

Rosemount™ 3051 Pressure Transmitter



The Proven Industry Leader in Pressure Measurement.

- Best-in-Class performance with 0.065% reference accuracy.
- Rangeability of 100:1.
- Coplanar platform enables integrated pressure, flow, and level solutions.
- SIL2 safety certification to IEC 61508 is available with the full HART® offering to simplify compliance.
- Over 20 years of backwards compatibility allows you to invest in the latest features without adding complexity to your plant.

Contents

Rosemount 3051D Coplanar™ Pressure Transmitter . . .	3	Rosemount 3051D Product Certifications	16
Rosemount 3051G In-Line Pressure Transmitter	8	Rosemount 3051G Product Certifications	20
Specifications	11	Dimensional Drawings	24

Rosemount 3051D Coplanar™ Pressure Transmitter



3051D Coplanar
Pressure Transmitter

Additional Information

Specifications: [page 11](#)

Certifications: [page 16](#)

Dimensional Drawings: [page 24](#)

Table 1. 3051D Coplanar Pressure Transmitters Ordering Information

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

Model	Transmitter type		
3051D	Coplanar Pressure Transmitter		
Measurement type			
P	Differential		
G	Gage		
Pressure range			
	3051DP	3051DG	
1	-6.22kPa to 6.22kPa (-25 to 25 inH ₂ O)	-6.22kPa to 6.22kPa (-25 to 25 inH ₂ O)	
2	-62.2kPa to 62.2kPa (-250 to 250 inH ₂ O)	-62.2kPa to 62.2kPa (-250 to 250 inH ₂ O)	
3	-248 kPa to 248 kPa (-1000 to 1000 inH ₂ O)	-97.9 kPa to 248 kPa (-393 to 1000 inH ₂ O)	
4	-2070 kPa to 2070 kPa (-300 to 300 psi)	-97.9 kPa to 2070 kPa (-14.2 to 300 psi)	
5	-13800kPa to 13800kPa (-2000 to 2000 psi)	-97.9 kPa to 13790 kPa (-14.2 to 2000 psi)	
Transmitter output ⁽¹⁾			
A	4–20 mA with HART Protocol		
Materials of construction			
	Process flange type	Flange material	Drain/vent
2	Coplanar	316SST	316SST
3 ⁽²⁾	Coplanar	Cast C-276	Alloy C-276
6	Coplanar	304 SST	316SST
7 ⁽²⁾	Coplanar	316SST	Alloy C-276
0	Alternate process connection		

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Isolating diaphragm⁽²⁾			
2	316L SST		★
3 ⁽³⁾	Alloy C-276		★
O-ring			
A	Glass-filled PTFE		★
B	Graphite-filled PTFE		★
Sensor fill fluid			
1	Silicone/Nani		★
2	Inert		★
Housing material		Conduit entry size	
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 × 1.5	★
D ⁽⁴⁾	Aluminum	G ¹ / ₂	★
HART Revision configuration⁽⁵⁾			
HR5 ⁽⁶⁾	Configured for HART Revision 5		★
HR7 ⁽⁷⁾	Configured for HART Revision 7		★
Options (Include with selected model number)			
Alternate flange⁽⁸⁾			
H2	Traditional flange, 316 SST, SST drain/vent		★
H3 ⁽²⁾	Traditional flange, Alloy C, Alloy C-276 drain/vent		★
H7 ⁽²⁾	Traditional flange, 316 SST, Alloy C-276 drain/vent		★
HJ	DIN-Compliant traditional flange, SST, 7/16 -in. adapter/manifold bolting		★
FA	Level flange, SST, 2-in., ANSI Class 150, Vertical mount 316 SST drain/vent		★
FB	Level flange, SST, 2-in., ANSI Class 300, Vertical mount 316 SST drain/vent		★
FC	Level flange, SST, 3-in., ANSI Class 150, Vertical mount 316 SST drain/vent		★
FD	Level flange, SST, 3-in., ANSI Class 300, Vertical mount 316 SST drain/vent		★
FP	DIN Level flange, SST, DN 50, PN 40, Vertical Mount 316 SST drain/vent		★
FQ	DIN Level flange, SST, DN 50, PN 40, Vertical Mount 316 SST drain/vent		★
Manifold assembly⁽⁹⁾			
S5	Assemble to Rosemount 301 or 305 Integral Manifold		★
S6	Assemble to Rosemount 304 Manifold or Connection System		★
Integral mount primary element⁽⁹⁾			
S3	Assemble to Rosemount 405 Compact Orifice plate		★
S4 ⁽¹⁰⁾	Assemble to Rosemount Annubar or Rosemount 1195 Integral Orifice		★
Seal assemblies⁽⁹⁾			
S1	Assemble to one Rosemount 1199 seal		★
S2 ⁽¹¹⁾	Assemble to two Rosemount 1199 seals		★

Table 1. 3051D Coplanar Pressure Transmitters Ordering Information

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

Mounting bracket⁽¹²⁾		
B1	Traditional flange bracket for 2-in. pipe mounting, CS bolts	★
B2	Traditional flange bracket for panel mounting, CS bolts	★
B3	Traditional flange flat bracket for 2-in. pipe mounting, CS bolts	★
B4	Coplanar flange bracket for 2-in. pipe or panel mounting, all SST	★
B7	B1 bracket with Series 300 SST Bolts	★
B8	B2 bracket with Series 300 SST Bolts	★
B9	B3 bracket with Series 300 SST Bolts	★
BA	SST B1 bracket with Series 300 SST Bolts	★
BC	SST B3 bracket with Series 300 SST Bolts	★
Product certifications		
E3	China Flameproof	★
E7	IECEX Flameproof, Dust Ignition-proof	★
E8	ATEX Flameproof and Dust Certification	★
I1	ATEX Intrinsic Safety and Dust	★
I3	China Intrinsic Safety	★
I7	IECEX Intrinsic Safety	★
K7	IECEX Flame-proof, Dust Ignition-proof, Intrinsic Safety, and Type n (combination of I7, N7, and E7)	★
K8	ATEX Flameproof, Intrinsic Safety, Type n, Dust (combination of E8, I1 and N1)	★
N1	ATEX Type n Certification and Dust	★
N3	China Type n	★
N7	IECEX Type n Certification	★
K3	China Flameproof and Intrinsic Safety	
Bolting material		
L4	Austenitic 316 SST Bolts	★
L5	ASTM A 193, Grade B7M Bolts	★
Display and interface options		
M4	LCD Display with Local Operator Interface	★
M5	LCD Display	★
Calibration certificate		
Q4	Calibration Certificate	★
Material traceability certification		
Q8	Material Traceability Certification per EN 10204 3.1.B	★
Quality certification for safety		
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
Configuration buttons		
D4	Analog Zero and Span	★
DZ	Digital Zero Trim	★

