

Rosemount 3051S Series

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 ($\pm 3\sigma$ (Sigma))

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

Digital Output

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

Reference Accuracy⁽¹⁾

Models	Classic MV	Ultra for Flow
3051SMV__1: Differential Pressure, Static Pressure, & Temperature		
3051SMV__2: Differential Pressure & Static Pressure		
DP Ranges 2 - 3	±0.04% of span; For spans less than 10:1, $\pm \left[0.01 + 0.004 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span	±0.04% of reading up to 8:1 DP turndown from URL; $\pm [0.04 + 0.0023$ (URL/RDG ^{(3))] % reading to 200:1 DP turndown from URL⁽⁴⁾}
DP Range 1	±0.10% of span; For spans less than 15:1, $\pm \left[0.025 + 0.005 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span	N/A
AP and GP Ranges 3 - 4	±0.055% of span; For spans less than 10:1, $\pm \left[0.0065 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span	±0.025% of span; For spans less than 10:1, $\pm \left[0.004 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span
Process Temp. RTD Interface⁽²⁾	±0.67 °F (0.37 °C)	±0.67 °F (0.37 °C)

Models	Ultra	Classic	Ultra for Flow
3051SMV__3: Differential Pressure & Temperature			
3051SMV__4: Differential Pressure			
Ranges 2 - 4	±0.025% of span; For spans less than 10:1, $\pm \left[0.005 + 0.0035 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span	±0.055% of span; For spans less than 10:1, $\pm \left[0.015 + 0.005 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span	±0.04% of reading up to 8:1 DP turndown from URL; $\pm [0.04 + 0.0023$ (URL/RDG ^{(3))] % reading to 200:1 DP turndown from URL⁽⁴⁾}
Range 5	±0.05% of span; For spans less than 10:1, $\pm \left[0.005 + 0.0045 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span	±0.065% of span; For spans less than 10:1, $\pm \left[0.015 + 0.005 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span	N/A
Range 1	±0.09% of span; For spans less than 15:1, $\pm \left[0.015 + 0.005 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % of span	±0.10% of span; For spans less than 15:1, $\pm \left[0.025 + 0.005 \left(\frac{\text{URL}}{\text{span}} \right) \right]$ % 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
Process Temp. RTD Interface⁽²⁾	±0.67 °F (0.37 °C)	±0.67 °F (0.37 °C)	±0.67 °F (0.37 °C)

Reference Accuracy (continued)

Models	Ultra	Classic	Ultra for Flow
3051S_CD: Coplanar Differential Pressure			
3051S_CG: Coplanar Gage Pressure			
Ranges 2 - 4	±0.025% of span; For spans less than 10:1, $\pm\left[0.005 + 0.0035\left(\frac{URL}{span}\right)\right]$ % of span	±0.055% of span; For spans less than 10:1, $\pm\left[0.015 + 0.005\left(\frac{URL}{span}\right)\right]$ % of span	±0.04% of reading up to 8:1 DP turndown from URL; $\pm[0.04 + 0.0023 (URL/RDG^{(3)})]$ % reading to 200:1 DP turndown from URL ⁽⁴⁾
Range 5	±0.05% of span; For spans less than 10:1, $\pm\left[0.005 + 0.0045\left(\frac{URL}{span}\right)\right]$ % of span	±0.065% of span; For spans less than 10:1, $\pm\left[0.015 + 0.005\left(\frac{URL}{span}\right)\right]$ % of span	N/A
Range 1	±0.09% of span; For spans less than 15:1, $\pm\left[0.015 + 0.005\left(\frac{URL}{span}\right)\right]$ % of span	±0.10% of span; For spans less than 15:1, $\pm\left[0.025 + 0.005\left(\frac{URL}{span}\right)\right]$ % 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
3051S_CA: Coplanar Absolute Pressure			
Ranges 1 - 4	±0.025% of span; For spans less than 10:1, $\pm\left[0.004\left(\frac{URL}{span}\right)\right]$ % of span	±0.055% of span; For spans less than 10:1, $\pm\left[0.0065\left(\frac{URL}{span}\right)\right]$ % of span	N/A
Range 0	±0.075% of span; For spans less than 5:1, $\pm\left[0.025 + 0.01\left(\frac{URL}{span}\right)\right]$ % of span	±0.075% of span; For spans less than 5:1, $\pm\left[0.025 + 0.01\left(\frac{URL}{span}\right)\right]$ % of span	N/A
3051S_T: In-Line Gage Pressure or In-Line Absolute Pressure			
Ranges 1 - 4	±0.025% of span; For spans less than 10:1, $\pm\left[0.004\left(\frac{URL}{span}\right)\right]$ % of span	±0.055% of span; For spans less than 10:1, $\pm\left[0.0065\left(\frac{URL}{span}\right)\right]$ % of span	N/A
Range 5	±0.04% of span; For spans less than 10:1, $\pm\left[0.004\left(\frac{URL}{span}\right)\right]$ % of span	±0.065% of span; For spans less than 10:1, $\pm\left[0.0065\left(\frac{URL}{span}\right)\right]$ % of span	N/A
3051S_L: Coplanar Liquid Level			
	±0.065% of span; For spans less than 10:1, $\pm\left[0.015 + 0.005\left(\frac{URL}{span}\right)\right]$ % of span	±0.065% of span; For spans less than 10:1, $\pm\left[0.015 + 0.005\left(\frac{URL}{span}\right)\right]$ % of span	N/A

