Rosemount 2051 Pressure Transmitter

- *Best in Class performance with up to 0.065% high accuracy option*
- *Rangeability of 100:1*
- *Protocols available include HART® 4-20 mA, FOUNDATION™ fieldbus, PROFIBUS PA, HART 1-5 Vdc Low Power*
- *Coplanar™ platform enables integration of primary elements, manifolds, and remote seal solutions*
- *Complete pressure transmitter family to meet your pressure, level, and flow needs*

Contents

A.P.O. - ELMOS v.o.s., Pražská 90, 509 01 Nová Paka, Tel.: +420 493 504 261, Fax: +420 493 504 257, E-mail: apo@apoelmos.cz, Internet: www.apoelmos.cz

Rosemount 2051 Pressure Transmitter Product Offering

Foundation of Reliable Measurement

- Differential, gage, and absolute pressure measurement
- Select from an extensive offering of DP Flowmeters, Liquid Level, Manifolds and Flanges.
- Available with variety of protocols and materials.

Unlock the Value of Devices with the Smart Wireless THUM™ Adapter

- Gain access to field intelligence and improve quality, safety, availability, operations, and maintenance costs
- Remotely manage devices and monitor health
- Enable new wireless measurement points
- Utilize existing loop power

Innovative, Integrated DP Flowmeters

- 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 2.00% 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

2051C Coplanar Pressure Transmitter

Rosemount 2051 pressure transmitters provide the foundation for reliable measurement by offering a variety of product capabilities to meet your application needs. The flexible Coplanar design enables best process connection practices for reduced engineering and installed costs.

- Performance up to 0.065% accuracy
- Two-year stability of 0.10%, optional five-year stability
- 4-20 mA HART, 1-5 Vdc HART low power and FOUNDATION fieldbus and PROFIBUS PA protocols
- Coplanar platform enables integrated manifold, primary element, and seal solutions
- Calibrated spans/ranges from 0.5 inH2O to 2000 psi (1,2 mbar to 138 bar)
- 316L SST, Alloy C-276, and Tantalum process wetted materials

Additional Information

Specifications: page 35
Certifications: page 44
Dimensional Drawings: page 50

Table 1. Rosemount 2051C Coplanar Pressure Transmitters Ordering Information

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

Model	Transmitter Type		
2051C	Coplanar Pressure Transmitter		
Measurement Type			
Standard			**Standard**
D	Differential		★
G	Gage		★
Pressure Range			
Standard			**Standard**
	2051CD	**2051CG**	
1	-25 to 25 inH_2O (-62.2 to 62.2 mbar)	-25 to 25 inH_2O (-62.2 to 62.2 mbar)	★
2	-250 to 250 inH_2O (-623 to 623 mbar)	-250 to 250 inH_2O (-623 to 623 mbar)	★
3	-1000 to 1000 inH_2O (-2.5 to 2.5 bar)	-393 to 1000 inH_2O (-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			
Standard			**Standard**
A	4–20 mA with Digital Signal Based on HART Protocol		★
F	FOUNDATION fieldbus Protocol		★
W	PROFIBUS PA Protocol		★
Expanded			
M	Low-Power, 1–5 Vdc with Digital Signal Based on *HART* Protocol		

Table 1. Rosemount 2051C Coplanar Pressure Transmitters Ordering Information

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

Materials of Construction				
	Process Flange Type	**Flange Material**	**Drain/Vent**	
Standard				**Standard**
2	Coplanar	SST	SST	★
3(1)	Coplanar	Cast C-276	Alloy C-276	★
5	Coplanar	Plated CS	SST	★
7(1)	Coplanar	SST	Alloy C-276	★
8(1)	Coplanar	Plated CS	Alloy C-276	★
0	Alternate Process Connection			★
Isolating Diaphragm				
Standard				**Standard**
2(1)	316L SST			★
3(1)	Alloy C-276			★
Expanded				
5(2)	Tantalum			
O-ring				
Standard				**Standard**
A	Glass-filled PTFE			★
B	Graphite-filled PTFE			★
Sensor Fill Fluid				
Standard				**Standard**
1	Silicone			★
2	Inert			★
Housing Material			**Conduit Entry Size**	
Standard				**Standard**
A	Aluminum		½–14 NPT	★
B	Aluminum		M20 × 1.5	★
J	SST		½–14 NPT	★
K(3)	SST		M20 × 1.5	★
Expanded				
D	Aluminum		G½	
M(3)	SST		G½	

Table 1. Rosemount 2051C Coplanar Pressure Transmitters Ordering Information

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

Options (Include with selected model number)

PlantWeb Control Functionality		
Standard		**Standard**
A01	FOUNDATION fieldbus Advanced Control Function Block Suite	★
Alternate Flange[4]		
Standard		**Standard**
H2	Traditional Flange, 316 SST, SST Drain/Vent	★
H3[1]	Traditional Flange, Cast C-276, Alloy C-276 Drain/Vent	★
H7[1]	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	★
Expanded		
HK[5]	DIN Compliant Traditional Flange, SST, 10 mm Adapter/Manifold Bolting	
HL	DIN Compliant Traditional Flange, SST, 12 mm Adapter/Manifold Bolting	
Manifold Assembly[5][6]		
Standard		**Standard**
S5	Assemble to Rosemount 305 Integral Manifold	★
S6	Assemble to Rosemount 304 Manifold or Connection System	★
Integral Mount Primary Element[5][6]		
Standard		**Standard**
S4[7]	Assemble to Rosemount Annubar® Flowmeter or Rosemount 1195 Integral Orifice	★
S3	Assemble to Rosemount 405 Primary Element	★
Seal Assemblies[6]		
Standard		**Standard**
S1[8]	Assemble to one Rosemount 1199 diaphragm seal	★
S2[9]	Assemble to two Rosemount 1199 diaphragm seals	★
Mounting Brackets		
Standard		**Standard**
B1	Traditional Flange Bracket for 2-in. Pipe Mounting, CS Bolts	★
B2	Traditional Flange Bracket for Panel Mounting, CS Bolts	★
B3	Traditional Flange Flat Bracket for 2-in. Pipe Mounting, CS Bolts	★
B4	Coplanar Flange Bracket for 2-in. Pipe or Panel Mounting, all SST	★
B7	B1 Bracket with Series 300 SST Bolts	★
B8	B2 Bracket with Series 300 SST Bolts	★
B9	B3 Bracket with Series 300 SST Bolts	★
BA	SST B1 Bracket with Series 300 SST Bolts	★
BC	SST B3 Bracket with Series 300 SST Bolts	★

Table 1. Rosemount 2051C Coplanar Pressure Transmitters Ordering Information

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

Product Certifications		
Standard		**Standard**
E1[3]	ATEX Flameproof	★
E2[3]	INMETRO Flameproof	★
E3[3]	China Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
E7[3]	IECEx Flameproof	★
EW	India (CCOE) Flameproof Approval	★
I1[3]	ATEX Intrinsic Safety	★
I2[3]	INMETRO Intrinsically Safe	★
I3[3]	China Intrinsic Safety	★
I5	FM Intrinsically Safe, Division 2	★
I6	CSA Intrinsically Safe	★
I7[3]	IECEx Intrinsic Safety	★
IA[10]	ATEX FISCO Intrinsic Safety	★
IE[13]	FM FISCO Intrinsically Safe	★
IF[13]	CSA FISCO Intrinsically Safe	★
IG[13]	IECEx FISCO Intrinsically Safe	★
IW	India (CCOE) Intrinsically Safe	★
K1[3]	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K7[3]	IECEx Flameproof, Intrinsic Safety, Type n	★
KA[3]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC[3]	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[3]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe	★
N1[3]	ATEX Type n	★
N7[3]	IECEx Type n	★
ND[3]	ATEX Dust	★
Drinking Water Approval		
Standard		**Standard**
DW[11]	NSF Drinking Water Approval	★
Shipboard Approvals		
Standard		**Standard**
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★

Table 1. Rosemount 2051C Coplanar Pressure Transmitters Ordering Information

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

Bolting Materials		
Standard		**Standard**
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		
Standard		**Standard**
M4(12)	LCD Display with Local Operator Interface	★
M5	LCD display	★
Hardware Adjustments		
Standard		**Standard**
D4(13)	Zero and Span Configuration Buttons	★
Flange Adapters		
Standard		**Standard**
DF(14)	1/2-14 NPT Flange Adapters	★
Conduit Plug		
Standard		**Standard**
DO(15)	316 SST Conduit Plug	★
RC1/4 RC1/2 Process Connection		
Expanded		
D9(16)	RC 1/4 Flange with RC 1/2 Flange Adapter - SST	
Ground Screw		
Standard		**Standard**
V5(17)	External Ground Screw Assembly	★
Performance		
Standard		**Standard**
P8(18)	High Performance Option	★
Transient Protection		
Standard		**Standard**
T1(19)	Transient Protection Terminal Block	★
Software Configuration		
Standard		**Standard**
C1(20)	Custom Software Configuration (Completed CDS 00806-0100-4101 required with order)	★
Alarm Limit		
Standard		**Standard**
C4(20)(21)	NAMUR alarm and saturation levels, high alarm	★
CN(20)(21)	NAMUR alarm and saturation levels, high alarm	★
Pressure Testing		
Expanded		
P1	Hydrostatic testing with certificate	

Table 1. Rosemount 2051C Coplanar Pressure Transmitters Ordering Information

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

Cleaning Process Area		
Expanded		
P2	Cleaning for Special Service	
P3	Cleaning for < 1 PPM Chlorine/Flourine	
Maximum Static Line Pressure		
Standard		**Standard**
P9	4500 psig (310 bar) Static Pressure Limit (2051CD Ranges 2-5 only)	★
Calibration Certification		
Standard		**Standard**
Q4	Calibration Certificate	★
QG	Calibration Certificate and GOST Verification Certificate	★
QP	Calibration certification and tamper evident seal	★
Material Traceability Certification		
Standard		**Standard**
Q8	Material Traceability Certification per EN 10204 3.1.B	★
Quality Certification for Safety		
Standard		**Standard**
QS(20)	Prior-use certificate of FMEDA data	★
Surface Finish		
Standard		**Standard**
Q16	Surface finish certification for sanitary remote seals	★
Toolkit Total System Performance Reports		
Standard		**Standard**
QZ	Remote Seal System Performance Calculation Report	★
Conduit Electrical Connection		
Standard		**Standard**
GE	M12, 4-pin, Male Connector (eurorast®)	★
GM	A size Mini, 4-pin, Male Connector (minifast®)	★
Typical Model Number: 2051C D 2 A 2 2 A 1 A B4 M5		

(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) Available in Ranges 2-5 only.

(3) Not available with Low Power output code M.

(4) Requires 0 code in Materials of Construction for Alternate Process Connection.

(5) Not valid with optional code P9 for 4500 psi Static Pressure.

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

(7) Process Flange limited to Coplanar (codes 2, 3, 5, 7, 8) or Traditional (H2, H3, H7).

(8) Not valid with optional code D9 for RC1/2 Adaptors.

(9) Not valid with optional codes DF and D9 for Adaptors.

(10) Only valid with FOUNDATION fieldbus output code F.

(11) 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).

(12) Available only with output code W-PROFIBUS PA

(13) Not available with FOUNDATION fieldbus output code F.

(14) Not valid with Alternate Process Connection options S3, S4, S5, S6.

(15) Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard carbon steel conduit plug

(16) Not available with Alternate Process Connection: DIN Flanges and Level Flanges.

(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, FOUNDATION fieldbus output code F, 2051C Ranges 2-5 or 2051T Ranges 1-4, SST diaphragms and silicone fill fluid. High Performance Option includes 0.065% Reference Accuracy, 5 year stability and improved ambient temperature effect specifications. 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 HART 4-20 mA output (output code A).

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

Rosemount 2051T In-Line Pressure Transmitter

2051T In-Line Pressure Transmitter

Rosemount 2051T In-line pressure transmitters provide reliable Gage and Absolute pressure measurement. The compact inline design makes the 2051 suitable for a variety of applications.

- Performance up to 0.065% accuracy
- Two-year stability of 0.10%, optional five-year stability
- 4-20 mA HART, 1-5 Vdc HART low power and FOUNDATION fieldbus and PROFIBUS PA protocols
- Calibrated spans/ranges from 0.2 to 10000 psi (10,3 mbar to 689 bar)
- Multiple process connections available
- 316L SST and Alloy C-276 process wetted parts

Additional Information
Specifications: page 35
Certifications: page 44
Dimensional Drawings: page 50

Table 2. Rosemount 2051T In-Line Pressure Transmitter Ordering Information

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

Model	Transmitter Type		
Standard			**Standard**
2051T	In-Line Pressure Transmitter		★
Pressure Type			
Standard			**Standard**
G	Gage		★
A	Absolute		★
Pressure Range			
Standard			**Standard**
	2051TG	**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			
Standard			**Standard**
A	4–20 mA with Digital Signal Based on HART Protocol		★
F	FOUNDATION fieldbus Protocol		★
W	PROFIBUS PA Protocol		★
Expanded			
M	Low-Power, 1–5 Vdc with Digital Signal Based on HART Protocol		

Table 2. Rosemount 2051T In-Line Pressure Transmitter Ordering Information

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

Process Connection Style			
Standard			**Standard**
2B	1/2–14 NPT female		★
2C	G1/2 A DIN 16288 male (Available in SST for Range 1-4 only)		★
Expanded			
2F	Coned and Threaded, Compatible with Autoclave Type F-250-C		
Isolating Diaphragm		**Process Connection Wetted Parts Material**	
Standard			**Standard**
2(1)	316L SST	316L SST	★
3(1)	Alloy C-276	Alloy C-276	★
Sensor Fill Fluid			
Standard			**Standard**
1	Silicone		★
2	Inert		★
Housing Material		**Conduit Entry Size**	
Standard			**Standard**
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 × 1.5	★
J	SST	½–14 NPT	★
K(2)	SST	M20 × 1.5	★
Expanded			
D	Aluminum	G½	
M(2)	SST	G½	

Options (Include with selected model number)

PlantWeb Control Functionality		
Standard		**Standard**
A01	FOUNDATION fieldbus Advanced Control Function Block Suite	★
Manifold Assemblies		
Standard		**Standard**
S5(3)	Assemble to Rosemount 306 Integral Manifold	★
Seal Assemblies		
Standard		**Standard**
S1(4)	Assemble to one Rosemount 1199 diaphragm seal	★
Mounting Bracket		
Standard		**Standard**
B4	Bracket for 2-in. Pipe or Panel Mounting, All SST	★

Table 2. Rosemount 2051T In-Line Pressure Transmitter Ordering Information

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

Product Certifications		
Standard		**Standard**
E1	ATEX Flameproof	★
E2[3]	INMETRO Flameproof	★
E3[3]	China Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
E7[3]	IECEx Flameproof	★
EW	India (CCOE) Flameproof Approval	★
I1[3]	ATEX Intrinsic Safety	★
I2[3]	INMETRO Intrinsically Safe	★
I3[3]	China Intrinsic Safety	★
I5	FM Intrinsically Safe, Division 2	★
I6	CSA Intrinsically Safe	★
I7[3]	IECEx Intrinsic Safety	★
IA[4]	ATEX FISCO Intrinsic Safety	★
IE[4]	FM FISCO Intrinsically Safe	★
IF[4]	CSA FISCO Intrinsically Safe	★
IG[4]	IECEx FISCO Intrinsically Safe	★
IW	India (CCOE) Intrinsic Safety Approval	★
K1[3]	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K7[3]	IECEx Flameproof, Intrinsic Safety, Type n	★
KA[3]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC[3]	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[3]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe	★
N1[3]	ATEX Type n	★
N7[3]	IECEx Type n	★
ND[3]	ATEX Dust	★
Drinking Water Approval		
Standard		**Standard**
DW[5]	NSF Drinking Water Approval	★
Shipboard Approvals		
Standard		**Standard**
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Display and Interface Options		
Standard		**Standard**
M4[6]	LCD Display with Local Operator Interface	★
M5	LCD display	★
Hardware Adjustments		
Standard		**Standard**
D4[7]	Zero and Span Configuration Buttons	★
Conduit Plug		
Standard		**Standard**
DO[8]	316 SST Conduit Plug	★

Table 2. Rosemount 2051T In-Line Pressure Transmitter Ordering Information

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

Ground Screw		
Standard		**Standard**
V5[9]	External Ground Screw Assembly	★
Performance		
Standard		**Standard**
P8[10]	High Performance Option	★
Terminal Blocks		
Standard		**Standard**
T1[11]	Transient Protection Terminal Block	★
Software Configuration		
Standard		**Standard**
C1[12]	Custom Software Configuration (Completed CDS 00806-0100-4101 required with order)	★
Alarm Limits		
Standard		**Standard**
C4[12][13]	Analog Output Levels Compliant with NAMUR Recommendation NE 43, Alarm High	★
CN[12][13]	Analog Output Levels Compliant with NAMUR Recommendation NE 43, Alarm Low	★
Pressure Testing		
Expanded		
P1	Hydrostatic testing with certificate	
Cleaning Process Area[14]		
Expanded		
P2	Cleaning for Special Service	
P3	Cleaning for <1 PPM Chlorine/Fluorine	
Calibration Certification		
Standard		**Standard**
Q4	Calibration Certificate	★
QG	Calibration Certificate and GOST Verification Certificate	★
QP	Calibration Certificate and tamper evident seal	★
Material Traceability Certification		
Standard		**Standard**
Q8	Material Traceability Certification per EN 10204 3.1.B	★
Quality Certification for Safety		
Standard		**Standard**
QS[12]	Prior-use certificate of FMEDA data	★
Surface Finish		
Standard		**Standard**
Q16	Surface finish certification for sanitary remote seals	★
Toolkit Total System Performance Reports		
Standard		**Standard**
QZ	Remote Seal System Performance Calculation Report	★
Conduit Electrical Connector		
Standard		**Standard**
GE	M12, 4-pin, Male Connector (eurofast®)	★
GM	A size Mini, 4-pin, Male Connector (minifast®)	★
Typical Model Number:	**2051T G 3 A 2B 2 1 A B4 M5**	

(1) Materials of Construction comply with recommendations per NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments.