Table 1. 3051D Coplanar Pressure Transmitters Ordering Information

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

Transient protection		
T1	Transient protection terminal block	★
Software configuration		
C1	Custom Software Configuration (requires Configuration Data Sheet)	★
Alarm levels		
C4	Analog output levels compliant with NAMUR Recommendation NE 43, Alarm high	★
CN	Analog output levels compliant with NAMUR Recommendation NE 43, Alarm low	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
Pressure testing		
P1	Hydrostatic testing with certificate	
Cleaning process area		
P2	Cleaning for special service	
Flange adapters⁽¹³⁾		
DF	1/2 - 14 NPT flange adapter(s)	★
Vent/drain valves		
D7	Coplanar flange without drain/vent ports	
Conduit plug⁽¹⁴⁾		
DO	316 SST Conduit plug	★
Ground screw⁽¹⁵⁾		
V5	External ground screw assembly	★
Toolkit total system performance reports		
QZ	Remote seal system performance calculation report	★
Max static line pressure⁽³⁾		
P7	3626 psig (250 bar) Static Pressure Limit (3051DP Ranges 2–5 only)	★
NACE® certificate		
Q15	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★
Q25	Certificate of Compliance to NACE MR0103 for wetted materials	★
Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
Typical model number: 3051DP 2 A 2 2 A 1 A HR5 B4		

1. Must specify HART Revision 5 (HR5) or HART Revision 7 (HR7).
2. Materials of Construction comply with recommendations for austenitic stainless steels for sour oil field production environments per NACE MR0175/ISO 15156-3:2009(E) A.2.1. Environmental limits may apply. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments.
3. Contact an Emerson Process Management representative for availability.
4. Transmitter conduit entry will be 1/2NPT and a 1/2NPT to G 1/2 thread adapter will be provided. Not available with Product certifications options E8, K8, E5, K5, C6, K6, E7, K7, E2, K2, E3, KB, KD.

5. Select Configuration Buttons (option code D4 or DZ) if local configuration buttons are required.
6. Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
7. Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.
8. Requires 0 code in Materials of Construction for Alternate Process Connection.
9. "Assemble-to" items are specified separately and require a completed model number.
10. Process Flange limited to Coplanar (codes 2, 3, 6, 7) or Traditional (H2, H3, H7).
11. Not valid for optional code DF for adapters.
12. Panel mounting bolts are not supplied.
13. Not valid with Alternate Process Connection options S3, S4, S5, and S6.
14. Transmitter is shipped with a 316 SST Conduit plug (uninstalled) in place of standard carbon steel conduit plug.
15. The V5 option is not needed with the T1 option; external ground screw assembly is included with the T1 option.

Rosemount 3051G In-Line Pressure Transmitter



3051G In-Line
Pressure Transmitter

Additional Information

Specifications: [page 11](#)

Certifications: [page 16](#)

Dimensional Drawings: [page 24](#)

Table 2. 3051G 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		
3051G	In-line pressure transmitter		
Pressure type			
P	Gage		★
Pressure range			
1	-101 kPa to 207 kPa (–14.7 to 30 psi)		★
2	-101 kPa to 1034 kPa (–14.7 to 150 psi)		★
3	-101 kPa to 5516 kPa (–14.7 to 800 psi)		★
4	-101 kPa to 27580 kPa (–14.7 to 4000 psi)		★
Transmitter output ⁽¹⁾			
A	4–20 mA with Digital Signal Based on HART Protocol		★
Process connection style			
2B	1/2–14 NPT Female		★
Isolating diaphragm ⁽²⁾		Process connection wetted parts material	
2	316L SST	316L SST	★
3	Alloy C-276	Alloy C-276	★
Sensor fill fluid			
1	Silicone		★
2	Inert		★
Housing material		Conduit entry size	
A	Aluminum	1/2–14 NPT	★
B	Aluminum	M20 × 1.5	★
HART revision configuration ⁽³⁾			
HR5 ⁽⁴⁾	Configured for HART Revision 5		★
HR7 ⁽⁵⁾	Configured for HART Revision 7		★

Table 2. 3051G 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.

Options (Include with selected model number)

Integral assembly⁽⁶⁾		
S5	Assemble to Rosemount 306 Integral Manifold	★
Mounting bracket⁽⁷⁾		
B4	Bracket for 2-in. pipe or panel mounting, All SST	★
Product certifications		
E3	China Flameproof	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I3	China Intrinsic Safety	★
I5	FM Intrinsically Safe, Division 2	★
K5	FM Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	★
I7	IECEx Intrinsic Safety	★
N7	IECEx Type n Certification	★
E8	ATEX Flameproof and Dust Certification	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n Certification and Dust	★
N3	China Type n	★
KB	FM and CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division2 (combination of K5 and C6)	★
KD	FM, CSA and ATEX Explosion-proof, Dust Ignition-proof, Intrinsically Safe (combination of K5, C6, I1 and E8)	★
C6	CSA Explosion-proof, Dust Ignition-proof, Intrinsically Safe, and Division 2	
E6	CSA Explosion-proof, Dust Ignition-proof Division 2	
K3	China Explosionproof and Intrinsic Safety	
K6	CSA and ATEX Explosion-proof, Intrinsically Safe, and Division 2 (combination of C6 and E8 and I1)	
K8	ATEX Explosion-proof, Intrinsically Safety, Type n, Dust	
Calibration certification		
Q4	Calibration Certificate	★
Quality certification for safety		
QT	Safety certified to IEC 61508 with certificate of FMEDA	★
Configuration buttons		
D4	Analog zero and span	★
DZ	Digital zero trim	★
Display and interface options		
M4	LCD display and Local Operator Interface	★
M5	LCD display	★
Transient terminal block		
T1	Transient protection terminal block	★
Software configuration		
C1	Custom Software Configuration (requires Configuration Data Sheet)	★

Table 2. 3051G 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.

Alarm levels		
C4	Analog output levels compliant with NAMUR Recommendation NE 43, Alarm High	★
CN	Analog output levels compliant with NAMUR Recommendation NE 43, Low Alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★
Pressure testing		
P1	Hydrostatic testing with certificate	
Extended product warranty		
WR3	3-year warranty	
WR5	5-year warranty	
Typical model number: 3051G P 5 F 2A 2 1 A HR5 B4		

1. Must specify HART Revision 5 (HR5) or HART Revision 7 (HR7).
2. Materials of Construction comply with recommendations per NACE MR0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR0103 for sour refining environments.
3. Select Configuration Buttons (option code D4 or DZ) if local configuration buttons are required.
4. Configures the HART output to HART Revision 5. The device can be field configured to HART Revision 7 if needed.
5. Configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 if needed.
6. "Assemble-to" items are specified separately and require a completed model number.
7. Panel mounting bolts are not supplied.