- (1) Stated reference accuracy equations include terminal based linearity, hysteresis, and repeatability, but does not include analog only reference accuracy of ±0.005% of span.
- (2) 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.
- (3) RDG refers to transmitter DP reading.
- (4) Ultra for Flow is only available for 3051S_CD Ranges 2-3 and 3051SMV DP Ranges 2-3. For calibrated spans from 1:1 to 2:1 of URL, add ±0.005% of span analog output error.

Rosemount 3051S Series

Total Performance⁽¹⁾

Models	Ultra	Classic and Classic MV	Ultra for Flow ⁽²⁾
3051SMV	DP Ranges 2-3	±0.1% of span; for ±50°F (28°C)	±0.1% of reading; for ±50°F (28°C)
3051S_CD	Ranges 2-3	temperature changes; 0-100%	temperature changes; 0-100%
3051S_CG	Ranges 2-5	relative humidity, up to 740 psi	relative humidity, up to 740 psi
3051S_CA	Ranges 2-4	(51 bar) line pressure (DP only),	(51 bar) line pressure, over 8:1 DP
3051S_T	Ranges 2-4	from 1:1 to 5:1 rangedown	turndown from URL

(1) Total performance is based on combined errors of reference accuracy, ambient temperature effect, and line pressure effect. For 3051SMV, specification applies to differential pressure measurement.

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

MultiVariable Flow Performance⁽¹⁾

Mass, Energy, Actual Volumetric, and Totalized Flow Reference Accuracy⁽²⁾

Models	Ultra for Flow	Classic MV
3051SMV	DP Ranges 2-3	±0.70% of Flow Rate over 8:1 flow range
		(64:1 DP range)
	DP Range 1	±0.90% of Flow Rate over 8:1 flow range
		(64:1 DP range)

(1) Applies to the 3051SMV_M MultiVariable Type only. 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.

(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.

Long Term Stability

Models	Ultra and Ultra for Flow ⁽¹⁾	Classic and Classic MV
3051SMV	DP Ranges 2-5	±0.125% of URL for 5 years; for ±50°F (28°C)
	AP & GP Ranges 3-4	temperature changes, up to 1000 psi (68,9 bar)
3051S_CD	Ranges 2-5	line pressure
3051S_CG	Ranges 2-5	
3051S_CA	Ranges 1-4	
3051S_T	Ranges 1-5	
Process Temperature RTD Interface ⁽²⁾	The greater of ±0.185°F (0.103°C) or 0.1% of reading per year (excludes RTD sensor stability).	

(1) Ultra is only available for 3051SMV_3, 4 and 3051S. Ultra for Flow is only available for 3051S_CD Ranges 2-3 and 3051SMV DP Ranges 2-3.

(2) 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.

Warranty⁽¹⁾

Models	Ultra and Ultra for Flow	Classic and Classic MV
3051S Scalable Products	12-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 twelve (12) 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⁽¹⁾

	4 - 20 mA (HART [®]) ⁽²⁾	Fieldbus protocol ⁽³⁾	Typical Transmitter Response Time
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Total Response Time (Td + Tc)⁽⁴⁾

3051SMV__1: DP, SP, & T

3051SMV__2: DP & SP:

- DP Range 1: 310 milliseconds
- DP Range 2: 170 milliseconds
- DP Range 3: 155 milliseconds
- AP & GP: 240 milliseconds

3051SMV__3: DP & T

3051SMV__4: DP:

- DP Ranges 2-5: 145 milliseconds
- DP Range 1: 300 milliseconds
- DP Range 0: 745 milliseconds

3051S_C Coplanar Pressure⁽⁵⁾:

