Product Data Sheet
October 2014
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Rosemount 3051S Series of Instrumentation
Scalable pressure, flow, and level solutions

Innovation reaching across your operation

With the Rosemount 3051S Series of Instrumentation, you can optimize your operation in these critical areas: production, quality, energy efficiency, and safety and environment. By leveraging the power of the scalable Rosemount 3051S across your entire operation, you'll be able to minimize process variability, gain greater process insight, reduce maintenance and downtime, and meet regulatory demands. What's more, it's easy for your people to use, ensuring you will realize the full potential of your measurement investment.

ROSEMOUNT

EMERSON.
Process Management

Rosemount 3051S SuperModule™ Platform

The most advanced pressure, flow, and level measurements

- The all-welded hermetic SST design delivers the industry's highest field reliability
- Ultra performance provides up to ±0.025% accuracy and 200:1 rangedown
- Ultra for Flow performance provides up to ±0.04% of reading and 14:1 flow turndown
- 15-year stability and 15-year limited warranty
- SIL3 Capable: IEC 61508 certified by an accredited 3rd party agency for use in safety instrumented systems up to SIL 3 [minimum requirement of single use (1oo1) for SIL 2 and redundant use (1oo2) for SIL 3]

Rosemount 3051S Series selection guide

Rosemount 3051S Coplanar™ differential, gage, or absolute transmitter

See ordering information on page 5.

- Coplanar Platform enables integrated manifold, primary element, and seal system solutions
- Dual-capacitance Saturn™ sensor technology corrects for overpressure and line pressure effects
- Calibrated spans from 0.1 inH_2O to 4000 psi (0,25 mbar to 276 bar)
- Available with 316L SST, Alloy C-276, Alloy 400, Tantalum, gold-plated Alloy 400, or gold-plated 316L SST process isolators

Rosemount 3051S In-Line gage or absolute transmitter

See ordering information on page 15.

- Direct threaded connection, manifold or seal system solutions
- Piezoresistive sensor technology allows calibrated spans from 0.3 to 10000 psi (20,7 mbar to 689 bar)
- Available with 316L SST or Alloy C-276 process isolators

Contents

Rosemount 3051S MultiVariable Transmitter

See ordering information on page 22.

- Combines differential pressure, static pressure, and process temperature measurements along with mass and energy flow in a single device
- Compensates for 25+ different variables providing accurate and repeatable flow readings
- Customize pressure and temperature compensation for any flow application
- Easily configure flow and device parameters with Engineering Assistant™ Software

Rosemount 3051SF DP Flowmeters

See ordering information on page 31.

- Integrates the 3051S with Rosemount's industry leading primary elements to create one complete flowmeter assembly
- Fully assembled, configured and leak tested for out-of-the-box installation
- Reduce installed costs by replacing 10 parts traditionally used for a DP Flow installation with one flowmeter
- Reduce straight pipe requirements, lower permanent pressure loss, and achieve accurate measurement in small line sizes

Rosemount 3051S Electronic Remote Sensor (ERS™) System

See ordering information on page 60.

- The industry's first digital DP Level architecture consists of a single 4-20 mA HART® loop with two 3051S pressure sensors connected electronically
- Unique digital architecture enables stable and repeatable DP Level measurements on tall vessels, towers, and applications with wide-varying temperatures
- Achieve increased process insight and diagnostics with MultiVariable measurements including DP, Pressure, and Scaled Variable for Tank Level or Volume
- Simplify installations and maintenance by eliminating wet or dry legs, heat tracing, and purge systems

Rosemount 3051S Level Transmitter

See ordering information on page 76.

- Level transmitters combine world-class 3051S pressure transmitters with direct-mount seals, all in a single integrated model number
- Connect to virtually any process with a comprehensive offering of seal types, sizes, fill fluids, and diaphragm materials
- Combine with an 1199 Remote Mount Seal to form a Tuned-System™ Assembly for a cost effective, easy-to-install DP Level measurement solution

Advanced functionality

*Wireless*HART® (IEC 62591) capabilities

Available on coplanar, in-line, multivariable, DP flowmeters and level transmitters

- Quickly deploy new pressure, level and flow measurements in 70% less time
- Eliminate wiring design and construction complexities to lower costs by 40 - 60%
- Reduce pipe penetrations and impulse piping with industry-leading MultiVariable technology
- Extended range antenna capabilities provide access to remote locations
- Delivering over a decade of maintenance free performance with 15-year stability and 10-year power module life

Advanced diagnostic capabilities

Available on coplanar, in-line, DP flowmeters and level transmitters

- Provides diagnostic coverage from the process to the transmitter to the host
- Prevent on-scale failures by diagnosing electrical loop issues with Power Advisory diagnostics
- Statistical Process Monitoring detects abnormal process conditions enabling more productive and safer operations
- Extend diagnostic coverage to Safety Instrumented Systems with IEC 61508 SIL 2/3 capable rating

Remote display and interface

Available on coplanar, in-line, DP flowmeters, electronic remote sensors, and level transmitters

- Direct mount to the process and access transmitter capabilities and diagnostics at grade
- Get access up to 100 feet (30 m) away from the process to ensure personnel safety
- Eliminate the need for impulse lines for best practice installations

Rosemount Instrument Manifolds

Available on traditional, coplanar, and in-line transmitters

- Designed and engineered to provide optimal performance with Rosemount 3051S Transmitters
- Reduce cost and leak points with flangeless coplanar design
- Fully integrated manifold and transmitter assemblies come fully leak checked, calibrated and assembled allowing for one purchase order to save time and cost
- Rosemount manifolds provide a wide variety of styles, materials, and configurations to fit any process

Rosemount 3051S Coplanar Pressure Transmitter

3051S Coplanar Pressure Transmitter

Rosemount 3051S Coplanar Pressure Transmitters are the industry leader for differential, gage, and absolute pressure measurement. The Coplanar Platform allows seamless integration with manifolds, primary elements, and seal solutions. Capabilities include:

- Ultra, Ultra for Flow, and Classic Performance
- 4-20 mA HART, Wireless, FOUNDATION™ fieldbus protocols
- Safety Certification (Option Code QT)
- Advanced Diagnostics (Option Code DA2)
- Remote Display and Interface (Option Code M7, M8, or M9)

Additional Information
Specifications: page 107
Certifications: page 132
Dimensional drawings: page 145

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 1. Rosemount 3051S Scalable Coplanar 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			
3051S	Scalable Pressure Transmitter			
Performance class(1)				
1	Ultra: 0.025 percent span accuracy, 200:1 rangedown, 15-yr stability, 15-yr limited warranty			★
3(2)	Ultra for Flow: 0.04 percent reading accuracy, 200:1 turndown, 15-yr stability, 15-yr limited warranty			★
2	Classic: 0.035 percent span accuracy, 150:1 rangedown, 15-yr stability			★
Connection type				
C	Coplanar			★
Measurement type(3)				
D	Differential			★
G	Gage			★
A	Absolute			
Pressure range				
	Differential	**Gage**	**Absolute**	
1A	-25 to 25 inH_2O (-62,16 to 62,16 mbar)	-25 to 25 inH_2O (-62,16 to 62,16 mbar)	0 to 30 psia (0 to 2,06 bar)	★
2A	-250 to 250 inH_2O (-621,60 to 621,60 mbar)	-250 to 250 inH_2O (-621,60 to 621,60 mbar)	0 to 150 psia (0 to 10,34 bar)	★
3A	-1000 to 1000 inH_2O (-2,48 to 2,48 bar)	-393 to 1000 inH_2O (-0,97 to 2,48 bar)	0 to 800 psia (0 to 55,15 bar)	★

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4A	-300 to 300 psi (-20,68 to 20,68 bar)	-14.2 to 300 psig (-0,97 to 20,68 bar)	0 to 4000 psia (0 to 275,79 bar)		★
5A	-2000 to 2000 psi (-137,89 to 137,89 bar)	-14.2 to 2000 psig (-0,97 to 137,89 bar)	N/A		★
0A[4]	-3 to 3 inH_2O (-7,46 to 7,46 mbar)	N/A	0 to 5 psia (0 to 0,34 bar)		
Isolating diaphragm					
2[5]	316L SST				★
3[5]	Alloy C-276				★
4[5]	Alloy 400				
5[6]	Tantalum				
6[5]	Gold-Plated Alloy 400 (includes Graphite-Filled PTFE O-ring)				
7[5]	Gold-Plated 316L SST				
Process connection		**Size**	**Materials of construction**		
			Flange material	**Drain vent**	**Bolting**
000	None (no process flange)				★
A11[7]	Assemble to Rosemount 305 Integral Manifold				★
A12[7]	Assemble to Rosemount 304 or AMF Manifold and SST traditional flange				★
A15	Assemble to Rosemount 304 or AMF manifold to SST Traditional Flange with Alloy C-276 Drain Vents				★
A16[7]	Assemble to 304 or AMF Manifold to DIN SST Traditional Flange				★
A22	Assemble AMF manifold to SST Coplanar Flange				★
B11[7][8][9]	Assemble to one Rosemount 1199 Seal		SST		★
B12[7][8][9]	Assemble to two Rosemount 1199 Seals		SST		★
C11[7]	Assemble to Rosemount 405C or 405P Primary Element				★
D11[7]	Assemble to Rosemount 1195 integral orifice and Rosemount 305 Integral Manifold				★
EA2[7]	Assemble to Rosemount 485 or 405A Annubar® Primary Element with Coplanar flange		SST	316 SST	★
EA3[7]	Assemble to Rosemount 485 or 405A Annubar Primary Element with Coplanar flange		Cast C-276	Alloy C-276	★
EA5[7]	Assemble to Rosemount 485 or 405A Annubar Primary Element with Coplanar flange		SST	Alloy C-276	★
E11	Coplanar flange	1/4–18 NPT	CS	316 SST	★
E12	Coplanar flange	1/4–18 NPT	SST	316 SST	★
E13[5]	Coplanar flange	1/4–18 NPT	Cast C-276	Alloy C-276	★
E14	Coplanar flange	1/4–18 NPT	Cast Alloy 400	Alloy 400/K-500	★
E15[5]	Coplanar flange	1/4–18 NPT	SST	Alloy C-276	★
E16[5]	Coplanar flange	1/4–18 NPT	CS	Alloy C-276	★

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E21	Coplanar flange	RC 1/4	CS	316 SST		★
E22	Coplanar flange	RC 1/4	SST	316 SST		★
E23[5]	Coplanar flange	RC 1/4	Cast C-276	Alloy C-276		★
E24	Coplanar flange	RC 1/4	Cast Alloy 400	Alloy 400/K-500		★
E25[5]	Coplanar flange	RC 1/4	SST	Alloy C-276		★
E26[5]	Coplanar flange	RC 1/4	CS	Alloy C-276		★
F12	Traditional flange	1/4–18 NPT	SST	316 SST		★
F13[5]	Traditional flange	1/4–18 NPT	Cast C-276	Alloy C-276		★
F14	Traditional flange	1/4–18 NPT	Cast Alloy 400	Alloy 400/K-500		★
F15[5]	Traditional flange	1/4–18 NPT	SST	Alloy C-276		★
F22	Traditional flange	RC 1/4	SST	316 SST		★
F23[5]	Traditional flange	RC 1/4	Cast C-276	Alloy C-276		★
F24	Traditional flange	RC 1/4	Cast Alloy 400	Alloy 400/K-500		★
F25[5]	Traditional flange	RC 1/4	SST	Alloy C-276		★
F52	DIN-compliant traditional flange	1/4–18 NPT	SST	316 SST	7/16-in. bolting	★
G11	Vertical mount level flange	2-in. ANSI class 150	SST	316 SST		★
G12	Vertical mount level flange	2-in. ANSI class 300	SST	316 SST		★
G21	Vertical mount level flange	3-in. ANSI class 150	SST	316 SST		★
G22	Vertical mount level flange	3-in. ANSI class 300	SST	316 SST		★
G31	Vertical mount level flange	DIN- DN 50 PN 40	SST	316 SST		★
G41	Vertical mount level flange	DIN- DN 80 PN 40	SST	316 SST		★
F32	Bottom vent traditional flange	1/4–18 NPT	SST	316 SST		
F42	Bottom vent traditional flange	RC 1/4	SST	316 SST		
F62	DIN-compliant traditional flange	1/4–18 NPT	SST	316 SST	M10 bolting	
F72	DIN-compliant traditional flange	1/4–18 NPT	SST	316 SST	M12 bolting	
Transmitter output						
A	4–20 mA with digital signal based on HART protocol					★
F[10]	FOUNDATION fieldbus protocol					★
X[11]	Wireless (requires wireless options and wireless PlantWeb™ housing)					★

Table 1. Rosemount 3051S Scalable Coplanar Pressure Transmitter Ordering Information

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Housing style		Material	Conduit entry size	
00	None (SuperModule spare part, order output code A)			★
1A	PlantWeb housing	Aluminum	1/2–14 NPT	★
1B	PlantWeb housing	Aluminum	M20 x 1.5	★
1J	PlantWeb housing	SST	1/2–14 NPT	★
1K	PlantWeb housing	SST	M20 x 1.5	★
5A(12)	Wireless PlantWeb housing	Aluminum	1/2–14 NPT	★
5J(12)	Wireless PlantWeb housing	SST	1/2–14 NPT	★
2A	Junction Box housing	Aluminum	1/2–14 NPT	★
2B	Junction Box housing	Aluminum	M20 x 1.5	★
2J	Junction Box housing	SST	1/2–14 NPT	★
2E	Junction Box housing with output for remote display and interface	Aluminum	1/2–14 NPT	★
2F	Junction Box housing with output for remote display and interface	Aluminum	M20 x 1.5	★
2M	Junction Box housing with output for remote display and interface	SST	1/2–14 NPT	★
7J(13)	Quick Connect (A size Mini, 4-pin male termination)	SST		★
1C	PlantWeb housing	Aluminum	G1/2	
1L	PlantWeb housing	SST	G1/2	
2C	Junction Box housing	Aluminum	G1/2	
2G	Junction Box housing with output for remote display and interface	Aluminum	G1/2	

Wireless options (Requires option code X and wireless PlantWeb housing)

Update rate		
WA	User Configurable Update Rate	★
Operating frequency and protocol		
3	2.4 GHz DSSS, IEC 62591 (*Wireless*HART)	★
Omni-directional wireless antenna		
WK	External Antenna	★
WM	Extended Range, External Antenna	★
WJ	Remote Antenna	
WN	High-Gain, Remote Antenna	
SmartPower™		
1(14)	Adapter for Black Power Module (I.S. Power Module Sold Separately)	★

Table 1. Rosemount 3051S Scalable Coplanar 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.

Other options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
PlantWeb control functionality		
A01[15]	FOUNDATION fieldbus Advanced Control Function Block Suite	★
PlantWeb diagnostic functionality		
D01[15]	FOUNDATION fieldbus Diagnostics Suite	★
DA2[15][16]	Advanced HART Diagnostics Suite	★
PlantWeb enhanced measurement functionality		
H01[15][17]	FOUNDATION fieldbus Fully Compensated Mass Flow Block	★
Mounting bracket[18]		
B4	Coplanar flange bracket, all SST, 2-in. pipe and panel	★
B1	Traditional flange bracket, CS, 2-in. pipe	★
B2	Traditional flange bracket, CS, panel	★
B3	Traditional flange flat bracket, CS, 2-in. pipe	★
B7	Traditional flange bracket, B1 with SST bolts	★
B8	Traditional flange bracket, B2 with SST bolts	★
B9	Traditional flange bracket, B3 with SST bolts	★
BA	Traditional flange bracket, B1, all SST	★
BC	Traditional flange bracket, B3, all SST	★
Software configuration		
C1[19]	Custom software configuration (requires Configuration Data Sheet)	★
C2	Custom flow configuration (requires H01 and Configuration Data Sheet)	★
Gage pressure calibration		
C3	Gage pressure calibration on Rosemount 3051S_CA4 only	★
Alarm limit		
C4[15][19]	NAMUR alarm and saturation levels, high alarm	★
C5[15][19]	NAMUR alarm and saturation levels, low alarm	★
C6[15][19]	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
C7[15][19]	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
C8[15][19]	Low alarm (standard Rosemount alarm and saturation levels)	★

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Hardware adjustments		
D1[15][19][20]	Hardware adjustments (zero, span, alarm, security)	★
Flange adapter		
D2[21]	1/2-14 NPT flange adapter	★
D9[21]	RC1/2 SST flange adapter	
Custody transfer		
D3[22]	Measurement Canada Accuracy Approval	★
Ground screw		
D4[23]	External ground screw assembly	★
Drain/vent valve		
D5[21]	Delete transmitter drain/vent valves (install plugs)	★
D7[21]	SST Coplanar flange without drain/vent ports	
Conduit plug		
DO[24]	316 SST Conduit Plug	★
Product certifications[25]		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
IA	ATEX FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
N1	ATEX Type n	★
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
ND	ATEX Dust	★
E4	TIIS Flameproof	★
I4[12]	TIIS Intrinsic Safety	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe; Nonincendive	★
IE	FM FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E6[26]	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6	CSA Intrinsically Safe	★
IF	CSA FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
K6[26]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E7	IECEx Flameproof, Dust	★
I7	IECEx Intrinsic Safety	★
IG	IECEx FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★

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N7	IECEx Type n	★
K7	IECEx Flameproof, Dust, Intrinsic Safety, Type n	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO Intrinsic Safety	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
N3	China Type n	★
EP	Korea Flameproof	★
IP	Korea Intrinsic Safety	★
KP	Korea Flameproof, Intrinsic Safety	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	★
KA[(26)]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB[(26)]	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[(26)]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe	★
KG	FM, CSA, ATEX and IECEx FISCO Intrinsic Safety	★
Shipboard approvals		
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Sensor fill fluid		
L1[(27)]	Inert sensor fill fluid	★
O-ring		
L2	Graphite-filled PTFE O-ring	★
Bolting material		
L4[(21)]	Austenitic 316 SST bolts	★
L5[(21)]	ASTM A 193, Grade B7M bolts	★
L6[(21)]	Alloy K-500 bolts	★
L7[(21)(28)]	ASTM A453, Class D, Grade 660 bolts	★
L8[(21)]	ASTM A193, Class 2, Grade B8M bolts	★

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Display type[29]		
M5	PlantWeb LCD display	★
M7[15][30][31]	Remote mount LCD display and interface, PlantWeb housing, no cable, SST bracket	★
M8[15][30]	Remote mount LCD display and interface, PlantWeb housing, 50 ft. (15 m) cable, SST bracket	★
M9[15][30]	Remote mount LCD display and interface, PlantWeb housing, 100 ft. (31 m) cable, SST bracket	★
Pressure testing		
P1[32]	Hydrostatic testing with certificate	
Special cleaning		
P2[21]	Cleaning for special services	
P3[21]	Cleaning for less than 1PPM chlorine/fluorine	
Maximum static line pressure		
P9	4500 psig (310 bar) static pressure limit (Rosemount 3051S_CD only)	★
P0[33]	6092 psig (420 bar) static pressure limit (Rosemount 3051S2CD only)	★
Calibration certification		
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★
Material traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★
Quality certification for safety		
QS[15][19]	Prior-use certificate of FMEDA Data	★
QT[34]	Safety-certified to IEC 61508 with certificate of FMEDA data	★
Transient protection		
T1[35][36]	Transient terminal block	★
Drinking water approval		
DW[37]	NSF Drinking Water Approval	★
Surface finish certification		
Q16	Surface finish certification for sanitary remote seals	★
Toolkit total system performance reports		
QZ	Remote Seal System Performance Calculation Report	★
Conduit electrical connector		
GE[38]	M12, 4-pin, Male Connector (eurofast®)	★
GM[38]	A size Mini, 4-pin, Male Connector (minifast®)	★

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NACE certificate		
Q15[39]	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25[39]	Certificate of Compliance to NACE MR0103 for wetted materials	★
Typical model number: 3051S1CD 2A 2 E12 A 1A DA2 B4 M5		

(1) For detailed specifications see "Specifications" on page 107.

(2) This option is only available with range codes 2A and 3A, 316L SST or Alloy C-276 isolating diaphragm and silicone fill fluid.

(3) Performance Class code 3 is available with Measurement Type code D only.

(4) 3051S_CD0 is only available with SST traditional flange, 316L SST diaphragm material, and Bolting option L4.

(5) Materials of Construction comply with metallurgical requirements highlighted within NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

(6) Tantalum diaphragm material is only available for ranges 2A - 5A, differential and gage.

(7) "Assemble to" items are specified separately and require a completed model number. Process connection option codes B12, C11, D11, EA2, EA3, and EA5 are only available on differential Measurement Type, code D.

(8) Consult an Emerson Process Management representative for performance specifications.

(9) Not available with Performance Class code 3.

(10) Requires PlantWeb™ housing.

(11) Only intrinsically safe approval codes apply.

(12) Only available with output code X.

(13) Available with output code A only. Available approvals are FM Intrinsically Safe; Nonincendive (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), or IECEx Intrinsic Safety (option code I7). Contact an Emerson Process Management representative for additional information.

(14) Long-Life Power Module must be shipped separately, order Power Module 701PBKKF.

(15) Not available with output code X.

(16) Requires PlantWeb housing and output code A. Includes Hardware Adjustments as standard.

(17) Requires Rosemount Engineering Assistant to configure.

(18) For process connection option code A11, the mounting bracket must be ordered as part of the manifold model number.

(19) Not available with output code F.

(20) Not available with housing style codes 00, 2E, 2F, 2G, 2M, 5A, 5J, or 7J.

(21) Not available with process connection option code A11.

(22) Requires PlantWeb housing and Hardware Adjustments option code D1. Limited availability depending on transmitter type and range. Contact an Emerson Process Management representative for additional information.

(23) This assembly is included with options EP, KP, E1, N1, K1, ND, E4, E7, N7, K7, E2, E3, KA, KC, KD, IA, IB, IE, IF, IG, KG, T1, K2, N3, EM, and KM.

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

(25) Valid when SuperModule Platform and housing have equivalent approvals.

(26) Not available with M20 or G ½ conduit entry size.

(27) Only available on differential and gage measurement types. Silicone fill fluid is standard.

(28) Bolts are not considered process wetted. In instances where NACE MR0175/ISO 15156 and NACE MR0103 conformance is required for bolting, L7 is the recommended bolting option.

(29) Not available with Housing code 7J.

(30) Not available with output code F, option code DA2, or option code QT.

(31) See the 3051S Reference Manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(32) P1 is not available with 3051S_CA0.

(33) Requires 316L SST, Alloy C-276, or Gold-plated 316L SST diaphragm material, assemble to Rosemount 305 integral manifold or DIN-compliant traditional flange process connection, and bolting option L8. Limited to Pressure Range (Differential), ranges 2A – 5A.

(34) Not available with output code F or X. Not available with housing code 7J.

(35) Not available with Housing code 00, 5A, 5J, or 7J.

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

(37) Requires 316L SST diaphragm material, glass-filled PTFE O-ring (standard), and Process Connection code E12 or F12.

(38) Not available with Housing code 00, 5A, 5J, or 7J. Available with Intrinsically Safe approvals only. For FM Intrinsically Safe; Nonincendive (option code I5) or FM FISCO Intrinsically Safe (option code IE), install in accordance with Rosemount drawing 03151-1009. Suitable for use with all IS approvals (I1, I2, I3, I5, I6, I7, IA, IB, IE, IF, IG, IP, IM, KG).

(39) NACE compliant wetted materials are identified by Footnote 5.

Rosemount 3051S In-Line Pressure Transmitter

3051S In-Line Pressure Transmitter

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

- Ultra and Classic Performance
- 4-20 mA HART, Wireless, FOUNDATION fieldbus protocols
- Safety Certification (Option Code QT)
- Advanced Diagnostics (Option Code DA2)
- Remote Display and Interface (Option Code M7, M8, or M9)

Additional information
Specifications: page 107
Certifications: page 132
Dimensional Drawings: page 147

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 2. Rosemount 3051S Scalable 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		
3051S	Scalable Pressure Transmitter		
Performance class[(1)]			
1	Ultra: 0.025 percent span accuracy, 200:1 rangedown, 15-yr stability, 15-yr limited warranty		★
2	Classic: 0.035 percent span accuracy, 150:1 rangedown, 15-yr stability		★
Connection type			
T	In-Line		★
Measurement type			
G	Gage		★
A	Absolute		★
Pressure range			
	Gage	**Absolute**	
1A	-14.7 to 30 psi (-1,01 to 2,06 bar)	0 to 30 psia (2,06 bar)	★
2A	-14.7 to 150 psi (-1,01 to 10,34 bar)	0 to 150 psia (10,34 bar)	★
3A	-14.7 to 800 psi (-1,01 to 55,15 bar)	0 to 800 psia (55,15 bar)	★
4A	-14.7 to 4000 psi (-1,01 to 275,79 bar)	0 to 4000 psia (275,79 bar)	★
5A	-14.7 to 10000 psi (-1,01 to 689,47 bar)	0 to 10000 psia (689,47 bar)	★

Table 2. Rosemount 3051S Scalable 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.

Isolating diaphragm				
2[(2)(3)]	316L SST			★
3[(2)(3)]	Alloy C-276			★
Process connection				
A11[(4)]	Assemble to Rosemount 306 Integral Manifold			★
B11[(4)(5)]	Assemble to one Rosemount 1199 Seal			★
E11	1/2–14 NPT female			★
G11	G1/2 A DIN 16288 male (Range 1-4 only)			★
H11	Coned and threaded, compatible with autoclave type F-250-C (Range 5A only)			
F11	Non-threaded instrument flange (I-flange) (Range 1-4 only)			
Transmitter output				
A	4–20 mA with digital signal based on HART protocol			★
F[(6)]	FOUNDATION fieldbus protocol			★
X[(7)]	Wireless (requires wireless options and wireless PlantWeb housing)			★
Housing style		**Material**	**Conduit entry size**	
00	None (SuperModule spare part, order output code A)			★
1A	PlantWeb housing	Aluminum	1/2–14 NPT	★
1B	PlantWeb housing	Aluminum	M20 x 1.5	★
1J	PlantWeb housing	SST	1/2–14 NPT	★
1K	PlantWeb housing	SST	M20 x 1.5	★
5A[(8)]	Wireless PlantWeb housing	Aluminum	1/2–14 NPT	★
5J[(8)]	Wireless PlantWeb housing	SST	1/2–14 NPT	★
2A	Junction Box housing	Aluminum	1/2–14 NPT	★
2B	Junction Box housing	Aluminum	M20 x 1.5	★
2J	Junction Box housing	SST	1/2–14 NPT	★
2E	Junction Box housing with output for remote display and interface	Aluminum	1/2–14 NPT	★
2F	Junction Box housing with output for remote display and interface	Aluminum	M20 x 1.5	★
2M	Junction Box housing with output for remote display and interface	SST	1/2–14 NPT	★
7J[(9)]	Quick Connect (A size Mini, 4-pin male termination)	SST		★
1C	PlantWeb housing	Aluminum	G1/2	
1L	PlantWeb housing	SST	G1/2	
2C	Junction Box housing	Aluminum	G1/2	
2G	Junction Box housing with output for remote display and interface	Aluminum	G1/2	

Table 2. Rosemount 3051S Scalable 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.

Wireless options (requires option code X and wireless PlantWeb housing)

Update rate		
WA	User Configurable Update Rate	★
Operating frequency and protocol		
3	2.4 GHz DSSS, IEC 62591 (*Wireless*HART)	★
Omni-directional wireless antenna		
WJ	Remote Antenna	
WK	External Antenna	★
WM	Extended Range, External Antenna	★
WN	High-Gain, Remote Antenna	
SmartPower		
1[(10)]	Adapter for Black Power Module (I.S. Power Module Sold Separately)	★

Other options (Include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
PlantWeb control functionality		
A01[(11)]	FOUNDATION fieldbus Advanced Control Function Block Suite	★
PlantWeb diagnostic functionality		
D01[(11)]	FOUNDATION fieldbus Diagnostics Suite	★
DA2[(11)(12)]	Advanced HART Diagnostics Suite	★
Mounting bracket		
B4	Bracket, all SST, 2-in. pipe and panel	★
Software configuration		
C1[(13)]	Custom software configuration (requires Configuration Data Sheet)	★
Alarm limit		
C4[(11)(13)]	NAMUR alarm and saturation levels, high alarm	★
C5[(11)(13)]	NAMUR alarm and saturation levels, low alarm	★
C6[(11)(13)]	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
C7[(11)(13)]	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
C8[(11)(13)]	Low alarm (standard Rosemount alarm and saturation levels)	★

Table 2. Rosemount 3051S Scalable 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.

Hardware adjustments		
D1[11][13][14]	Hardware adjustments (zero, span, alarm, security)	★
Custody transfer		
D3[15]	Measurement Canada Accuracy Approval	★
Ground screw		
D4[16]	External ground screw assembly	★
Conduit plug		
DO[17]	316 SST Conduit Plug	★
Product certifications[18]		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
IA	ATEX FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
N1	ATEX Type n	★
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
ND	ATEX Dust	★
E4	TIIS Flameproof	★
I4[8]	TIIS Intrinsic Safety	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe; Nonincendive	★
IE	FM FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E6[19]	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6	CSA Intrinsically Safe	★
IF	CSA FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
K6[19]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
IG	IECEx FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
N7	IECEx Type n	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO Intrinsic Safety	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	China Flameproof	★

Table 2. Rosemount 3051S Scalable 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.

I3	China Intrinsic Safety	★
N3	China Type n	★
EP	Korea Flameproof	★
IP	Korea Intrinsic Safety	★
KP	Korea Flameproof, Intrinsic Safety	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	★
KA[(19)]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB[(19)]	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[(19)]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe	★
KG	FM, CSA, ATEX and IECEx FISCO Intrinsic Safety	★
Shipboard approvals		
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Sensor fill fluid		
L1[(20)]	Inert sensor fill fluid	★
Display type[(21)]		
M5	PlantWeb LCD display	★
M7[(11)(22)(23)]	Remote mount LCD display and interface, PlantWeb housing, no cable, SST bracket	★
M8[(11)(24)]	Remote mount LCD display and interface, PlantWeb housing, 50 ft. (15 m) cable, SST bracket	★
M9[(11)(24)]	Remote mount LCD display and interface, PlantWeb housing, 100 ft. (31 m) cable, SST bracket	★
Pressure testing		
P1	Hydrostatic testing with certificate	
Special cleaning		
P2[(24)]	Cleaning for special services	
P3[(24)]	Cleaning for less than 1PPM chlorine/fluorine	
Calibration certification		
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★
Material traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★

Table 2. Rosemount 3051S Scalable 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.

Quality certification for safety		
QS[11][13]	Prior-use certificate of FMEDA Data	★
QT[25]	Safety-certified to IEC 61508 with certificate of FMEDA data	★
Transient protection		
T1[26][27]	Transient terminal block	★
Drinking water approval		
DW[28]	NSF Drinking Water Approval	★
Surface finish certification		
Q16	Surface finish certification for sanitary remote seals	★
Toolkit total system performance reports		
QZ	Remote Seal System Performance Calculation Report	★
Conduit electrical connector		
GE[29]	M12, 4-pin, Male Connector (eurofast)	★
GM[29]	A size Mini, 4-pin, Male Connector (minifast)	★
NACE certificate		
Q15[30]	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25[30]	Certificate of Compliance to NACE MR0103 for wetted materials	★
Typical model number: 3051S1TG 2A 2 E11 A 1A DA2 B4 M5		

(1) For detailed specifications see "Specifications" on page 107.

(2) Materials of Construction comply with metallurgical requirements highlighted within NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

(3) Isolator diaphragm selection will dictate materials of construction for wetted parts.

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

(5) Consult an Emerson Process Management representative for performance specifications.

(6) Requires PlantWeb housing.

(7) Only intrinsically safe approval codes apply.

(8) Only available with output code X.

(9) Only available with output code A. Available approvals are FM Intrinsically Safe; Nonincendive (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), or IECEx Intrinsic Safety (option code I7). Contact an Emerson Process Management representative for additional information.

(10) Long-Life Power Module must be shipped separately, order Power Module 701PBKKF.

(11) Not available with output code X.

(12) Requires PlantWeb housing and output code A. Includes Hardware Adjustments as standard.

(13) Not available with output code F.

(14) Not available with housing style codes 00, 01, 2E, 2F, 2G, 2M, 5A, 5J, or 7J.

(15) Requires PlantWeb housing and Hardware Adjustments option code D1. Limited availability depending on transmitter type and range. Contact an Emerson Process Management representative for additional information.

(16) This assembly is included with options EP, KP, E1, N1, K1, ND, E4, E7, N7, K7, E2, E3, KA, KC, KD, IA, IB, IE, IF, IG, KG, T1, K2, N3, EM, and KM.

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

(18) Valid when SuperModule Platform and housing have equivalent approvals.

(19) Not available with M20 or G ½ conduit entry size.

(20) Silicone fill fluid is standard.

(21) Not available with Housing code 7J.

(22) Not available with output code F, option code DA2, or option code QT.

(23) See the 3051S Reference Manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(24) Not available with process connection option code A11.

(25) Not available with output code F or X. Not available with housing code 7J.

(26) Not available with Housing code 00, 5A, 5J, or 7J.

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

(28) Requires 316L SST diaphragm material and Process Connection code E11 or G11.

(29) Not available with Housing code 00, 5A, 5J, or 7J. Available with Intrinsically Safe approvals only. For FM Intrinsically Safe; Nonincendive (option code I5) or FM FISCO Intrinsically Safe (option code IE), install in accordance with Rosemount drawing 03151-1009. Suitable for use with all IS approvals (I1, I2, I3, I5, I6, I7, IA, IB, IE, IF, IG, IP, IM, KG).

(30) NACE compliant wetted materials are identified by Footnote 2.

Rosemount 3051S MultiVariable Transmitter

3051S MultiVariable Transmitter

The Rosemount 3051S MultiVariable Transmitter delivers unprecedented performance and capabilities by providing superior flow calculations including fully compensated mass or volume, energy, and totalized flow. Specify the level of compensation that best matches the application:

- Gas, natural gas, and steam measurement: Utilize full compensation (differential pressure, line pressure, and temperature measurement)
- Saturated steam: Utilize differential and line pressure, or differential pressure and temperature measurement
- Liquids: Utilize differential pressure and temperature measurement
- Liquids at stable temperatures: Utilize differential pressure measurement
- 4-20 mA HART, *Wireless*HART

Additional information
Specifications: page 107
Certifications: page 141
Dimensional drawings: page 145

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 3. Rosemount 3051S Scalable MultiVariable 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	
3051SMV	Scalable MultiVariable Transmitter	
Performance class[1]		
3051SMV MultiVariable SuperModule, Measurement Types 1 and 2		
3[2]	Ultra for Flow: 0.04% reading DP accuracy, 200:1 rangedown,10-year stability, 15-year limited warranty	★
5	Classic MV: 0.04% span DP accuracy, 100:1 rangedown, 5-year stability	★
3051SMV Single Variable SuperModule, Measurement Types 3 and 4		
1[3]	Ultra: 0.025% span DP accuracy, 200:1 rangedown, 15-year stability, 15-year limited warranty	★
2	Classic: 0.035% span DP accuracy, 150:1 rangedown, 15-year stability	★
3[2]	Ultra for Flow: 0.04% reading DP accuracy, 200:1 rangedown,15-year stability, 15-year limited warranty	★
MultiVariable type		
M	Measurement with Fully Compensated Mass and Energy Flow Calculations	★
P	Measurement of Process Variables Only (No Flow Calculations)	★
Measurement type		
1	Differential Pressure, Static Pressure, and Temperature	★
2	Differential Pressure and Static Pressure	★

Table 3. Rosemount 3051S Scalable MultiVariable 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.

3	Differential Pressure and Temperature				★
4	Differential Pressure				★
Differential pressure range					
0[3][4]	-3 to 3 inH_2O (-7,46 to 7,46 mbar)				★
1	-25 to 25 inH_2O (-62,16 to 62,16 mbar)				★
2	-250 to 250 inH_2O (-621,60 to 621,60 mbar)				★
3	-1000 to 1000 inH_2O (-2,48 to 2,48 bar)				★
4	-150 to 150 psi (-10,34 to 10,34 bar) for Measurement Types 1 & 2; -300 to 300 psi (-20,68 to 20,68 bar) for Types 3 & 4				★
5	-2000 to 2000 psi (-137,89 to 137,89 bar)				★
Static pressure type					
N[5]	None				★
A	Absolute				★
G	Gage				★
Static pressure range		**Absolute**	**Gage**		
N[5]	None				★
3	Range 3	0.5 to 800 psia (0,03 to 55,15 bar)	-14.2 to 800 psig (-0,98 to 55,15 bar)		★
4[6]	Range 4	0.5 to 3626 psia (0,03 to 250,00 bar)	-14.2 to 3626 psig (-0,98 to 250,00 bar)		★
Temperature input					
N[7]	None				★
R[8]	RTD Input [Type Pt 100, -328 to 1562 °F (-200 to 850 °C)]				★
Isolating diaphragm					
2[9]	316L SST				★
3[9]	Alloy C-276				★
5[10]	Tantalum				
7[9]	Gold-Plated 316L SST				
Process connection		**Size**	**Material type**		
			Flange material	**Drain vent**	**Bolting**
000	None (no process flange)				★
A11[11]	Assemble to Rosemount 305/306 Integral Manifold				★
A12[11]	Assemble to Rosemount 304 or AMF Manifold with SST Traditional Flange				★
A15	Assemble to Rosemount 304 or AMF manifold to SST Traditional Flange with Alloy C-276 Drain Vents				★
A16[11]	Assemble to 304 or AMF Manifold to DIN SST Traditional Flange				★
A22	Assemble AMF manifold to SST Coplanar Flange				★

Table 3. Rosemount 3051S Scalable MultiVariable 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.

B11[11][12]	Assemble to one Rosemount 1199 Seal					★
B12[11][12]	Assemble to two Rosemount 1199 Seals					★
C11[11]	Assemble to Rosemount 405C or 405P Primary Element					★
D11[11]	Assemble to Rosemount 1195 Integral Orifice and Rosemount 305 Integral Manifold					★
EA2[11]	Assemble to Rosemount 485 or 405A Annubar Primary Element with Coplanar flange		SST	316 SST		★
EA3[11]	Assemble to Rosemount 485 or 405A Annubar Primary Element with Coplanar flange		Cast C-276	Alloy C-276		★
EA5[11]	Assemble to Rosemount 485 or 405A Annubar Primary Element with Coplanar flange		SST	Alloy C-276		★
E11	Coplanar flange	1/4–18 NPT	Carbon Steel	316 SST		★
E12	Coplanar flange	1/4–18 NPT	SST	316 SST		★
E13[9]	Coplanar flange	1/4–18 NPT	Cast C-276	Alloy C-276		★
E14	Coplanar flange	1/4–18 NPT	Cast Alloy 400	Alloy 400/K-500		★
E15[9]	Coplanar flange	1/4–18 NPT	SST	Alloy C-276		★
E16[9]	Coplanar flange	1/4–18 NPT	Carbon Steel	Alloy *C-276*		★
E21	Coplanar flange	RC 1/4	Carbon Steel	316 SST		★
E22	Coplanar flange	RC 1/4	SST	316 SST		★
E23[9]	Coplanar flange	RC 1/4	Cast C-276	Alloy C-276		★
E24	Coplanar flange	RC 1/4	Cast Alloy 400	Alloy 400/K-500		★
E25[9]	Coplanar flange	RC 1/4	SST	Alloy C-276		★
E26[9]	Coplanar flange	RC 1/4	Carbon Steel	Alloy C-276		★
F12	Traditional flange	1/4–18 NPT	SST	316 SST		★
F13[9]	Traditional flange	1/4–18 NPT	Cast C-276	Alloy C-276		★
F14	Traditional flange	1/4–18 NPT	Cast Alloy 400	Alloy 400/K-500		★
F15[9]	Traditional flange	1/4–18 NPT	SST	Alloy C-276		★
F22	Traditional flange	RC 1/4	SST	316 SST		★
F23[9]	Traditional flange	RC 1/4	Cast C-276	Alloy C-276		★
F24	Traditional flange	RC 1/4	Cast Alloy 400	Alloy 400/K-500		★
F25[9]	Traditional flange	RC 1/4	SST	Alloy C-276		★
F52	DIN-compliant traditional flange	1/4–18 NPT	SST	316 SST	7/16-in. bolting	★
G11	Vertical mount level flange	2-in. ANSI class 150	SST			★
G12	Vertical mount level flange	2-in. ANSI class 300	SST			★
G14	Vertical mount level flange	2-in. ANSI class 150	Cast C-276			★
G15	Vertical mount level flange	2-in. ANSI class 300	Cast C-276			★
G21	Vertical mount level flange	3-in. ANSI class 150	SST			★
G22	Vertical mount level flange	3-in. ANSI class 300	SST			★
G31	Vertical mount level flange	DIN- DN 50 PN 40	SST			★

Table 3. Rosemount 3051S Scalable MultiVariable 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.

EB6	Assemble to Primary Element with Manifold and Coplanar Flange, CS, Alloy C-276					
F32	Bottom vent traditional flange	1/4–18 NPT	SST	316 SST		
F42	Bottom vent traditional flange	RC 1/4	SST	316 SST		
F62	DIN-compliant traditional flange	1/4–18 NPT	SST	316 SST	M10 bolting	
F72	DIN-compliant traditional flange	1/4–18 NPT	SST	316 SST	M12 bolting	
G41	Vertical mount level flange	DIN- DN 80 PN 40	SST			
Transmitter output						
A	4–20 mA with digital signal based on HART protocol					★
X[13]	Wireless (requires wireless options and wireless PlantWeb housing)					★
Housing style			**Material**	**Conduit entry size**		
1A	PlantWeb housing		Aluminum	1/2–14 NPT		★
1B	PlantWeb housing		Aluminum	M20 x 1.5		★
1J	PlantWeb housing		SST	1/2–14 NPT		★
1K	PlantWeb housing		SST	M20 x 1.5		★
5A[14]	Wireless PlantWeb housing		Aluminum	1/2–14 NPT		★
5J[14]	Wireless PlantWeb housing		SST	1/2–14 NPT		★
1C	PlantWeb housing		Aluminum	G1/2		
1L	PlantWeb housing		SST	G1/2		

Wireless options (requires option code X and wireless PlantWeb housing)

Update rate		
WA	User configurable update rate	★
Operating frequency and protocol		
3	2.4 GHz DSSS, IEC 62591 (*Wireless*HART)	★
Omni-directional wireless antenna		
WK	External Antenna	★
WM	Extended Range, External Antenna	★
WN	High-Gain, Remote Antenna	
SmartPower		
1[15]	Adapter for Black Power Module (I.S. Power Module sold separately)	★

Other options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Table 3. Rosemount 3051S Scalable MultiVariable 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.

RTD cable (RTD sensor must be ordered separately)		
C12	RTD Input with 12 ft. (3.66 m) of Shielded Cable	★
C13	RTD Input with 24 ft. (7.32 m) of Shielded Cable	★
C14	RTD Input with 75 ft. (22.86 m) of Shielded Cable	★
C22	RTD Input with 12 ft. (3.66 m) of Armored Shielded Cable	★
C23	RTD Input with 24 ft. (7.32 m) of Armored Shielded Cable	★
C24	RTD Input with 75 ft. (22.86 m) of Armored Shielded Cable	★
C32	RTD Input with 12 ft. (3.66 m) of ATEX/IECEx Flameproof Cable	★
C33	RTD Input with 24 ft. (7.32 m) of ATEX/IECEx Flameproof Cable	★
C34	RTD Input with 75 ft. (22.86 m) of ATEX/IECEx Flameproof Cable	★
Mounting brackets(16)		
B4	Coplanar flange bracket, all SST, 2-in. pipe and panel	★
B1	Traditional flange bracket, Carbon Steel, 2-in. pipe	★
B2	Traditional flange bracket, Carbon Steel, panel	★
B3	Traditional flange flat bracket, Carbon Steel, 2-in. pipe	★
B7	Traditional flange bracket, B1 with SST bolts	★
B8	Traditional flange bracket, B2 with SST bolts	★
B9	Traditional flange bracket, B3 with SST bolts	★
BA	Traditional flange bracket, B1, all SST	★
BC	Traditional flange bracket, B3, all SST	★
Software configuration		
C1	Custom software configuration *Note: A Configuration Data Sheet must be completed, see document number 00806-0100-4803.*	★
C2	Custom flow configuration *Note: A Custom Fluid Data Sheet must be completed, see document number 00806-0200-4803.*	★
C4	NAMUR alarm and saturation levels, high alarm	★
C5	NAMUR alarm and saturation levels, low alarm	★
C6	Custom alarm and saturation signal levels, high alarm	★
C7	Custom alarm and saturation signal levels, low alarm	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★
Flange adapter		
D2(17)	1/2-14 NPT flange adapter	★
D9(17)	RC 1/2 SST flange adapter	
Ground screw		
D4(18)	External ground screw assembly	★

Table 3. Rosemount 3051S Scalable MultiVariable 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.