Specifications

Performance specifications

Reference accuracy

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

Models	Reference accuracy
3051D Ranges 2-5	$\pm 0.065\%$ of span for spans less than 10:1 accuracy = $\pm \left[0.015 + 0.005 \left(\frac{URL}{Span} \right) \right] \% \text{ of Span}$
Range 1	$\pm 0.10\%$ of span for spans less than 15:1 accuracy = $\pm \left[0.025 + 0.005 \left(\frac{URL}{Span} \right) \right] \% \text{ of Span}$
3051G Ranges 1-4	$\pm 0.065\%$ of span for spans less than 5:1 accuracy = $\pm \left[0.025 + (0.01) \left(\frac{URL}{Span} \right) \right] \% \text{ of Span}$

Long Term Stability

Models	Long term stability
3051D Range 1	$\pm 0.2\%$ of URL for one year
Ranges 2-5	$\pm 0.125\%$ of URL for five years $\pm 50^\circ\text{F}$ (28°C) temperature changes, and up to 1000 psi (6.9 MPa) line pressure.
3051G Ranges 1-4	$\pm 0.125\%$ of URL for five years $\pm 50^\circ\text{F}$ (28°C) temperature changes, and up to 1000 psi (6.9 MPa) line pressure.

Dynamic Performance

	4 - 20 mA HART ⁽¹⁾	Typical HART Transmitter response time
Total Response Time ($T_d + T_c$)(2):		Transmitter Output vs. Time Pressure released T_d = Dead time T_c = Time constant Response time = $T_d + T_c$ 100% 36.8% 0% 63.2% of total step change Time
3051D, Ranges 2-5:	100 ms	
Range 1:	255 ms	
3051G:	100 ms	
Dead Time (T_d)	45 ms (nominal)	
Update Rate	22 times per second	
1. Dead time and update rate apply to all models and ranges; analog output only 2. Nominal total response time at 75°F (24°C) reference conditions. 3. Transducer block response time, Analog Input block execution time not included.		

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

Models	Line pressure effect
3051DP	Zero error
Ranges 2-3	$\pm 0.05\%$ of URL/1000 psi (68.9 bar) for line pressures from 0 to 2000 psi (0 to 13.7 MPa)
Range 1	$\pm 0.25\%$ of URL/1000 psi (68.9 bar)
	Span Error
Ranges 2-3	$\pm 0.1\%$ of reading/1000 psi (68.9 bar)
Range 1	$\pm 0.4\%$ of reading/1000 psi (68.9 bar)

Ambient Temperature Effect per 50 °F (28 C)

Models	Ambient temperature effect
3051D	
Ranges 2	$\pm (0.045\% \text{ URL} + 0.05\% \text{ span})$ from 1:1 to 100:1
Range 3	$\pm (0.065\% \text{ URL} + 0.0625\% \text{ span})$ from 1:1 to 5:1 $\pm (0.05\% \text{ URL} + 0.25\% \text{ span})$ from 5:1 to 100:1
Ranges 4-5	$\pm (0.02\% \text{ URL} + 0.075\% \text{ span})$ from 1:1 to 5:1 $\pm (0.04\% \text{ URL} + 0.15\% \text{ span})$ from 5:1 to 100:1
Ranges 1	$\pm (0.1\% \text{ URL} + 0.25\% \text{ span})$ from 1:1 to 30:1
3051G	
Ranges 1-4	$\pm (0.15\% \text{ URL} + 0.15\% \text{ span})$ from 1:1 to 100:1

Mounting Position Effects

Models	Mounting position effects
3051D	Zero shifts up to ± 1.25 inH ₂ O (3.11 mbar), which can be calibrated out. No span effect.
3051G	Zero shifts up to ± 2.5 inH ₂ O (6.22 mbar), which can be calibrated out. No span effect.

Vibration Effect

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

Transient Protection (Option Code T1)

Meets IEEE C62.41, Category Location B

6 kV crest (0.5 μ s - 100 kHz)

3 kA crest (8 $\times$ 20 microseconds)

6 kV crest (1.2 $\times$ 50 microseconds)

Power Supply Effect

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

Electromagnetic Compatibility (EMC)

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

1. During surge event device may exceed maximum EMC deviation limit or reset; however, device will self-recover and return to normal operation within specified start-up time.

Functional Specifications

Service

Liquid, gas, and vapor applications

Table 3. 3051DP, 3051DG Range and Sensor Limits

Range	Minimum span		Range and sensor limits	
	3051DP, 3051DG	Upper (URL)	Lower (LRL)	
			3051DP Differential	3051DG Gage
1	0.12 kPa (0.5 inH ₂ O)	6.21 kPa (25 inH ₂ O)	-6.21 kPa (-25 inH ₂ O)	-6.21 kPa (-25 inH ₂ O)
2	0.62 kPa (2.5 inH ₂ O)	62.16 kPa (250 inH ₂ O)	-62.16 kPa (-250 inH ₂ O)	-62.16 kPa (-250 inH ₂ O)
3	2.48 kPa (10 inH ₂ O)	248.64 kPa (1000 inH ₂ O)	-248.64 kPa (-1000 inH ₂ O)	3.44 kPa (0.5 psia)
4	20.68 kPa (3 psi)	2068.42 kPa (300 psi)	-2068.42 kPa (-300 psi)	3.44 kPa (0.5 psia)
5	137.89 kPa (20 psi)	13789.51 kPa (2000 psi)	-13789.51 kPa (-2000 psi)	3.44 kPa (0.5 psia)

Table 4. 3051GP Range and Sensor Limits

Range	Minimum span	Range and sensor limits		Lower ⁽¹⁾ (LRL) (Gage)
		Upper (URL)	Lower (LRL)	
1	2.06 kPa (0.3 psi)	206.84 kPa (30 psi)	0 kPa (0 psia)	-101.35 kPa (-14.7 psig)
2	10.34 kPa (1.5 psi)	1034.21 kPa (150 psi)	0 kPa (0 psia)	-101.35 kPa (-14.7 psig)
3	55.15 kPa (8 psi)	5515.80 kPa (800 psi)	0 kPa (0 psia)	-101.35 kPa (-14.7 psig)
4	275.79 kPa (40 psi)	27579.03 kPa (4000 psi)	0 kPa (0 psia)	-101.35 kPa (-14.7 psig)

1. Assumes atmospheric pressure of 14.7 psig.

4-20 mA HART (Output Code A)

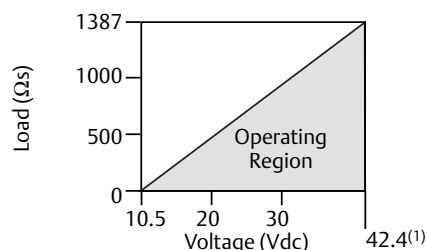
Power Supply

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

Load Limitations

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

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



Communication requires a minimum loop resistance of 250 ohms.