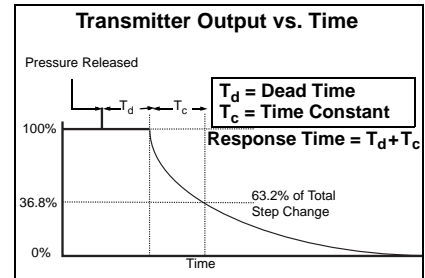
- | | | |
|---------------|------------------|------------------|
| Ranges 2 - 5: | 100 milliseconds | 152 milliseconds |
| Range 1: | 255 milliseconds | 307 milliseconds |
| Range 0: | 700 milliseconds | 752 milliseconds |

3051S_T In-Line Pressure⁽⁵⁾:

- | | | |
|--|------------------|------------------|
| | 100 milliseconds | 152 milliseconds |
|--|------------------|------------------|

3051S_L Liquid Level:

See *Instrument Toolkit*[®] See *Instrument Toolkit*



Dead Time (Td)

3051SMV:

- DP: 100 milliseconds
- AP & GP: 140 milliseconds
- Process Temp. RTD Interface: 1 second

3051S⁽⁶⁾:

45 milliseconds (nominal) 97 milliseconds

Update Rate

3051SMV:

- DP: 22 updates per second
- AP & GP: 11 updates per second
- Process Temp. RTD Interface: 1 update per second

3051SMV Calculated Variables:

- Mass or Volumetric Flow Rate: 22 updates per second
- Energy Flow Rate: 22 updates per second
- Totalized Flow: 1 update per second

3051S:

22 updates per second 22 updates per second

- (1) Does not apply to wireless output code X. See "Wireless Self-Organizing Networks" on page 16 for wireless update rate.
- (2) Dead time and update rate apply to all models and ranges; analog output only
- (3) Transmitter fieldbus output only, segment macro-cycle not included.
- (4) Nominal total response time at 75 °F (24 °C) reference conditions.
- (5) For option code DA1, add 45 milliseconds (nominal) to 4-20 mA (HART) total response time values.
- (6) For option code DA1, dead time (Td) is 90 milliseconds (nominal).

Rosemount 3051S Series

Ambient Temperature Effect

Models	Ultra per 50 °F (28 °C)	Classic or Classic MV per 50 °F (28 °C)	Ultra for Flow ⁽¹⁾ -40 to 185 °F (-40 to 85 °C)
3051SMV__1: Differential Pressure, Static Pressure, & Temperature			
3051SMV__2: Differential Pressure & Static Pressure			
DP Ranges 2 - 3	N/A	± (0.0125% URL + 0.0625% span) from 1:1 to 5:1; ± (0.025% URL + 0.125% span) for > 5:1	±0.13% reading up to 8:1 DP turndown from URL; ±[0.13 + 0.0187 (URL/RDG ⁽³⁾)]% reading to 100:1 DP turndown from URL
DP Range 1	N/A	± (0.1% URL + 0.25% Span) from 1:1 to 50:1	N/A
AP and GP	N/A	± (0.0125% URL + 0.0625% Span) from 1:1 to 10:1; ± (0.025% URL + 0.125% Span) for >10:1	± (0.009% URL + 0.025% Span) from 1:1 to 10:1; ± (0.018% URL + 0.08% Span) for >10:1
3051SMV__3: Differential Pressure & Temperature			
3051SMV__4: Differential Pressure			
Range 2 - 5 ⁽²⁾	± (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 100:1	±0.13% reading up to 8:1 DP turndown from URL; ±[0.13 + 0.0187 (URL/RDG ⁽³⁾)]% 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
Process Temp. RTD Interface⁽⁴⁾	N/A	±0.39 °F (0,216 °C) per 50 °F (28 °C)	±0.39 °F (0,216 °C) per 50 °F (28 °C)
3051S_CD: Coplanar Differential Pressure			
3051S_CG: Coplanar Gage Pressure			
Range 2 - 5 ⁽²⁾	± (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 100:1	±0.13% reading up to 8:1 DP turndown from URL; ±[0.13 + 0.0187 (URL/RDG ⁽³⁾)]% 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
3051S_CA: Coplanar Absolute Pressure			
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 100:1	N/A
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	N/A
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	N/A
3051S_T: In-Line Gage Pressure or In-Line Absolute Pressure			
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 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	N/A
Range 5	± (0.05% URL + 0.075% span) from 1:1 to 10:1	± (0.05% URL + 0.075% span) from 1:1 to 5:1	N/A
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	N/A
3051S_L: Coplanar Liquid Level			
	See <i>Instrument Toolkit</i> .	See <i>Instrument Toolkit</i> .	

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

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

(3) RDG refers to transmitter reading.