(2) Not available with Low Power output code M.

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

(4) Only valid with FOUNDATION fieldbus output code F.

(5) 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).

(6) Available only with output code W-PROFIBUS PA

(7) Not available with FOUNDATION fieldbus output code F.

(8) Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard carbon steel conduit plug

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

(10) Available with 4-20 mA HART output code A, FOUNDATION fieldbus output code F, 2051C Ranges 2-5 or 2051T Ranges 1-4, SST diaphragms and silicone fill fluid. High Performance Option includes 0.065% Reference Accuracy, 5 year stability and improved ambient temperature effect specifications. See Performance Specifications for details.

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

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

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

(14) Not valid with Alternate Process Connection S5.

Rosemount 2051CF Flowmeters

Rosemount 2051CF Flowmeters combine the 2051C pressure transmitter with industry leading primary element technologies, including: Annubar Averaging Pitot Tube, Compact Conditioning Orifice Plate, and Integral Orifice Plate.

- Flowmeters are factory configured to meet your application needs (Configuration Data Sheet required).
- HART 4-20 mA, HART 1-5 Vdc low power, FOUNDATION fieldbus protocols and and PROFIBUS PA protocols
- Integral temperature measurement (T option)
- Direct or remote mount configurations available

Rosemount 2051CFA Annubar Flowmeter

Additional Information
Specifications: page 35
Certifications: page 44
Dimensional Drawings: page 50

Table 3. Rosemount 2051CFA Annubar Flowmeter Ordering Information

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

Model	Product Description	
2051CFA	Annubar Flowmeter	
Measurement Type		
Standard		**Standard**
D	Differential Pressure	★
Fluid Type		
Standard		**Standard**
L	Liquid	★
G	Gas	★
S	Steam	★
Line Size		
Standard		**Standard**
020	2-in. (50 mm)	★
025	2 1/2-in. (63.5 mm)	★
030	3-in. (80 mm)	★
035	3 1/2-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		
Standard		**Standard**
C	Range C from the Pipe I.D. table	★
D	Range D from the Pipe I.D. table	★

Table 3. Rosemount 2051CFA Annubar Flowmeter Ordering Information

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

Expanded		
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		
Standard		**Standard**
C	Carbon steel (A105)	★
S	316 Stainless Steel	★
0[(1)]	No Mounting (Customer Supplied)	
Expanded		
G	Chrome-Moly Grade F-11	
N	Chrome-Moly Grade F-22	
J	Chrome-Moly Grade F-91	
Piping Orientation		
Standard		**Standard**
H	Horizontal Piping	★
D	Vertical Piping with Downwards Flow	★
U	Vertical Piping with Upwards Flow	★
Annubar Type		
Standard		**Standard**
P	Pak-Lok	★
F	Flanged with opposite side support	★
Sensor Material		
Standard		**Standard**
S	316 Stainless Steel	★
Sensor Size		
Standard		**Standard**
1	Sensor size 1 — Line sizes 2-in. (50 mm) to 8-in. (200 mm)	★
2	Sensor size 2 — Line sizes 6-in. (150 mm) to 96-in. (2400 mm)	★
3	Sensor size 3 — Line sizes greater than 12-in. (300 mm)	★
Mounting Type		
Standard		**Standard**
T1	Compression or Threaded Connection	★
A1	150# RF ANSI	★
A3	300# RF ANSI	★
A6	600# RF ANSI	★
D1	DN PN16 Flange	★
D3	DN PN40 Flange	★
D6	DN PN100 Flange	★
Expanded		
R1	150# RTJ Flange	
R3	300# RTJ Flange	
R6	600# RTJ Flange	
Opposite Side Support or Packing Gland		
Standard		**Standard**
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		
Standard		**Standard**
0[(1)]	Not Applicable or Customer Supplied	★

Table 3. Rosemount 2051CFA Annubar Flowmeter Ordering Information

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

Temperature Measurement			
Standard			**Standard**
T	Integral RTD – not available with Flanged model greater than class 600#		★
0	No Temperature Sensor		★
Expanded			
R	Remote Thermowell and RTD		
Transmitter Connection Platform			
Standard			**Standard**
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 ($^1/_2$-in. FNPT)		★
Expanded			
8	Remote-mount SW Connections ($^1/_2$-in.)		
Differential Pressure Range			
Standard			**Standard**
1	0 to 25 in H_2O (0 to 62,3 mbar)		★
2	0 to 250 in H_2O (0 to 623 mbar)		★
3	0 to 1000 in H_2O (0 to 2,5 bar)		★
Transmitter Output			
Standard			**Standard**
A	4–20 mA with digital signal based on HART Protocol		★
F	FOUNDATION fieldbus Protocol		★
W	PROFIBUS PA Protocol		★
Expanded			
M	Low-Power, 1-5 Vdc with Digital Signal Based on HART Protocol		
Transmitter Housing Material		**Conduit Entry Size**	
Standard			**Standard**
A	Aluminum	$^1/_2$-14 NPT	★
B	Aluminum	M20 x 1.5	★
J	SST	$^1/_2$-14 NPT	★
K[2]	SST	M20 x 1.5	★
Expanded			
D	Aluminum	G$^1/_2$	
M[2]	SST	G$^1/_2$	
Transmitter Performance Class			
Standard			**Standard**
1	2.0% flow rate accuracy, 5:1 flow turndown, 2-year stability		★

Options (Include with selected model number)

Pressure Testing		
Expanded		
P1[3]	Hydrostatic Testing with Certificate	
PX[3]	Extended Hydrostatic Testing	
Special Cleaning		
Expanded		
P2	Cleaning for Special Services	
PA	Cleaning per ASTM G93 Level D (Section 11.4)	
Material Testing		
Expanded		
V1	Dye Penetrant Exam	
Material Examination		
Expanded		
V2	Radiographic Examination	

Table 3. Rosemount 2051CFA Annubar Flowmeter Ordering Information

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

Special Inspection		
Standard		**Standard**
QC1	Visual & Dimensional Inspection with Certificate	★
QC7	Inspection & Performance Certificate	★
Surface Finish		
Standard		**Standard**
RL	Surface finish for Low Pipe Reynolds # in Gas & Steam	★
RH	Surface finish for High Pipe Reynolds # in Liquid	★
Material Traceability Certification		
Standard		**Standard**
Q8[4]	Material Traceability Certification per EN 10474:2004 3.1	★
Code Conformance		
Expanded		
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
Materials Conformance		
Expanded		
J5[5]	NACE MR-0175 / ISO 15156	
Country Certification		
Standard		**Standard**
J6	European Pressure Directive (PED)	★
Expanded		
J1	Canadian Registration	
Instrument Connections for Remote Mount Options		
Standard		**Standard**
G2	Needle Valves, Stainless Steel	★
G6	OS&Y Gate Valve, Stainless Steel	★
Expanded		
G1	Needle Valves, Carbon Steel	
G3	Needle Valves, Alloy C-276	
G5	OS&Y Gate Valve, Carbon Steel	
G7	OS&Y Gate Valve, Alloy C-276	
Special Shipment		
Standard		**Standard**
Y1	Mounting Hardware Shipped Separately	★
Product Certifications		
Standard		**Standard**
E1[2]	ATEX Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I1[2]	ATEX Intrinsic Safety	★
I5	FM Intrinsically Safe, Division 2	★
I6	CSA Intrinsically Safe	★
I7[2]	IECEx Intrinsic Safety	★
IA[6]	ATEX FISCO Intrinsic Safety; for FOUNDATION fieldbus protocol only	★
IE[6]	FM FISCO Intrinsically Safe	★
IF[6]	CSA FISCO Intrinsically Safe	★
IG[6]	IECEx FISCO Intrinsically Safe	★
K1[2]	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
K6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	★
K7[2]	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	★
KA[2]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★

Table 3. Rosemount 2051CFA Annubar Flowmeter Ordering Information

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

KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC[2]	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[2]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, I5, E6, I6, E1, and I1)	★
N1[2]	ATEX Type n	★
N7[2]	IECEx Type n	★
ND[2]	ATEX Dust	★
Sensor Fill Fluid and O-ring Options		
Standard		**Standard**
L1	Inert Sensor Fill Fluid	★
L2	Graphite-Filled (PTFE) O-ring	★
LA	Inert Sensor Fill Fluid and Graphite-Filled (PTFE) O-ring	★
Shipboard Approvals		
Standard		**Standard**
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Display and Interface Options		
Standard		**Standard**
M4[7]	LCD Display with Local Operator Interface	★
M5	LCD display	★
Transmitter Calibration Certification		
Standard		**Standard**
Q4	Calibration Certificate for Transmitter	★
Quality Certification for Safety		
Standard		**Standard**
QS[8]	Prior-use certificate of FMEDA data	★
Transient Protection		
Standard		**Standard**
T1[9]	Transient terminal block	★
Manifold for Remote Mount Option		
Standard		**Standard**
F2	3-Valve Manifold, Stainless Steel	★
F6	5-Valve Manifold, Stainless Steel	★
Expanded		
F1	3-Valve Manifold, Carbon Steel	
F5	5-Valve Manifold, Carbon Steel	
PlantWeb Control Functionality		
Standard		**Standard**
A01[6]	FOUNDATION fieldbus Advanced Control Function Block Suite	★
Hardware Adjustments		
Standard		**Standard**
D4[8]	Zero and Span Hardware Adjustments	★
Alarm Limit		
Standard		**Standard**
C4[8][10]	NAMUR Alarm and Saturation Levels, High Alarm	★
CN[8][10]	NAMUR Alarm and Saturation Levels, Low Alarm	★
Ground Screw		
Standard		**Standard**
V5[11]	External Ground Screw Assembly	★
Typical Model Number: 2051CFA D L 060 D C H P S 2 T1 0 0 0 3 2A A 1A 3		

(1) Provide the "A" dimension for Flanged (page 57) and Pak-Lok (page 57).

(2) Not available with Low Power Output Code M.

(3) Applies to assembled flowmeter only, mounting not tested.

(4) Instrument Connections for Remote Mount Options and Isolation Valves for Flo-tap Models are not included in the Material Traceability Certification.

(5) 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.

(6) Only valid with FOUNDATION fieldbus Output Code F.

(7) Available only with output code W-PROFIBUS PA

(8) Not available with Output Protocol code F.

(9) 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.

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

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

Rosemount 2051CFC Compact Flowmeter

Additional Information
Specifications: page 35
Certifications: page 44
Dimensional Drawings: page 50

Table 4. Rosemount 2051CFC Compact Flowmeter Ordering Information

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

Model	Product Description	
2051CFC	Compact Flowmeter	
Measurement Type		
Standard		**Standard**
D	Differential Pressure	★
Primary Element Technology		
Standard		**Standard**
C	Conditioning Orifice Plate	★
P	Orifice Plate	★
Material Type		
Standard		**Standard**
S	316 SST	★
Line Size		
Standard		**Standard**
005(1)	1/2-in. (15 mm)	★
010(1)	1-in. (25 mm)	★
015(1)	1 1/2-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	10-in. (250 mm)	★
120	12-in. (300 mm)	★
Primary Element Style		
Standard		**Standard**
N	Square Edged	★
Primary Element Type		
Standard		**Standard**
040	0.40 Beta Ratio	★
065(2)	0.65 Beta Ratio	★
Temperature Measurement		
Standard		**Standard**
0	No Temperature Sensor	★
Expanded		
R	Remote Thermowell and RTD	
Transmitter Connection Platform		
Standard		**Standard**
3	Direct-mount, Integral 3-valve Manifold	★
7	Remote-mount, 1/4-in. NPT Connections	★

Table 4. Rosemount 2051CFC Compact Flowmeter Ordering Information

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

Differential Pressure Range						
Standard						**Standard**
1	0 to 25 in H_2O (0 to 62,3 mbar)					★
2	0 to 250 in H_2O (0 to 623 mbar)					★
3	0 to 1000 in H_2O (0 to 2,5 bar)					★
Transmitter Output						
Standard						**Standard**
A	4–20 mA with digital signal based on HART Protocol					★
F	FOUNDATION fieldbus Protocol					★
W	PROFIBUS PA Protocol					★
Expanded						
M	Low-Power, 1-5 Vdc with Digital Signal Based on HART Protocol					
Transmitter Housing Material		**Conduit Entry Size**				
Standard						**Standard**
A	Aluminum	$^1/_2$-14 NPT				★
B	Aluminum	M20 x 1.5				★
J	SST	$^1/_2$-14 NPT				★
K(3)	SST	M20 x 1.5				★
Expanded						
D	Aluminum	G$^1/_2$				
M(3)	SST	G$^1/_2$				
Transmitter Performance Class						
Standard						**Standard**
1	up to ±2.25% flow rate accuracy, 5:1 flow turndown, 2-year stability					★

Options (Include with selected model number)

Installation Accessories		
Standard		**Standard**
AB	ANSI Alignment Ring (150#) (Only required for 10-in. (250 mm) and 12-in. (300 mm) line sizes)	★
AC	ANSI Alignment Ring (300#) (Only required for 10-in. (250 mm) and 12-in. (300 mm) line sizes)	★
AD	ANSI Alignment Ring (600#) (Only required for 10-in. (250 mm) and 12-in. (300 mm) line sizes)	★
DG	DIN Alignment Ring (PN16)	★
DH	DIN Alignment Ring (PN40)	★
DJ	DIN Alignment Ring (PN100)	★
Expanded		
JB	JIS Alignment Ring (10K)	
JR	JIS Alignment Ring (20K)	
JS	JIS Alignment Ring (40K)	
Remote Adapters		
Standard		**Standard**
FE	Flange Adapters 316 SST (1/2-in NPT)	★
High Temperature Application		
Expanded		
HT	Graphite Valve Packing (Tmax = 850 °F)	
Flow Calibration		
Expanded		
WC(4)	Flow Calibration Certification (3 point)	
WD(4)	Discharge Coefficient Verification (full 10 point)	
Pressure Testing		
Expanded		
P1	Hydrostatic Testing with Certificate	
Special Cleaning		
Expanded		
P2	Cleaning for Special Services	
PA	Cleaning per ASTM G93 Level D (Section 11.4)	

Table 4. Rosemount 2051CFC Compact Flowmeter Ordering Information

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

Special Inspection		
Standard		**Standard**
QC1	Visual & Dimensional Inspection with Certificate	★
QC7	Inspection and Performance Certificate	★
Transmitter Calibration Certification		
Standard		**Standard**
Q4	Calibration Certificate for Transmitter	★
Quality Certification for Safety		
Standard		**Standard**
QS[5]	Prior-use certificate of FMEDA data	★
Material Traceability Certification		
Standard		**Standard**
Q8	Material Traceability Certification per EN 10204:2004 3.1	★
Code Conformance		
Expanded		
J2	ANSI/ASME B31.1	
J3	ANSI/ASME B31.3	
J4	ANSI/ASME B31.8	
Materials Conformance		
Expanded		
J5[6]	NACE MR-0175 / ISO 15156	
Country Certification		
Expanded		
J1	Canadian Registration	
Product Certifications		
Standard		**Standard**
E1[3]	ATEX Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
E7[3]	IECEx Flameproof, Dust Ignition-proof	★
I1[3]	ATEX Intrinsic Safety	★
I5	FM Intrinsically Safe, Division 2	★
I6	CSA Intrinsically Safe	★
I7[3]	IECEx Intrinsic Safety	★
IA[7]	ATEX FISCO Intrinsic Safety; for FOUNDATION fieldbus protocol only	★
IE[7]	FM FISCO Intrinsically Safe	★
IF[7]	CSA FISCO Intrinsically Safe	★
IG[7]	IECEx FISCO Intrinsically Safe	★
K1[3]	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
K6	CSA 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	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC[3]	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[3]	FM, CSA, 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		
Standard		**Standard**
L1	Inert Sensor Fill Fluid	★
L2	Graphite-Filled (PTFE) O-ring	★
LA	Inert Sensor Fill Fluid and Graphite-Filled (PTFE) O-ring	★

Table 4. Rosemount 2051CFC Compact Flowmeter Ordering Information

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

Shipboard Approvals		
Standard		**Standard**
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Display and Interface Options		
Standard		**Standard**
M4(8)	LCD Display with Local Operator Interface	★
M5	LCD Display	★
Transient Protection		
Standard		**Standard**
T1(9)	Transient terminal block	★
Manifold for Remote Mount Option		
Standard		**Standard**
F2	3-Valve Manifold, Stainless Steel	★
F6	5-Valve Manifold, Stainless Steel	★
Alarm Limit		
Standard		**Standard**
C4(10)(11)	NAMUR Alarm and Saturation Levels, High Alarm	★
CN(10)(11)	NAMUR Alarm and Saturation Levels, Low Alarm	★
PlantWeb Control Functionality		
Standard		**Standard**
A01(7)	FOUNDATION fieldbus Advanced Control Function Block Suite	★
Hardware Adjustments		
Standard		**Standard**
D4(10)	Zero and Span Hardware Adjustments	★
Ground Screw		
Standard		**Standard**
V5(12)	External Ground Screw Assembly	★
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 2-in. (50 mm) line sizes the Primary Element Type is 0.6 for Primary Element Technology Code C.