Drain/vent valve		
D5[17]	Delete transmitter drain/vent valves (install plugs)	★
D7[17]	Coplanar flange without drain/vent ports	
Conduit plug		
DO[19]	316 SST Conduit Plug	★
Product certifications		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n	★
ND	ATEX Dust	★
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E1, I1, N1, and ND)	★
E4	TIIS Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe; Nonincendive	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	★
E6[20]	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6	CSA Intrinsically Safe	★
K6[20]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of E7, I7, and N7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	★
KA[20][21]	ATEX and CSA Explosion-proof, Intrinsically Safe, Division 2 (combination of E1, E6, I1, and I6)	★
KB[20][21]	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	★
KC[21]	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2 (combination of E5, E1, I5, and I1)	★
KD[20][21]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, E6, E1, I5, I6, and I1)	★
Drinking water approval		
DW[22]	NSF Drinking Water Certification	★

Table 3. Rosemount 3051S Scalable MultiVariable 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		
SBS	American Bureau of Shipping	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Alternate materials of construction		
L1	Inert sensor fill fluid (Differential and Gage sensors only) *Note: Silicone fill fluid is standard.*	★
L2	Graphite-filled PTFE O-ring	★
L4[(17)]	Austenitic 316 SST bolts	★
L5[(17)]	ASTM A193, Grade B7M bolts	★
L6[(17)]	Alloy K-500 bolts	★
L7[(17)(23)]	ASTM A453, Class D, Grade 660 bolts	★
L8[(17)]	ASTM A193, Class 2, Grade B8M bolts	★
Digital display		
M5	PlantWeb LCD display	★
Wireless assembly options		
WTA	Integral assembly to Smart Wireless 775 THUM™ Adapter (Specified Separately)	★
Special procedures		
P1[(24)]	Hydrostatic testing with certificate	★
P9[(3)]	4500 psig (310 bar) static pressure limit	★
P0[(3)(25)]	6092 psig (420 bar) static pressure limit	★
P2[(17)]	Cleaning for special services	
P3[(17)]	Cleaning for less than 1PPM chlorine/fluorine	
Special certifications		
Q4	Calibration Certificate	★
QP	Calibration Certificate and Tamper Evident Seal	★
Q8	Material Traceability Certification per EN 10204 3.1B	★
Q16	Surface Finish Certification for Sanitary Remote Seals	★
QZ	Remote Seal System Performance Calculation Report	★
Transient protection		
T1	Transient terminal block	★
Conduit electrical connector		
GE[(26)]	M12, 4-pin, Male Connector (eurofast)	★
GM[(26)]	A size Mini, 4-pin, Male Connector (minifast)	★

Table 3. Rosemount 3051S Scalable MultiVariable 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.

NACE certificate		
Q15[27]	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25[27]	Certificate of Compliance to NACE MR0103 for wetted materials	★
Cold temperature		
BRR	-58 °F (-50 °C) Cold Temperature Start-up	★
Typical model number: 3051SMV 3 M 1 2 G 4 R 2 E12 A 1A B4 C2 M5		

(1) For detailed specifications see "Specifications" on page 107.

(2) For Measurement Types 1 & 2, only available with DP range codes 2, 3, and 4, 316L SST and Alloy C-276 isolating diaphragm and silicone fill fluid. For Measurements Types 3 & 4, only available with DP range codes 2 and 3, 316L SST and Alloy C-276 isolating diaphragm and silicone fill fluid.

(3) Only available with Measurement Type codes 3 and 4.

(4) DP Range 0 is only available with traditional flange, 316L SST diaphragm material, and Bolting option L4.

(5) Required for Measurement Type codes 3 and 4.

(6) For Measurement Type codes 1 and 2 with DP range 1, absolute limits are 0.5 to 2000 psi (0,03 to 137,9 bar) and gage limits are -14.2 to 2000 psig (-0,98 to 137,9 bar).

(7) Required for Measurement Type codes 2 and 4.

(8) Required for Measurement Type codes 1 and 3. RTD Sensor must be ordered separately.

(9) Materials of Construction comply with metallurgical requirements highlighted within NACE MR0175/ISO 15156 for sour oil field production environments Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

(10) Tantalum diaphragm material is only available for DP ranges 2-5.

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

(12) Consult an Emerson Process Management representative for performance specifications.

(13) Only available with Measurement Type 2 and MultiVariable Type P.

(14) Only available with output code X.

(15) Long-Life Power Module must be shipped separately, order Power Module 701PBKKF.

(16) For process connection option code A11, the mounting bracket must be ordered as part of the manifold model number.

(17) Not available with process connection option code A11.

(18) This assembly is included with certification options EP, KP, E1, N1, K1, ND, E4, E7, N7, K7, E2, E3, KA, KC, KD, EM, KM.

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

(20) Not available with M20 or G ½ conduit entry size.

(21) RTD cable not available with this option.

(22) Requires 316L SST diaphragm material, glass-filled PTFE O-ring (standard), and Process Connection code E12 or F12.

(23) Bolts are not considered process wetted. In instances where NACE MR0175/ISO 15156 and NACE MR0103 conformance is required for bolting, L7 is the recommended bolting option.

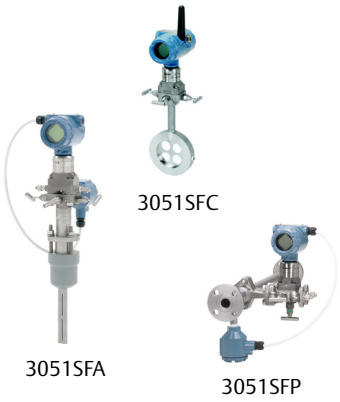
(24) Not available with DP range 0.

(25) Requires 316L SST or Alloy C-276 diaphragm material, assemble to Rosemount 305 Integral Manifold or DIN-compliant traditional flange process connection, and bolting option L8. Limited to differential pressure ranges 2-5.

(26) Available with Intrinsically Safe approvals only. For FM Intrinsically Safe; Nonincendive approval (option code I5), install in accordance with Rosemount drawing 03151-1009.

(27) NACE compliant wetted materials are identified by Footnote 9.

Rosemount 3051SF DP Flowmeters



Rosemount 3051SF Flowmeters integrate the 3051S with industry leading primary elements. Capabilities include:

- Flowmeters are factory configured to meet your application needs (Configuration Data Sheet required)
- MultiVariable capabilities allow scalable flow compensation (Measurement Types 1-4)
- 4-20 mA HART, Wireless, and FOUNDATION fieldbus protocols
- Ultra for Flow for improved flow performance across wider flow ranges
- Integral temperature measurement (Option Code T)
- Advanced Diagnostics (Option Code DA2)
- Direct or remote mount configurations available

Additional information
Specifications: page 107
Dimensional drawings: page 152

Rosemount 3051SFA Annubar Flowmeter

- Annubar flowmeters reduce permanent pressure loss by creating less blockage in the pipe
- Ideal for large line size installations when cost, size and weight of the flowmeter are concerns

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 4. Rosemount 3051SFA 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	Measurement type		• = Available — = Unavailable
		D	1-7	
3051SFA	Annubar Flowmeter	•	•	
Measurement type				
1	Fully Compensated Mass & Energy Flow Calculations – Differential & Static Pressures w/ Temperature	—	•	★
2	Compensated Flow Calculations – Differential & Static Pressures	—	•	★
3	Compensated Flow Calculations – Differential Pressure & Temperature	—	•	★
4	Compensated Flow Calculations – Differential Pressure	—	•	★
D	Differential Pressure	•	—	★

Table 4. Rosemount 3051SFA Annubar Flowmeter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
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5	Process Variables Only (No Flow Calculations) – Differential & Static Pressures w/ Temperature	—	•	
6	Process Variables Only (No Flow Calculations) – Differential & Static Pressures	—	•	
7	Process Variables Only (No Flow Calculations) – Differential Pressure & Temperature	—	•	
Fluid type		**D**	**1-7**	
L	Liquid	•	•	★
G	Gas	•	•	★
S	Steam	•	•	★
Line size				
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)	•	•	★
140	14-in. (350 mm)	•	•	
160	16-in. (400 mm)	•	•	
180	18-in. (450 mm)	•	•	
200	20-in. (500 mm)	•	•	
240	24-in. (600 mm)	•	•	
300	30-in. (750 mm)	•	•	
360	36-in. (900 mm)	•	•	
420	42-in. (1066 mm)	•	•	
480	48-in. (1210 mm)	•	•	
600	60-in. (1520 mm)	•	•	
720	72-in. (1820 mm)	•	•	
780	78-in. (1950 mm)	•	•	
840	84-in. (2100 mm)	•	•	
900	90-in. (2250 mm)	•	•	
960	96-in. (2400 mm)	•	•	

Table 4. Rosemount 3051SFA 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.

Pipe I.D. range		**D**	**1-7**	
C	Range C from the Pipe I.D. table	•	•	★
D	Range D from the Pipe I.D. table	•	•	★
A	Range A from the Pipe I.D. table	•	•	
B	Range B from the Pipe I.D. table	•	•	
E	Range E from the Pipe I.D. table	•	•	
Z	Non-standard Pipe I.D. Range or line sizes greater than 12-in. (300 mm)	•	•	
Pipe material/mounting assembly material				
C	Carbon steel (A105)	•	•	★
S	316 Stainless Steel	•	•	★
0[(1)]	No Mounting (customer supplied)	•	•	★
G	Chrome-Moly Grade F-11	•	•	
N	Chrome-Moly Grade F-22	•	•	
J	Chrome-Moly Grade F-91	•	•	
Piping orientation				
H	Horizontal Piping	•	•	★
D	Vertical Piping with Downwards Flow	•	•	★
U	Vertical Piping with Upwards Flow	•	•	★
Annubar type				
P	Pak-Lok	•	•	★
F	Flanged with opposite side support	•	•	★
L	Flange-Lok	•	•	
G	Gear-Drive Flo-Tap	•	•	
M	Manual Flo-Tap	•	•	
Sensor material				
S	316 Stainless Steel	•	•	★
H	Alloy C-276	•	•	
Sensor size				
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				
T1	Compression/Threaded Connection	•	•	★
A1	150# RF ANSI	•	•	★
A3	300# RF ANSI	•	•	★

Table 4. Rosemount 3051SFA Annubar Flowmeter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
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A6	600# RF ANSI			•	•	★
D1	DN PN16 Flange			•	•	★
D3	DN PN40 Flange			•	•	★
D6	DN PN100 Flange			•	•	★
A9[2]	900# RF ANSI			•	•	
AF[2]	1500# RF ANSI			•	•	
AT[2]	2500 # RF ANSI			•	•	
R1	150# RTJ Flange			•	•	
R3	300# RTJ Flange			•	•	
R6	600# RTJ Flange			•	•	
R9[2]	900# RTJ Flange			•	•	
RF[2]	1500# RTJ Flange			•	•	
RT[2]	2500# RTJ Flange			•	•	
Opposite side support or packing gland				**D**	**1-7**	
0	No opposite side support or packing gland (required for Pak-Lok and Flange-Lok models)			•	•	★
	Opposite Side Support (required for Flanged Models)					
C	NPT Threaded Opposite Support Assembly – Extended Tip			•	•	★
D	Welded Opposite Support Assembly – Extended Tip			•	•	★
	Packing Gland – Required for Flo-Tap Models					
	Packing gland material	Rod material	Packing material			
J[3]	Stainless Steel Packing Gland/Cage Nipple	Carbon Steel	PTFE	•	•	
K[3]	Stainless Steel Packing Gland/Cage Nipple	Stainless Steel	PTFE	•	•	
L[3]	Stainless Steel Packing Gland/Cage Nipple	Carbon Steel	Graphite	•	•	
N[3]	Stainless Steel Packing Gland/Cage Nipple	Stainless Steel	Graphite	•	•	
R	Alloy C-276 Packing Gland/Cage Nipple	Stainless Steel	Graphite	•	•	
Isolation valve for Flo-Tap Models						
0[1]	Not Applicable or Customer Supplied			•	•	★
1	Gate Valve, Carbon Steel			•	•	
2	Gate Valve, Stainless Steel			•	•	
5	Ball Valve, Carbon Steel			•	•	
6	Ball Valve, Stainless Steel			•	•	

Table 4. Rosemount 3051SFA 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				**D**	**1-7**	
T[4]	Integral RTD – not available with Flanged model greater than class 600#			•	•	★
0[5]	No Temperature Sensor			•	•	★
R[4]	Remote Thermowell and RTD			•	•	
Transmitter connection platform						
3	Direct-mount, Integral 3-valve Manifold– not available with Flanged model greater than class 600			•	•	★
5	Direct -mount, 5-valve Manifold – not available with Flanged model greater than class 600			•	•	★
7	Remote-mount NPT Connections (1/2-in. FNPT)			•	•	★
6	Direct-mount, High Temperature 5-valve Manifold – not available with Flanged model greater than class 600			•	•	
8	Remote-mount SW Connections (1/2-in.)			•	•	
Differential pressure range						
1	0 to 25 in H_2O (0 to 62,16 mbar)			•	•	★
2	0 to 250 in H_2O (0 to 621,60 mbar)			•	•	★
3	0 to 1000 in H_2O (0 to 2,48 bar)			•	•	★
Static pressure range						
A[6]	None			•	•	★
D	Absolute 0 to 800 psia (0 to 55,15 bar)			—	•	★
E[7]	Absolute 0 to 3626 psia (0 to 250,00 bar)			—	•	★
J	Gage -14.2 to 800 psig (-0,98 to 55,15 bar)			—	•	★
K[7]	Gage -14.2 to 3626 psig (-0,98 to 250,00 bar)			—	•	★
Transmitter Output						
A	4–20 mA with digital signal based on HART protocol			•	•	★
F	FOUNDATION fieldbus protocol (requires PlantWeb housing)			•	—	★
X[8][9]	Wireless (requires wireless options and Wireless PlantWeb housing)			•	—	★
Transmitter housing style		**Material**	**Conduit entry size**			
00	None (customer-supplied electrical connection)			•	—	★
1A	PlantWeb housing	Aluminum	1/2-14 NPT	•	•	★
1B	PlantWeb housing	Aluminum	M20 x 1.5	•	•	★
1J	PlantWeb housing	SST	1/2-14 NPT	•	•	★
1K	PlantWeb housing	SST	M20 x 1.5	•	•	★
2A	Junction Box housing	Aluminum	1/2-14 NPT	•	—	★
2B	Junction Box housing	Aluminum	M20 x 1.5	•	—	★

Table 4. Rosemount 3051SFA 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.

2E	Junction Box housing with output for remote display and interface	Aluminum	1/2-14 NPT	•	—	★
2F	Junction Box housing with output for remote display and interface	Aluminum	M20 x 1.5	•	—	★
2J	Junction Box housing	SST	1/2-14 NPT	•	—	★
2M	Junction Box housing with output for remote display and interface	SST	1/2-14 NPT	•	—	★
5A[10]	Wireless PlantWeb housing	Aluminum	1/2-14 NPT	•	—	★
5J[10]	Wireless PlantWeb housing	SST	1/2-14 NPT	•	—	★
7J[8][11]	Quick Connect (A size Mini, 4-pin male termination)			•	—	★
1C	PlantWeb housing	Aluminum	G1/2	•	•	
1L	PlantWeb housing	SST	G1/2	•	•	
2C	Junction Box housing	Aluminum	G1/2	•	—	
2G	Junction Box housing with output for remote display and interface	Aluminum	G1/2	•	—	
Performance class[12]				**D**	**1-7**	
3051S MultiVariable SuperModule, Measurement Types 1, 2, 5, and 6						
3[13]	Ultra for Flow: 0.8% flow rate accuracy, 14:1 flow turndown, 10-year stability, 15-year limited warranty			•	•	★
5	Classic MV: 1.15% flow rate accuracy, 8:1 flow turndown, 5-yr. stability			—	•	★
3051S Single Variable SuperModule, Measurement Types 3, 4, 7, and D						
1	Ultra: up to 0.95% flow rate accuracy, 8:1 flow turndown, 15-year stability, 15-year limited warranty			•	—	★
2	Classic: up to 1.4% flow rate accuracy, 8:1 flow turndown, 15-year stability			•	—	★
3[13]	Ultra for Flow: 0.8% flow rate accuracy, 14:1 flow turndown, 15-year stability, 15-year limited warranty			•	•	★

Wireless options (requires option code X and wireless PlantWeb housing)

Update rate, operating frequency and protocol				
WA	User Configurable Update Rate	•	—	★
Operating frequency and protocol				
3	2.4 GHz DSSS, IEC 62591 (*Wireless*HART)	•	—	★
Omni-directional wireless antenna				
WK	External Antenna	•	—	★
WM	Extended Range, External Antenna	•	—	★
WN	High-Gain, Remote Antenna	•	—	
SmartPower adapter				
1[14]	Adapter for Black Power Module (I.S. Power Module Sold Separately)	•	—	★

Table 4. Rosemount 3051SFA 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.

Other options (include with selected model number)

Extended product warranty		D	1-7	
WR3	3-year limited warranty	•	•	★
WR5	5-year limited warranty	•	•	★
Pressure testing				
P1[15]	Hydrostatic Testing with Certificate	•	•	
PX[15]	Extended Hydrostatic Testing	•	•	
Special cleaning				
P2	Cleaning for Special Services	•	•	
PA	Cleaning per ASTM G93 level D (section 11.4)	•	•	
Material testing				
V1	Dye Penetrant Exam	•	•	
Material examination				
V2	Radiographic Examination	•	•	
Flow calibration				
W1	Flow Calibration (Average K)	•	•	
WZ	Special Calibration	•	•	
Special inspection				
QC1	Visual & Dimensional Inspection with Certificate	•	•	★
QC7	Inspection & Performance Certificate	•	•	★
Surface finish				
RL	Surface finish for Low Pipe Reynolds Number in Gas & Steam	•	•	★
RH	Surface finish for High Pipe Reynolds Number in Liquid	•	•	★
Material traceability certification				
Q8[16]	Material Traceability Certificate per EN 10204:2004 3.1	•	•	★
Code conformance				
J2[17]	ANSI / ASME B31.1	•	•	
J3[17]	ANSI / ASME B31.3	•	•	
Material conformance				
J5[18]	NACE MR-0175 / ISO 15156	•	•	

Table 4. Rosemount 3051SFA 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.

Country certification		**D**	**1-7**	
J6	European Pressure Directive (PED)	•	•	★
J1	Canadian Registration	•	•	
Installed in flanged pipe spool section				
H3	150# Flanged Connection with Rosemount Standard Length and Schedule	•	•	
H4	300# Flanged Connection with Rosemount Standard Length and Schedule	•	•	
H5	600# Flanged Connection with Rosemount Standard Length and Schedule	•	•	
Instrument connections for remote mount option				
G2	Needle Valves, Stainless Steel	•	•	★
G6	OS&Y Gate Valve, Stainless Steel	•	•	★
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				
Y1	Mounting Hardware Shipped Separately	•	•	★
Attach to				
H1	Attach to Transmitter	•	•	
Special dimensions				
VM	Variable Mounting	•	•	
VT	Variable Tip	•	•	
VS	Variable length Spool Section	•	•	
Transmitter calibration certification				
Q4	Calibration Certificate for Transmitter	•	•	★
QP	Calibration Certificate & Tamper Evident Seal	•	•	★
Quality certification for safety				
QS[(21) (28)]	Prior-use Certificate of FMEDA data	•	—	★
QT[(20)(21) (28)]	Safety certified to IEC 61508 with certificate of FMEDA data	•	—	★
Product certifications				
E1	ATEX Flameproof	•	•	★
I1	ATEX Intrinsic Safety	•	•	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION fieldbus protocol only	•	—	★
N1	ATEX Type n	•	•	★
ND	ATEX Dust	•	•	★

Table 4. Rosemount 3051SFA 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.

K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E1, I1, N1, and ND)	•	•	★
E4	TIIS Flameproof	•	•	★
E5	FM Explosion-proof, Dust Ignition-proof	•	•	★
I5	FM Intrinsically Safe; Nonincendive	•	•	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	•	•	★
E6[19]	CSA Explosion-proof, Dust Ignition-proof, Division 2	•	•	★
I6	CSA Intrinsically Safe	•	•	★
K6[19]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	•	•	★
E7	IECEx Flameproof, Dust Ignition-proof	•	•	★
I7	IECEx Intrinsic Safety	•	•	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	•	•	★
E3	China Flameproof	•	•	★
EM	Technical Regulations Customs Union (EAC) Flameproof	•	•	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	•	•	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	•	•	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2 (combination of E5, E1, I5, and I1)	•	•	
KD[19]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, I5, E6, I6, E1, and I1)	•	•	
Shipboard approvals		**D**	**1-7**	
SBS	American Bureau of Shipping	•	•	★
SBV	Bureau Veritas (BV) Type Approval	•	•	★
SDN	Det Norske Veritas (DNV) Type Approval	•	•	★
SLL	Lloyds Register (LR) Type Approval	•	•	★
Sensor fill fluid and O-ring options				
L1	Inert Sensor Fill Fluid	•	•	★
L2	Graphite-Filled (PTFE) O-ring	•	•	★
LA	Inert Sensor Fill Fluid and Graphite-Filled (PTFE) O-ring	•	•	★
Digital display[20]				
M5	PlantWeb LCD display (requires PlantWeb housing)	•	•	★
M7[21][22][23]	Remote mount LCD display and interface, PlantWeb housing, no cable; SST bracket	•	—	★
M8[21][22]	Remote mount LCD display and interface, PlantWeb housing, 50 ft. (15 m) cable; SST bracket	•	—	★
M9[21][22]	Remote mount LCD display and interface, PlantWeb housing, 100 ft. (31 m) cable; SST bracket	•	—	★

Table 4. Rosemount 3051SFA 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.

Transient protection		**D**	**1-7**	
T1[24]	Transient terminal block	•	•	★
Manifold for remote mount option				
F2	3-Valve Manifold, Stainless Steel	•	•	★
F6	5-Valve Manifold, Stainless Steel	•	•	★
F1	3-Valve Manifold, Carbon Steel	•	•	
F3	3-Valve Manifold, Alloy C-276	•	•	
F5	5-Valve Manifold, Carbon Steel	•	•	
F7	5-Valve Manifold, Alloy C-276	•	•	
PlantWeb control functionality				
A01	FOUNDATION fieldbus Advanced Control Function Block Suite	•	—	★
PlantWeb diagnostic functionality				
D01	FOUNDATION fieldbus Diagnostics Suite	•	—	★
DA2[25]	Advanced HART Diagnostic Suite	•	—	★
PlantWeb enhanced measurement functionality				
H01[26]	FOUNDATION fieldbus Fully Compensated Mass Flow Block	•	—	★
Cold temperature				
BRR[27]	-60 °F (-51 °C) Cold Temperature Start-up	—	•	★
Alarm limit[21][28]				
C4	NAMUR Alarm & Saturation Levels, High Alarm	•	•	★
C5	NAMUR Alarm & Saturation Levels, Low Alarm	•	•	★
C6	Custom Alarm & Saturation Levels, High Alarm	•	•	★
C7	Custom Alarm & Saturation Levels, Low Alarm	•	•	★
C8	Low Alarm (Standard Rosemount Alarm & Saturation Levels)	•	•	★
Hardware adjustments and ground screw				
D1[21][28][29]	Hardware Adjustments (zero, span, alarm, security)	•	—	★
D4[30]	External Ground Screw Assembly	•	•	★
DA[21][29][29]	Hardware Adjustments (zero, span, alarm, security) & External Ground Screw Assembly	•	—	★
Conduit plug				
DO	316 SST Conduit Plug	•	•	★

Table 4. Rosemount 3051SFA 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.

Conduit electrical connector		D	1-7	
GE (31)	M12, 4-pin, Male Connector (eurofast)	•	•	★
GM (31)	A size Mini, 4-pin, Male Connector (minifast)	•	•	★
Typical model number: 3051SFA 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, Flange-Lok, and Threaded Flo-Tap models. Provide the "B" dimension for Flange Flo-Tap models.

(2) Available in remote mount applications only.

(3) The cage nipple is constructed of 304SST.

(4) Temperature Measurement Option code T or R is required for Measurement Type codes 1, 3, 5, and 7.

(5) Required for Measurement Type codes 2, 4, 6, and D.

(6) Required for Measurement Type codes 3, 4, 7, and D.

(7) For Measurement Type codes 1, 2, 5, and 6 with DP range 1, absolute limits are 0.5 to 2000 psi (0,03 to 137,9 bar) and gage limits are -14.2 to 2000 psig (-0,98 to 137,9 bar).

(8) Only intrinsically safe approval codes apply.

(9) Only available with Measurement Types D and 6.

(10) Only available with output code X.

(11) Only available with output code A.

(12) For detailed specifications see "Specifications" on page 107.

(13) Only available with differential pressure ranges 2 and 3, and silicone fill fluid.

(14) Long-life Power Module must be shipped separately, order Power Module 701PBKKF.

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

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

(17) Not available with Transmitter Connection Platform 6.

(18) Materials of Construction comply with metallurgical requirements 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.

(19) Not available with M20 or G ½ conduit entry size.

(20) Not available with housing code 7J.

(21) Not available with output code X.Only available with Measurement Type D.

(22) Not available with output code F, option code DA2, or option code QT.

(23) See the 3051S Reference Manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(24) Not available with Housing code 5A, 5J, or 7J. External ground screw assembly (option code D4) is included with the T1 option. The T1 option is not needed with FISCO Product Certifications.

(25) Includes Hardware Adjustments (option code D1) as standard. Not available with output code X. Only available with Measurement Type D.

(26) Requires Rosemount Engineering Assistant version 5.5.1 to configure.

(27) -58°F (50°C) for Measurement Type 1-7.

(28) Not available with output code F.

(29) Not available with housing codes 2E, 2F, 2G, 2M, 5A, 5J, or 7J.

(30) This assembly is included with options EP, KP, E1, N1, K1, ND, E4, E7, N7, K7, E2, E3, KA, KC, KD, IA, IE, N3, T1, EM, and KM.

(31) Not available with Housing code 5A, 5J, or 7J. Available with intrinsically Safe approvals only. For FM intrinsically Safe; Nonincendive (option code I5) or FM FISCO Intrinsically Safe (option code IE), install in accordance with Rosemount drawing 03151-1009.

Rosemount 3051SFC Compact Flowmeter

- Compact conditioning flowmeters reduce straight piping requirements to 2D upstream and 2D downstream from most flow disturbances
- Simple installation of compact flowmeters between any existing raised-face flanges

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 5. Rosemount 3051SFC 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	Measurement type		• = Available — = Unavailable
		D	1-7	
3051SFC	Compact Orifice Flowmeter	•	•	
Measurement type				
1	Fully Compensated Mass & Energy Flow Calculations – Differential & Static Pressures w/ Temperature	—	•	★
2	Compensated Flow Calculations – Differential & Static Pressures	—	•	★
3	Compensated Flow Calculations – Differential Pressure & Temperature	—	•	★
4	Compensated Flow Calculations – Differential Pressure	—	•	★
D	Differential Pressure	•	—	★
5	Process Variables Only (No Flow Calculations) – Differential & Static Pressures w/ Temperature	—	•	
6	Process Variables Only (No Flow Calculations) – Differential & Static Pressures	—	•	
7	Process Variables Only (No Flow Calculations) – Differential Pressure & Temperature	—	•	
Primary element technology				
A	Annubar Averaging Pitot Tube	•	•	★
C	Conditioning Orifice Plate	•	•	★
P	Orifice Plate	•	•	★
Material type				
S	316 SST	•	•	★
Line size				
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)	•	•	★

Table 5. Rosemount 3051SFC 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.

100[2][3]	10-in. (250 mm)			•	•	★
120[2][3]	12-in. (300 mm)			•	•	★
Primary element type				**D**	**1-7**	
N000	Annubar Sensor Size 1			•	•	★
N040	0.40 Beta Ratio (β)			•	•	★
N050	0.50 Beta Ratio (β)			•	•	★
N065[4]	0.65 Beta Ratio (β)			•	•	★
Temperature measurement						
T[6]	Integral RTD			—	•	★
0[5]	No Temperature Sensor			•	•	★
R[6]	Remote Thermowell and RTD			•	•	
Transmitter connection platform						
3	Direct-mount			•	•	★
7	Remote-mount, NPT Connections			•	•	★
Differential pressure range						
1	0 to 25 inH_2O (0 to 62,16 mbar)			•	•	★
2	0 to 250 inH_2O (0 to 621,60 mbar)			•	•	★
3	0 to 1000 inH_2O (0 to 2,48 bar)			•	•	★
Static pressure range						
A[7]	None			•	•	★
D	Absolute 0 to 800 psia (0 to 55,15 bar)			—	•	★
E[8]	Absolute 0 to 3626 psia (0 to 250,00 bar)			—	•	★
J	Gage -14.2 to 800 psig (-0,98 to 55,15 bar)			—	•	★
K[8]	Gage -14.2 to 3626 psig (-0,98 to 250,00 bar)			—	•	★
Transmitter output						
A	4–20 mA with digital signal based on HART protocol			•	•	★
F[9]	FOUNDATION fieldbus protocol			•	—	★
X[10][11]	Wireless			•	—	★
Transmitter housing style		**Material**	**Conduit entry size**			
00	None (Customer-supplied electrical connection)			•	—	★
1A	PlantWeb housing	Aluminum	1/2-14 NPT	•	•	★
1B	PlantWeb housing	Aluminum	M20 x 1.5	•	•	★
1J	PlantWeb housing	SST	1/2-14 NPT	•	•	★
1K	PlantWeb housing	SST	M20 x 1.5	•	•	★

Table 5. Rosemount 3051SFC 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.

2A	Junction Box housing	Aluminum	1/2-14 NPT	•	—	★
2B	Junction Box housing	Aluminum	M20 x 1.5	•	—	★
2E	Junction Box housing with output for remote display and interface	Aluminum	1/2-14 NPT	•	—	★
2F	Junction Box housing with output for remote display and interface	Aluminum	M20 x 1.5	•	—	★
2J	Junction Box housing	SST	1/2-14 NPT	•	—	★
2M	Junction Box housing with output for remote display and interface	SST	1/2-14 NPT	•	—	★
5A[12]	Wireless PlantWeb housing	Aluminum	1/2-14 NPT	•	—	★
5J[12]	Wireless PlantWeb housing	SST	1/2-14 NPT	•	—	★
7J[10][13]	Quick Connect (A size Mini, 4-pin male termination)			•	—	★
1C	PlantWeb housing	Aluminum	G1/2	•	•	
1L	PlantWeb housing	SST	G1/2	•	•	
2C	Junction Box housing	Aluminum	G1/2	•	—	
2G	Junction Box housing with output for remote display and interface	Aluminum	G1/2	•	—	
Performance class[14]				**D**	**1-7**	
3051S MultiVariable SuperModule, Measurement Types 1, 2, 5, and 6				•	•	
3[15]	Ultra for Flow: 0.75% flow rate accuracy, 14:1 flow turndown, 10-yr stability, 15-yr limited warranty			•	•	★
5	Classic MV: 1.10% flow rate accuracy, 8:1 flow turndown, 5-yr stability			—	•	★
3051S Single Variable SuperModule, Measurement Types 3, 4, 7, and D						
1	Ultra: 0.90% flow rate accuracy, 8:1 flow turndown, 15-yr stability, 15-yr limited warranty			•	—	★
2	Classic: 1.40% flow rate accuracy, 8:1 flow turndown, 15-yr stability			•	—	★
3[15]	Ultra for Flow: 0.75% flow rate accuracy, 14:1 flow turndown, 15-yr stability, 15-yr limited warranty			•	•	★

Wireless options (requires option code X and wireless PlantWeb housing)

Update rate, operating frequency, and protocol				
WA	User Configurable Update Rate	•	—	★
Operating frequency and protocol				
3	2.4 GHz DSSS, IEC 62591 (*Wireless*HART)	•	—	★
Omni-directional wireless antenna				
WK	External Antenna	•	—	★
WM	Extended Range, External Antenna	•	—	★
WN	High-Gain, Remote Antenna	•	—	

Table 5. Rosemount 3051SFC 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.

SmartPower		D	1-7	
1[16]	Adapter for Black Power Module (I.S. Power Module Sold Separately)	•	—	★

Other options (include with selected model number)

Extended product warranty				
WR3	3-year limited warranty	•	•	★
WR5	5-year limited warranty	•	•	★
Installation accessories				
A	ANSI Alignment Ring (150#) (Only required for 10-in. [250 mm] and 12-in. [300mm] line sizes)	•	•	★
C	ANSI Alignment Ring (300#) (Only required for 10-in. [250 mm] and 12-in. [300mm] line sizes)	•	•	★
D	ANSI Alignment Ring (600#) (Only required for 10-in. [250 mm] and 12-in. [300mm] line sizes)	•	•	★
G	DIN Alignment Ring (PN 16)	•	•	★
H	DIN Alignment Ring (PN 40)	•	•	★
J	DIN Alignment Ring (PN 100)	•	•	★
B	JIS Alignment Ring (10K)	•	•	
R	JIS Alignment Ring (20K)	•	•	
S	JIS Alignment Ring (40K)	•	•	
Remote adapters				
E	Flange adapters 316 SST ($^1/_2$-in. NPT)	•	•	★
High temperature applications				
T	Graphite Valve Packing (Tmax = 850 °F)	•	•	
Flow calibration				
WC[17]	Flow Calibration, 3 Pt, Conditioning Option C (All Pipe Schedules)	•	•	
WD[18][19]	Flow Calibration, 10 Pt, Conditioning Option C (All Schedules), Annubar Option A (Schedule 40)	•	•	
Pressure testing				
P1	Hydrostatic Testing with Certificate	•	•	
Special cleaning				
P2[20]	Cleaning for Special Processes	•	•	
PA	Cleaning per ASTM G93 Level D (section 11.4)	•	•	
Special inspection				
QC1	Visual & Dimensional Inspection with Certificate	•	•	★
QC7	Inspection & Performance Certificate	•	•	★

Table 5. Rosemount 3051SFC 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.

Transmitter calibration certification		**D**	**1-7**	
Q4	Calibration Data Certificate for Transmitter	•	•	★
QP	Calibration Certificate and Tamper Evident Seal	•	•	★
Quality certification for safety				
QS[(21)(22)]	Prior-use certificate of FMEDA data	•	—	★
QT[(21)(22)(25)]	Safety Certified to IEC 61508 with certificate of FMEDA data	•	—	★
Material traceability certifications				
Q8	Material Traceability Certification per EN 10204:2004 3.1	•	•	★
Code conformance				
J2	ANSI / ASME B31.1	•	•	
J3	ANSI / ASME B31.3	•	•	
J4	ANSI / ASME B31.8	•	•	
Material conformance				
J5[(23)]	NACE MR-0175 / ISO 15156	•	•	
Country certification				
J1	Canadian Registration	•	•	
Product certifications				
E1	ATEX Flameproof	•	•	★
I1	ATEX Intrinsic Safety	•	•	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION fieldbus protocol only	•	—	★
N1	ATEX Type n	•	•	★
ND	ATEX Dust	•	•	★
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E1, I1, N1, and ND)	•	•	★
E4	TIIS Flameproof	•	•	★
E5	FM Explosion-proof, Dust Ignition-proof	•	•	★
I5	FM Intrinsically Safe; Nonincendive	•	•	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	•	•	★
E6[(24)]	CSA Explosion-proof, Dust Ignition-proof, Division 2	•	•	★
I6	CSA Intrinsically Safe	•	•	★
K6[(24)]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	•	•	★
E7	IECEx Flameproof, Dust Ignition-proof	•	•	★
I7	IECEx Intrinsic Safety	•	•	★

Table 5. Rosemount 3051SFC 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.

K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	•	•	★
E3	China Flameproof	•	•	★
I3	China Intrinsic Safety	•	•	★
EM	Technical Regulations Customs Union (EAC) Flameproof	•	•	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	•	•	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	•	•	★
KA[(24)]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2 (combination of E1, I1, E6, and I6)	•	•	★
KB[(24)]	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	•	•	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2 (combination of E5, E1, I5, and I1)	•	•	★
KD[(24)]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, E6, E1, I5, I6, and I1)	•	•	★
Shipboard approvals		**D**	**1-7**	
SBS	American Bureau of Shipping	•	•	★
SBV	Bureau Veritas (BV) Type Approval	•	•	★
SDN	Det Norske Veritas (DNV) Type Approval	•	•	★
SLL	Lloyds Register (LR) Type Approval	•	•	★
Sensor fill fluid and O-ring options				
L1	Inert Sensor Fill Fluid	•	•	★
L2	Graphite-filled (PTFE) O-ring	•	•	★
LA	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	•	•	★
Digital display[(25)]				
M5	PlantWeb LCD display	•	•	★
M7[(22)(26)(27)]	Remote mount LCD display and interface, PlantWeb housing, no cable, SST bracket	•	—	★
M8[(22)(26)]	Remote mount LCD display and interface, PlantWeb housing, 50 ft. (15m) cable, SST bracket	•	—	★
M9[(22)(26)]	Remote mount LCD display and interface, PlantWeb housing, 100 ft. (31m) cable, SST bracket	•	—	★
Transient protection				
T1[(28)]	Transient terminal block	•	•	★
Manifold for remote mount option				
F2	3-Valve Manifold, SST	•	•	★
F6	5-Valve Manifold, SST	•	•	★

Table 5. Rosemount 3051SFC 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.

PlantWeb control functionality		**D**	**1-7**	
A01	FOUNDATION fieldbus Advanced Control Function Block Suite	•	—	★
PlantWeb diagnostic functionality				
D01	FOUNDATION fieldbus Diagnostics Suite	•	—	★
DA2(29)	Advanced HART Diagnostic Suite	•	—	★
PlantWeb enhanced measurement functionality				
H01(30)	FOUNDATION fieldbus Fully Compensated Mass Flow Block	•	—	★
Cold temperature				
BRR (31)(32)	-60 °F (-51 °C) Cold Temperature Start-up	•	•	★
Alarm limit(21)(22)				
C4	NAMUR Alarm & Saturation Levels, High Alarm	•	•	★
C5	NAMUR Alarm & Saturation Levels, Low Alarm	•	•	★
C6	Custom Alarm & Saturation Levels, High Alarm	•	•	★
C7	Custom Alarm & Saturation Levels, Low Alarm	•	•	★
C8	Low Alarm (Standard Rosemount Alarm & Saturation Levels)	•	•	★
Hardware adjustments and ground screw				
D1(21)(22)(32)	Hardware adjustments (zero, span, alarm, security).	•	—	★
D4(33)	External ground screw assembly	•	•	★
DA(21)(22)(32)	Hardware adjustments (zero, span, alarm, security) and external ground screw assembly	•	—	★
Conduit plug				
DO	316 SST Conduit Plug	•	•	★
Conduit electrical connector				
ZE(34)	M12, 4-pin, Male Connector (eurofast)	•	•	★
ZM (34)	A size Mini, 4-pin, Male Connector (minifast)	•	•	★
Typical model number: 3051SFC 1 C S 060 N 065 T 3 2 J A 1A 3				

(1) Available with primary element technology P only.

(2) For the 10-in. (250 mm) and 12-in. (300 mm) line sizes, the alignment ring must be ordered (Installation Accessories).

(3) 10-in. (250 mm) and 12-in. (300 mm) line sizes not available with Primary Element Technology code A.

(4) For 2-in. (50 mm) line size the beta ratio is 0.6 for Primary Element Technology code C.

(5) Required for Measurement Type codes 2, 4, 6, and D.

(6) Only available with Measurement Type codes 1, 3, 5, 7.

(7) Required for Measurement Type codes 3, 4, 7, and D.

(8) For Measurement Type codes 1, 2, 5, and 6 with DP range 1, absolute limits are 0.5 to 2000 psi (0,03 to 137,9 bar) and gage limits are -14.2 to 2000 psig (-0,98 to 137,9 bar).

(9) Requires PlantWeb housing.

(10) Only intrinsically safe approval codes apply.

(11) Only available with Measurement Types D and 6.

(12) Only available with output code X.

(13) Available with output code A only.

(14) For detailed specifications see "Specifications" on page 107.

(15) Only available with differential pressure ranges 2 and 3, and silicone fill fluid.

(16) Long-life Power Module must be shipped separately, order Power Module 701PBKKF.

(17) Available with Primary Element Technology code C only.

(18) Available with Primary Element Technology codes C or A only.

(19) For Annubar Option A, consult factory for pipe schedules other than Sch. 40.

(20) Available with primary element technology C or P only.

(21) Not available with Output Protocol code F.

(22) Not available with output code X. Only available with Measurement Type D.

(23) 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.

(24) Not available with M20 or G½ conduit entry size.

(25) Not available with housing code 7J.

(26) Not available with output code F, option code DA2, or option code QT.

(27) See the 3051S Reference Manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(28) Not available with Housing code 00, 5A, 5J, or 7J. External ground screw assembly (option code D4) is included with the T1 option. The T1 option is not needed with FISCO Product Certifications.

(29) Includes Hardware Adjustments (option code D1) as standard. Not available with output code X. Only available with Measurement Type D.

(30) Requires Rosemount Engineering Assistant version 5.5.1 to configure.

(31) -58°F (50°C) for Measurement Type 1-7.

(32) Not available with housing codes 2E, 2F, 2G, 2M, 5A, 5J, or 7J.

(33) This assembly is included with options EP, KP, E1, N1, K1, ND, E4, E7, K7, E3, KA, KC, KD, IA, T1, EM, and KM.

(34) Not available with Housing code 5A, 5J, or 7J. Available with Intrinsically Safe approvals only. For FM Intrinsically Safe; Nonincendive (option code I5) or FM FISCO Intrinsically Safe (option code IE), install in accordance with Rosemount drawing 03151-1009.

Rosemount 3051SFP Integral Orifice Flowmeter

- Precision honed pipe section for increased accuracy in small line sizes
- Self-centering plate design prevents alignment errors that magnify measurement inaccuracies in small line sizes

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 6. Rosemount 3051SFP 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	Measurement type		• = Available — = Unavailable
		D	1-7	
3051SFP	Integral Orifice Flowmeter	•	•	
Measurement type				
1	Fully Compensated Mass & Energy Flow Calculations – Differential & Static Pressures w/ Temperature	—	•	★
2	Compensated Flow Calculations – Differential & Static Pressures	—	•	★
3	Compensated Flow Calculations – Differential Pressure & Temperature	—	•	★
4	Compensated Flow Calculations – Differential Pressure	—	•	★
D	Differential Pressure	•	—	★
5	Process Variables Only (No Flow Calculations) – Differential & Static Pressures w/ Temperature	—	•	
6	Process Variables Only (No Flow Calculations) – Differential & Static Pressures	—	•	
7	Process Variables Only (No Flow Calculations) – Differential Pressure & Temperature	—	•	
Body material				
S	316 SST	•	•	★
Line size				
005	1/2-in. (15 mm)	•	•	★
010	1-in. (25 mm)	•	•	★
015	1 1/2-in. (40 mm)	•	•	★
Process connection				
T1	NPT Female Body (not available with Thermowell and RTD)	•	•	★
S1(1)	Socket Weld Body (not available with Thermowell and RTD)	•	•	★
P1	Pipe Ends: NPT threaded	•	•	★
P2	Pipe Ends: Beveled	•	•	★
D1	Pipe Ends: Flanged, DIN PN16, slip-on	•	•	★
D2	Pipe Ends: Flanged, DIN PN40, slip-on	•	•	★
D3	Pipe Ends: Flanged, DIN PN100, slip-on	•	•	★
W1	Pipe Ends: Flanged, ANSI Class 150, weld-neck	•	•	★

Table 6. Rosemount 3051SFP 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.

W3	Pipe Ends: Flanged, ANSI Class 300, weld-neck	•	•	★
W6	Pipe Ends: Flanged, ANSI Class 600, weld-neck	•	•	★
A1	Pipe Ends: Flanged, RF, ANSI Class 150, slip-on	•	•	
A3	Pipe Ends: Flanged, RF, ANSI Class 300, slip-on	•	•	
A6	Pipe Ends: Flanged, RF, ANSI Class 600, slip-on	•	•	
R1	Pipe Ends: Flanged, RTJ, ANSI Class 150, slip-on	•	•	
R3	Pipe Ends: Flanged, RTJ, ANSI Class 300, slip-on	•	•	
R6	Pipe Ends: Flanged, RTJ, ANSI Class 600, slip-on	•	•	
P9	Special Process Connection	•	•	
Orifice plate material		**D**	**1-7**	
S	316 SST	•	•	★
H	Alloy C-276	•	•	
M	Alloy 400	•	•	
Bore size option				
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	•	•	★
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	•	•	★
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	•	•	

Table 6. Rosemount 3051SFP 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.

