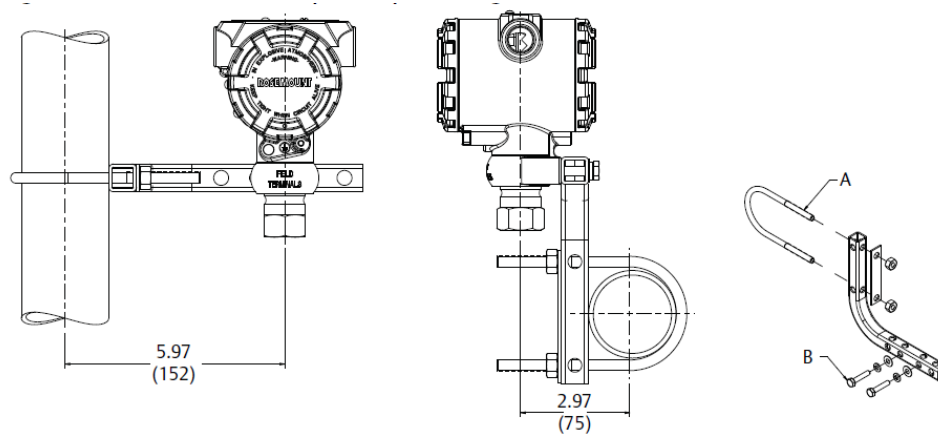
(2) RC $\frac{1}{2}$ female (PT $\frac{1}{2}$ female), and M20 female also available as options.

Figure 12: Rosemount 2051G Nameplate and Labels



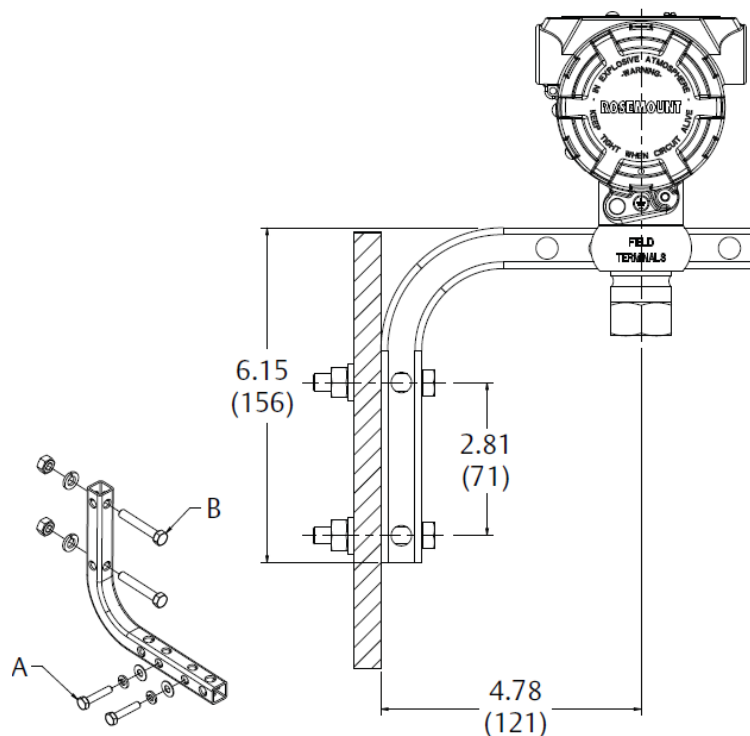
- A. Bracket mounting holes ($\frac{1}{4}$ -20 UNC)
- B. Nameplate
- C. Certification label (located on side)

Figure 13: Rosemount 2051G with Optional Pipe Mounting Bracket



- A. 2-in. U-bolt for pipe mounting (clamp shown)
- B. $\frac{1}{4}$ x $1\frac{1}{4}$ bolts for transmitter mounting

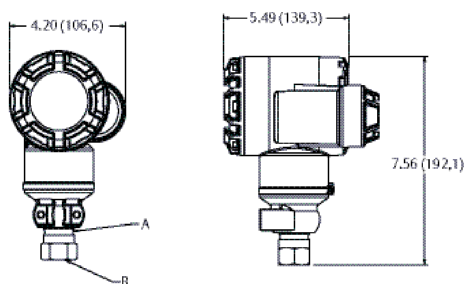
Dimensions are in inches (millimeters).

