

Rosemount 1151 Pressure Transmitter

- *Proven field performance and reliability*
- *Commitment to continuous improvement*
- *Application flexibility*



Content

Specifications	page 3
Product Certifications	page 7
Dimensional Drawings	page 9
Ordering Information	page 15

Leading a tradition of excellence

With over five million transmitters installed worldwide, the 1151 continues to offer industry leading value. Changing customer needs have driven product improvements, while advanced manufacturing and testing processes have guaranteed product quality. Even today, the 1151 is world-renowned for proven field reliability and longevity.

Proven field performance and reliability

For over 30 years, the 1151 has provided the process control industry with unsurpassed service and reliability in even the harshest of environments. The lasting customer preference results from a combination of advanced technology, and a heritage of field proven performance.

Commitment to continuous improvement

Smart electronics increased rangeability to 40:1, reducing the number of transmitters to specify, procure and carry in inventory. In addition, $\pm 0.1\%$ accuracy has been achieved through product improvements, meeting ever increasing pressure measurement requirements. A modular design allows interchangeable mechanical and electrical components, providing backward and forward compatibility.

Application flexibility

The 1151 offers a variety of configurations for differential, gage, absolute and liquid-level measurements. A high pressure model allows static line pressures up to 4500 psi (310 bar). Multiple wetted materials, as well as alternative fill fluids ensure process compatibility. Smart, analog and low-power electronics are available to meet specific application requirements.

Rosemount Pressure Solutions

Rosemount 3051S Series of Instrumentation

Scalable pressure, flow and level measurement solutions improve installation and maintenance practices.

Rosemount 3095MV Mass Flow Transmitter

Accurately measures differential pressure, static pressure and process temperature to dynamically calculate fully compensated mass flow.

Rosemount 305 and 306 Integral Manifolds

Factory-assembled, calibrated and seal-tested manifolds reduce on-site installation costs.

Rosemount 1199 Diaphragm Seals

Provides reliable, remote measurements of process pressure and protects the transmitter from hot, corrosive, or viscous fluids.

Orifice Plate Primary Element Systems: Rosemount 1495 and 1595 Orifice Plates, 1496 Flange Unions and 1497 Meter Sections

A comprehensive offering of orifice plates, flange unions and meter sections that is easy to specify and order. The 1595 Conditioning Orifice provides superior performance in tight fit applications.

Annubar Flowmeter Series: Rosemount 3051SFA, 3095MFA, and 485

The state-of-the-art, fifth generation Rosemount 485 Annubar combined with the 3051S or 3095MV MultiVariable transmitter creates an accurate, repeatable and dependable insertion-type flowmeter.

Compact Orifice Flowmeter Series: Rosemount 3051SFC, 3095MFC, and 405

Compact Orifice Flowmeters can be installed between existing flanges, up to a Class 600 (PN100) rating. In tight fit applications, a conditioning orifice plate version is available, requiring only two diameters of straight run upstream.

ProPlate Flowmeter Series: Rosemount ProPlate, Mass ProPlate, and 1195

These integral orifice flowmeters eliminate the inaccuracies that become more pronounced in small orifice line installations. The completely assembled, ready to install flowmeters reduce cost and simplify installation.

Specifications

FUNCTIONAL SPECIFICATIONS

Service

Liquid, gas, and vapor applications

Ranges

See Table 2 for ranges. Minimum span equals the upper range limit (URL) divided by rangedown. Rangedown varies with the output code See Table 1.

Outputs

Code S, Smart

4–20 mA dc, 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.

Code E, Analog

4–20 mA dc, linear with process pressure

Code G, Analog

10–50 mA dc, linear with process pressure

Code J, Analog

4–20 mA dc, square root of differential input pressure between 4 and 100% of input. Linear with differential input pressure between 0 and 4% of input.

Code L, Low Power

0.8 to 3.2 V dc, linear with process pressure

Code M, Low Power

1 to 5 V dc, linear with process pressure

Current Consumption Under Normal Operating Conditions (Low Power Only)

Output Code L

1.5 mA dc

Output Code M

2.0 mA dc

Zero Elevation and Suppression

Output Codes S, E, and G

Zero elevation and suppression must be such that the lower range value is greater than or equal to the (–URL) and the upper range value is less than or equal to the (+URL). The calibrated span must be greater than or equal to the minimum span and less than or equal to the maximum span.

Output Code J

Zero is adjustable up to 10% of the calibrated flow span.

Output Code L

Zero is adjustable ±10% of URL and span is adjustable from 90 to 100% of URL.

Output Code M

Zero is adjustable ±50% of URL and span is adjustable from 50 to 100% of URL.

Span and Zero

Output Code S

Span and zero may be accessed with local adjustments or remotely through a HART-compatible Interface.

Output Codes E, G, J, L, and M

Span and zero are continuously adjustable.

Power Supply

External power supply required. Transmitter operates according to the following requirements:

Output Codes S, E, J

12 to 45 V dc with no load

Output Code G

30 to 85 V dc with no load

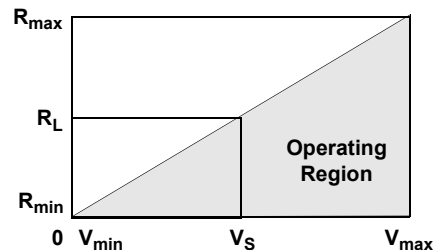
Output Code L

5 to 12 V dc

Output Code M

8 to 14 V dc

Where:



Code	V _{min}	V _{max}	R _{min}	R _{max}	R _L at Supply Voltage (V _S)
S ⁽¹⁾	12	45	0	1650	R _L = 43.5 (V _S – 12)
E ⁽²⁾ , J	12	45	0	1650	R _L = 50 (V _S – 12)
G	30	85	0	1100	R _L = 20 (V _S – 30)
L	5	12	Low Power Minimum Load Impedance: 100 kΩ		
M	8	14			

(1) A minimum of 250 ohms is required for communication.

(2) For CSA approvals V_{max} = 42.4 V dc.

Temperature Limits

Electronics Operating

Code S: –40 to 185 °F (–40 to 85 °C)

Code E: –40 to 200 °F (–40 to 93 °C)

Code G, L, M: –20 to 200 °F (–29 to 93 °C)

Code J: –20 to 150 °F (–29 to 66 °C)

Sensing Element Operating

Silicone fill: –40 to 220 °F (–40 to 104 °C)

Inert fill: 0 to 160 °F (–18 to 71 °C)

Storage

Code S: –60 to 185 °F (–51 to 85 °C)

Codes E, G, L, M: –60 to 250 °F (–51 to 121 °C)

Code J: –60 to 180 °F (–51 to 82 °C)

TABLE 1. Rangeability

Output Code	Minimum Span	Maximum Span
S (DP and GP, SST, Range 3–8; HP SST, Range 4–7)	URL/40	2 × URL ⁽¹⁾
S (All Others)	URL/40 ⁽²⁾	2 × URL ⁽¹⁾
E, G, J	URL/6	URL
L	URL/1.1	URL
M	URL/2	URL

(1) Transmitter is capable of measuring from –URL to URL.

(2) Accuracy specification for calibrated spans from 1:1 to 6:1 of URL only.

TABLE 2. Transmitter Range Availability by Model (URL = Upper Range Limit)

Range Code	Model 1151 Ranges (URL)	DP	HP	GP	DP/GP/Seals	AP	LT
3	30 inH ₂ O (7.46 kPa)	•	NA	•	NA	NA	NA
4	150 inH ₂ O (31.08 kPa)	•	•	•	•	•	•
5	750 inH ₂ O (186.4 kPa)	•	•	•	•	•	•
6	100 psi (689.5 kPa)	•	•	•	•	•	•
7	300 psi (2,068 kPa)	•	•	•	•	•	NA
8	1,000 psi (6,895 kPa)	•	NA	•	NA	•	NA
9	3,000 psi (20,684 kPa)	NA	NA	•	NA	NA	NA
0	6,000 psi (41,369 kPa)	NA	NA	•	NA	NA	NA

TABLE 3. Upper Range Limits (URL)

Range Code	bar	mbar	kg/cm ²	psi	kPa	inH ₂ O @20 °C	mmH ₂ O @20 °C	inHg @0 °C
3	0.075	75	0.076	1.082	7.461	30	762	2.203
4	0.373	373	0.380	5.409	37.305	150	3810	11.013
5	1.865	1865	1.901	27.045	186.505	750	19050	55.065
6	6.90	6895	7.031	100	690	2773	70434	204
7	21	20685	21	300	2069	8319	211302	611
8	69	68950	70	1000	6895	27730	704340	2036
9	207	206850	211	3000	20685	83190	2113020	6108
0	413.686	413686	421.842	6000	41369	166378	4225992	12216.12

TABLE 4. Output Code Availability

Code	Model 1151 Output Options/Damping	DP	HP	GP	DP/GP/Seals	AP	LT
S	4–20 mA, Digital, Smart/Variable	•	•	•	•	•	•
E	4–20 mA, Linear, Analog/Variable	•	•	•	•	•	•
G	10–50 mA, Linear, Analog/Variable	•	•	•	•	•	•
J ⁽¹⁾	4–20 mA, Square Root, Analog/Variable	•	•	NA	NA	NA	NA
L	0.8 to 3.2 V, Linear, Low Power/Fixed	•	•	•	•	•	NA
M	1 to 5 V, Linear, Low Power/Fixed	•	•	•	•	•	NA

(1) Available with Ranges 3–5.

TABLE 5. Fill Fluid Specifications

Fill Fluid	Temperature Limits ⁽¹⁾	Specific Gravity	Coeff. of Therm. Exp. cc/cc/°F (cc/cc/°C)	Viscosity at 25 °C centistokes
D.C. [®] 200 Silicone	–40 to 400 °F (–40 to 205 °C)	0.934	0.00060 (0.00108)	9.5
D.C. 704 Silicone	60 to 400 °F (15 to 204 °C)	1.07	0.00053 (0.00095)	44
Inert Fill	–50 to 350 °F (–45 to 177 °C)	1.85	0.0004 (0.000864)	6.5
Syltherm [®] XLT, Silicone	–100 to 300 °F (–73 to 149 °C)	0.85	0.000666 (0.001199)	1.6
Glycerin and Water ⁽²⁾	0 to 200 °F (–17 to 93 °C)	1.13	0.00019 (0.00034)	12.5
Propylene Glycol and Water ⁽³⁾	0 to 200 °F (–17 to 93 °C)	1.02	0.00019 (0.00034)	2.85
Neobee M-20 ^{®(3)}	0 to 400 °F (–17 to 205 °C)	0.900	0.00056 (0.001008)	9.8

(1) Temperature limits are reduced in vacuum service. Contact your local Rosemount representative for assistance.

(2) Glycerin and Water and Propylene Glycol and Water are not suitable for vacuum service.

(3) Not compatible with Buna-N or Ethylene-Propylene O-ring material.

Product Data Sheet

00813-0100-4360, Rev DB

October 2003

Rosemount 1151

Static Pressure and Overpressure Limits

Model 1151DP

0 psia to 2,000 psig (0 to 13.79 MPa) on either side without damage to transmitter. Operates within specifications from static line pressures of 0.5 psia (3.45 kPa) to 2,000 psig (13.79 MPa).