Transmitter connection platform				**D**	**1-7**	
D3	Direct-mount, 3-valve Manifold, SST			•	•	★
D5	Direct-mount, 5-valve Manifold, SST			•	•	★
R3	Remote-mount, 3-valve Manifold, SST			•	•	★
R5	Remote-mount, 5-valve Manifold, SST			•	•	★
D4	Direct-mount, 3-valve Manifold, Alloy C-276			•	•	
D6	Direct-mount, 5-valve Manifold, Alloy C-276			•	•	
D7	Direct-mount, High Temperature, 5-valve Manifold, SST			•	•	
R4	Remote-mount, 3-valve Manifold, Alloy C-276			•	•	
R6	Remote-mount, 5-valve Manifold, Alloy C-276			•	•	
Differential pressure range						
1	0 to 25 inH_2O (0 to 62,16 mbar)			•	•	★
2	0 to 250 inH_2O (0 to 621,60 mbar)			•	•	★
3	0 to 1000 inH_2O (0 to 2,48 bar)			•	•	★
Static pressure range						
A[(2)]	None			•	•	★
D	Absolute 0 to 800 psia (0 to 55,15 bar)			—	•	★
E[(3)]	Absolute 0 to 3626 psia (0 to 250,00 bar)			—	•	★
J	Gage -14.2 to 800 psig (-0,98 to 55,15 bar)			—	•	★
K[(3)]	Gage -14.2 to 3626 psig (-0,98 to 250,00 bar)			—	•	★
Transmitter output						
A	4–20 mA with digital signal based on HART protocol			•	•	★
F	FOUNDATION fieldbus (Requires PlantWeb housing)			•	—	★
X[(4)(5)]	Wireless (Requires wireless options and wireless PlantWeb housing)			•	—	★
Transmitter housing style		**Material**	**Conduit entry size**			
00	None (Customer-supplied electrical connection)			•	—	★
1A	PlantWeb housing	Aluminum	$^1/_2$-14 NPT	•	•	★
1B	PlantWeb housing	Aluminum	M20 x 1.5	•	•	★
1J	PlantWeb housing	SST	$^1/_2$-14 NPT	•	•	★
1K	PlantWeb housing	SST	M20 x 1.5	•	•	★
2A	Junction Box housing	Aluminum	$^1/_2$-14 NPT	•	—	★
2B	Junction Box housing	Aluminum	M20 x 1.5	•	—	★
2E	Junction Box housing with output for remote display and interface	Aluminum	$^1/_2$-14 NPT	•	—	★

Table 6. Rosemount 3051SFP 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.

2F	Junction Box housing with output for remote display and interface	Aluminum	M20 x 1.5	•	—	★
2J	Junction Box housing	SST	1/2-14 NPT	•	—	★
2M	Junction Box housing with output for remote display and interface	SST	1/2-14 NPT	•	—	★
5A[6]	Wireless PlantWeb housing	Aluminum	1/2–14 NPT	•	—	★
5J[6]	Wireless PlantWeb housing	SST	1/2–14 NPT	•	—	★
7J[4][7]	Quick Connect (A size Mini, 4-pin male termination)			•	—	★
1C	PlantWeb housing	Aluminum	G1/2	•	•	
1L	PlantWeb housing	SST	G1/2	•	•	
2C	Junction Box housing	Aluminum	G1/2	•	—	
2G	Junction Box housing with output for remote display and interface	Aluminum	G1/2	•	—	
Performance class[8]				**D**	**1-7**	
3051S MultiVariable SuperModule, Measurement Types 1, 2, 5, and 6						
3[9]	Ultra for Flow: 0.95% flow rate accuracy, 14:1 flow turndown, 10-year stability, 15-year limited warranty			•	•	★
5	Classic MV: 1.25% flow rate accuracy, 8:1 flow turndown, 5-year stability			—	•	★
3051S Single Variable SuperModule, Measurement Types 3, 4, 7, and D						
1	Ultra: 1.05% flow rate accuracy, 8:1 flow turndown, 15-year stability, 15-year limited warranty			•	•	★
2	Classic: 1.50% flow rate accuracy, 8:1 flow turndown, 15-year stability			•	•	★
3[9]	Ultra for Flow: 0.95% flow rate accuracy, 14:1 flow turndown, 15-year stability, 15-year limited warranty			•	•	★

Wireless options (requires option code X and wireless PlantWeb housing)

Update rate, operating frequency and protocol				
WA	User Configurable Update Rate	•	—	★
Operating frequency and protocol				
3	2.4 GHz DSSS, IEC 62591 (*Wireless*HART)	•	—	★
Omni-directional wireless antenna				
WK	External Antenna	•	—	★
WM	Extended Range, External Antenna	•	—	★
WN	High-Gain, Remote Antenna	•	—	
SmartPower				
1[10]	Adapter for Black Power Module (I.S. Power Module Sold Separately)	•	—	★

Table 6. Rosemount 3051SFP 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.

Other options (include with selected model number)

Extended product warranty		**D**	**1-7**	
WR3	3-year limited warranty	•	•	★
WR5	5-year limited warranty	•	•	★
Transmitter/body bolt material				
G[11]	High temperature Option (850 °F [454 °C])	•	•	
Temperature sensor				
T[12]	Thermowell and RTD	•	•	★
Optional connection				
G1	DIN 19213 Transmitter Connection	•	•	★
Pressure testing				
P1[13]	Hydrostatic Testing with Certificate	•	•	
Special cleaning				
P2	Cleaning for Special Services	•	•	
PA	Cleaning per ASTM G93 Level D (Section 11.4)	•	•	
Material testing				
V1	Dye Penetrant Exam	•	•	
Material examination				
V2	Radiographic Examination (available only with Process Connection code W1, W3, and W6)	•	•	
Flow calibration				
WD[14]	Discharge Coefficient Verification	•	•	
WZ[14]	Special Calibration	•	•	
Special inspection				
QC1	Visual & Dimensional Inspection with Certificate	•	•	★
QC7	Inspection & Performance Certificate	•	•	★
Material traceability certification				
Q8	Material certification per EN 10204:2004 3.1	•	•	★
Code conformance				
J2[15]	ANSI/ASME B31.1	•	•	
J3[15]	ANSI/ASME B31.3	•	•	
J4[15]	ANSI/ASME B31.8	•	•	

Table 6. Rosemount 3051SFP 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.

Materials conformance				
J5[16]	NACE MR-0175 / ISO 15156	•	•	
Country certification				
J6	European Pressure Directive (PED)	•	•	★
J1	Canadian Registration	•	•	
Transmitter calibration certification				
Q4	Calibration Data Certificate for Transmitter	•	•	★
Quality certification for safety				
QS[17][18]	Prior-use Certificate of FMEDA data	•	—	★
QT[17][18][20]	Safety-certified to IEC 61508 with Certificate of FMEDA data	•	—	★
Product certifications				
E1	ATEX Flameproof	•	•	★
I1	ATEX Intrinsic Safety	•	•	★
IA	ATEX FISCO Intrinsic Safety; for FOUNDATION fieldbus protocol only	•	—	★
N1	ATEX Type n	•	•	★
ND	ATEX Dust	•	•	★
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E1, I1, N1, and ND)	•	•	★
E4	TIIS Flameproof	•	•	★
E5	FM Explosion-proof, Dust Ignition-proof	•	•	★
I5	FM Intrinsically Safe; Nonincendive	•	•	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5 and I5)	•	•	★
E6[19]	CSA Explosion-proof, Dust Ignition-proof, Division 2	•	•	★
I6	CSA Intrinsically Safe	•	•	★
K6[19]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E6 and I6)	•	•	★
E7	IECEx Flameproof, Dust Ignition-proof	•	•	★
I7	IECEx Intrinsic Safety	•	•	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n (combination of E7, I7, and N7)	•	•	★
E3	China Flameproof	•	•	★
I3	China Intrinsic Safety	•	•	★
EM	Technical Regulations Customs Union (EAC) Flameproof	•	•	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	•	•	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	•	•	★
KA[19]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2 (combination of E1, I1, E6, and I6)	•	•	★

Table 6. Rosemount 3051SFP 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.

KB[19]	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2 (combination of E5, E6, I5, and I6)	•	•	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2 (combination of E5, E1, I5, and I1)	•	•	★
KD[19]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe (combination of E5, I5, E6, I6, E1, and I1)	•	•	★
Shipboard approvals		**D**	**1-7**	
SBS	American Bureau of Shipping	•	•	★
SBV	Bureau Veritas (BV) Type Approval	•	•	★
SDN	Det Norske Veritas (DNV) Type Approval	•	•	★
SLL	Lloyds Register (LR) Type Approval	•	•	★
Sensor fill fluid and O-ring options				
L1	Inert Sensor Fill Fluid	•	•	★
L2	Graphite-filled (PTFE) O-ring	•	•	★
LA	Inert sensor fill fluid and graphite-filled (PTFE) O-ring	•	•	★
Digital display[20]				
M5	PlantWeb LCD display (requires PlantWeb housing)	•	•	★
M7[17][21][22]	Remote mount LCD display and interface, PlantWeb housing, no cable, SST bracket	•	—	★
M8[17][22]	Remote mount LCD display and interface, PlantWeb housing, 50 ft. (15 m) cable, SST bracket	•	—	★
M9[17][22]	Remote mount LCD display and interface, PlantWeb housing, 100 ft. (31 m) cable, SST bracket	•	—	★
Transient protection				
T1[23]	Transient terminal block	•	•	★
PlantWeb control functionality				
A01	FOUNDATION fieldbus Advanced Control Function Block Suite	•	—	★
PlantWeb diagnostic functionality				
D01	FOUNDATION fieldbus Diagnostics Suite	•	—	★
DA2[24]	Advanced HART Diagnostics Suite	•	—	★
PlantWeb enhanced measurement functionality				
H01[25]	FOUNDATION fieldbus Fully Compensated Mass Flow Block	•	—	★
Cold temperature				
BRR[26]	-60 °F (-51 °C) Cold Temperature Start-up	—	•	★
Alarm limit[17][18]				
C4	NAMUR Alarm & Saturation Levels, High Alarm	•	•	★
C5	NAMUR Alarm & Saturation Levels, Low Alarm	•	•	★

Table 6. Rosemount 3051SFP 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.

C6	Custom Alarm & Saturation Levels, High Alarm	•	•	★
C7	Custom Alarm & Saturation Levels, Low Alarm	•	•	★
C8	Low Alarm (Standard Rosemount Alarm & Saturation Levels)	•	•	★
Hardware adjustments and ground screw		**D**	**1-7**	
D1[17][18][27]	Hardware Adjustments (zero, span, alarm, security)	•	—	★
D4[28]	External ground screw assembly	•	•	★
DA[17][18][27]	Hardware adjustments (zero, span, alarm, security) & External Ground Screw Assembly	•	—	★
Conduit plug				
DO	316 SST Conduit Plug	•	•	★
Conduit electrical connector				
GE[29]	M12, 4-pin, Male Connector (eurofast)	•	•	
GM[29]	A size Mini, 4-pin, Male Connector (minifast)	•	•	
Typical model number: 3051SFP 1 S 010 W3 S 0150 D3 1 J A 1A 3 M5				

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

(2) Required for Measurement Type codes 3, 4, 7, and D.

(3) For Measurement Type codes 1, 2, 5, and 6 with DP range 1, absolute limits are 0.5 to 2000 psi (0,03 to 137,9 bar) and gage limits are -14.2 to 2000 psig (-0,98 to 137,9 bar).

(4) Only intrinsically safe approval codes apply.

(5) Only available with Measurement Types D and 6.

(6) Only available with output code X.

(7) Only available with output code A.

(8) For detailed specifications see "Specifications" on page 107.

(9) Only available with differential pressure ranges 2 and 3, and silicone fill fluid.

(10) Long-life Power Module must be shipped separately, order Power Module 701PBKKF.

(11) Not available with $1^1/2$-in. (38 mm) line size.

(12) Thermowell material is the same as the body material.

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

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

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

(16) 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.

(17) Not available with output code X. Only available with Measurement Type D.

(18) Not available with output code F.

(19) Not available with M20 or G ½ conduit entry size.

(20) Not available with housing code 7J.

(21) See the 3051S Reference Manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(22) Not available with output code F, option code DA2, or option code QT.

(23) Not available with Housing code 5A, 5J, or 7J. The T1 option is not needed with FISCO Product Certifications.

(24) Includes Hardware Adjustments (option code D1) as standard. Not available with output code X. Only available with Measurement Type D.

(25) Requires Rosemount Engineering Assistant version 5.5.1 to configure.

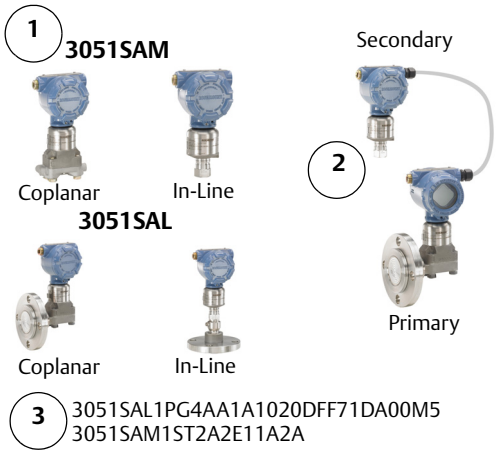
(26) -58°F (50°C) for Measurement Type 1-7.

(27) Not available with housing codes 2E, 2F, 2G, 2M, 5A, 5J, or 7J.

(28) This assembly is included with options EP, KP, E1, N1, K1, ND, E4, E7, K7, E3, KA, KC, KD, IA, T1, EM, and KM.

(29) Not available with Housing code 5A, 5J, or 7J. Available with Intrinsically Safe approvals only. For FM Intrinsically Safe; Nonincendive (option code I5) or FM FISCO Intrinsically Safe (option code IE), install in accordance with Rosemount drawing 03151-1009.

Rosemount 3051S Electronic Remote Sensor (ERS) System



3 3051SAL1PG4AA1A1020DFF71DA00M5
3051SAM1ST2A2E11A2A

The 3051S ERS System is a flexible, 2-wire 4-20 mA HART architecture that calculates differential pressure (DP) electronically using two pressure sensors that are linked together with a non-proprietary electrical wire.

Ideal applications for the 3051S ERS System include tall vessels and distillation columns that have traditionally required long lengths of capillary or impulse piping. When used in these types of applications, the 3051S ERS System can deliver:

- More accurate and repeatable DP measurements
- Faster time response
- Simplified installations
- Reduced maintenance

How to order

1. Choose two 3051S ERS Transmitter models. These may be any combination of 3051SAM and 3051SAL models.
2. Decide which model will be the ERS Primary (4-20 mA loop termination and optional LCD display) and which will be the ERS Secondary. This will be specified by the "Configuration Type" code in each model number.
3. Specify two full model numbers per the desired configuration.

Additional information
Specifications: page 107
Certifications: page 132
Dimensional drawings: page 145

Rosemount 3051SAM Transmitter for ERS Applications

- Coplanar and in-line sensor module platforms
- Variety of process connections including threaded NPT, flanges, manifolds, and 1199 remote seals
- Available with 15-year stability and 15-year limited warranty

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 7. Rosemount 3051SAM Transmitter for ERS Applications 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	
3051SAM	Scalable Advanced Measurement Transmitter	
Performance class(1)		
1	Ultra: 0.025% span accuracy, 200:1 rangedown, 15-year stability, 15-year limited warranty	★
2	Classic: 0.035% span accuracy, 150:1 rangedown, 15-year stability	★

Table 7. Rosemount 3051SAM Transmitter for ERS Applications 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.

Configuration type					
P	Electronic Remote Sensor - Primary				★
S	Electronic Remote Sensor - Secondary				★
Pressure module type		**Pressure sensor type**			
G	Coplanar	Gage			★
T	In-Line	Gage			★
E	In-Line	Absolute			★
A	Coplanar	Absolute			
Pressure range[(2)]					
	Coplanar gage	**In-Line gage**	**In-Line absolute**	**Coplanar absolute**	
1A	N/A	-14.7 to 30 psig (-1,01 to 2,06 bar)	0 to 30 psia (0 to 2,06 bar)	0 to 30 psia (0 to 2,06 bar)	★
2A	-250 to 250 inH2O (-621,60 to 621,60 mbar)	-14.7 to 150 psig (-1,01 to 10,34 bar)	0 to 150 psia (0 to 10,34 bar)	0 to 150 psia (0 to 10,34 bar)	★
3A	-393 to 1000 inH2O (-0,97 to 2,48 bar)	-14.7 to 800 psig (-1,01 to 55,15 bar)	0 to 800 psia (0 to 55,15 bar)	0 to 800 psia (0 to 55,15 bar)	★
4A	-14.2 to 300 psig (-0,97 to 20,68 bar)	-14.7 to 4000 psig (-1,01 to 275,79 bar)	0 to 4000 psia (0 to 275,79 bar)	0 to 4000 psia (0 to 275,79 bar)	★
5A	-14.2 to 2000 psig (-0,97 to 137,89 bar)	-14.7 to 10000 psig (-1,01 to 689,47 bar)	0 to 10000 psia (0 to 689,47 bar)	N/A	★
Isolating diaphragm					
2[(3)]	316L SST				★
3[(3)]	Alloy C-276				★
4[(3)(4)]	Alloy 400				
5[(4)(5)]	Tantalum				
6[(3)(4)]	Gold-plated Alloy 400 (includes Graphite-Filled PTFE O-Ring)				
7[(3)(4)]	Gold-plated 316L SST				
Process connection					
	Coplanar module type		**In-Line module type**		
A11[(6)]	Assemble to Rosemount 305 Manifold		Assemble to Rosemount 306 Manifold		★
A12[(6)]	Assemble to Rosemount 304 or AMF Manifold with SST Traditional Flange		Assemble AMF Manifold to ½-14 NPT Female Process Connection		★
A15[(6)]	Assemble to Rosemount 304 or AMF manifold to SST Traditional Flange with Alloy C-276 Drain Vents		N/A		★
A22[(6)]	Assemble AMF manifold to SST Coplanar Flange		N/A		★

Table 7. Rosemount 3051SAM Transmitter for ERS Applications 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.

B11[(6)(7)]	Assemble to One Rosemount 1199 Remote Diaphragm Seal with SST transmitter flange	Assemble to One Rosemount 1199 Remote Diaphragm	★
E11	Coplanar Flange (CS), ¼-18 NPT, 316 SST Drain Vents	½ -14 NPT Female	★
E12	Coplanar Flange (SST), ¼-18 NPT, 316 SST Drain Vents	N/A	★
E13[(3)]	Coplanar Flange (Cast C-276), ¼-18 NPT, Alloy C-276 Drain Vents	N/A	★
E14	Coplanar Flange (Cast Alloy 400), ¼-18 NPT, Alloy 400/K-500 Drain Vents	N/A	★
E15[(3)]	Coplanar Flange (SST), ¼-18 NPT, Alloy C-276 Drain Vents	N/A	★
E16[(3)]	Coplanar Flange (CS), ¼-18 NPT, Alloy C-276 Drain Vents	N/A	★
E21	Coplanar Flange (CS), RC ¼, 316 SST Drain Vents	N/A	★
E22	Coplanar Flange (SST), RC ¼, 316 SST Drain Vents	N/A	★
E23[(3)]	Coplanar Flange (Cast C-276), RC ¼, Alloy C-276 Drain Vents	N/A	★
E24	Coplanar Flange (Cast Alloy 400), RC ¼, Alloy 400/K-500 Drain Vents	N/A	★
E25[(3)]	Coplanar Flange (SST), RC ¼, Alloy C-276 Drain Vents	N/A	★
E26[(3)]	Coplanar Flange (CS), RC ¼, Alloy C-276 Drain Vents	N/A	★
F12	Traditional Flange (SST), 1/4-18 NPT, 316 SST Drain Vents	N/A	★
F13[(3)]	Traditional Flange (Cast C-276), 1/4-18 NPT, Alloy C-276 Drain Vents	N/A	★
F14	Traditional Flange (Cast Alloy 400), 1/4-18 NPT, Alloy 400/K-500 Drain Vents	N/A	★
F15[(3)]	Traditional Flange (SST), 1/4-18 NPT, Alloy C-276 Drain Vents	N/A	★
F22	Traditional Flange (SST), RC ¼, 316 SST Drain Vents	N/A	★
F23[(3)]	Traditional Flange (Cast C-276), RC ¼, Alloy C-276 Drain Vents	N/A	★
F24	Traditional Flange (Cast Alloy 400), RC ¼, Alloy 400/K500 Drain Vents	N/A	★
F25[(3)]	Traditional Flange (SST), RC ¼, Alloy C-276 Drain Vents	N/A	★
F52	DIN-Compliant Traditional Flange (SST), ¼-18 NPT, 316 Drain Vents, 7-16-in. Bolting	N/A	★
G11	Vertical Mount Level Flange (SST), 2-in ANSI Class 150, 316 SST Drain Vents	G1/2 A DIN 16288 male (Range 1-4 only)	★
G12	Vertical Mount Level Flange (SST), 2-in ANSI Class 300, 316 SST Drain Vents	N/A	★
G21	Vertical Mount Level Flange (SST), 3-in ANSI Class 150, 316 SST Drain Vents	N/A	★
G22	Vertical Mount Level Flange (SST), 3-in ANSI Class 300, 316 SST Drain Vents	N/A	★

Table 7. Rosemount 3051SAM Transmitter for ERS Applications 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.

G31	Vertical Mount Level Flange (SST), DIN-DN 50 PN 40, 316 SST Drain Vents	N/A		★
G41	Vertical Mount Level Flange (SST), DIN-DN 80 PN 40, 316 SST Drain Vents	N/A		★
F11	Traditional Flange (CS), ¼-18 NPT, 316 SST Drain / Vents	Non-Threaded Instrument Flange (I-Flange)		
F32	Bottom Vent Traditional Flange (SST), ¼-18 NPT, 316 SST Drain Vents	N/A		
F42	Bottom Vent Traditional Flange (SST), RC ¼, 316 SST Drain Vents	N/A		
F62	DIN-Compliant Traditional Flange (316 SST), ¼-18 NPT, 316 Drain Vents, M10 Bolting	N/A		
F72	DIN-Compliant Traditional Flange (316 SST), ¼-18 NPT, 316 Drain Vents, M12 Bolting	N/A		
Transmitter output				
A	4–20 mA with digital signal based on HART protocol			★
Housing style		**Material**	**Conduit entry size**	
Housings for ERS Primary - Configuration Type code P				
1A	PlantWeb housing	Aluminum	1/2–14 NPT	★
1B	PlantWeb housing	Aluminum	M20 x 1.5 (CM 20)	★
1J	PlantWeb housing	SST	1/2–14 NPT	★
1K	PlantWeb housing	SST	M20 x 1.5 (CM 20)	★
2E	Junction Box with Remote Display Output	Aluminum	1/2–14 NPT	★
2F	Junction Box with Remote Display Output	Aluminum	M20 x 1.5 (CM 20)	★
2M	Junction Box with Remote Display Output	SST	1/2–14 NPT	★
1C	PlantWeb housing	Aluminum	G1/2	
1L	PlantWeb housing	SST	G1/2	
2G	Junction Box with Remote Display Output	Aluminum	G1/2	
Housings for ERS Secondary - Configuration Type code S				
2A	Junction Box	Aluminum	1/2–14 NPT	★
2B	Junction Box	Aluminum	M20 x 1.5 (CM 20)	★
2J	Junction Box	SST	1/2–14 NPT	★
2C	Junction Box	Aluminum	G1/2	

Options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Table 7. Rosemount 3051SAM Transmitter for ERS Applications 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.

Electronic remote sensor connection cable		
R05	50 ft. (15.2 m) Spool of Electronic Remote Sensor Cable	★
R10	100 ft. (30.5 m) Spool of Electronic Remote Sensor Cable	★
R15	150 ft. (45.7 m) Spool of Electronic Remote Sensor Cable	★
Mounting bracket		
B1[(4)]	Traditional flange bracket, CS, 2-in. pipe	★
B2[(4)]	Traditional flange bracket, CS, panel	★
B3[(4)]	Traditional flange flat bracket, CS, 2-in. pipe	★
B4	Bracket, all SST, 2-in. Pipe and Panel	★
B7[(4)]	Traditional flange bracket, B1 with SST bolts	★
B8[(4)]	Traditional flange bracket, B2 with SST bolts	★
B9[(4)]	Traditional flange bracket, B3 with SST bolts	★
BA[(4)]	Traditional flange bracket, B1, all SST	★
BC[(4)]	Traditional flange bracket, B3, all SST	★
Special configuration (software)		
C1[(8)]	Customer Software Configuration (Configuration Data Sheet must be completed)	★
C3	Gage Pressure Calibration on Rosemount 3051SAM_ _A4 only	★
C4[(8)]	NAMUR Alarm and Saturation Levels, High Alarm	★
C5[(8)]	NAMUR Alarm and Saturation Levels, Low Alarm	★
C6[(8)]	Custom Alarm and Saturation Levels, High Alarm (requires C1 and Configuration Data Sheet)	★
C7[(8)]	Custom Alarm and Saturation Levels, Low Alarm (requires C1 and Configuration Data Sheet)	★
C8[(8)]	Low alarm (standard Rosemount alarm and saturation levels)	★
Special configuration (hardware)		
D2[(9)]	1/2-14 NPT Flange Adapters	★
D4[(10)]	External ground screw assembly	★
D5[(9)]	Delete transmitter drain/vent valves (install plugs)	★
D7[(9)]	Coplanar flange without drain/vent ports	
D9[(9)]	RC 1/2 Flange Adapters	
Product certifications		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n	★
K1	ATEX Flameproof and Intrinsically Safe, Type n, Dust	★
ND	ATEX Dust	★

Table 7. Rosemount 3051SAM Transmitter for ERS Applications 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.

E4	TIIS Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe; Nonincendive	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E6[(11)]	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6	CSA Intrinsically Safe	★
K6[(11)]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E7	IECEx Flameproof	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n	★
K7	IECEx Flameproof, Intrinsic Safety, Type n	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsically Safe	★
K2	INMETRO Flameproof, Intrinsic Safety, Type n	★
E3	China Flameproof	★
I3	China Intrinsic Safety, Dust Ignition-proof	★
EP	Korea Flameproof	★
IP	Korea Intrinsic Safety	★
KP	Korea Flameproof, Intrinsic Safety	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	★
KA[(11)]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB[(11)]	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[(11)]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe	★

Special certifications

Shipboard approvals		
SBS	American Bureau of Shipping (ABS) Type Approval	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Calibration certification		
Q4	Calibration certificate	★
QP	Calibration Certificate and Tamper Evident Seal	★

Table 7. Rosemount 3051SAM Transmitter for ERS Applications 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.

Material traceability certification		
Q8	Material Traceability Certification per EN 10204 3.1	★
Quality certification for safety		
QS	Prior-use certificate of FMEDA Data	★
QT	Safety Certified to IEC 61508 with certificate of FMEDA data	★
Surface finish certification		
Q16[(12)]	Surface Finish Certification for Hygienic Remote Seals	★
Toolkit performance reports		
QZ[(13)]	Remote Seal System Performance Calculation Report	★
Terminal blocks		
T1[(8)]	Transient Terminal Block	★
Sensor fill fluid		
L1[(14)]	Inert Sensor Fill Fluid	★
O-ring		
L2	Graphite-Filled PTFE O-Ring	★
Bolting material		
L4[(9)]	Austenitic 316 SST Bolts	★
L5[(3)(9)]	ASTM A 193, Grade B7M Bolts	★
L6[(9)]	Alloy K-500 Bolts	★
L7[(3)(9)]	ASTM A 453, Class D, Grade 660 Bolts	★
L8[(9)]	ASTM A 193, Class 2, Grade B8M Bolts	★
Display type (ERS primary only)		
M5[(8)]	PlantWeb LCD display	★
M7[(8)(15)]	Remote Mount LCD display and Interface, PlantWeb housing, No Cable, SST Bracket	★
M8[(8)]	Remote Mount LCD display and Interface, PlantWeb housing, 50 ft. (15.2 m) Cable, SST Bracket	★
M9[(8)]	Remote Mount LCD display and Interface, PlantWeb housing, 100 ft. (30.5 m) Cable, SST Bracket	★

Special procedures

Pressure testing		
P1	Hydrostatic Testing with Certificate	
Special cleaning		
P2[(9)]	Cleaning for Special Services	
P3[(9)]	Cleaning for Less than 1 PPM Chlorine/Fluorine	

Table 7. Rosemount 3051SAM Transmitter for ERS Applications 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.

NACE certificate		
Q15[16]	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25[16]	Certificate of Compliance to NACE MR0103 for wetted materials	★
Typical model number: 3051SAM 1 S T 2A 2 E11 A 2A		

(1) For detailed specifications see "Specifications" on page 107.

(2) The pressure range should be specified based on the maximum static pressure, not differential pressure.

(3) Materials of Construction comply with metallurgical requirements highlighted within NACE MR 0175 / 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 MR 0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

(4) Not available with Pressure Sensor/Module codes T or E.

(5) Tantalum diaphragm material is only available with Pressure Sensor / Module code G.

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

(7) Consult an Emerson Process Management representative for performance specifications.

(8) Not available with Configuration Type code S.

(9) Not available with Process Connection code A11.

(10) This assembly is included with options EP, KP, E1, N1, K1, ND, E4, E7, N7, K7, E2, KA, KC, KD, K2, T1, E3, EM, and KM.

(11) Not available with M20 or G ½ conduit entry size.

(12) Q16 is only available when the diaphragm seal has surface finish options.

(13) The QZ report quantifies the performance of the entire ERS system. One report is provided per ERS system. The QZ option is specified on the Primary Transmitter (Configuration Type code P).

(14) Silicone fill fluid is standard.

(15) See the 3051S Reference Manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(16) NACE compliant wetted materials are identified by Footnote 3.

Rosemount 3051SAL Transmitter for ERS Applications

- Integrated transmitter and direct mount seal in a single model number
- Variety of process connections including flanged, threaded, and hygienic remote seals
- Available with 15-year limited warranty

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

A 3051SAL Scalable ERS Level Transmitter consists of 3 parts. First, specify the transmitter model codes found on page 68. Then, specify a direct mount seal found on page 88. Finish the model number by specifying all desired options on page 71.

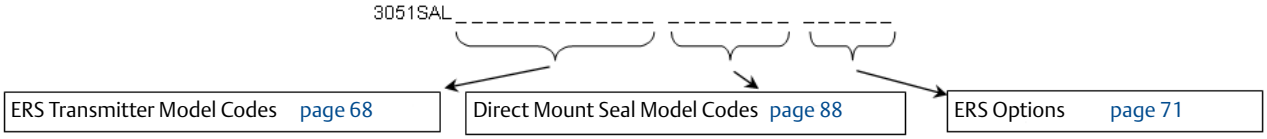


Table 8. Rosemount 3051SAL Transmitter for ERS Applications Ordering Information

★ 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				
3051SAL	Scalable Advanced Level Transmitter				
Performance class[(1)]					
1	Ultra: 0.055% span accuracy, 150:1 rangedown, 15-year limited warranty				★
2	Classic: 0.065% span accuracy, 150:1 rangedown				★
Configuration type					
P	Electronic Remote Sensor - Primary				★
S	Electronic Remote Sensor - Secondary				★
Pressure module type		**Pressure sensor type**			
G	Coplanar	Gage			★
T	In-Line	Gage			★
E	In-Line	Absolute			★
A	Coplanar	Absolute			
Pressure range[(8)]					
	Coplanar gage	**In-Line gage**	**In-Line absolute**	**Coplanar absolute**	
1A	N/A	-14.7 to 30 psig (-1,01 to 2,06 bar)	0 to 30 psia (0 to 2,06 bar)	0 to 30 psia (0 to 2,06 bar)	★
2A	-250 to 250 inH2O (-621,60 to 621,60 mbar)	-14.7 to 150 psig (-1,01 to 10,34 bar)	0 to 150 psia (0 to 10,34 bar)	0 to 150 psia (0 to 10,34 bar)	★
3A	-393 to 1000 inH2O (-0,97 to 2,48 bar)	-14.7 to 800 psig (-1,01 to 55,15 bar)	0 to 800 psia (0 to 55,15 bar)	0 to 800 psia (0 to 55,15 bar)	★

Table 8. Rosemount 3051SAL Transmitter for ERS Applications 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.

4A	-14.2 to 300 psig (-0,97 to 20,68 bar)	-14.7 to 4000 psig (-1,01 to 275,79 bar)	0 to 4000 psia (0 to 275,79 bar)	0 to 4000 psia (0 to 275,79 bar)	★
5A	-14.2 to 2000 psig (-0,97 to 137,89 bar)	-14.7 to 10000 psig (-1,01 to 689,47 bar)	0 to 10000 psia (0 to 689,47 bar)	N/A	★
Transmitter output					
A	4-20 mA with Digital Signal Based on HART Protocol				★
Housing style		**Material**	**Conduit entry size**		
Housings for ERS Primary - Configuration Type Code P					
1A	PlantWeb housing	Aluminum	1/2–14 NPT		★
1B	PlantWeb housing	Aluminum	M20 x 1.5 (CM 20)		★
1J	PlantWeb housing	SST	1/2–14 NPT		★
1K	PlantWeb housing	SST	M20 x 1.5 (CM 20)		★
2E	Junction Box with Remote Display Output	Aluminum	1/2–14 NPT		★
2F	Junction Box with Remote Display Output	Aluminum	M20 x 1.5 (CM 20)		★
2M	Junction Box with Remote Display Output	SST	1/2–14 NPT		★
1C	PlantWeb housing	Aluminum	G1/2		
1L	PlantWeb housing	SST	G1/2		
2G	Junction Box with Remote Display Output	Aluminum	G1/2		
Housings for ERS Secondary - Configuration Type Code S					
2A	Junction Box	Aluminum	1/2–14 NPT		★
2B	Junction Box	Aluminum	M20 x 1.5 (CM 20)		★
2J	Junction Box	SST	1/2–14 NPT		★
2C	Junction Box	Aluminum	G1/2		
Seal system type					
Coplanar Pressure Module Type					
1	Single Direct Mount Seal System		Welded-Repairable		★
2	Single Direct Mount Seal System		All-Welded		★
In-line Pressure Module Type					
1	Single Direct Mount Seal System		All-Welded		★
High side connection type					
Single Direct Mount Seal System (between transmitter and remote seal)					
0	No Extension				★
2	2-in. (50 mm) Extension				★

Table 8. Rosemount 3051SAL Transmitter for ERS Applications 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.

4	4-in. (100 mm) Extension						★
6	Thermal Range Expander - Silicone 200 Secondary Fill Fluid						★
7	Thermal Range Expander - SYLTHERM™ XLT Secondary Fill Fluid						★
Low side connection type (reference pressure connection)							
Single Direct Mount Seal System							
00	None (In-Line Pressure Module Type Only)						★
20	316L SST Isolator/SST Transmitter Flange						★
30	Alloy C-276 Isolator/SST Transmitter Flange						★
Seal fill fluid		**Specific gravity at 77 °F (25 °C)**	**Temperature limits[2]**				
			No extension	**2-in. (50 mm) extension**	**4-in. (100 mm) extension**	**Thermal range expander (process temperature)[3]**	
D	Silicone 200	0.93	-49 to 401 °F (-45 to 205 °C)	-49 to 401 °F (-45 to 205 °C)	-49 to 401 °F (-45 to 205 °C)	N/A	★
F	Silicone 200 for Vacuum Applications	0.93	For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note (00840-2100-4016).				★
L	Silicone 704	1.07	32 to 401 °F[4] (0 to 205 °C)	32 to 464 °F[4] (0 to 240 °C)	32 to 500 °F[4] (0 to 260 °C)	Up to 599 °F (315 °C)	★
C	Silicone 704 for Vacuum Applications	1.07	For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note (00840-2100-4016).				★
R	Silicone 705	1.09	68 to 401 °F[4] (20 to 205 °C)	68 to 464 °F[4] (20 to 240 °C)	68 to 500 °F[4] (20 to 260 °C)	Up to 698 °F (370 °C)	★
V	Silicone 705 for Vacuum Applications	1.09	For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note (00840-2100-4016).				★
A	SYLTHERM XLT	0.85	-102 to 293 °F (-75 to 145 °C)	-102 to 293 °F (-75 to 145 °C)	-102 to 293 °F (-75 to 145 °C)	N/A	★
H	Inert (Halocarbon)	1.85	-49 to 320 °F (-45 to 160 °C)	-49 to 320 °F (-45 to 160 °C)	-49 to 320 °F (-45 to 160 °C)	N/A	★
G[5][6]	Glycerin and Water	1.13	5 to 203 °F (-15 to 95 °C)	5 to 203 °F (-15 to 95 °C)	5 to 203 °F (-15 to 95 °C)	N/A	★
N[5]	Neobee® M-20	0.92	5 to 401 °F[4] (-15 to 205 °C)	5 to 437 °F (-15 to 225 °C)	5 to 437 °F (-15 to 225 °C)	N/A	★
P[5][6]	Propylene Glycol and Water	1.02	5 to 203 °F (-15 to 95 °C)	5 to 203 °F (-15 to 95 °C)	5 to 203 °F (-15 to 95 °C)	N/A	★
Y[7]	UltraTherm™ 805	1.20	N/A	N/A	N/A	Up to 770 °F (410 °C)	★
Z[7]	UltraTherm 805 for Vacuum	1.20	For use in vacuum application below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note (00840-2100-4016).				★

Table 8. Rosemount 3051SAL Transmitter for ERS Applications 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.

Continue specifying a completed model number by choosing a remote seal type below:

	page 88	FF Flush Flanged Seal	Process Connections: 2-in. / DN 50 / 50A 3-in. / DN 80 / 80A 4 in. / DN 100 / 100A
	page 91	EF Extended Flanged Seal	Process Connections: 3-in. / DN 80 / 80A 4-in. / DN 100 / 100A
	page 93	RF Remote Flanged Seal	Process Connections: ½ -in. ¾ -in. 1-in. / DN 25 / 25A 1½-in. / DN 40 / 40A
	page 98	FC Flush Flanged Seal - Ring Type Joint (RTJ) Gasket Surface	2- in. 3 -in.
	page 100	RC Ring Type Joint (RTJ) Flanged Seal	½-in. ¾-in. 1 -in. 1½- in.
	page 102	RT Remote Threaded Seal	Process Connections: ¼ - 18 NPT ½ - 14 NPT ¾ - 14 NPT 1 - 11.5 NPT 1¼ - 11.5 NPT
	page 104	SC Hygienic Tri-Clamp™ Seal	Process Connections: 1½-in. 2-in. 3-in.
	page 105	SS Hygienic Tank Spud Seal	Process Connections: 4-in.

Options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
Electronic remote sensor connection cable[(8)]		
R05	50 ft. (15.2 m) Spool of Electronic Remote Sensor Cable	★
R10	100 ft. (30.5 m) Spool of Electronic Remote Sensor Cable	★

Table 8. Rosemount 3051SAL Transmitter for ERS Applications 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.

R15	150 ft. (45.7 m) Spool of Electronic Remote Sensor Cable	★
Software configuration		
C1[9]	Custom Software Configuration (requires Configuration Data Sheet)	★
Gage pressure calibration		
C3	Gage Pressure Calibration on Rosemount 3051SAL_ _A4 only	★
Alarm limit		
C4[9]	NAMUR Alarm and Saturation Levels, High Alarm	★
C5[9]	NAMUR Alarm and Saturation Levels, Low Alarm	★
C6[9]	Custom Alarm and Saturation Levels, High Alarm (requires C1 and Configuration Data Sheet)	★
C7[9]	Custom Alarm and Saturation Levels, Low Alarm (requires C1 and Configuration Data Sheet)	★
C8[9]	Low Alarm (standard Rosemount alarm and saturation levels)	★
Ground screw		
D4[10]	External Ground Screw Assembly	★
Conduit plug		
DO	316 SST Conduit Plug	★
Product certifications		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n	★
K1	ATEX Flameproof and Intrinsically Safe, Type n, Dust	★
ND	ATEX Dust	★
E4	TIIS Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe; Nonincendive	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E6[11]	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6	CSA Intrinsically Safe	★
K6[11]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E7	IECEx Flameproof	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n	★
K7	IECEx Flameproof, Intrinsic Safety, Type n	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsically Safe	★
K2	INMETRO Flameproof, Intrinsic Safety	★

Table 8. Rosemount 3051SAL Transmitter for ERS Applications 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.

EP	Korea Flameproof	★
E3	China Flameproof	★
I3	China Intrinsic Safety	★
IP	Korea Intrinsic Safety	★
KP	Korea Flameproof, Intrinsic Safety	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	★
KA[11]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB[11]	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[11]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe	★
Shipboard approvals		
SBS	American Bureau of Shipping (ABS) Type Approval	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Sensor fill fluid		
L1[12]	Inert Sensor Fill Fluid	★
O-ring		
L2	Graphite-filled PTFE O-ring	★
Bolting material		
L4	Austenitic 316 SST Bolts	★
L5	ASTM A 193, Grade B7M Bolts	★
L6	Alloy K-500 Bolts	★
L7[13]	ASTM A 453, Class D, Grade 660 Bolts	★
L8	ASTM A 193, Class 2, Grade B8M Bolts	★
Display type (ERS primary only)		
M5[9]	PlantWeb LCD display	★
M7[9][14]	Remote Mount LCD display and Interface, PlantWeb housing, No Cable, SST Bracket	★
M8[9]	Remote Mount LCD display and Interface, PlantWeb housing, 50 ft. (15.2 m) Cable, SST Bracket	★
M9[9]	Remote Mount LCD display and Interface, PlantWeb housing, 100 ft. (30.5 m) Cable, SST Bracket	★

Table 8. Rosemount 3051SAL Transmitter for ERS Applications 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 procedures

Pressure testing		
P1	Hydrostatic Testing with Certificate	
Special cleaning		
P2	Cleaning for Special Services	
P3	Cleaning for Less than 1 PPM Chlorine/Fluorine	

Special certifications

Calibration certification		
Q4	Calibration Certificate	★
QP	Calibration certificate with tamper evident seal	★
Material traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★
Quality certification for safety		
QS	Prior-use certificate of FMEDA Data	★
QT	Safety Certified to IEC 61508 with certificate of FMEDA data	★
Toolkit performance reports		
QZ(15)	Remote Seal System Performance Calculation Report	★
Transient protection		
T1(9)	Transient Terminal Block	★
NACE certificate		
Q15(16)	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25(16)	Certificate of Compliance to NACE MR0103 for wetted materials	★
Typical model number: 3051SAL 1 P G 4A A 1A 1 0 20 D FF 7 1 DA 0 0 M5		

(1) For detailed specifications see "Specifications" on page 107.

(2) At ambient pressure of 14.7 psia (1 bar-a) and ambient temperature of 70 °F (21 °C). Temperature limits are reduced in vacuum service and may be limited by seal selection.

(3) For complete process and ambient temperature limits, see T "Thermal Range Expander temperature operating range" on page 126.

(4) Maximum process temperature is limited by heat transfer to the transmitter electronics and must be further derated if ambient temperature exceeds 70 °F (21 °C).

(5) This is a food grade fill fluid.

(6) Not suitable for vacuum applications.

(7) Only available with Thermal Range Expander.

(8) The pressure range should be specified based on the maximum static pressure, not differential pressure.

(9) Not available with Configuration Type code S.

(10) This assembly is included with options EP, KP, E1, N1, K1, ND, E4, E7, N7, K7, E2, KA, KC, KD, K2, T1, E3, EM, KM.

(11) Not available with M20 or G½ conduit entry size.

(12) Silicone fill fluid is standard.

(13) Bolts are not considered process wetted. In instances where NACE MR0175/ISO 15156 and NACE MR0103 conformance is required for bolting, L7 is the recommended bolting option.

(14) See the 3051S Reference Manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(15) The QZ report quantifies the performance of the entire ERS system. One report is provided per ERS system. The QZ option is specified on the Primary Transmitter (Configuration Type code P).

(16) Materials of construction comply with metallurgical requirements highlighted within NACE MR 0175 / 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 MR 0103 for sour refining environments.

Rosemount 3051S Scalable™ Level Transmitter

3051SAL In-Line with "FF" Flanged Seal

3051SAL Coplanar with "SS" Hygienic Tank Spud Seal

3051SAL Tuned-System Assembly with Thermal Range Expander

3051SAL Balanced System

Rosemount 3051S Scalable Level Transmitters combine the features and benefits of a high-performance 3051S Pressure Transmitter with the durability and reliability of diaphragm seals all in a single model number.

Product features and capabilities include:

- Variety of process connections including flanged, threaded, and hygienic seals
- Quantified performance for the entire transmitter/seal assembly (QZ option)
- HART, FOUNDATION fieldbus, and Wireless protocols

Additional information

Specifications: page 107
Product Certifications: page 132
Dimensional drawings: page 145

Rosemount 3051SAL Scalable Level Transmitter

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

A 3051SAL Scalable Level Transmitter consists of 3 parts. First, specify the transmitter model codes found on page 76. Then, specify a direct mount seal found on page 88. Finish the model number by specifying all desired options on page 83.