(3) Not available with Low Power Output Code M.

(4) Not available with Primary Element Technology P.

(5) Not available with Output Protocol code F.

(6) 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.

(7) Only valid with FOUNDATION fieldbus Output Code F.

(8) Available only with output code W-RPOFIBUS PA

(9) 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.

(10) Not available with FOUNDATION fieldbus (Output Code F).

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

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

Rosemount 2051CFP
Integral Orifice Flowmeter

Additional Information
Specifications: page 35
Certifications: page 44
Dimensional Drawings: page 50

Table 5. Rosemount 2051CFP Integral Orifice Flowmeter Ordering Information

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

Model	Product Description	
2051CFP	Integral Orifice Flowmeter	
Measurement Type		
Standard		**Standard**
D	Differential Pressure	★
Material Type		
Standard		**Standard**
S	316 SST	★
Line Size		
Standard		**Standard**
005	1/2-in. (15 mm)	★
010	1-in. (25 mm)	★
015	1 1/2-in. (40 mm)	★
Process Connection		
Standard		**Standard**
T1	NPT Female Body (Not Available with Remote Thermowell and RTD)	★
S1(1)	Socket Weld Body (Not Available with Remote Thermowell and RTD)	★
P1	Pipe Ends: NPT Threaded	★
P2	Pipe ends: Beveled	★
D1	Pipe Ends: Flanged, DIN PN16, slip-on	★
D2	Pipe Ends: Flanged, DIN PN40, slip-on	★
D3	Pipe Ends: Flanged, DIN PN100, slip-on	★
W1	Pipe Ends: Flanged, RF, ANSI Class 150, weld-neck	★
W3	Pipe Ends: Flanged, RF, ANSI Class 300, weld-neck	★
W6	Pipe Ends: Flanged, RF, ANSI Class 600, weld-neck	★
Expanded		
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		
Standard		**Standard**
S	316 SST	★
Bore Size Option		
Standard		**Standard**
0066	0.066-in. (1.68 mm) for 1/2-in. Pipe	★
0109	0.109-in. (2.77 mm) for 1/2-in. Pipe	★
0160	0.160-in. (4.06 mm) for 1/2-in. Pipe	★
0196	0.196-in. (4.98 mm) for 1/2-in. Pipe	★

Table 5. Rosemount 2051CFP Integral Orifice Flowmeter Ordering Information

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

0260	0.260-in. (6.60 mm) for 1/2-in. Pipe		★
0340	0.340-in. (8.64 mm) for 1/2-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 1 1/2-in. Pipe		★
0376	0.376-in. (9.55 mm) for 1 1/2-in. Pipe		★
0512	0.512-in. (13.00 mm) for 1 1/2-in. Pipe		★
0748	0.748-in. (19.00 mm) for 1 1/2-in. Pipe		★
1022	1.022-in. (25.96 mm) for 1 1/2-in. Pipe		★
1184	1.184-in. (30.07 mm) for 1 1/2-in. Pipe		★
Expanded			
0010	0.010-in. (0.25 mm) for 1/2-in. Pipe		
0014	0.014-in. (0.36 mm) for 1/2-in. Pipe		
0020	0.020-in. (0.51 mm) for 1/2-in. Pipe		
0034	0.034-in. (0.86 mm) for 1/2-in. Pipe		
Transmitter Connection Platform			
Standard			**Standard**
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			
Standard			**Standard**
1	0 to 25 in H_2O (0 to 62,3 mbar)		★
2	0 to 250 in H_2O (0 to 623 mbar)		★
3	0 to 1000 in H_2O (0 to 2,5 bar)		★
Transmitter Output			
Standard			**Standard**
A	4–20 mA with digital signal based on HART protocol		★
F	FOUNDATION fieldbus protocol		★
W	PROFIBUS PA Protocol		★
Expanded			
M	Low-Power, 1-5 Vdc with Digital Signal Based on HART Protocol		
Transmitter Housing Material		**Conduit Entry Size**	
Standard			**Standard**
A	Aluminum	1/2-14 NPT	★
B	Aluminum	M20 x 1.5	★
J	SST	1/2-14 NPT	★
K(2)	SST	M20 x 1.5	★
Expanded			
D	Aluminum	G1/2	
M(2)	SST	G1/2	
Transmitter Performance Class			
Standard			**Standard**
1	up to ±2.25% flow rate accuracy, 5:1 flow turndown, 2-year stability		★

Options (Include with selected model number)

Temperature Sensor		
Expanded		
RT(3)	Thermowell and RTD	

Table 5. Rosemount 2051CFP Integral Orifice Flowmeter Ordering Information

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

Optional Connection		
Standard		**Standard**
G1	DIN 19213 Transmitter Connection	★
Pressure Testing		
Expanded		
P1[4]	Hydrostatic Testing with Certificate	
Special Cleaning		
Expanded		
P2	Cleaning for Special Services	
PA	Cleaning per ASTM G93 Level D (Section 11.4)	
Material Testing		
Expanded		
V1	Dye Penetrant Exam	
Material Examination		
Expanded		
V2	Radiographic Examination	
Flow Calibration		
Expanded		
WD[5]	Discharge Coefficient Verification	
Special Inspection		
Standard		**Standard**
QC1	Visual & Dimensional Inspection with Certificate	★
QC7	Inspection and Performance Certificate	★
Material Traceability Certification		
Standard		**Standard**
Q8	Material Traceability Certification per EN 10204:2004 3.1	★
Code Conformance		
Expanded		
J2[6]	ANSI/ASME B31.1	
J3[6]	ANSI/ASME B31.3	
J4[6]	ANSI/ASME B31.8	
Materials Conformance		
Expanded		
J5[7]	NACE MR-0175 / ISO 15156	
Country Certification		
Standard		**Standard**
J6	European Pressure Directive (PED)	★
Expanded		
J1	Canadian Registration	
Transmitter Calibration Certification		
Standard		**Standard**
Q4	Calibration Certificate for Transmitter	★
Quality Certification for Safety		
Standard		**Standard**
QS[8]	Prior-use certificate of FMEDA data	★
Product Certifications		
Standard		**Standard**
E1[9]	ATEX Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
E7[9]	IECEx Flameproof, Dust Ignition-proof	★
I1[9]	ATEX Intrinsic Safety	★

Table 5. Rosemount 2051CFP Integral Orifice Flowmeter Ordering Information

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

I5	FM Intrinsically Safe, Division 2	★
I6	CSA Intrinsically Safe	★
I7[9]	IECEx Intrinsic Safety	★
IA[10]	ATEX FISCO Intrinsic Safety; for FOUNDATION fieldbus protocol only	★
IE[10]	FM FISCO Intrinsically Safe	★
IF[10]	CSA FISCO Intrinsically Safe	★
IG[10]	IECEx FISCO Intrinsically Safe	★
K1[9]	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
K6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	★
K7[9]	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	★
KA[9]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC[9]	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[9]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, I5, E6, I6, E1, and I1)	★
N1[9]	ATEX Type n	★
N7[9]	IECEx Type n	★
ND[9]	ATEX Dust	★
Sensor Fill Fluid and O-ring Options		
Standard		**Standard**
L1	Inert Sensor Fill Fluid	★
L2	Graphite-Filled (PTFE) O-ring	★
LA	Inert Sensor Fill Fluid and Graphite-Filled (PTFE) O-ring	★
Shipboard Approvals		
Standard		**Standard**
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Display and Interface Options		
Standard		**Standard**
M4[11]	LCD Display with Local Operator Interface	★
M5	LCD display	★
Transient Protection		
Standard		**Standard**
T1[12]	Transient terminal block	★
Alarm Limit		
Standard		**Standard**
C4[13][14]	NAMUR Alarm and Saturation Levels, High Alarm	★
CN[13][14]	NAMUR Alarm and Saturation Levels, Low Alarm	★
PlantWeb Control Functionality		
Standard		**Standard**
A01[10]	FOUNDATION fieldbus Advanced Control Function Block Suite	★
Hardware Adjustments		
Standard		**Standard**
D4[13]	Zero and Span Hardware Adjustments	★
Ground Screw		
Standard		**Standard**
V5[15]	External Ground Screw Assembly	★
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) Not available with Low Power Output Code M.

(3) Thermowell Material is the same as the body material.

(4) Does not apply to Process Connection codes T1 and S1.

(5) Not available for bore sizes 0010, 0014, 0020, or 0034.

(6) Not available with DIN Process Connection codes D1, D2, or D3.

(7) 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.

(8) Not available with Output Protocol code F.

(9) Not available with Low Power Output Code M.

(10) Only valid with FOUNDATION fieldbus Output Code F.

(11) Available only with output code W-PROFIBUS PA

(12) 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.

(13) Not available with FOUNDATION fieldbus (Output Code F).

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

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

Rosemount 2051L Liquid Level Transmitter

2051L Liquid Level Transmitter

Rosemount 2051 liquid level transmitters combine the 2051 transmitters with the durability and reliability of a direct mount seal all in one single model number. Level transmitters can be ordered with an additional Rosemount 1199 remote seal to form a Tuned-System Assembly for improved performance and reduced costs compared to traditional (balanced-symmetric) assemblies
Product features and capabilities include:

- Variety of process connections
- Quantified performance for the entire transmitter / seal assembly (QZ option code)
- 4-20 mA HART, 1-5 Vdc HART low power and FOUNDATION fieldbus and PROFIBUS PA protocols

Additional Information
Specifications: page 35
Certifications: page 44
Dimensional Drawings: page 50

Table 6. Rosemount 2051L Liquid Level Transmitter Ordering Information
★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Model	Transmitter Type		
Standard			**Standard**
2051L	Liquid Level Transmitter		★
Pressure Range			
Standard			**Standard**
2	–250 to 250 inH_2O (–0,6 to 0,6 bar)		★
3	–1000 to 1000 inH_2O (–2,5 to 2,5 bar)		★
4	–300 to 300 psi (–20,7 to 20,7 bar)		★
Transmitter Output			
Standard			**Standard**
A	4–20 mA with Digital Signal Based on HART Protocol		★
F	FOUNDATION fieldbus Protocol		★
W	PROFIBUS PA Protocol		★
Expanded			
M	Low-Power, 1–5 V dc with Digital Signal Based on HART Protocol		
Process Connection Size, Diaphragm Material (High Side)			
	Process Connection Size	**Diaphragm**	
Standard			**Standard**
G[1]	2 in./DN 50	316L SST	★
H[1]	2 in./DN 50	Alloy C-276	★
J	2 in./DN 50	Tantalum	★
A[1]	3 in./DN 80	316L SST	★
B[1]	4 in./DN 100	316L SST	★
C[1]	3 in./DN 80	Alloy C-276	★
D[1]	4 in./DN 100	Alloy C-276	★
E	3 in./DN 80	Tantalum	★
F	4 in./DN 100	Tantalum	★

Table 6. Rosemount 2051L Liquid Level Transmitter Ordering Information
★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Extension Length (High Side)					
Standard					**Standard**
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**		
Standard					**Standard**
M	2-in.	ANSI/ASME B16.5 Class 150	CS		★
A	3-in.	ANSI/ASME B16.5 Class 150	CS		★
B	4-in.	ANSI/ASME B16.5 Class 150	CS		★
N	2-in.	ANSI/ASME B16.5 Class 300	CS		★
C	3-in.	ANSI/ASME B16.5 Class 300	CS		★
D	4-in.	ANSI/ASME B16.5 Class 300	CS		★
X(1)	2-in.	ANSI/ASME B16.5 Class 150	SST		★
F(1)	3-in.	ANSI/ASME B16.5 Class 150	SST		★
G(1)	4-in.	ANSI/ASME B16.5 Class 150	SST		★
Y(1)	Displayed	ANSI/ASME B16.5 Class 300	SST		★
H(1)	3-in.	ANSI/ASME B16.5 Class 300	SST		★
J(1)	4-in.	ANSI/ASME B16.5 Class 300	SST		★
Q	DN50	PN 10-40 per EN 1092-1	CS		★
R	DN80	PN 40 per EN 1092-1	CS		★
K(1)	DN50	PN 10-40 per EN 1092-1	SST		★
T(1)	DN80	PN 40 per EN 1092-1	SST		★
Seal Fill Fluid (High Side)		**Specific Gravity**	**Temperature Limits (Ambient Temperature of 70 °F (21 °C))**		
Standard					**Standard**
A	Syltherm XLT	0.85	-102 to 293 °F (-75 to 145 °C)		★
C	Silicone 704	1.07	32 to 401 °F (0 to 205 °C)		★
D	Silicone 200	0.93	-49 to 401 °F (-45 to 205 °C)		★
H	Inert (Halocarbon)	1.85	5 to 401 °F (-15 to 205 °C)		★
G	Glycerin and Water	1.13	-49 to 320 °F (-45 to 160 °C)		★
N	Neobee M-20	0.92	5 to 401 °F (-15 to 205 °C)		★
P	Propylene Glycol and Water	1.02	5 to 203 °F (-15 to 95 °C)		★
Sensor Module Configuration, Flange Adapter (Low Side)					
	Configuration	**Flange Adapter**			
Standard					**Standard**
1(1)	Gage	SST			★
2(1)	Differential	SST			★
3(1)(2)	Tuned-System with Remote Seal	None			★
Sensor Module Diaphragm Material, Sensor Fill Fluid (Low Side)					
	Diaphragm Material	**Sensor Fill Fluid**			
Standard					**Standard**
1(1)	316L SST	Silicone			★
2(1)	Alloy C-276 (SST Valve Seat)	Silicone			★
7(1)	Alloy C-276 (Alloy C-276 Valve Seat)	Silicone			★
A(1)	316L SST	Inert (Halocarbon)			★

Table 6. Rosemount 2051L Liquid Level Transmitter Ordering Information

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

B[1]	Alloy C-276 (SST Valve Seat)	Inert (Halocarbon)		★
G[1]	Alloy C-276 (Alloy C-276 Valve Seat)	Inert (Halocarbon)		★
O-ring				
Standard				**Standard**
A	Glass-filled PTFE			★
Housing Material			**Conduit Entry Size**	
Standard				**Standard**
A	Aluminum		½–14 NPT	★
B	Aluminum		M20 × 1.5	★
J	SST		½–14 NPT	★
K[4]	SST		M20 × 1.5	★
Expanded				
D	Aluminum		G½	
M[4]	SST		G½	