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

Range and Sensor Limits

Zero and Span Adjustment Requirements

Zero and span values can be set anywhere within the range limits stated in [Table 3](#) and [Table 4](#).

Span must be greater than or equal to the minimum span stated in [Table 3](#) and [Table 4](#).

Output

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

Selectable HART Revisions

The 3051 comes with Selectable HART Revisions. Digital communications based on HART Revision 5 (option code HR5) or Revision 7 (option code HR7) protocol must be selected. The HART revision can be switched in the field using any HART based configuration tool.

Overpressure Limits

Rosemount 3051DP/DG

- Range 1: 13.78 MPa (2000 psig)
- Ranges 2-5: 17.23 MPa (2500 psig)
25 MPa (3626 psig) for option code P7

Rosemount 3051GP

- Range 1: 5.17 MPa (750 psi)
- Range 2: 10.34 MPa (1500 psi)
- Range 3: 11 MPa (1600 psia)
- Range 4: 41 MPa (6000 psi)

Burst Pressure Limits

3051D Coplanar or Traditional process flange

10000 psig (69 MPa)

3051G In-line

11000 psi (75.8 MPa)

Failure Mode Alarm

If self-diagnostics detect a sensor or microprocessor failure, the analog signal is driven either high or low to alert the user. High or low failure mode is user-selectable with a jumper/switch on the transmitter. The values to which the transmitter drives its output in failure mode depend on whether it is configured to standard, NAMUR-compliant, or custom levels (see Alarm Configuration below). The values for each are as follows:

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

1. Analog output levels are compliant with NAMUR recommendation NE 43, see option codes C4 or C5.
2. Low alarm must be 0.1 mA less than low saturation and high alarm must be 0.1 mA greater than high saturation.

Temperature Limits

Ambient

-40 to 185 °F (-40 to 85 °C)

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

Storage⁽¹⁾

-50 to 230 °F (-46 to 110 °C)

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

1. If storage temperature is above 85 °C, perform a sensor trim prior to installation.

Process

At atmospheric pressures and above. See [Table 5](#).

Table 5. 3051 Process Temperature Limits

3051D	
Silicone Fill Sensor ⁽¹⁾	
with Coplanar Flange	-40 to 250 °F (-40 to 121 °C) ⁽²⁾
with Traditional Flange	-40 to 300 °F (-40 to 149 °C) ⁽²⁾
with 305 Integral Manifold	-40 to 300 °F (-40 to 149 °C) ⁽²⁾
Inert Fill Sensor ⁽¹⁾	-40 to 185 °F (-18 to 85 °C) ⁽³⁾
3051G (Process fill fluid)	
Silicone Fill Sensor ⁽¹⁾	-40 to 250 °F (-40 to 121 °C) ⁽²⁾
Inert Fill Sensor ⁽¹⁾	-22 to 250 °F (-30 to 121 °C) ⁽²⁾

1. Process temperatures above 185 °F (85 °C) require derating the ambient limits by a 1.5:1 ratio.
2. 220 °F (104 °C) limit in vacuum service; 130 °F (54 °C) for pressures below 0.5 psia.
3. 160 °F (71 °C) limit in vacuum service.

Humidity Limits

0–100% relative humidity

Turn-On Time

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

Volumetric Displacement

Less than 0.005-in³ (0.08 cm³)

Damping

4-20 mA HART

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

Physical Specifications

Electrical Connections

$\frac{1}{2}$ –14 NPT, G $\frac{1}{2}$ and M20 $\times$ 1.5 conduit. HART interface connections fixed to terminal block for output code A.

Process Connections

Rosemount 3051D

$\frac{1}{2}$ –14 NPT on 2-, 2 $\frac{1}{8}$ -, or 2 $\frac{1}{4}$ -in. centers

Rosemount 3051G

$\frac{1}{2}$ –14 NPT female

Process-Wetted Parts

Drain/Vent Valves

316 SST, Alloy C-276

Process Flanges and Adapters

SST cast CF-8 or CF-8M (per ASTM A743), or C-Type cast alloy CW12MW

Wetted O-rings

Glass-filled PTFE or Graphite-filled PTFE

Process Isolating Diaphragms

Isolating diaphragm material	3051D	3051G
316L SST	•	•
Alloy C-276	•	•

Non-Wetted Parts

Electronics and Sensor Module Housing

Polyurethane-coated aluminum, austenitic stainless steel, and/or Alloy C-276 (depending on specified option codes)

Bolts

ASTM A449, Type 1 (zinc-cobalt plated carbon steel)

ASTM F593G, Condition CW1 (Austenitic 316 SST)

ASTM A193, Grade B7M (zinc plated alloy steel)

Sensor Module Fill Fluid

Coplanar uses Silicone or inert Halocarbon

Cover O-rings

Buna-N

Shipping Weights

Table 6. Transmitter Weights without Options

Transmitter	Add Weight In lb. (kg)
3051D	6.0 (2,7)
3051G	2.4 (1,1)

Table 7. Transmitter Option Weights

Code	Option	Add lb. (kg)
M5	LCD display	0.5 (0,2)
B4	SST Mounting bracket for coplanar flange	1.0 (0,5)
B1, B2, B3	Mounting bracket for traditional flange	2.3 (1,0)
B7, B8, B9	Mounting bracket for traditional flange	2.3 (1,0)
BA, BC	SST Bracket for traditional flange	2.3 (1,0)
H3	Traditional flange	2.7 (1,2)
H4	Traditional flange	2.6 (1,2)
H7	Traditional flange	2.5 (1,1)

Rosemount 3051D Product Certifications

Rev 2.1

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.EmersonProcess.com/Rosemount

Europe

- E8** ATEX Flameproof and Dust
 Certificate: DEKRA12ATEX0212X (Ex d);
 Baseefa12ATEX0191 (Ex ta)
 Standards: EN60079-0:2012+A11:2013,
 EN60079-1:2014, EN60079-26:2015,
 EN60079-31:2009
 Markings: Ⓔ II 1/2 G Ex db IIC T6/T5 Ga/Gb,
 T6(-50 °C ≤ T_a ≤ +65 °C),
 T5(-50 °C ≤ T_a ≤ +70 °C);
 Ⓔ II 1 D Ex ta IIIC T95 °C T₅₀₀105 °C Da
 (-20 °C ≤ T_a ≤ +85 °C); V_{max} 42.4VDC

Table 8. Process Temperature

Temperature class	Process temperature
T6	-50 °C to +65 °C
T5	-50 °C to +70 °C

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm less than 1 mm thickness that forms a boundary between zone 0 (process connection) and zone 1 (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. Flameproof joints are not intended for repair.
3. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