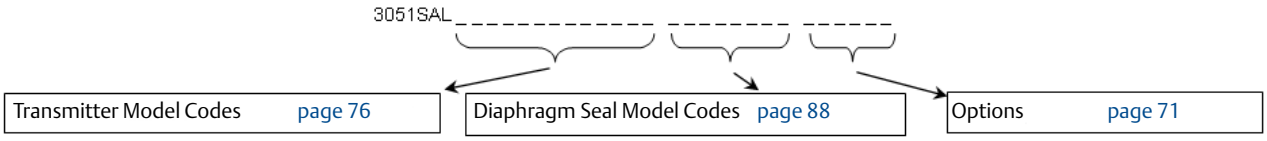


Table 9. Rosemount 3051SAL Scalable Level Transmitter Ordering Information

★ 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	
3051SAL	Scalable Level Transmitter	
Performance class[1]		
1	Ultra: 0.055% span accuracy, 150:1 rangedown, 15-year limited warranty	★
2	Classic: 0.065% span accuracy, 150:1 rangedown	★
Configuration type		
C	Liquid Level Transmitter	★

Table 9. Rosemount 3051SAL Scalable 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.

Pressure module type		**Pressure sensor type**	
D	Coplanar	Differential	★
G	Coplanar	Gage	★
T	In-Line	Gage	★
E	In-Line	Absolute	★
A	Coplanar	Absolute	

Pressure range						
	Coplanar DP	**Coplanar gage**	**In-Line gage**	**In-Line absolute**	**Coplanar absolute**	
1A	N/A	N/A	-14.7 to 30 psig (-1,01 to 2,06 bar)	0 to 30 psia (0 to 2,06 bar)	0 to 30 psia (0 to 2,06 bar)	★
2A	-250 to 250 inH_2O (-621,60 to 621,60 mbar)	-250 to 250 inH_2O (-621,60 to 621,60 mbar)	-14.7 to 150 psig (-1,01 to 10,34 bar)	0 to 150 psia (0 to 10,34 bar)	0 to 150 psia (0 to 10,34 bar)	★
3A	-1000 to 1000 inH_2O (-2,48 to 2,48 bar)	-393 to 1000 inH_2O (-0,97 to 2,48 bar)	-14.7 to 800 psig (-1,01 to 55,15 bar)	0 to 800 psia (0 to 55,15 bar)	0 to 800 psia (0 to 55,15 bar)	★
4A	-300 to 300 psi (-20,68 to 20,68 bar)	-14.2 to 300 psig (-0,97 to 20,68 bar)	-14.7 to 4000 psig (-1,01 to 275,79 bar)	0 to 4000 psia (0 to 275,79 bar)	0 to 4000 psia (0 to 275,79 bar)	★
5A	-2000 to 2000 psi (-137,89 to 137,89 bar)	-14.2 to 2000 psig (-0,97 to 137,89 bar)	-14.7 to 10000 psig (-1,01 to 689,47 bar)	0 to 10000 psia (0 to 689,47 bar)	N/A	★

Transmitter output		
A	4-20 mA with digital signal based on HART protocol	★
F[(2)]	FOUNDATION fieldbus protocol	★
X[(3)]	Wireless (Requires wireless options and wireless PlantWeb housing)	★

Housing style		**Material**	**Conduit entry**	
1A	PlantWeb housing	Aluminum	1/2–14 NPT	★
1B	PlantWeb housing	Aluminum	M20 x 1.5	★
1J	PlantWeb housing	SST	1/2–14 NPT	★
1K	PlantWeb housing	SST	M20 x 1.5	★
2A	Junction Box housing	Aluminum	1/2–14 NPT	★
2B	Junction Box housing	Aluminum	M20 x 1.5	★
2E	Junction Box with output for remote interface	Aluminum	1/2–14 NPT	★

Table 9. Rosemount 3051SAL Scalable 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.

2F	Junction Box with output for remote interface	Aluminum	M20 x 1.5	★
2J	Junction Box housing	SST	1/2–14 NPT	★
5A[4]	Wireless PlantWeb housing	Aluminum	1/2–14 NPT	★
5J[4]	Wireless PlantWeb housing	SST	1/2–14 NPT	★
7J[5]	Quick Connect (A size Mini, 4-pin male termination)	SST		★
1C	PlantWeb housing	Aluminum	G1/2	
1L	PlantWeb housing	316L SST	G1/2	
2C	Junction Box housing	Aluminum	G1/2	
2G	Junction Box with output for remote interface	Aluminum	G1/2	
Seal system type				
Coplanar Pressure Module Type				
1	Direct Mount Single Seal System		Welded-Repairable	★
2	Direct Mount Single Seal System		All Welded	★
3[6]	Tuned-System Assembly - 1 Direct Mount and 1 Remote Mount Seal with Capillary		Welded-Repairable	★
4[6]	Tuned-System Assembly - 1 Direct Mount and 1 Remote Mount Seal with Capillary		All Welded	★
5[6]	Balanced System - 2 Remote Mount Seals with Equal Lengths of Capillary		Welded-Repairable	★
6[6]	Balanced System - 2 Remote Mount Seals with Equal Lengths of Capillary		All Welded	★
7	Remote Mount Single Seal System with Capillary - 316L Low Side Transmitter Isolator		Welded-Repairable	★
8	Remote Mount Single Seal System with Capillary - 316L Low Side Transmitter Isolator		All Welded	★
9	Remote Mount Single Seal System with Capillary - Alloy C-276 Low Side Transmitter Isolator		Welded-Repairable	★
A	Remote Mount Single Seal System with Capillary - Alloy C-276 Low Side Transmitter Isolator		All Welded	★
In-Line Pressure Module Type				
1	Direct Mount Single Seal System		All Welded	★
7	Remote Mount Single Seal System with Capillary		Welded-Repairable	★
High side connection type				
Direct Mount Single Seal System (between transmitter and remote seal)				
0	No Extension			★
2	2-in. (50 mm) Extension			★
4	4-in. (100 mm) Extension			★

Table 9. Rosemount 3051SAL Scalable 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.

6[7]	Thermal Range Expander - Silicone 200 Secondary Fill Fluid	★
7[7]	Thermal Range Expander - SYLTHERM XLT Secondary Fill Fluid	★
Tuned-System Assembly		
0	No Extension on Direct Mount High Side Connection	
2	2-in. (50 mm) Extension on Direct Mount High Side Connection	★
4	4-in. (100 mm) Extension on Direct Mount High Side Connection	★
6[7]	Thermal Range Expander - Silicone 200 Secondary Fill Fluid (both direct mount and remote mount capillary)	★
7[7]	Thermal Range Expander - SYLTHERM XLT Secondary Fill Fluid (both direct mount and remote mount capillary)	★
Balanced System		
0	Standard Balanced System	★
6[7]	Thermal Range Expander - Silicone 200 Secondary Fill Fluid (both remote mount capillaries)	★
7[7]	Thermal Range Expander - SYLTHERM XLT Secondary Fill Fluid (both remote mount capillaries)	★
Remote Mount Single Seal System with Capillary		
0	Standard Remote Mount Single Seal System with Capillary	★
6[7]	Thermal Range Expander - Silicone 200 Secondary Fill Fluid	★
7[7]	Thermal Range Expander - SYLTHERM XLT Secondary Fill Fluid	★
Low side connection type (reference pressure connection)		
Direct Mount Single Seal System		
0	None (In-Line Pressure Module Type Only)	★
1 [8][14]	Assemble to One Rosemount 1199 Remote Seal	★
2	316L SST isolator and SST transmitter flange	★
3	Alloy C-276 isolator and SST transmitter flange	★
Tuned-System Assembly, Balanced, or Single Seal Capillary System		
B	0.03-in. (0.711 mm) ID Capillary	★
C	0.04-in. (1.092 mm) ID Capillary	★
D	0.075-in. (1.905 mm) ID Capillary	★
E	0.03-in. (0.711 mm) ID Capillary, PVC Coated with Closed End	★
F	0.04-in. (1.092 mm) ID Capillary, PVC Coated with Closed End	★
G	0.075-in. (1.905 mm) ID Capillary, PVC Coated with Closed End	★
Capillary length[9]		
0	No Capillary (required for Direct Mount Single Seal System)	★
A	1 ft (0.3 m)	★
B	5 ft (1.5 m)	★
C	10 ft (3.0 m)	★
D	15 ft (4.5 m)	★

Table 9. Rosemount 3051SAL Scalable 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.

E	20 ft (6.1 m)	★
F	25 ft (7.6 m)	★
G	30 ft (9.1 m)	★
H	35 ft (10.7 m)	★
J	40 ft (12.2 m)	★
K	45 ft (13.7 m)	★
L	50 ft (15.2 m)	★
M	0.5 m (1.6 ft)	★
N	1.0 m (3.3 ft)	★
P	1.5 m (4.9 ft)	★
R	2.0 m (6.6 ft)	★
T	2.5 m (8.2 ft)	★
U	3.0 m (9.8 ft)	★
V	3.5 m (11.5 ft)	★
W	4.0 m (13.1 ft)	★
Y	5.0 m (16.4 ft)	★
Z	6.0 m (19.7 ft)	★
1	7.0 m (23 ft)	★
2	8.0 m (26.2 ft)	★
3	9.0 m (29.5 ft)	★
4	10.0 m (32.8 ft)	★
5	11.0 m (36.1 ft)	★
6	12.0 m (39.4 ft)	★
7	13.0 m (42.6 ft)	★
8	14.0 m (45.9 ft)	★
9	15.0 m (49.2 ft)	★

Seal fill fluid		**Specific gravity at 77 °F (25 °C)**	**Temperature limits[10]**				
			No extension	**2-in. (50 mm) extension**	**4-in. (100 mm) extension**	**Thermal range expander (process temperature)[11]**	
D	Silicone 200	0.93	-49 to 401 °F (-45 to 205 °C)	-49 to 401 °F (-45 to 205 °C)	-49 to 401 °F (-45 to 205 °C)	N/A	★
F	Silicone 200 for Vacuum Applications	0.93	For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note (00840-2100-4016).				★

Table 9. Rosemount 3051SAL Scalable 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.

L	Silicone 704	1.07	32 to 401 °F[12] (0 to 205 °C)	32 to 464 °F[12] (0 to 240 °C)	32 to 500 °F[12] (0 to 260 °C)	Up to 599 °F (315 °C)	★
C	Silicone 704 for Vacuum Applications	1.07	For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note (00840-2100-4016).				★
R	Silicone 705	1.09	68 to 401 °F[12] (20 to 205 °C)	68 to 464 °F[12] (20 to 240 °C)	68 to 500 °F[12] (20 to 260 °C)	Up to 698 °F (370 °C)	★
V	Silicone 705 for Vacuum Applications	1.09	For use in vacuum applications below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note (00840-2100-4016).				★
A	SYLTHERM XLT	0.85	-102 to 293 °F (-75 to 145 °C)	-102 to 293 °F (-75 to 145 °C)	-102 to 293 °F (-75 to 145 °C)	N/A	★
H	Inert (Halocarbon)	1.85	-49 to 320 °F (-45 to 160 °C)	-49 to 320 °F (-45 to 160 °C)	-49 to 320 °F (-45 to 160 °C)	N/A	★
G[13][14]	Glycerine and Water	1.13	5 to 203 °F (-15 to 95 °C)	5 to 203 °F (-15 to 95 °C)	5 to 203 °F (-15 to 95 °C)	N/A	★
N[13]	Neobee M-20	0.92	5 to 401 °F[12] (-15 to 205 °C)	5 to 437 °F (-15 to 225 °C)	5 to 437 °F (-15 to 225 °C)	N/A	★
P[13][14]	Propylene Glycol and Water	1.02	5 to 203 °F (-15 to 95 °C)	5 to 203 °F (-15 to 95 °C)	5 to 203 °F (-15 to 95 °C)	N/A	★
Y[15]	UltraTherm 805	1.20	N/A	N/A	N/A	Up to 770 °F (410 °C)	★
Z[15]	UltraTherm 805 for vacuum applications	1.20	For use in vacuum application below 14.7 psia (1 bar-a), refer to vapor pressure curves in Rosemount DP Level Fill Fluid Specification Technical Note 900840-2100-4016).				★

Table 9. Rosemount 3051SAL Scalable 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.

Continue specifying a completed model number by choosing a remote seal type below:

Flanged seal assemblies			Process connections
	page 88	FF Flush Flanged Seal	Process Connections: 2-in. / DN 50 / 50A 3-in. / DN 80 / 80A 4 in. / DN 100 / 100A
	page 91	EF Extended Flanged Seal	Process Connections: 3-in. / DN 80 / 80A 4-in. / DN 100 / 100A
	page 93	RF Remote Flanged Seal	Process Connections: ½ in. ¾ in. 1-in. / DN 25 / 25A 1½-in. / DN 40 / 40A
	page 96	PF Pancake Seal	2-in. / DN 50 / 50A 3-in. / DN 80 / 80A
	page 98	FC Flush Flanged Seal - Ring Type Joint (RTJ) Gasket Surface	2-in. 3-in.
	page 100	RC Ring Type Joint (RTJ) Flanged Seal	½-in ¾-in 1 in. 1½ in.
	page 102	RT Remote Threaded Seal	Process Connections: ¼ - 18 NPT ½ - 14 NPT ¾ - 14 NPT 1 - 11.5 NPT 1¼ - 11.5 NPT
	page 104	SC Hygienic Tri-Clamp Seal	Process Connections: 1½-in. 2-in. 3-in.
	page 105	SS Hygienic Tank Spud Seal	Process Connections: 4-in.

Table 9. Rosemount 3051SAL Scalable 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.

Wireless options (requires option code X and wireless PlantWeb housing)

Update rate		
WA[4]	User Configurable Update Rate	★
Operating frequency and protocol		
3	2.4 GHz DSSS, IEC 62591 (*Wireless*HART)	★
Omni-directional wireless antenna		
WK[4]	External Antenna	★
WM[4]	Extended Range, External Antenna	★
WN	High-Gain, Remote Antenna	
SmartPower		
1[16][17]	Adapter for Black Power Module (I.S. Power Module Sold Separately)	★

Other options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
PlantWeb control functionality		
A01[17][18][19]	FOUNDATION fieldbus Advanced Control Function Block Suite	★
PlantWeb diagnostic functionality		
D01[17][18]	FOUNDATION fieldbus Diagnostics Suite	★
DA2[20]	Advanced HART Diagnostics Suite	★
Mounting bracket		
B4	Bracket, all SST, 2-in. pipe panel	★
Software configuration		
C1[21]	Custom software configuration (requires Configuration Data Sheet)	★
Gage pressure calibration		
C3	Gage pressure calibration on Rosemount 3051SAL_ _A4 only	★
Alarm limit		
C4[18][21]	NAMUR alarm and saturation levels, high alarm	★
C5[18][21]	NAMUR alarm and saturation levels, low alarm	★
C6[18][21]	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
C7[18][21]	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
C8[18][21]	Low alarm (standard Rosemount alarm and saturation levels)	★

Table 9. Rosemount 3051SAL Scalable 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.

Hardware adjustments		
D1[18][21][22]	Hardware adjustments (zero, span, alarm, security)	★
Flange adapter		
D2	1/2-14 NPT flange adapter	★
D9	RC 1/2 SST flange adapter	
Ground screw		
D4[23]	External ground screw assembly	★
Drain/vent valve		
D5	Delete transmitter drain/vent valves (install plugs)	★
Conduit plug		
DO[24]	316 SST Conduit Plug	★
Product certifications[25]		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
IA	ATEX FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
N1	ATEX Type n	★
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust	★
ND	ATEX Dust	★
E4	TIIS Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe; Nonincendive	★
IE	FM FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
E6[26]	CSA Explosion-proof, Dust Ignition-proof, Division 2	★
I6	CSA Intrinsically Safe	★
IF	CSA FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
K6[26]	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
D3[27]	Measurement Canada Accuracy Approval	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
IG	IECEx FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
N7	IECEx Type n	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n	★
E2	INMETRO Flameproof	★

Table 9. Rosemount 3051SAL Scalable 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.

I2	INMETRO Intrinsic Safety	★
IB	INMETRO FISCO Intrinsic Safety	★
K2	INMETRO Flameproof, Intrinsic Safety	★
E3	China Flameproof	★
I3	China Intrinsic Safety, Dust Ignition-proof	★
EP	Korea Flameproof	★
IP	Korea Intrinsic Safety	★
KP	Korea Flameproof, Intrinsic Safety	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	★
KA[26]	ATEX and CSA Flameproof, Intrinsically Safe, Division 2	★
KB[26]	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, Division 2	★
KC	FM and ATEX Explosion-proof, Intrinsically Safe, Division 2	★
KD[26]	FM, CSA, and ATEX Explosion-proof, Intrinsically Safe	★
Shipboard approvals		
SBS	American Bureau of Shipping (ABS) Type Approval	★
SBV	Bureau Veritas (BV) Type Approval	★
SDN	Det Norske Veritas (DNV) Type Approval	★
SLL	Lloyds Register (LR) Type Approval	★
Sensor fill fluid		
L1[28]	Inert sensor fill fluid	★
O-ring		
L2	Graphite-filled PTFE O-ring	★
Bolting material		
L4	Austenitic 316 SST bolts	★
L5[29]	ASTM A193, Grade B7M bolts	★
L6	Alloy K-500 bolts	★
L7 [29]	ASTM A453, Class D, Grade 660 bolts	★
L8	ASTM A193, Class 2, Grade B8M bolts	★
Display type[30]		
M5[18][31][32]	PlantWeb LCD display	★
M7[18][31]	Remote mount LCD display and interface, PlantWeb housing, no cable, SST bracket	★
M8[18][31]	Remote mount LCD display and interface, PlantWeb housing, 50 ft. (15 m) cable, SST bracket	★
M9[18][31]	Remote mount LCD display and interface, PlantWeb housing, 100 ft. (31 m) cable, SST bracket	★

Table 9. Rosemount 3051SAL Scalable 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.

Pressure testing		
P1	Hydrostatic testing with certificate	
Special cleaning		
P2	Cleaning for special services	
P3	Cleaning for less than 1PPM Chlorine/Fluorine	
Calibration certification		
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★
Material traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★
Quality certification for safety		
QS[18][21]	Prior-use certificate of FMEDA Data	★
QT[33]	Safety-certified to IEC 61508 with certificate of FMEDA data	★
Toolkit performance reports		
QZ	Remote Seal System Performance Calculation Report	★
Transient protection		
T1[34][35]	Transient terminal block	★
Conduit electrical connector		
GE[36]	M12, 4-pin, Male Connector (eurofast)	★
GM[36]	A size Mini, 4-pin, Male Connector (minifast)	★
NACE certificate		
Q15[29]	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25[29]	Certificate of Compliance to NACE MR0103 for wetted materials	★
Typical model number: 3051SAL 1 C G 2A A 1A 10 20 D FF G 1 DA 0 0		

(1) For detailed specifications see "Specifications" on page 107.

(2) Requires PlantWeb housing.

(3) Only intrinsically safe approval codes apply.

(4) Only available with output code X.

(5) Available with output code A only. Available approvals are FM Intrinsically Safe; Nonincendive (option code I5), CSA Intrinsically Safe (option code I6), ATEX Intrinsic Safety (option code I1), or IECEx Intrinsic Safety (option code I7). Contact an Emerson Process Management representative for additional information.

(6) Low side seal identical to high side seal.

(7) Maximum working pressure (MWP) of the Thermal Range Expander is 1500 psi (103,4 bar).

(8) Requires separate Rosemount 1199 model number to be selected. With option code 1, user must select Seal Location Option code M (low side of transmitter) in the Rosemount 1199 Remote Mount Seal System Model.

(9) Capillary Length applies to both high and low side for Balanced Systems. Applies to Low Side Only For Tuned-System Assemblies. Applies to High Side Only for Remote Mount Single Seal Systems with Capillary.

(10) At ambient pressure of 14.7 psia (1 bar-a) and ambient temperature of 70 °F (21 °C). Temperature limits are reduced in vacuum service and may be limited by seal selection.

(11) For complete process and ambient temperature limits, see "Thermal Range Expander temperature operating range" on page 126.

(12)Maximum process temperature is limited by heat transfer to the transmitter electronics and must be further derated if ambient temperature exceeds 70 °F (21 °C).

(13) This is a food grade fill fluid.

(14) Not suitable for vacuum applications.

(15) Only available with Thermal Range Expander

(16) Long-Life Power Module must be shipped separately, order Power Module 701PBKKF.

(17) Not available with output code A.

(18) Not available with output code X.

(19) With option code 10, user must select Seal Location option code M in Table 7 of Rosemount DP Level PDS.

(20) Requires PlantWeb housing and Output code A. Includes Hardware Adjustments as standard.

(21) Not available with output code F.

(22) Not available with housing style codes 2E, 2F, 2G, 2M, 5A, 5J, or 7J.

(23) This assembly is included with options EP, KP, E1, N1, K1, ND, E4, E7, N7, K7, E2, E3, KA, KC, KD. IA, IB, IE. IF, IG, K2, T1, EM, and KM.

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

(25) Valid when SuperModule Platform and housing have equivalent approvals.

(26) Not available with M20 or G ½ conduit entry size.

(27) Requires PlantWeb housing and Hardware Adjustments option code D1. Limited availability depending on transmitter type and range. Contact an Emerson Process Management representative for additional information.

(28) Silicone fill fluid is standard.

(29) Materials of construction comply with metallurgical requirements highlighted within NACE MR0175 / ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments. Order with Q15 or Q25 to receive a NACE certificate.

(30) Not available with Housing code 01 or 7J.

(31) Not available with output code F, option code DA2, or option code QT.

(32) See the 3051S Reference Manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(33) Not available with output code F or X. Not available with housing code 7J.

(34) Not available with Housing code 5A, 5J, or 7J.

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

(36) Not available with Housing code 5A, 5J, or 7J. Available with Intrinsically Safe approvals only. For FM Intrinsically Safe; Nonincendive (option code I5) or FM FISCO Intrinsically Safe (option code IE), install in accordance with Rosemount drawing 03151-1009.

Diaphragm seals for 3051SAL

Flush Flanged (FF) Seal

- Most common seal
- Good for use in general applications
- Easy installation on flanged connections ranging from 2-in. (DN 50) to 4-in. (DN 100)

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 10. Flush Flanged (FF) Seal 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	Process connection			
FF	Flush Flanged Seal			
Process connection size				
	ANSI/ASME B16.5	**EN 1092-1/GOST 12815-80**	**JIS B2238**	
G	2-in.	DN 50	50 A	★
7	3-in.	N/A	80 A	★
J	N/A	DN 80	N/A	★
9	4-in.	DN 100	100 A	★
Flange/pressure rating				
1	ANSI/ASME B16.5 Class 150			★
2	ANSI/ASME B16.5 Class 300			★
4	ANSI/ASME B16.5 Class 600			★
G	PN 40 per EN 1092-1			★
5	ANSI/ASME B16.5 Class 900			
6	ANSI/ASME B16.5 Class 1500			
7	ANSI/ASME B16.5 Class 2500			
H	PN 63 per EN 1092-1			
J	PN 100 per EN 1092-1			
A	10K per JIS B2238			
B	20K per JIS B2238			
D	40K per JIS B2238			
E	PN 10/16 per EN 1092-1, Available with DN 100 only			
Materials of construction				
	Isolating diaphragm	**Upper housing**	**Flange**	
CA	316L SST	316L SST	CS	★
DA	316L SST	316L SST	316 SST	★

Table 10. Flush Flanged (FF) Seal 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.

CB[1]	Alloy C-276	316L SST	CS	★
DB[1]	Alloy C-276	316L SST	316 SST	★
CC	Tantalum	316L SST	CS	★
DC	Tantalum	316L SST	316 SST	★
Flushing connection ring (lower housing)[2]				
0	None			★
A	316 SST			★
B	Alloy C-276			★
Flushing connection quantity & size				
0	None			★
1	One 1/4-18 NPT Flushing Connection			★
3	Two 1/4-18 NPT Flushing Connections			★
7	One 1/2-14 NPT Flushing Connection			★
9	Two 1/2-14 NPT Flushing Connections			★

Options (include with selected model number)

Cold temperature remote seal applications		
SB	Extra Fill Fluid for Cold Temperature Applications	
Remote seal diaphragm thickness		
SC[3]	0.006-in. (150 µm) Diaphragm Thickness	
Flushing connection ring plugs		
SD	Alloy C-276 Plug(s) for Flushing Connection(s)	★
SG	SST Plug(s) for Flushing Connection(s)	★
SH	SST Drain/Vent(s) for Flushing Connection(s)	★
Flushing connection ring gaskets		
S0	No gasket for lower housing	★
SY	Thermo-tork TN-9000	★
SJ	PTFE Gasket	★
SK	Barium Sulfate-Filled PTFE Gasket	
SN	Grafoil Gasket	
Remote seal diaphragm coating		
SZ[3]	0.0002-in. (5 µm) Gold Plated Diaphragm	
SV	PTFE Coated Diaphragm for Non-Stick Purposes	

Table 10. Flush Flanged (FF) Seal 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.

Complete the 3051SAL model number by specifying options as needed:

page 71	ERS Transmitter Options	
page 83	Scalable Level Transmitter Options	

(1) Not available with option code SC.

(2) Supplied with Thermo-tork TN-9000 gasket if no other flushing connection ring gasket option is selected.

(3) Not available with Tantalum diaphragms (Material of Construction codes CC and DC).

Extended Flanged (EF) Seal

- Good for use in viscous applications with plugging issues
- Seal diaphragm installed flush with inner tank wall to prevent process plugging
- Easy installation on 3-in. (DN 80) and 4-in. (DN 100) flanged connections

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 11. Extended Flanged (EF) Seal 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	Process connection				
EF	Extended Flanged Seal				
Process connection size					
	ANSI/ASME B16.5	**EN 1092-1/GOST 12815-80**	**JIS B2238**	**Extension diameters**	
7	3-in. Schedule 80	DN 80	80A	2.58-in. (66 mm)	★
9	4-in. Schedule 80	DN 100	100A	3.50-in. (89 mm)	★
Flange/pressure rating					
1	ANSI/ASME B16.5 Class 150				★
2	ANSI/ASME B16.5 Class 300				★
4	ANSI/ASME B16.5 Class 600				★
G	PN 40 per EN 1092-1				★
5	ANSI/ASME B16.5 Class 900				
6	ANSI/ASME B16.5 Class 1500				
7	ANSI/ASME B16.5 Class 2500				
H	PN 63 per EN 1092-1				
J	PN 100 per EN 1092-1				
A	10K per JIS B2238				
B	20K per JIS B2238				
D	40K per JIS B2238				
E	PN 10/16 per EN 1092-1, Available with DN 100 only				
Materials of construction					
	Isolating diaphragm	**Extension/gasket surface**	**Mounting flange**		
CA	316L SST	316L SST	CS		★
DA	316L SST	316L SST	316 SST		★
CB	Alloy C-276	Alloy C-276	CS		★
DB	Alloy C-276	Alloy C-276	316 SST		★

Table 11. Extended Flanged (EF) Seal 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.

Seal extension length		
20	2-in. (50 mm)	★
40	4-in. (100 mm)	★
60	6-in. (150 mm)	★

Options (include with selected model number)

Cold temperature remote seal applications		
SB	Extra Fill Fluid for Cold Temperature Applications	★
Remote seal diaphragm thickness		
SC	0.006-in. (150 µm) Diaphragm Thickness	
Remote seal diaphragm coating		
SZ	0.0002-in. (5 µm) Gold Plated Diaphragm	
SV	PTFE Coated Diaphragm for Non-Stick Purposes	

Complete the 3051SAL model number by specifying options as needed:

page 71	ERS Transmitter Options	
page 83	Scalable Level Transmitter Options	

Remote Flanged (RF) Seal

- Designed to improve performance on smaller process connections
- Easy installation on flanged connections ranging from 1-in. to 1.5-in. (DN 25– DN 40)
- Lower housing/flushing ring required

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 127 for more information on Material Selection.

Table 12. Remote Flanged (RF) Seal 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	Process connection			
RF	Remote Flanged Seal			
Process connection size				
	ANSI/ASME B16.5	**EN 1092-1/GOST 12815-80**	**JIS B2238**	
2	1-in.	N/A	25A	★
4	$1^{1}/_{2}$-in.	N/A	40A	★
D	N/A	DN 25	N/A	★
F	N/A	DN 40	N/A	★
1	$^{1}/_{2}$-in.	N/A	N/A	
A	$^{3}/_{4}$-in.	N/A	N/A	
Flange/pressure rating				
1	ANSI/ASME B16.5 Class 150			★
2	ANSI/ASME B16.5 Class 300			★
4	ANSI/ASME B16.5 Class 600			★
G	PN 40 per EN 1092-1			★
5	ANSI/ASME B16.5 Class 900			
6	ANSI/ASME B16.5 Class 1500			
7	ANSI/ASME B16.5 Class 2500			
A	10K per JIS B2238			
B	20K per JIS B2238			
D	40K per JIS B2238			
Materials of construction				
	Isolating diaphragm	**Upper housing**	**Flange**	
CA	316L SST	316L SST	CS	★
DA	316L SST	316L SST	316 SST	★
CB	Alloy C-276	316L SST	CS	★

Table 12. Remote Flanged (RF) Seal 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.

DB	Alloy C-276	316L SST	316 SST	★
CC	Tantalum	316L SST	CS	★
DC	Tantalum	316L SST	316 SST	★
Flushing connection ring material (lower housing)[(1)]				
A	316L SST			★
B	Alloy C-276			★
D	Plated CS			★
Flushing connection quantity and size				
5	None			★
1	One ¼-18 NPT Flushing Connection			★
3	Two ¼-18 NPT Flushing Connections			★
7	One 1/2-14 NPT Flushing Connection			
9	Two 1/2-14 NPT Flushing Connections			

Options (include with selected model number)

Cold temperature remote seal application		
SB	Extra Fill Fluid for Cold Temperature Applications	★
Remote seal diaphragm thickness		
SC[(2)]	0.006-in. (150 µm) Diaphragm Thickness	
Flushing connection ring plugs		
SD	Alloy C-276 Plug(s) for Flushing Connection(s)	★
SG	316 SST Plug(s) for Flushing Connection(s)	★
SH	316 SST Drain/Vent(s) for Flushing Connection(s)	★
Flushing ring connection gaskets		
SY	C-4401 Gasket	★
SJ	PTFE Gasket	★
SR	Ethylene Propylene Gasket	
SN	Grafoil Gasket	
S6	TopChem 2000	
SK	Barium Sulfate-Filled PTFE Gasket	
Remote seal diaphragm coating		
SZ[(2)]	0.0002-in. (5 µm) Gold Plated Diaphragm	
SV	PTFE Coated Diaphragm for Non-Stick Purposes	

Table 12. Remote Flanged (RF) Seal 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.

Complete the 3051SAL model number by specifying options as needed:

page 71	ERS Transmitter Options	
page 83	Scalable Level Transmitter Options	

(1) Supplied with C-4401 Aramid fiber gasket if no other remote seal gasket material is selected.

(2) Not available with Tantalum diaphragms (Material of Construction codes CC and DC).

PF Pancake Seal

Table 13. PF Pancake Seal 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	Process connection			
PF	Pancake Seal			★
Process connection size				
	ANSI	**EN 1092-1/GOST 12815-80**	**JIS B2238**	
G	2-in.	DN 50	50A	★
7	3-in.	N/A	80A	★
J	N/A	DN 80	N/A	★
Flange/pressure rating				
	ANSI	**EN 1092-1/GOST 12815-80**		
0	No flanged supplied, seal MWP based on customer supplied flange	N/A		★
9	N/A	No flanged supplied, seal MWP based on customer supplied flange		★
1	Class 150	N/A		★
2	Class 300	N/A		★
4	Class 600	N/A		★
G	N/A	PN40		★
5	Class 900	N/A		
6	Class 1500	N/A		
7	Class 2500	N/A		
H	N/A	PN63		
J	N/A	PN100		
Diaphragm and wetted, upper housing, flange material				
	Diaphragm and wetted	**Upper housing**	**Flange**	
LA[(1)]	316L SST	316L SST	None	★
CA[(1)]	316L SST	316L SST	CS	★
DA[(1)]	316L SST	316L SST	316 SST	★
LB	Alloy C-276, Seam Welded	316L SST	None	★
CB	Alloy C-276, Seam Welded	316L SST	CS	★
DB	Alloy C-276, Seam Welded	316L SST	316 SST	★
LC	Tantalum, Seam Welded	316L SST	None	★
CC	Tantalum, Seam Welded	316L SST	CS	★
DC	Tantalum, Seam Welded	316L SST	316 SST	★

Table 13. PF Pancake Seal 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.

Flushing connection ring (lower housing)[2]		
0	None	★
A	316 SST	★
B	Alloy C-276	★
Flushing connection quantity & size		
0	None	★
1	One 1/4-18 NPT Flushing Connection	★
3	Two 1/4-18 NPT Flushing Connections	★
7	One 1/2-14 NPT Flushing Connection	★
9	Two 1/2-14 NPT Flushing Connections	★

Options (include with selected model number)

Flushing connection ring gaskets		
S0	No gasket for lower housing	★
SY	Thermo-tork TN-9000	★
SJ	PTFE Gasket	★
SK	Barium Sulfate-Filled PTFE Gasket	
SN	Grafoil Gasket	
Flushing connection ring plugs		
SD	Alloy C-276 Plug(s) for Flushing Connection(s)	★
SG	SST Plug(s) for Flushing Connection(s)	★
SH	SST Drain/Vent(s) for Flushing Connection(s)	★
Remote seal diaphragm thickness		
SC[3]	0.006-in. (150 µm) Diaphragm Thickness	
Cold temperature remote seal applications		
SB	Extra Fill Fluid for Cold Temperature Applications	
Remote seal diaphragm coating		
SZ[3]	0.0002-in. (5 µm) Gold Plated Diaphragm	
SV	PTFE Coated Diaphragm for Non-Stick Purposes	

Complete the 3051SAL model number by specifying options as needed:

page 83	Scalable Level Transmitter Options	

(1) For use with customer supplied spiral metallic gaskets.

(2) Supplied with Thermo-tork TN-9000 gasket if no other flushing connection ring gasket option is selected.

(3) Not available with Tantalum diaphragms (Material of Construction codes CC and DC).

FC Flush Flanged Seal - Ring Type Joint (RTJ) Gasket Surface

Table 14. FC Flush Flanged Seal - Ring Type Joint (RTJ) Gasket Surface 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	Process connection			
FC	Flush Flanged Seal - Ring Type Joint Gasket Surface			
Process connection size				
G	2-in.			
7	3-in.			
Flange/pressure rating				
1	Class 150			
2	Class 300			
4	Class 600			
5	Class 900			
6	Class 1500			
7	Class 2500			
Diaphragm and wetted, upper housing, flange material				
	Diaphragm and wetted	**Upper housing**	**Flange**	
DA	316L SST	316L SST	316 SST	
KB	Alloy C-276	316L SST	316 SST	
MB	Alloy C-276	316L SST	CS	
CA	316L SST	316L SST	CS	
Flushing connection ring material (lower housing)				
0	None			
A	316 SST			
B	Alloy C-276			
2	Duplex 2205 SST			
Flushing connection quantity and size				
0	None			
1	One 1/4-18 NPT Flushing Connection			
3	Two 1/4-18 NPT Flushing Connection			
7	One 1/2-14 NPT Flushing Connection			
9	Two 1/2-14 NPT Flushing Connection			

Table 14. FC Flush Flanged Seal - Ring Type Joint (RTJ) Gasket Surface 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)

Flushing ring connection plugs		
SD	Alloy C-276 plug(s) for flushing connection(s)	
SG	316 SST plug(s) for flushing connection(s)	
SH	316 SST vent/drain for flushing connection(s)	
Remote seal diaphragm thickness		
SC	0.006-in. (150 µm) available with 316L SST, Alloy C-276, and duplex 2507 SST for abrasive applications	
Cold temperature remote seal application		
SB	Extra fill for cold temp application	
Remote seal diaphragm coating		
SZ(1)	0.002-in. (5 µm) Gold plated diaphragm	
SV(1)	PTFE coated diaphragm for nonstick purposes only	

Complete the 3051SAL model number by specifying options as needed:

page 71	ERS Transmitter Options	
page 83	Scalable Level Transmitter Options	

(1) Only available on 316LSST and Alloy C-276.

RC Ring Type Joint (RTJ) Flanged Seal

Table 15. RC Ring Type Joint Flanged Seal 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	Process connection			
RC	Flush Flanged Seal - Ring Type Joint Gasket Surface			
Process connection size				
1	1/2-in. (Class 150 to 1500 includes mounting ring bolts and mounting studs)			
A	3/4-in. (Class 150 includes mounting ring bolts and mounting studs)			
2	1-in.			
4	1 1/2-in.			
Flange/pressure rating				
1	Class 150			
2	Class 300			
4	Class 600			
5	Class 900			
6	Class 1500			
7	Class 2500			
Diaphragm and wetted, upper housing, flange material				
	Diaphragm and wetted	**Upper housing**	**Flange**	
DA	316L SST	316L SST	316 SST	
DB	Alloy C-276	316L SST	316 SST	
DC	Tantalum	316L SST	316 SST	
Flushing connection ring material (lower housing)				
A	316L SST			
B	Alloy C-276			
F	304L SST			
H	Titanium Grade 4			
2	Duplex 2205 SST			
V	Alloy 400			
Flushing ring connection and size				
0	None			
1	One 1/4-18 NPT Flushing Connections			
3	Two 1/4-18 NPT Flushing Connection			
7	One 1/2-14 NPT Flushing Connection			
9	Two 1/2-14 NPT Flushing Connection			

Table 15. RC Ring Type Joint Flanged Seal 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)

Flushing connection ring gaskets		
SY	C-4401 Gasket	★
SJ	PTFE Gasket	★
SR	Ethylene Propylene Gasket	
SN	Grafoil Gasket	
S6	TopChem 2000	
SK	Barium Sulfate-Filled PTFE Gasket	
Flushing connection ring plugs		
SD	Alloy C-276 plug(s) for flushing connection(s)	
SG	316 SST plug(s) for flushing connection(s)	
SH	316 SST vent/drain for flushing connection(s)	
Remote seal diaphragm thickness		
C	0.006-in. (150 µm) available with 316L SST, Alloy C-276, and duplex 2507 SST for abrasive applications	
Bolt material (optional)		
3(1)	304 SST Bolts (only available for Stud Bolt Design)	
Cold temperature remote seal application		
SB	Extra fill for cold temp application	
Remote seal diaphragm coating		
SZ(2)	0.002-in. (5 µm) Gold plated diaphragm	
SV(1)	PTFE coated diaphragm for nonstick purposes only	

Complete the 3051SAL model number by specifying options as needed:

page 71	ERS Transmitter Options	
page 83	Scalable Level Transmitter Options	

(1) Standard stud bolts are Carbon Steel.

(2) Only available on 316LSST and Alloy C-276.

Remote Threaded (RT) Seal

- For use with threaded process connections ($^1/_4$-18 to 1-11.5 NPT)
- Rated for use in high-pressure applications (up to 2500 PSI)
- Optional flushing connections available

Table 16. RT Threaded Seal 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	Process connection			
RT	Remote Threaded Seal			★
Process connection size				
3	$^1/_2$-14 NPT			★
4	$^3/_4$-14 NPT			★
5	1-11.5 NPT			★
1	$^1/_4$-18 NPT			
6	$1^1/_4$ - 11.5 NPT			
Pressure rating				
0	2500 psi			★
Isolating diaphragm material		**Upper housing material**	**Flange**	
CA	316L SST	316L SST	CS	★
DA	316L SST	316L SST	316 SST	★
CB	Alloy C-276	316L SST	CS	★
DB	Alloy C-276	316L SST	316 SST	★
CC	Tantalum	316L SST	CS	★
DC	Tantalum	316L SST	316 SST	★
Flushing connection ring material (lower housing)[(1)(2)]				
A	316L SST			★
B	Alloy C-276			★
D	Plated CS			
Flushing ring connection quantity & size				
5	None			★
1	One $^1/_4$-in. Flushing Connection			★
3	Two $^1/_4$-in. Flushing Connections			★
7	One $^1/_2$-14 NPT Flushing Connection			
9	Two $^1/_2$-14 NPT Flushing Connection			

Table 16. RT Threaded Seal 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)

Cold temperature remote seal application		
SB	Extra Fill Fluid for Cold Temperature Applications	★
Remote seal diaphragm thickness		
SC(3)	0.006-in. (150 µm) Diaphragm Thickness	
Remote seal flushing plug, drain/vent		
SD	Alloy C-276 Plug(s) for Flushing Connection(s)	★
SG	316 SST Plug(s) for Flushing Connection(s)	★
SH	316 SST Drain/Vent(s) for Flushing Connection(s)	★
Remote seal gasket material		
SY	C-4401 Gasket (for use with Flushing Connection Ring)	★
SJ	PTFE Gasket (for use with Flushing Connection Ring)	★
SR	Ethylene Propylene Gasket (for use with Flushing Connection Ring)	★
SN	Grafoil Gasket (for use with Flushing Connection Ring)	★
S6	TopChem 2000 (for use with Flushing Connection Ring)	
SK	Barium Sulfate-Filled PTFE Gasket (for use with Flushing Connection Ring)	
Remote seal bolt		
S3	304 SST Bolts	★
S4	316 SST Bolts	
Remote seal diaphragm coating		
SZ(3)	0.0002-in. (5 µm) Gold Plated Diaphragm	
SV	PTFE Coated Diaphragm for Non-Stick Purposes	
Special threads in lower housing		
R9	Male Lower Housing Threads	

Complete the 3051SAL model number by specifying options as needed:

page 71	ERS Transmitter Options	
page 83	Scalable Level Transmitter Options	

(1) Supplied with C4401 aramid fiber gasket if no other remote seal gasket material is selected.

(2) Flushing Connection Ring/ Lower Housing assembly bolts provided as standard are carbon steel.

(3) Not available with Tantalum diaphragms (Material of Construction codes CC and DC).

Hygienic Tri-Clamp (SC) Seal

- Good for use in hygienic applications
- Easy installation on Tri-Clover style Tri-Clamp connections (1.5-in. to 3-in.)
- Conforms to 3-A standard 74-03

Table 17. SC Hygienic Tri-Clover Style Tri-Clamp Seal 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			
SC(1)	Tri-Clover Style Tri-Clamp Seal		★
Process connection size			
3(2)(3)	1½-in.		★
5(2)(4)	2-in.		★
7	3-in.		★
Maximum working pressure			
0	1000 PSI		★
Isolating diaphragm material		**Upper housing material**	
LA00	316L SST	316L SST	★
LB00	Alloy C-276	316L SST	

Options (include with selected model number)

Remote seal diaphragm polishing		
R6	Electropolishing	
Remote seal diaphragm surface finish		
RD	10 µin. (0.25 µm) R_a Diaphragm Surface Finish	
RG	15 µin. (0.375 µm) R_a Diaphragm Surface Finish	
RH	20 µin. (0.5 µm) R_a Diaphragm Surface Finish	
Surface finish certification		
Q16(5)	Surface Finish Certification for Hygienic Remote Seals	★

Complete the 3051SAL model number by specifying options as needed:

page 71	ERS Transmitter Options
page 83	Scalable Level Transmitter Options

(1) Clamp and gasket furnished by user. The maximum working pressure is dependent upon the clamp pressure rating.

(2) Consult factory for calibrated spans lower than 5 psi (345 mbar).

(3) 1000 inH2O or 2490 mbar for 1-1/2-in. SC.

(4) 150 inH2O or 373 mbar for 2-in. SC.

(5) Q16 is only available when the diaphragm seal has surface finish options (RD, RG, and RH).

Hygienic Tank Spud (SS) Seal

- Commonly used in hygienic level applications
- Seal diaphragm installed flush with inner tank wall
- Conforms to 3-A standard 74-03

Table 18. SS Hygienic Tank Spud Seal 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		
SS[(1)]	Hygienic Tank Spud Seal	★
Process connection size		
A	4-in. Sch. 5 Tri-Clamp	★
Maximum working pressure (clamp rating)		
0	600 PSI (41,37 bar)	★
Upper housing		
A	316L SST	★
Diaphragm and wetted, extension material		
	Diaphragm and wetted	**Extension**
AL	316L SST[(2)]	316L SST[(2)] ★
BB	Alloy C-276	316L SST
Extension length		
2	2-in. (50 mm) Extension	★
6	6-in. (150 mm) Extension	★

Options (include with selected model number)

Remote seal diaphragm thickness		
SC	0.006-in. (150 µm) Diaphragm Thickness	
Tank spud included with shipment		
S1	Tank Spud Included with Shipment	★
Remote seal diaphragm polishing		
R6	Electropolishing	
Remote seal diaphragm surface finish		
RH	20 µin. (0.5 µm) R_a Diaphragm Surface Finish	
RG[(3)]	15 µin. (0.375 µm) R_a Diaphragm Surface Finish	

Table 18. SS Hygienic Tank Spud Seal 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.

Additional options

Surface finish certification		
Q16[4]	Surface Finishing Certification for Hygienic Remote Seals	★

Complete the 3051SAL model number by specifying options as needed:

page 71	ERS Transmitter Options
page 83	Scalable Level Transmitter Options

(1) Clamp and Ethylene Propylene O-ring (conforms to 3-A standard 74 and USP class VI) supplied.

(2) Diaphragm brazed and TIG-welded to extension.