Options (Include with selected model number)

PlantWeb Control Functionality		
Standard		**Standard**
A01[5]	Foundation fieldbus Advanced Control Function Block Suite	★
Seal Assemblies		
Standard		**Standard**
S1[3]	Assemble to One Rosemount 1199 Seal (Requires 1199M)	★
Product Certifications		
Standard		**Standard**
E1[4]	ATEX Flameproof	★
E2[4]	INMETRO Flameproof	★
E3[4]	China Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
E7[4]	IECEx Flameproof	★
EW	India (CCOE) Flameproof Approval	★
I1[4]	ATEX Intrinsic Safety	★
I2[4]	INMETRO Intrinsically Safe	★
I3[4]	China Intrinsic Safety	★
I5	FM Intrinsically Safe, Division 2	★
I6	CSA Intrinsically Safe	★
I7[4]	IECEx Intrinsic Safety	★
IA[5]	ATEX FISCO Intrinsic Safety	★
IE[5]	FM FISCO Intrinsically Safe	★
IF[5]	CSA FISCO Intrinsically Safe	★
IG[5]	IECEx FISCO Intrinsically Safe	★
IW	India (CCOE) Intrinsically Safety Approval	★
K1[4]	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
K7[4]	IECEx Flameproof, Intrinsic Safety, Type n	★
KA[4]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC[4]	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[4]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe	★
N1[4]	ATEX Type n	★
N7[4]	IECEx Type n	★
ND[4]	ATEX Dust	★

Table 6. Rosemount 2051L Liquid Level Transmitter Ordering Information

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

Shipboard Approvals				
Standard				**Standard**
SBV	Bureau Veritas (BV) Type Approval			★
SDN	Det Norske Veritas (DNV) Type Approval			★
SLL	Lloyds Register (LR) Type Approval			★
Display and Interface Options				
Standard				**Standard**
M4[6]	LCD Display with Local Operator Interface			★
M5	LCD display			★
Hardware Adjustments				
Standard				**Standard**
D4[7]	Zero and Span Configuration Buttons			★
Flange Adapters				
Standard				**Standard**
DF[8]	1/2-14 NPT Flange Adapters			★
Conduit Plug				
Standard				**Standard**
DO[9]	316 SST Conduit Plug			★
Ground Screw				
Standard				**Standard**
V5[10]	External Ground Screw Assembly			★
Transient Protection				
Standard				**Standard**
T1[11]	Transient Terminal Block			★
Software Configuration				
Standard				**Standard**
C1[12]	Custom Software Configuration (Requires completed Configuration Data Sheet)			★
Alarm Limit				
Standard				**Standard**
C4[12][13]	NAMUR alarm and saturation levels, high alarm			★
CN[12][13]	NAMUR alarm and saturation levels, low alarm			★
Calibration Certification				
Standard				**Standard**
Q4	Calibration Certificate			★
QG	Calibration Certificate and GOST Verification Certificate			★
GP	Calibration Certificate and tamper evident seal			★
Material Traceability Certification				
Standard				**Standard**
Q8	Material Traceability Certification per EN 10204 3.1.B			★
Quality Certification for Safety				
Standard				**Standard**
QS[12]	Prior-use certificate of FMEDA data			★
Toolkit Total System Performance Reports				
Standard				**Standard**
QZ	Remote Seal System Performance Calculation Report			★
Conduit Electrical Connector				
Standard				**Standard**
GE	M12, 4-pin, Male Connector (eurofast®)			★
GM	A size Mini, 4-pin, Male Connector (minifast®)			★
Lower Housing Flushing Connection Options				
	Ring Material	**Number**	**Size (NPT)**	
Standard				**Standard**
F1	316 SST	1	1/4-18 NPT	★
F2	316 SST	2	1/4-18 NPT	★

Table 6. Rosemount 2051L Liquid Level Transmitter Ordering Information

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

F3[14]	Alloy C-276	1	1/4-18 NPT	★
F4[14]	Alloy C-276	2	1/4-18 NPT	★
F7	316 SST	1	1/2-14 NPT	★
F8	316 SST	2	1/2-14 NPT	★
F9	Alloy C-276	1	1/2-14 NPT	★
F0	Alloy C-276	2	1/2-14 NPT	★
Typical Model Number:	**2051L 2 A A0 X D 21 A A B4 M5 F1**			

(1) 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.

(2) Requires option code S1.

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

(4) Not available with Low Power output code M.

(5) Only valid with FOUNDATION fieldbus output code F.

(6) Available only with output code W-PROFIBUS PA

(7) Not valid with FOUNDATION fieldbus output code F.

(8) Not available with Remote Mount Seal Assembly option S1.

(9) Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard carbon steel conduit plug

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

(11) 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.

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

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

(14) Not available with Option Codes A0, B0, and G0.

Specifications

PERFORMANCE SPECIFICATIONS

This product data sheet covers HART, FOUNDATION fieldbus and PROFIBUS PA protocols unless specified.

Conformance To Specification (±3σ (Sigma))

Technology leadership, advanced manufacturing techniques, and statistical process control ensure specification conformance to at least ±3σ.

Reference Accuracy

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

Models	Standard	High Performance Option, P8	
2051C			
Ranges 2-5	±0.075% of span For spans less than 10:1, accuracy = $\pm\left[0.025 + 0.005\left(\frac{URL}{Span}\right)\right]$% of Span	Ranges 2-5	High Accuracy Option, P8 ±0.065% of span For spans less than 10:1, accuracy = $\pm\left[0.015 + 0.005\left(\frac{URL}{Span}\right)\right]$% of Span
Range 1	±0.10% of span For spans less than 15:1, accuracy = $\pm\left[0.025 + 0.005\left(\frac{URL}{Span}\right)\right]$% of Span		
2051T			
Ranges 1-4	±0.075% of span For spans less than 10:1, accuracy = $\pm\left[0.0075\left(\frac{URL}{Span}\right)\right]$% of Span	Ranges 1-4	High Accuracy Option, P8 ±0.065% of span For spans less than 10:1, accuracy = $\pm\left[0.0075\left(\frac{URL}{Span}\right)\right]$% of Span
Range 5	±0.075% of span For spans less than 10:1, accuracy = $\pm\left[0.0075\left(\frac{URL}{Span}\right)\right]$% of Span		
2051L			
Ranges 2-4	±0.075% of span For spans less than 10:1, accuracy = $\pm\left[0.025 + 0.005\left(\frac{URL}{Span}\right)\right]$% of Span		

Flow Performance - Flow Reference Accuracy

2051CFA Annubar Flowmeter		
Ranges 2-3		±2.00% of Flow Rate at 5:1 flow turndown
2051CFC Compact Orifice Flowmeter – Conditioning Option C		
Ranges 2-3	β =0.4	±2.25% of Flow Rate at 5:1 flow turndown
	β =0.65	±2.45% of Flow Rate at 5:1 flow turndown
2051CFC Compact Orifice Flowmeter – Orifice Type Option P(1)		
Ranges 2-3	β =0.4	±2.50% of Flow Rate at 5:1 flow turndown
	β =0.65	±2.50% of Flow Rate at 5:1 flow turndown
2051CFP Integral Orifice Flowmeter		
Ranges 2-3	β <0.1	±3.10% of Flow Rate at 5:1 flow turndown
	0.1< β <0.2	±2.75% of Flow Rate at 5:1 flow turndown
	0.2< β <0.6	±2.25% of Flow Rate at 5:1 flow turndown
	0.6< β <0.8	±3.00% 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.

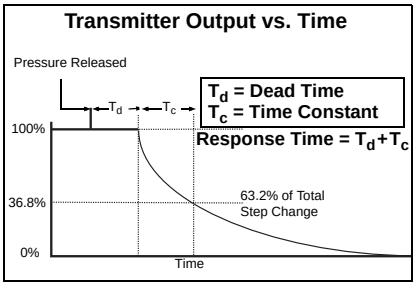
Models	Standard	High Performance Option, P8
2051C		
Range 1 (CD)	±0.2% of URL for 1 year	
Ranges 2-5	±0.1% of URL for 2 years	±0.125% of URL for 5 years
2051T		
Ranges 1-5	±0.1% of URL for 2 years	±0.125% of URL for 5 years

Dynamic Performance

	4-20 mA HART(1) 1-5 Vdc HART Low Power	FOUNDATION fieldbus and PROFIBUS PA protocols (3)
Total Response Time (T_d + T_c)(2):		
2051C, Range 3-5:	115 ms	152 ms
Range 1:	270 ms	307 ms
Range 2:	130 ms	152 ms
2051T:	100 ms	152 ms
2051L:	See *Instrument Toolkit*®	See *Instrument Toolkit*
Dead Time (Td)	60 ms (nominal)	97 ms
Update Rate	22 times per second	22 times per second

(1) Dead time and update rate apply to all models and ranges; analog output only
(2) Nominal total response time at 75 °F (24 °C) reference conditions.
(3) Transducer block response time, Analog Input block execution time not included.

Typical HART Transmitter Response Time



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

For line pressures above 2000 psi (13,7 MPa) and Ranges 4-5, see user manual (Document number 00809-0100-4001 for HART, 00809-0100-4774 for FOUNDATION fieldbus, and 00809-0300-4101 for PROFIBUS PA)

Models	Line Pressure Effect
2051CD, 2051CF	Zero Error(1)
Ranges 2-3	±0.05% of URL/1000 psi (68.9 bar) for line pressures from 0 to 2000 psi (0 to 13.7 MPa)
Range 1	±0.25% of URL/1000 psi (68.9 bar)
	Span Error
Ranges 2-3	±0.1% of reading/1,000 psi (68.9 bar)
Range 1	±0.4% 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	High Performance Option, P8
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	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1 ±(0.025% URL + 0.125% span) from 5:1 to 100:1
Range 1	±(0.1% URL + 0.25% span) from 1:1 to 30:1	
2051T		
Range 2-4	±(0.05% URL + 0.25% span) from 1:1 to 30:1 ±(0.07% URL + 0.25% span) from 30:1 to 100:1	±(0.025% URL + 0.125% span) from 1:1 to 30:1 ±(0.035% URL + 0.125% span) from 30:1 to 100:1
Range 1	±(0.05% URL + 0.25% span) from 1:1 to 10:1 ±(0.10% URL + 0.25% span) from 10:1 to 100:1	±(0.025% URL + 0.125% span) from 1:1 to 10:1 ±(0.05% URL + 0.125% span) from 10:1 to 100:1
Range 5	±(0.1% URL + 0.15% span)	
2051L	See *Instrument Toolkit*	

Mounting Position Effects

Models	Mounting Position Effects
2051C	Zero shifts up to ±1.25 inH_2O (3.1 mbar), which can be calibrated out. No span effect.
2051T	Zero shifts up to ±2.5 inH_2O (6.2 mbar), which can be calibrated out. No span effect.
2051L	With liquid level diaphragm in vertical plane, zero shift of up to 1 inH_2O (2.49 mbar). With diaphragm in horizontal plane, zero shift of up to 5 inH_2O (12.43 mbar) plus extension length on extended units. Zero shifts can be calibrated out. No span effect.

Vibration Effect

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

Power Supply Effect

Less than ±0.005% of calibrated span per volt.

Electromagnetic Compatibility (EMC)

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

Transient Protection (Option Code T1)

Meets IEEE C62.41, Category Location B

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

FUNCTIONAL SPECIFICATIONS

Range and Sensor Limits

Table 7. Range and Sensor Limits

Range	2051CD, 2051CF, 2051CG, 2051L					
		Range and Sensor Limits				
			Lower (LRL)			
	Minimum Span	Upper (URL)	2051C Differential 2051CF Flowmeters	2051C Gage(1)	2051L Differential	2051L Gage(1)
1	0.5 inH_2O (1.2 mbar)	25 inH_2O (62.3 mbar)	–25 inH_2O (–62.1 mbar)	–25 inH_2O (–62.1 mbar)	N/A	N/A
2	2.5 inH_2O (6.2 mbar)	250 inH_2O (0.62 bar)	–250 inH_2O (–0.62 bar)	–250 inH_2O (–0.62 bar)	–250 inH_2O (–0.62 bar)	–250 inH_2O (–0.62 bar)
3	10 inH_2O (24.9 mbar)	1000 inH_2O (2.49 bar)	-1000 inH_2O (-2.49 bar)	–393 inH_2O (–979 mbar)	–1000 inH_2O (–2.49 bar)	–393 inH_2O (–979 mbar)
4	3 psi (0.207 bar)	300 psi (20.6 bar)	-300 psi (-20,6 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)	–14.2 psig (–979 mbar)	N/A	N/A

(1) Assumes atmospheric pressure of 14.7 psig.

Table 8. Range and Sensor Limits

Range	2051T			
		Range and Sensor Limits		
	Minimum Span	Upper (URL)	Lower (LRL) (Abs)	Lower(1) (LRL) (Gage)
1	0.3 psi (20.6 mbar)	30 psi (2.06 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)
2	1.5 psi (0.103 bar)	150 psi (10.3 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)
3	8 psi (0.55 bar)	800 psi (55.2 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)
4	40 psi (2.76 bar)	4000 psi (275.8 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)
5	2,000 psi (137.9 bar)	10,000 psi (689.4 bar)	0 psia (0 bar)	–14.7 psig (–1.01 bar)

(1) Assumes atmospheric pressure of 14.7 psig.

Service

Liquid, gas, and vapor applications

Protocols

4–20 mA HART (Output Code A)

Output

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

Power Supply

External power supply required. Standard transmitter operates on 10.5 to 55 Vdc with no load.

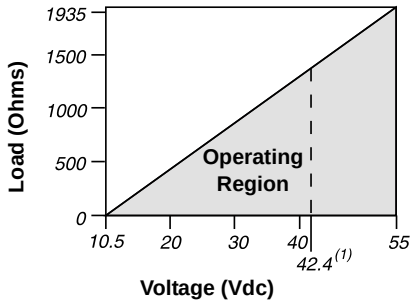
Turn-On Time

Performance within specifications less than 2.0 seconds after power is applied to the transmitter.

Load Limitations

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

Max. Loop Resistance = 43.5 (Power Supply Voltage – 10.5)



Communication requires a minimum loop resistance of 250 ohms.

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

Zero and Span Adjustment Requirements

Zero and span values can be set anywhere within the range limits stated in Table 7 and Table 8.

Span must be greater than or equal to the minimum span stated in Table 7 and Table 8.

FOUNDATION fieldbus (Output code F)

Power Supply

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

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

FOUNDATION fieldbus Parameters

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

Standard Function Blocks

Resource Block

Contains hardware, electronics, and diagnostic information.

Transducer Block

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

LCD Block

Configures the local display.

2 Analog Input Blocks

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

PID Block

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

Backup Link Active Scheduler (LAS)

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

Advanced Control Function Block Suite (Option Code A01)

Input Selector Block

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

Arithmetic Block

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

Signal Characterizer Block

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

Integrator Block

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

PROFIBUS PA (Output Code W)

Profile Version

3.02

Power Supply

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

Current Draw

17.5 mA for all configurations (including LCD display option)

Output Update Rate

Four times per second

Standard Function Blocks

Analog Input (AI Block)

The AI function block processes the measurements and makes them available to the host device. The output value from the AI block is in engineering units and contains a status indicating the quality of the measurement.

Physical Block

The physical block defines the physical resources of the device including type of memory, hardware, electronics, and diagnostic information.

Transducer Block

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

Indication

Optional two line LCD display

Local Operator Interface

Optional external configuration buttons

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.

Power Supply

External power supply required. Standard transmitter operates on 9 to 28 Vdc with no load.

Power Consumption

3.0 mA, 27–84 mW

Output Load

100 kΩ or greater

Turn-On Time

Performance within specifications less than 2.0 seconds after power is applied to the transmitter.

Overpressure Limits

Transmitters withstand the following limits without damage:

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)

2051T

- 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)

2051L

Limit is flange rating or sensor rating, whichever is lower (Table 9 on page 40).