(4) 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⁾

Models	Ultra and Ultra for Flow	Classic and Classic MV
3051SMV: Differential Pressure Measurement Only		
3051S_CD: Coplanar Differential Pressure		
	Zero Error⁽²⁾	Zero Error⁽²⁾
Range 2-3	± 0.025% URL per 1000 psi (69 bar)	± 0.05% URL per 1000 psi (69 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 (69 bar)	± 0.25% URL per 1000 psi (69 bar)
	Span Error⁽³⁾	Span Error⁽³⁾
Range 2-3	± 0.1% of reading per 1000 psi (69 bar)	± 0.1% of reading per 1000 psi (69 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 (69 bar)	± 0.4% of reading per 1000 psi (69 bar)

(1) For zero error specifications for line pressures above 2000 psi (137,9 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 zeroed.

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

Mounting Position Effects

Models	Ultra, Ultra for Flow, Classic and Classic MV
3051SMV__ 1, 2	DP: Zero shifts up to ±1.25 inH ₂ O (3,11 mbar), which can be zeroed; no span effect AP/GP: Zero shifts to ±2.5 inH ₂ O (6,22 mbar), which can be zeroed; no span effect
3051SMV__ 3, 4	Zero shifts up to ±1.25 inH ₂ O (3,11 mbar), which can be zeroed; no span effect
3051S_CD, CG	Zero shifts up to ±1.25 inH ₂ O (3,11 mbar), which can be zeroed; no span effect
3051S_CA	Zero shifts to ±2.5 inH ₂ O (6,22 mbar), which can be zeroed; no span effect
3051S_T	Zero shifts to ±2.5 inH ₂ O (6,22 mbar), which can be zeroed; no span effect
3051S_L	With liquid level diaphragm in vertical plane, zero shift of up to ±1 inH ₂ O (2,49 mbar); with diaphragm in horizontal plane, zero shift of up to ±5 inH ₂ O (12,45 mbar) plus extension length on extended units; all zero shifts can be zeroed; no span effect

Vibration Effect

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

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 0.15mm 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.

(2) 3051SMV requires shielded cable for both temperature and loop wiring.

Transient Protection (Option T1)

Meets 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)

Meets IEEE C37.90.1-2002 Surge Withstand Capability

SWC 2.5 kV crest, 1.0 MHz wave form

FUNCTIONAL SPECIFICATIONS

Range and Sensor Limits

Range	3051SMV Differential Pressure Range and Sensor Limits			
	Minimum Span		Range Limits	
	Ultra and Ultra for Flow	Classic and Classic MV	Upper (URL)	Lower (LRL) ⁽¹⁾
0	0.1 inH ₂ O (0,25 mbar)	0.1 inH ₂ O (0,25 mbar)	3.0 inH ₂ O (7,5 mbar)	-3.0 inH ₂ O (-7,5 mbar)
1	0.5 inH ₂ O (1,24 mbar)	0.5 inH ₂ O (1,24 mbar)	25.0 inH ₂ O (62,3 mbar)	-25.0 inH ₂ O (-62,3 mbar)
2	1.3 inH ₂ O (3,11 mbar)	2.5 inH ₂ O (6,23 mbar)	250.0 inH ₂ O (0,62 bar)	-250.0 inH ₂ O (-0,62 bar)
3	5.0 inH ₂ O (12,4 mbar)	10.0 inH ₂ O (24,9 mbar)	1000.0 inH ₂ O (2,49 bar)	-1000.0 inH ₂ O (-2,49 bar)
4	1.5 psi (103,4 mbar)	3.0 psi (206,8 mbar)	300.0 psi (20,7 bar)	-300.0 psi (-20,7 bar)
5	10.0 psi (689,5 mbar)	20.0 psi (1,38 bar)	2000.0 psi (137,9 bar)	-2000.0 psi (-137,9 bar)

(1) Lower (LRL) is 0 inH₂O (0 mbar) for Ultra for Flow.

Range	3051SMV Static Pressure Range and Sensor Limits				
	Minimum Span		Range Limits		
	Ultra for Flow	Classic MV	Upper (URL)	Lower (LRL) (Absolute)	Lower (LRL) (Gage) ⁽¹⁾⁽²⁾
3	4.0 psi (276 mbar)	8.0 psi (552 mbar)	800 psi (55,16 bar)	0.5 psia (34,5 mbar)	-14.2 psig (-0,98 bar)
4	18.13 psi (1,25 bar)	36.26 psi (2,50 bar)	3626 psi (250.0 bar) ⁽³⁾	0.5 psia (34,5 mbar)	-14.2 psig (-0,98 bar)

(1) Assumes atmospheric pressure of 14.7 psig (1 bar).

