

Rosemount™ 3051P In-Line Pressure Transmitter



Setting the standard for pressure measurement

Proven best-in-class performance and safety



- Over 7 million installed
- Reference accuracy 0.04 percent of span
- Rangeability of 50:1
- Installed performance of 0.14 percent of span
- 10-year stability of 0.2 percent of URL
- SIL 2/3 certified (IEC 61508)
- Over 20 years of backwards compatibility allows you to invest in the latest features without adding complexity to your plant

Proven reliability for gauge and absolute applications



- Fully configurable LCD display to display process variable percent of range, and diagnostic messages
- Lightweight, compact design enables easy installation
- Choice of stainless steel or Alloy C-276 wetted materials
- Option to add on 316 SST (Stainless Steel) brackets and tagging

Local operator interface (LOI)

- Straightforward menus and built-in configuration buttons allow you commission the device in less than a minute
- Configure in hazardous-area locations without removing the transmitter cover using external buttons

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Rosemount 3051P In-Line Pressure Transmitter



Rosemount 3051P In-Line Pressure Transmitter sets the industry standard for gage and absolute pressure measurement. The in-line, compact design allows the transmitter to be connected directly to a process for quick, easy, and cost effective installation. Capabilities include:

- Reference accuracy 0.04 percent of span
- LOI with straightforward menus and built-in configuration buttons (option code M4)
- Safety certification (option code QT)

CONFIGURE >	VIEW PRODUCT >
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Online Product Configurator

Many products are configurable online using our Product Configurator. Select the **Configure** button or visit our [website](#) to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

See the Specifications and options section for more details on each configuration. Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See the Material selection section for more information on material selection.

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in [Figure 1](#).

Figure 1: Model Code Example

3051C D 2 X 2 2 1 A	WA3 WP5	M5 B4
1	2	3

1. Required model components (choices available on most)
2. Wireless options (optional for many products, required for wireless products)
3. Additional options (variety of features and functions that may be added to products)

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Required model components

Model

Code	Description
3051P	In-Line Pressure Transmitter

Pressure type

Code	Description	
G	Gauge	★
A	Absolute	★

Pressure range

Code	Gauge (Rosemount 3051PG) ⁽¹⁾	Absolute (Rosemount 3051PA)	
1	-14.7 to 30 psi (-1.01 to 2.06 bar)	0 to 30 psia (0 to 2.06 bar)	★
2	-14.7 to 150 psi (-1.01 to 10.34 bar)	0 to 150 psia (0 to 10.34 bar)	★
3	-14.7 to 800 psi (-1.01 to 55.15 bar)	0 to 800 psia (0 to 55.15 bar)	★
4	-14.7 to 4000 psi (-1.01 to 275.79 bar)	0 to 4000 psia (0 to 275.79 bar)	★

(1) Rosemount 3051PG lower range limit varies with atmospheric pressure.

Transmitter output

Code	Description	
A ⁽¹⁾	4–20 mA with digital signal based on HART® protocol	★

(1) Option HR5 configures the HART output to HART Revision 5. Option HR7 configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 or 7 if desired. HART Revision 5 is the default HART output.

Process connection style

Code	Description	
2B	½–14 NPT female	★
2C	G ½ A DIN 16288 male	★

Isolating diaphragm and process connection wetted parts material

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

Code	Description		
2	316L SST	316L SST	★
3	Alloy C-276	Alloy C-276	★

Sensor fill fluid

Code	Description		
1	Silicone		★
2	Inert		★

Housing material and conduit entry size

Code	Description		
A	Aluminum	½–14 NPT	★
B	Aluminum	M20 × 1.5	★
D ⁽¹⁾	Aluminum	G ½	

(1) Only available with product certifications I1 or no approvals.

HART revision configuration

Option HR5 configures the HART output to HART Revision 5. Option HR7 configures the HART output to HART Revision 7. The device can be field configured to HART Revision 5 or 7 if desired. HART Revision 5 is the default HART output.