(3) Require Option code R6 (Electropolishing).

(4) Q16 is only available when the diaphragm seal has surface finish options (RG and RH).

Specifications

Performance specifications

For zero-based spans, reference conditions, silicone oil fill, glass-filled PTFE O-rings, SST materials, coplanar flange (3051SMV, 3051S_C) or 1/2 in.- 14 NPT (3051S_T) process connections, digital trim values set to equal range points.

Conformance to specification (±3σ [Sigma])

Technology leadership, advanced manufacturing techniques, and statistical process control ensure pressure measurement specification conformance to ±3σ or better.

Reference accuracy

Stated reference accuracy equations include terminal based linearity, hysteresis, and repeatability.

For FOUNDATION fieldbus and wireless devices, use calibrated range in place of span.

Transmitter with coplanar sensor module (single variable)[(1)]

Differential pressure (3051S_CD, 3051SMV_ _ 3 or 4) Gage pressure (3051S_CG, 3051SAM_ _G[(2)])			
	Ultra	**Classic**	**Ultra for Flow[(3)]**
Ranges 2 - 4	±0.025% of span; For spans less than 10:1, ±[0.005 + 0.0035(URL / Span)]% of span	±0.035% of span; For spans less than 10:1, ±[0.015 + 0.005(URL / Span)]% of span	±0.04% of reading up to 8:1 DP turndown from URL; ±[0.04 + 0.0023(URL / Reading)]% of reading to 200:1 DP turndown from URL
Range 5	±0.05% of span; For spans less than 10:1, ±[0.005 + 0.0045(URL / Span)]% of span	±0.065% of span; For spans less than 10:1, ±[0.015 + 0.005(URL / Span)]% of span	N/A
Range 1	±0.09% of span; For spans less than 15:1, ±[0.015 + 0.005(URL / Span)]% of span	±0.10% of span; For spans less than 15:1, ±[0.025 + 0.005(URL / Span)]% of span	N/A
Range 0	±0.09% of span; For spans less than 2:1, ±0.045% of URL	±0.10% of span; For spans less than 2:1, ±0.05% of URL	N/A
Absolute pressure (3051S_CA, 3051SAM_ _A[(2)])			
	Ultra	**Classic**	
Ranges 1 - 4	±0.025% of span; For spans less than 10:1, ±[0.004(URL / Span)]% of span	±0.035% of span; For spans less than 10:1, ±[0.0065(URL / Span)]% of span	
Range 0	±0.075% of span; For spans less than 5:1, ±[0.025 + 0.01(URL / Span)]% of span	±0.075% of span; For spans less than 5:1, ±[0.025 + 0.01(URL / Span)]% of span	

(1) For 3051S Transmitters assembled to 1199 remote seals, use 3051SAL specifications.

(2) Specifications are for each gage/absolute pressure sensor of the ERS system and are not reflective of the DP calculation.

(3) Ultra for Flow is only available for 3051S_CD ranges 2-3. For calibrated spans from 1:1 to 2:1 of URL, add ±0.005% of span analog output error.

Transmitter with In-Line sensor module[1]

Absolute pressure (3051S_TA, 3051SAM_ _E[2]) Gage pressure (3051S_TG, 3051SAM_ _T[2])		
	Ultra	**Classic**
Ranges 1 - 4	±0.025% of span For spans less than 10:1, ±[0.004(URL / Span)]% of span	±0.035% of span For spans less than 10:1, ±[0.0065(URL / Span)]% of span
Range 5:	±0.04% of span. For spans less than 10:1 ±0.004% of URL.	±0.065% of span. For spans less than 10:1 ±0.0065% of URL.

(1) For 3051S transmitters assembled to 1199 remote seals, use 3051SAL specifications.

(2) Specifications are for each gage / absolute pressure sensor of the ERS system and are not reflective of the DP calculation.

Transmitter with MultiVariable sensor module[1]

Differential pressure and static pressure (3051SMV_ _1 or 2)		
	Classic MV	**Ultra for Flow[2]**
DP Ranges 2-3	±0.04% of span For spans less than 10:1, ±[0.01 + 0.004(URL / Span)]% of span	±0.04% of reading up to 8:1 DP turndown from URL ±[0.04 + 0.0023(URL / Reading)]% of reading to 200:1 DP turndown from URL
DP Range 4	±0.055% of span For spans less than 10:1, ±[0.015 + 0.005(URL/Span)]% of span	±0.05% of reading up to 3:1 DP turndown from URL ±[0.05 + 0.0145(URL/RDG)]% of reading to 100:1 DP turndown from URL
DP Range 5	±0.065% of span For spans less than 10:1, ±[0.015 + 0.005(URL/Span)]% of span	N/A
DP Range 1	±0.10% of span For spans less than 15:1, ±[0.025 + 0.005(URL / Span)]% of span	N/A
AP & GP Ranges 3-4[3]	±0.055% of span For spans less than 10:1, ±[0.0065(URL / Span)]% of span	±0.025% of span For spans less than 10:1, ±[0.004(URL / Span)]% of span

(1) For 3051S Transmitters assembled to 1199 remote seals, use 3051SAL specifications.

(2) Ultra for Flow is only available for 3051SMV DP ranges 2-4. For calibrated DP spans from 1:1 to 2:1 of URL, add ±0.005% of span analog output error.

(3) For DP range 4 or 5, Classic MV and Ultra for Flow static pressure accuracy is +/-0.055% of span. For spans less than 5:1, +/-[0.013(URL/Span)]% of span.

Liquid level transmitter

3051SAL		
	Ultra	**Classic**
Ranges 2 - 5	±0.055% of span For spans less than 10:1, ±[0.015 + 0.005(URL / Span)]% of span	±0.065% of span For spans less than 10:1, ±[0.015 + 0.005(URL / Span)]% of span

Process temperature RTD interface[1]

Process temperature (3051SMV_ _1 or 3)
±0.67 °F (0.37 °C)

(1) Specifications for process temperature are for the transmitter portion only. The transmitter is compatible with any Pt 100 (100 ohm platinum) RTD. Examples of compatible RTDs include Rosemount series 68 and 78 RTD Temperature Sensors.

DP reference accuracy of 3051S ERS System[1]

2 coplanar gage transmitters (3051SAM_ _G)		
	Ultra	**Classic**
Ranges 2-4	±0.035% of DP span	±0.078% of DP span
Range 5	±0.071% of DP span	±0.092% of DP span
2 coplanar absolute transmitters (3051SAM_ _A)		
	Ultra	**Classic**
Ranges 1-4	±0.035% of DP span	±0.078% of DP span
2 In-Line gage transmitters (3051SAM_ _T) 2 In-Line absolute transmitters (3051SAM_ _E)		
	Ultra	**Classic**
Ranges 1-4	±0.035% of DP span	±0.078% of DP span
2 Liquid level transmitters (3051SAL)		
	Ultra	**Classic**
Ranges 1-4	±0.092% of DP span	±0.092% of DP span

(1) Reference Accuracy specifications for ERS system assume that the configuration contains two transmitters with identical sensor ranges, each transmitter sensor is calibrated 0 – URL, and the DP Span = 10% of transmitter URL.

Transmitter total performance

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

Models		Ultra	Classic and Classic MV	Ultra for Flow[1]
3051S_CD	Ranges 2-3	±0.1% of span For ±50 °F (28 °C) temperature changes; 0-100% relative humidity, from 1:1 to 5:1 rangedown	±0.14% of span For ±50 F (28 °C) temperature changes, 0-100% relative humidity, from 1:1 to 5:1 rangedown	±0.15% of reading For ±50 °F (28 °C) temperature changes, 0-100% relative humidity, over 8:1 DP turndown from URL
3051S_CG	Ranges 2-5			
3051S_CA	Ranges 2-4			
3051S_T	Ranges 2-4			
3051SMV[2]	DP Ranges 2-3			
3051SAM_ _G[3]	Ranges 2-5			
3051SAM_ _A[3]	Ranges 2-4			
3051SAM_ _T[3]	Ranges 2-4			
3051SAM_ _E[3]	Ranges 2-4			
3051SAL		Use Instrument Toolkit™ or the QZ Option to quantify the total performance of a remote seal assembly under operating conditions.		

(1) Ultra for Flow is only available for 3051S_CD Ranges 2-3 and 3051SMV DP Ranges 2-4.

(2) For 3051SMV, Transmitter Total Performance specification applies to differential pressure measurement only.

(3) Specifications are for each gage / absolute pressure sensor of the ERS system and are not reflective of the DP calculation.

MultiVariable flow performance[1]

Mass, energy, actual volumetric, and totalized flow reference accuracy

Models	Ultra for Flow	Classic MV
3051SMV[2]		
DP Ranges 2-3	±0.65% of Flow Rate over a 14:1 flow range (200:1 DP range)	±0.70% of Flow Rate over 8:1 flow range (64:1 DP range)
DP Range 1	N/A	±0.90% of Flow Rate over 8:1 flow range (64:1 DP range)
Annubar Flowmeter (3051SFA)		
Ranges 2-3	±0.80% of flow rate at 14:1 flow turndown	±1.15% of flow rate at 8:1 flow turndown
Compact Annubar Flowmeter (3051SFC_A)		
Ranges 2-3		
Standard	±1.55% of flow rate at 14:1 flow turndown	±1.60% of flow rate at 8:1 flow turndown
Calibrated	±0.80% of flow rate at 14:1 flow turndown	±1.00% of flow rate at 8:1 flow turndown
Compact Conditioning Orifice Flowmeter (3051SFC_C)		
Ranges 2-3		
$\beta = 0.4$	±0.75% of flow rate at 14:1 flow turndown	±1.10% of flow rate at 8:1 flow turndown
$\beta = 0.50, 0.65$	±1.15% of flow rate at 14:1 flow turndown	±1.45% of flow rate at 8:1 flow turndown
Compact Orifice Flowmeter[3] (3051SFC_P)		
Ranges 2-3		
$\beta = 0.4$	±1.30% of flow rate at 14:1 flow turndown	±1.45% of flow rate at 8:1 flow turndown
$\beta = 0.50, 0.65$	±1.30% of flow rate at 14:1 flow turndown	±1.45% of flow rate at 8:1 flow turndown
Integral Orifice Flowmeter (3051SFP)		
Ranges 2-3		
Bore < 0.160	±2.55% of flow rate at 14:1 flow turndown	±2.65% of flow rate at 8:1 flow turndown
0.160 ≤ Bore < 0.500	±1.55% of flow rate at 14:1 flow turndown	±1.70% of flow rate at 8:1 flow turndown
0.500 ≤ Bore ≤ 1.000	±1.05% of flow rate at 14:1 flow turndown	±1.25% of flow rate at 8:1 flow turndown
1.000 < Bore	±1.55% of flow rate at 14:1 flow turndown	±1.70% of flow rate at 8:1 flow turndown

(1) Flow performance specifications assume device is configured for full compensation of static pressure, process temperature, density, viscosity, gas expansion, discharge coefficient, and thermal correction variances over a specified operating range using MultiVariable Type M or Flowmeter Measurement Types 1 through 4.

(2) Uncalibrated differential producer (0.2 < beta < 0.6 Orifice) installed per ASME MFC 3M or ISO 5167-1. Uncertainties for discharge coefficient, producer bore, tube diameter, and gas expansion factor as defined in ASME MFC 3M or ISO 5167-1. Reference accuracy does not include RTD sensor accuracy.

(3) For line sizes less than 2-in. (50mm) or greater than 8 in. (200 mm), see the Rosemount DP Flowmeters and Primary Elements Product Data Sheet (document number 00813-0100-4485).

Uncompensated flow performance

Flow performance specifications assume the device only uses DP readings without pressure and temperature compensation.

Models	Ultra	Classic	Ultra for Flow
Annubar Flowmeter (3051SFA)			
Ranges 2-3	±0.95% of flow rate at 8:1 flow turndown	±1.25% of flow rate at 8:1 flow turndown	±0.80% of flow rate at 14:1 flow turndown
Compact Conditioning Orifice Flowmeter (3051SFC_C)			
Ranges 2-3			
β = 0.4	±0.90% of flow rate at 8:1 flow turndown	±1.10% of flow rate at 8:1 flow turndown	±0.75% of flow rate at 14:1 flow turndown
β = 0.50, 0.65	±1.25% of flow rate at 8:1 flow turndown	±1.40% of flow rate at 8:1 flow turndown	±1.15% of flow rate at 14:1 flow turndown
Compact Annubar Flowmeter (3051SFC_A)			
Ranges 2-3			
Uncalibrated	±1.65% of flow rate at 8:1 flow turndown	±1.70% of flow rate at 8:1 flow turndown	±1.55% of flow rate at 14:1 flow turndown
Calibrated	±0.95% of flow rate at 8:1 flow turndown	±1.25% of flow rate at 8:1 flow turndown	±0.80% of flow rate at 14:1 flow turndown
Compact Orifice Flowmeter[(1)] (3051SFC_P)			
Ranges 2-3			
β = 0.4	±1.35% of flow rate at 8:1 flow turndown	±1.80% of flow rate at 8:1 flow turndown	±1.30% of flow rate at 14:1 flow turndown
β = 0.50, 0.65	±1.35% of flow rate at 8:1 flow turndown	±1.80% of flow rate at 8:1 flow turndown	±1.30% of flow rate at 14:1 flow turndown
Integral Orifice Flowmeter (3051SFP)			
Ranges 2-3			
Bore < 0.160	±2.65% of flow rate at 8:1 flow turndown	±2.70% of flow rate at 8:1 flow turndown	±2.60% of flow rate at 14:1 flow turndown
0.160 ≤ Bore < 0.500	±1.70% of flow rate at 8:1 flow turndown	±1.80% of flow rate at 8:1 flow turndown	±1.60% of flow rate at 14:1 flow turndown
0.500 ≤ Bore ≤ 1.000	±1.25% of flow rate at 8:1 flow turndown	±1.35% of flow rate at 8:1 flow turndown	±1.15% of flow rate at 14:1 flow turndown
1.000 < Bore	±1.70% of flow rate at 8:1 flow turndown	±1.80% of flow rate at 8:1 flow turndown	±1.60% of flow rate at 14:1 flow turndown

(1) For line sizes less than 2-in. (50mm) or greater than 8 in. (200 mm), see the Rosemount DP Flowmeters and Primary Elements Product Data Sheet (document number 00813-0100-4485).

Long term stability

Pressure

Models		Ultra and Ultra for Flow[1]	Classic and Classic MV
3051S_CD	Ranges 2-5	±0.15% of URL for 15 years; for ±50 °F (28 °C) temperature changes, up to 1000 psi (68,95 bar) line pressure	±0.20% of URL for 15 years; for ±50 °F (28 °C) temperature changes, up to 1000 psi (68,95 bar) line pressure
3051S_CG	Ranges 2-5		
3051S_CA	Ranges 1-4		
3051S_T	Ranges 1-5		
3051SAM_ _G[2]	Ranges 2-5		
3051SAM_ _A[2]	Ranges 1-4		
3051SAM_ _T[2]	Ranges 1-5		
3051SAM_ _E[2]	Ranges 1-5		
3051SMV_ _3,4	Ranges 2-5		
3051SF_ _D,3,4	Ranges 2-5		
3051SMV_ _1,2	DP Ranges 2-5	±0.20% of URL for 10 years; for ±50 °F (28 °C) temperature changes, up to 1000 psi (68,95 bar) line pressure	±0.125% of URL for 5 years; for ±50 °F (28 °C) temperature changes, up to 1000 psi (68,95 bar) line pressure
3051SF_1,2	AP & GP Ranges 3-4		

(1) Ultra is only available for 3051S, 3051SMV_ _3 and 4, 3051SF_3, 4, 7, and D. Ultra for Flow is only available on 3051S_CD ranges 2-3, 3051SMV DP ranges 2-4, and 3051SF DP ranges 2-3.

(2) Specifications are for each gage / absolute pressure sensor of the ERS system and are not reflective of the DP calculation.

Process temperature[1]

Models		
3051SMV 3051SF	RTD Interface[1]	The greater of ±0.185 °F (0.103 °C) or 0.1% of reading per year (excludes RTD sensor stability).

(1) Specifications for process temperature are for the transmitter portion only. The transmitter is compatible with any Pt 100 (100 ohm platinum) RTD. Examples of compatible RTDs include the Rosemount Series 68 and 78 RTD Temperature Sensors.

Warranty[1]

Models	Ultra and Ultra for Flow	Classic and Classic MV
All 3051S Products[1]	15-year limited warranty[2]	1-year limited warranty[3]

(1) Warranty details can be found in Emerson Process Management Terms & Conditions of Sale, Document 63445, Rev G (10/06).

(2) Rosemount Ultra and Ultra for Flow transmitters have a limited warranty of fifteen (15) years from date of shipment. All other provisions of Emerson Process Management standard limited warranty remain the same.

(3) Goods are warranted for twelve (12) months from the date of initial installation or eighteen (18) months from the date of shipment by seller, whichever period expires first.

Dynamic performance

Total time response at 75 °F (24 °C), includes dead time[1][2]

3051S_C 3051SF_D	3051S_T	3051SMV_ _1 or 2 3051SF_1, 2, 5, or 6	3051SMV_ _3 or 4 3051SF_3, 4, or 7	ERS System (3051SAM)
DP Ranges 2-5: 100 ms Range 1: 255 ms Range 0: 700 ms	100 ms	DP Range 1: 310 ms DP Range 2: 170 ms DP Range 3: 155 ms AP & GP: 240 ms	DP Ranges 2-5: 145 ms DP Range 1: 300 ms DP Range 0: 745 ms	360 ms

(1) For FOUNDATION fieldbus (output code F), add 52 ms to stated values (not including segment macro-cycle). For option code DA2, add 45 ms (nominal) to stated values.

(2) Consult Instrument Toolkit for transmitter configurations with remote seals including 3051SAL.

Dead time[1]

3051S_C 3051S_T 3051SF_D 3051SAL_C	3051SMV 3051SF_1-7	ERS System (includes 3051SAM, 3051SAL_P, and 3051SAL_S models)
45 ms (nominal)	DP: 100 ms AP & GP: 140 ms RTD Interface: 1 s	220 ms

(1) For option code DA2, dead time is 90 milliseconds (nominal).

Sensor update rate[1]

3051S_C or T 3051SF_D 3051SAL_C	3051SMV 3051SF_1-7		ERS System (includes 3051SAM, 3051SAL_P, and 3051SAL_S models)
22 updates per sec.	DP: 22 updates per sec. AP & GP: 11 updates per sec. RTD Interface: 1 update per sec.	Calculated Variables: Mass / Volumetric Flow Rate: 22 updates per sec. Energy Flow Rate: 22 updates per sec. Totalized Flow: 1 update per sec.	11 updates per sec.

(1) Does not apply to Wireless (output code X). See "IEC 62591 (WirelessHART)" on page 123 for wireless update rate.

Ambient temperature effect

Transmitter with coplanar sensor module (single variable)

Differential pressure: (3051S_CD, 3051SMV_ _3 or 4) Gage pressure: (3051S_CG, 3051SAM_ _G[1])			
	Ultra per 50 °F (28 °C)	**Classic per 50 °F (28 °C)**	**Ultra for Flow[2] -40 to 185 °F (-40 to 85 °C)**
Ranges 2 - 5[3]	±(0.009% URL + 0.025% span) from 1:1 to 10:1; ±(0.018% URL + 0.08% span) from >10:1 to 200:1	±(0.0125% URL +0.0625% span) from 1:1 to 5:1; ±(0.025% URL + 0.125% span) from >5:1 to 150:1	±0.13% of reading up to 8:1 DP turndown from URL; ±[0.13 + 0.0187(URL/Reading)]% of reading to 100:1 DP turndown from URL
Range 0	±(0.25% URL + 0.05% span) from 1:1 to 30:1	±(0.25% URL + 0.05% span) from 1:1 to 30:1	N/A
Range 1	±(0.1% URL + 0.25% span) from 1:1 to 50:1	±(0.1% URL + 0.25% span) from 1:1 to 50:1	N/A
Absolute pressure: (3051S_CA, 3051SAM_ _A[1])			
	Ultra per 50 °F (28 °C)	**Classic per 50 °F (28 °C)**	
Ranges 2-4	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1; ±(0.025% URL + 0.125% span) from >5:1 to 200:1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1; ±(0.025% URL + 0.125% span) from >5:1 to 150:1	
Range 0	±(0.1% URL + 0.25% span) from 1:1 to 30:1	±(0.1% URL + 0.25% span) from 1:1 to 30:1	
Range 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	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1; ±(0.025% URL + 0.125% span) from >5:1 to 100:1	

(1) Specifications are for each gage/absolute pressure sensor of the ERS system and are not reflective of the DP calculation.

(2) Ultra for Flow is only available for 3051S_CD Ranges 2-3 and 3051SMV DP Ranges 2-3.

(3) Use Classic specification for 3051SMV DP Range 5 Ultra and 3051S_CD Range 5 Ultra.

Transmitter with in-line sensor module

Absolute pressure: (3051S_TA, 3051SAM_ _E[1]) Gage pressure: (3051S_TG, 3051SAM_ _T[1])		
	Ultra per 50 °F (28 °C)	**Classic per 50 °F (28 °C)**
Ranges 2-4	±(0.009% URL + 0.025% span) from 1:1 to 10:1; ±(0.018% URL + 0.08% span) from >10:1 to 200:1	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1; ±(0.025% URL + 0.125% span) from >5:1 to 150:1
Range 5	±(0.05% URL + 0.075% span) from 1:1 to 10:1	±(0.05% URL + 0.075% span) from 1:1 to 10:1
Range 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	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1; ±(0.025% URL + 0.125% span) from >5:1 to 100:1

(1) Specifications are for each gage/absolute pressure sensor of the ERS system and are not reflective of the DP calculation.

Transmitter with multivariable sensor module

Differential pressure and static pressure (3051SMV_ _1 or 2)		
Models	**Classic MV Per 50 °F (28 °C)**	**Ultra for Flow -40 to 185 °F (-40 to 85 °C)**
DP Ranges 2-3	±(0.0125% URL + 0.0625% span) from 1:1 to 5:1; ±(0.025% URL + 0.125% span) for >5:1 to 100:1	±0.13 reading up to 8:1 DP turndown from URL; ±[0.13 + 0.0187(URL/Reading)]% reading to 100:1 DP turndown from URL
DP Range 4	±(0.025% URL + 0.125% span) from 1:1 to 30:1 ±(0.035% URL + 0.125% span) from 30:1 to 100:1	±0.130% of reading less than or equal to 3:1 ±[0.050 + 0.065 (URL/RDG)]% of reading greater than 3:1
DP Range 5	±(0.025% URL + 0.125% span) from 1:1 to 30:1 ±(0.035% URL + 0.125% span) from 30:1 to 100:1	N/A
DP Range 1	±(0.1% URL + 0.25% span) from 1:1 to 50:1	Not available
AP & GP	±(0.0125% URL + 0.0625% span) from 1:1 to 10:1; ±(0.025% URL + 0.125% span) for >10:1 to 100:1	±(0.009% URL + 0.025% span) from 1:1 to 10:1; ±(0.018% URL + 0.08% span) for >10:1(1)

(1) For DP range 4 or 5, Ultra for Flow ambient temperature effect on static pressure is +/-(0.0125% URL + 0.0625% Span) from 1:1 to 10:1; +/-(0.025% URL + 0.125% Span) for >10:1.

Liquid level transmitter

3051SAL	
Ultra	**Classic**
See Instrument Toolkit.	See Instrument Toolkit.

Process temperature RTD interface(1)

Process temperature (3051SMV_ _1 or 3)	
Classic MV Per 50 °F (28 °C)(1)	**Ultra for Flow -40 to 185 °F (-40 to 85 °C)**
±0.39 °F (0,216 °C) per 50 °F (28 °C)	±0.39 °F (0,216 °C) per 50 °F (28 °C)

(1) Specifications for process temperature are for the transmitter portion only. The transmitter is compatible with any Pt 100 (100 ohm platinum) RTD. Examples of compatible RTDs include Rosemount series 68 and 78 RTD Temperature Sensors.

Line pressure effect[(1)]

3051S_CD 3051SMV (DP Measurement Only)	Ultra and Ultra for Flow	Classic and Classic MV
Zero Error[(2)]		
Range 2-3	± 0.025% URL per 1000 psi (68,95 bar)	± 0.05% URL per 1000 psi (68,95 bar)
Range 0	± 0.125% URL per 100 psi (6,89 bar)	± 0.125% URL per 100 psi (6,89 bar)
Range 1	± 0.25% URL per 1000 psi (68,95 bar)	± 0.25% URL per 1000 psi (68,95 bar)
Span Error[(3)]		
Range 2-3	± 0.1% of reading per 1000 psi (68,95 bar)	± 0.1% of reading per 1000 psi (68,95 bar)
Range 0	± 0.15% of reading per 100 psi (6,89 bar)	± 0.15% of reading per 100 psi (6,89 bar)
Range 1	± 0.4% of reading per 1000 psi (68,95 bar)	± 0.4% of reading per 1000 psi (68,95 bar)

(1) For zero error specifications for line pressures above 2000 psi (137,89 bar) or line pressure effect specifications for DP Ranges 4-5, see the 3051SMV Reference Manual (document number 00809-0100-4803) or 3051S Reference Manual (document number 00809-0100-4801).

(2) Zero error can be removed by performing a zero trim at line pressure.

(3) Specifications for option code P0 are 2 times those shown above.

Mounting position effects

Models		Ultra, Ultra for Flow, Classic and Classic MV
3051S_CD or CG 3051SMV_ _ 3 or 4 3051SF_3, 4, 7, or D 3051SAM_ _G		Zero shifts up to ±1.25 inH_2O (3,11 mbar), which can be zeroed Span: no effect
3051S_CA 3051S_T 3051SAM_ _A, T, or E		Zero shifts to ±2.5 inH_2O (6,22 mbar), which can be zeroed Span: no effect
3051SMV_ _ 1 or 2 3051SF_1, 2, 5, or 6	DP Sensor:	Zero shifts up to ±1.25 inH_2O (3,11 mbar), which can be zeroed Span: no effect
	GP/AP Sensor:	Zero shifts to ±2.5 inH_2O (6,22 mbar), which can be zeroed Span: no effect
3051SAL		With liquid level diaphragm in vertical plane, zero shift of up to ±1 inH_2O (2,49 mbar). With diaphragm in vertical plane, zero shift of up to ±5 inH_2O (12,43 mbar) plus extension length on extended units. All zero shifts can be zeroed. Span: no 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 0.21 mm displacement peak amplitude / 60-2000 Hz 3g).

For Housing Style codes 1J, 1K, 1L, 2J, and 2M:
Less than ±0.1% of URL when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz 0.15 mm displacement peak amplitude / 60-500 Hz 2g).

Power supply effect

Less than ±0.005% of calibrated span per volt change in voltage at the transmitter terminals

Electromagnetic compatibility (EMC)

Meets all relevant requirements of EN 61326 and NAMUR NE-21.[(1)(2)]

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

(2) 3051SMV and 3051SF_1, 2, 3, 4, 5, 6, 7 requires shielded cable for both temperature and loop wiring.

Transient protection (option T1)

Tested in accordance with IEEE C62.41.2-2002, Location Category B

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

Functional specifications

Range and sensor limits

Transmitter with coplanar sensor module (single variable)

Range	DP Sensor[1] (3051S_CD, 3051SMV_ _3, 4, or D 3051SF_3, 4, or 7, 3051SAL_CD)		GP Sensor (3051S_CG, 3051SAM_ _G, 3051SAL_ _G)		AP Sensor[2] (3051S_CA, 3051SAM_ _A, 3051SAL_ _A)	
	Lower (LRL)[3]	Upper (URL)	Lower (LRL)[4]	Upper (URL)	Lower (LRL)	Upper (URL)
0	-3.00 inH_2O (-7,45 mbar)	3.00 inH_2O (7,45 mbar)	N/A	N/A	0 psia (0 bar)	5.00 psia (0,34 bar)
1	-25.00 inH_2O (-62,16 mbar)	25.00 inH_2O (62,16 mbar)	-25.00 inH_2O (-62,16 mbar)	25.00 inH_2O (62,16 mbar)	0 psia (0 bar)	30.00 psia (2,06 bar)
2	-250.00 inH_2O (-621,60 mbar)	250.00 inH_2O (621,60 mbar)	-250.00 inH_2O (-621,60 mbar)	250.00 inH_2O (621,60 mbar)	0 psia (0 bar)	150.00 psia (10,34 bar)
3	-1000.00 inH_2O (-2,48 bar)	1000.00 inH_2O (2,48 bar)	0.50 psia (34,47 mbar)	1000.00 inH_2O (2,48 bar)	0 psia (0 bar)	800.00 psia (55,15 bar)
4	-300.00 psi (-20,68 bar)	300.00 psi (20,68 bar)	0.50 psia (34,47 mbar)	300.00 psi (20,68 bar)	0 psia (0 bar)	4000.00 psia (275,79 bar)
5	-2000.00 psi (-137,89 bar)	2000.00 psi (137,89 bar)	0.50 psia (34,47 mbar)	2000.00 psi (137,89 bar)	N/A	N/A

(1) 3051SF Flowmeters only available with ranges 1, 2, and 3.

(2) Range 0 is not available for 3051SAL_ _A.

(3) The Lower Range Limit (LRL) is 0 inH_20 (0 mbar) for Ultra for Flow Performance Class and 3051SF flowmeters.

(4) Assumes atmospheric pressure of 14.7 psia (1 bar-a).

Transmitter with in-line sensor module

Range	GP Sensor (3051S_TG, 3051SAM_ _T, 3051SAL_ _T)		AP Sensor (3051S_TA, 3051SAM_ _E, 3051SAL_ _E)	
	Lower (LRL)[1]	Upper (URL)	Lower (LRL)	Upper (URL)
1	-14.70 psig (-1,01 bar)	30.00 psig (2,06 bar)	0 psia (0 bar)	30.00 psia (2,06 bar)
2	-14.70 psig (-1,01 bar)	150.00 psig (10,34 bar)	0 psia (0 bar)	150.00 psia (10,34 bar)
3	-14.70 psig (-1,01 bar)	800.00 psig (55,15 bar)	0 psia (0 bar)	800.00psia (55,15 bar)
4	-14.70 psig (-1,01 bar)	4000.00 psig (275,79 bar)	0 psia (0 bar)	4000.00 psia (275,79 bar)
5	-14.70 psig (-1,01 bar)	10000.00 psig (689,47 bar)	0 psia (0 bar)	10000.00 psia (689,47 bar)

(1) Assumes atmospheric pressure of 14.7 psia (1 bar-a).

Transmitter with multivariable sensor module
(3051SMV_ _1, 3051SMV_ _2, 3051SF_1, 3051SF_2, 3051SF_5, and 3051SF_6)

Range	DP Sensor	
	Lower (LRL)[1]	Upper (URL)
1	25.00 inH_2O (-62,16 mbar)	25.00 inH_2O (62,16 mbar)
2	-250.00 inH_2O (-621,60 mbar)	250.00 inH_2O (621,60 mbar)
3	1000.00 inH_2O (-2,48 bar)	1000.00 inH_2O (2,48 bar)
4	150.00 psi (-10,34 bar)	150.00 psi (10,34 bar)
5	-2000.00 psi (137,89 bar)	2000.00 psi (137,89 bar)

(1) Lower (LRL) is 0 inH_2O (0 mbar) for Ultra for Flow and 3051SF_ Flowmeters.

Range	Static pressure sensor (GP/AP)	
	Lower (LRL)	Upper (URL)[1]
3	GP[2][3]: 14.20 psig (0,97 bar) AP: 0.5 psia (34,47 mbar)	GP: 800.00 psig (55,15 bar) AP: 800.00 psia (55,15 bar)
4	GP[2][3]: 14.20 psig (0,97 bar) AP: 0.50 psia (34,47 mbar)	GP: 3626.00 psig (250,00 bar) AP: 3626.00 psia (250,00 bar)

(1) For SP Range 4 with DP Range 1, the URL is 2000 psi (137,9 bar).

(2) Inert Fill: Minimum pressure = 1.5 psia (0,10 bar) or -13.2 psig (-0,91 bar).

(3) Assumes atmospheric pressure of 14.7 psia (1 bar-a).

Process temperature RTD Interface
(3051SMV_ _1 or 3, 3051SF_1, 3, 5 or 7)[1]

Lower (LRL)	Upper (URL)
-328 °F (-200 °C)	1562 °F (850 °C)

(1) Transmitter is compatible with any Pt 100 RTD sensor. Examples of compatible RTDs include Rosemount Series 68 and 78 RTD Temperature Sensors.

Minimum span limits

Transmitter with coplanar sensor module (single variable)

Range	DP Sensor[1] (3051S_CD, 3051SMV_ _3 or 4, 3051SF_D, 3, 4 or 7, 3051SAL_ _CD[2])		GP Sensor (3051S_CG, 3051SAM_ _G[3], 3051SAL_ _G[2][3])		AP Sensor (3051S_CA, 3051SAM_ _A[3], 3051SAL_ _A[2][3])	
	Ultra & Ultra for Flow	Classic	Ultra	Classic	Ultra	Classic
0	0.10 inH_2O (0,24 mbar)	0.10 inH_2O (0,24 mbar)	N/A	N/A	0.167 psia (11,51 mbar)	0.167 psia (11,51 mbar)
1	0.50 inH_2O (1,24 mbar)	0.50 inH_2O (1,24 mbar)	0.50 inH_2O (1,24 mbar)	0.50 inH_2O (1,24 mbar)	0.30 psia (20,68 mbar)	0.30 psia (20,68 mbar)
2	1.25 inH_2O (3,11 mbar)	1.67 inH_2O (4,15 mbar)	1.25 inH_2O (3,11 mbar)	1.67 inH_2O (4,15 mbar)	0.75 psia (51,71 mbar)	1.00 psia (68,94 mbar)
3	5.00 inH_2O (12,43 mbar)	6.67 inH_2O (16,58 mbar)	5.00 inH_2O (12,43 mbar)	6.67 inH_2O (16,58 mbar)	4.00 psia (275,79 mbar)	5.33 psia (367,49 mbar)
4	1.50 psi (103,42 mbar)	2.00 psi (137,89 mbar)	1.50 psig (103,42 mbar)	2.00 psig (137,89 mbar)	20.00 psia (1,38 bar)	26.67 psia (1,83 bar)
5	10.00 psi (689,48 mbar)	13.33 psi (919,01 bar)	10.00 psig (689,48 mbar)	13.33 psig (919,01 bar)	N/A	N/A

(1) 3051SF flowmeters only available with ranges 1, 2, and 3.

(2) For 3051SAL models, use Classic minimum span limits.

(3) Specifications are for each gage/absolute pressure sensor of the ERS system and are not reflective of the DP calculation.

Transmitter with in-line sensor module

Range	GP Sensor (3051S_TG, 3051SAM_ _T[1], 3051SAL_ _T[2])		AP Sensor (3051S_TA, 3051SAM_ _E[1], 3051SAL_ _E[2])	
	Ultra	Classic	Ultra	Classic
1	0.30 psig (20,68 mbar)	0.30 psig (20,68 mbar)	0.30 psia (20,68 mbar)	0.30 psia (20,68 mbar)
2	0.75 psig (51,71 mbar)	1.00 psig (68,94 mbar)	0.75 psia (51,71 mbar)	1.00 psia (68,94 mbar)
3	4.00 psig (275,79 mbar)	5.33 psig (367,49 mbar)	4.00 psia (275,79 mbar)	5.33 psia (367,49 mbar)
4	20.00 psig (1,38 bar)	26.67 psig (1,83 bar)	20.00 psia (1,38 bar)	26.67 psia (1,83 bar)
5	1000.00 psig (68,95 bar)	2000.00 psig (137,89 bar)	1000.00 psia (68,95 bar)	2000.00 psia (137,89 bar)

(1) Specifications are for each gage/absolute pressure sensor of the ERS system and are not reflective of the DP calculation.

(2) For 3051SAL models, use Classic minimum span limits.

Transmitter with multivariable sensor module
(3051SMV_ _1 or 2, 3051SF_1, 2, 5, or 6)

Range	DP Sensor	
	Ultra for Flow	**Classic MV**
1	0.5 inH_2O (1,24 mbar)	0.5 inH_2O (1,24 mbar)
2	1.3 inH_2O (3,23 mbar)	2.5 inH_2O (6,22 mbar)
3	5.0 inH_2O (12,43 mbar)	10.0 inH_2O (24,86 mbar)
4	1.5 psi (103,42 mbar)	3.0 psi (206,84 mbar)
5	N/A	20.0 psi (1,38 bar)
Range	**Static pressure sensor (GP/AP)**	
	Ultra for Flow	**Classic MV**
3	4.0 psi (275,79 mbar)	8.0 psi (551,58 mbar)
4	18.13 psi (1,25 bar)	36.26 psi (2,50 bar)

Process temperature RTD Interface
(3051SMV_ _1 or 3, 3051SF_1, 3, 5 or 7)

Minimum Span = 52 °F (11 °C)

DP span considerations for electronic remote sensor applications

It is recommended that the DP rangedown (Operating Pressure/DP Span) for ERS applications not exceed 100:1. Consult with your Emerson Process Management sales representative when considering a 3051S ERS System for applications beyond 100:1 rangedown.

Service

3051S, 3051SMV_P, 3051SAM, and 3051SF_5, 6, 7, or D (direct process variable output):

Liquid, gas, and vapor applications

3051SAL

Liquid level applications

3051SMV_M and 3051SF_1, 2, 3, or 4 (mass and energy flow output):

Some fluid types are only supported by certain measurement types.

Table 19. Fluid Compatibility with Pressure and Temperature Compensation

• Available — Not available

Ordering code		Fluid types			
	Measurement type	**Liquids**	**Saturated steam**	**Superheated steam**	**Gas and natural gas**
1	DP / P/ T (Full Compensation)	•	•	•	•
2	DP / P	•	•	•	•
3	DP / T	•	•	—	—
4	DP only	•	•	—	—

4–20 mA HART

Zero and span adjustment

Zero and span values can be set anywhere within the range. Span must be greater than or equal to the minimum span.

Output

Two-wire 4–20 mA is 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.

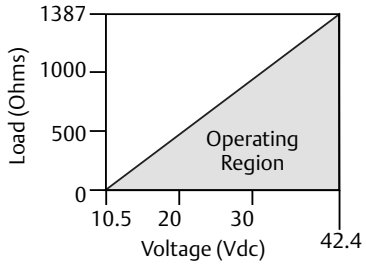
- 3051S and 3051SF_D: 10.5 to 42.4 Vdc with no load
- 3051S and 3051SF_D with Advanced HART Diagnostics Suite: 12 to 42.4 Vdc with no load
- 3051SMV and 3051SF_1-7: 12 to 42.4 Vdc with no load
- 3051S ERS System: 16.0 to 42.4 Vdc with no load

Load limitations

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

3051S and 3051SF_D

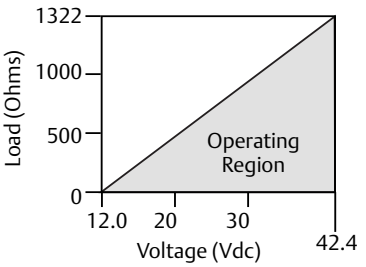
Maximum Loop Resistance = 43.5 * (Power Supply Voltage – 10.5)



The Field Communicator requires a minimum loop resistance of 250Ω for communication.

3051SMV and 3051SF_1-7
3051S and 3051SF_D with HART Diagnostics (option code DA2)

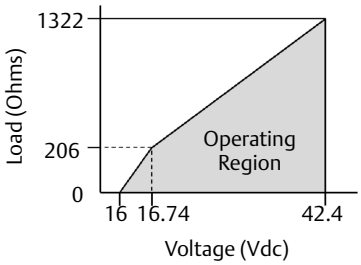
Maximum Loop Resistance = 43.5 * (Power Supply Voltage – 12.0)



The Field Communicator requires a minimum loop resistance of 250Ω for communication.

3051S ERS System

If supply voltage ≤ 16.74 Vdc:
Maximum Loop Resistance = 277 * (Power Supply Voltage – 16.0)
If supply voltage > 16.74 Vdc:
Maximum Loop Resistance = 43.5 * (Power Supply Voltage – 12.0)



The Field Communicator requires a minimum loop resistance of 250Ω for communication.

Advanced HART Diagnostics Suite (option code DA2)

Statistical Process Monitoring (SPM) provides statistical data (standard deviation, mean, coefficient of variation) that can be used to detect process and process equipment anomalies, including plugged impulse lines, air entrainment, pump cavitation, furnace flame instability, distillation column flooding and more. This diagnostic allows you to take preventative measures before abnormal process situations result in unscheduled downtime or rework.

Power Advisory diagnostic pro-actively detects and notifies you of degraded electrical loop integrity before it can affect your process operation. Example loop problems that can be detected include water in the terminal compartment, corrosion of terminals, improper grounding, and unstable power supplies.

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

Suite includes: Statistical Process Monitoring (SPM), Power Advisory, Status Log, Variable Log, Advanced Process Alerts, Service Alerts, and Time Stamp capability.

FOUNDATION fieldbus

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)

FOUNDATION fieldbus parameters

Schedule Entries	14 (max.)
Links	30 (max.)
Virtual Communications Relationships (VCR)	20 (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 display block

- Configures the local display.

2 analog input blocks

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

PID block with auto-tune

- Contains all logic to perform PID control in the field including cascade and feedforward. Auto-tune capability allows for superior tuning for optimized control performance.

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.

Software upgrade in the Field

Software for the 3051S with FOUNDATION fieldbus is easy to upgrade in the field using the FOUNDATION fieldbus Common Device Software Download procedure.

PlantWeb alerts

Enable the full power of the PlantWeb digital architecture by diagnosing instrumentation issues, communicating advisory, maintenance, and failure details, and recommending a solution.

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 sensors, 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.

Output Splitter Block

- Splits the output of one PID or other control block so that the PID will control two valves or other actuators.

Control Selector Block

- Selects one of up to three inputs (highest, middle, or lowest) that are normally connected to the outputs of PID or other control function blocks.

Block	Execution time
Resource	N/A
Transducer	N/A
LCD Display Block	N/A
Analog Input 1, 2	20 milliseconds
PID with Auto-tune	35 milliseconds
Input Selector	20 milliseconds
Arithmetic	20 milliseconds
Signal Characterizer	20 milliseconds
Integrator	20 milliseconds
Output Splitter	20 milliseconds
Control Selector	20 milliseconds

Fully compensated mass flow block (option code H01)

Calculates fully compensated mass flow based on differential pressure with external process pressure and temperature measurements over the fieldbus segment. Configuration for the mass flow calculation is easily accomplished using the Rosemount Engineering Assistant 5.5.1 software.

FOUNDATION fieldbus Diagnostics Suite (option code D01)

Statistical Process Monitoring (SPM) provides statistical data (standard deviation and mean) that can be used to detect process and process equipment anomalies, including plugged impulse lines, air entrainment, pump cavitation, furnace flame instability, distillation column flooding, and more. This diagnostic allows you to take preventative measures before abnormal process situations result in unscheduled downtime or rework.

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

Suite includes: Statistical Process Monitoring (SPM) and Plugged Impulse Line Detection (PIL).

IEC 62591 (*Wireless*HART)

Output

IEC 62591 (*Wireless*HART), 2.4 GHz DSSS

Radio frequency power output from antenna

External Antenna (WK option): Maximum of 10 mW (10 dBm) EIRP

Extended Range, External Antenna (WM option): Maximum of 18 mW (12.5 dBm) EIRP

Remote (WJ option) antenna: Maximum of 17 mW (12.3 dBm) EIRP

High-Gain, Remote Antenna (WN option): Maximum of 40 mW (16 dBm) EIRP

Local display

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

Update rate

User selectable 1 sec. to 60 min.

Power module

Field replaceable, keyed connection eliminates the risk of incorrect installation, Intrinsically Safe Lithium-thionyl chloride Power Module with polybutadine terephthalate (PBT) enclosure. Ten-year life at one minute update rate.[(1)(2)]

(1) Reference conditions are 70 °F (21 °C), and routing data for three additional network devices.
Note: Continuous exposure to ambient temperature limits of -40 °F or 185 °F (-40 °C or 85 °C) may reduce specified life by less than 20 percent.

(2) 6.5-year life at one minute update rates when used with 3051SMV.

Overpressure limits

Transmitters withstand the following limits without damage:

Coplanar sensor module (single variable)

Range	DP[(1)] & GP	AP
	3051S_CD, 3051S_CG 3051SMV_ _3 or 4 3051SF_3, 4, 7, or D 3051SAM_ _G	3051S_CA 3051SAM_ _A
0	750 psi (51,71 bar)	60 psia (4,14 bar)
1	2000 psi (137,90 bar)	750 psia (51,71 bar)
2	3626 psi (250,00 bar)	1500 psia (103,42 bar)
3	3626 psi (250,00 bar)	1600 psia (110,32 bar)
4	3626 psi (250,00 bar)	6000 psia (413,69 bar)
5	3626 psi (250,00 bar)	N/A

(1) The overpressure limit of a DP Sensor with the P9 option is 4500 psig (310,3 bar). The overpressure limit of a DP Sensor with the P0 option is 6092 psig (420 bar).