Model 1151HP

0 psia to 4,500 psig (0 to 31.02 MPa) on either side without damage to transmitter. Operates within specifications from 0.5 psia (3.45 kPa) to 4,500 psig (31.02 MPa).

Model 1151AP

0 psia to 2,000 psia (0 to 13.79 MPa) without damage to transmitter. Operates within specifications from 0 psia to the upper range limit of the transmitter.

Model 1151GP

0 psia to 2,000 psig (0 to 13.79 MPa) for ranges to 1,000 psig (6.90 MPa), 4,500 psig (31.02 MPa) for the 3,000 psig (20.68 MPa) range, and 7,500 psig (51.71 MPa) for the 6,000 psig (41.37 MPa) range, without damage to the transmitter. Operates within specifications from 0.5 psia (3.45 kPa) to the upper range limit of the transmitter.

Model 1151LT

TABLE 6. Flange Pressure Rating

Standard	Class/Rating	Carbon Steel	Stainless Steel
ANSI	150	285 psig ⁽¹⁾	275 psig ⁽¹⁾
ANSI	300	740 psig ⁽¹⁾	720 psig ⁽¹⁾
ANSI	600	1,480 psig ⁽¹⁾	1,440 psig ⁽¹⁾
DIN	PN 10-40	40 bar ⁽²⁾	40 bar ⁽²⁾
DIN	PN 10/16	16 bar ⁽²⁾	16 bar ⁽²⁾
DIN	PN 25/40	40 bar ⁽²⁾	40 bar ⁽²⁾

(1) At 100 °F (38 °C); the rating decreases with increasing temperature.

(2) At 248 °F (120 °C); the rating decreases with increasing temperature.

Burst Pressure All Models

10,000 psig (68.95 MPa) proof pressure on the flanges.

Humidity Limits

0 to 100% relative humidity

Volumetric Displacement

Less than 0.01 in³ (0.16 cm³)

Failure Mode Alarm (Output Code S)

If self-diagnosis detects a gross transmitter failure, the analog signal will be driven below 3.9 mA or above 21 mA to alert the user. High or low alarm signal is user selectable.

Level	4-20 mA Saturation Value	4-20 mA Alarm Value
Low	3.9 mA	3.8 mA
High	20.8 mA	21.75 mA

Transmitter Security (Output Code S)

Activating the transmitter security function prevents changes to the transmitter configuration, including local zero and span adjustments. Security is activated by an internal switch.

Overpressure Alarm (Output Code S)

If the sensor detects a negative overpressure value, the analog signal will be driven to 3.9 mA. If the sensor detects a positive overpressure value, the analog signal is driven to 20.8 mA.

Damping

Numbers given are for silicone fill fluid at room temperature. The minimum time constant is 0.2 seconds (0.4 seconds for Range 3). Inert-filled sensor values would be slightly higher.

Output Code S

Time constant is adjustable in 0.1 second increments from minimum to 16.0 seconds.

Output Codes E and G

Time constant continuously adjustable between minimum and 1.67 seconds.

Output Code J

Time constant continuously adjustable between minimum and 1.0 second.

Output Codes L, M

Damping is fixed at minimum time constant.

Model 1151LT

Time constant continuously adjustable between 0.4 and 2.2 seconds with silicone oil fill, or 1.1 and 2.7 seconds with inert fill for flush models and electronics codes E or G.

Turn-on Time

Maximum of 2.0 seconds with minimum damping. Low power output is within 0.2% of steady state value within 200 ms after application of power.

PERFORMANCE SPECIFICATIONS

(Zero-based calibrated ranges, reference conditions, silicone oil fill, 316 SST isolating diaphragms.)

Accuracy

Output Code S

Ranges 3 through 8, DP and GP transmitters;
Ranges 4 through 7, HP transmitters

±0.1 of calibrated span for spans from 1:1 to 10:1 of URL.
Between 10:1 and 40:1 of URL.

$$\text{accuracy} = \pm \left[0.02 \left(\frac{\text{URL}}{\text{span}} \right) - 0.1 \right] \% \text{ of calibrated span}$$

All other ranges and transmitters

±0.25% of calibrated span⁽¹⁾

Output Code S, square root mode

$$\pm \left[0.2 + 0.05 \times \left(\frac{\text{URL}}{\text{span}} \right) \right] \% \text{ of calibrated flow span}$$

Output Codes E, G, L, and M

±0.2% of calibrated span for Model 1151DP Ranges 3 through 5. All other ranges and transmitters, ±0.25% of calibrated span.

Output Code J

±0.25% of calibrated span

(1) Accuracy for Range 9, GP transmitter at 40:1 is ±0.7% of calibrated span.

Stability

Output Code S

±0.1% of URL for six months for DP and GP Ranges 3 through 8. (±0.25% for all other ranges and transmitters.)

Output Codes E and G

±0.2% of URL for six months for Ranges 3 through 5. (±0.25 for all other ranges.)

Output Codes J, L, and M

±0.25% of URL for six months

Temperature Effect

Output Code S [-20 to 185 °F (-29 to 85 °C)]

For DP and GP transmitter Range 4 through 8;
HP transmitter Range 4 through 7:

Zero Error = ±0.2% URL per 100 °F (56 °C)

Total Error = ±(0.2% URL + 0.18% of calibrated span) per 100 °F; For Range 3, double the stated effects. For other ranges and transmitters follow analog temperature specifications (Output Code E).

Output Code E, G, L, and M

[-20 to 200 °F (-29 to 93 °C)]

For Ranges 4 through 0

Zero Error = ±0.5% URL per 100 °F.

Total Error = ±(0.5% URL + 0.5% of calibrated span) per 100 °F; double the effect for Range 3.

Output Code J

The total output effect, whether at zero or full scale, including zero and span errors is ±1.5% of URL per 100 °F (56 °C).
±2.5% of URL per 100 °F (56 °C) for Range 3.

Static Pressure Effect – DP Transmitters

DP Transmitters

Zero Error

±0.25% of URL for 2,000 psi (13790 kPa)
for Range 4 and 5 or ±0.5% for other ranges, correctable through rezeroing at line pressure.

Span Error

Correctable to ±0.25% of input reading per 1,000 psi (6895 kPa), or to ±0.5% for Range 3. For Output Code J, the span error is correctable to ±0.125% of output reading per 1,000 psi, or to ±0.25% for Range 3.

HP Transmitters

Zero Error

±2.0% of URL for 4,500 psi (31027 kPa), correctable through rezeroing at line pressure.

Span Error

Correctable to ±0.25% of input reading per 1,000 psi (6895 kPa).
For Output Code J, the span error is correctable to ±0.125% of output reading per 1,000 psi.

Vibration Effect

0.05% of URL per g to 200 Hz in any axis

Power Supply Effect

Output Codes S, E, G, and J

Less than 0.005% of output span per volt

Output Codes L, M

Output shift of less than 0.05% of URL
for a 1 V power supply shift

Load Effect

Output Codes S, E, G, and J

No load effect other than the change in power supplied to the transmitter.

Output Codes L, M

Less than 0.05% of URL effect for a change in load from 100kΩ to infinite ohms.

Short Circuit Condition (Low Power Only)

No damage to the transmitter will result when the output is shorted to common or to power supply positive (limit 12 V).

EMI/RFI Effect

Output shift of less than 0.1% of span when tested to SAMA PMC 33.1 from 20 to 1000 MHz and for field strengths up to 30 V/m. (Code J is 0.1% of flow span.)

Mounting Position Effect

Zero shift of up to 1 inH₂O (0.25 kPa). Range 3 transmitters with Output Code J should be installed with the diaphragm in the vertical plane.

With liquid level diaphragm in vertical plane, zero shift of up to 1 inH₂O (0.25 kPa). With liquid level diaphragm in horizontal plane, zero shift of up to 5 inH₂O (1.25 kPa) plus extension length on extended units. All zero shifts can be calibrated out. No effect on span.

Physical Specifications, Standard Configuration

Electrical Connections

¹/₂-14 NPT conduit with screw terminals and integral test jacks compatible with miniature banana plugs (Pomona 2944, 3690, or equivalent). The HART Hand-Held Interface connections are fixed to the terminal block on smart transmitters.

Wetted Materials

Isolating Diaphragms

316L SST, Hastelloy® C-276®, or Tantalum. See ordering table for availability per model type.

Drain/Vent Valves

316 SST or Hastelloy C®, see ordering table for availability per model type.

Process Flanges and Adapters

Plated carbon steel, 316 SST or Hastelloy C, see ordering table for availability per model type.

Wetted O-rings

Viton® (other materials also available)

Weight

12 lb (5.4 kg) for AP, DP, GP, and HP transmitters, excluding options. Meter option: Add 2 lb (1 kg)

Non-wetted Materials

- Fill Fluid
 - Silicone oil or inert fill
- Bolts and Bolting Flange (GP and AP only)
 - Plated carbon steel
- Electronics Housing
 - Low-copper aluminum. NEMA 4X
- Cover O-rings
 - Buna-N
- Paint
 - Polyurethane

Process Connections

- ¹/₄-18 NPT on 2.125-in. (54-mm) centers on flanges for Ranges 3, 4, and 5.
- ¹/₄-18 NPT on 2.188-in. (56-mm) centers on flanges for Ranges 6 and 7.
- ¹/₄-18 NPT on 2.250-in. (57-mm) centers on flanges for Range 8.
- ¹/₂-14 NPT on adapters.
- For Ranges 3, 4, and 5, flange adapters can be rotated to give centers of 2.0 in. (51 mm), 2.125 in. (54 mm), or 2.250 in. (57 mm).

TABLE 7. Flange Weights with Model 1151LT Transmitter

Flange ⁽¹⁾	Flush	2-in (50mm) Ext.	4-in. (100mm) Ext.	6-in. (150mm) Ext.
2-in., Class 150	18 (8.2)	N/A	N/A	N/A
3-in., Class 150	23 (10.4)	25 (11.3)	26 (11.8)	27 (12.3)
4-in., Class 150	29 (13.2)	32 (14.5)	34 (15.4)	36 (16.3)
2-in., Class 300	20 (9.1)	N/A	N/A	N/A
3-in., Class 300	28 (12.7)	30 (13.6)	31 (14.1)	32 (14.5)
4-in., Class 300	38 (17.2)	41 (18.6)	43 (19.5)	45 (20.4)
2-in., Class 600	22 (10.0)	N/A	N/A	N/A
3-in., Class 600	31 (14.1)	33 (15.0)	34 (15.4)	35 (15.9)
DN 50, PN10-40	20 (9.1)	N/A	N/A	N/A
DN 80, PN 25/40	25 (11.3)	27 (12.3)	28 (12.7)	29 (13.2)
DN 100, PN 10/16	25 (11.3)	28 (12.7)	30 (13.6)	32 (14.5)
DN 100, PN 25/40	29 (13.2)	32 (14.5)	34 (15.4)	36 (16.3)

(1) Stainless steel flange weights are listed.

Product Certifications

Approved Manufacturing Locations

- Rosemount Inc. — Chanhassen, Minnesota, USA
- Fisher-Rosemount GmbH & Co. — Wessling, Germany
- Emerson Process Management Asia Pacific Private Limited — Singapore
- Beijing Rosemount Far East Instrument Co., Limited – Beijing, China

European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at www.rosemount.com. A hard copy may be obtained by contacting our local sales office.