Figure 14: Rosemount 2051G with Optional Mounting Bracket

A. $\frac{1}{4} \times 1\frac{1}{4}$ bolts for transmitter mounting

B. $\frac{5}{16} \times \frac{1}{2}$ bolts for panel mounting (not supplied)

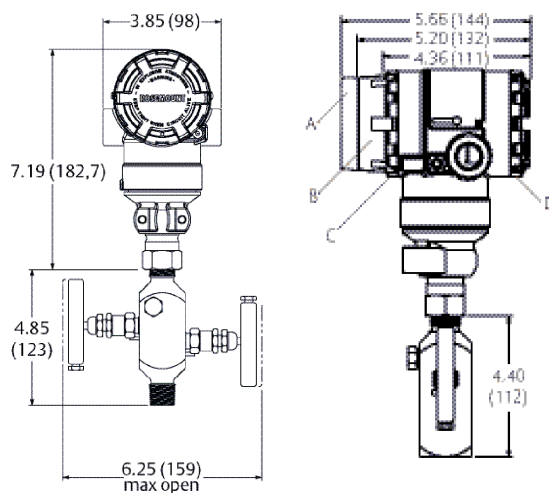
Dimensions are in inches (millimeters)

Figure 15: Rosemount 2051 Wireless Housing with In-line Platform

A. U-bolt bracket

B. $\frac{1}{2}$ -14 NPT female or G $\frac{1}{2}$ A DIN 16288 make process connection

Dimensions are in inches (millimeters).

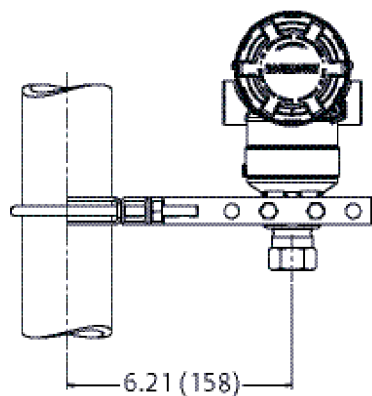
Figure 16: Rosemount 2051T with Rosemount 306 Two-Valve Integral Manifold

- A. FOUNDATION Fieldbus display cover
- B. HART display cover
- C. Transmitter circuitry
- D. Terminal connections

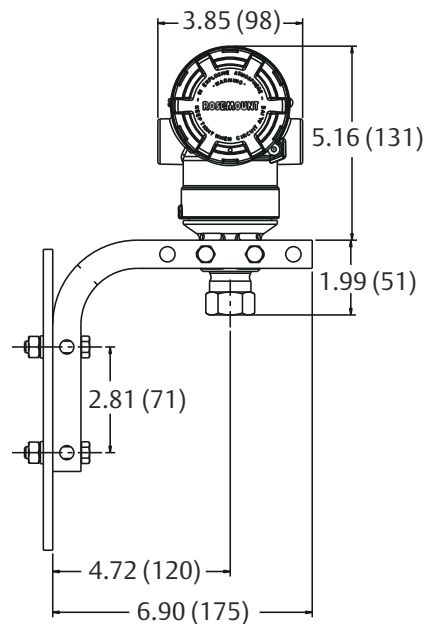
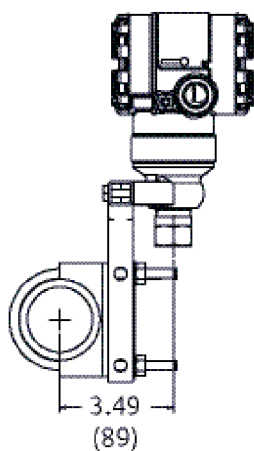
Dimensions are in inches (millimeters).

Figure 17: Rosemount 2051T Typical Mounting Configurations with Optional Mounting Bracket

Pipe mounting



Panel mounting



Dimensions are in inches (millimeters).