Table 9. 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

2051CD, 2051CF

- Operates within specifications between static line pressures of -14.2 psig (0.034 bar) and 3,626 psig (250 bar)
  - For Option Code P9, 4,500 psig (310,3 bar)
- Range 1: 0.5 psia to 2,000 psig (34 mbar and 137,9 bar)

Burst Pressure Limits

2051C, 2051CF Coplanar or traditional process flange

- 10,000 psig (689.5 bar)

2051T In-line

- Ranges 1–4: 11,000 psi (758.4 bar)
- Range 5: 26,000 psi (1792.6 bar)

Temperature Limits

Ambient

–40 to 185 °F (–40 to 85 °C)

With LCD display(1): –40 to 175 °F (–40 to 80 °C)

Storage(1)

–50 to 230 °F (–46 to 110 °C)

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

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

Process

At atmospheric pressures and above. See Table 10.

Table 10. Process Temperature Limits

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 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)
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)
2051L Low-Side Temperature Limits	
Silicone Fill Sensor(1)	–40 to 250 °F (–40 to 121 °C)(2)
Inert Fill Sensor(1)	0 to 185 °F (–18 to 85 °C)(2)
2051L High-Side Temperature Limits (Process Fill Fluid)	
Syltherm® XLT	–102 to 293 °F (–75 to 145 °C)
D.C. Silicone 704®	32 to 599 °F (0 to 315 °C)
D.C. Silicone 200	–49 to 401 °F(–45 to 205 °C)
Inert	–49 to 320 °F(–45 to 160 °C)
Glycerin and Water	5 to 203 °F (-15 to 95 °C)
Neobee M-20	5 to 437 °F (-15 to 225 °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% relative humidity

Volumetric Displacement

Less than 0.005 in^3 (0.08 cm^3)

Damping

4-20 mA HART

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

FOUNDATION fieldbus

Transducer block: 0.4 seconds fixed

AI Block: User configurable

PROFIBUS PA

AI Block only: User configurable

Failure Mode Alarm

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:

Standard Operation			
Output Code	**Linear Output**	**Fail High**	**Fail Low**
A	3.9 ≤ I ≤ 20.8	I ≥ 21.75 mA	I ≤ 3.75 mA
M	0.97 ≤ V ≤ 5.2	V ≥ 5.4 V	V ≤ 0.95 V

NAMUR-Compliant Operation			
Output Code	**Linear Output**	**Fail High**	**Fail Low**
A	3.8 ≤ I ≤ 20.5	I ≥ 22.5 mA	I ≤ 3.6 mA

Output Code F

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

PHYSICAL SPECIFICATIONS

Electrical Connections

1/2–14 NPT, G1/2, and M20 × 1.5 conduit.

Process Connections

2051C

- 1/4–18 NPT on 2 1/8-in. centers
- 1/2–14 NPT and RC 1/2 on 2-in.(50,8 mm), 2 1/8-in. (54,0 mm), or 2 1/4-in. (57,2 mm) centers (process adapters)

2051T

- 1/2–14 NPT female
- G1/2 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; 1/4 OD high pressure tube 60° cone; available in SST for Range 5 transmitters only)

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: 1/4–18 NPT on flange, 1/2–14 NPT on process adapter

2051CF

- For 2051CFA wetted parts, see 00813-01000-4485 in the 485 section
- For 2051CFC wetted parts, see 00813-01000-4485 in the 405 section
- For 2051CFP wetted parts, see 00813-01000-4485 in the 1195 section

2051C Process Wetted Parts

Drain/Vent Valves

316 SST or Alloy C-276

Process Flanges and Adapters

Plated carbon steel, 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

2051T Process Wetted Parts

Process Connections

- 316L SST or Alloy C-276

Process Isolating Diaphragms

- 316L SST or Alloy C-276

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 2051C/T/L

Electronics Housing

Low-copper aluminum or CF-8M (Cast version of 316 SST).
Enclosure Type 4X, IP 65, IP 66, IP68

Paint for Aluminum Housing

Polyurethane

Coplanar Sensor Module Housing

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

Bolts

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

Sensor Module Fill Fluid

Silicone or inert halocarbon
In-Line series uses Fluorinert® FC-43

Process Fill Fluid (2051L only)

Syltherm XLT, D.C. Silicone 704,
D.C. Silicone 200, inert, glycerin and water, Neobee M-20 or propylene glycol and water

Cover O-rings

Buna-N

Shipping Weights

Table 11. Transmitter Weights without Options

Transmitter	lb. (kg)
2051C	4.9 (2.2)
2051L	Table 12 below
2051T	3.1 (1.4)

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

Table 13. Transmitter Options Weights

Code	Option	Add lb (kg)
J, K, L, M	Stainless Steel Housing	3.9 (1,8)
M5	LCD display for Aluminum Housing	0.5 (0,2)
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., 150	12.7 (5,8)
FD	Level Flange—3 in., 300	15.9 (7,2)
FA	Level Flange—2 in., 150	8.0 (3,6)
FB	Level Flange—2 in., 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)

Product Certifications

Approved Manufacturing Locations

Rosemount Inc. — Chanhassen, Minnesota USA
Emerson Process Management GmbH & Co. — Wessling, Germany
Emerson Process Management Asia Pacific Private Limited — Singapore
Beijing Rosemount Far East Instrument Co., LTD — Beijing, China
Emerson Process Management LTDA — Sorocaba, Brazil
Emerson Process Management (India) Pvt. Ltd — Daman, India

European Directive Information

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

ATEX Directive (94/9/EC)

All 2051 transmitters comply with the ATEX Directive.

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

2051CG2, 3, 4, 5; 2051CD2, 3, 4, 5 (also with P9 option)
— QS Certificate of Assessment - EC No. 59552-2009-CE-HOU-DNV
Module H Conformity Assessment

All other 2051 Pressure Transmitters

— Sound Engineering Practice

Transmitter Attachments: Diaphragm Seal - Process Flange - Manifold

— Sound Engineering Practice

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

All 2051 Pressure Transmitters meet all of the requirements of EN 61326 and NAMUR NE-21.

Ordinary Location Certification for Factory Mutual

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

HART PROTOCOL

Hazardous Locations Certifications

North American Certifications

FM Approvals

E5 Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition-Proof for Class II, Division 1, Groups E, F, and G. Dust-Ignition-Proof for Class III, Division 1.
T5 (Ta = 85 °C), Factory Sealed, Enclosure Type 4X

I5 Intrinsically Safe for use in Class I, Division 1, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; Class III, Division 1, ZONE 0 AEx ia IIC T4 when connected per Rosemount drawing 02051-1009; Non-incendive for Class I, Division 2, Groups A, B, C, and D.

Temperature Code: T4 (T_a = 70 °C)
Enclosure Type 4X
For input parameters see control drawing 02051-1009.

Canadian Standards Association (CSA)

All CSA hazardous approved transmitters are certified per ANSI/ISA 12.27.01-2003.

E6 Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition-Proof for Class II and Class III, Division 1, Groups E, F, and G. Suitable for Class I, Division 2 Groups A, B, C, and D for indoor and outdoor hazardous locations. Enclosure type 4X, factory sealed. Single Seal.

I6 Intrinsically safe approval. Intrinsically safe for Class I, Division 1, Groups A, B, C, and D when connected in accordance with Rosemount drawing 02051-1008. Temperature Code T3C.
Dust-Ignition-Proof for Class II and Class III, Division 1, Groups E, F, and G. Suitable for Class I, Division 2 Groups A, B, C, and D hazardous locations. Enclosure type 4X, factory sealed. Single Seal.
For input parameters see control drawing 02051-1008.

European Certifications

I1 ATEX Intrinsic Safety
Certification No. Baseefa08ATEX0129X ⟨Ex⟩ II 1 G
Ex ia IIC T4 (–60 ≤ T_a ≤ +70 °C)
IP66 IP68
CE 1180

Table 14. Input Parameters

U_i = 30 V
I_i = 200 mA
P_i = 1.0 W
C_i = 0.012 µF
L_i = 10 µH

Table 15. RTD Assembly (2051CFx Option T or R)

U_i = 5 Vdc
I_i = 500 mA
P_i =0.63 W

Special Conditions for Safe Use (X):
When the optional transient protection terminal block is installed, the apparatus is not capable of withstanding the 500 V insulation test required by Clause 6.3.12 of EN60079-11. 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 located in Zone 0.

N1 ATEX Type n
Certification No. Baseefa08ATEX0130X ⟨Ex⟩ II 3 G
Ex nAnL IIC T4 (–40 ≤ T_a ≤ +70 °C)
U_i = 42.4 Vdc max
IP66
CE

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

E1 ATEX Flame-Proof
Certification No. KEMA 08ATEX0090X ⟨Ex⟩ II 1/2 G
Ex d IIC T6 (–50 ≤ T_a ≤ 65 °C)
Ex d IIC T5 (–50 ≤ T_a ≤ 80 °C)
IP66
CE 1180
Vmax = 42.4 Vdc

Special Conditions for Safe Use (X):
1. Appropriate ex d blanking plugs, cable glands, and wiring needs to be suitable for a temperature of 90 °C.
2. This device contains a thin wall diaphragm. Installation, maintenance, and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for maintenance shall be followed in detail to assure safety during its expected lifetime.
3. The 2051 does not comply with the requirements of EN60079-1 Clause 5 for flameproof joints. Contact Emerson Process Management for information on the dimensions of flameproof joints.

ND ATEX Dust
Certification No. Baseefa08ATEX0182X ⟨Ex⟩ II 1 D
Dust Rating: II 1 D Ex tD A20 T115 °C (-20 °C ≤ T_a ≤ 85 °C)
IP66 IP68
Vmax = 42.4 Vdc
A = 22 mA
CE 1180

Special Conditions for Safe Use (X):
If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of isolation from earth test and this must be taken into account during installation.

IECEx Certifications

I7 IECEx Intrinsic Safety
Certification No. IECExBAS08.0045X
Ex ia IIC T4 (–60 ≤ T_a ≤ +70 °C)
CE 1180

Table 16. Input Parameters

U_i = 30 V
I_i = 200 mA
P_i = 1.0 W
C_i = 0.012 µF

Table 17. RTD Assembly (2051CFx Option T or R)

U_i = 5 Vdc
I_i = 500 mA
P_i = 0.63 W

Special Conditions for Safe Use (X):
When the optional transient protection terminal block is installed, the apparatus is not capable of withstanding the 500 V insulation test required by Clause 6.3.12 of IEC60079-11. This must be taken into account when installing the apparatus.

E7 IECEx Flame-Proof
Certification No. IECEx KEM 08.0024X
Ex d IIC T6 (–50 ≤ T_a ≤ 65 °C)
Ex d IIC T5 (–50 ≤ T_a ≤ 80 °C)
CE 1180
Vmax = 42.4 Vdc

Special Conditions for Safe Use (X):
The Ex d blanking elements, cable glands and wiring shall be suitable for a temperature of 90 °C.
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 maintenance shall be followed in detail to assure safety during its expected lifetime.
In case of repair, contact the manufacturer for information on the dimensions of the flameproof joints.

N7 IECEx Type n
Certification No. IECExBAS08.0046X
Ex nAnL IIC T4 (–40 ≤ T_a ≤ +70 °C)
U_i = 42.4 Vdc max
CE

Special Conditions for Safe Use (X):

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

TIIS Certifications

E4 TIIS Flame-Proof
Ex d IIC T6

Inmetro Certifications

E2 Flame-Proof
Certificate number CEPEL - EX - 1767/09X
BR-Ex d IIC T6/T5

I2 Intrinsic Safety
Certificate number CEPEL - EX - 1768/09X
BR-Ex ia IIC T4

GOST - Russia Certifications

IM Intrinsic Safety
Ex ia IIC T4

EM Flame-Proof
Ex d IIC T5/T6

China (NEPSI) Certifications

E3 Flame-Proof
Ex d IIC T5/T6

I3 Intrinsic Safety
Ex ia IIC T4

CCOE Certifications

IW Intrinsic Safety
Ex ia IIC T4

EW Flame-Proof
Ex d IIC T5 or T6

Combinations of Certifications

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

K1 **E1, I1, N1,** and **ND** combination

K4 **E4** and **I4** combination

K5 **E5** and **I5** combination

K6 **I6** and **E6** combination

K7 **E7, I7,** and **N7** combination

KA **E1, I1, E6,** and **I6** combination

KB **E5, I5, E6,** and **I6** combination

KC **E1, I1, E5,** and **I5** combination

KD **E1, I1, E5, I5, E6,** and **I6** combination

FOUNDATION FIELDBUS AND PROFIBUS PA PROTOCOLS

Hazardous Locations Certifications

North American Certifications

FM Approvals

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

T5 (T_a = 85 °C), Factory Sealed, Enclosure Type 4X

IE/I5 Intrinsically Safe for use in Class I, Division 1, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; Class III, Division 1, ZONE 0 AEx ia IIC T4 when connected per Rosemount drawing 02051-1009; Non-incendive for Class I, Division 2, Groups A, B, C, and D.

For FOUNDATION fieldbus and PROFIBUS PA, Temperature Code: T4 (T_a = 70 °C)

For FISCO,
Temperature Code: T4 (T_a = 60 °C)
Enclosure Type 4X
For input parameters see control drawing 02051-1009.

Canadian Standards Association (CSA)

All CSA hazardous approved transmitters are certified per ANSI/ISA 12.27.02-2003.

E6 Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition-Proof for Class II and Class III, Division 1, Groups E, F, and G. Suitable for Class I, Division 2 Groups A, B, C, and D for indoor and outdoor hazardous locations. Enclosure type 4X, factory sealed. Single Seal.

C6 Explosion-Proof and intrinsically safe approval. Intrinsically safe for Class I, Division 1, Groups A, B, C, and D when connected in accordance with Rosemount drawings 02051-1008. Temperature Code T3C. For input parameters see control drawing 02051-1008. Single Seal.

Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition-Proof for Class II and Class III, Division 1, Groups E, F, and G. Suitable for Class I, Division 2 Groups A, B, C, and D hazardous locations. Enclosure type 4X, factory sealed

European Certifications

I1 ATEX Intrinsic Safety
Certification No.: Baseefa08ATEX0129X ⟨Ex⟩ II 1 G
Ex ia IIC T4 (T_{amb} = –60 to +70 °C)
CE 1180

Table 18. Input Parameters

U_i = 30 V
I_i = 300 mA
P_i = 1.3 W
C_i = 0 µF

Special Conditions for Safe Use (X):

When the optional transient protection terminal block is installed, the apparatus is not capable of withstanding the 500 V insulation test required by Clause 6.3.12 of EN60079-11. 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 located in Zone 0.

IA ATEX FISCO Intrinsic Safety
Certification No.: Baseefa08ATEX0129X ⟨Ex⟩ II 1 G
Ex ia IIC T4 (T_{amb} = –60 to +60 °C)
IP66
CE 1180

Table 19. Input Parameters

U_i = 17.5 V
I_i = 380 mA
P_i = 5.32 W
C_i = ≤ 5 µF
L_i = ≤ 10 µH

Special Conditions for Safe Use (X):

When the optional transient protection terminal block is installed, the apparatus is not capable of withstanding the 500 V insulation test required by Clause 6.3.12 of EN60079-11. 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 located in Zone 0.

N1 ATEX Type n
Certification No.: Baseefa08ATEX0130X ⟨Ex⟩ II 3 G
Ex nA nL IIC T4 (T_{amb} = –40 to +70 °C)
U_i = 42.4 Vdc max

Special Conditions for Safe Use (X):
The device is not capable of withstanding the 500 V insulation test required by Clause 6.8.1 of EN60079-15. This must be taken into account when installing the apparatus.

E1 ATEX Flame-Proof
Certification No.: KEMA08ATEX0090X ⟨Ex⟩ II 1/2 G
Ex d IIC T6 (T_{amb} = –50 to 65 °C)
Ex d IIC T5 (T_{amb} = –50 to 80 °C)
CE 1180

Special Conditions for Safe Use (X):
1. Appropriate ex d blanking plugs, cable glands, and wiring needs to be suitable for a temperature of 90 °C.
2. This device contains a thin wall diaphragm. Installation, maintenance, and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for maintenance shall be followed in detail to assure safety during its expected lifetime.
3. The 2051 does not comply with the requirements of EN60079-1 Clause 5 for flameproof joints. Contact Emerson Process Management for information on the dimensions of flameproof joints.

ND ATEX Dust
Certification No. Baseefa08ATEX0182X⟨Ex⟩ II 1 D
Dust Rating: II 1 D Ex tD A20 T115 °C (-20 °C ≤ T_a ≤ 85 °C) IP66 IP68
Vmax = 42.4 Vdc
A = 22 mA
CE 1180

Special Conditions for Safe Use (X):
If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of isolation from earth test and this must be taken into account during installation.