ATEX Directive (94/9/EC)

Emerson Process Management complies with the ATEX Directive.

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

1151GP9, 0; 1151HP4, 5, 6, 7, 8 Pressure Transmitters
— QS Certificate of Assessment - EC No. PED-H-20
Module H Conformity Assessment

All other 1151 Pressure Transmitters
— Sound Engineering Practice

Transmitter Attachments: Diaphragm Seal - Process Flange -
Manifold
— Sound Engineering Practice

Electro Magnetic Compatibility (EMC) (89/336/EEC)

All models
— EN 50081-1: 1992; EN 50082-2:1995;

Ordinary Location Certification for Factory Mutual

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

Hazardous Locations Certifications

North American Certifications

Factory Mutual (FM) Approvals

FM Explosion Proof tag is standard. Appropriate tag will be substituted if optional certification is selected.

Explosion Proof: Class I, Division 1, Groups B, C, and D.
Dust-Ignition Proof: Class II, Division 1, Groups E, F, and G;
Class III, Division 1. Indoor and outdoor use. NEMA 4X.
Factory Sealed.

- 15 Intrinsically safe for Class I, II, and III Division 1, Groups A, B, C, D, E, F, and G hazardous locations in accordance with entity requirements and Control drawing 01151-0214 and 00268-0031. Non-incendive for Class I, Division 2, Groups A, B, C and D hazardous locations.
For entity parameters see control drawing 01151-0214.

Canadian Standards Association (CSA) Approvals

- E6 Explosion proof for Class I, Division 1, Groups C and D; Class II, Division 1, Groups E, F, and G; Class III, Division 1 Hazardous Locations. Suitable for Class I, Division 2, Groups A, B, C, and D; CSA enclosure type 4X. Factory Sealed.
- 16 Intrinsically safe for Class I, Division 1, Groups A, B, C, and D hazardous locations when connected per Drawing 01151-2575. For entity parameters see control drawing 01151-2575. Temperature Code T2D.

European Certifications

- 11 ATEX Intrinsic Safety and Dust (1151 Smart only)

Certificate No.: BAS99ATEX1294X

ATEX Marking II 1 GD

EEx ia IIC T5 (-60°C ≤ Ta ≤ 40°C)

EEx ia IIC T4 (-60°C ≤ Ta ≤ 80°C)

CE 1180

IP66

TABLE 8. IS Entity Parameters

U_i = 30 V

I_i = 125 mA

P_i = 1.0 W (T4) or 0.67 W (T5)

C_i = 0.034 μF

L_i = 20 μH

Special Conditions for Safe Use (X)

The apparatus, is not capable of withstanding the 500V test as required by EN 50020: 1994. This must be taken into account when installing the apparatus.

- N1 ATEX Type N and Dust Certification (1151 Smart only)

Certificate No.: BAS 99ATEX3293X

ATEX marking: II 3 GD

EEx nL IIC T5 (-40°C ≤ Ta ≤ 40°C)

EEx nL IIC T4 (-40°C ≤ Ta ≤ 80°C)

Dust Rating: T90 °C (Ta = -20°C to 40°C)

U_i = 45 Vdc Max

CE

IP66

Special Conditions for Safe Use (x)

The apparatus is not capable of withstanding the 500V insulation test required by EN 50021: 1999. This must be taken into account when installing the apparatus.

- E8 ATEX Flameproof
Certification Number CESI03ATEX037
ATEX Marking II 1/2 G
EEx d IIC T6 (-40 ≤ Ta ≤ 40 °C)
EEx d IIC T4 (-40 ≤ Ta ≤ 80 °C)
CE 1180
V = 60 Vdc maximum

Australian Certifications

Standards Association of Australia (SAA) Certification

- E7 Flameproof
Certificate Number Ex 494X
Ex d IIB + H₂ T6
DIP T6
IP65

Special Conditions for safe use (x):

For transmitters having NPT, PG or G cable entry threads, an appropriate flameproof thread adaptor shall be used to facilitate application of certified flameproof cable glands or conduit system.

- I7 Intrinsically Safe
Certificate Number: Ex 122X
Ex ia IIC T5 (T_{amb} = 40 °C)
Ex ia IIC T4 (T_{amb} = 80 °C)

Special Conditions for Safe Use (x):

The equipment has been assessed to the entity concept and accordingly the following electrical parameters must be taken into account during installation.

TABLE 9. Entity Parameters

U_i = 30V

I_i = 125 mA

P_i = 1.0 W (T4) or 0.67W (T5)

C_i = 14.8 nF

L_i = 20 μH

- N7 Type N
Certificate Number: Ex 887X
Ex n IIC T6 (T_{amb} = 40 °C)
Ex n IIC T5 (T_{amb} = 80 °C)
IP66

Special Conditions for safe use (x):

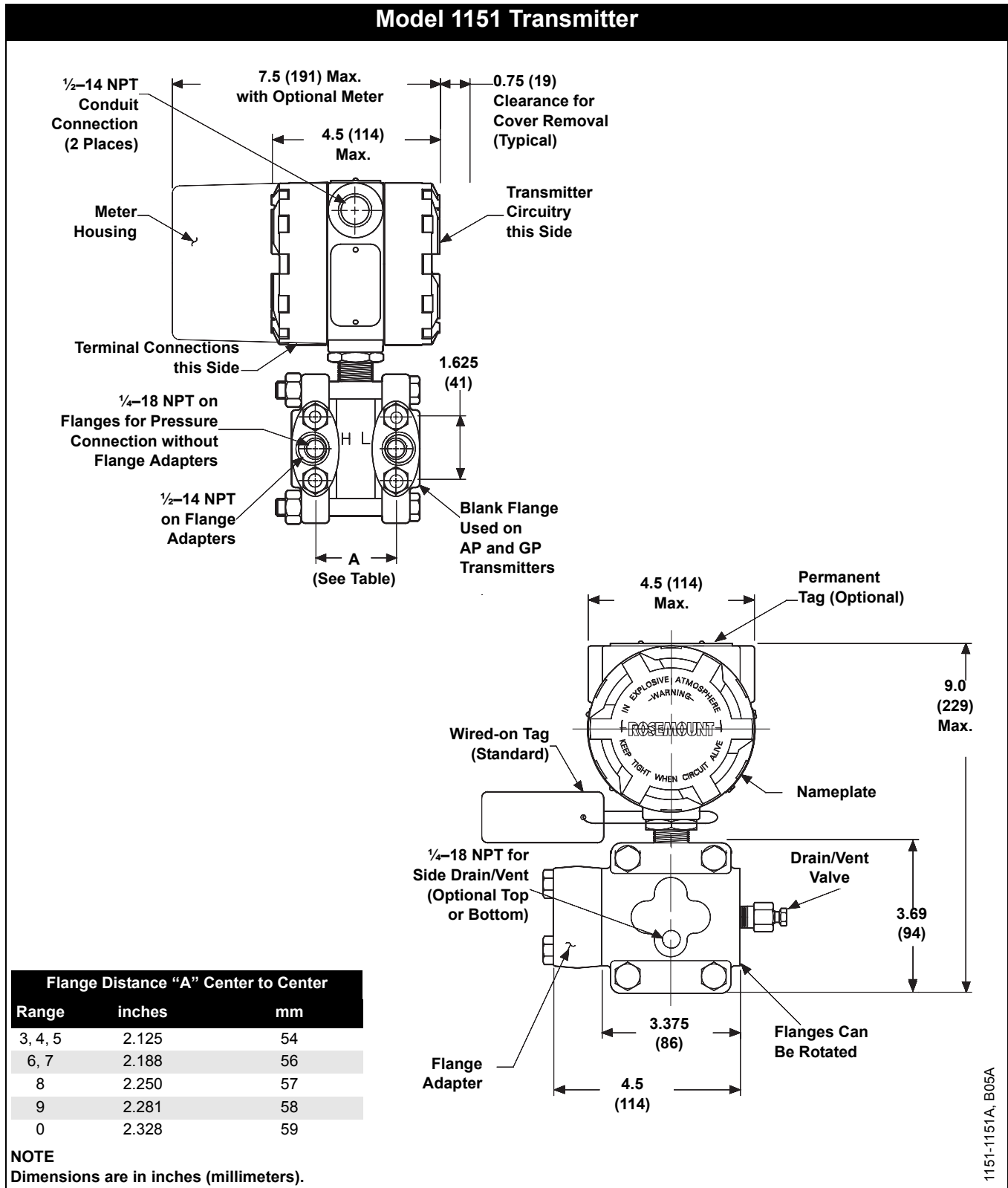
The equipment must be connected to a supply voltage which does not exceed the rated voltage. The enclosure end caps must be correctly fitted whilst the equipment is energized.

Combination Certifications

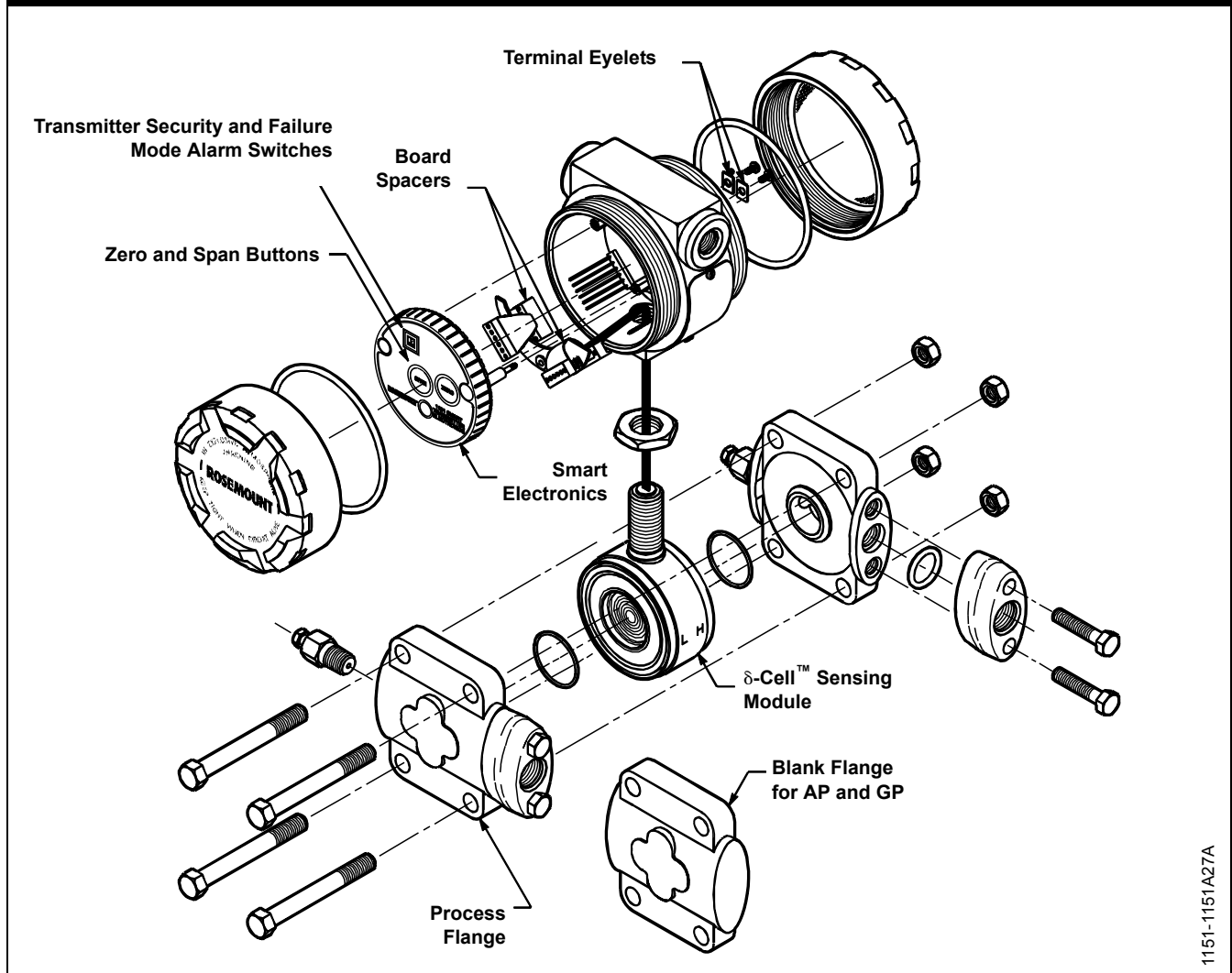
Stainless steel certification tag is provided when optional approval is specified. Once a device labeled with multiple approval types is installed, it should not be reinstalled using any other approval types. Permanently mark the approval label to distinguish it from unused approval types.