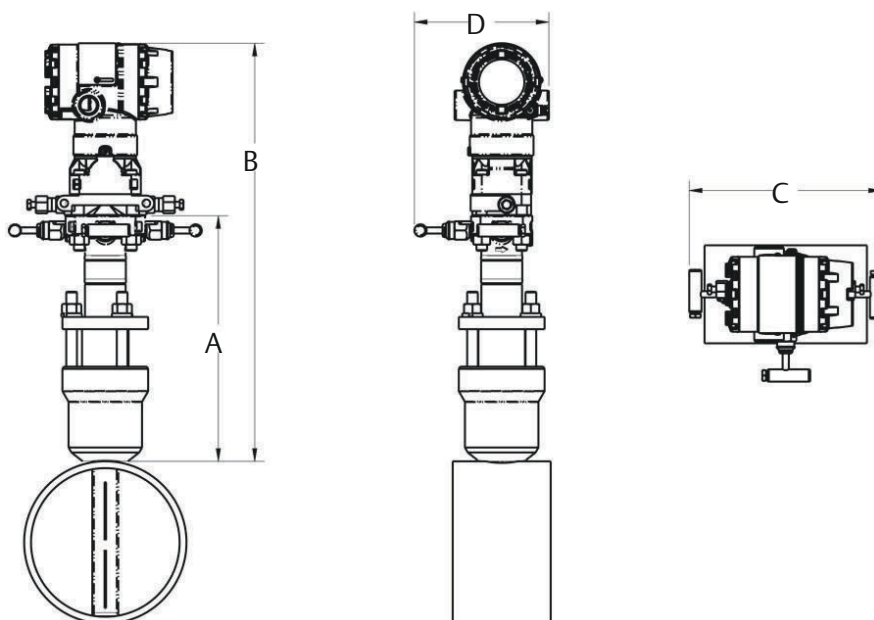
Figure 18: Rosemount 2051CFA Annubar Pak-Lok Flow Meter

The Rosemount Annubar Pak-Lok model is available up to Class 600 ANSI (1,440 psig at 100 °F [99 bar at 38°C]).

Front view

Side view

Top view

**Table 31: Rosemount 2051CFA Annubar Pak-Lok Flow Meter Dimensional Data**

Sensor size	A (max)	B (max)	C (max)	D (max)
1	8.50 (215.9)	14.55 (369.6)	9.00 (228.6)	6.00 (152.4)
2	11.00 (279.4)	16.30 (414.0)	9.00 (228.6)	6.00 (152.4)
3	12.00 (304.8)	19.05 (483.9)	9.00 (228.6)	6.00 (152.4)

Dimensions are in inches (millimeters).

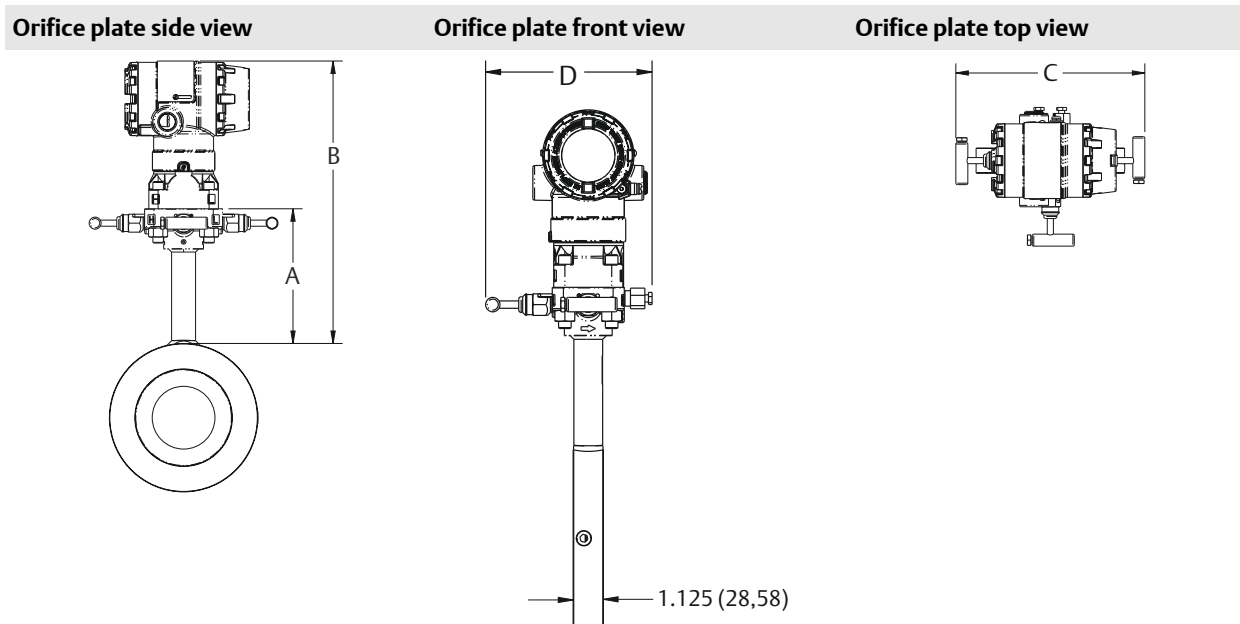
Figure 19: Rosemount 2051CFC Compact Orifice Flow Meter