- I1** ATEX Intrinsic Safety and Dust
 Certificate: Baseefa12ATEX0189X; Baseefa12ATEX0191
 Standards: EN60079-0:2012+A11:2013,
 EN60079-11:2012, EN60079-31:2009
 Markings: Ⓔ II 1 G Ex ia IIC T5/T4 Ga,
 T5(-60 °C ≤ T_a ≤ +40 °C), T4(-60 °C ≤ T_a ≤ +70 °C)
 Ⓔ II 1 D Ex ta IIIC T95 °C T₅₀₀105 °C Da
 (-20 °C ≤ T_a ≤ +85 °C)

Table 9. Input Parameters

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

Special Conditions for Safe Use (X):

1. The equipment is not capable of withstanding the 500 V insulation test required by clause 6.3.13 of EN60079-11:2012. This must be taken into account when installing the equipment.
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 Zone 0.
3. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

- N1** ATEX Type n and Dust
 Certificate: Baseefa12ATEX0190X; Baseefa12ATEX0191
 Standards: EN60079-0:2012+A11:2013,
 EN60079-15:2010, EN60079-31:2009
 Markings: Ⓔ II 3 G Ex nA IIC T5 Gc (-40 °C ≤ T_a ≤ +70 °C);
 Ⓔ II 1 D Ex ta IIIC T95 °C T₅₀₀105 °C Da
 (-20 °C ≤ T_a ≤ +85 °C)

Special Conditions for Safe Use (X):

1. The equipment is not capable of withstanding the 500V insulation test required by clause 6.5.1 of EN60079-15:2010. This must be taken into account when installing the equipment.
2. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

International

- E7** IECEx Flameproof and Dust
 Certificate: IECEx DEK 12.0067X (Ex d);
 IECEx BAS 12.0109 (Ex ta)
 Standards: IEC60079-0:2011, IEC60079-1:2014,
 IEC60079-26:2014, IEC60079-31:2008
 Markings: Ex db IIC T6/T5 Ga/Gb, T6(-50 °C ≤ T_a ≤ +65 °C),
 T5(-50 °C ≤ T_a ≤ +70 °C); Ex ta IIIC T95 °C
 T₅₀₀105 °C Da (-20 °C ≤ T_a ≤ +85 °C);
 V_{max} 42.4VDC

Table 10. Process Temperature

Temperature class	Process temperature
T6	-50 °C to +65 °C
T5	-50 °C to +70 °C

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm less than 1 mm thickness that forms a boundary between zone 0 (process connection) and zone 1 (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
 2. Flameproof joints are not intended for repair.
 3. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.
- I7** IECEx Intrinsic Safety
 Certificate: IECEx BAS 12.0107X
 Standards: IEC60079-0:2011, IEC60079-11:2011
 Markings: Ex ia IIC T5/T4 Ga, T5(-60 °C ≤ T_a ≤ +40 °C),
 T4(-60 °C ≤ T_a ≤ +70 °C)

Table 11. Input Parameters

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

Special Conditions for Safe Use (X):

1. The equipment is not capable of withstanding the 500V insulation test required by clause 6.3.13 of IEC60079-11:2011. This must be taken into account when installing the apparatus.
 2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in Zone 0.
- N7** IECEx Type n
 Certificate: IECEx BAS 12.0108X
 Standards: IEC60079-0:2011, IEC60079-15:2010
 Markings: Ex nA IIC T5 Gc (-40 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

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

China

- E3** Flameproof and Dust
 Certificate: GYJ13.1031X
 Standards: GB3836.1-2010, GB3836.2-2010,
 GB3836.20-2010
 Markings: Ex d IIC T6/T5 Ga/Gb

Special Conditions for Safe Use (X):

1. The relation between ambient temperature range and temperature class is as follows:

T _a	Temperature class
-50 °C to +70 °C	T5
-50 °C to +65 °C	T6

When used in a combustible dust environment, the maximum ambient temperature is 70°C.

2. The earth connection facility in the enclosure should be connected reliably.
3. Cable entry certified by notified body with type of protection Ex d IIC in accordance with GB3836.1-2010 and GB3836.2-2010, should be applied when installed in a hazardous location. When used in combustible dust environment, cable entry in accordance with IP66 or higher level should be applied.
4. Obey the warning "Keep tight when the circuit is alive".
5. End users are not permitted to change any internal components.

6. During 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"

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"

GB15577-2007 "Safety regulations for dust explosion prevention and protection"

I3 China Intrinsic Safety

Certificate: GYJ13.1107X

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

Markings: Ex ia IIC T4/T5 Ga

Special Conditions for Safe Use (X):

- Symbol "X" is used to denote specific conditions of use:
 - If the apparatus is fitted with an optional 90V transient suppressor, it is not capable of withstanding the 500V insulation test for 1 minute. This must be taken into account when installing the apparatus.
 - The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in Zone 0.
- The relation between T code and ambient temperature range is:

Model	T code	Temperature range
HART	T5	$-60^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$
HART	T6	$-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$

3. Intrinsically Safe parameters:

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

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

GB3836.13-1997 "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"

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"

GB15577-2007 "Safety regulations for dust explosion prevention and protection"

N3 China Type n
Certificate: GYJ13.1108X
Standards: GB3836.1-2010, GB3836.8-2003
Markings: Ex nA IIC T5 Gc

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. The must be taken into consideration during installation.
2. The ambient temperature range is $-40\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$.
3. Maximum input voltage: 55V.
4. 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.
5. Maintenance should be done in non-hazardous location.
6. End users are not permitted to change any internal components but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. During 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”

Combinations of Certifications

K7 Combination of E7, I7, and N7

K8 Combination of E8, I1, and N1

Rosemount 3051G Product Certifications

Rev 1.0

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.EmersonProcess.com/Rosemount

Ordinary Location Certification

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

North America

- E5** USA Explosionproof (XP) and Dust-Ignitionproof (DIP)
Certificate: 0T2H0.AE
Standards: FM Class 3600 - 2011, FM Class 3615 - 2006, FM Class 3616 - 2011, FM Class 3810 - 2005, ANSI/NEMA 250 - 2008
Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III; T5(-50 °C ≤ T_a ≤ +85 °C); Factory Sealed; Type 4X
- I5** USA Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 1Q4A4.AX
Standards: FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3611 - 2004, FM Class 3810 - 2005, ANSI/NEMA 250 - 2008
Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; DIV 1 when connected per Rosemount drawing 03031-1019; NI CL 1, DIV 2, GP A, B, C, D; Temp code T4; Type 4x; Factory Sealed

Special Conditions for Safe Use (X):