- C6 Combination of I6 and E6, CSA Explosion Proof and Intrinsic Safety Approval. Factory Sealed.
K5 Combination of Explosion Proof, Intrinsic Safety, and Non-incendive Approvals.

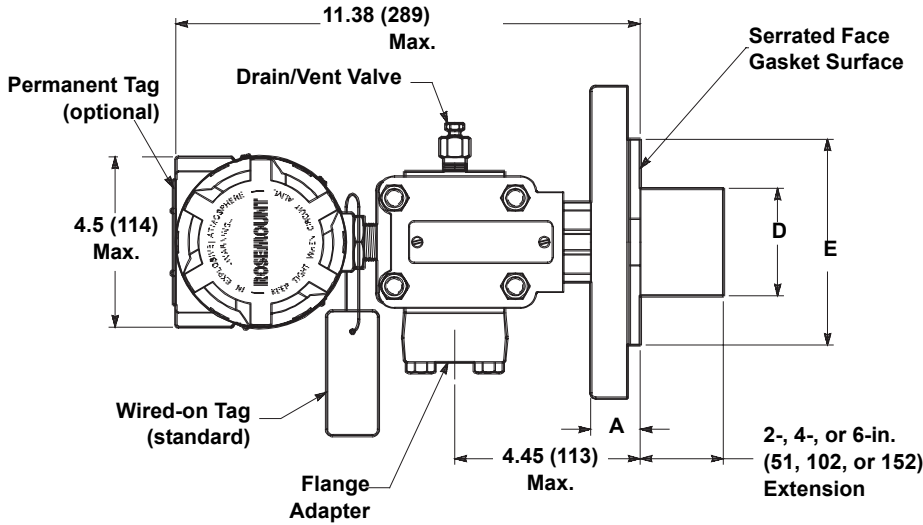
Dimensional Drawings



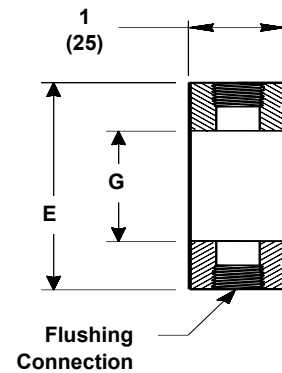
Typical Transmitter Exploded View with Smart Electronics



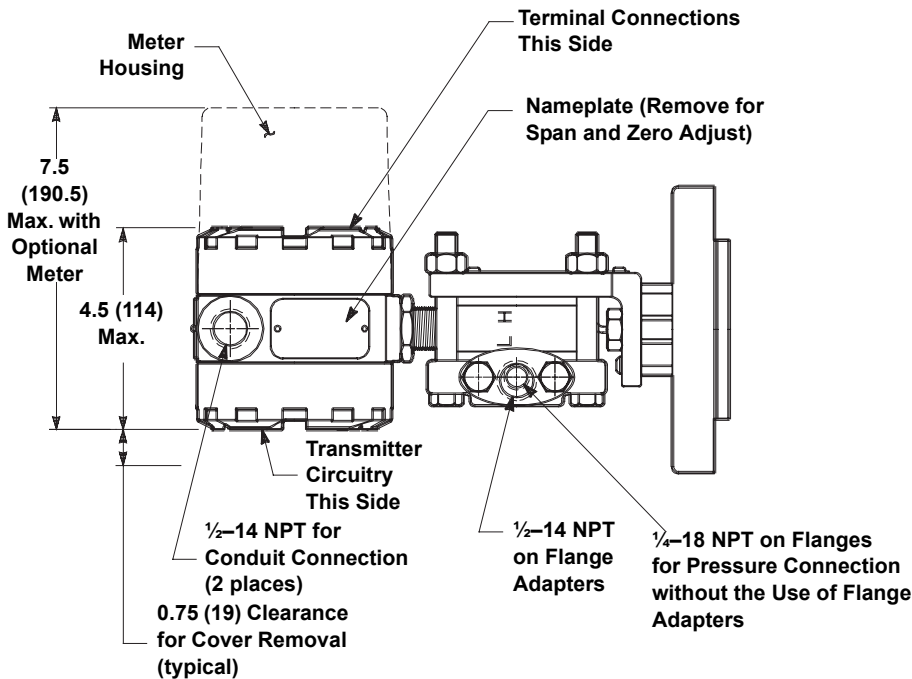
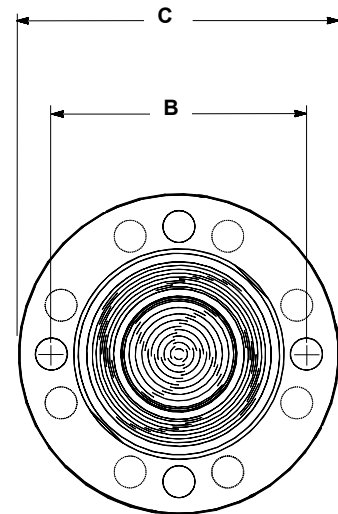
Model 1151LT



OPTIONAL FLUSHING CONNECTION RING (LOWER HOUSING)



DIAPHRAGM ASSEMBLY AND MOUNTING FLANGE



NOTE
 Dimensions are in inches (millimeters).

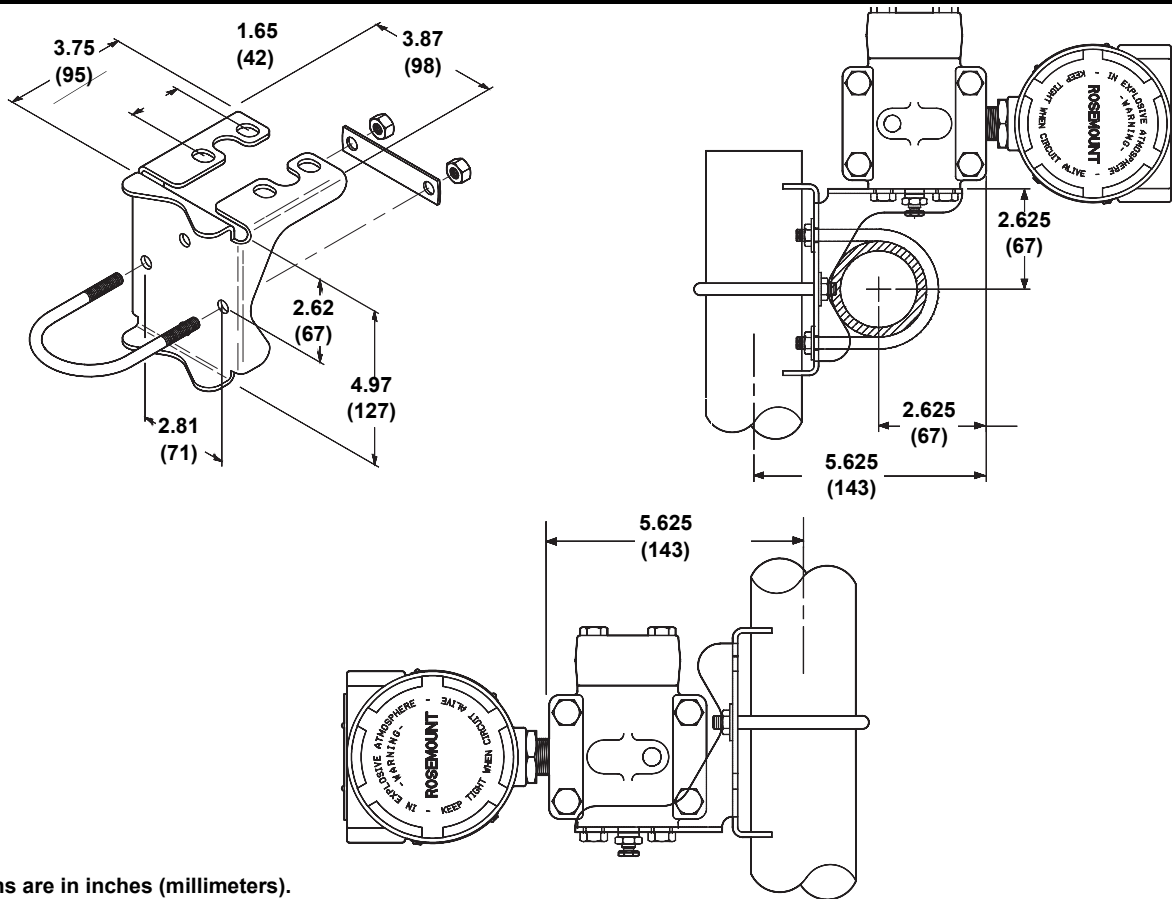
1151-51LTB05A 1151-1151B30B 1151-51LTA05A 3051-3051B27B

TABLE 10. Model 1151LT Dimensional Specifications

Class	Pipe Size	Flange Thickness A	Bolt Circle Diameter B	Outside Diameter C	No. of Bolts	Bolt Hole Diameter	Exten. Diam. D (1)	O.D. Gask. Surf. E	Proc. Side G
ANSI 150	2 (51)	1.12 (28)	4.75 (121)	6.0 (152)	4	0.75 (19)	NA	3.6(92)	2.12 (54)
	3 (76)	1.31 (33)	6.0 (152)	7.5 (191)	4	0.75 (19)	2.58 (66)	5.0 (127)	3.5 (89)
	4 (102)	1.31 (33)	7.5 (191)	9.0 (229)	8	0.75 (19)	3.5 (89)	6.2 (158)	4.5 (114)
ANSI 300	2 (51)	1.25 (32)	5.0 (127)	6.5 (165)	8	0.75 (19)	NA	3.6(92)	2.12 (54)
	3 (76)	1.50 (38)	6.62 (168)	8.25 (210)	8	0.88 (22)	2.58 (66)	5.0 (127)	3.5 (89)
	4 (102)	1.62 (41)	7.88 (200)	10.0 (254)	8	0.88 (22)	3.5 (89)	6.2 (158)	4.5 (114)
ANSI 600	2 (51)	1.12 (28)	5.0 (127)	6.5 (165)	8	0.75 (19)	NA	3.6(92)	2.12 (54)
	3 (76)	1.37 (35)	6.62 (168)	6.62 (168)	8	0.88 (22)	2.58 (66)	5.0 (127)	3.5 (89)
DIN PN10-40	DN 50	26 mm	125 mm	165 mm	4	18 mm	NA	4.0 (102)	2.5 (63)
DIN PN 25/40	DN 80	30 mm	160 mm	200 mm	8	18 mm	65 mm	5.4 (138)	3.7 (94)
DIN PN 10/16	DN 100	30 mm	190 mm	235 mm	8	22 mm	89 mm	6.2 (158)	4.5 (114)
DIN PN 10/16	DN 100	26 mm	180 mm	220 mm	8	18 mm	89 mm	6.2 (158)	4.5 (114)

(1) Tolerances are 0.040 (1.02), -0.020 (0.51).