Orifice plate side view

Orifice plate front view

Orifice plate top view

Compact orifice plate (primary element type code P)



Compact orifice plate (primary element type code P)

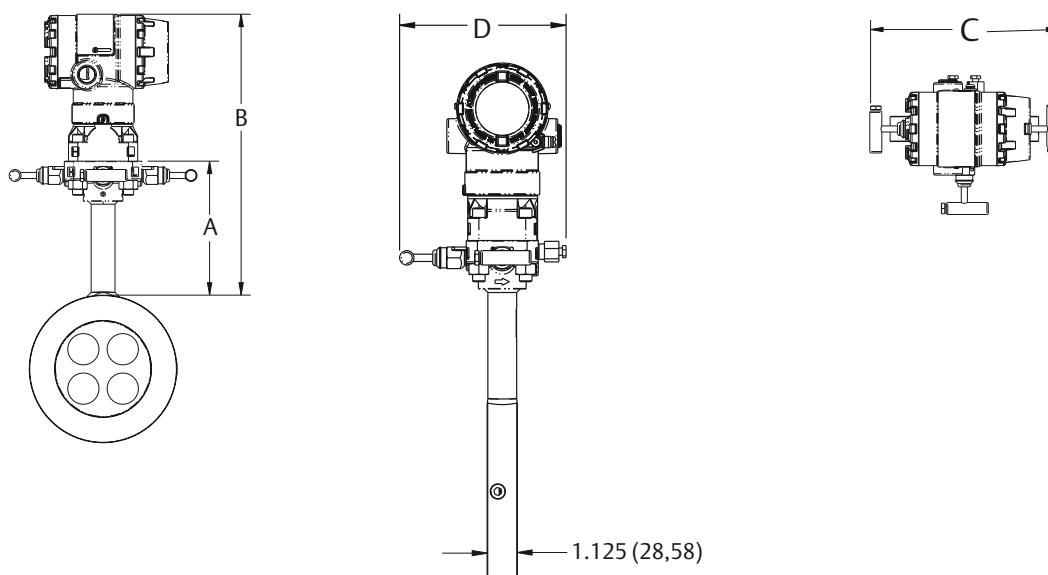
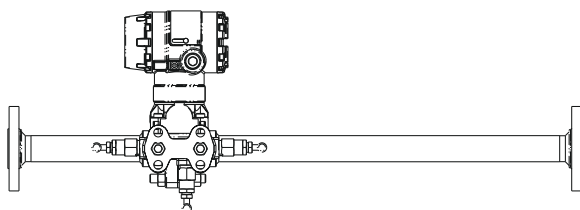