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

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

Process Temperature RTD Interface Range Limits ⁽¹⁾		
Minimum Span	Upper (URL)	Lower (LRL)
50 °F (28 °C)	1562 °F (850 °C)	-328 °F (-200 °C)

(1) Designed to accommodate a Pt 100 RTD sensor. Examples of compatible RTDs include Rosemount Series 68 and 78 RTD Temperature Sensors.

Range	3051S_CD, CG, LD, LG Range and Sensor Limits					
	Minimum Span		Range Limits			
	Ultra and Ultra for Flow	Classic	Upper (URL)	Lower (LRL)		
				3051S_CD ⁽¹⁾	3051S_CG, LG ⁽²⁾⁽³⁾	3051S_LD ⁽²⁾
0	0.1 inH ₂ O (0,25 mbar)	0.1 inH ₂ O (0,25 mbar)	3.0 inH ₂ O (7,5 mbar)	-3.0 inH ₂ O (-7,5 mbar)	NA	NA
1	0.5 inH ₂ O (1,24 mbar)	0.5 inH ₂ O (1,24 mbar)	25.0 inH ₂ O (62,3 mbar)	-25.0 inH ₂ O (-62,3 mbar)	-25.0 inH ₂ O (-62,3 mbar)	-25.0 inH ₂ O (-62,3 mbar)
2	1.3 inH ₂ O (3,11 mbar)	2.5 inH ₂ O (6,23 mbar)	250.0 inH ₂ O (0,62 bar)	-250.0 inH ₂ O (-0,62 bar)	-250.0 inH ₂ O (-0,62 bar)	-250.0 inH ₂ O (-0,62 bar)
3	5.0 inH ₂ O (12,4 mbar)	10.0 inH ₂ O (24,9 mbar)	1000.0 inH ₂ O (2,49 bar)	-1000.0 inH ₂ O (-2,49 bar)	-393.0 inH ₂ O (-979 mbar)	-1000.0 inH ₂ O (-2,49 bar)
4	1.5 psi (103,4 mbar)	3.0 psi (206,8 mbar)	300.0 psi (20,7 bar)	-300.0 psi (-20,7 bar)	-14.2 psig (-979 mbar)	-300.0 psi (-20,7 bar)
5	10.0 psi (689,5 mbar)	20.0 psi (1,38 bar)	2000.0 psi (137,9 bar)	-2000.0 psi (-137,9 bar)	-14.2 psig (-979 mbar)	-2000.0 psi (-137,9 bar)

(1) Lower (LRL) is 0 inH₂O (0 mbar) for Ultra for Flow.

(2) When specifying a 3051S_L Ultra, use Classic minimum span.

(3) Assumes atmospheric pressure of 14.7 psig (1 bar).

Range	3051S_T Range and Sensor Limits				
	Minimum Span		Range Limits		
	Ultra	Classic	Upper (URL)	Lower (LRL) (Abs.)	Lower ⁽¹⁾ (LRL) (Gage)
1	0.3 psia (20,7 mbar)	0.3 psia (20,7 mbar)	30 psia (2,07 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
2	0.75 psia (51,7 mbar)	1.5 psia (0,103 bar)	150 psia (10,34 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
3	4 psia (275,8 mbar)	8 psia (0,55 bar)	800 psia (55,16 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
4	20 psia (1,38 bar)	40 psia (2,76 bar)	4000 psia (275,8 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
5	1000 psia (68,9 bar)	2000 psia (137,9 bar)	10000 psia (689,5 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)

(1) Assumes atmospheric pressure of 14.7 psig (1 bar).

Range	3051S_CA, LA ⁽¹⁾ Range and Sensor Limits			
	Minimum Span		Range Limits	
	Ultra	Classic	Upper (URL)	Lower (LRL)
0 ⁽²⁾	0.167 psia (11,5 mbar)	0.167 psia (11,5 mbar)	5 psia (0,34 bar)	0 psia (0 bar)
1	0.3 psia (20,7 mbar)	0.3 psia (20,7 mbar)	30 psia (2,07 bar)	0 psia (0 bar)
2	0.75 psia (51,7 mbar)	1.5 psia (0,103 bar)	150 psia (10,34 bar)	0 psia (0 bar)
3	4 psia (275,8 mbar)	8 psia (0,55 bar)	800 psia (55,16 bar)	0 psia (0 bar)
4	20 psia (1,38 bar)	40 psia (2,76 bar)	4000 psia (275,8 bar)	0 psia (0 bar)

(1) When specifying a 3051S_L Ultra, use Classic minimum span.

(2) Range 0 is not available for 3051S_LA.