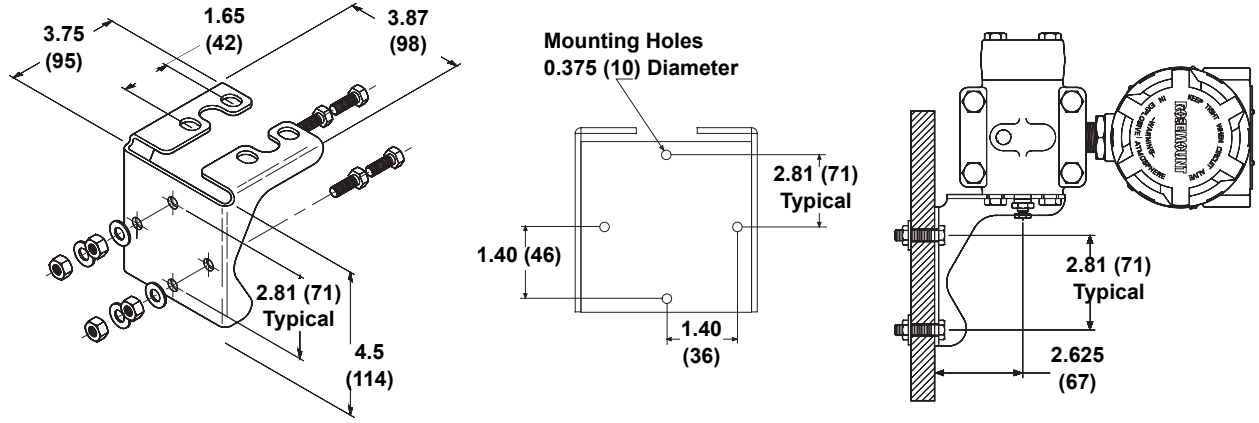
Mounting Bracket Option Codes B1, B4, and B7



NOTE
Dimensions are in inches (millimeters).

3051-3051B19A 1151-1151D, A06A

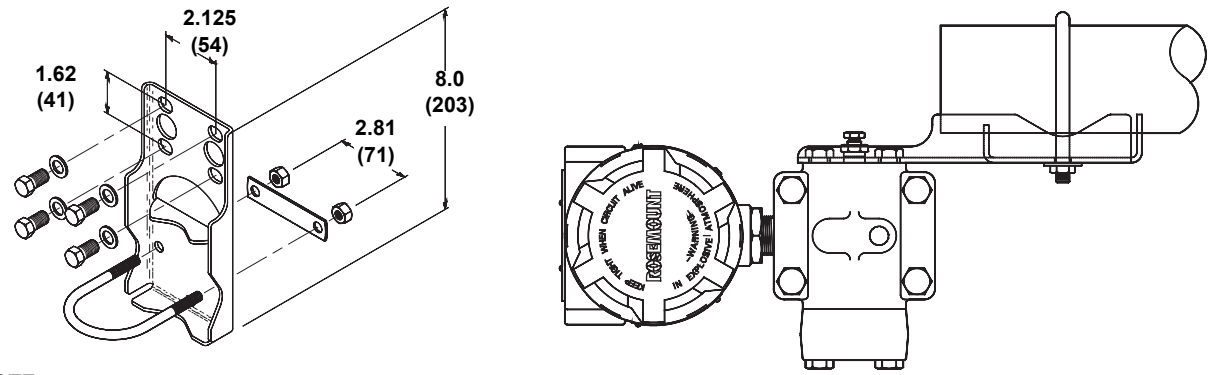
Panel Mounting Bracket Option Codes B2 and B5



NOTE
 Dimensions are in inches

3051-3051A19A 1151-0244A 1151-1151E06A

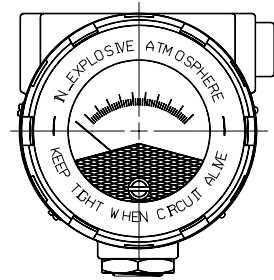
Flat Mounting Bracket Option Codes B3, B6, and B9



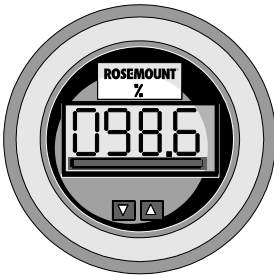
NOTE
 Dimensions are in inches (millimeters).

3051-3051H19B 1151-1151F06B

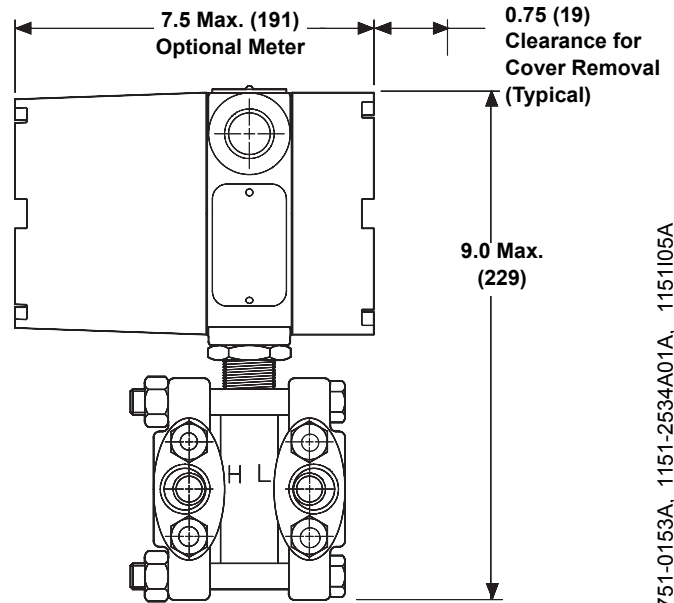
Meter Options



**OPTION CODE M1
 LINEAR SCALE**



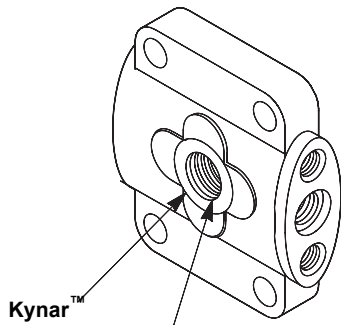
**OPTION CODE M4
 LINEAR SCALE**



751-0153A, 1151-2534A01A, 1151105A

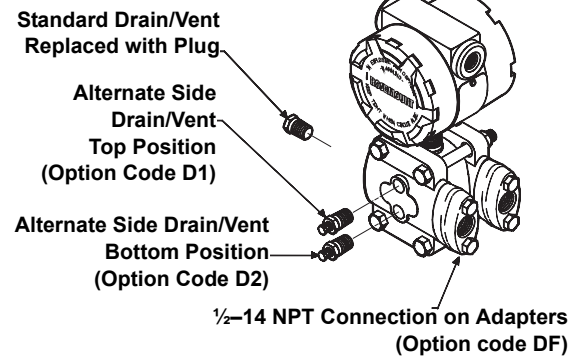
NOTE
 Dimensions are in inches

Flange Insert



**Kynar™
 Insert**
 1/4-18 or 1/2-14 NPT
 Process Connection

Model 1151 Process Connections



Ordering Information

TABLE 11. Model 1151 Differential, High Line, Gage and Absolute Pressure Transmitters — = Not Applicable • = Applicable

Model	Transmitter Type (select one)	DP	HP	GP	AP
1151DP	Differential Pressure Transmitter	•	—	—	—
1151HP	Differential Pressure Transmitter for High Line Pressures	—	•	—	—
1151GP	Gage Pressure Transmitter	—	—	•	—
1151AP	Absolute Pressure Transmitter	—	—	—	•

Code	Pressure Ranges (URL) (select one)	DP	HP	GP	AP
3	30 inH ₂ O (7.46 kPa)	•	—	•	—
4	150 inH ₂ O (37.3 kPa)	•	•	•	—
5	750 inH ₂ O (186.4 kPa)	•	•	•	•
6	100 psi (689.5 kPa)	•	•	•	•
7	300 psi (2068 kPa)	•	•	•	•
8	1,000 psi (6895 kPa)	•	—	•	•
9	3,000 psi (20684 kPa)	—	—	•	—
0	6,000 psi (41369 kPa)	—	—	•	—

Code	Transmitter Output (select one)	DP	HP	GP	AP
S	4–20 mA/Digital, Smart/Variable Damping	•	•	•	•
E	4–20 mA, Linear, Analog/Variable Damping	•	•	•	•
G	10–50 mA, Linear, Analog/Variable Damping	•	•	•	•
J	4–20 mA, Square Root, Analog/Variable Damping	•	•	—	—
L	0.8 to 3.2 V, Linear, Low Power/Fixed Damping	•	•	•	•
M	1 to 5 V, Linear, Low Power/Fixed Damping	•	•	•	•

MATERIALS OF CONSTRUCTION ⁽¹⁾								
Code	Flanges/Adapters	Drain/Vents	Diaphragms	Fill Fluid	DP	HP	GP ⁽²⁾	AP ⁽²⁾
52	Nickel-plated Carbon Steel	316 SST	316L SST	Silicone	•	•	•	•
53	Nickel-plated Carbon Steel	316 SST	Hastelloy C-276	Silicone	•	•	•	•
55	Nickel-plated Carbon Steel	316 SST	Tantalum	Silicone	•	—	•	—
12	Cadmium-plated Carbon Steel	316 SST	316L SST	Silicone	•	•	•	•
22	316 SST	316 SST	316L SST	Silicone	•	•	•	•
23	316 SST	316 SST	Hastelloy C-276	Silicone	•	•	•	•
25	316 SST	316 SST	Tantalum	Silicone	•	—	•	—
33 ⁽³⁾	Hastelloy C	Hastelloy C-276	Hastelloy C-276	Silicone	•	•	•	•
35	Hastelloy C	Hastelloy C-276	Tantalum	Silicone	•	—	•	—
73 ⁽³⁾	316 SST	Hastelloy C-276	Hastelloy C-276	Silicone	•	•	•	•
83 ⁽³⁾	Nickel-plated Carbon Steel	Hastelloy C-276	Hastelloy C-276	Silicone	•	•	•	•
5A	Nickel-plated Carbon Steel	316 SST	316L SST	Inert	•	—	•	—
5B	Nickel-plated Carbon Steel	316 SST	Hastelloy C-276	Inert	•	—	•	—
5D	Nickel-plated Carbon Steel	316 SST	Tantalum	Inert	•	•	•	—
1A	Cadmium-plated Carbon Steel	316 SST	316L SST	Inert	•	—	•	—
2A	316 SST	316 SST	316L SST	Inert	•	—	•	—
2B	316 SST	316 SST	Hastelloy C-276	Inert	•	—	•	—
2D	316 SST	316 SST	Tantalum	Inert	•	—	•	—
3B ⁽³⁾	Hastelloy C	Hastelloy C-276	Hastelloy C-276	Inert	•	—	•	—
3D	Hastelloy C	Hastelloy C-276	Tantalum	Inert	•	—	•	—
7B ⁽³⁾	316 SST	Hastelloy C-276	Hastelloy C-276	Inert	•	—	•	—
8B ⁽³⁾	Nickel-plated Carbon Steel	Hastelloy C-276	Hastelloy C-276	Inert	•	—	•	—