IECEx Certifications

I7 IECEx Intrinsic Safety
Certification No. IECEx BAS08.0045X
Ex ia IIC T4 (T_{amb} = –60 to 70 °C)
IP66
CE 1180

Table 20. Input Parameters

U_i = 30 V
I_i = 300 mA
P_i = 1.3 W
C_i = 0 µF

Special Conditions for Safe Use (X):
The device is not capable of withstanding the 500 V insulation test required by Clause 6.3.12 of IEC60079-11. This must be taken into account when installing the apparatus.

IG IECEx FISCO Intrinsic Safety
Certification No. IECExBAS08.0045X
Ex ia IIC T4 (T_{amb} = –60 to +60 °C)
IP66
CE 1180

Table 21. Input Parameters

U_i = 17.5 V
I_i = 380 mA
P_i = 5.32 W
C_i = ≤ 5 µF
L_i = ≤ 10 µH

Special Conditions for Safe Use (X):
The device is not capable of withstanding the 500 V insulation test required by Clause 6.3.12 of IEC 60079-11. This must be taken into account when installing the apparatus.

E7 IECEx Flame-Proof
Certification No. IECEx KEM 08.0024X
Ex d IIC T6 (T_{amb} = –50 to 65 °C)
Ex ia IIC T5 (T_{amb} = –50 to 80 °C)
IP66
CE 1180
Vmax = 42.4 Vdc

Special Conditions for Safe Use (X):

1. Appropriate ex d blanking plugs, cable glands, and wiring needs to be suitable for a temperature of 90 °C.
2. This device contains a thin wall diaphragm. Installation, maintenance, and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for maintenance shall be followed in detail to assure safety during its expected lifetime.
3. The 2051 does not comply with the requirements of IEC 60079-1 Clause 5 for flameproof joints. Contact Emerson Process Management for information on the dimensions of flameproof joints.

N7 IECEx Type n
Certification No. IECEx BAS08.0046X
Ex nAnL IIC T4 (T_{amb} = –40 to 70 °C)
U_i = 42.4 Vdc max
IP66

Special Conditions for Safe Use (X):

The device is not capable of withstanding the 500 V insulation test required by Clause 6.8.1 of IEC60079-15. This must be taken into account when installing the device.

TIIS Certifications

E4 TIIS Flame-Proof
Ex d IIC T6

GOST - Russia Certifications

IM Intrinsic Safety
Ex ia IIC T4

EM Flame-Proof
Ex d IIC T5/T6

Inmetro Certifications

E2 Flameproof
Certificate number CEPEL - EX - 1767/09X
BR - Ex d IIC T6/T5 IP66

I2 Intrinsic Safety
Certificate number CEPEL - EX - 1768/09X
BR - Ex ia IIC T4 IP66

IB FISCO Intrinsic Safety
Certificate No. CEPEL-EX-1768/09X
BR-Ex ia IIC T4

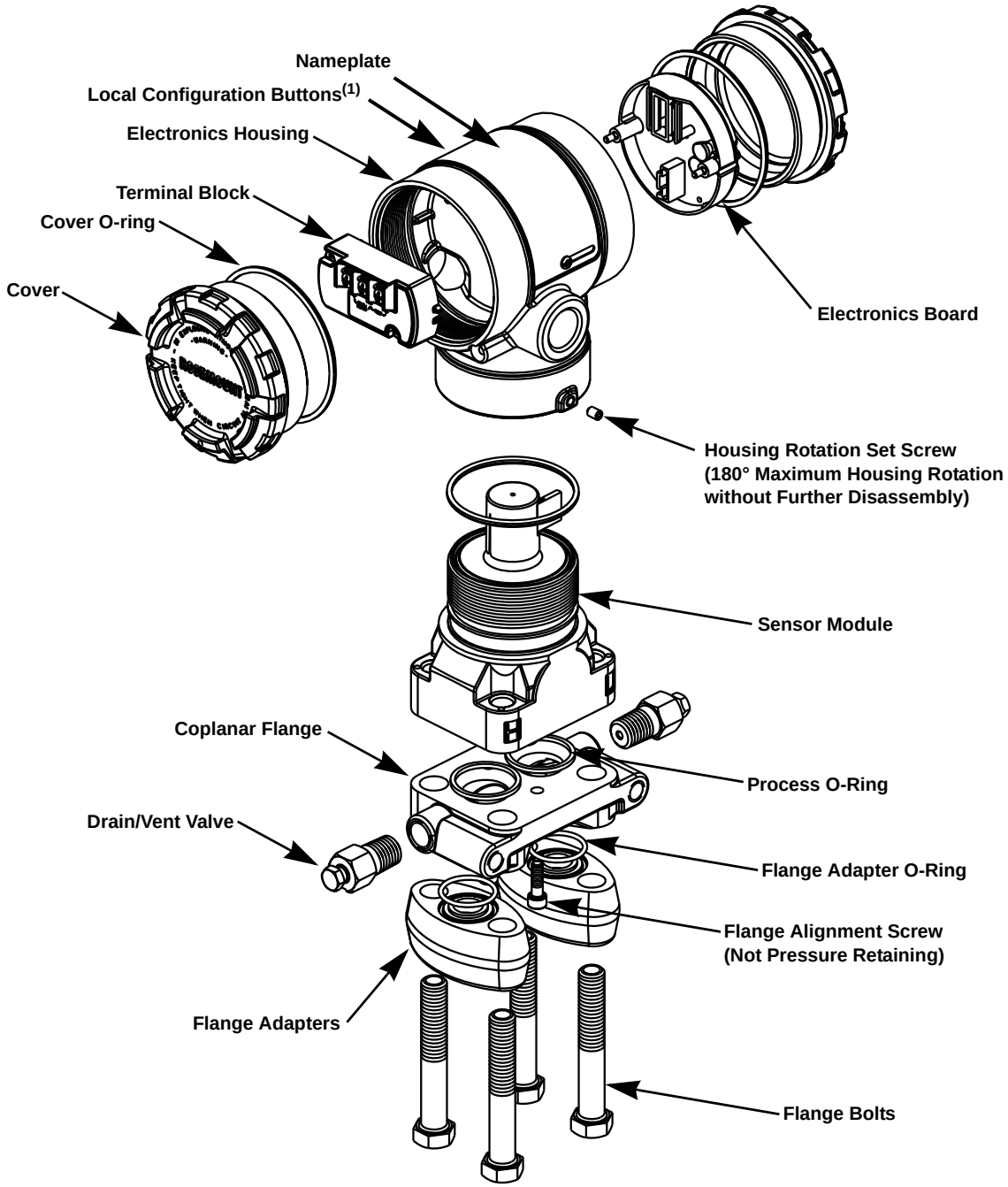
Combinations of Certifications

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

K5 **E5** and **I5** combination
KB **K5** and **C6** combination
KD **K5**, **C6**, **I1**, and **E1** combination
K6 **C6**, **I1**, and **E1** combination
K8 **E1** and **I1** combination
K7 **E7**, **I7**, and **N7** combination

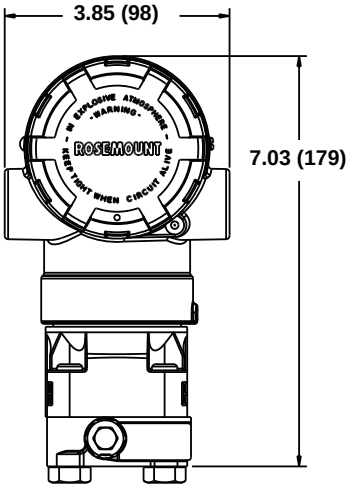
Dimensional Drawings

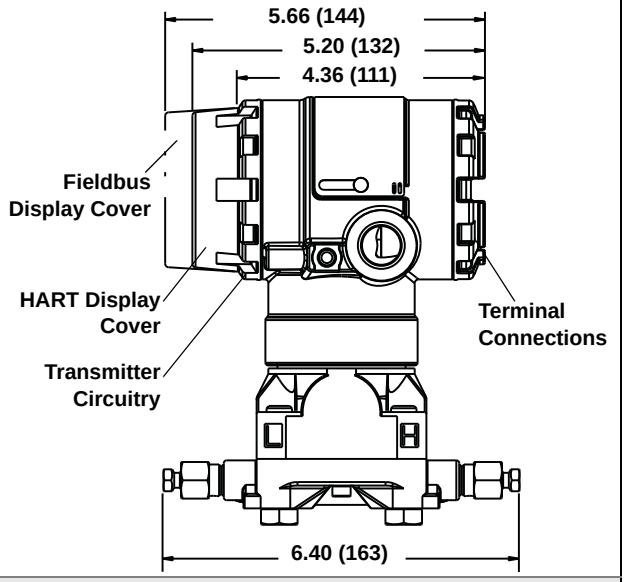
2051C Exploded View



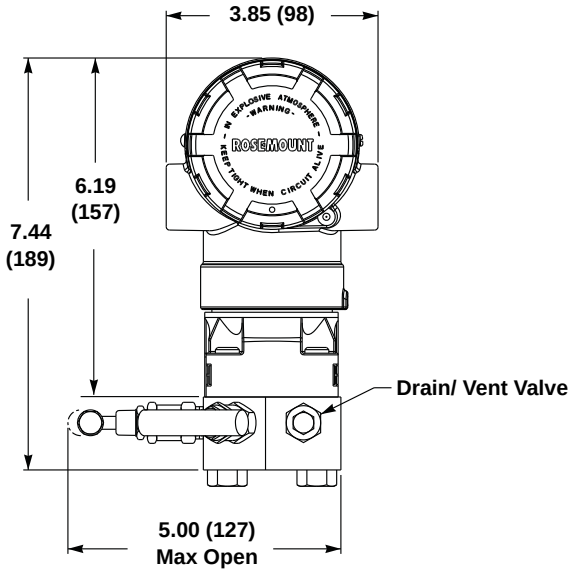
1) Span and Zero Adjustment Buttons are optional with 4-20 mA and 1-5 Vdc HART protocol. Local Operator Interface buttons are optional for PROFIBUS PA protocol. Local Configuration Buttons are not available with FOUNDATION fieldbus.

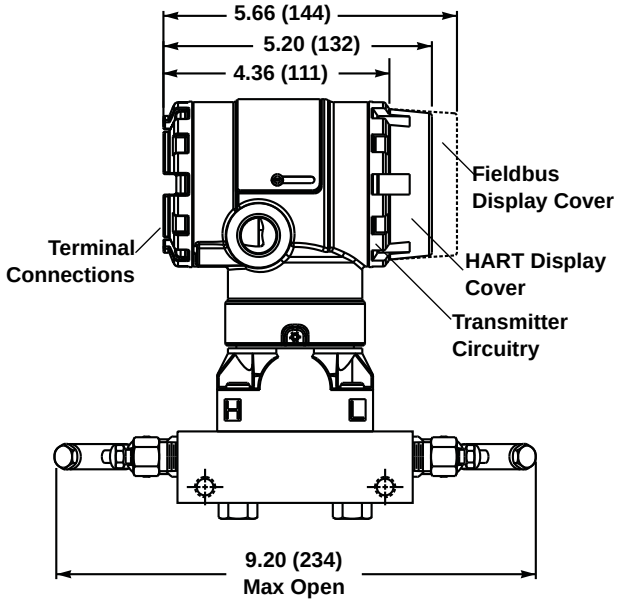
2051C Coplanar Flange





2051C Coplanar with Rosemount 305 3-Valve Coplanar Integral Manifold

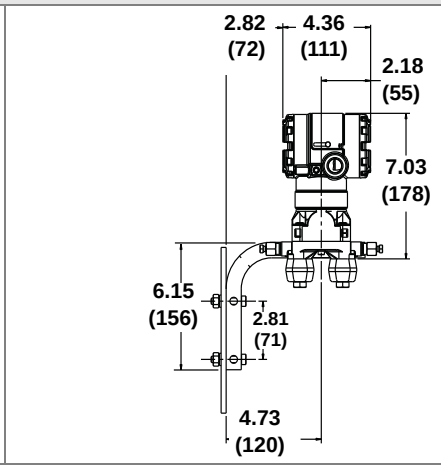


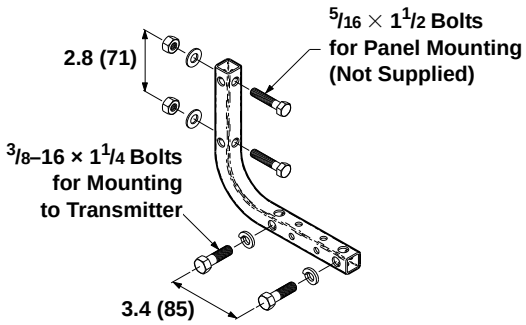


Dimensions are in inches (millimeters).

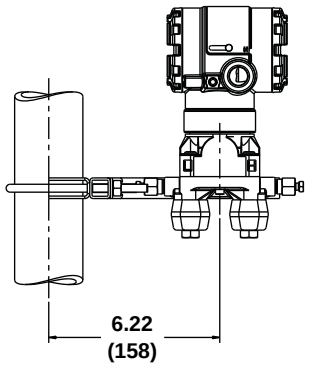
Coplanar Flange Mounting Configurations with Optional Bracket (B4) for 2-in. Pipe or Panel Mounting

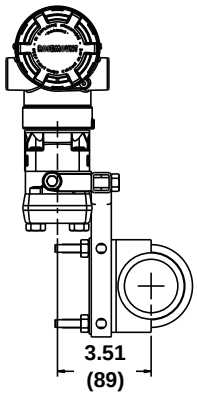
PANEL MOUNTING

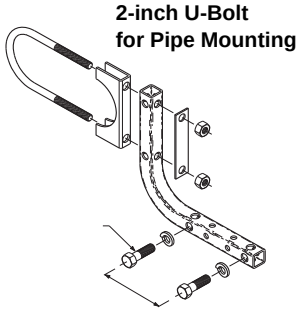




PIPE MOUNTING

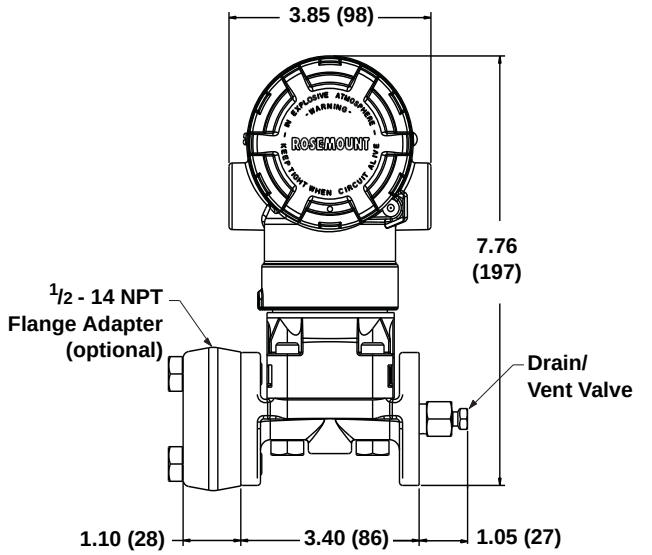


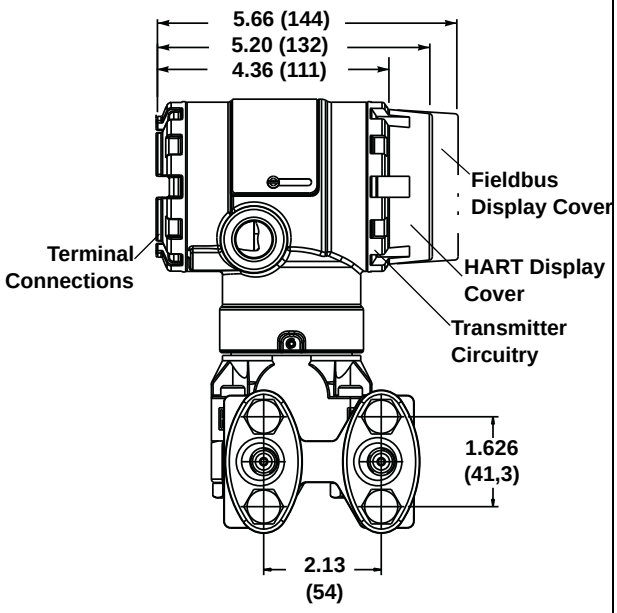




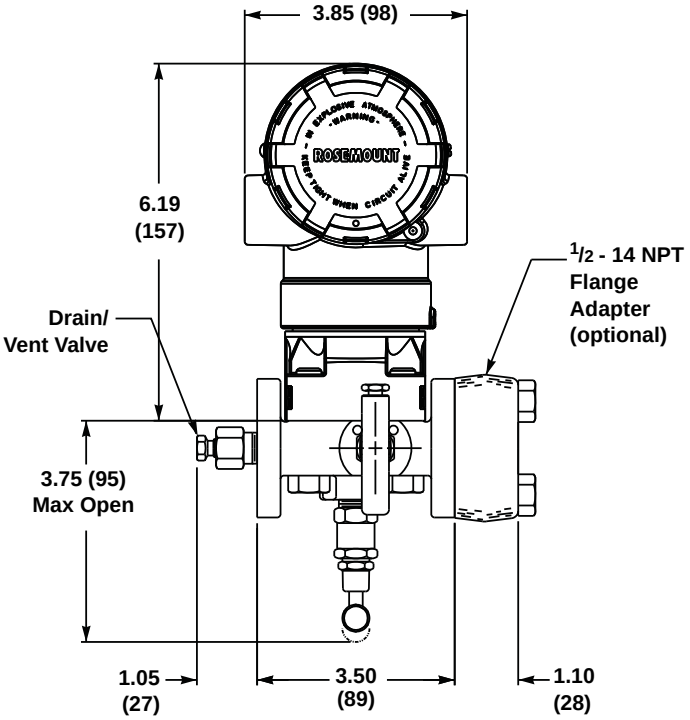
Dimensions are in inches (millimeters).