Code	Description		
HR5	Configured for HART Revision 5		★
HR7	Configured for HART Revision 7		★

Additional options

Extended product warranty

Code	Description		
WR3	3-year limited warranty		★
WR5	5-year limited warranty		★

Integral manifold assembly

“Assemble-to” items are specified separately and require a completed model number.

Code	Description	
S5	Assemble to Rosemount 306 Integral Manifold	★

Diaphragm seal assemblies

“Assemble-to” items are specified separately and require a completed model number.

Code	Description	
S1	Assemble to one Rosemount 1199 Seal	★

Mounting bracket panel

Panel mounting bolts are not supplied.

Code	Description	
B4	Bracket for 2-in. pipe or panel mounting, all SST	★
BE	316 SST B4 Bracket with 316 SST Bolts	

Product certifications

Code	Description	
E1	ATEX Flameproof	★
I1	ATEX Intrinsic safety	★
ND	ATEX Dust	★
K1	ATEX Flameproof, Intrinsic safety, Type n, Dust (combination of E1, I1 and N1)	★
E5	USA Explosion-proof, Dust Ignition-proof	★
I5	USA Intrinsically Safe, Nonincendive	★
K5	USA Explosion-proof, Dust Ignition-proof, Intrinsically safe, and Nonincendive	★
I6	Canada Intrinsic safety	★
E6	Canada Explosion-proof, Dust Ignition-proof, Division 2	★
K6	Canada Explosion-proof, Dust Ignition-proof, Intrinsically safe, and Nonincendive	★
E7	IECEx Flameproof	★
I7	IECEx Intrinsic safety	★
N7	IECEx Type n	★
NK	IECEx Dust	★
K7	IECEx Flameproof, Dust Ignition-proof, Intrinsic safety, and Type n (combination of I7, N7, NK and E7)	★
E2	INMETRO Flameproof	★
I2	INMETRO Intrinsic safety	★
K2	INMETRO Flameproof, Intrinsic safety	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★

Code	Description	
IM	Technical Regulations Customs Union (EAC) Intrinsic safety	★
KM	Technical Regulations Customs Union (EAC) Flameproof and Intrinsic safety	★
KB	USA and Canada Explosion-proof, Dust Ignition-proof, Intrinsically safe, and Nonincendive (combination of K5 and K6)	★
KD	USA, Canada, and ATEX Explosion-proof, Intrinsic safe (combination of K5, K6, I1, and E8)	★

Drinking water approval

Not available with Alloy C-276 isolator (option code 3), Assemble-to manifolds (option code S5), assemble-to seals (option code S1), surface finish certification (option code Q16), and remote seal system report (option code QZ).

Code	Description	
DW	NSF drinking water approval	★

Calibration certification

Code	Description	
Q4	Calibration certificate	★
QG ⁽¹⁾	Calibration certificate and GOST verification certificate	★
QP	Calibration certification and tamper evident seal	★

(1) Contact an Emerson representative for availability.

Material traceability certification

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Positive material identification (PMI)

Code	Description	
Q76	PMI verification and certificate	★

Quality certification for safety

Code	Description	
QS	Prior-use certificate of FMEDA data	★
QT	Safety certified to IEC 61508 with certificate of FMEDA	★

Configuration buttons

Select Configuration buttons (option code D4 or DZ) or LOI (option code M4) if local configuration buttons are required.

Code	Description	
D4	Analog zero and span	★
DZ	Digital zero trim	★

Display and interface options

Code	Description	
M4 ⁽¹⁾	LCD display with LOI	★
M5	LCD display	★

(1) Only available with 4-20 mA HART output (code A) and PROFIBUS-PA (code W).

Conduit plug

Transmitter is shipped with 316 SST conduit plug (uninstalled) in place of standard carbon steel conduit plug. Not valid with alternate process connection S5.