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

- C6** Canada Explosionproof, Dust-Ignitionproof, Intrinsic Safety and Nonincendive
Certificate: 1053834
Standards: ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2 No.157-92, CSA Std. C22.2 No. 213 - M1987
Markings: Explosionproof for Class I, Division 1, Groups B, C and D; Suitable for Class I, Zone 1, Group IIB+H₂, T5; Dust-Ignitionproof Class II, Division 1, Groups E, F, G; Class III Division 1; Intrinsically Safe Class I, Division 1 Groups A, B, C, D when connected in accordance with Rosemount drawing 03031-1024, Temperature Code T3C; Suitable for Class I, Zone 0; Class I Division 2 Groups A, B, C and D, T5; Suitable for Class I Zone 2, Group IIC; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)
- E6** Canada Explosionproof, Dust-Ignitionproof and Division 2
Certificate: 1053834
Standards: ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2 No. 213 - M1987
Markings: Explosionproof Class I, Division 1, Groups B, C and D; Suitable for Class I, Zone 1, Group IIB+H₂, T5; Dust-Ignitionproof for Class II and Class III, Division 1, Groups E, F and G; Class I, Division 2, Groups A, B, C and D; Suitable for Class I Zone 2, Group IIC; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

Europe

- E8** ATEX Flameproof and Dust
Certificate: KEMA97ATEX2378X; BAS01ATEX1427X
Standards: EN60079-0:2012, EN60079-1:2007, EN60079-26:2007, EN60079-31:2009
Markings:  II 1/2 G Ex d IIC, T6(-40 °C ≤ T_a ≤ +40 °C), T4(-40 °C ≤ T_a ≤ +80 °C);  II 1 D Ex t IIIC T50°C T₅₀₀60 °C Da

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for 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.
 3. The user must ensure that the maximum rated voltage and current (36 volts, 24 milliamps, d.c.) are not exceeded. All connections to other apparatus or associated apparatus shall have control over this voltage and current equivalent to a category 'ib' circuit according to EN 50020.
 4. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
 5. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
 6. Cable entries and blanking plugs must be suitable for the ambient range of the apparatus and capable of withstanding a 7J impact test.
 7. The 2088/2090 sensor module must be securely screwed in place to maintain the ingress protection of the enclosure.
 8. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.
- I1** ATEX Intrinsic Safety
 Certificate: BAS00ATEX1166X
 Standards: EN60079-0:2012, EN60079-11:2012
 Markings:  II 1 G Ex ia IIC Ga,
 T5(-55 °C ≤ T_a ≤ +40 °C),
 T4(-55 °C ≤ T_a ≤ +70 °C)

Table 12. Input Parameters

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

Special Conditions for Safe Use (X):

1. The apparatus is not capable of withstanding the 500 V insulation test required by EN60079-11. This must be taken into account when installing the apparatus.
- N1** ATEX Type n and Dust
 Certificate: BAS00ATEX3167X; BAS01ATEX1427X
 Standards: EN60079-0:2012, EN60079-15:2010, EN60079-31:2009
 Markings:  II 3 G Ex nA IIC T5 Gc (-40 °C ≤ T_a ≤ +70 °C)
 II 1 D Ex t IIIC T50 °C T₅₀₀ 60 °C Da

Special Conditions for safe Use (X):

1. This apparatus is not capable of withstanding the 500V insulation test that is required by EN60079-15. This must be taken into account when installing the apparatus.
2. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

International

- I7** IECEx Intrinsic Safety
 Certificate: IECEx BAS 12.0071X
 Standards: IEC60079-0:2011, IEC60079-11:2011
 Markings: Ex ia IIC T5/T4 Ga,
 T5(-55 °C ≤ T_a ≤ +40 °C), T4(-55 °C ≤ T_a ≤ +70 °C)

Table 13. Input Parameters

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

Special Conditions for Safe Use (X):

1. If the apparatus is fitted with optional 90V transient suppressor, it is not capable of withstanding the 500V insulation test required by IEC60079-11. This must be taken into account when installing the apparatus.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in Zone 0.

- N7** IECEx Type n
 Certificate: IECEx BAS 12.0072X
 Standards: IEC60079-0:2011, IEC60079-15:2010
 Markings: Ex nA IIC T5 Gc (-40 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

1. The apparatus is no capable of withstanding the 500V insulation test required by IEC60079-15. This must be taken into account when installing the apparatus.

China

E3 China Flameproof [3051g]
 Certificate: GYJ15.1300X
 Standards: GB3836.1-2010, GB3836.2-2010
 Markings: Ex d IIB+H₂ T5 Gb

Special Conditions for Safe Use (X):

1. Ambient temperature range: -20 °C ~ +85 °C
2. The earth connection facility in the enclosure should be connected reliably.
3. During installation, there should be no mixture harmful to housing.
4. During installation in hazardous location, Cable glands and blanking plugs, certified by state-appointed inspection bodies with Ex d IIC Gb type of protection should be used. Redundant cable entries should be blocked with blanking plugs.
5. During installation, use and maintenance of the product in explosive gas atmosphere, observe the warning "Don't open the cover when the circuit is alive".
6. End users is not permitted to change any components insides, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. During installation, use and maintenance of this product, observe the following standards:

GB3836.13-2013 "Explosive atmospheres-Part 13: Equipment repair, overhaul and reclamation"
 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 an maintenance of electrical installation (other than mines)"
 GB50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

I3 China Intrinsic Safety
 Certificate: GYJ15.1301X [3051G]
 Standards: GB3836.1-2010, GB3836.4-2010,
 GB3836.20-2010
 Markings: Ex ia IIC T3/T4 Ga

Special Conditions for Safe Use (X):

1. The relation between T code and ambient temperature range is:

Type	Configuration	T code	Max ambient temperature
3051G	Output option = A	T4	40°
		T3	85°

2. Intrinsically Safe parameters:

	Max. input voltage: U _i (V)	Max. input voltage: I _i (mA)	Max. input power: P _i (W)	Max. internal parameters	
				C _i (μF)	L _i (μH)
A output with no T1 option					
IIC	30	165	1	0.01	10
IIB	30	225	1	0.01	10
A output with T1 option					
IIC	30	160	1	0.01	1060
IIB	30	225	1	0.01	1060

3. 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.
4. The cables between this product and associated apparatus should be shielded cables. The shield should be grounded reliably in a non-hazardous area.
5. End users are not permitted to change any internal components but to settle the problem in conjunction with the manufacturer to avoid damage to the product.
6. During installation, use and maintenance of this product, observe the following standards:
 GB3836.13-2013, GB3836.15-2000, GB3836.16-2006, GB3836.18-2010, GB50257-2014

N3 China Type n
 Certificate: GYJ13.1305X
 Standards: GB3836.1-2010, GB3836.8-2003
 Markings: Ex nA IIC T5 Gc (-40 °C ≤ T_a ≤ +70 °C)

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. The must be taken into consideration during installation.
2. The ambient temperature range is $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$.
3. Maximum input voltage: 50V.
4. 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.
5. Maintenance should be done in non-hazardous location.
6. End users are not permitted to change any internal components but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. During 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".