Service

3051S and 3051SMV_P (Direct Process Variable Output):

Liquid, gas, and vapor applications

3051SMV_M (Mass and Energy Flow Output):

Some fluid types are only supported by certain measurement types

Fluid Compatibility with Pressure and Temperature Compensation

• Available

— Not available

Ordering Code	Measurement Type	Fluid Types			
		Liquids	Saturated Steam	Superheated Steam	Gas and Natural Gas
1	DP / P / T (Full Compensation)	•	•	•	•
2	DP / P	•	•	•	•
3	DP / T	•	•	—	—
4	DP only	•	•	—	—

Rosemount 3051S Series

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.

3051SMV transmitter: 12 to 42.4 Vdc with no load

3051S transmitter (4–20 mA): 10.5 to 42.4 Vdc with no load

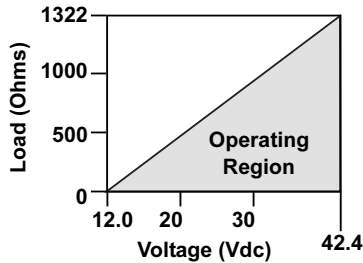
3051S HART Diagnostics transmitter: 12 to 42.4 Vdc with no load

Load Limitations

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

3051SMV Transmitter 3051S HART Diagnostics Transmitter (option code DA1)

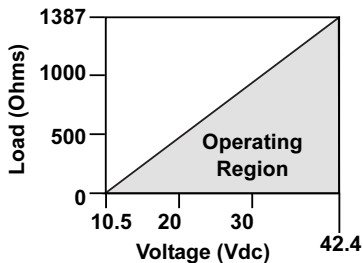
Maximum Loop Resistance = $43.5 * (\text{Power Supply Voltage} - 12.0)$



The HART communicator requires a minimum loop resistance of 250Ω for communication.

3051S Transmitter

Maximum Loop Resistance = $43.5 * (\text{Power Supply Voltage} - 10.5)$



The HART communicator requires a minimum loop resistance of 250Ω for communication.

ASP™ Diagnostics Suite for HART (Option Code DA1)

The 3051S provides Abnormal Situation Prevention indication for a breakthrough in diagnostic capability. The 3051S ASP Diagnostics Suite for HART includes Statistical Process Monitoring (SPM), variable logging with time stamp and advanced process alerts. The enhanced EDDL graphic display provides an intuitive and user-friendly interface to better visualize these diagnostics.

The integral SPM technology calculates the mean and standard deviation of the process variable 22 times per second and makes them available to the user. The 3051S uses these values and highly flexible configuration options for customization to detect many user-defined or application specific abnormal situations (e.g. detecting plugged impulse lines and fluid composition change). Variable logging with time stamp and advanced process alerts capture valuable process and sensor data to enable quick troubleshooting of application and installation issues.

Product Data Sheet

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Rosemount 3051S Series

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 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 seals, hydrostatic tank gauging, ratio control and others.

Signal Characterizer Block

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

Integrator Block

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

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	-
Transducer	-
LCD Block	-
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.

ASP Diagnostics Suite for FOUNDATION fieldbus (Option Code D01)

The 3051S ASP Diagnostics Suite for FOUNDATION fieldbus provides Abnormal Situation Prevention indication and enhanced EDDL graphic displays for easy visual analysis.

The integral Statistical Process Monitoring (SPM) technology calculates the mean and standard deviation of the process variable 22 times per second and makes them available to the user. The 3051S uses these values and highly flexible configuration options for customization to detect many user-defined or application specific abnormal situations (e.g. detecting plugged impulse lines and fluid composition change).

Wireless Self-Organizing Networks

Output

WirelessHART, 2.4 GHz DSSS.

Wireless, 2.4 GHz DSSS or 900 MHz FHSS.

Local Display (WirelessHART only)

The optional five-digit LCD can display user-selectable information such as primary variable in engineering units, percent of range, sensor module temperature, and electronics temperature. Display updates at up to once per minute.

Local Display

The optional five-digit LCD can display primary variable in engineering units. Display updates at update rate up to once per minute.

Update Rate

WirelessHART, user selectable 8 sec. to 60 min.

Wireless, user selectable 15 sec. to 60 min.

Power Module (WirelessHART only)

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⁾

(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.