Code	Description	
DO	316 SST conduit plug	★

Transient terminal block

Code	Description	
T1	Transient protection terminal block	★

Software configuration

Code	Description	
C1	Custom software configuration (requires completed Rosemount 3051 Configuration Data Sheet)	★

Alarm levels

Code	Description	
C4	Analog output levels compliant with NAMUR recommendation NE 43, alarm high	★
CN	Analog output levels compliant with NAMUR recommendation NE 43, low alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
CS	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Rosemount standard low alarm	★

Pressure testing

Code	Description	
P1	Hydrostatic testing with certificate	

Cleaning process area

Not valid with alternate process connection S5.

Code	Description	
P2	Cleaning for special service	
P3	Cleaning for <1 PPM chlorine/fluorine	

Ground screw

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

Code	Description	
V5	External ground screw assembly	★

Surface finish

Code	Description	
Q16	Surface finish certification for sanitary remote seals	★

Toolkit total system performance reports

Code	Description	
QZ	Remote seal system performance calculation report	★

Conduit electrical connector

Code	Description	
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★

NACE certificate

NACE compliant wetted materials are identified by (3).

Code	Description	
Q15	Certificate of compliance to NACE MR0175/ISO15156 for wetted materials	★
Q25	Certificate of compliance to NACE MR0103 for wetted materials	★

316 SST tagging

Code	Description	
Y2	316 SST Nameplates, labels, tags, and fasteners	★

Specifications

Performance specifications

Reference accuracy

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

Model	Standard
Ranges 1 - 4	±0.04% of span. For spans less than 10:1, Accuracy = $\left[\pm 0.0075 \left(\frac{URL}{Span} \right) \right]$ % of span

Long term stability

Model	Standard
Ranges 1 - 4	±0.2% of URL for 10 years ±0.50 °F (28 °C) temperature changes, and up to 1000 psi (68.95 bar) line pressure

Dynamic performance

	4 - 20 mA HART (1)	Typical HART transmitter response time
Total Response Time (Td + Tc)(2):		<p>Transmitter Output vs. Time</p> <p>Pressure released</p> <p>100% 36.8% 0%</p> <p>Time</p> <p>T_d - Dead time T_c - Time constant Response time = $T_d + T_c$</p> <p>63.2% of total step change</p>
Rosemount 3051P:	145 ms	
Dead Time (Td)	45 ms (nominal)	
Update Rate	22 times per second	

(1) Dead time and update rate apply to all models and ranges; analog output only.
 (2) Nominal total response time at 75 °F (24 °C) reference conditions.

Ambient temperature effects per 50 °F (28 °C)

Model	Ambient temperature effects
Ranges 2-4	$\pm\{0.25 + 0.05(\text{URL}/\text{span})\}$ % of span from 1:1 to 10:1 $\pm\{0.125 + 0.07(\text{URL}/\text{span})\}$ % of span from 10:1 to 150:1
Range 1	$\pm\{0.25 + 0.05(\text{URL}/\text{span})\}$ % of span from 1:1 to 5:1 $\pm\{0.125 + 0.10(\text{URL}/\text{span})\}$ % of span from 5:1 to 100:1

Mounting position effects

Mounting position effects can be zeroed. There is no span effect.

Model	Mounting position effects
Rosemount 3051P	Zero shifts up to ± 2.5 inH ₂ O (6.22 mbar), which can be calibrated out. No span effect.

Vibration effect

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

Power supply effect

Less than ± 0.005 percent of calibrated span per volt.

Electromagnetic compatibility (EMC)

Meets all industrial environment requirements of EN61326 and NAMUR NE-21. Maximum deviation < 1 percent span during EMC disturbance.

Note

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

Transient protection (Option code T1)

Meets IEEE C62.41, Category Location B

- 6 kV crest (0.5 μ s - 100 kHz)
- 3 kA crest (8 \times 20 microseconds)
- 6 kV crest (1.2 \times 50 microseconds)

Functional specifications

Service

Liquid, gas, and vapor applications

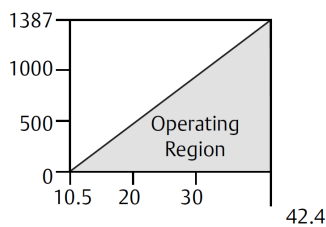
Power supply

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

Load limitations

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

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



Communication requires a minimum loop resistance of 250 ohms.