Table 14. Conduit Plug Thread Sizes

Thread	Identification mark
M20 × 1.5	M20
1/2 - 14 NPT	1/2 NPT

Table 15. Thread Adapter Thread Sizes

Male thread	Identification mark
M20 × 1.5 - 6g	M20
1/2 - 14 NPT	1/2 - 14 NPT
3/4 - 14 NPT	3/4 - 14 NPT
Female thread	Identification mark
M20 × 1.5 - 6H	M20
1/2 - 14 NPT	1/2 - 14 NPT
G1/2	G1/2

Special Conditions for Safe Use (X):

1. When the thread adapter or blanking plug is used with an enclosure in type of protection increased safety "e" the entry thread shall be suitably sealed in order to maintain the ingress protection rating (IP) of the enclosure.
2. The blanking plug shall not be used with an adapter.
3. Blanking Plug and Threaded Adapter shall be either NPT or Metric thread forms. G1/2 thread forms are only acceptable for existing (legacy) equipment installations.

Combinations of Certifications

- K3** Combination of E3 and I3
K5 Combination of E5 and I5
K6 Combination of C6, E8, and I1
K8 Combination of E8, I1, and N1
KB Combination of E5, I5, and C6
KD Combination of E8, I1, E5, I5, and C6

Conduit Plugs and Adapters

IECEx Flameproof and Increased Safety

Certificate: IECEx FMG 13.0032X

Standards: IEC60079-0:2011, IEC60079-1:2007,
IEC60079-7:2006-2007

Markings: Ex de IIC Gb

ATEX Flameproof and Increased Safety

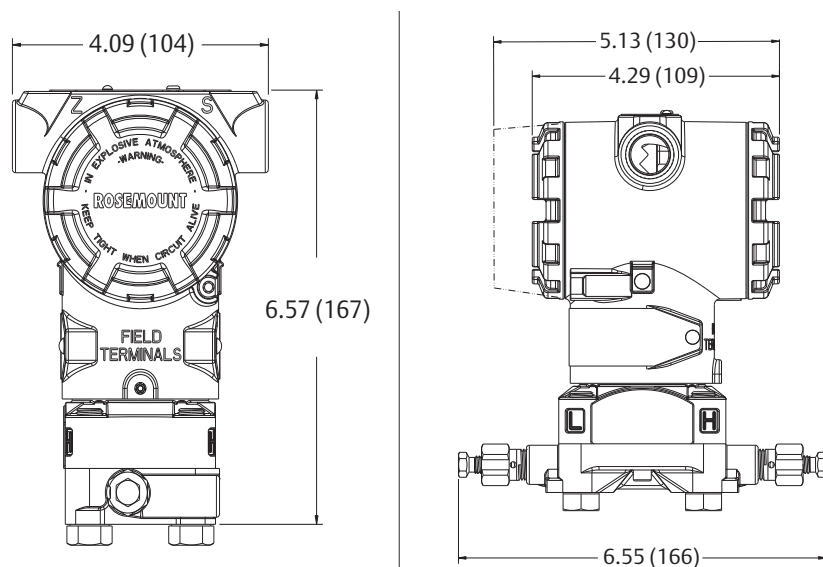
Certificate: FM13ATEX0076X

Standards: EN60079-0:2012, EN60079-1:2007,
IEC60079-7:2007

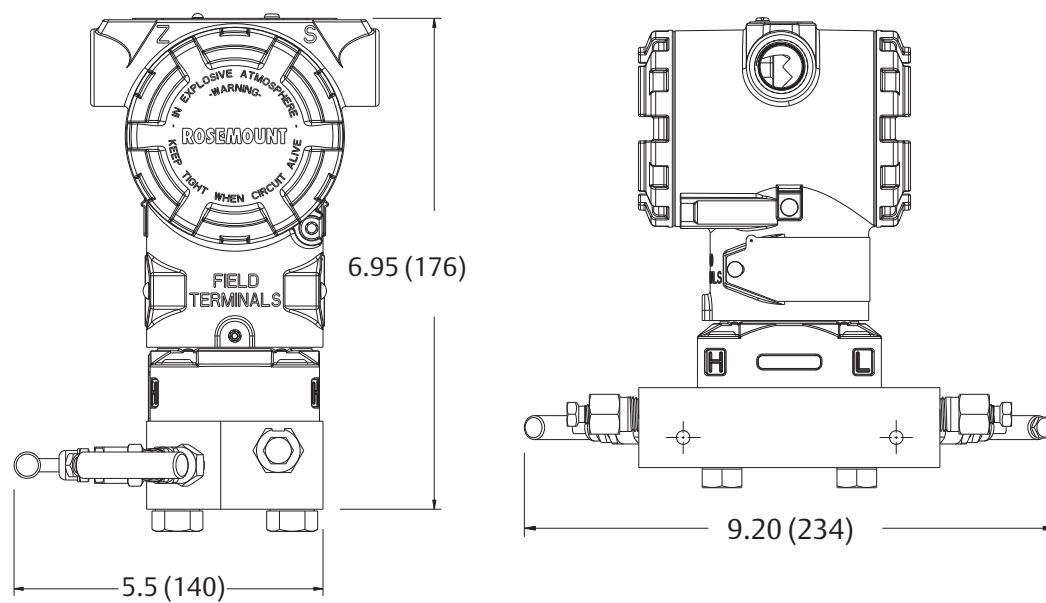
Markings: II 2 G Ex de IIC Gb

Dimensional Drawings

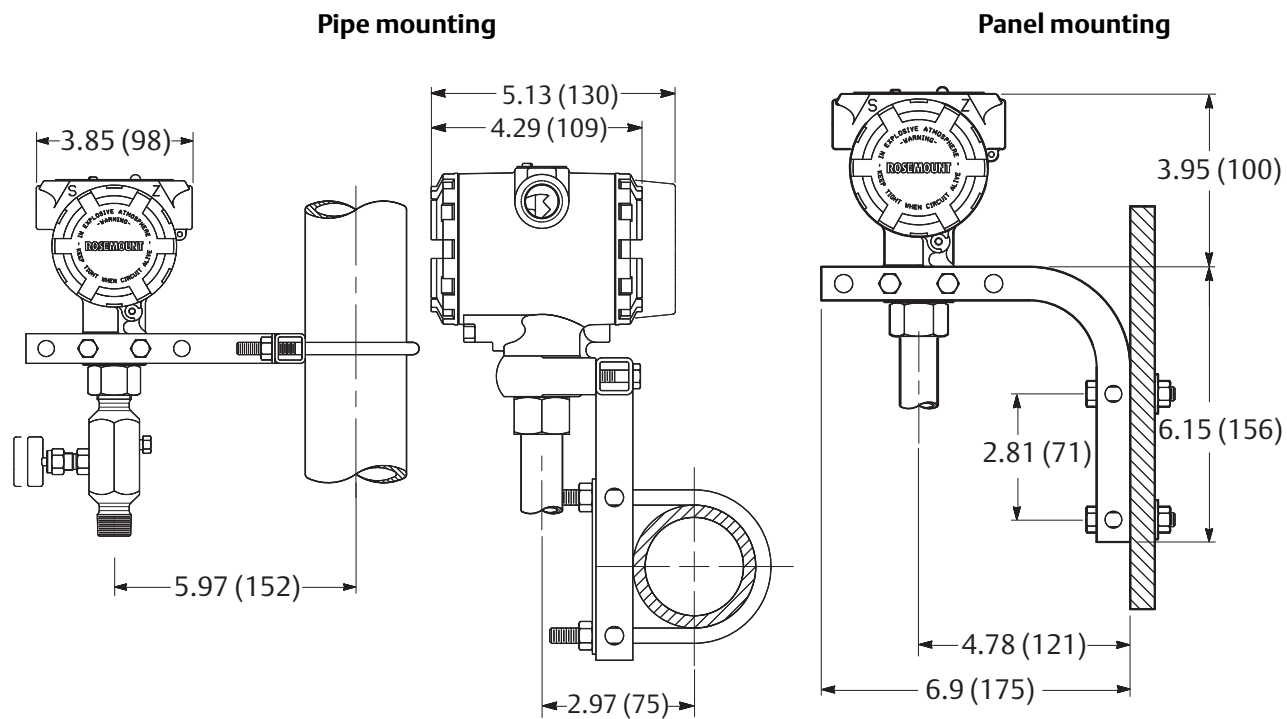
Figure 1. Rosemount 3051D Coplanar Flange



Dimensions are in inches (millimeters).

Figure 2. Rosemount 3051D Coplanar Flange with Rosemount 305 3-Valve Coplanar Integral Manifold

Dimensions are in inches (millimeters).

Figure 3. Rosemount 3051G Typical Mounting Configurations with Optional Mounting Bracket

Options

Unless otherwise specified, transmitter is shipped as follows:

Custom Configuration

Engineering Units	
Absolute/3051TA:	kPa (all ranges)
4 mA:	0 (engineering units above)
20 mA:	Upper range limit
Output:	Linear
Flange type:	Specified model code option
Flange material:	Specified model code option
O-ring material:	Specified model code option
Drain/vent:	Specified model code option
LCD Display:	Installed or none
Alarm:	High
Software tag:	(Blank)

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

- Output Information
- Transmitter Information
- LCD Display Configuration
- Hardware Selectable Information
- Signal Selection
- and more

Refer to the “Rosemount 3051 Configuration Data Sheet” document number 00806-0100-5007.

Tagging (3 options available)

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

Optional Rosemount 301, 304, 305, or 306 Integral Manifolds

Factory assembled to 3051D and 3051G transmitters. Refer to the following Product Data Sheet (document number 00813-0100-4839 for Rosemount 304 and 00813-0100-4733 for Rosemount 305 and 306) for additional information.

Other Seals

Refer to Product Data Sheet 00813-0100-4016 for additional information.

Output Information

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