In-line sensor module

Range	GP	AP
	3051S_TG 3051SAM_ _T	3051S_TA 3051SAM_ _E
1	750 psi (51,71 bar)	
2	1500 psi (103,42 bar)	
3	1600 psi (110,32 bar)	
4	6000 psi (413,69 bar)	
5	15000 psi (1034,21 bar)	

Coplanar multivariable sensor module (3051SMV_ _1 or 2, 3051SF_1, 2, 5, or 6)

DP Range	Static pressure range (GP/AP)	
	3	4
1	1600 psi (110,32 bar)	2000 psi (137,90 bar)
2	1600 psi (110,32 bar)	3626 psi (250,00 bar)
3	1600 psi (110,32 bar)	3626 psi (250,00 bar)
4	N/A	3626 psi (250,00 bar)
5	N/A	3626 psi (250,00 bar)

Liquid level transmitter (3051SAL)

Overpressure limit is dependent on the flange rating or sensor rating (whichever is lower). Use *Instrument Toolkit* to ensure the seal system meets all pressure and temperature limits.

Static pressure limits

Coplanar sensor module (single variable)

Operates within specifications between static line pressures of:

Range	DP Sensor[(1)]
	3051S_CD 3051SMV_ _3 or 4 3051SF_3, 4, 7, or D
0	0.5 psia to 750 psig (0,03 to 51,71 bar)
1	0.5 psia to 2000 psig (0,03 to 137,90 bar)
2	0.5 psia to 3626 psig (0,03 to 250,00 bar)
3	0.5 psia to 3626 psig (0,03 to 250,00 bar)
4	0.5 psia to 3626 psig (0,03 to 250,00 bar)
5	0.5 psia to 3626 psig (0,03 to 250,00 bar)

(1) The static pressure limit of a DP Sensor with the P9 option is 4500 psig (310,26 bar). The static pressure limit of a DP Sensor with the P0 option is 6092 psig (420,00 bar).

Coplanar multivariable sensor module (3051SMV_ _1 or 2, 3051SF_1, 2, 5, or 6)

Operates within specifications between static line pressures of 0.5 psia (0,03 bar) and the values in the table below:

DP Range	Static pressure range (GP/AP)	
	3	4
1	800 psi (55,15 bar)	2000 psi (137,90 bar)
2	800 psi (55,15 bar)	3626 psi (250,00 bar)
3	800 psi (55,15 bar)	3626 psi (250,00 bar)
4	N/A	3626 psi (250,00 bar)
5	N/A	3626 psi (250,00 bar)

Maximum working pressure limits

Maximum working pressure is the maximum pressure allowed for normal transmitter operation. For a differential pressure transmitter, the maximum working pressure is the static line pressure under which the transmitter can safely operate. If one side of the transmitter is exposed to the full static line pressure due to mis-valving, the transmitter will experience an output shift and must be re-zeroed. For a gage or absolute pressure transmitter, the maximum working pressure is the same as the Upper Range Limit (URL). The maximum working pressure of transmitters with assemble-to options is limited by the lowest maximum pressure rating of the individual components.

Table 20. 3051S Maximum Working Pressure

Range	3051S_CD 3051SAL_ _D 3051SAM_ _D	3051S_CG 3051SAL_ _G 3051SAM_ G	3051S_CA 3051SAL_ _A 3051SAM_ _A	3051S_TA 3051SAL_ _E 3051SAM_ _E	3051S_TG 3051SAL_ _T 3051SAM_ _T
0	750 psi 51.7 bar 5.17 mpa	N/A	5 psia 0.35 bar-a .035 mpa	N/A	N/A
1	2000 psi 138 bar 13.8 mpa	0.9 psi 0.062 bar 0.0062 mpa	30 psia 2.07 bar-a 0.207 mpa	30 psia 2.07 bar-a 0.207 mpa	30 psia 2.07 bar-a 0.207 mpa
2	3626 psi 250 bar 25 mpa	9 psi 0.62 bar 0.062 mpa	150 psia 10.3 bar 1.03 mpa	150 psia 10.3 bar-a 1.03 mpa	150 psi 10.3 bar 1.03 mpa
3	3626 psi 250 bar 25 mpa	36 psi 2.48 bar 0.248 mpa	800 psia 55.2 bar-a 5.52 mpa	800 psia 55.2 bar-a 5.52 mpa	800 psia 55.2 bar 5.52 mpa
4	3626 psi 250 bar 25 mpa	300 psi 20.7 bar 2.07 mpa	4000 psia 276 bar-a 27.6 mpa	4000 psia 276 bar-a 27.6 mpa	4000 psia 276 ba 27.6 mpa
5	3626 psi 250 bar 25 mpa	2000 psi 138 bar 13.8 mpa	N/A	10000psia 690 bar-a 69.0 mpa	10000psia 690 bar 69.0 mpa

Note
The maximum working pressure limit of a DP Sensor with the P9 option is 4500 psig (310,26 bar). The maximum working pressure limit of a DP Sensor with the P0 option is 6092 psig (420,00 bar).

Table 21. 3051SMV maximum working pressure (3051SMV1M1[X]G[Y]R2E12A1A)

X = DP Range	Y = 3 (DP/AP Range)	Y = 4 (GP/AP Range)
1	800 psi 55.2 bar 5.52 mpa	2000 psi 138 bar 13.8 mpa
2	800 psi 55.2 bar 5.52 mpa	3626 psi 250 bar 25 mpa
3	800 psi 55.2 bar 5.52 mpa	3626 psi 250 bar 25 mpa

Burst pressure limits

Coplanar sensor module (3051S_C, 3051SMV, 3051SF, 3051SAM_ _G or A)

10000 psig (689,47 bar)

In-line sensor module (3051S_T, 3051SAM_ _T or E)

- Ranges 1-4: 11000 psi (758,42 bar)
- Range 5: 26000 psi (1792,64 bar)

Temperature limits

Ambient

-40 to 185 °F (-40 to 85 °C)
With LCD display[(1)]: -40 to 175 °F (-40 to 80 °C)
With option code P0: -20 to 185 °F (-29 to 85 °C)

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

Storage

-50 to 185 °F (-46 to 85 °C)
With LCD display: -40 to 185 °F (-40 to 85 °C)
With Wireless Output: -40 to 185 °F (-40 to 85 °C)

Process temperature limits
At atmospheric pressures and above:[(8)]

Coplanar sensor module 3051S_C, 3051SMV, 3051SF, 3051SAM_ _G or A	
Silicone Fill Sensor[1][2]	
with Coplanar Flange	-40 to 250 °F (-40 to 121 °C)[3]
with Traditional Flange	-40 to 300 °F (-40 to 149 °C)[3][4]
with Level Flange	-40 to 3003 °F (-40 to 149 °C)[3]
with 305 Integral Manifold	-40 to 300 °F (-40 to 149 °C)[3][4]
Inert Fill Sensor[1][5]	-40 to 185 °F (-40 to 85 °C)[6][7]
In-Line sensor module 3051S_T, 3051SAM_ _T or E	
Silicone Fill Sensor[1]	-40 to 250 °F (-40 to 121 °C)[3]
Inert Fill Sensor[1]	-22 to 250 °F (-30 to 121 °C)[3]
3051SAL Level Transmitter	
SYLTHERM XLT	-102 to 293 °F (-75 to 145 °C)
Silicone 704[8]	32 to 401 °F (0 to 205 °C)
Silicone 705[8]	68 to 401 °F (20 to 205 °C)
UltraTherm[8]	-49 to 401 °F (-45 to 205 °C)
Silicone 200	-49 to 401 °F (-45 to 205 °C)
Inert (Halocarbon)	-49 to 320 °F (-45 to 160 °C)
Glycerin and Water	5 to 203 °F (-15 to 95 °C)
Neobee M-20®[9]	5 to 401 °F (-15 to 205 °C)
Propylene Glycol and Water	5 to 203 °F (-15 to 95 °C)

(1) Process temperatures above 185 °F (85 °C) require derating the ambient limits by a 1.5:1 ratio. For example, for process temperature of 195 °F (91 °C), new ambient temperature limit is equal to 170 °F (77 °C). This can be determined as follows:
(195 °F - 185 °F) x 1.5 = 15 °F,
185 °F - 15 °F = 170 °F

(2) 212 °F (100 °C) is the upper process temperature limit for DP Range 0.

(3) 220 °F (104 °C) limit in vacuum service; 130 °F (54 °C) for pressures below 0.5 psia.

(4) -20 °F (-29 °C) is the lower process temperature limit with option code P0.

(5) 32 °F (0 °C) is the lower process temperature limit for DP Range 0.

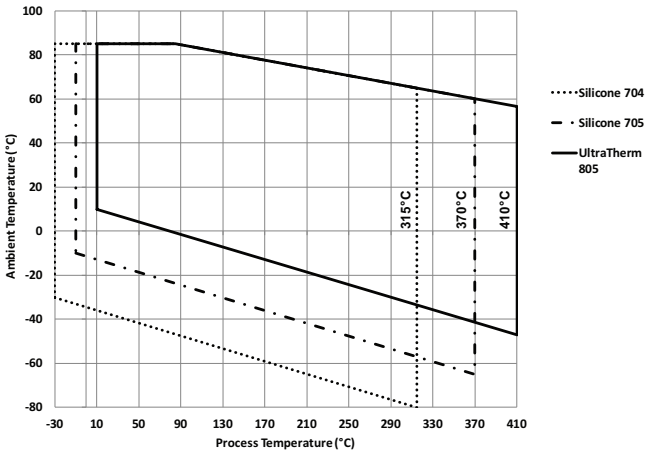
(6) For 3051S_C, 160 ° F (71 °C) limit in vacuum service.
For 3051SMV_ _ 1, 2, 140 ° F (60 °C) limit in vacuum service.

(7) Not available for 3051S_CA.

(8) Upper temperature limit is 464 °F (240 °C) for a 2-in. direct-mount extension, 500 °F (260 °C) for a 4-in. direct-mount extension, and 599 °F (315 °C) for an In-Line Thermal Range Expander direct-mount connection.

(9) Upper temperature limit is 437 °F (225 °C) for a 2-in. direct-mount extension or greater.

Thermal Range Expander temperature operating range



Humidity limits

0–100% relative humidity

Turn-on time[1]

When power is applied to the transmitter during startup, performance will be within specifications per the time period described below:

Transmitter	Turn-on time (typical)
3051S, 3051SF_D, 3051SAL_ _C	2 seconds
Diagnostics	5 seconds
3051SMV, 3051SF_1-7	5 seconds
3051S ERS System	6 seconds

(1) Does not apply to wireless option code X.

Volumetric displacement

Less than 0.005 in^3 (0,08 cm^3)

Damping[1]

Analog output response time to a step change is user-selectable from 0 to 60 seconds for one time constant. For 3051SMV, 3051SF_1-7, each variable can be individually adjusted. Software damping is in addition to sensor module response time.

(1) Does not apply to wireless option code X.

Failure mode alarm

4-20 mA HART (output option code A)

If self-diagnostics detect a gross transmitter failure, the analog signal will be driven offscale to alert the user. Rosemount standard (default), NAMUR, and custom alarm levels are available (see below).
High or low alarm signal is software-selectable or hardware-selectable via the optional switch (option D1).

Alarm configuration

	High alarm	Low alarm
Default	≥ 21.75 mA	≤ 3.75 mA
NAMUR compliant(1)	≥ 22.5 mA	≤ 3.6 mA
Custom levels(2)(3)	20.2 - 23.0 mA	3.4 - 3.8 mA

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

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

(3) For 3051SMV and option code DA2, low alarm custom values are 3.6 - 3.8 mA.

Safety-certified transmitter failure values(1)

Device Safety accuracy: ± 2.0% of analog output span (2)
Device Safety response time: 1.5 seconds

(1) Does not apply to wireless option code X.

(2) Trip values in the DCS or safety logic solver should be derated by this device safety accuracy.

Physical specifications

Material selection

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

Electrical connections

1/2–14 NPT, G1/2, and M20 × 1 1/2 conduit. HART interface connections fixed to terminal block for Output code A and X.

Process connections

Coplanar sensor module (3051S_C, 3051SMV, 3051SF, 3051SAM_ _G or A)	
Standard	1/4-18 NPT on 2 1/8-in. centers
Flange Adapters	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
In-line sensor module (3051S_T, 3051SAM_ _T or E)	
Standard	1/2-14 NPT Female
F11 Code	Non-threaded instrument flange (available in SST for sensor ranges 1-4 only)
G11 Code	G 1/2 A DIN 16288 male (available in SST for sensor ranges 1-4 only)
H11 Code	Autoclave type F-250C (Pressure relieved 9/16-18 gland thread; 1/4 OD high pressure tube 60° cone; available in SST for sensor range 5 only)
Level transmitter (3051SAL)	
FF Seal	2-in. (DN 50), 3-in. (DN 80), or 4-in. (DN 100); ANSI Class 150, 300, 600, 900, 1500, and 2500 flange; JIS 10K, 20K, or 40K flange; PN 10/16 or PN 40 flange
PF Seal	
EF Seal	
RF Seal	1-in. (DN 25) or 1 1/2-in. (DN 40); ANSI Class 150, 300, or 600 flange; JIS 10K, 20K, or 40K flange; PN 40 flange
RT Seal	1/4-18, 1/2-14, 3/4-14, or 1-11.5 NPT Female
FC Seal	2-in. or 3-in.; ANSI Class 150, 300, 600, 900, 1500, 2500 flange; PN 63 or PN 100 flange
RC Seal	1/2-in., 3/4-in., 1-in., or 1 1/2-in.; ANSI Class 150, 300, 600, 900, 1500, 2500 flange; PN 63 or PN 100 flange
SC Seal	1 1/2-in, 2-in, or 3-in. Hygienic Tri-Clover Style Tri-Clamp
SS Seal	4-in. Hygienic Tank Spud

Process-wetted parts

Process isolating diaphragms

Coplanar sensor module (3051S_C, 3051SMV)	
316L SST (UNS S31603), Alloy C-276 (UNS N10276), Alloy 400 (UNS N04400), Tantalum (UNS R05440), Gold-Plated Alloy 400, Gold-plated 316L SST	
B11 Code	Low side process connection is SST
In-line sensor module (3051S_T)	
316L SST (UNS S31603), Alloy C-276 (UNS N10276)	
Level transmitter (3051SAL)	
FF Seal	316L SST, Alloy C-276, Tantalum
EF Seal	
RF Seal	
RT Seal	
PF Seal	
FC Seal	
RC Seal	
SC Seal	316L SST, Alloy C-276
SS Seal	

Drain/vent valves

316 SST, Alloy C-276, or Alloy 400/K-500[1] material
(Drain vent seat: Alloy 400, Drain vent stem: Alloy K-500)

(1) *Alloy 400/K-500* is not available with 3051SAL.

Process flanges and flange adapters

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

Wetted O-rings

Glass-filled PTFE
(Graphite-filled PTFE with Isolating Diaphragm code 6)

3051SAL mounting flange

Zinc-cobalt plated CS or 316 SST

3051SAL seal extension

CF-3M (Cast 316L SST, material per ASTM A743) or
CW-12MW (Cast C-276, material per ASTM A494)

Non-wetted parts

Electronics housing

Low-copper aluminum alloy or CF-8M (Cast 316 SST)
NEMA® 4X, IP 66, IP 68 (66 ft (20 m) for 168 hours)
Note: IP 68 not available with Wireless Output.

Coplanar sensor module housing

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

Bolts

Plated carbon steel per ASTM A449, Type 1
Austenitic 316 SST per ASTM F593
ASTM A453, Class D, Grade 660 SST
ASTM A193, Grade B7M alloy steel
ASTM A193, Class 2, Grade B8M SST
Alloy K-500

Sensor module fill fluid

Silicone is standard.
Inert is available as option code (L1).[1]
Inert for In-Line series uses Fluorinert® FC-43.
Inert for Coplanar series uses Halocarbon.

Seal fill fluid (liquid level only)

3051SAL: Silicone 200, Silicone 704, Silicone 705, UltraTherm 805, inert, SYLTHERM XLT, Neobee M-20, glycerin and water, propylene glycol and water.

Paint for aluminum housing

Polyurethane

Cover O-rings

Buna-N

Wireless antenna

External Antenna (WK / WM): PBT/PC integrated omni-directional antenna
Remote Antenna (WN): Fiberglass omni-directional antenna

(1) Inert is not available with 3051S_CA.

Power module

Field replaceable, keyed connection eliminates the risk of incorrect installation, Intrinsically Safe Lithium-thionyl chloride Power Module with PBT enclosure Shipping weights

Sensor module weights

Coplanar sensor module[1]
3.1 lb (1,4 kg)
In-line sensor module
1.4 lb (0,6 kg)

(1) Flange and bolts not included.

Transmitter weights[1]

Transmitter with coplanar sensor module (3051S_C, 3051SMV, 3051SAM_ _G or A)	
Junction Box housing, SST Flange	6.3 lb (2,8 kg)
PlantWeb housing, SST Flange	6.7 lb (3,1 kg)
Wireless PlantWeb housing, SST Flange	7.3 lb (3,3 kg)
Transmitter with in-line sensor module (3051S_T, 3051SAM_ _T or E)	
Junction Box housing	3.2 lb (1,4 kg)
PlantWeb housing	3.7 lb (1,7 kg)
Wireless PlantWeb housing	4.2 lb (1,9 kg)

(1) Fully functional transmitter with sensor module, housing, terminal block, and covers. Does not include LCD display.

Transmitter option weights

Option code	Option	Add lb (kg)
1J, 1K, 1L	SST PlantWeb housing	3.5 (1,6)
2J	SST Junction Box housing	3.4 (1,5)
7J	SST Quick Connect	0.4 (0,2)
2A, 2B, 2C	Aluminum Junction Box housing	1.1 (0,5)
1A, 1B, 1C	Aluminum PlantWeb housing	1.1 (0,5)
M5	LCD display for Aluminum PlantWeb housing(1), LCD display for SST PlantWeb housing(1)	0.8 (0,4) 1.6 (0,7)
B4	SST Mounting Bracket for Coplanar Flange	1.2 (0,5)
B1, B2, B3	Mounting Bracket for Traditional Flange	1.7 (0,8)
B7, B8, B9	Mounting Bracket for Traditional Flange with SST Bolts	1.7 (0,8)
BA, BC	SST Bracket for Traditional Flange	1.6 (0,7)
B4	SST Mounting Bracket for In-Line	1.3 (0,6)
F12, F22	SST Traditional Flange with SST Drain Vents(2)	3.2 (1,5)
F13, F23	Cast C-276 Traditional Flange with Alloy C-276 Drain Vents(2)	3.6 (1,6)
E12, E22	SST Coplanar Flange with SST Drain Vents(2)	1.9 (0,9)
F14, F24	Cast Alloy 400 Traditional Flange with Alloy 400/K-500 Drain Vents(2)	3.6 (1,6)
F15, F25	SST Traditional Flange with Alloy C-276 Drain Vents(2)	3.2 (1,5)
G21	Level Flange—3 in., 150	12.6 (5,7)
G22	Level Flange—3 in., 300	15.9 (7,2)
G11	Level Flange—2 in., 150	6.8 (3,1)
G12	Level Flange—2 in., 300	8.2 (3,7)
G31	DIN Level Flange, SST, DN 50, PN 40	7.8 (3,5)
G41	DIN Level Flange, SST, DN 80, PN 40	13.0 (5,9)

(1) Includes LCD display and display cover.

(2) Includes mounting bolts.

Transmitter component weights

Item	Weight in lb. (kg)
Aluminum Standard Cover	0.4 (0,2)
SST Standard Cover	1.3 (0,6)
Aluminum Display Cover	0.7 (0,3)
SST Display Cover	1.5 (0,7)
Wireless Extended Cover	0.7 (0,3)
LCD Display(1)	0.1 (0,04)
Junction Box Terminal Block	0.2 (0,1)
PlantWeb Terminal Block	0.2 (0,1)
Power Module	0.5 (0,2)

(1) Display only

3051SAL weights without supermodule platform, housing, or transmitter options

Flange	Flush lb. (kg)	2-in. Ext. lb (kg)	4-in. Ext. lb (kg)	6-in. Ext. lb (kg)
2-in., 150	9.5 (4,3)	N/A	N/A	N/A
3-in., 150	15.7 (7,1)	16.4 (7,4)	17.6 (8,0)	18.9 (8,6)
4-in., 150	21.2 (9,6)	20.9 (9,5)	22.1 (10,0)	23.4 (10,6)
2-in., 300	11.3 (5,1)	N/A	N/A	N/A
3-in., 300	19.6 (8,9)	20.3 (9,2)	21.5 (9,8)	22.8 (10,3)
4-in., 300	30.4 (13.8)	30.3 (13,7)	31.5 (14,3)	32.8 (14,9)
2-in., 600	12.8 (5,8)	N/A	N/A	N/A
3-in., 600	22.1 (10,0)	22.8 (10,3)	24.0 (10,9)	25.3 (11,5)
DN 50 / PN 40	11.3 (5,1)	N/A	N/A	N/A
DN 80 / PN 40	16.0 (7,3)	16.7 (7,6)	17.9 (8,1)	19.2 (8,7)
DN 100 / PN 10/16	11.2 (5,1)	11.9 (5,4)	13.1 (5,9)	14.4 (6,5)
DN 100 / PN 40	12.6 (5,7)	13.3 (6,0)	14.5 (6,6)	15.8 (7,1)

Rosemount 3051S/3051SFx (Measurement Type D)/ 3051S ERS Certifications

European Directive Information

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

Ordinary Location Certification from FM Approvals

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

North America

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

United States of America

E5 FM Explosionproof (XP) and Dust-Ignitionproof (DIP)
Certificate: 3008216
Standards: FM Class 3600 – 2011, FM Class 3615 – 2006, FM Class 3616-2011, 3810 – 2005, ANSI/NEMA 250 – 2003
Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III;T5(-50 °C ≤ Ta ≤ +85 °C); Factory Sealed; Type 4X

I5 FM Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 3012350
Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005, NEMA 250 –2003
Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; Class 1, Zone 0 AEx ia IIC T4; NI CL 1, DIV 2, GP A, B, C, D; T4(-50°C ≤ Ta ≤ +70°C) [HART]; T4(-50 °C ≤ Ta ≤ +60 °C) [fieldbus]; when connected per Rosemount drawing 03151-1006; Type 4x

Special Condition for Safe Use (X):

1. The Model 3051S/3051S ERS Pressure Transmitter contains aluminum and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.

Note
Transmitters marked with NI CL 1, DIV 2 can be installed in Division 2 locations using general Division 2 wiring methods or Nonincendive Field Wiring (NIFW). See Drawing 03151-1006.

IE FM FISCO Field Device
Certificate:3012350
Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005, NEMA 250 –2003
Markings: IS CL I, DIV 1, GP A, B, C, D; (-50 °C ≤ Ta ≤ +60 °C); when connected per Rosemount drawing 03151-1006; Type 4x

Special Condition for Safe Use (X):

1. The Model 3051S/3051S ERS Pressure Transmitter contains aluminum and is considered to constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.

Canada

E6 CSA Explosionproof, Dust-Ignitionproof, and Division 2
Certificate: 143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 25-1966, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 213-M1987, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Explosionproof Class I, Division 1, Groups B, C, D; Dust-Ignitionproof Class II, Division 1, Groups E, F, G; Class III; suitable for Class I, Zone 1, Group IIB+H2, T5; suitable for Class I, Division 2, Groups A, B, C, D; suitable for Class I, Zone 2, Group IIC, T5; when connected per Rosemount drawing 03151-1013; Type 4x

I6 CSA Intrinsically Safe
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA} Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Intrinsically Safe Class I, Division 1; suitable for Class 1, Zone 0, IIC, T3C; when connected per Rosemount drawing 03151-1016; Type 4x

IF CSA FISCO Field Device
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: FISCO Intrinsically Safe Class I, Division 1; suitable for Class I, Zone 0; T3C; when installed per Rosemount drawing 03151-1016; Type 4X

Europe

E1 ATEX Flameproof
Certificate: KEMA 00ATEX2143X
Standards: EN 60079-0:2012, EN 60079-1: 2007, EN 60079-26:2007 (3051SFx models with RTD are certified to EN60079-0:2006)
Markings: ⟨Ex⟩ II 1/2 G Ex d IIC T6...T4 Ga/Gb, T6(-60 °C ≤ Ta ≤ +70 °C), T5/T4(-60 °C ≤ Ta ≤ +80 °C)

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

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints, the manufacturer shall be contacted.

I1 ATEX Intrinsic Safety
Certificate: BAS01ATEX1303X
Standards: EN 60079-0: 2012, EN 60079-11: 2012
Markings: ⟨Ex⟩ II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ Ta ≤ +70 °C)

Input Parameters

Model	U_i	I_i	P_i	C_i	L_i
SuperModule	30 V	300 mA	1.0 W	30 nF	0
3051S...A; 3051SF...A; 3051SAL...C	30 V	300 mA	1.0 W	12 nF	0
3051S...F; 3051SF...F	30 V	300 mA	1.3 W	0	0
3051S ...F...IA; 3051SF ...F...IA	17.5 V	380 mA	5.32 W	0	0
3051S ...A...M7, M8, or M9; 3051SF ...A...M7, M8, or M9; 3051SAL...C... M7, M8, or M9	30 V	300 mA	1.0 W	11.4 nF	60 µH
3051SAL or 3051SAM	30 V	300 mA	1.0 W	11.4 nF	33 µH
3051SAL...M7, M8, or M9 3051SAM...M7 , M8, or M9	30 V	300 mA	1.0 W	11.4 nF	93 µ H
RTD Option for 3051SF	5 V	500 mA	0.63 W	N/A	N/A

Special Conditions for Safe Use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500V test as defined in Clause 6.3.13 of EN 60079-11:2012. This must be taken into account during installation.
2. The terminal pins of the Model 3051S SuperModule must be provided with a degree of protection of at least IP20 in accordance with IEC/EN 60529.

IA ATEX FISCO Field Device
Certificate: BAS01ATEX1303X
Standards: EN 60079-0: 2012, EN 60079-11: 2012
Markings: ⟨Ex⟩ II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ Ta ≤ +70 °C)

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

Special Conditions for Safe Use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500V test as defined in Clause 6.3.13 of EN 60079-11:2012. This must be taken into account during installation.
2. The terminal pins of the Model 3051S SuperModule must be provided with a degree of protection of at least IP20 in accordance with IEC/EN 60529.

ND ATEX Dust
Certificate: BAS01ATEX1374X
Standards: EN 60079-0: 2012, EN 60079-31: 2009
Markings: ⟨Ex⟩ II 1 D Ex ta IIIC T105 °C T_{500}95 °C Da,
(-20 °C ≤ Ta ≤ +85 °C), V_{max} = 42.4V

Special Conditions for Safe Use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient temperature range of the apparatus and capable of withstanding a 7J impact test.
4. The SuperModule(s) must be securely screwed in place to maintain the ingress protection of the enclosure(s).

N1 ATEX Type n
Certificate: BAS01ATEX3304X
Standards: EN 60079-0: 2012, EN 60079-15: 2010
Markings: ⟨Ex⟩ II 3 G Ex nA IIC T5 Gc, (-40 °C ≤ Ta ≤ +85 °C),
V_{max} = 45V

Special Condition for Safe Use (X):

1. The equipment is not capable of withstanding the 500V insulation test required by clause 6.5 of EN 60079-15:2010. This must be taken into account when installing the equipment.

Note
RTD Assembly is not included with the 3051SFx Type n Approval.

International

E7 IECEx Flameproof and Dust
Certificate: IECEx KEM 08.0010X (Flameproof)
Standards: IEC 60079-0:2011, IEC 60079-1: 2007, IEC 60079-26:2006, (3051SFx models with RTD are certified to IEC 60079-0:2004)
Markings: Ex d IIC T6...T4 Ga/Gb, T6(-60 °C ≤ Ta ≤ +70 °C), T5/T4(-60 °C ≤ Ta ≤ +80 °C)

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

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.

Certificate: IECEx BAS 09.0014X (Dust)
Standards: IEC 60079-0:2011, IEC 60079-31:2008
Markings: Ex ta IIIC T105°C T_{500}95°C Da,
(-20 °C ≤ Ta ≤ +85 °C), Vmax = 42.4V

Special Conditions for Safe Use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient temperature range of the apparatus and capable of withstanding a 7J impact test.
4. The 3051S- SuperModule must be securely screwed in place to maintain the ingress protection of the enclosure.

I7 IECEx Intrinsic Safety
Certificate: IECEx BAS 04.0017X
Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
Markings: Ex ia IIC T4 Ga, T4(-60°C ≤ Ta ≤ +70°C)

Input parameters

Model	U_i	I_i	P_i	C_i	L_i
SuperModule	30 V	300 mA	1.0 W	30 nF	0
3051S...A; 3051SF...A; 3051SAL...C	30 V	300 mA	1.0 W	12 nF	0
3051S...F; 3051SF...F	30 V	300 mA	1.3 W	0	0
3051S ...F...IA; 3051SF ...F...IA	17.5 V	380 mA	5.32 W	0	0
3051S ...A...M7, M8, or M9; 3051SF ...A...M7, M8, or M9; 3051SAL...C... M7, M8, or M9	30 V	300 mA	1.0 W	11.4 nF	60 µH
3051SAL or 3051SAM	30 V	300 mA	1.0 W	11.4 nF	33 µH
3051SAL...M7, M8, or M9 3051SAM...M7 , M8, or M9	30 V	300 mA	1.0 W	11.4 nF	93 µ H
RTD Option for 3051SF	5 V	500 mA	0.63 W	N/A	N/A

Special Conditions for Safe Use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500V test as defined in Clause 6.3.13 of IEC 60079-11:2011. This must be taken into account during installation.
2. The terminal pins of the Model 3051S SuperModule must be provided with a degree of protection of at least IP20 in accordance with IEC/EN 60529.
3. The Model 3051S enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0 area.

I7 IECEx Intrinsic Safety – Group I - Mining (I7 with Special A0259)
Certificate: IECEx TSA 14.0019X
Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
Markings: Ex ia I Ma (-60 °C ≤ Ta ≤ +70 °C)

Special Conditions for Safe Use (X):

1. If the apparatus is fitted with an optional 90V transient suppressor, it is not capable of withstanding the 500V insulation test required by clause 6.6.13 of IEC60079-11. This must be taken into account when installing the apparatus.
2. It is a condition of safe use that the following parameters shall be taken into account during installation.

Input parameters

Model	U_i	I_i	P_i	C_i	L_i
SuperModule	30 V	300 mA	1.0 W	30 nF	0
3051S...A; 3051SF...A; 3051SAL...C	30 V	300 mA	1.0 W	12 nF	0
3051S...F; 3051SF...F	30 V	300 mA	1.3 W	0	0
3051S ...F...IA; 3051SF ...F...IA	17.5 V	380 mA	5.32 W	0	0
3051S ...A...M7, M8, or M9; 3051SF ...A...M7, M8, or M9; 3051SAL...C... M7, M8, or M9	30 V	300 mA	1.0 W	11.4 nF	60 µH
3051SAL or 3051SAM	30 V	300 mA	1.0 W	11.4 nF	33 µH
3051SAL...M7, M8, or M9 3051SAM...M7, M8, or M9	30 V	300 mA	1.0 W	11.4 nF	93 µ H
RTD Option for 3051SF	5 V	500 mA	0.63 W	N/A	N/A

3. It is a condition of manufacture that only the apparatus fitted with housings, junction boxes, covers and sensor module housings made out of stainless steel are used in Group I applications.

IG IECEx FISCO
Certificate: IECEx BAS 04.0017X
Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ Ta ≤ +70 °C)

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

Special Conditions for Safe Use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500V test as defined in Clause 6.3.13 of IEC 60079-11:2011. This must be taken into account during installation.
2. The terminal pins of the Model 3051S SuperModule must be provided with a degree of protection of at least IP20 in accordance with IEC/EN 60529.
3. The Model 3051S enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0 area.

N7 IECEx Type n
Certificate: IECEx BAS 04.0018X
Standards: IEC 60079-0: 2011, IEC 60079-15: 2010
Markings: Ex nA IIC T5 Gc, (-40 °C ≤ Ta ≤ +85 °C)

Special Conditions for Safe Use (X):

1. The equipment is not capable of withstanding the 500V insulation test required by clause 6.5 of IEC 60079-15:2010. This must be taken into account when installing the equipment.

Brazil

E2 INMETRO Flameproof
Certificate: CEPEL 03.0140X [Mfg USA, Singapore, Germany], CEPEL 07.1413X [Mfg Brazil]
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-1:2009, ABNT NBR IEC 60529:2009
Markings: Ex d IIC T* Ga/Gb, T6(-40 °C ≤ Ta ≤ +65 °C), T5(-40 °C ≤ Ta ≤ +80 °C), IP66(Al)/IP66W(SST)

Special Conditions for Safe Use (X):

1. For ambient temperature above 60 °C, cable wiring must have minimum isolation temperature of 90 °C, to be in accordance to equipment operation temperature.
2. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.

I2 INMETRO Intrinsic Safety
Certificate: CEPEL 05.0722X [Mfg USA, Singapore, Germany], CEPEL 07.1414X [Mfg Brazil]
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009, ABNT NBR IEC 60079-26:2008, ABNT NBR IEC 60529:2009
Markings: Ex ia IIC T4 Ga, T4(-20 °C ≤ Ta ≤ +70 °C), IP66(Al)/IP66W(SST)

Special Conditions for Safe Use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500V test as defined in Clause 6.4.12 of IEC 60079-11. This must be taken into account during installation.

	HART	Fieldbus	RTD (for 3051SFx)
Voltage U_i	30 V	30 V	5 V
Current I_i	300 mA	300 mA	500 mA
Power P_i	1 W	1.3 W	0.63 W
Capacitance C_i	12 nF	0	0
Inductance L_i	0	0	0

IB INMETRO FISCO
Certificate: CEPEL 05.0722X [Mfg USA, Singapore, Germany], CEPEL 07.1414X [Mfg Brazil]
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009, ABNT NBR IEC 60079-26:2008, ABNT NBR IEC 60529:2009
Markings: Ex ia IIC T4 Ga, T4(-20 °C ≤ Ta ≤ +40 °C), IP66(Al)/IP66W(SST)

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

Special Condition for Safe Use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500V test as defined in Clause 6.4.12 of IEC 60079-11. This must be taken into account during installation.

China

E3 China Flameproof and Dust Ignition-proof
Certificate: 3051S: GYJ091035 [Mfg USA], GYJ111400X [Mfg China, Singapore]
3051SFx: GYJ071086 [Mfg USA, China, Singapore]
Standards: 3051S: GB3836.1-2000, GB3836.2-2000, GB12476.1-20003051SFx: GB3836.1-2000, GB3836.2-2000, GB12476.1-2000
Markings: 3051S: Ex d IIC T5/T6; DIP A20T_A105°C; IP66
3051SFx: Ex d IIC T5/T6; Ex d IIB+H_2T3~T5; DIP A21 T_A T3~T5

Special Conditions for Safe Use (X):

1. Only the pressure transmitters, consisting of 3051SC Series, 3051ST Series, 3051SL Series and 300S Series, are certified.
2. The ambient temperature range is (-20 ~+60) °C.
3. The relation between temperature class and maximum temperature of process medium is as follows:

Temperature class	Temperature of process medium (°C)
T5	≤ 95 °C
T4	≤ 130 °C
T3	≤ 190 °C

4. The earth connection facility in the enclosure should be connected reliably.
5. During installation, use and maintenance of transmitter, observe the warning “Don’t open the cover when the circuit is alive.”
6. During installation, there should be no mixture harm to flameproof housing.
7. Cable entry, certified by NEPSI with type of protection Ex d IIC in accordance with GB3836.1-2000 and GB3836.2-2000, should be applied when installation in hazardous location. 5 full threads should be in engagement when the cable entry is assembled onto the transmitter. When pressure transmitter is used in the presence of combustible dust, the ingress of protection of the cable entry should be IP66.
8. The diameter of cable should observe the instruction manual of cable entry. The compressing nut should be fastened. The aging of seal ring should be changed in time.
9. Maintenance should be done in non-hazardous location.
10. End users are not permitted to change any components inside.
11. When installation, use and maintenance of transmitter,

observe following standards:

- GB3836.13-1997 “Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres”
- GB3836.15-2000 “Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)”
- GB50257-1996 “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”
- GB15577-1995 “Safe regulation for explosive dust atmospheres”
- GB12476.2-2006 “Electrical apparatus for use in the presence of combustible dust – Part 1-2: Electrical apparatus protected by enclosures and surface temperature limitation – Selection, installation and maintenance”

I3 China Intrinsic Safety
Certificate: 3051S: GYJ111401X [Mfg USA, China, Singapore]
3051SF: GYJ11.1707X [Mfg USA, China, Singapore]
Standards: 3051S: GB3836.1-2000, GB3836.4-2000
3051SF: GB3836.1/4-2010, GB3836.20-2010 GB12476.1-2000
Markings: 3051S: Ex ia IIC T4
3051SF: Ex ia IIC T4 Ga, DIP A20 T_A105 °C IP66

Special Conditions for Safe Use (X):

1. Symbol “X” is used to denote specific conditions of use: For output code A and F: This apparatus is not capable of withstanding the 500V r.m.s. insulation test required by Clause 6.4.12 of GB3836.4-2000.
2. The ambient temperature range is:

Output code	Ambient temperature
A	-50 °C ≤ Ta ≤+70 °C
F	-50 °C ≤ Ta ≤+60 °C

3. Intrinsically safe parameters:

Output code	Housing code	Display code	Maximum input voltage: U_i (V)	Maximum input current: I_i (mA)	Maximum input power: P_i (W)	Maximum internal parameters: C_i (nF)	Maximum internal parameters: L_i (uH)
A	=00	/	30	300	1	38	0
A	≠00	/	30	300	1	11.4	2.4
A	≠00	M7/M8 /M9	30	300	1	0	58.2
F	≠00	/	30	300	1.3	0	0
F FISCO	≠00	/	17.5	500	5.5	0	0

4. The product should be used with Ex-certified associated apparatus to establish explosion protection system that can be used in explosive gas atmospheres. Wiring and terminals should comply with the instruction manual of the product and associated apparatus.
5. The cable between this product and associated apparatus should be shielded cables (the cables must have insulated shield). The shield has to be grounded reliably in non-hazardous area.
6. The product complies to the requirements for FISCO field devices specified in IEC60079-27:2008. For the connection of an intrinsically safe circuit in accordance FISCO model, FISCO parameters of this product are as above.
7. End users are not permitted to change any components inside, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
8. When installation, use and maintenance of this product, observe the following standards:

- GB3836.13-1997 “Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres”
- GB3836.15-2000 “Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)”
- GB3836.16-2006 “Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)”
- GB50257-1996 “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”

N3 China Type n
Certificate: 3051S: GYJ101112X [Mfg China]
3051SF: GYJ101125X [Mfg China]
Standards: GB3836.1-2000, GB3836.8-2003
Markings: Ex nL IIC T5

Special Conditions for Safe Use (X):

1. Symbol “X” is used to denote specific conditions of use: The apparatus is not capable of withstanding the 500V test to earth for one minute. This must be taken into consideration during installation.
2. The ambient temperature range is: -40 °C ≤ Ta ≤ 70 °C.
3. Cable glands, conduit or blanking plugs, certified by NEPSI with Ex e or Ex n protection type and IP66 degree of protection provided by enclosure, should be used on external connections and redundant cable entries.
4. Energy limiting parameters:

Model	Terminal	Maximum input voltage: U_i (V)	Maximum input current: I_i (mA)	Maximum input power: P_i (W)	Maximum internal parameters: C_i (nF)	Maximum internal parameters: L_i (uH)
3051S-C/T	1 to 5	30	300	1	30	0
3051S HART, 4-20mA/SIS	+,- and CAN	30	300	1	11.4	0
3051S fieldbus/Profibus	+ and -	30	300	1.3	0	0
3051S FISCO	+ and -	17.5	380	5.32	0	0
Remote Mount Housing	+ and -	30	300	1	24	60

Note
Remote Mount Housing is for direct connection to the Model 3051S HART Terminals +,- and CAN by a cable whose maximum capacitance and inductance do not exceed 24nF and 60uH respectively.

5. 3051S Type Pressure Transmitter comply to the requirements for FISCO field devices specified in IEC60079-27:2008. For the connection of an intrinsically safe circuit in accordance FISCO model, FISCO parameters of 3051S type Pressure Transmitter are listed in the table above.
6. The product should be used with associated energy-limited apparatus certified by NEPSI in accordance with GB 3836.1-2000 and GB 3836.8-2003 to establish explosion protection system that can be used in explosive gas atmospheres.
7. The cables between this product and associated energy-limited apparatus should be shielded cables (the cables must have insulated shield). The shielded has to be grounded reliably in non-hazardous area.
8. Maintenance should be done in non-hazardous location.
9. End users are not permitted to change any components inside, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
10. When installation, use and maintenance of this product, observe following standards:

- GB3836.13-1997 "Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres"
- GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)"
- GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)"
- GB50257-1996 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

Japan

E4 Japan Flameproof
Certificate: TC15682, TC15683, TC15684, TC15685, TC15686, TC15687, TC15688, TC15689, TC15690, TC17099, TC17100, TC17101, TC17102, TC18876
Markings: Ex d IIC T6

Republic of Korea

EP Republic of Korea Flameproof
Certificate: 12-KB4BO-0180X [Mfg USA], 11-KB4BO-0068X [Mfg Singapore]
Markings: Ex d IIC T5 or T6

IP Republic of Korea Intrinsic Safety
Certificate: 12-KB4BO-0202X [HART – Mfg USA], 12-KB4BO-0204X [Fieldbus – Mfg USA], 12-KB4BO-0203X [HART – Mfg Singapore], 13-KB4BO-0296X [Fieldbus – Mfg Singapore]
Markings: Ex d IIC T4

Technical Regulation Customs Union (EAC)

EM, IM, KM Contact an Emerson Process Management representative for additional information.

Combinations

K1 Combination of E1, I1, N1, and ND

K2 Combination of E2 and I2

K5 Combination of E5 and I5

K6 Combination of E6 and I6

K7 Combination of E7, I7, and N7

KA Combination of E1, I1, E6, and I6

KB Combination of E5, I5, E6, and I6

KC Combination of E1, I1, E5, and I5

KD Combination of E1, I1, E5, I5, E6, and I6

KG Combination of IA, IE, IF, and IG

KM Combination of EM and IM

KP Combination of EP and IP

Additional Certifications

SBS American Bureau of Shipping (ABS) Type Approval
Certificate: 00-HS145383-6-PDA
Intended Use: Measure gauge or absolute pressure of liquid, gas or vapor applications on ABS classed vessels, marine, and offshore installations.
ABS Rules: 2013 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 4-8-3/1.7, 4-8-3/1.11.1, 4-8-3/13.1

SBV Bureau Veritas (BV) Type Approval
Certificate: 31910/A0 BV
Requirements: Bureau Veritas Rules for the Classification of Steel Ships
Application: Class Notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS

SDN Det Norske Veritas (DNV) Type Approval
Certificate: A-13243
Intended Use: Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft, and Det Norske Veritas' Offshore Standards
Application:

Location classes	
Type	3051S
Temperature	D
Humidity	B
Vibration	A
EMC	A
Enclosure	D / IP66 / IP68

SLL Lloyds Register (LR) Type Approval
Certificate: 11/60002(E3)
Application: Environmental categories ENV1, ENV2, ENV3, and ENV5

D3 Custody Transfer – Measurement Canada Accuracy Approval Certificate: AG-0501, AV-2380C

Rosemount 3051S and 3051SMV Wireless Certifications

European Directive Information

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

Telecommunication compliance

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

FCC and IC

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

Ordinary Location Certification from FM Approvals

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

North America

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

United States of America

I5 FM Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 3027705
Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005, NEMA 250 – 2003
Markings: IS CL 1, DIV 1, GP 1, B, C, D; CL II, DIV 1, GP E, F, G; CL III; CL 1, ZONE 0 AEx ia IIC T4; NI CL 1, DIV2, GPA, B, C, D, T4; DIP CL II, DIV 1, GP E, F, G; CL III, T5; T4 (-50 °C ≤ Ta ≤ +70 °C)/ T5 (-50 °C ≤ Ta ≤ +85 °C); when connected per Rosemount drawing 03151-1000; Type 4X

Special Conditions for Safe Use (X):

1. The model 3051SMV Wireless PDP Transmitter shall only be used with the 701PBKKF Rosemount SmartPower Battery Pack.
2. The transmitter may contain more than 10% aluminum and is considered a potential risk of ignition by impact or friction.
3. The surface resistivity of the antenna is greater than 1GΩ . To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

Note
Transmitters marked with NI CL 1, DIV 2 can be installed in Division 2 locations using general Division 2 wiring methods or Nonincendive Field Wiring (NIFW). See Drawing 03151-1000.