Range and sensor limits

Range	Minimum span	Upper range Limit (URL)	Lower range limit (LRL)	
			Absolute	Gauge ⁽¹⁾
1	0.30 psi (20.68 mbar)	30.00 psi (2.06 bar)	0 psi (0 bar)	-14.70 psig (-1.01 bar)
2	1.00 psi (68.94 mbar)	150.00 psi (10.34 bar)	0 psi (0 bar)	-14.70 psig (-1.01 bar)
3	5.33 psi (367.49 mbar)	800.00 psi (55.15 bar)	0 psi (0 bar)	-14.70 psig (-1.01 bar)
4	26.67 psi (1.83 bar)	4000.00 psi (275.79 bar)	0 psi (0 bar)	-14.70 psig (-1.01 bar)

(1) Assumes atmospheric pressure of 14.7 psig.

Zero and span adjustment requirements

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

Span must be greater than or equal to the minimum span stated in [Range and sensor limits](#).

Output information

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

Pressure units ⁽¹⁾		
torr	psf ⁽¹⁾	cmH ₂ O at 4 °C ⁽¹⁾
atm	inH ₂ O	mH ₂ O at 4 °C ⁽¹⁾
Pa	inH ₂ O at 4 °C ⁽¹⁾	inHg
kPa	inH ₂ O at 60 °F ⁽¹⁾	mmHg
MPa ⁽¹⁾	ftH ₂ O	cmHG at 0 °C ⁽¹⁾
hPa ⁽¹⁾	ftH ₂ O at 4 °C ⁽¹⁾	mHG at 0 °C ⁽¹⁾
mbar	ftH ₂ O at 60 °F ⁽¹⁾	g/cm ²
bar	mmH ₂ O	kg/m ² ⁽¹⁾
psi	mmH ₂ O at 4 °C ⁽¹⁾	kg/cm ²

(1) Field configurable only, not available for factory calibration or custom configuration (option code C9 "Software configuration").

Selectable HART revisions

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

Overpressure limits

Range	Pressure
1	750 psi (51.7 bar)
2	1,500 psi (103.4 bar)
3	1,600 psi (110.3 bar)
4	6,000 psi (413.7 bar)

Burst pressure limit

Range	Pressure
1–4	11,000 psi (758.42 bar)

Failure mode alarm

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

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

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

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

Temperature limits

Ambient

Sensor fill	
Silicone	-40 to 185 °F (-40 to 85 °C)
Inert	-22 to 185 °F (-30 to 85 °C)
With LCD display	-40 to 175 °F (-40 to 80 °C)

Process

Sensor fill ⁽¹⁾	
Silicone	-40 to 250 °F (-40 to 121 °C)
Inert	-22 to 250 °F (-30 to 121 °C)
With LCD display	-40 to 185 °F (-40 to 85 °C)

(1) 220 °F (104 °C) limit in vacuum service; 130 °F (54 °C) for pressures below 0.5 psia.

Process temperatures above 185 °F (85 °C) require lowering the ambient limits by a 1.5:1 ratio:

$$\text{Max. Ambient temperature in } ^\circ\text{F} = 185 - \frac{(\text{ProcessTemp} - 185)}{1.5}$$

$$\text{Max. Ambient temperature in } ^\circ\text{C} = 85 - \frac{(\text{ProcessTemp} - 85)}{1.5}$$

Storage

Sensor ⁽¹⁾	
Silicone	-50 to 230 °F (-46 to 110 °C)
Inert	-50 to 185 °F (-46 to 85 °C)
With LCD display	-40 to 175 °F (-40 to 80 °C)

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

Humidity limits

0–100 percent relative humidity

Turn-on time

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

Volumetric displacement

Less than 0.0005-in³ (0.008 cm³)

Damping

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

Physical specifications

Electrical connections

½–14 NPT, G½ and M20 × 1.5 conduit. HART interface connections fixed to terminal block for output code A.