Power Module

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

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

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

Overpressure Limits

Transmitters withstand the following limits without damage:

3051SMV__1: Differential & Static Pressure, Temperature

3051SMV__2: Differential Pressure & Static Pressure

Static Pressure	Differential Pressure		
	Range 1	Range 2	Range 3
Range 3 GP/AP	1600 psi (110,3 bar)	1600 psi (110,3 bar)	1600 psi (110,3 bar)
Range 4 GP/AP	2000 psi (137,9 bar)	3626 psi (250 bar)	3626 psi (250 bar)

3051SMV__3: Differential Pressure & Temperature

3051SMV__4: Differential Pressure

3051S_CD: Coplanar Differential Pressure

3051S_CG: Coplanar Gage Pressure

Range 0: 750 psi (51,7 bar)

Range 1: 2000 psig (137,9 bar)

Ranges 2–5: 3626 psig (250,0 bar)

4500 psig (310,3 bar) for option code P9

6092 psig (420 bar) for option code P0 (Classic only)

3051S_CA: Coplanar Absolute Pressure

Range 0: 60 psia (4,13 bar)

Range 1: 750 psia (51,7 bar)

Range 2: 1500 psia (103,4 bar)

Range 3: 1600 psia (110,3 bar)

Range 4: 6000 psia (413,7 bar)

3051S_T: In-Line Gage or Absolute Pressure

Range 1: 750 psi (51,7 bar)

Range 2: 1500 psi (103,4 bar)

Range 3: 1600 psi (110,3 bar)

Range 4: 6000 psi (413,7 bar)

Range 5: 15000 psi (1034,2 bar)

3051S_L: Coplanar Liquid Level

Limit is flange rating or sensor rating, whichever is lower (see the table below).

Standard	Type	CS Rating	SST Rating
ANSI/ASME	Class 150	285 psig	275 psig
ANSI/ASME	Class 300	740 psig	720 psig
ANSI/ASME	Class 600	1480 psig	1440 psig
<i>At 100 °F (38 °C), the rating decreases with increasing temperature, per ANSI/ASME B16.5.</i>			
DIN	PN 10–40	40 bar	40 bar
DIN	PN 10/16	16 bar	16 bar
DIN	PN 25/40	40 bar	40 bar
<i>At 248 °F (120 °C), the rating decreases with increasing temperature, per DIN 2401.</i>			

Static Pressure Limit

3051SMV__1: Differential & Static Pressure, Temperature

3051SMV__2: Differential Pressure & Static Pressure

Operates within 0.5 psia (0,03 bar) and the values in the table below:

Static Pressure	Differential Pressure		
	Range 1	Range 2	Range 3
Range 3 GP/AP	800 psi (57,91 bar)	800 psi (57,91 bar)	800 psi (57,91 bar)
Range 4 GP/AP	2000 psi (137,9 bar)	3626 psi (250 bar)	3626 psi (250 bar)

3051SMV__3: Differential Pressure & Temperature

3051SMV__4: Differential Pressure

3051S_CD: Coplanar Differential Pressure

Operates within specifications between static line pressures of 0.5 psia and 3626 psig;

4500 psig (310,3 bar) for option code P9

6092 psig (420 bar) for option code P0 (Classic only)

Range 0: 0.5 psia to 750 psig (0,03 to 51,71 bar)

Range 1: 0.5 psia to 2000 psig (0,03 to 137,9 bar)

Burst Pressure Limits

3051SMV and 3051S_C with Coplanar or Traditional Process Flange

10000 psig (689,5 bar)

3051S_T: In-Line Gage or Absolute Pressure

Ranges 1–4: 11000 psi (758,4 bar)

Range 5: 26000 psig (1792,64 bar)

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Rosemount 3051S Series

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 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:

3051SMV and 3051S_C	
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 300 °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⁾
3051S_T In-Line (Process Fill Fluid)	
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⁾
3051S_L Low-Side Temperature Limits	
Silicone Fill Sensor ⁽¹⁾	-40 to 250 °F (-40 to 121 °C) ⁽³⁾
Inert Fill Sensor ⁽¹⁾	0 to 185 °F (-18 to 85 °C) ⁽³⁾
3051S_L High-Side Temperature Limits (Process Fill Fluid)	
Syltherm [®] XLT	-102 to 293 °F (-75 to 145 °C)
D. C. [®] Silicone 704 ⁽⁸⁾	32 to 400 °F (0 to 205 °C)
D. C. Silicone 200	-49 to 400 °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 [®]	5 to 400 °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:
 $(195 \text{ °F} - 185 \text{ °F}) \times 1.5 = 15 \text{ °F}$
 $185 \text{ °F} - 15 \text{ °F} = 170 \text{ °F}$

(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 limit of 600 °F (315 °C) is available with 1199 seal assemblies mounted away from the transmitter with the use of capillaries and up to 500 °F (260 °C) with direct mount extension.

Humidity Limits

0–100% relative humidity

Turn-On Time⁽¹⁾

Performance within specifications less than 5 seconds for 3051SMV (typical) and 2 seconds for 3051S (typical) after power is applied to the transmitter.

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

Volumetric Displacement

Less than 0.005 in³ (0,08 cm³)

Damping⁽¹⁾

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

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

Failure Mode Alarm

HART 4-20mA (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 Alarm Configuration 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⁾	20.2 - 23.0 mA	3.6 - 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.