Canada

I6 CSA Intrinsically Safe
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Intrinsically Safe Class I, Division 1; suitable for Class 1, Zone 0, IIC, T3C; when connected per Rosemount drawing 03151-1010; Type 4x

Europe

I1 ATEX Intrinsic Safety
Certificate: Baseefa13ATEX0127X
Standards: EN 60079-0: 2012, EN 60079-11: 2012
Markings: ⟨Ex⟩ II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ Ta ≤+70 °C)

Special Conditions for Safe Use (X):

1. The Model 3051S Wireless and Model 3051SMV Wireless enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0 area.
2. The surface resistivity of the antenna is greater than 1GΩ . To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or dry cloth.

International

I7 IECEx Intrinsic Safety
Certificate: IECEx BAS 13.0068X
Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ Ta ≤ +70 °C)

Special Conditions for Safe Use (X):

1. The Model 3051S Wireless and Model 3051SMV Wireless enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0 area.
2. The surface resistivity of the antenna is greater than 1GΩ . To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or dry cloth.

Brazil

I2 INMETRO Intrinsic Safety
Certificate: CEPEL 08.1618
Standards: ABNT NBR IEC60079-0:2008, ABNT NBR IEC60079-11:2009, ABNT NBR IEC 60079-26:2008, ABNT NBR IEC 60529:2009
Markings: Ex ia IIC T5/T4 Ga, T5(-60 °C ≤ Ta ≤ +40 °C), T4(-60 °C ≤ Ta ≤ +70 °C), IP66(Al)/IP66W(SST)

Note
Not currently available on the 3051S MultiVariable Wireless Transmitter.

China

I3 China Intrinsic Safety
Certificate: 3051S Wireless: GYJ111401X 3051SFX: GYJ11.1707X [Flowmeters]
Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010, GB12476.1-2000
Markings: Ex ia IIC T4(-50 °C~+70 °C)

Special Condition for Safe Use (X):

1. See appropriate certificate.

Note
Not currently available on the 3051S MultiVariable Wireless Transmitter.

Japan

I4 TIIS Intrinsically Safe
Certificate: TC18649, TC18650, TC18657
Markings: Ex ia IIC T4, T4 -20 ~ 60 °C

Note
Not currently available on the 3051S MultiVariable Wireless Transmitter.

Republic of Korea

IP Contact an Emerson Process Management representative for additional information

Technical Regulation Customs Union (EAC)

IM Contact an Emerson Process Management representative for additional information.

Rosemount 3051SMV/3051SFx (Measurement Type 1-7) Certifications

European Directive Information

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

Ordinary Location Certification from FM Approvals

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

North America

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

United States of America

E5 FM Explosionproof (XP) and Dust-Ignitionproof (DIP)
Certificate: 3008216
Standards: FM Class 3600 – 2011, FM Class 3615 – 2006, FM Class 3616-2011, 3810 – 2005, ANSI/NEMA 250 – 2003
Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III; T5(-50°C ≤ Ta ≤ +85°C); Factory Sealed; Type 4X

I5 FM Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 3031960
Standards: FM Class 3600 – 1998, FM Class 3610 – 2007, FM Class 3611 – 2004, FM Class 3810 – 2005, NEMA 250 – 1991
Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; Class 1, Zone 0 AEx ia IIC T4; NI CL 1, DIV 2, GP A, B, C, D; T4(-50°C ≤ Ta ≤ +70°C) when connected per Rosemount drawing 03151-1206; Type 4x

Note
Transmitters marked with NI CL 1, DIV 2 can be installed in Division 2 locations using general Division 2 wiring methods or Nonincendive Field Wiring (NIFW). See Drawing 03151-1206.

Canada

E6 CSA Explosionproof, Dust-Ignitionproof, and Division 2
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 25-1966, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 213-M1987, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Explosionproof Class I, Division 1, Groups B, C, D; Dust-Ignitionproof Class II, Division 1, Groups E, F, G; Class III; suitable for Class I, Division 2, Groups A, B, C, D; Type 4x

I6 CSA Intrinsically Safe
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Intrinsically Safe Class I, Division 1; suitable for Class 1, Zone 0, IIC, T3C; when connected per Rosemount drawing 03151-1207; Type 4x

Europe

E1 ATEX Flameproof
Certificate: KEMA 00ATEX2143X
Standards: EN 60079-0:2012, EN 60079-1: 2007, EN 60079-26:2007
Markings: II 1/2 G Ex d IIC T6...T4 Ga/Gb, T6(-60 °C ≤ Ta ≤ +70 °C), T5/T4(-60 °C ≤ Ta ≤ +80 °C)

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

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.

I1 ATEX Intrinsic Safety
Certificate: Baseefa08ATEX0064X
Standards: EN 60079-0: 2012, EN 60079-11: 2012
Markings: ⟨Ex⟩ II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ Ta ≤ +70 °C)

	HART	SuperModule only	RTD (for 3051SFx)
Voltage U_i	30 V	7.14 V	30 V
Current I_i	300 mA	300 mA	2.31 mA
Power P_i	1 W	887 mW	17.32 mW
Capacitance C_i	12 nF	0.11 µF	30
Inductance L_i	0	0	0

Special Conditions for Safe Use (X):

1. If the equipment is fitted with the optional 90V transient suppressor, it is incapable of withstanding the 500V isolation from earth test and this must be taken into account during installation
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a Zone 0 environment.

ND ATEX Dust
Certificate: BAS01ATEX1374X
Standards: EN 60079-0: 2012, EN 60079-31: 2009
Markings: ⟨Ex⟩ II 1 D Ex ta IIIC T105°C T_{500}95 °C Da, (-20 °C ≤ Ta ≤ +85 °C), V_{max} = 42.4V

Special Conditions for Safe Use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient temperature range of the apparatus and capable of withstanding a 7J impact test.
4. The SuperModule(s) must be securely screwed in place to maintain the ingress protection of the enclosure(s).

N1 ATEX Type n
Certificate: Baseefa08ATEX0065X
Standards: EN 60079-0: 2012, EN 60079-15: 2010
Markings: ⟨Ex⟩ II 3 G Ex nA IIC T4 Gc, (-40 °C ≤ Ta ≤ 70 °C), V_{max} = 45V

Special Condition for Safe Use (X):

1. If fitted with a 90V transient suppressor, the equipment is not capable of withstanding the 500V electrical strength test as defined in Clause 6.5.1 of EN 60079-15:2010. This must be taken into account during installation.

International

E7 IECEx Flameproof and Dust
Certificate: IECEx KEM 08.0010X (Flameproof)
Standards: IEC 60079-0:2011, IEC 60079-1: 2007, IEC 60079-26:2006
Markings: Ex d IIC T6...T4 Ga/Gb, T6(-60 °C ≤ Ta ≤ +70 °C), T5/T4(-60 °C ≤ Ta ≤ +80 °C)

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

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.

Certificate: IECEx BAS 09.0014X (Dust)
Standards: IEC 60079-0:2011, IEC 60079-31:2008
Markings: Ex ta IIIC T105 °C T_{500}95 °C Da, (-20 °C ≤ Ta ≤ +85 °C), V_{max} = 42.4V

Special Conditions for Safe Use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient temperature range of the apparatus and capable of withstanding a 7J impact test.
4. The 3051S- SuperModule must be securely screwed in place to maintain the ingress protection of the enclosure.

I7 IECEx Intrinsic Safety
Certificate: IECEx BAS 08.0025X
Standards: IEC 60079-0: 2011, IEC 60079-11: 2011
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ Ta ≤ +70 °C)

	HART	SuperModule only	RTD (for 3051SFx)
Voltage U_i	30 V	7.14 V	30 V
Current I_i	300 mA	300 mA	2.31 mA
Power P_i	1 W	887 mW	17.32 mW
Capacitance C_i	12 nF	0.11 µ F	0
Inductance L_i	0	0	0

Special Conditions for Safe Use (X):

1. If the equipment is fitted with the optional 90V transient suppressor, it is incapable of withstanding the 500V isolation from earth test and this must be taken into account during installation.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a Zone 0 environment.

N7 IECEx Type n
Certificate: IECEx BAS 08.0026X
Standards: IEC 60079-0: 2011, IEC 60079-15: 2010
Markings: Ex nA IIC T5 Gc, (-40 °C ≤ Ta ≤ 70 °C)

Special Condition for Safe Use (X):

1. If fitted with a 90V transient suppressor, the equipment is not capable of withstanding the 500V electrical strength test as defined in Clause 6.5.1 of IEC 60079-15:2010. This must be taken into account during installation.

Brazil

E2 INMETRO Flameproof
Certificate: CEPEL 03.0140X [Mfg USA, Singapore, Germany], CEPEL 07.1413X [Mfg Brazil]
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-1:2009, ABNT NBR IEC 60529:2009
Markings: Ex d IIC T* Ga/Gb, T6(-40 °C ≤ T_a ≤ +65 °C), T5(-40 °C ≤ T_a ≤ +80 °C), IP66(Al)/IP66W(SST)

Special Conditions for Safe Use (X):

1. For ambient temperature above 60 °C, cable wiring must have minimum isolation temperature of 90 °C, to be in accordance to equipment operation temperature.
2. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.

I2 INMETRO Intrinsic Safety
Certificate: NCC 12.1158X [Mfg USA, Germany]
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009, ABNT NBR IEC 60079-26:2008
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C), IP66(Al)/IP66W(SST)

Special Conditions for Safe Use (X):

1. If the equipment is fitted with the optional 90V transient suppressor, it is incapable of withstanding the 500V isolation from earth test and this must be taken into account during installation.
2. For processes with temperatures above 135 °C, the user must assess whether the SuperModule temperature class is suitable for such applications, because in this situation there is a risk of the SuperModule temperature being above T4.

	HART	SuperModule only	RTD (for 3051SFx)
Voltage U_i	30 V	7.14 V	30 V
Current I_i	300 mA	300 mA	2.31 mA
Power P_i	1 W	887 mW	17.32 mW
Capacitance C_i	12 nF	0.11 µ F	0
Inductance L_i	0	0	0

China

E3 China Flameproof and Dust Ignition-proof
Certificate: 3051SMV: GYJ14.1039X [Mfg USA, China, Singapore] 3051SFx: GYJ071086 [Mfg USA, China, Singapore]
Standards: 3051SMV: GB3836.1-2010, GB3836.2-2010, GB3836.20-2010
3051SFx: GB3836.1-2000, GB3836.2-2000, GB12476.1-2000
Markings: 3051SMV: Ex d IIC T6/T5 Ga/Gb
3051SFx: Ex d IIC T6/T5; Ex d IIB+H2T3~T5; DIP A21 T_A T3~T5

I3 China Intrinsic Safety
Certificate: 3051SMV: GYJ14.1040X [Mfg USA, China, Singapore]
3051SFx: GYJ11.1707X [Mfg USA, China, Singapore]
Standards: 3051SMV: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
3051SFx: GB3836.1/4-2010, GB3836.20-2010, GB12476.1-2000
Markings: 3051SMV: Ex ia IIC T4 Ga
3051SFx: Ex ia IIC T4 Ga, DIP A20 T_A105°C IP66

Japan

E4 Japan Flameproof
Certificate:TC19070, TC19071, TC19072, TC19073
Markings: Ex d IIC T6

Technical Regulation Customs Union (EAC)

EM, IM, KM Contact an Emerson Process Management representative for additional information.

Combinations

K1 Combination of E1, I1, N1, and ND

K2 Combination of E2 and I2

K5 Combination of E5 and I5

K6 Combination of E6 and I6

K7 Combination of E7, I7, and N7

KA Combination of E1, I1, E6, and I6

KB Combination of E5, I5, E6, and I6

KC Combination of E1, I1, E5, and I5

KD Combination of E1, I1, E5, I5, E6, and I6

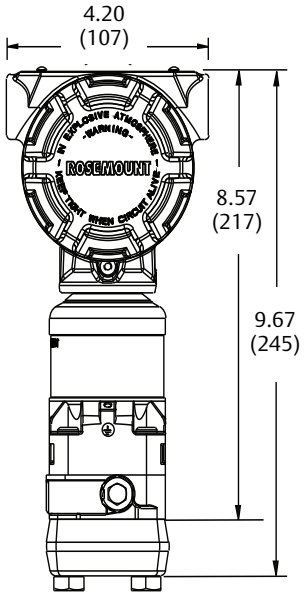
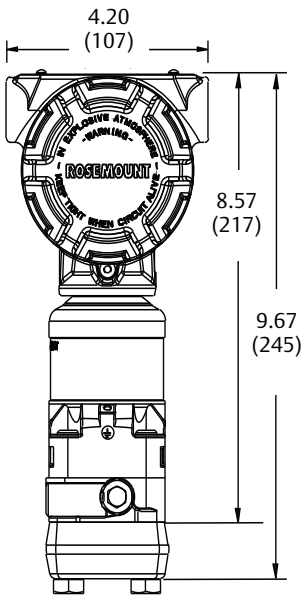
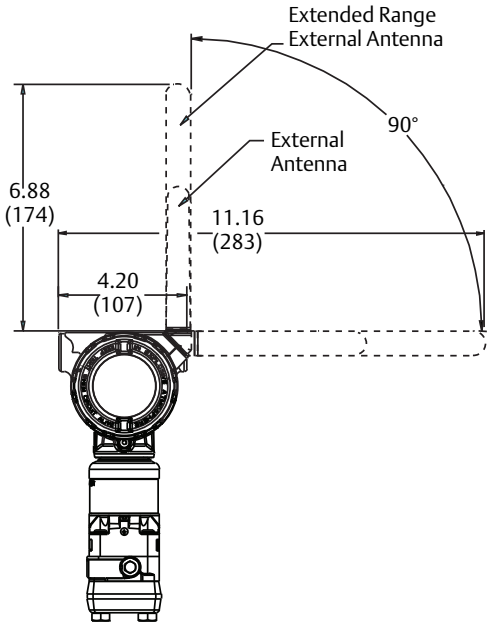
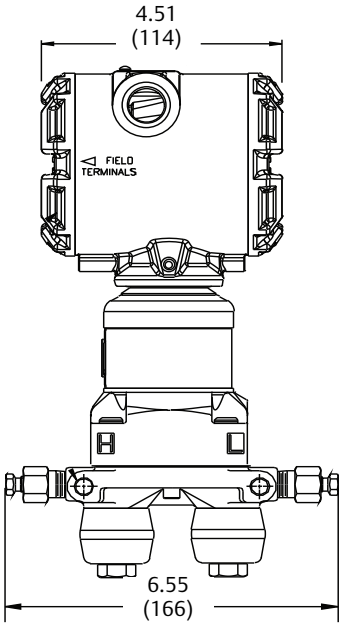
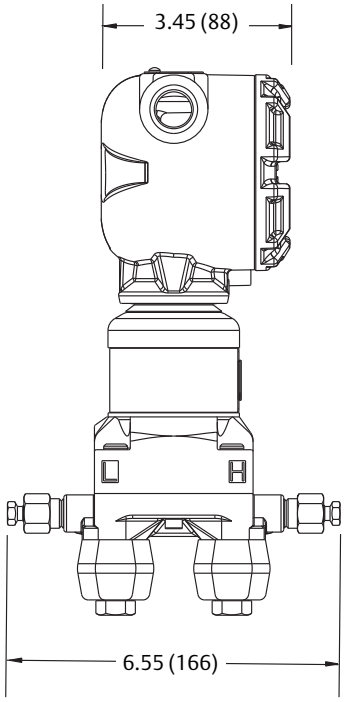
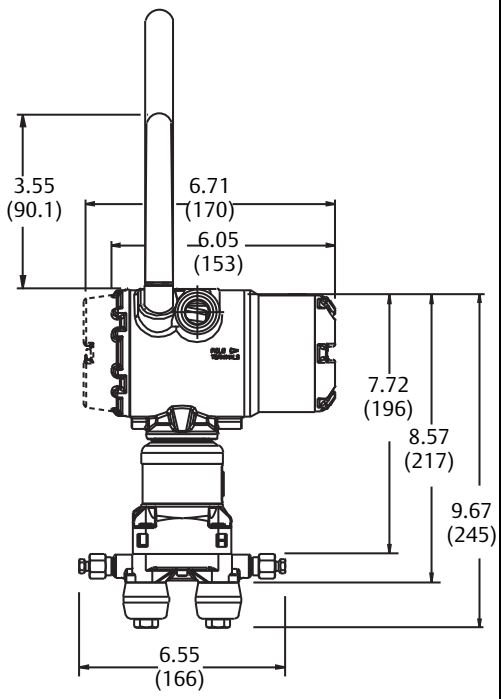
Additional Certifications

SBS American Bureau of Shipping (ABS) Type Approval
Certificate: 00-HS145383-6-PDA
Intended Use: Measure gauge or absolute pressure of liquid, gas or vapor applications on ABS classed vessels, marine, and offshore installations.
ABS Rules: 2013 Steel Vessels Rules 1-1-4/7.7, 1-1-A3, 4-8-3/1.7, 4-8-3/1.11.1, 4-8-3/13.1

D3 Custody Transfer – Measurement Canada Accuracy Approval Certificate: AG-0501, AV-2380C

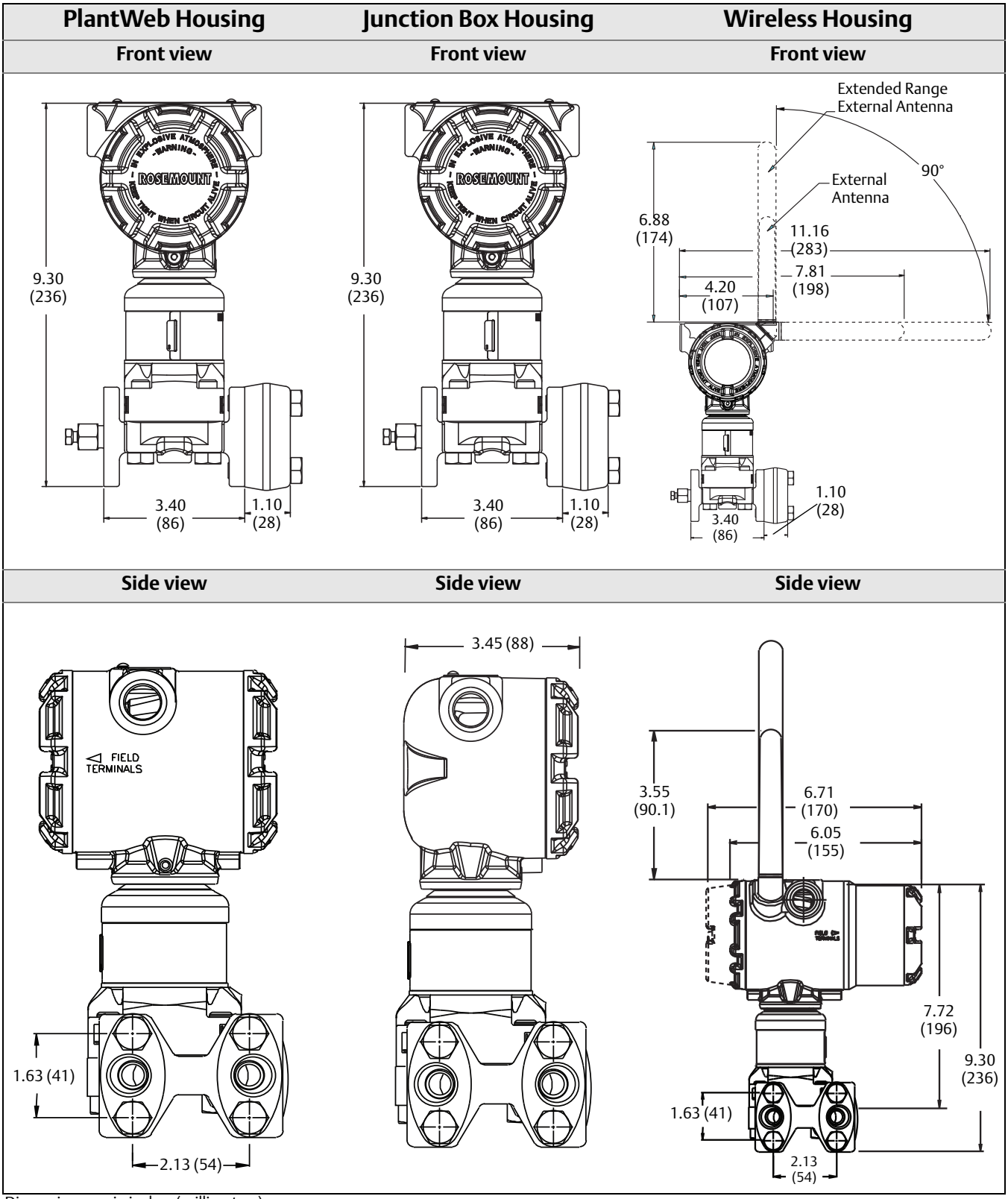
Dimensional Drawings

Figure 1. Transmitter with Coplanar Sensor Module and Flange

PlantWeb Housing	Junction Box Housing	Wireless Housing
Front view	**Front view**	**Front view**
		
Side view	**Side view**	**Side view**
		

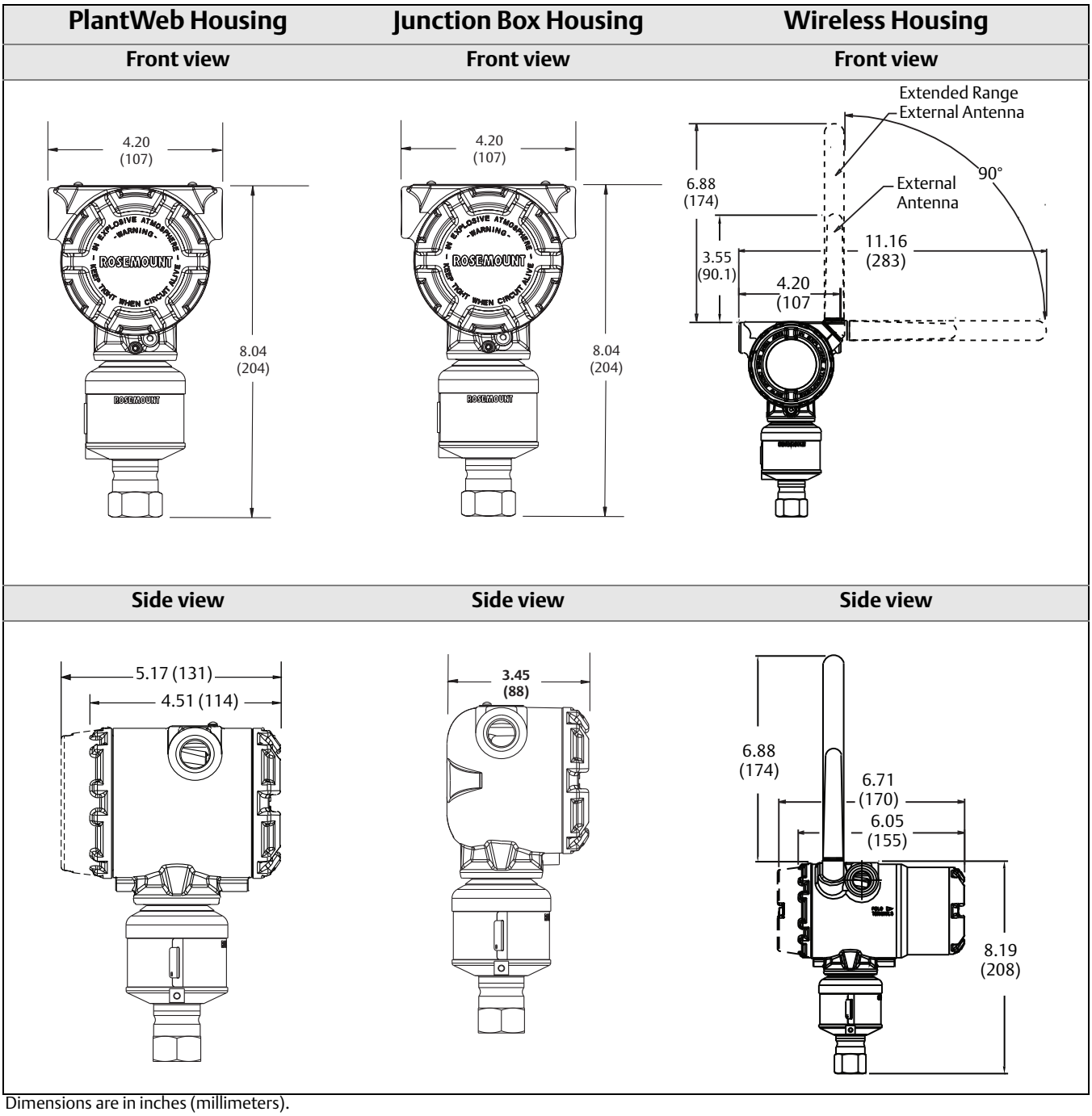
Dimensions are in inches (millimeters).

Figure 2. Transmitter with Coplanar Sensor Module and Traditional Flange



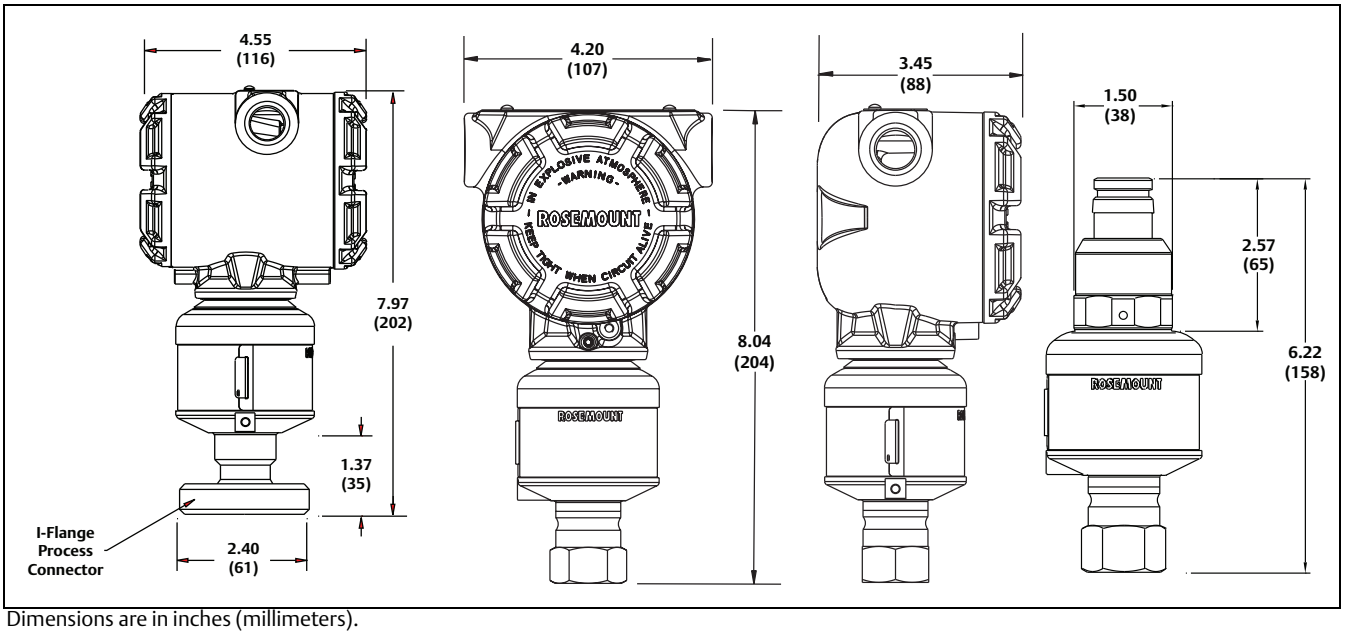
Dimensions are in inches (millimeters).

Figure 3. Transmitter with In-Line Sensor Module (for ranges 1A-4A, 1/2" NPT 316L SST process wetted connection). For detailed dimensions on other configurations, see Type I drawings at rosemount.com.



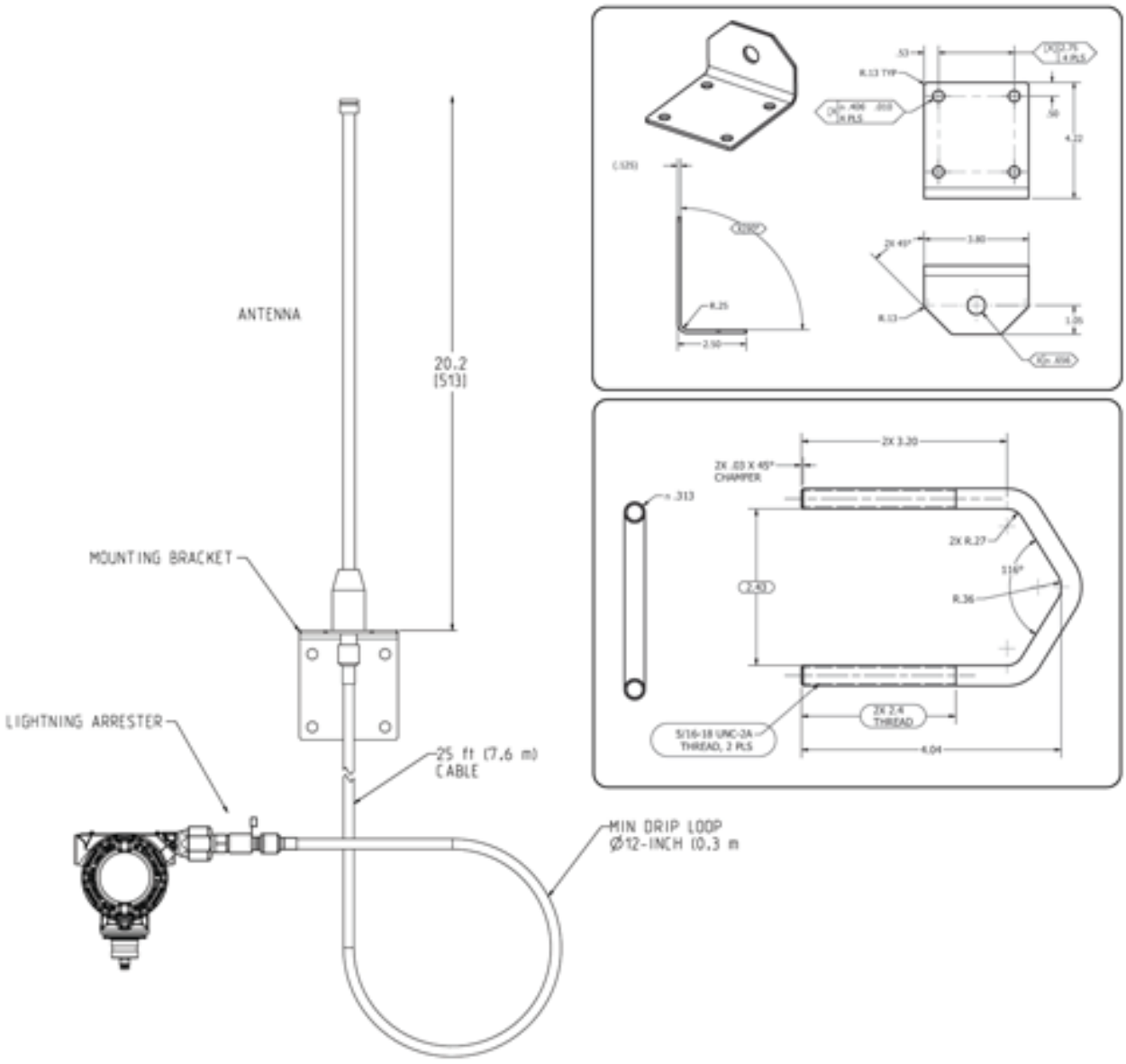
Dimensions are in inches (millimeters).

Figure 4. PlantWeb Housing, Junction Box Housing, and Quick Connect with In-Line SuperModule Platform



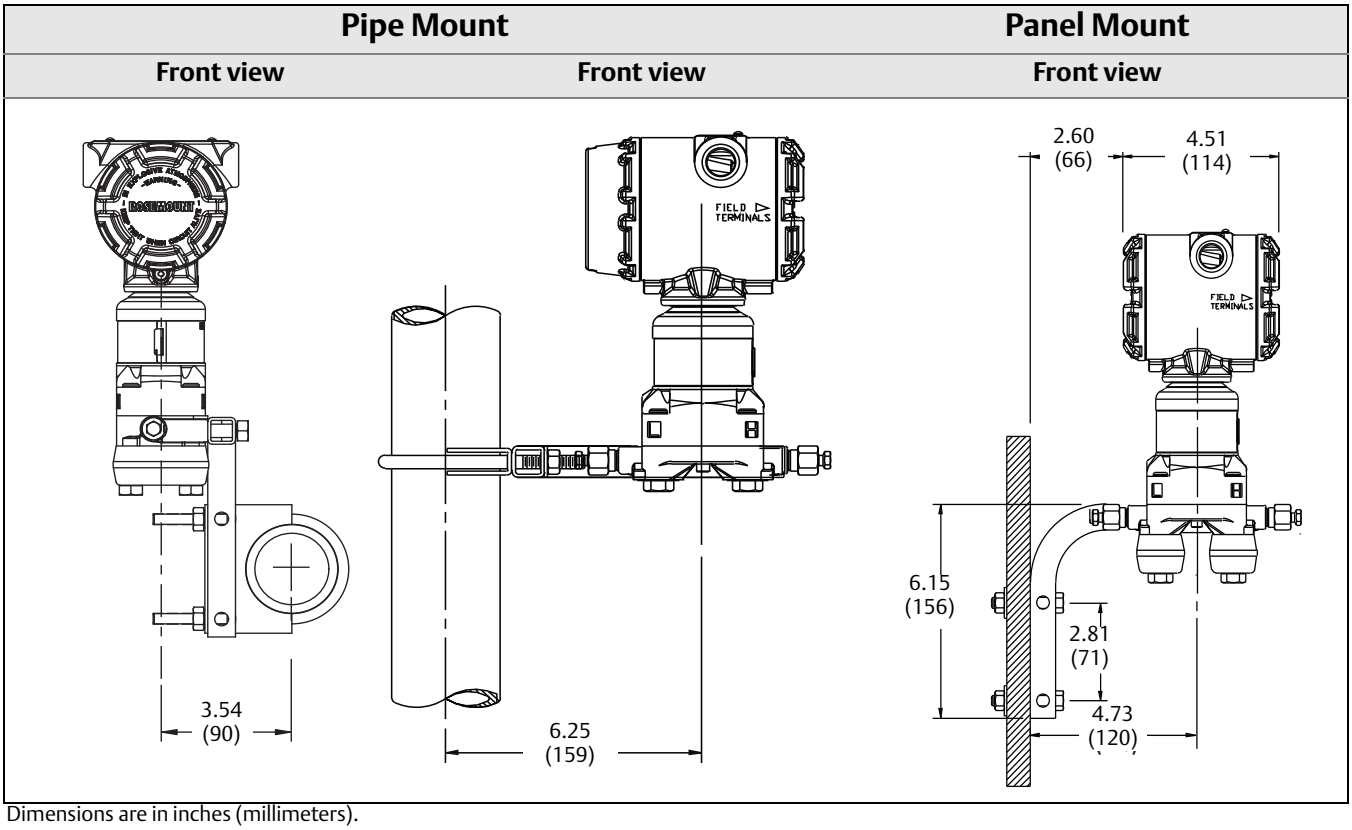
Dimensions are in inches (millimeters).

Figure 5. High Gain, Remote Mount Antenna (WN option)



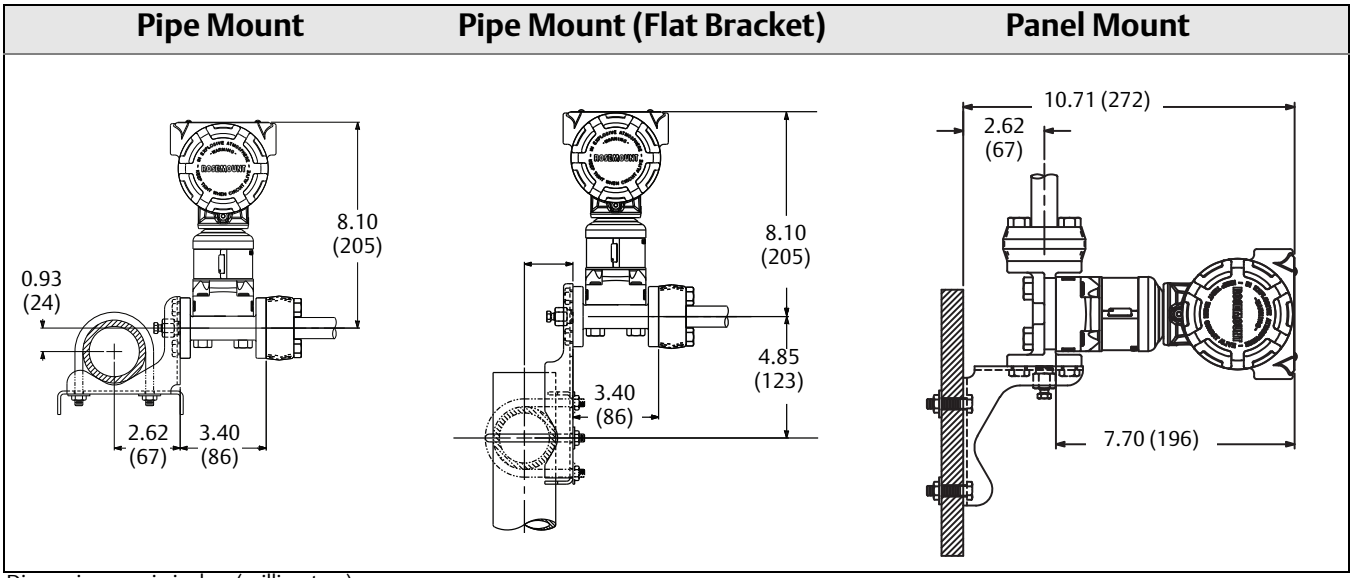
Dimensions are in inches (millimeters).

Figure 6. Coplanar Mounting Configurations (B4 Bracket)



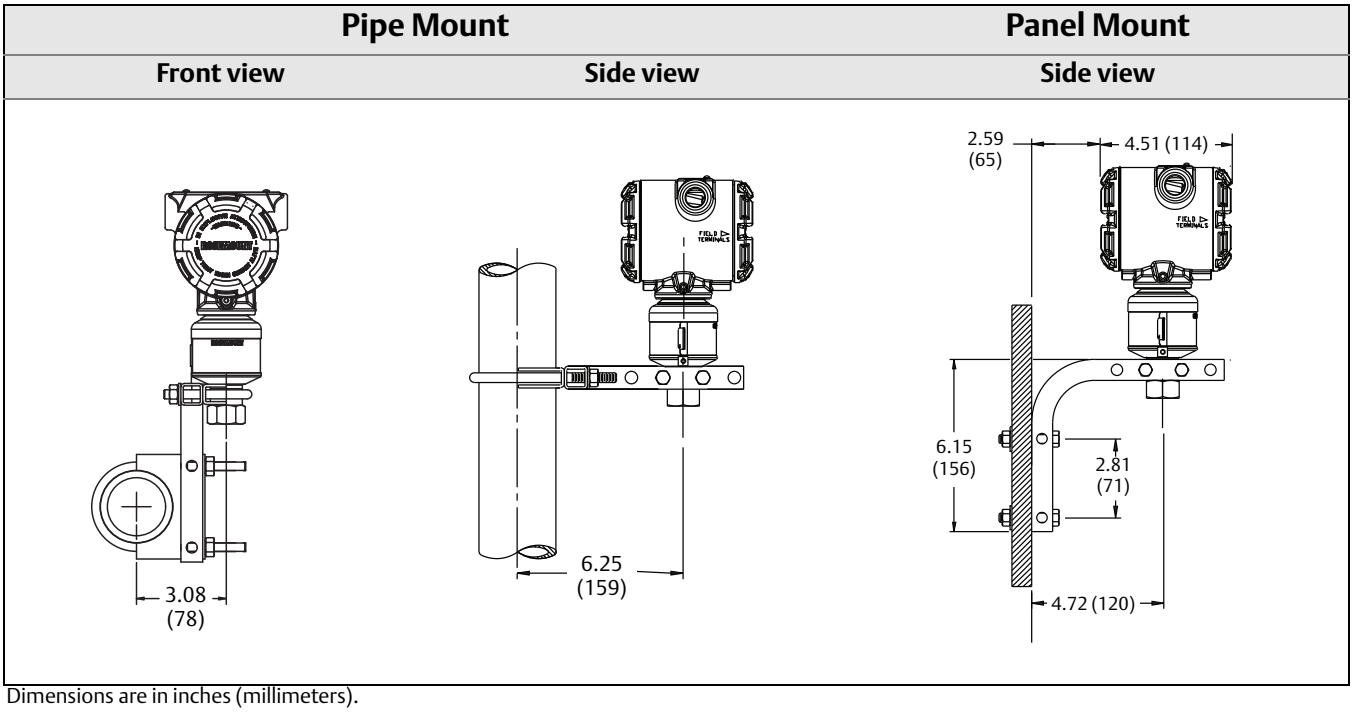
Dimensions are in inches (millimeters).

Figure 7. Traditional Mounting Configurations



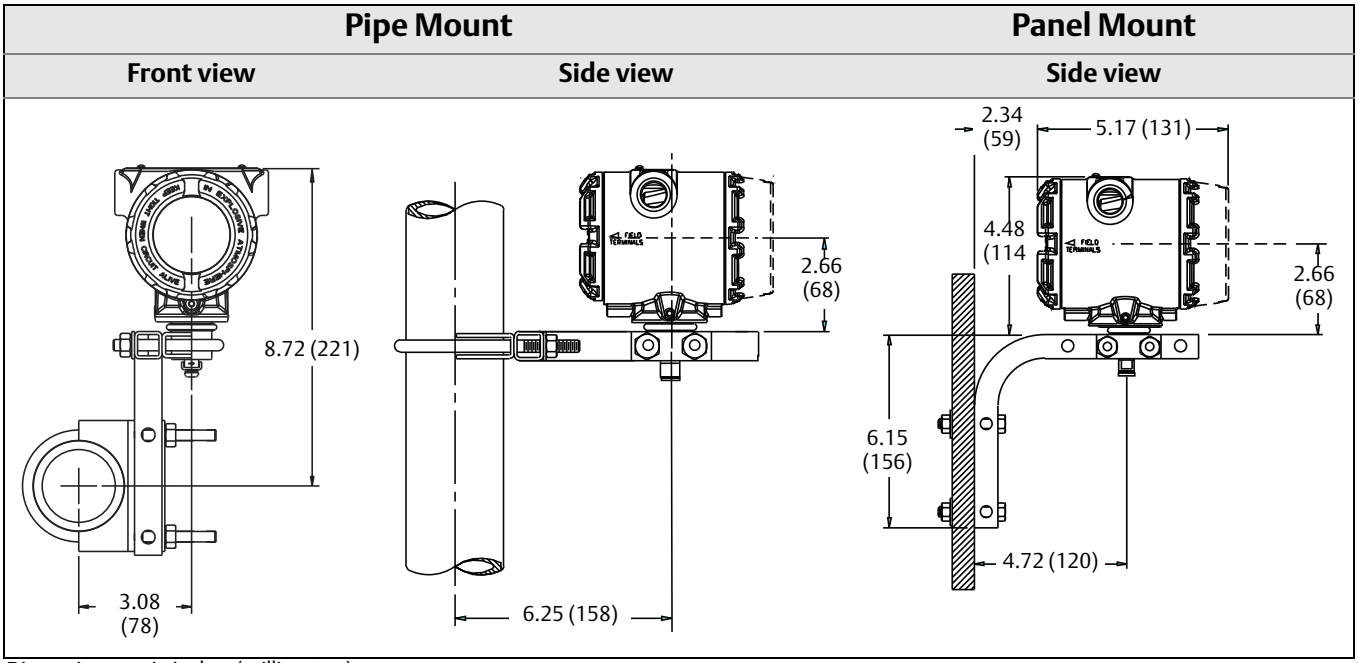
Dimensions are in inches (millimeters).