Table 32: Rosemount 2051CFC Dimensional Data

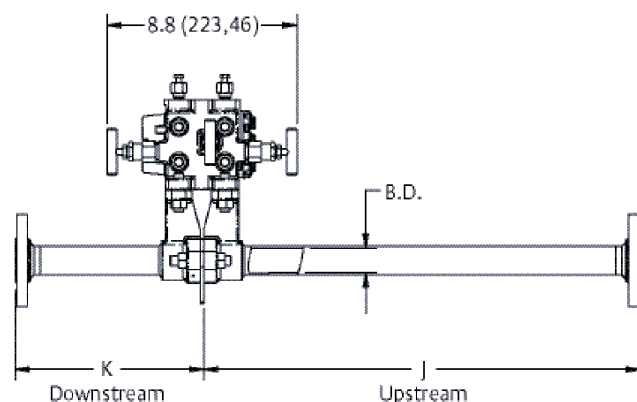
Primary element type	A	B	Transmitter height	C	D
Type P and C	5.62 (143)	Transmitter Height + A	6.27 (159)	7.75 (197) - closed 8.25 (210) - open	6.00 (152) - closed 6.25 (159) - open
Dimensions are in inches (millimeters).					

Figure 20: Rosemount 2051CFP Integral Orifice Flow Meter

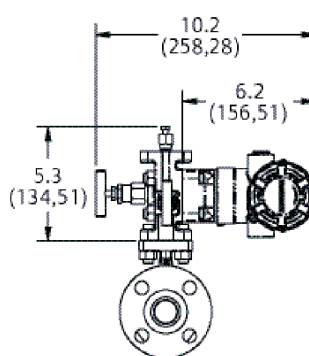
Side view



Bottom view



Front view



Dimensions are in inches (millimeters).

Table 33: Rosemount 2051CFP Dimensional Data

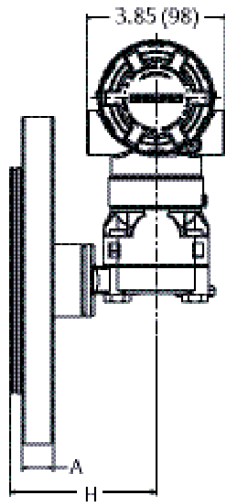
Dimension	Line size		
	½-in. (15 mm)	1-in. (25 mm)	1½-in. (40 mm)
J (beveled/threaded pipe ends)	12.54 (318,4)	20.24 (514,0)	28.44 (722,4)
J (RF slip-on, RTJ slip-on, RF-DIN slip on)	12.62 (320,4)	20.32 (516,0)	28.52 (724,4)
J (RF Class 150, weld neck)	14.37 (364,9)	22.37 (568,1)	30.82 (782,9)
J (RF 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)
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)

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

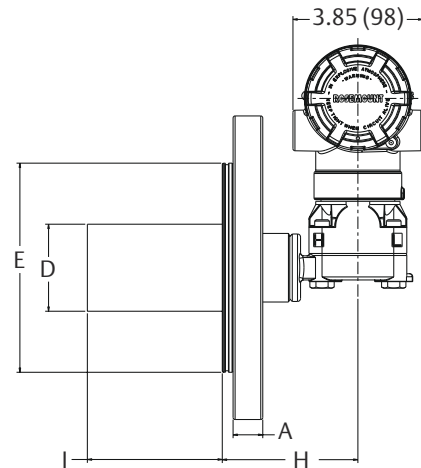
Dimensions are in inches (millimeters).

Figure 21: Rosemount 2051L Liquid Level

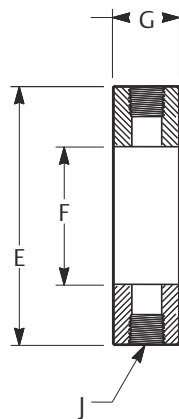
2-in. flange configuration (flush mount only)