Safety-Certified Transmitter Failure Values⁽¹⁾

Safety accuracy: 2.0%⁽²⁾

Safety response time: 1.5 seconds

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

(2) A 2% variation of the transmitter mA output is allowed before a safety trip. Trip values in the DCS or safety logic solver should be derated by 2%.

PHYSICAL SPECIFICATIONS

Electrical Connections

$1/2$ -14 NPT, $G1/2$, and $M20 \times 1.5$ (CM20) conduit. HART interface connections fixed to terminal block for Output code A and X.

Process Connections

3051SMV and 3051S_C

$1/4$ -18 NPT on $2 1/8$ -in. centers

$1/2$ -14 NPT and RC $1/2$ on 2-in. (50.8mm), $2 1/8$ -in. (54.0 mm), or $2 1/4$ -in. (57.2mm) centers (process adapters)

3051S_T

$1/2$ -14 NPT female,

Non-Threaded instrument flange (available in SST for Range 1-4 transmitters only),

$G1/2$ A DIN 16288 Male (available in SST for Range 1-4 transmitters only), or

Autoclave type F-250-C (Pressure relieved $9/16$ -18 gland thread; $1/4$ OD high pressure tube 60° cone; available in SST for Range 5 transmitters only).

3051S_L

High pressure side: 2-in. (50.8 mm), 3-in. (72 mm), or 4-in. (102 mm), ASME B 16.5 (ANSI) Class 150, 300 or 600 flange; 50, 80 or 100 mm, DIN 2501 PN 40 or 10/16 flange

Low pressure side: $1/4$ -18 NPT on flange, $1/2$ -14 NPT on process adapter

Process-Wetted Parts

Process Isolating Diaphragms

Isolating Diaphragm Material	3051SMV	3051S_			
		CD, CG	T	CA	L
316L SST (UNS S31603)	•	•	•	•	
Alloy C-276 (UNS N10276)	•	•	•	•	
Alloy 400 (UNS N04400)	•	•		•	
Tantalum (UNS R05440)	•	•			
Gold-plated Alloy 400	•	•		•	
Gold-plated 316L SST	•	•		•	

See Below

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 3051S_L.

Process Flanges and 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)

3051S_L Process Wetted Parts

Flanged Process Connection (Transmitter High Side)

Process Diaphragms, Including Process Gasket Surface

316L SST, Alloy C-276, or Tantalum

Extension

CF-3M (Cast 316L SST, material per ASTM A743), or CW-12MW (Cast C-276, material ASTM A494); fits schedule 40 and 80 pipe

Mounting Flange

Zinc-cobalt plated CS or 316 SST

Reference Process Connection (Transmitter Low Side)

Isolating Diaphragms

316L SST or Alloy C-276

Process Flange and Adapter

CF-8M (Cast 316 SST, material per ASTM A743)

Non-Wetted Parts

Electronics Housing

Low-copper aluminum alloy or SST: CF-3M (Cast 316L SST) 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 or inert halocarbon (Inert is not available with 3051S_CA). In-Line series uses Fluorinert[®] FC-43.

Process Fill Fluid (Liquid Level Only)

3051S_L: *Syltherm* XLT, D.C.[®] Silicone 704,

D.C. Silicone 200, inert, glycerin and water,

Neobee M-20, propylene glycol and water.

Paint

Polyurethane

Cover O-rings

Buna-N

Wireless Antenna

PBT/ polycarbonate (PC) integrated omnidirectional antenna

Power Module

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

Product Data Sheet

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October 2008

Rosemount 3051S Series

Shipping Weights

SuperModule Platform Weights

SuperModule Platform	Weight in lb. (kg)
3051SMV ⁽¹⁾ and 3051S_C ⁽¹⁾	3.1 (1,4)
3051S_T	1.4 (0,6)

(1) Flange and bolts not included.

Transmitter Weights Without Options

Complete Transmitter ⁽¹⁾	Weight in lb. (kg)
3051S_C (SST Flange) with junction box housing	6.3 (2,8)
3051S_T with junction box housing	3.2 (1,4)
3051SMV and 3051S_C (SST Flange) with PlantWeb housing	6.7 (3,1)
3051S_T with PlantWeb housing	3.7 (1,7)
3051S_C (SST Flange) with wireless PlantWeb housing	7.3 (3,3)
3051S_T with wireless PlantWeb housing	4.2 (1,9)

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

3051S_L 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)	—	—	—
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)	—	—	—
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)	—	—	—
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)	—	—	—
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)

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.

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)

Item	Weight in lb. (kg)
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.