Figure 8. In-Line Mounting Configurations (B4 Bracket)



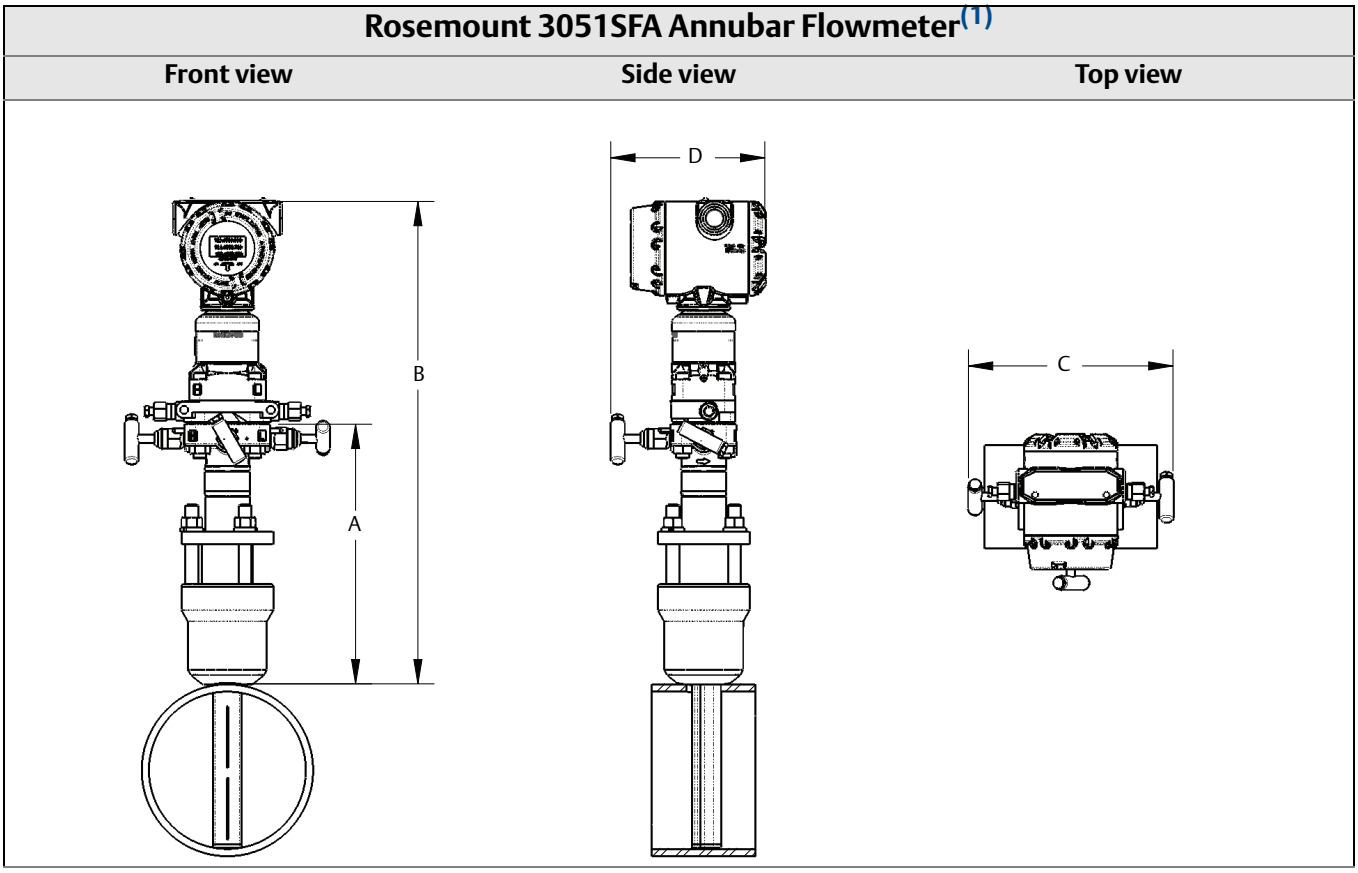
Dimensions are in inches (millimeters).

Figure 9. Remote Display Mounting Configurations (B4 Bracket)



Dimensions are in inches (millimeters).

Figure 10. Rosemount 3051SFA Annubar Flowmeter



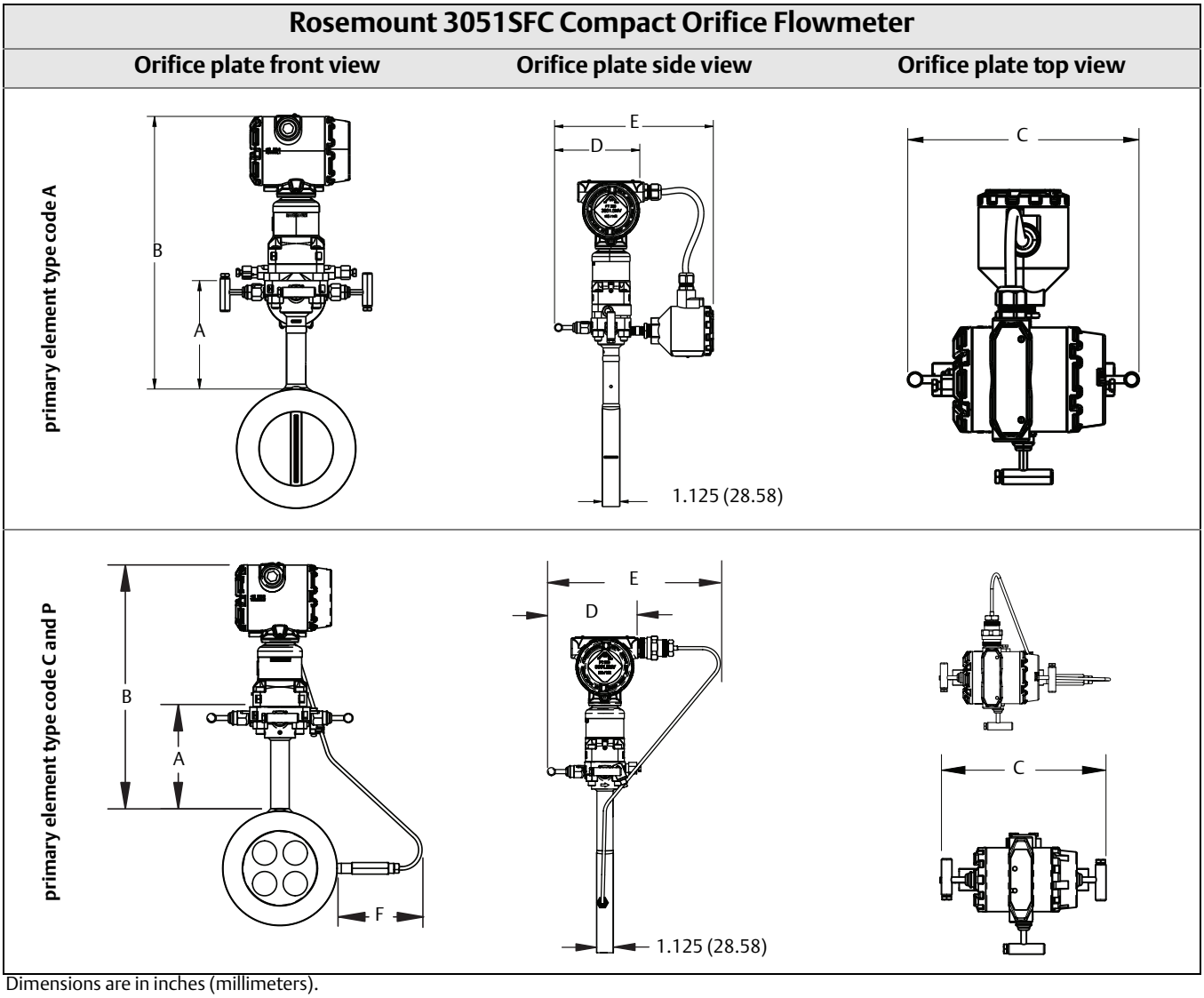
(1) The Pak-Lok Annubar model is available up to 600# ANSI [1440 psig at 100 °F (99 bar at 38 °C)].

Table 22. 3051CFA Annubar Flowmeter Dimensional Data

Sensor size	A (Max)	B (Max)	C (Max)	D (Max)
1	8.50(215.9)	17.10 (434.3)	8.66 (220.0)	7.00 (177.8)
2	11.00(279.4)	19.60 (497.8)	8.66 (220.0)	7.00 (177.8)
3	12.00 (304.8)	20.60 (523.2)	8.66 (220.0)	7.00 (177.8)

Dimensions are in inches (millimeters)

Figure 11. Rosemount 3051SFC Compact Orifice Flowmeter



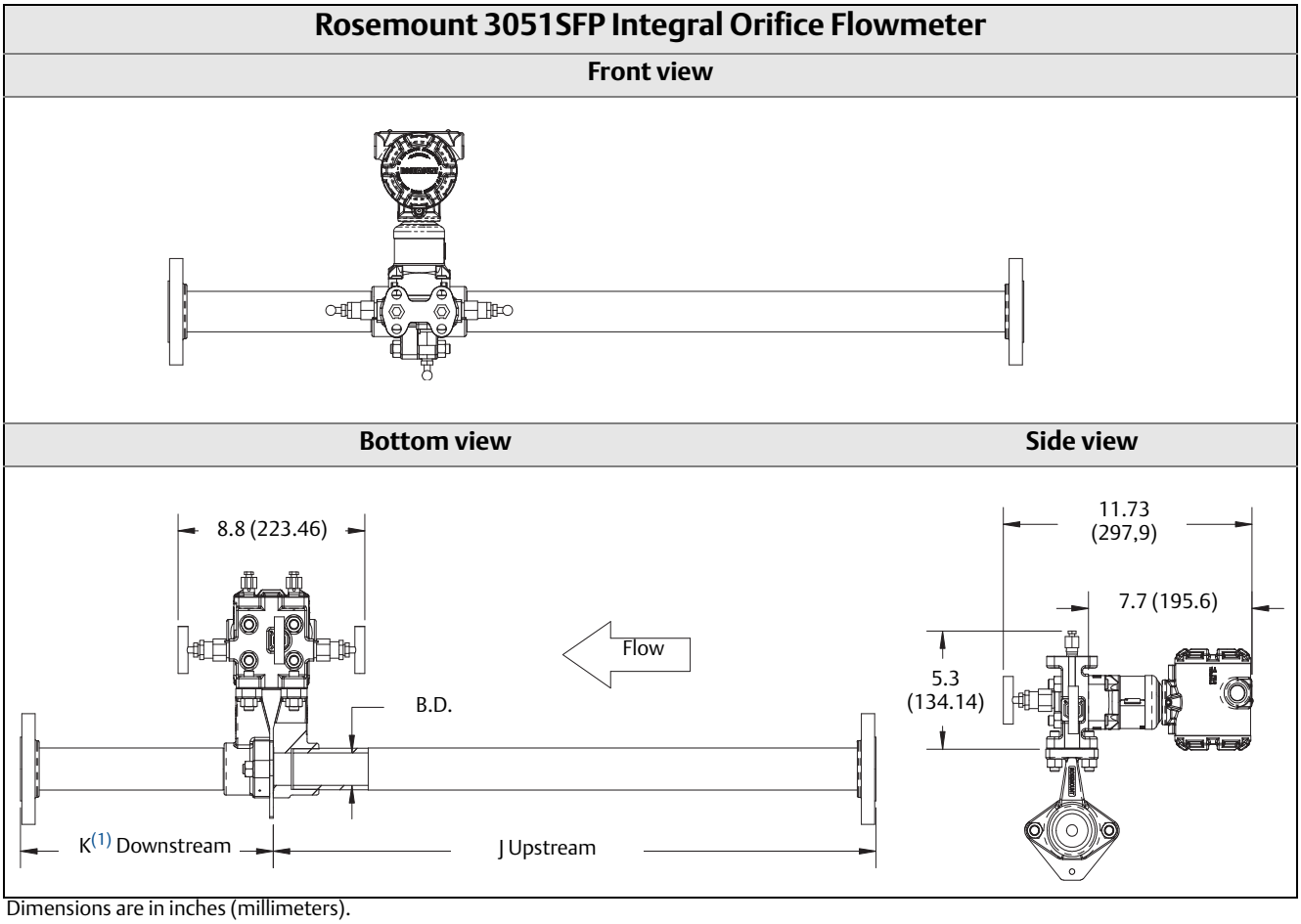
Dimensions are in inches (millimeters).

Table 23. Dimensional Drawings

Primary element type	A	B	Transmitter height	C	D	E	F
Type A	5.62 (143)	Transmitter Height + A	8.53 (217)	7.75 (197) - closed 8.25 (210) - open	6.00 (152) - closed 6.25 (159) - open	10.0 (254) - closed 10.25 (260.3) - open	-
Type P and C	5.62 (143)	Transmitter Height + A	7.70 (196)	7.75 (197) - closed 8.25 (210) - open	6.00 (152) - closed 6.25 (159) - open	10.2 (257.8) - closed 10.4 (264.2) - open	Max of 7.2 (184)

Dimensions are in inches (millimeters).

Figure 12. Rosemount 3051SFP Integral Orifice Flowmeter



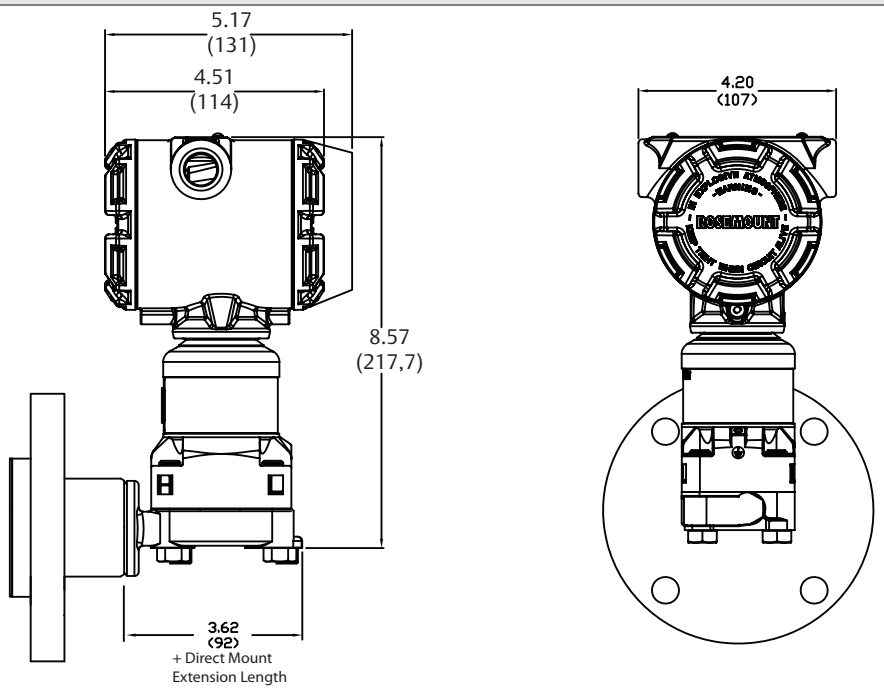
Dimensions are in inches (millimeters).

	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)

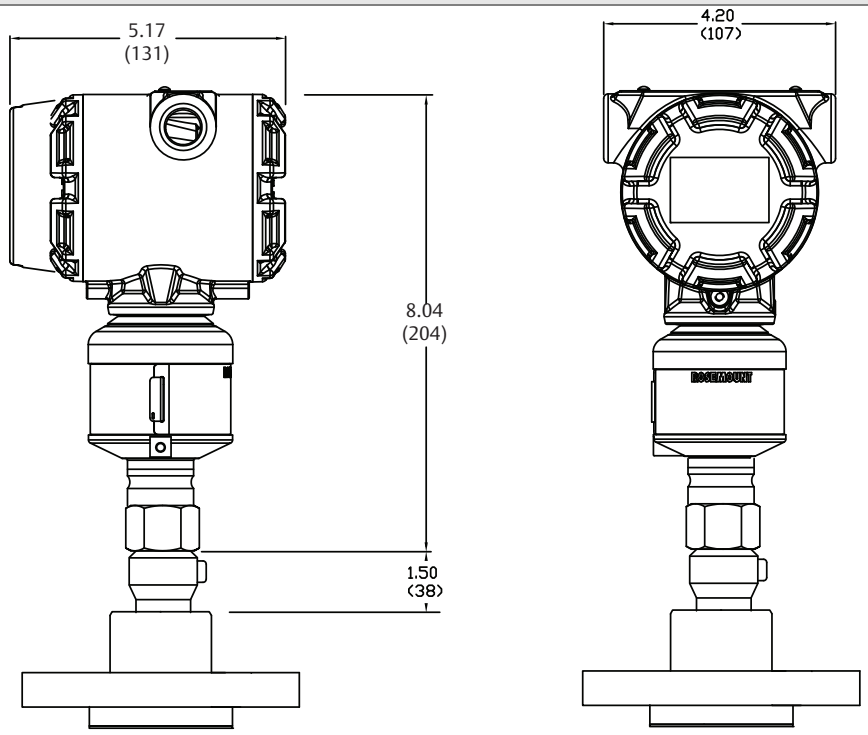
(1) Downstream length shown here includes plate thickness of 0.162-in. (4.11 mm).

Figure 13. Rosemount 3051S Scalable Level Transmitter with FF Seal

Rosemount 3051S Scalable Level Transmitter with FF[(1)(2)]- Coplanar Style



Rosemount 3051S Scalable Level Transmitter with FF[(1)(2)] - In-Line Style



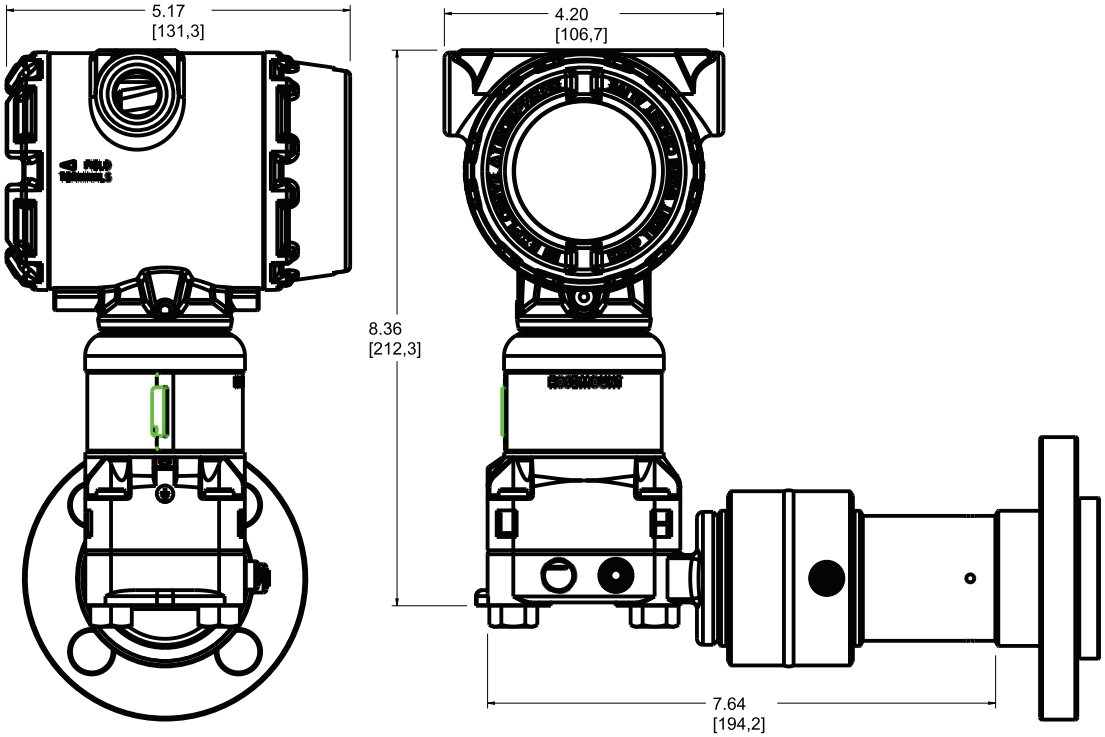
Dimensions are in inches (millimeters).

(1) FF (FFW) seal dimensions and pressure ratings can be found in the Rosemount DP Level Transmitters and 1199 Remote Seals Product Data Sheet, (00813-0100-4016).

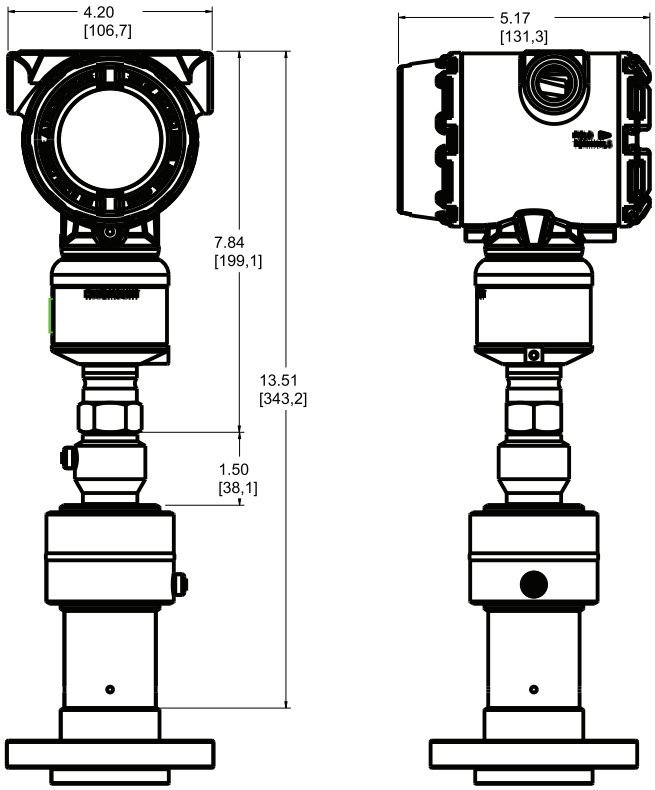
(2) Lower housing (flushing ring) is available with FFW style flange.

Figure 14. Rosemount 3051S Scalable Level Transmitter with Thermal Range Expander

Rosemount 3051S Scalable Level Transmitter with Thermal Range Expander – Coplanar Style



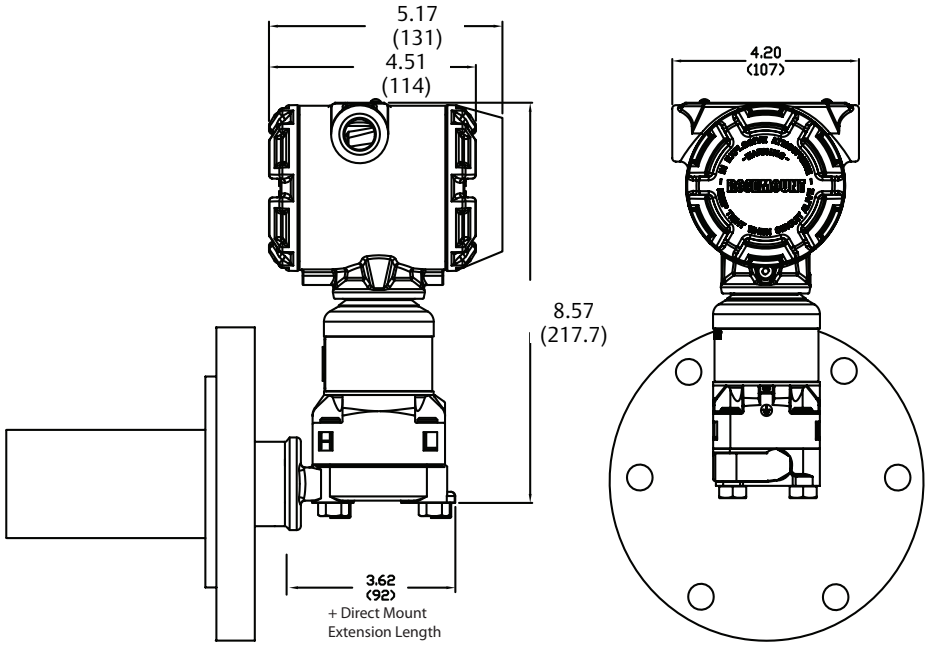
Rosemount 3051S Scalable Level Transmitter with Thermal Range Expander – In-Line Style



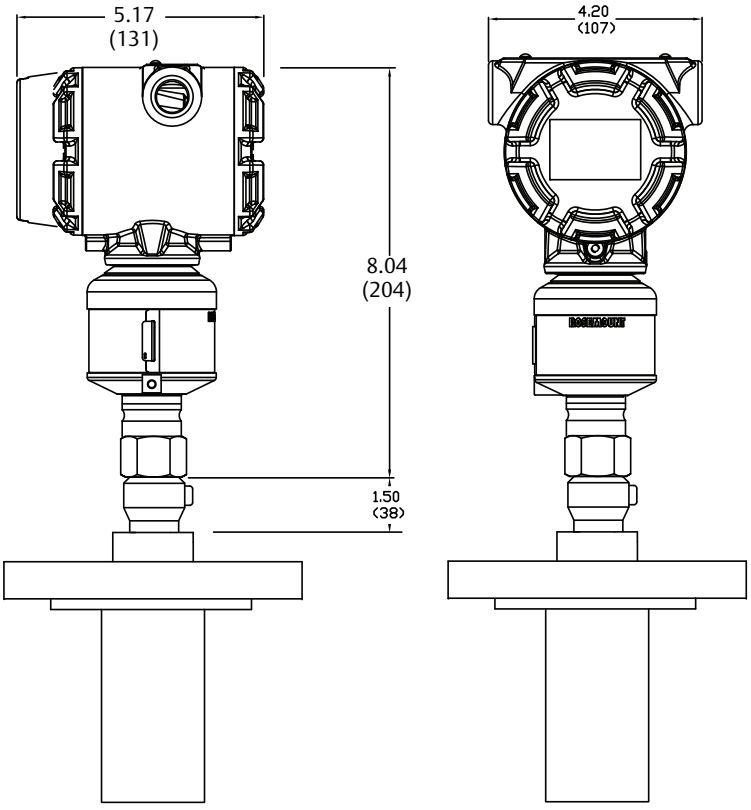
Dimensions are in inches (millimeters).

Figure 15. Rosemount 3051S Scalable Level Transmitter with EF Seal

Rosemount 3051S Scalable Level Transmitter with EF(1)- Coplanar Style



Rosemount 3051S Scalable Level Transmitter with EF(1) - In-Line Style

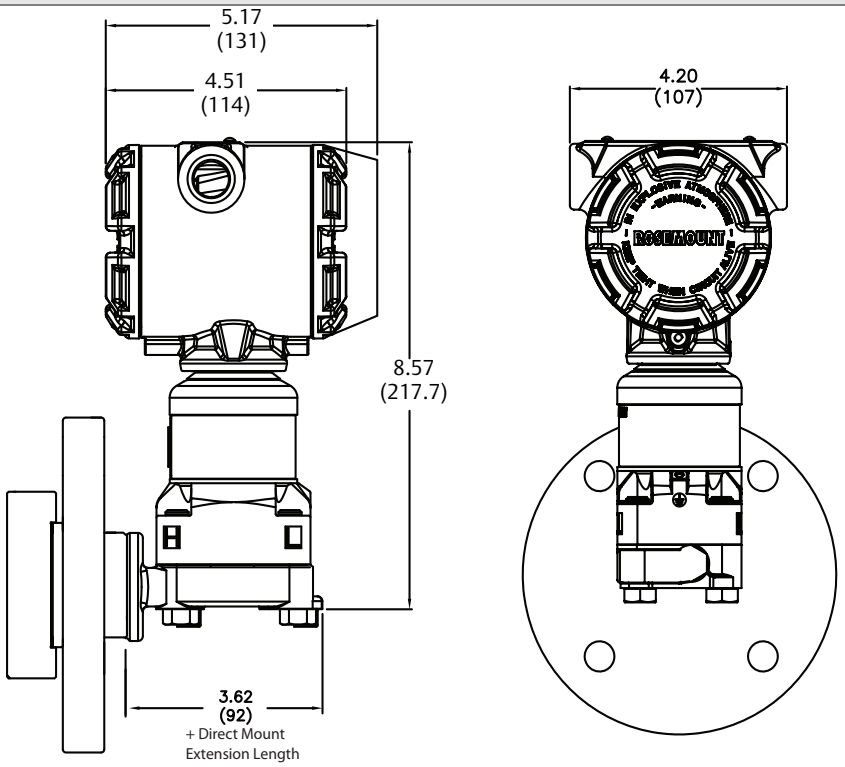


Dimensions are in inches (millimeters).

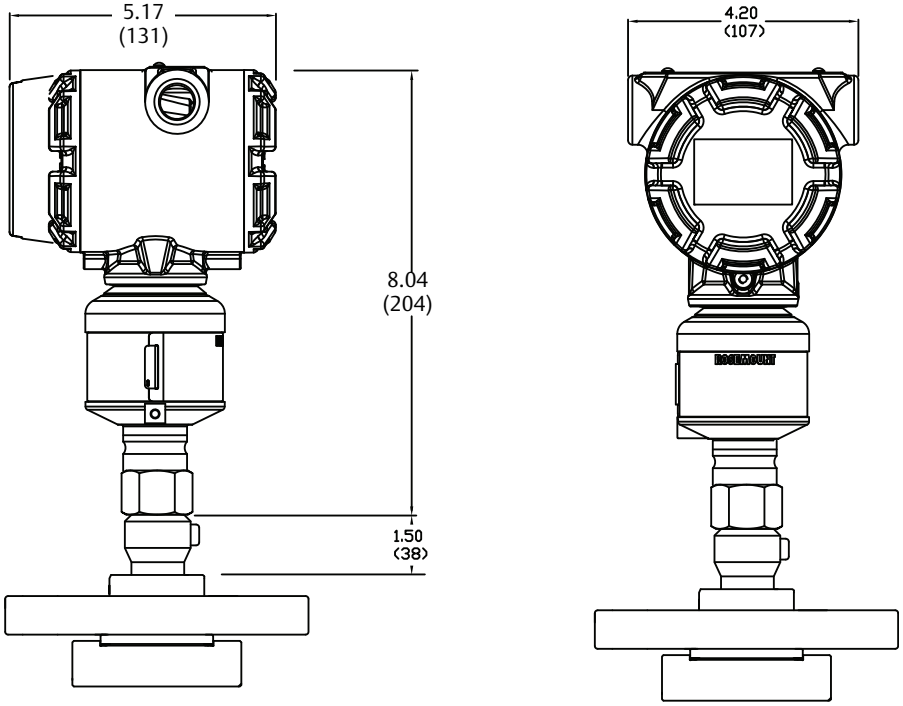
(1) EF (EFW) seal dimensions and pressure ratings can be found in the Rosemount DP Level Transmitters and 1199 Remote Seals Product Data Sheet, (00813-0100-4016).

Figure 16. Rosemount 3051S Scalable Level Transmitter with RF Seal

Rosemount 3051S Scalable Level Transmitter with RF(1)- Coplanar Style



Rosemount 3051S Scalable Level Transmitter with RF(1) - In-Line Style

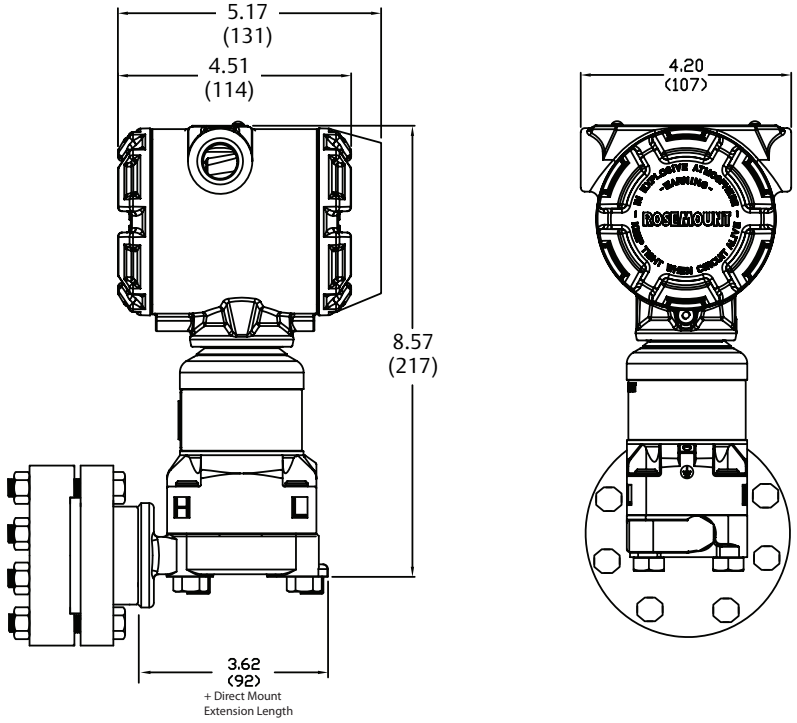


Dimensions are in inches (millimeters).

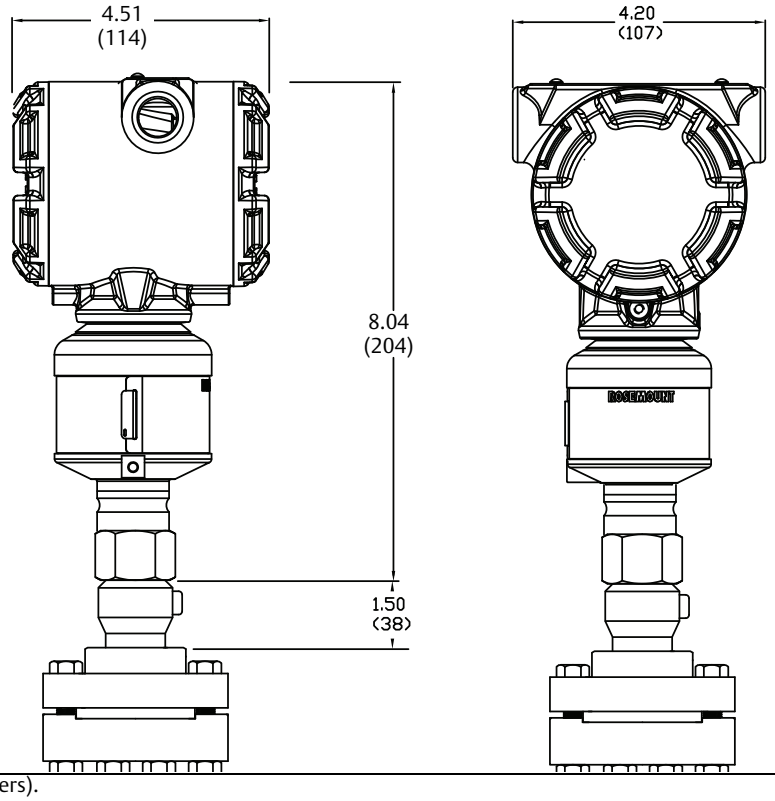
(1) RF (RFW) seal dimensions and pressure ratings can be found in the Rosemount DP Level Transmitters and 1199 Remote Seals Product Data Sheet, (00813-0100-4016).

Figure 17. Rosemount 3051S Scalable Level Transmitter with RT Seal

Rosemount 3051S Scalable Level Transmitter with RT(1)- Coplanar Style



Rosemount 3051S Scalable Level Transmitter with RT(1) - In-Line Style

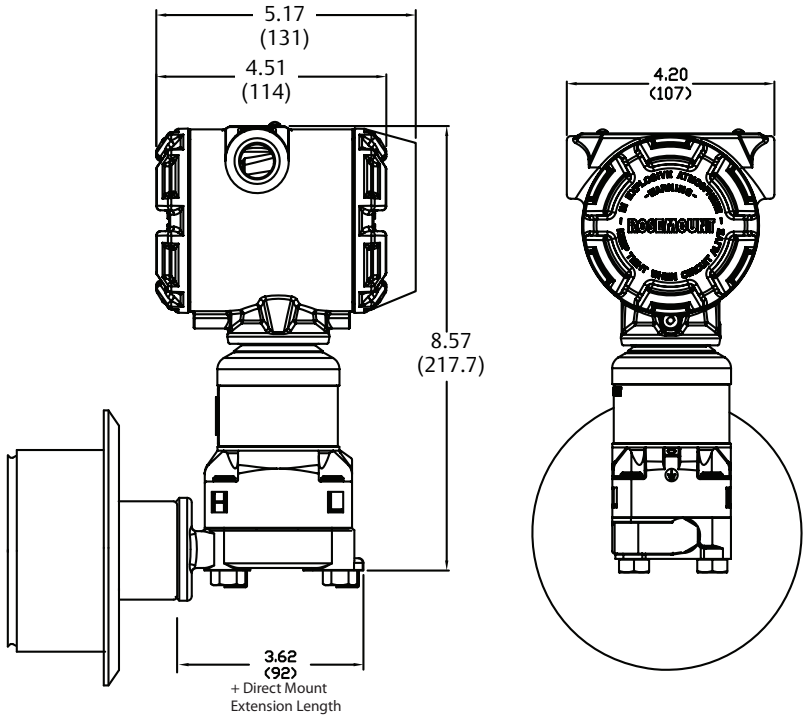


Dimensions are in inches (millimeters).

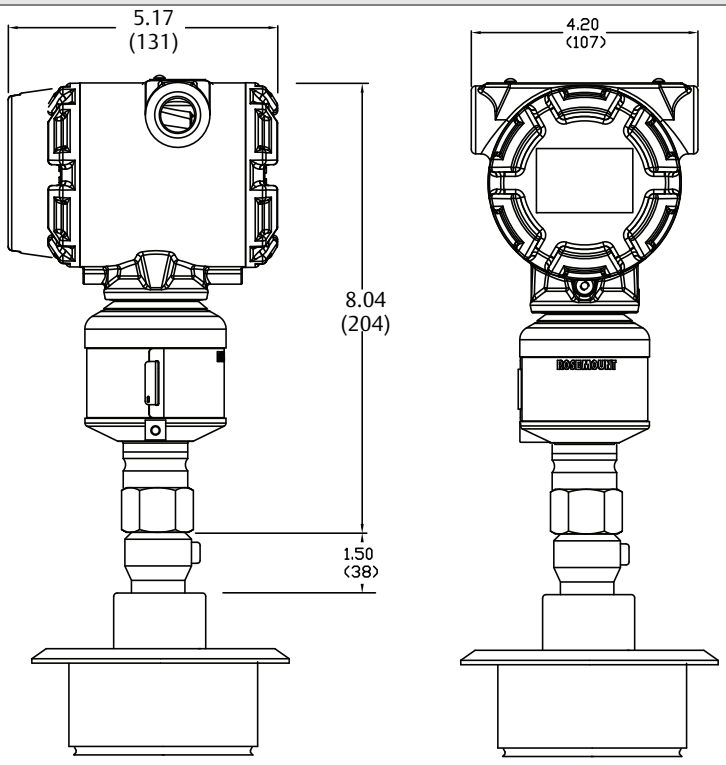
(1) RT (RTW) seal dimensions can be found in the Rosemount DP Level Transmitters and 1199 Remote Seals Product Data Sheet, (00813-0100-4016).

Figure 18. Rosemount 3051S Scalable Level Transmitter with SS Seal

Rosemount 3051S Scalable Level Transmitter with SS(1)- Coplanar Style



Rosemount 3051S Scalable Level Transmitter with SS(1) - In-Line Style

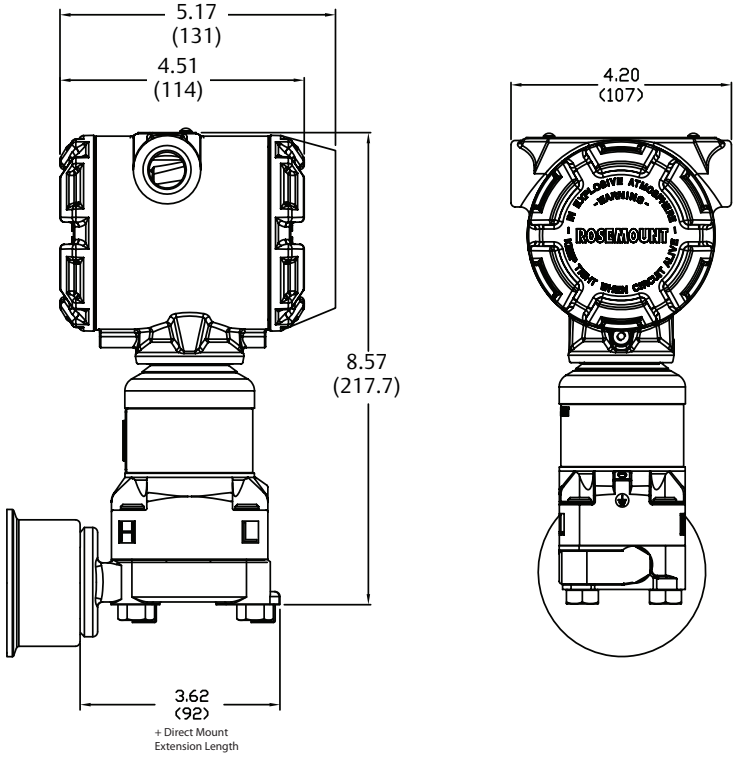


Dimensions are in inches (millimeters).

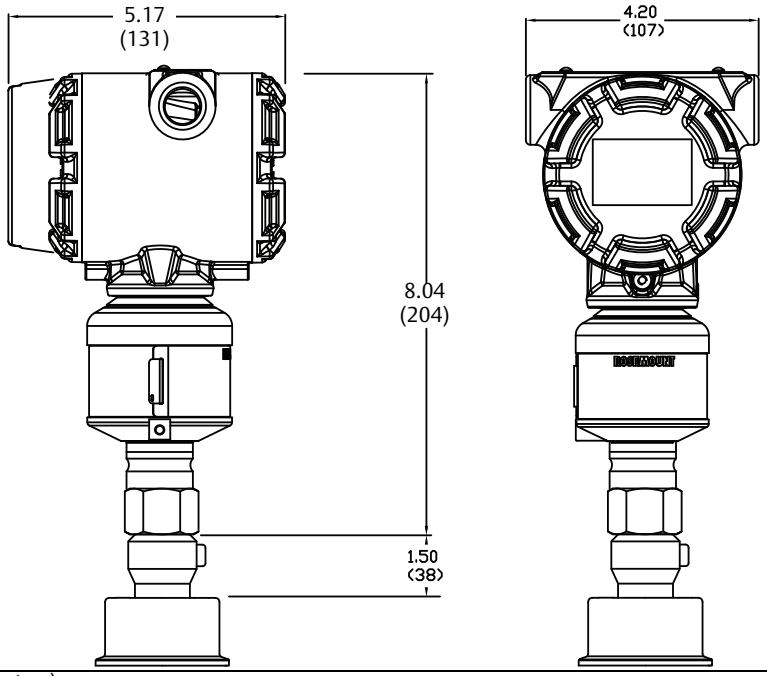
(1) SS (SSW) seal dimensions and pressure ratings can be found in the Rosemount DP Level Transmitters and 1199 Remote Seals Product Data Sheet, (00813-0100-4016).

Figure 19. Rosemount 3051S Scalable Level Transmitter with SC Seal

Rosemount 3051S Scalable Level Transmitter with SC(1)- Coplanar Style



Rosemount 3051S Scalable Level Transmitter with SC(1) - In-Line Style



Dimensions are in inches (millimeters).

(1) SC (SCW) seal dimensions and pressure ratings can be found in the Rosemount DP Level Transmitters and 1199 Remote Seals Product Data Sheet, (00813-0100-4016).

Accessories

Rosemount Engineering Assistant (EA) software packages

The Rosemount Engineering Assistant software supports flow configuration for the 3051S MultiVariable and 3051S FOUNDATION fieldbus Fully Compensated Mass Flow Block (H01 option). The package is available with or without modem and connecting cables. All configurations are packaged separately. For best performance of the EA Software, the following computer hardware and software is recommended:

Note
Engineering Assistant version 6.1 or later requires the use of Microsoft®.NET Framework version 2.0 or later. If.NET version 2.0 is not currently installed, the software will be automatically installed during the Engineering Assistant installation. Microsoft.NET version 2.0 requires an additional 200 MB of disk space.

Minimum system requirements for Engineering Assistant 5.5.1 for the 3051S FOUNDATION fieldbus with fully compensated mass flow block (H01 option)

- PC Compatible Pentium 400 or above
- Operating System: Windows™ XP Professional (32-bit) or Windows Vista (32-bit)
- 256 MB RAM
- 535 MB free hard disk space
- RS232 serial port or USB port (for use with HART modem)
- CD-ROM

Minimum system requirements for Engineering Assistant 6 for the 3051SMV

- Pentium-grade Processor: 500MHz or faster
- Operating System: Microsoft Windows 2000 (32-bit), Windows XP Professional (32-bit), or Windows 7
- 256 MB RAM
- 100 MB of available hard disk space
- RS232 serial port or USB port (for use with HART modem)
- CD-ROM

Engineering Assistant software packages

Code	Product description
EA	Engineering Assistant Software Program
Code	**Software media**
2	EA Rev. 5 (Compatible with 3095, 3051S FOUNDATION fieldbus, and 333)
3	EA Rev. 6 (Compatible with 3051SMV only)
Code	**Language**
E	English
Code	**Modem and connecting cables**
0	None
H	Serial Port HART Modem and Cables
B	USB Port HART Modem and Cables
C	FOUNDATION fieldbus PCM-CIA Interface Card and Cables
Code	**License**
N1	Single PC license
N2	Site license
Typical model number:	**EA 2 E 0 N1**

Accessories

Item description	Part number
Serial Port HART Modem and Cables Only	03095-5105-0001
USB Port HART Modem and Cables Only(1)	03095-5105-0002
FOUNDATION fieldbus PCM-CIA Interface Card and Cables Only	03095-5108-0001
Long-life Power Module for Wireless option	701PBKKF

(1) Supported by SNAP-ON™ EA with AMS Device Manager version 6.2 or higher.

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