Pressure			
atm	inH ₂ O@4 °C	g/cm ²	psi
mbar	mmH ₂ O	kg/cm ²	torr
bar	mmHg	Pa	cmH ₂ O@4 °C
inH ₂ O	mmH ₂ O@4 °C	kPa	cmHG@0 °C
inHg	ftH ₂ O	MPa	ftH ₂ O@60 °F
hPa	inH ₂ O@60 °F	kg/SqM	mH ₂ O@4 °C
mHg@0 °C	Psf	ftH ₂ O@4C	
Flow ⁽¹⁾			
bbl	kg	cm ³	
ft ³	lb	m ³	
gal	L	ton	
Level ⁽¹⁾			
%	ft	cm	
in	mm		

1. All flow units are available per second, minute, hour or day.

Display and Interface options

- M5** Digital Display
- 2-Line, 8-Digit LCD for 4-20 mA HART
 - Direct reading of digital data for higher accuracy
 - Displays user-defined flow, level, volume, or pressure units
 - Displays diagnostic messages for local troubleshooting
 - 90-degree rotation capability for easy viewing

Configuration Buttons

Rosemount 3051 requires option D4 (Analog Zero and Span) or DZ (Digital Zero) or M4 (local operator interface) for local configuration buttons.

Transient Protection

- T1** Integral Transient Protection Terminal Block
Meets IEEE C62.41, Category Location B
6 kV crest (0.5 μ s - 100 kHz)
3 kA crest (8 $\times$ 20 microseconds)
6 kV crest (1.2 $\times$ 50 microseconds)

Bolts for Flanges and Adapters

- Options permit bolts for flanges and adapters to be obtained in various materials
- Standard material is plated carbon steel per ASTM A449, Type 1

- L4** Austenitic 316 Stainless Steel Bolts

- L5** ASTM A 193, Grade B7M Bolts

Conduit Plug

- D0** 316 SST Conduit Plug
Single 316 SST conduit plug replaces carbon steel plug

Rosemount 3051D Coplanar Flange and 3051G Bracket Option

- B4** Bracket for 2-in. Pipe or Panel Mounting
- For use with the standard Coplanar flange configuration
 - Bracket for mounting of transmitter on 2-in. pipe or panel
 - Stainless steel construction with stainless steel bolts

Rosemount 3051D Traditional Flange Bracket Options

- B1** Bracket for 2-in. Pipe Mounting
- For use with the traditional flange option
 - Bracket for mounting on 2-in. pipe
 - Carbon steel construction with carbon steel bolts
 - Coated with polyurethane paint
- B2** Bracket for Panel Mounting
- For use with the traditional flange option
 - Bracket for mounting transmitter on wall or panel
 - Carbon steel construction with carbon steel bolts
 - Coated with polyurethane paint
- B3** Flat Bracket for 2-in. Pipe Mounting
- For use with the traditional flange option
 - Bracket for vertical mounting of transmitter on 2-in. pipe
 - Carbon steel construction with carbon steel bolts
 - Coated with polyurethane paint
- B7** B1 Bracket with SST Bolts
- Same bracket as the B1 option with Series 300 stainless steel bolts
- B8** B2 Bracket with SST Bolts
- Same bracket as the B2 option with Series 300 stainless steel bolts
- B9** B3 Bracket with SST Bolts
- Same bracket as the B3 option with Series 300 stainless steel bolts
- BA** Stainless Steel B1 Bracket with SST Bolts
- B1 bracket in stainless steel with Series 300 stainless steel bolts
- BC** Stainless Steel B3 Bracket with SST Bolts
- B3 bracket in stainless steel with Series 300 stainless steel bolts

Product Name

00813-0106-5001, Rev NA

Product Data Sheet

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