Continued on Next Page

Rosemount 1151

TABLE 11. Model 1151 Differential, High Line, Gage and Absolute Pressure Transmitters — = Not Applicable • = Applicable

Code	Mounting Brackets (Optional – Select One)	DP	HP	GP	AP
B1	Bracket, 2-in. Pipe Mount	•	•	•	•
B2	Bracket, Panel Mount	•	•	•	•
B3	Bracket, Flat, 2-in. Pipe Mount	•	•	•	•
B4	B1 Bracket w/Series 316 SST Bolts	•	•	•	•
B5	B2 Bracket w/Series 316 SST Bolts	•	•	•	•
B6	B3 Bracket w/Series 316 SST Bolts	•	•	•	•
B7	316 SST B1 Bracket with 316 SST Bolts	•	•	•	•
B9	316 SST B3 Bracket with 316 SST Bolts	•	•	•	•
Code	Meters (optional - select one) ⁽⁴⁾	DP	HP	GP	AP
M1	Analog Scale, Linear Meter, 0–100%	•	•	•	•
M2	Analog Scale, Square Root Meter, 0–100% Flow Note: Not available with Output Code J.	•	•	—	—
M3	Analog Scale, Linear Meter, Special Scale	•	•	•	•
M4	LCD Meter, Linear Meter, 0–100%, User Selectable Note: Not available with Output Code G.	•	•	•	•
M6	Analog Scale, Square Root Meter, 1–10 $\sqrt{\text{V}}$ Note: Not available with Output Code J.	•	•	—	—
M7	LCD Meter, Linear Meter, Special Configuration Note: Not available with Output Code G.	•	•	•	•
M8	LCD Meter Square Root Meter, 0–100% Flow Note: Not available with Output Codes G or J.	•	•	—	—
M9	LCD Meter, Square Root Meter, 0–10 $\sqrt{\text{V}}$ Note: Not available with Output Codes G or J.	•	•	—	—
Code	Certifications (optional - select one) Note: FM explosion-proof approval is standard.	DP	HP	GP	AP
I5 ⁽⁵⁾	Factory Mutual (FM) Approvals Non-incendive and Intrinsic Safety Approval	•	•	•	•
K5	Factory Mutual (FM) Approvals Explosion-Proof and Intrinsic Safety Combination	•	•	•	•
C5 ⁽⁶⁾	Measurement Canada Accuracy Approval	•	•	•	•
C6 ⁽⁵⁾	CSA Explosion-Proof and Intrinsic Safety Approval (Requires 42.4 V dc max. power supply)	•	•	•	•
K6 ⁽⁷⁾	CSA/CENELEC Explosion-Proof and Intrinsic Safety Approval	•	•	•	•
E6	Canadian Standards Association (CSA) Explosion-Proof Approval	•	•	•	•
E7	Standards Association of Australia (SAA) Flameproof Certification	•	•	•	•
E8	ATEX Flameproof Certification	•	•	•	•
I1 ⁽⁷⁾	ATEX Intrinsic Safety and Dust Certification	•	•	•	•
I7 ⁽⁵⁾	Standards Association of Australia (SAA) Intrinsic Safety Certification	•	•	•	•
N1 ⁽⁷⁾	ATEX Type N and Dust Certification	•	•	•	•
N7	Standards Association of Australia (SAA) Non-incendive Safety Approval	•	•	•	•
Q4	Calibration Data Sheet	•	•	•	•
Q8 ⁽⁸⁾	Material Traceability per EN 10204 3.1.B	•	•	•	•
Code	Housing	DP	HP	GP	AP
H1 ⁽⁹⁾	SST Non-wetted Parts on Transmitter without Meter	•	•	•	•
H2 ⁽⁹⁾	SST Non-wetted Parts on Transmitter with Meter	•	•	•	•
H3	SST Housing, Covers, Conduit Plug, Lock-nut, Without Meter	•	•	•	•
H4	SST Housing, Covers, Conduit Plug, Lock-nut, With Meter	•	•	•	•
C1	PG 13.5 Conduit Threads (Available in Germany Only)	•	•	•	•
C2	M20 Conduit Threads (Available in Germany Only)	•	•	•	•
J1	G½ Conduit Threads	•	•	•	•
Code	Terminal Blocks	DP	HP	GP	AP
R1	Integral Transient Protection (Only available with Option Code S and E electronics)	•	•	•	•
Code	Bolts for Flanges and Adapters (optional - select one)	DP	HP	GP	AP
L3	ASTM A193-B7 Flange and Adapter Bolts	•	•	•	•
L4	316 SST Flange and Adapter Bolts	•	•	•	•
L5	ASTM A193-B7M Flange and Adapter Bolts	•	•	•	•

Continued on Next Page

Product Data Sheet

00813-0100-4360, Rev DB

October 2003

Rosemount 1151

TABLE 11. Model 1151 Differential, High Line, Gage and Absolute Pressure Transmitters — = Not Applicable • = Applicable

Code	Process Connections (optional ⁽¹⁰⁾)	DP	HP	GP	AP	
D1	Side Drain/Vent, Top	316 SST	•	•	•	•
		Hastelloy C-276	•	•	•	•
D2	Side Drain/Vent, Bottom	316 SST	•	•	•	•
		Hastelloy C-276	•	•	•	•
DF	½–14 NPT Flange adapter(s)- Material determined by flange material	•	•	•	•	
D4	Conformance to DIN 19213 and DIN 50049 3.1.B Ranges 3, 4, 5 (Available in Germany Only)	•	•	•	•	
D5	Conformance to DIN 19213 and DIN 50049 3.1.B Ranges 6, 7, 8, without ¼ NPT Threads or Drain/Vent Valve Connections (Available in Germany Only)	—	—	•	•	
D6	316 SST Low Side Blank Flange	•	•	•	•	
D9	JIS Process Connection—RC ¼ Flange with RC ½ Flange Adapter	Carbon Steel	•	•	•	•
		316 SST	•	•	•	•
		Hastelloy C	•	•	•	•
G1	DIN Spacing (Single Entry Port, No Side V/D Hole Flange)	•	•	•	•	
G2	DIN Spacing (Single Entry Port, Two Side V/D Hole Flange)	•	•	•	•	
G3	DIN Spacing (Dual Entry Port, No Side V/D Hole Flange)	•	•	•	•	
G4	DIN Spacing (Dual Entry Port, One Top Side V/D Hole Flange)	•	•	•	•	
G5	DIN Spacing (Dual Entry Port, One Bottom Side V/D Hole Flange)	•	•	•	•	
G6	DIN Spacing (Dual Entry Port, Two Side V/D Hole Flange)	•	—	•	•	
K1 ⁽¹¹⁾	Kynar insert, ¼–18 NPT	•	—	•	•	
K2 ⁽¹¹⁾	Kynar insert, ½–14 NPT	•	—	•	—	
S1 ⁽¹²⁾	Attachment of One Remote Seal	•	—	•	—	
S2 ⁽¹²⁾	Attachment of Two Remote Seals	•	•	—	—	
S4 ⁽¹³⁾	Attachment of Integral Orifice Assembly	•	—	—	—	

Continued on Next Page

- (1) Bolts and conduit plugs are plated carbon steel.
- (2) On GP and AP transmitters, the low-side flange is plated carbon steel. For a stainless-steel low-side flange, order process connection Option Code D6.
- (3) Materials of Construction meet NACE material recommendation per MR 01-75. Environmental limits apply to certain materials. Consult latest standard for details.
- (4) Not available with Output Codes L or M, or Option Codes V2 or V3.
- (5) Not available with Output Code G.
- (6) Limited availability depending on transmitter type and range. Contact your Rosemount representative.
- (7) Not available with Output Codes E, G, J, L, or M.
- (8) This option is available for the transmitter flange and adapters.
- (9) Option includes SST housing, covers, conduit plug, locknut, L4 bolting, and D6 low side blank flange for GP and AP transmitters. Option Codes L4 and D6 parts are included with housing Option Codes H1 and H2.
- (10) Allowable combinations are: D1, D6; D2, D6; and D6, S1.
- (11) The maximum working pressure on this option is 300 psig. Available only with materials of construction Option Codes 1x or 2x.
- (12) This option may only be used on Ranges 4–8.
- (13) This option has a maximum static pressure rating of 3,000 psi, and is available for factory assembly only without associated piping and is available only for Ranges 2, 3, 4, and 5.

Code	Wetted O-ring Material	DP	HP	GP	AP
W2	Buna-N	•	•	•	•
W3	Ethylene-Propylene	•	•	•	•
W4	Aflas	•	•	•	•
W6 ⁽¹⁾	Spring-loaded Teflon®	•	—	•	•
W7 ⁽²⁾	Teflon	•	—	•	•
Code	Procedures	DP	HP	GP	AP
C9 ⁽³⁾	Software Configuration	•	•	•	•
P1 ⁽⁴⁾	Hydrostatic Testing, 150% Maximum Working Pressure	•	•	•	•
P2 ⁽⁵⁾	Cleaning for Special Service	•	•	•	•
P3	Cleaning for <1 PPM Chlorine/Fluorine	•	•	•	•
P4	Calibrate at Line Pressure NOTE: Specify Q48 on order for corresponding certificate.	•	•	—	—
P5	Calibrate at Specific Temperature	•	•	•	•
P7 ⁽⁶⁾	Improved Temperature Coefficient	•	•	•	•
P8 ⁽⁷⁾	Calibrate to 0.1% Accuracy	•	•	•	—
Code	Outputs	DP	HP	GP	AP
V1 ⁽⁸⁾	Reverse Output	—	—	•	—
V2 ⁽⁹⁾	4–20 mV Test Signal	•	•	•	•
V3 ⁽⁹⁾	20–100 mV Test Signal	•	•	•	•
Typical Model Number: 1151DP 4 S 52 B3 M1					

- (1) Contains a Hastelloy spring that is wetted by the process; consult factory for Teflon O-ring without a spring.
- (2) Teflon O-ring has seal property limitations; Consult your Rosemount representative for more information.
- (3) Available with Output Code S only.
- (4) Hydrostatic testing for Range 0, 125% maximum working pressure.
- (5) Fluorolube® grease on wetted O-rings.
- (6) Not available on Range 10: limited to 1,500 psi on Range 9; not applicable with Output Code S.
- (7) Available only with stainless steel isolators and for span of 10 inH₂O and greater; not available with Output Code S ranges 3 - 8, or Output Code J; not available on AP.
- (8) Reverse output option is not needed with smart electronics; configured via HART-based communicator.
- (9) Not available with Output Codes L or M.