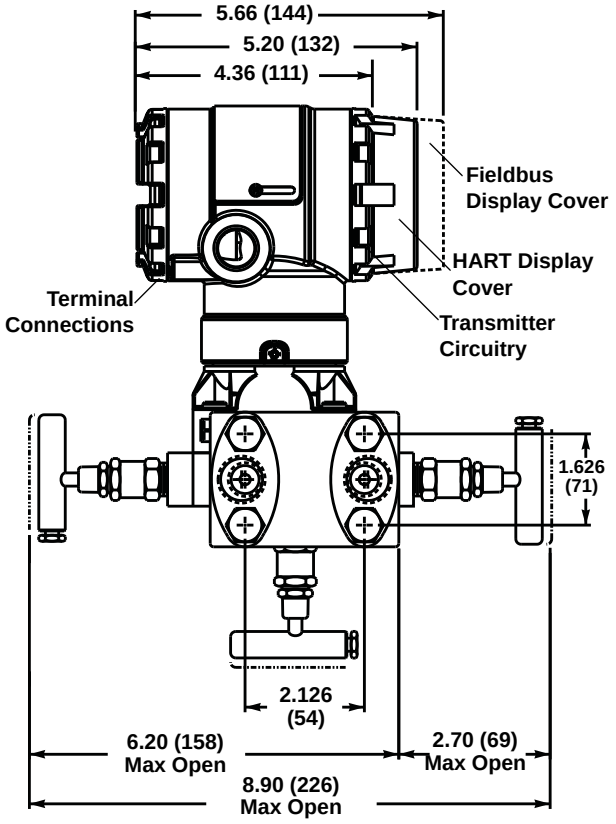
2051C Coplanar with Traditional Flange





2051C Coplanar with Rosemount 305 3-Valve Traditional Integral Manifold

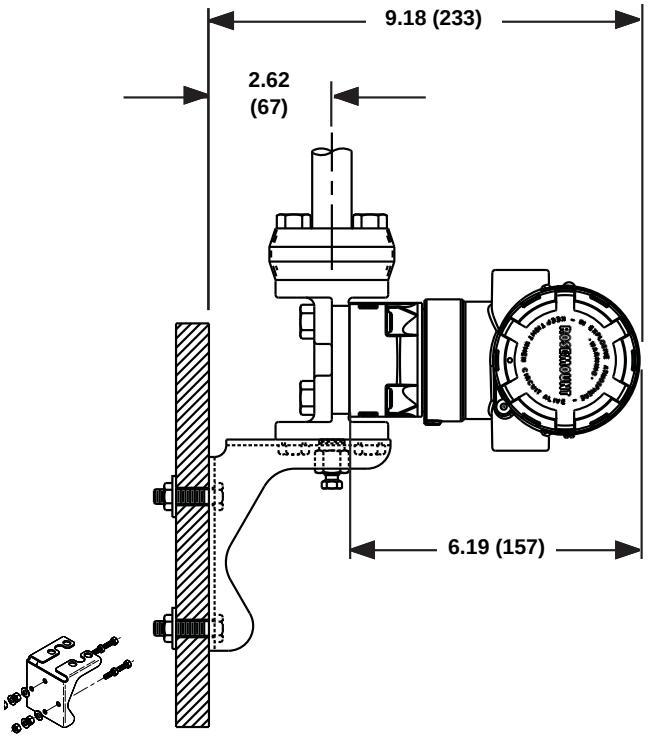




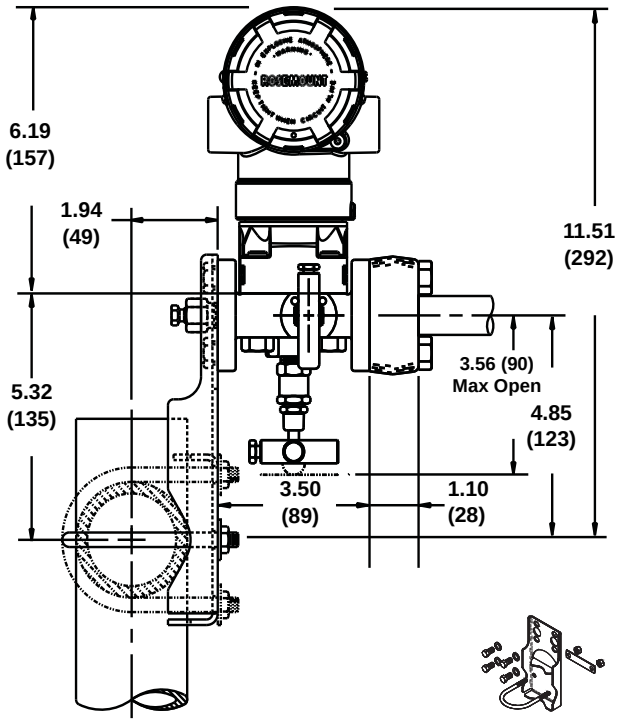
Dimensions are in inches (millimeters).

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

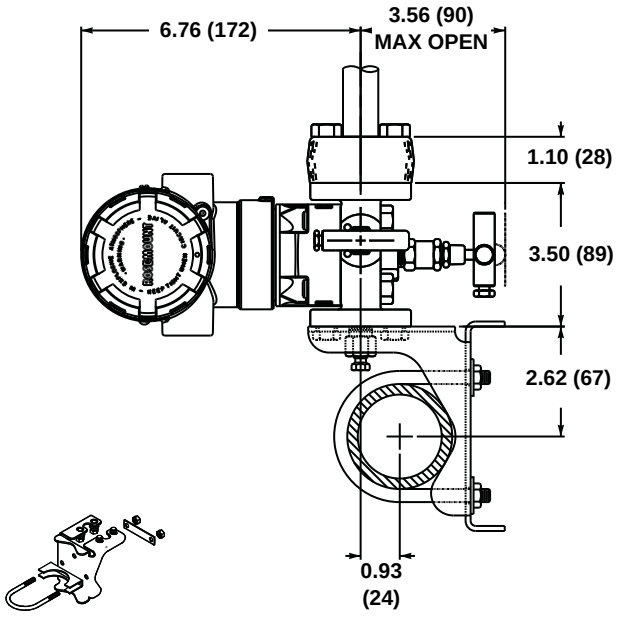
Panel Mount (Bracket Option B2/B8)



Pipe Mount (Bracket Option B3/B9/BC)

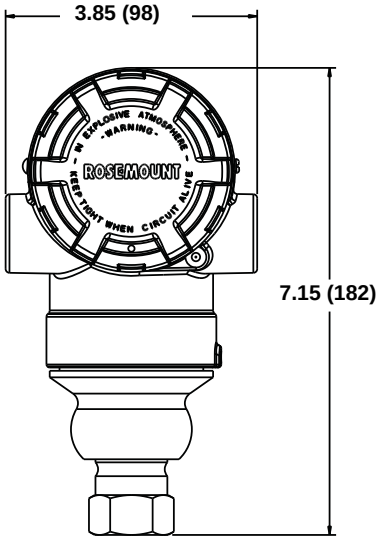


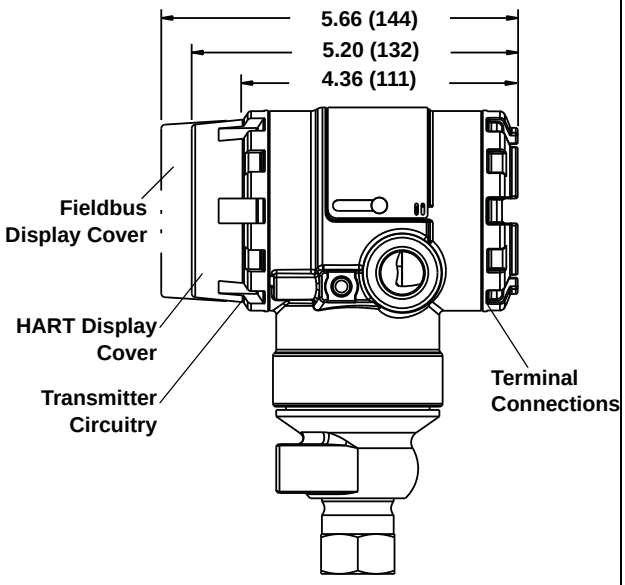
Pipe Mount (Bracket Option B1 / B7 / BA)



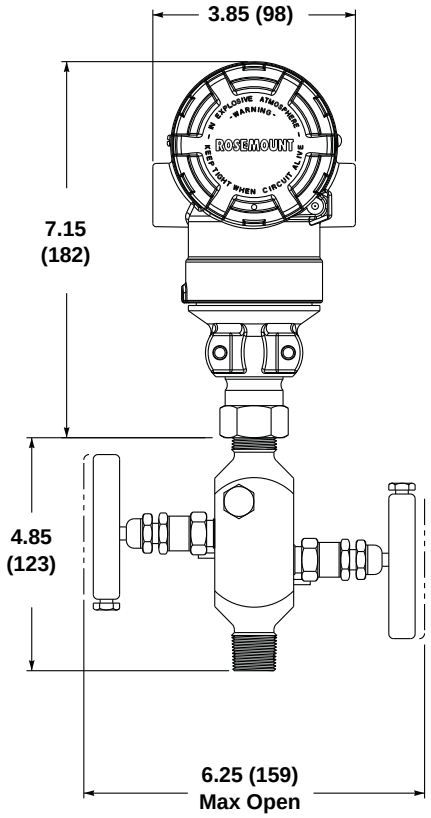
Dimensions are in inches (millimeters).

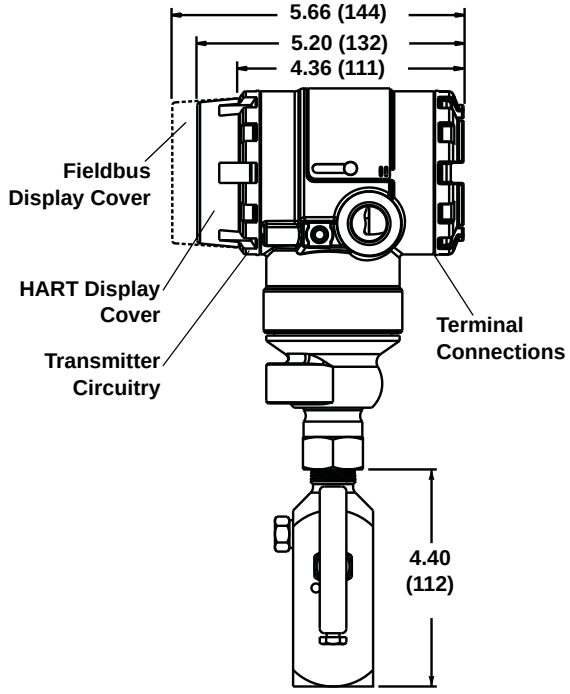
2051T Dimensional Drawings





2051T with Rosemount 306 2-Valve Integral Manifold

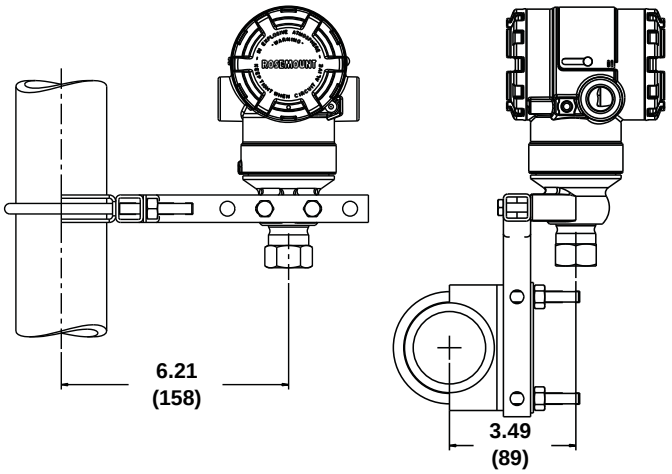




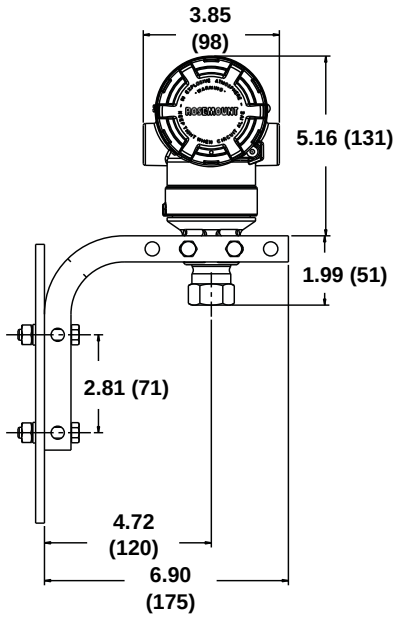
Dimensions are in inches (millimeters).

2051T Typical Mounting Configurations with Optional Mounting Bracket

Pipe Mounting



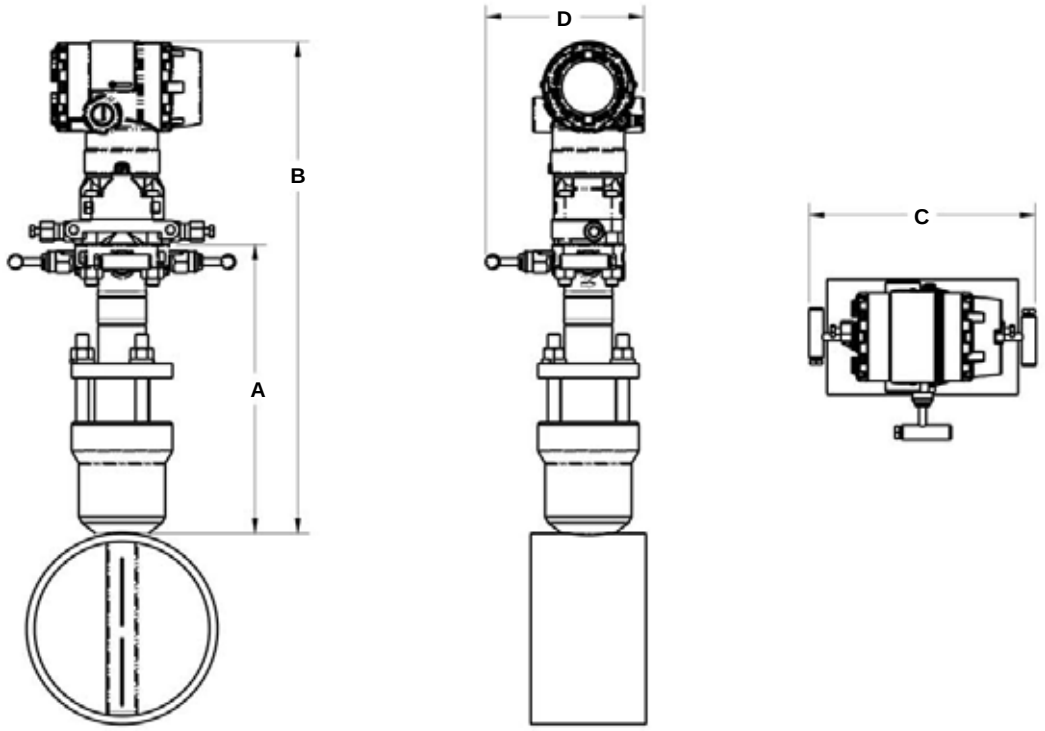
Panel Mounting



Dimensions are in inches (millimeters).