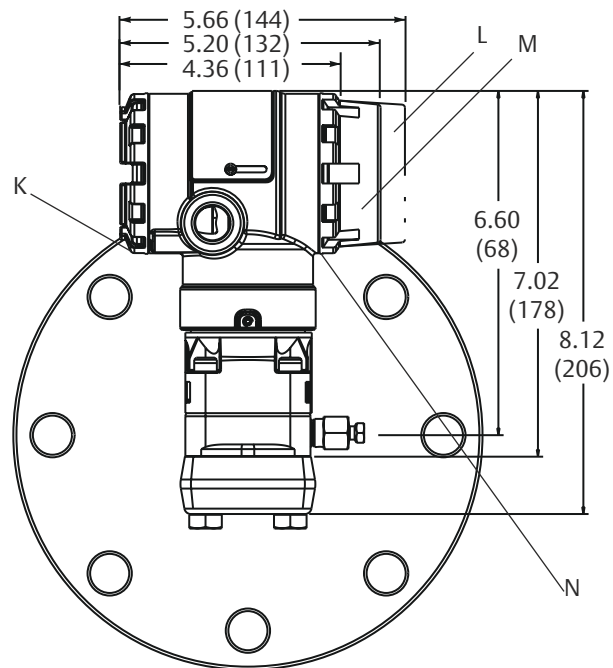
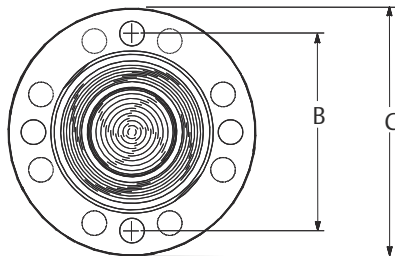
3- and 4-in. flange configuration



Optional flushing connection ring (lower housing)



Diaphragm assembly and mounting flange



A–H. Refer to [Table 34](#)

I. 2-, 4-, or 6-in. extension (50.8, 101.6, 152.4)

J. Flushing connection

K. Terminal connections

L. FOUNDATION Fieldbus display cover

M. HART display cover

N. Transmitter circuitry

Dimensions are in inches (millimeters).

Table 34: 2051L Dimensional Specifications

Class ⁽¹⁾	Pipe size	Flange thickness A	Bolt circle diameter B	Outside diameter C	No. of bolts	Bolt hole diameter	Extension diameter ⁽¹⁾ D	O.D. gasket surface E
ASME B16.5 (ANSI) 150	2 (51)	0.69 (18)	4.75 (121)	6.0 (152)	4	0.75 (19)	N/A	3.6 (92)
	3 (76)	0.88 (22)	6.0 (152)	7.5 (191)	4	0.75 (19)	2.58 (66)	5.0 (127)
	4 (102)	0.88 (22)	7.5 (191)	9.0 (229)	8	0.75 (19)	3.5 (89)	6.2 (158)
ASME B16.5 (ANSI) 300	2 (51)	0.82 (21)	5.0 (127)	6.5 (165)	8	0.75 (19)	N/A	3.6 (92)
	3 (76)	1.06 (27)	6.62 (168)	8.25 (210)	8	0.88 (22)	2.58 (66)	5.0 (127)
	4 (102)	1.19 (30)	7.88 (200)	10.0 (254)	8	0.88 (22)	3.5 (89)	6.2 (158)
DIN 2501 PN 10–40	DN 50	20 mm	125 mm	165 mm	4	18 mm	N/A	4.0 (102)
DIN 2501 PN 25/40	DN 80	24 mm	160 mm	200 mm	8	18 mm	66 mm	5.4 (138)
	DN 100	24 mm	190 mm	235 mm	8	22 mm	89 mm	6.2 (158)

Dimensions are in inches (millimeters).

(1) Tolerances are -0.020 and $+0.040$ (-0.51 and $+1.02$).

Class ⁽¹⁾	Pipe size	Process side F	Lower housing G		H
			¼ NPT	½ NPT	
ASME B16.5 (ANSI) 150	2 (51)	2.12 (54)	0.97 (25)	1.31 (33)	5.65 (143)
	3 (76)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
	4 (102)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
ASME B16.5 (ANSI) 300	2 (51)	2.12 (54)	0.97 (25)	1.31 (33)	5.65 (143)
	3 (76)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
	4 (102)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
DIN 2501 PN 10–40	DN 50	2.4 (61)	0.97 (25)	1.31 (33)	5.65 (143)
DIN 2501 PN 25/40	DN 80	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
	DN 100	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)

(1) Tolerances are -0.020 and $+0.040$ (-0.51 and $+1.02$).

Dimensions are in inches (millimeters).