TABLE 12. Rosemount 1151 LT Flange-Mounted Liquid Level Transmitter

Model	Product Description		
1151LT	Alphaline Flange-Mounted Liquid Level Transmitter		
Code	Range		
4	150 inH ₂ O (3,810 mmH ₂ O)		
5	750 inH ₂ O (9,050 mmH ₂ O)		
6	2,770 inH ₂ O (70,36 mmH ₂ O)		
Code	Output		
S	4–20 mA dc HART Protocol, Smart/Variable Damping		
E	4–20 mA dc, with Adjustable Damping		
G	10–50 mA dc, with Adjustable Damping		
Code	Size	Material	Extension Length ⁽¹⁾
G0	2 in./DN 50	316L SST	Flush Mount Only
H0	2 in./DN 50	Hastelloy C-276	Flush Mount Only
J0	2 in./DN 50	Tantalum	Flush Mount Only
A0	3 in./DN 80	316L SST	Flush Mount
A2	3 in./DN 80	316L SST	2 in./50 mm
A4	3 in./DN 80	316L SST	4 in./100 mm
A6	3 in./DN 80	316L SST	6 in./150 mm
B0	4 in./DN 100	316L SST	Flush Mount
B2	4 in./DN 100	316L SST	2 in./50 mm
B4	4 in./DN 100	316L SST	4 in./100 mm
B6	4 in./DN 100	316L SST	6 in./150 mm
C0	3 in./DN 80	Hastelloy C-276	Flush Mount
C2	3 in./DN 80	Hastelloy C-276	2 in./50 mm
C4	3 in./DN 80	Hastelloy C-276	4 in./100 mm
C6	3 in./DN 80	Hastelloy C-276	6 in./150 mm
D0	4 in./DN 100	Hastelloy C-276	Flush Mount
D2	4 in./DN 100	Hastelloy C-276	2 in./50 mm
D4	4 in./DN 100	Hastelloy C-276	4 in./100 mm
D6	4 in./DN 100	Hastelloy C-276	6 in./150 mm
E0	3 in./DN 80	Tantalum	Flush Mount Only
F0	4 in./DN 100	Tantalum	Flush Mount Only

Continued on Next Page

(1) Extension diameters are sized to fit schedule 80 pipe. Consult factory for Schedule 40 pipe.

MOUNTING FLANGE				
Code	Size	Rating		Material
M	2 in.	Class 150	ANSI	CS
A	3 in.	Class 150	ANSI	CS
B	4 in.	Class 150	ANSI	CS
N	2 in.	Class 300	ANSI	CS
C	3 in.	Class 300	ANSI	CS
D	4 in.	Class 300	ANSI	CS
P	2 in.	Class 600	ANSI	CS
E	3 in.	Class 600	ANSI	CS
X	2 in.	Class 150	ANSI	SST
F	3 in.	Class 150	ANSI	SST
G	4 in.	Class 150	ANSI	SST
Y	2 in.	Class 300	ANSI	SST
H	3 in.	Class 300	ANSI	SST
J	4 in.	Class 300	ANSI	SST
Z	2 in.	Class 600	ANSI	SST
L	3 in.	Class 600	ANSI	SST
Q	DN 50	PN 10-40	DIN	CS
R	DN 80	PN 40	DIN	CS
S	DN 100	PN 40	DIN	CS
V	DN 100	PN 10/16	DIN	CS
K	DN 50	PN 10-40	DIN	SST
T	DN 80	PN 40	DIN	SST
U	DN 100	PN 40	DIN	SST
W	DN 100	PN 10/16	DIN	SST
SENSOR MODULE AND LOW-SIDE MATERIALS OF CONSTRUCTION				
Code	Low-Side Flange and Adapter	Drain/Vent Valves	Low-Side Isolator Diaphragm	Low-Side Fluid Fill
52	Nickel-plated CS	316 SST	316L SST	Silicone
12	Cadmium-plated CS	316 SST	316L SST	Silicone
55	Ni Plated CS	316 SST	Tantalum	Silicone
22	316 SST	316 SST	316L SST	Silicone
23	316 SST	316 SST	Hastelloy C-276	Silicone
25	316 SST	316 SST	Tantalum	Silicone
33	Hastelloy C	Hastelloy C-276	Hastelloy C-276	Silicone
35	Hastelloy C	Hastelloy C-276	Tantalum	Silicone
1A	Cadmium-plated CS	316 SST	316L SST	Inert
5D	Nickel-plated CS	316 SST	Tantalum	Inert
2A	316 SST	316 SST	316L SST	Inert
2B	316 SST	316 SST	Hastelloy C-276	Inert
2D	316 SST	316 SST	Tantalum	Inert
3B	Hastelloy C	Hastelloy C-276	Hastelloy C-276	Inert
3D	Hastelloy C	Hastelloy C-276	Tantalum	Inert
Code	Process Fill—High Pressure Side	Temperature Limits		
A	Syltherm XLT	-100 to 300 °F (-73 to 135 °C)		
C	D. C. Silicone 704	60 to 400 °F (15 to 205 °C)		
D	D. C. Silicone 200	-40 to 400 °F (-40 to 205 °C)		
H	Inert	-50 to 350 °F (-45 to 177 °C)		
G	Glycerin and Water	0 to 200 °F (-17 to 93 °C)		
N	Neobee M-20	0 to 400 °F (-17 to 205 °C)		
P	Propylene Glycol and Water	0 to 200 °F (-17 to 93 °C)		
Continued on Next Page				

Product Data Sheet

00813-0100-4360, Rev DB

October 2003

Rosemount 1151

Code	Options (see complete approvals descriptions)
S1 ⁽¹⁾	Assembly of one Remote Seal
	Meters
M1 ⁽²⁾	Linear Meter, 0–100% Scale
M3 ⁽²⁾	Special Scale Meter, Specify Range
M4 ⁽²⁾	LCD Meter, 0–100%
M7 ⁽²⁾⁽³⁾	LCD Meter, Linear, Special Configuration
	Hazardous Locations Certifications NOTE: FM explosion-proof approval is standard.
E6	Canadian Standards Association (CSA) Explosion-Proof Approval
I5 ⁽³⁾	Factory Mutual (FM) Approvals Non-incendive and Intrinsic Safety Approval
K5	Factory Mutual (FM) Approvals Explosion-Proof and Intrinsic Safety Combination
C5 ⁽⁴⁾	Measurement Canada Accuracy Approval
C6 ⁽³⁾	CSA Explosion-Proof and Intrinsic Safety Approval (Requires 42.4 V dc max. power supply)
K6 ⁽³⁾	ATEX Explosion-Proof and Intrinsic Safety Approval
E7	Standards Association of Australia (SAA) Flameproof Certification
E8	ATEX Flameproof Certification
I1 ⁽³⁾	ATEX Intrinsic Safety and Dust Certification
I7 ⁽³⁾	Standards Association of Australia (SAA) Intrinsic Safety Certification
N1 ⁽³⁾	ATEX Type N and Dust Certification
N7	Standards Association of Australia (SAA) Non-incendive Safety Approval
	Other Options
W5	Copper O-ring for Vacuum Service (Nonwetted)
Q4	Calibration Data Sheet
Q8 ⁽⁵⁾	Material Traceability per EN 10204 3.1.B
V1	Reverse Output
V2	4–20 mV Test Signal
V3	20–100 mV Test Signal
F_	Select One Code from Flushing Connections Lower Housing Option

Code	Flushing Connection Ring Material (Lower Housing)	Flushing Connections	Size	Diaphragm Size		
				2-in.	3-in.	4-in.
F1	SST	1	1/4-18 NPT	•	•	•
F2	SST	2	1/4-18 NPT	•	•	•
F3 ⁽⁶⁾	Hastelloy C-276	1	1/4-18 NPT	•	•	•
F4 ⁽⁶⁾	Hastelloy C-276	2	1/4-18 NPT	•	•	•
F7	SST	1	1/4-18 NPT	•	•	•
F8	SST	2	1/4-18 NPT	•	•	•
F9	Hastelloy C-276	1	1/4-18 NPT	•	•	•
F0	Hastelloy C-276	2	1/4-18 NPT	•	•	•

Typical Model Number: 1151LT 4 S A0 A 52 D F1

- (1) For welded capillary assemblies, order sensor module and low-side materials of construction Option Code 22.
- (2) Not available with Option Codes V2, or V3.
- (3) Not available with Output Code G.
- (4) Limited availability depending on transmitter type and range. Contact your Rosemount representative.
- (5) Available for the diaphragm, upper housing, flange, adapter, extension, and lower housing.
- (6) Not available with high pressure side Option Codes A0, B0, and G0.

Standard Accessories

All models are shipped with flange adapters, drain/vent valves, and one instruction manual per shipment.

Tagging

The Alphaline Pressure Transmitter will be tagged, at no charge, in accordance with customer requirements. All tags are stainless steel. The standard tag is wired to the transmitter.

Tag character height is 0.125 in. (0.318 cm). A permanently attached tag is available upon request.

Calibration

Transmitters are factory calibrated to the customer's specified range. If calibration is not specified, the transmitters are calibrated at maximum range. Calibration is performed at ambient temperature and pressure.

Optional Three-Valve Manifolds

Part No. 01151-0150-0001:

- 3-valve manifold, carbon steel

Part No. 01151-0150-0002:

- 3-valve manifold, 316 SST

Optional Diaphragm and Sanitary Seals

Refer to Product Data Sheet 00813-0100-4016 or 00813-0201-4016.

Options

The following sections describe a variety of available options for the 1151 Transmitter. These options permit greater application flexibility.

Mounting Brackets

B1 Bracket for 2-in. Pipe Mounting

- Bracket for mounting transmitter on 2-in. pipe
- Constructed of carbon steel with carbon steel U-bolt
- Coated with polyurethane paint

B4 Bracket for 2-in. Pipe with 316 SST Bolts

- Same bracket as Option Code B1 with 316 SST bolts

B7 304 SST Bracket and 316 SST Bolts for 2-in. Pipe Mounting

- Same bracket as Option Code B1 with all SST materials

B2 Bracket for Panel Mounting

- Bracket for mounting transmitter on panel or wall
- Constructed of carbon steel with carbon steel bolts
- Coated with polyurethane paint

B5 Bracket for Panel with 316 SST Bolts

- Same bracket as Option Code B2 with 316 SST bolts

B3 Flat Bracket for 2-in. Pipe Mounting

- Bracket for vertical mounting of transmitter on 2-in. pipe
- Constructed of carbon steel with carbon steel U-bolt
- Coated with polyurethane paint

B6 Flat Bracket for 2-in. Pipe with 316 SST Bolts

- Same bracket as Option Code B3 with 316 SST bolts

B9 304 SST Flat Bracket and 316 SST Bolts for 2-in. Pipe Mounting

- Same bracket as Option Code B3 with all 316 SST materials

Bolts and Nuts for Flanges and Adapters

Options permit bolts and nuts for flanges and adapters in the specified material.