Rosemount 2051CFA Pak-Lok Annubar Flowmeter(1)

Front View	Side View	Top View



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

Table 22. 2051CFA Pak-Lok Annubar Flowmeter 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)				

Rosemount 2051CFC Compact Orifice Flowmeter

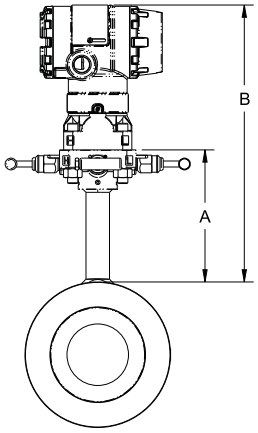
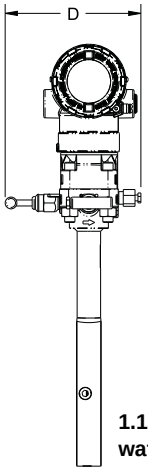
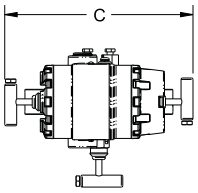
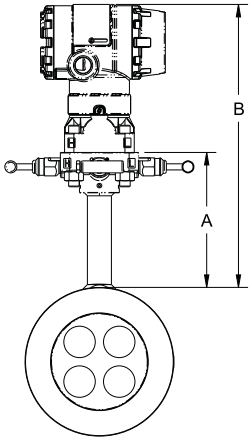
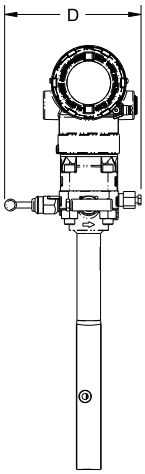
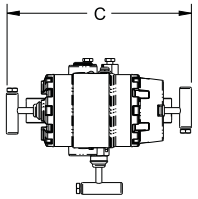
	Orifice Plate Side View	Orifice Plate Front View	Orifice Plate Top View
Compact Orifice Plate (Primary Element Type code P)		 **1.13-in. (28.7 mm) wafer thickness**	
Conditioning Orifice Plate (Primary Element Type code C)			

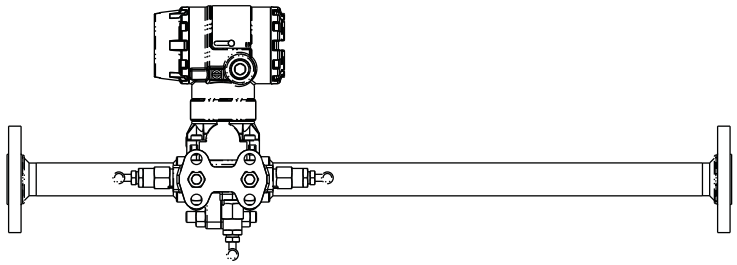
Table 23. 2051CFC Dimensional Drawings

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

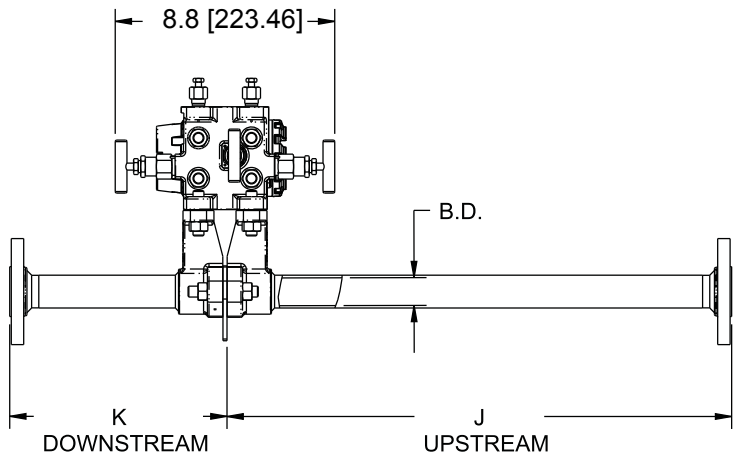
Dimensions are in inches (millimeters).

Rosemount 2051CFP Integral Orifice Flowmeter

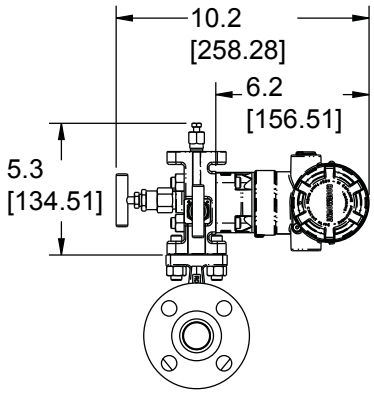
Side View



Bottom View



Front View



Dimensions are in inches (millimeters).

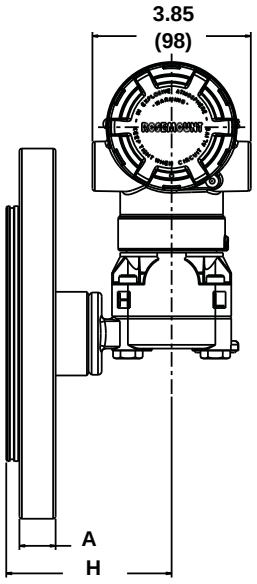
Table 24. 2051CFP Dimensional Drawings

	Line Size		
Dimension	**1/2-in. (15 mm)**	**1-in. (25 mm)**	**1 1/2-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 150#, weld neck)	14.37 (364.9)	22.37 (568.1)	30.82 (782.9)
J (RF 300#, weld neck)	14.56 (369.8)	22.63 (574.7)	31.06 (789.0)
J (RF 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 150#, weld neck)	7.57 (192.3)	10.88 (276.3)	14.29 (363.1)
K (RF 300#, weld neck)	7.76 (197.1)	11.14 (282.9)	14.53 (369.2)
K (RF 600#, weld neck)	8.01 (203.4)	11.39 (289.2)	14.85 (377.2)
B.D. (Bore Diameter)	0.664 (16.87)	1.097 (27.86)	1.567 (39.80)
Dimensions are in inches (millimeters).			

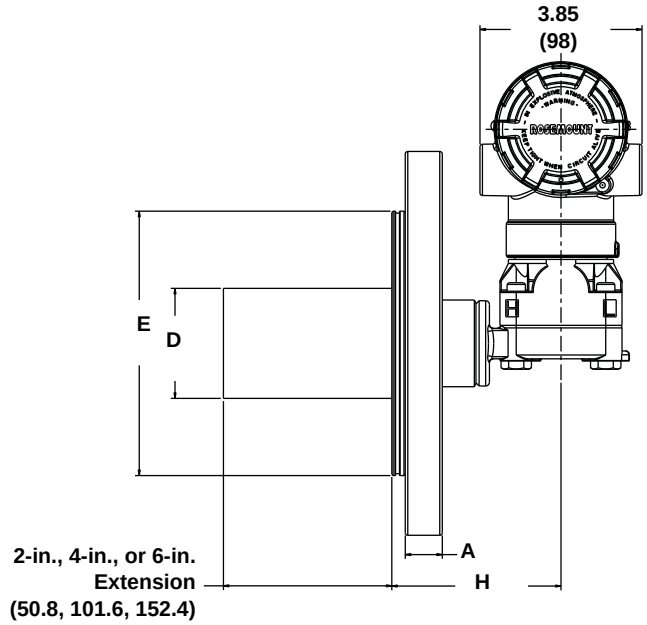
(1) Downstream length shown here includes plate thickness of 0.162-in. (4.11 mm).

2051L Liquid Level

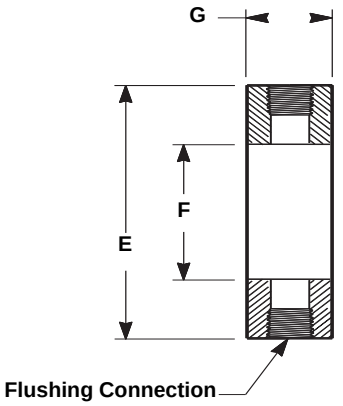
2-in. Flange Configuration (Flush Mount Only)



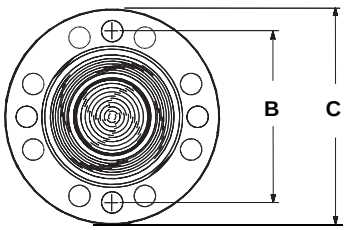
3- and 4-in. Flange Configuration

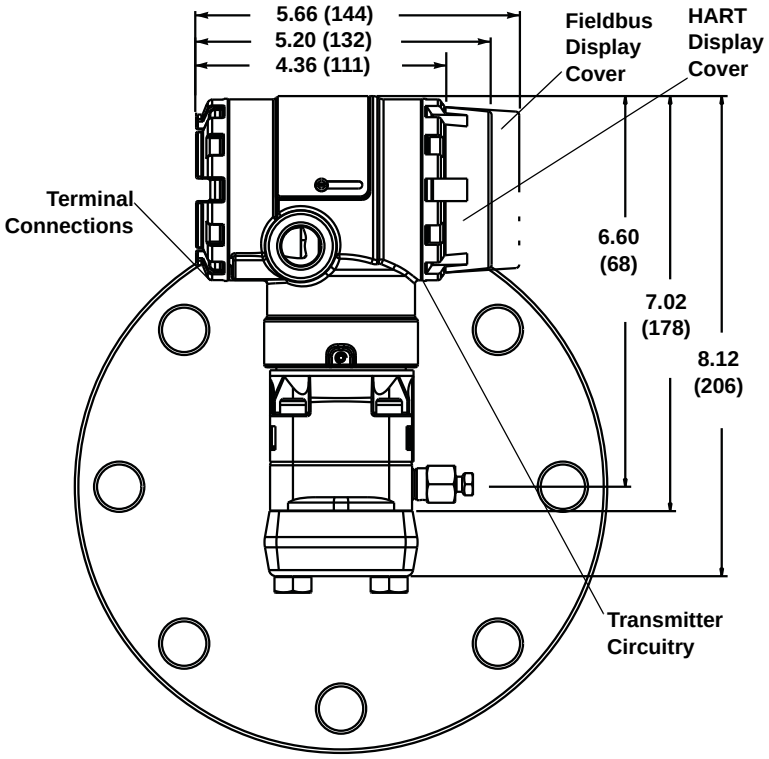


Optional Flushing Connection Ring (Lower Housing)



Diaphragm Assembly and Mounting Flange





Dimensions are in inches (millimeters).

Table 25. 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)	NA	3.6 (92)
	3 (76)	0.88 (22)	6.0 (152)	7.5 (191)	4	0.75 (19)	2.58 (66)	5.0 (127)
	4 (102)	0.88 (22)	7.5 (191)	9.0 (229)	8	0.75 (19)	3.5 (89)	6.2 (158)
ASME B16.5 (ANSI) 300	2 (51)	0.82 (21)	5.0 (127)	6.5 (165)	8	0.75 (19)	NA	3.6 (92)
	3 (76)	1.06 (27)	6.62 (168)	8.25 (210)	8	0.88 (22)	2.58 (66)	5.0 (127)
	4 (102)	1.19 (30)	7.88 (200)	10.0 (254)	8	0.88 (22)	3.5 (89)	6.2 (158)
DIN 2501 PN 10–40	DN 50	20 mm	125 mm	165 mm	4	18 mm	NA	4.0 (102)
DIN 2501 PN 25/40	DN 80	24 mm	160 mm	200 mm	8	18 mm	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).

Class[1]	Pipe Size	Process Side F	Lower Housing G		H
			1/4 NPT	1/2 NPT	
ASME B16.5 (ANSI) 150	2 (51)	2.12 (54)	0.97 (25)	1.31 (33)	5.65 (143)
	3 (76)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
	4 (102)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
ASME B16.5 (ANSI) 300	2 (51)	2.12 (54)	0.97 (25)	1.31 (33)	5.65 (143)
	3 (76)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
	4 (102)	3.6 (91)	0.97 (25)	1.31 (33)	5.65 (143)
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)

OPTIONS

Standard Configuration

Unless otherwise specified, transmitter is shipped as follows:

ENGINEERING UNITS Differential/Gage 2051TA	inH_2O (Ranges 1, 2, and 3) psi (Ranges 4-5) 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 or PROFIBUS PA.

Custom Configuration[1]

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

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

Refer to the "Rosemount 2051 Configuration Data Sheet" document number 00806-0100-4101.

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.
- For HART protocols, the tag may be stored in transmitter memory (eight characters maximum). Software tag is left blank unless specified.

Commissioning tag[2]

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 2051C and 2051T transmitters. Refer to Product Data Sheet (document number 00813-0100-4839 for Rosemount 304 and 00813-0100-4733 for Rosemount 305 and 306) for additional information.

(1) Not applicable to FOUNDATION fieldbus or PROFIBUS PA protocols.
(2) Only applicable to FOUNDATION fieldbus.

Other Seals

Refer to Product Data Sheet (document number 00813-0100-4016 or 00813-0201-4016) for additional information.

Output Information

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

Pressure			
atm	inH2O@4 °C[1]	g/cm^2	psi
mbar	mmH_2O	kg/cm^2	torr
bar	mmHg	Pa	
inH_20	mmH2O@4 °C[1]	kPa	
inHg	ftH_20	MPa[2]	
Flow[2][3]			
bbl	kg	cm^3	
ft^3	lb	m^3	
gal	L	ton	
Level[2]			
%	ft	cm	
in	mm		

(1) Only available on 4-20mA HART.

(2) Only available on PROFIBUS PA.

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

Display and Interface Options

M4 Digital Display with Local Operator Interface (LOI)

- Available for PROFIBUS PA
- Commission the device with external Local Configuration Buttons
- LOI Menu includes: Address, Units, Calibration, Damping, Display, Identification Number

M5 Digital Meter

- 2-Line, 5-Digit LCD for 4-20 mA HART
- 1-Line, 4-Digit LCD for 1-5 Vdc HART Low Power
- 2-Line, 8-Digit LCD for FOUNDATION fieldbus and PROFIBUS PA
- Direct reading of digital data for higher accuracy
- Displays user-defined flow, level, volume, or pressure units
- Displays diagnostic messages for local troubleshooting
- 90-degree rotation capability for easy viewing

Hardware Adjustments[1]

D4 Local zero and span adjustments

- Alarm and security adjustments ship standard

Transient Protection

T1 Integral Transient Protection Terminal Block

Meets IEEE C62.41, Category Location B

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

Bolts for Flanges and Adapters

- Standard material is plated carbon steel per ASTM A449, Type 1

L4 Austenitic 316 Stainless Steel Bolts
L5 ASTM A 193, Grade B7M Bolts
L6 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 carbon steel 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
- Stainless steel construction with stainless steel 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
- Carbon steel construction with carbon steel bolts
- Coated with polyurethane paint

B2 Bracket for Panel Mounting

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

B3 Flat Bracket for 2-in. Pipe Mounting

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

B7 B1 Bracket with SST Bolts

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

B8 B2 Bracket with SST Bolts

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

B9 B3 Bracket with SST Bolts

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

BA Stainless Steel B1 Bracket with SST Bolts

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

BC Stainless Steel B3 Bracket with SST Bolts

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

Emerson Process Management
Rosemount Measurement
8200 Market Boulevard
Chanhassen MN 55317 USA
Tel (USA) 1 800 999 9307
Tel (International) +1 952 906 8888
Fax +1 952 906 8889

Emerson Process Management
Blegistrasse 23
P.O. Box 1046
CH 6341 Baar
Switzerland
Tel +41 (0) 41 768 6111
Fax +41 (0) 41 768 6300

Emerson FZE
P.O. Box 17033
Jebel Ali Free Zone
Dubai UAE
Tel +971 4 811 8100
Fax +971 4 886 5465

Emerson Process Management Asia Pacific Pte Ltd
1 Pandan Crescent
Singapore 128461
Tel +65 6777 8211
Fax +65 6777 0947
Service Support Hotline : +65 6770 8711
Email : Enquiries@AP.EmersonProcess.com