Options

Standard configuration

Unless otherwise specified, transmitter is shipped as follows:

Engineering units	inH ₂ O (ranges 1, 2, and 3)
Differential/gage	psi (ranges 4–5)
Rosemount™ 2051TA	psi (all ranges)

4 mA (1 Vdc) ⁽¹⁾	0 (engineering units)
20 mA (5 Vdc) ⁽¹⁾ :	Upper range limit
Output:	Linear
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	Installed or none
Alarm ⁽¹⁾	High
Software tag	(Blank)

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

Custom configuration

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

Note

Custom configurations are not applicable to FOUNDATION™ Fieldbus or PROFIBUS® PA Protocols.

- Output information
- Transmitter information
- LCD display configuration
- Hardware selectable information
- Signal selection
- Wireless information
- Scaled variable

Refer to the [Rosemount 2051 Configuration Data Sheet](#) and the [Rosemount 2051 Wireless Configuration Data Sheet](#).

Tagging (3 options available)

Standard SST hardware tag is permanently affixed on transmitter. Tag character height is 0.125-in. (3,18 mm), 84 characters maximum.

Tag may be wired to the transmitter nameplate upon request, 85 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

Table 35: Commissioning tag

Only applicable to FOUNDATION Fieldbus Protocol.

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™ 2051C, 2051T, and 2051G Transmitters. Refer to the [Rosemount Manifolds Product Data Sheet](#) for additional information.

Other seals

Refer to the [Rosemount DP Level Transmitters and 1199 Seal Systems 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	mmH ₂ O at 4 °C ⁽¹⁾	ftH ₂ O at 4 °C ⁽¹⁾
mbar	ftH ₂ O	psi
bar	inH ₂ O at 60 °F ⁽¹⁾	torr
inH ₂ O	Psf ⁽¹⁾	cmH ₂ O at 4 °C ⁽¹⁾
inHg	g/cm ²	cmHg at 0 °C ⁽¹⁾
hPa ⁽¹⁾	kg/cm ²	ftH ₂ O at 60 °F ⁽¹⁾
mHg at 0 °C ⁽¹⁾	Pa	mH ₂ O at 4 °C ⁽¹⁾
inH ₂ O at 4 °C ⁽¹⁾	kPa	mHg at 0 °C ⁽¹⁾
mmH ₂ O	MPa ^{(1) (2)}	hPa ⁽¹⁾
mmHg	kg/m ² ⁽¹⁾	
Flow ^{(2) (3)}		
bbl	kg	cm ³
ft ³	lb	m ³
gal	L	ton
Level ⁽³⁾		
%	ft	cm
in	mm	

(1) Available with enhanced Rosemount™ 2051 and wireless.

(2) Available on PROFIBUS® PA Protocol.

(3) All flow units are available per second, minute, hour or day.

Display and interface options

M4 Digital display with LOI

- Available for 4–20 mA HART®, 4–20 mA HART Low Power, and PROFIBUS® PA Protocols.

M5 Digital display

- 2-line, 5-digit LCD display for 4–20 mA HART Protocol
- 2-line, 5-digit LCD display for HART 1–5 Vdc Low Power Protocol
- 2-line, 8-digit LCD display for FOUNDATION™ Fieldbus and PROFIBUS PA Protocols
- 3-line, 7-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° rotation capability for easy viewing

Configuration buttons

Rosemount™ 2051 requires option D4 (analog zero and span), DZ (digital trim), M4 (LOI) for local configuration buttons.

Transient protection

T1 Integral transient protection terminal block

Meets IEEE C62.41, category location B

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

Bolts for flanges and adapters

Standard material is plated carbon steel per ASTM A449, type 1

L4 Austenitic 316 SST bolts

L5 ASTM A 193, Grade B7M bolts

L6 Alloy K-500 bolts

L8 ASTM A 193 Class 2, Grade B8M bolts

Conduit plug

DO 316 SST conduit plug

Single 316 SST conduit plug replaces CS plug

Rosemount™ 2051C coplanar flange and 2051T 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™ 2051C 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
- Carbon steel construction with carbon steel bolts
- Coated with polyurethane paint

B7 B1 bracket with SST bolts

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

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