- L3 ANSI/ASTM A - 193-B7
- L4 Austenitic 316 SST
- L5 ANSI/ASTM A193-B7M

Meters

Analog

- Meters have 2-in. (50.8 mm) scale
- Plug-in mounting configuration
- Indication accuracy $\pm 2\%$
- Operating temperature limit: -40 to 150 °F (-40 to 65 °C)
- Meters are enclosed in a housing certified by Factory Mutual as explosion proof for Class I, Division 1, Groups B, C, and D; Class II, Division 1, Groups E, F, and G and Class III, Division 1
- For optional CSA explosion-proof approval, see certification Option Code E6
- M1 Linear Analog Meter, 0–100% Scale
- M2 Square Root Analog Meter, 0–100% Flow Scale
- M3 Special Scaling Analog Meter (Specify Range)
- M6 Square Root Analog Meter, 0– $10\sqrt{\quad}$ Scale

LCD

- 4-digit display
- Indication accuracy $\pm 0.25\%$ of calibrated span ± 1 digit
- Display resolution at $\pm 0.5\%$ of calibrated span ± 1 digit
- Operating temperature limit: -4 to 158 °F (-20 to 70 °C)
- Plug-in mounting configuration
- Meters are enclosed in a housing certified by Factory Mutual as explosion proof for Class I, Division 1, Groups B, C, and D; Class II, Division 1, Groups E, F, and G and Class III, Division 1
- For Optional CSA explosion-proof approval, see certification Option Code E6
- M4 Linear LCD Meter, 0 to 100%
- M7 Special Scale LCD Meter (Specify Range, Mode, and Engineering Units)
- M8 Square Root LCD Meter, 0 to 100%
- M9 Square Root LCD Meter, 0– $10\sqrt{\quad}$ Scale

NOTES

Meter Options are not available with Output Codes L or M, or Option Codes V2 or V3. Meter Options M2, M6, M8, and M9 are not available with Output Code J. Meter Options M4, M7, M8, and M9 are not available with Output Code G.

Process Connections

D1 Side Drain/Vent-Top

- Drain/vent valve mounted in side of flange.
- Top position used to vent gas buildup in liquid process applications with transmitter mounted vertically.
- Plug of same material as requested flange inserted in end of flange opposite adapter.

Product Data Sheet

00813-0100-4360, Rev DB

October 2003

Rosemount 1151

D2 Side Drain/Vent-Bottom

- Drain/vent valve mounted in side of flange.
- Bottom position used to drain liquid buildup in gas process applications with transmitter mounted vertically.
- Plug of same material as requested flange inserted in end of flange opposite adapter.

D6 316 SST Low Side Flange (Rosemount 1151GP and 1151AP Only)

DF 1/2-14 NPT flange adapters

- Options provide 1/2-14 NPT process connection on flanges rather than 1/4-18 NPT

K1 1/4-18 NPT Kynar™ Process Flange Insert

K2 1/2-14 NPT Kynar Process Flange Insert

- Options provide Kynar plastic process flange insert that prevents process from coming in contact with the metal of the flange. One process insert for Rosemount 1151AP, GP and LT; two inserts for Rosemount 1151DP.
- Process connections are from the side.
- Available with carbon steel and stainless steel process flanges only.
- Pressure Maximum: 200 psi at 200 °F with Kynar impulse piping; 300 psi at 200 °F with metal impulse piping.

S1 Assembled with One Remote Diaphragm Seal

S2 Assembled with Two Remote Diaphragm Seals

- Options provide for the assembly of one or two remote diaphragm seals.

S4 Assembled with 1195 Integral Orifice

- Designed for highly accurate, small-bore flow measurement of any clean gas, liquid, or vapor.
- Reduce the costs associated with traditional orifice plate installations.
- Several configurations are available factory assembled to Rosemount differential pressure transmitters.⁽¹⁾
- Wide orifice bore/flow range capability.
- Wide choice of process connections, including threaded, socket weld, and ANSI flanges.
- Static pressure maximum limit is 3,000 psig.
- Wetted materials are available that comply with NACE MR 01-75(90).
- Available only with Ranges 2, 3, 4, and 5.

Wetted O-rings

- Standard: Viton®⁽²⁾
- W2 Buna N
- W3 Ethylene-Propylene
- W4 Aflas®
- W5 Copper O-ring for Vacuum Service (Nonwetted - Rosemount 1151LT only)
- W6 Spring-Loaded Teflon
- Contains a Hastelloy spring that is in contact with the process fluid. Consult factory if Hastelloy is unacceptable.
- W7 Teflon

Procedures

Standard Configuration

(1) Applicable only to orifice assemblies without piping.

(2) For enhanced sealing performance below 0°F (-18 °C), consult factory.

Unless otherwise specified, transmitter will be shipped as follows:

Engineering Units:	inH ₂ O
4 mA:	0
20 mA:	Upper Range Limit
Output:	Linear
Software Tag:	Blank

Customer may specify the above items at no charge. Software tag (8 characters) is left blank unless specified.

C9 Custom Configuration (Option Code C9)

If Option Code C9 is ordered, the customer may specify the following data in addition to the standard configuration parameters.

Descriptor:	16 characters
Message:	32 characters
Date:	Day, Month, Year
Damping:	Seconds
Burst Mode:	Select Output Choice
Flange Material:	Model Code Information
O-Ring Material:	Model Code Information
Isolator Material:	Model Code Information
Sensor Fluid:	Model Code Information
Drain/Vent:	Model Code Information
Integral Meter:	installed or None
Remote Seal:	Specified Information
Failure Mode:	High or Low
Transmitter Security:	Off or On

TABLE 13. Hydrostatic Test Pressure

Model	Test Pressure
1151DP	3,000 psi
1151HP	6,750 psi
1151AP	2,000 psi
1151GP	
Ranges 3-8	2,000 psi
Range 9	4,500 psi
Range 0	7,500 psi
1151LT	
Class 150 Flange	450 psi
Class 300 Flange	1,100 psi

P1 Hydrostatic Testing

- Each transmitter is hydrostatic tested according to Table 13.
- Test medium is water.
- This option provided for transmitters with remote diaphragm seal on application only.
- Rosemount Procedure 1746 outlines the testing procedure.

P2 Cleaning for Special Service

- This option minimizes contaminants to the process system by cleaning wetted surfaces with a suitable detergent.
- Rosemount Procedure 97412 outlines the cleaning procedure.

P3 Cleaning for <1 PPM Chlorine/Fluorine

Product Data Sheet

00813-0100-4360, Rev DB

October 2003

Rosemount 1151

P4 Calibration at Line Pressure

- This option allows transmitters to be calibrated at an elevated line pressure rather than atmospheric pressure.
- Customer must specify line pressure at which transmitter is to be calibrated.
- Customer is provided with calibration data at line pressure by ordering Q48 certificate.
- Available with Rosemount 151DP and 1151HP only. (Not available with Remote Seals.)
- Elevated line pressure and differential span desired for calibration must not exceed the rated pressure for transmitter model.
- Minimum differential span that can be calibrated at elevated line pressure is 30 inH₂O; maximum is 300 psi.
- Rosemount Procedure 3787 outlines the calibration procedure.

P5 Calibration at Temperature

- This option allows transmitters to be calibrated at temperatures other than room temperature in the range of 0 to 200 °F (-18 to 93 °C).
- Customer must specify temperature at which transmitter is to be calibrated and calibration range.
- Calibration temperature will be printed on instrument tag specified by customer, or on a tag wired to the transmitter if no tag is specified.
- Rosemount Procedure 27823B outlines the calibration procedure.

P8 0.1% Accuracy

- Available on Rosemount 1151DP (Ranges 3–8), GP (Ranges 3–8), HP, and LT transmitters with 316 SST diaphragms and Output Codes E, G, L, and M. Also available on 1151DP (Range 9–0) and 1151GP (Range 9–0) with Output Code S (Min. Span = URL/10).

P7 Enhanced Temperature Performance for Analog Electronics

- Transmitter is specifically compensated as a complete assembly and will exhibit 1/2 of the standard temperature coefficient over the ambient temperature range of 20 to 140 °F (-7 to 60 °C). Outside this range, the unit will meet the standard temperature effect specification published for transmitter model.
- Not available on Range 10, limited to 1,500 psi on Range 9.
- The transmitter is compensated as an assembly; therefore, units in which the sensor module or electronics are changed after the P7 procedure has been performed will meet the standard published temperature specification for that particular model.
- Available on DP, GP, and HP models, Ranges 3–8, with SST diaphragms and Output Codes E, G, L, and M.

Outputs

V1 Reverse Output

- This option permits reversing of pressure input so that electrical output will increase as pressure input decreases.
- This option applies only to Rosemount 1151GP and 1151LT. When this option is selected, the process flange, adapter, drain/vent valve, appropriate O-rings, and bolting are installed on low side of transmitter. Not available for Ranges 9 and 0.
- Not available with 1151AP. Reverse output on Rosemount 1151DP and 1151HP can be obtained by connecting high-pressure input to low side of transmitter and vice versa.
- This option should not be ordered with smart transmitters (Output Code S). The 1151 Smart transmitter can be configured for reverse output through a HART-Compatible Interface.

V2 1 Ω Test Resistor

- A 1 Ω precision resistor is mounted across the test terminals to provide 4–20 mV output or a 10–50 mV output if 10–50 mA output is used.
- This option cannot be used with any meter options or Option Codes I5 or I6.

V3 5 Ω Test Resistor

- A 5 Ω precision resistor is mounted across test terminals to provide 20–100 mV output or a 50–250 mV output if 10–50 mA output is used.
- This option cannot be used with any meter options or Option Codes I5 or I6.

Rosemount, the Rosemount logotype are registered trademarks of Rosemount Inc. HART is a registered trademark of the HART Communication Foundation. δ-Cell is a trademark of Rosemount Inc. Fluorolube is a registered trademark of Hooker Chemical Co. Hastelloy, Hastelloy C, and Hastelloy C-276 are registered trademarks of Cabot Corp. Viton is a registered trademark of E.I. du Pont de Nemours & Co. Neobee M-20 is a registered trademark of Stepan Chemical Co. Syltherm and D.C. are registered trademarks of Dow Corning Corp. Teflon is a registered trademark of E.I. du Pont de Nemours & Co. Aflax is a registered trademark of Asahi Glass Co., Ltd. Kynar is a trademark of Pennwalt Inc..

Emerson Process Management

Rosemount Inc.

8200 Market Boulevard
Chanhassen, MN 55317 USA
T (U.S.) 1 800 999 9307
T (International) (952) 906 8888
F (952) 949 7001

Fisher-Rosemount GmbH & Co. Emerson Process Management Asia

Argelsrieder Feld 3
82234 Wessling
Germany
Tel 49 (8153) 9390
Fax 49 (8153) 939172

Pacific Private Limited

1 Pandan Crescent
Singapore 128461
T (665) 6777 8211
F (665) 6777 0947
AP.RMT-Specialist@emersonprocess.com

Beijing Rosemount Far East Instrument Co., Limited

No. 6 North Street,
Hepingli, Dong Cheng District
Beijing 100013, China
T (86) (10) 6428 2233
F (86) (10) 6422 8586

www.rosemount.com