Process connections

½–14 NPT female

Process-wetted parts

½-14 NPT female

G ½ A DIN 16288

Drain/vent valves

316 SST, Alloy C-276

Process flanges and adapters

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

Wetted O-rings

Glass-filled PTFE or Graphite-filled PTFE

Process isolating diaphragms

Isolating diaphragm material

316L SST and Alloy C-276

Non-wetted parts

Electronics and sensor module housing

Only available in aluminum

Sensor module fill fluid

Specified in model number. Silicone and Inert Halocarbon available.

Cover O-rings

Buna-N

Shipping weights

Without options

The Rosemount 3051P Transmitter weighs 2.4 lb. (1.1 kg)

With options**Table 1: Transmitter Option Weights**

Code	Option	Add lb. (kg)
M5	LCD display	0.5 (0.2)
B4	SST Mounting bracket for coplanar flange	1.0 (0.5)

Product certifications

Rev 1.10

European Directive Information

A copy of the EU Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at Emerson.com/Rosemount.

North America

E5 USA Explosionproof (XP) and Dust-Ignitionproof (DIP)

Certificate: 1015441

Standards: FM Class 3600 - 2011, FM Class 3615 - 2006, FM class 3616 - 2011, FM Class 3810 - 2005

Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; DIV 1 when connected per Rosemount drawing 02088-1024; NI CL 1, DIV 2, GP A, B, C, D; T4(-50 °C ≤ T_a ≤ +70 °C); Type 4X

I5 USA Intrinsic Safety (IS) and Nonincendive (NI)

Certificate: 1015441

Standards: FM Class 3600 - 2011, FM Class 3610 - 2010, FM Class 3611 - 2004, FM Class 3810 - 2005

Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; DIV 1 when connected per Rosemount drawing 02088-1024; NI CL 1, DIV 2, GP A, B, C, D; T4(-50 °C ≤ T_a ≤ +70 °C); Type 4X

E6 Canada Explosionproof, Division 2, Dust-Ignitionproof

Certificate: 1015441

Standards: CAN/CSA C22.2 No. 0-M91 (R2001), CSA Std C22.2 No. 25-1966, CSA Std C22.2 No. 30-M1986, CAN/CSA-C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CAN/CSA-C22.2 No. 157-92, CSA Std C22.2 No. 213-M1987, ANSI-ISA-12.27.01-2003

Markings: Class I, Division 1, Groups B, C and D; Class II, Groups E, F, and G; Class III; Class I Division 2 Groups A, B, C and D; Type 4X; Factory Sealed; Single Seal

I6 Canada Intrinsic Safety

Certificate: 1015441

Standards: CAN/CSA C22.2 No. 0-M91 (R2001), CSA Std C22.2 No. 25-1966, CSA Std C22.2 No. 30-M1986, CAN/CSA-C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CAN/CSA-C22.2 No. 157-92, CSA Std C22.2 No. 213-M1987, ANSI-ISA-12.27.01-2003

Markings: Intrinsically Safe Class I, Division 1 when connected in accordance with Rosemount drawing 02088-1024, Temperature Code T4; Ex ia; Type 4X; Factory Sealed; Single Seal

Europe

E1 ATEX Flameproof

Certificate: KEMA97ATEX2378X

Standards: EN 60079-0:2012 + A11:2013, EN60079-1:2014, EN60079-26:2015

Markings: Ⓢ II 1/2 G Ex db IIC T6...T4, Ga/Gb, T6(-60 °C ≤ T_a ≤ +70 °C), T5/T4 (-60 °C ≤ T_a ≤ +80 °C)

Table 2: Process Connection Temperature

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

1. This device contains a thin wall diaphragm less than 1 mm thickness that forms a boundary between zone 0 (process connection) and zone 1 (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer’s instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. Flameproof joints are not intended for repair.
3. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.
4. Appropriate cable, glands and plugs need to be suitable for a temperature of 5 °C greater than maximum specified temperature for location where installed.

I1 ATEX Intrinsic Safety

Certificate: BAS00ATEX1166X

Standards: EN60079-0:2012 + A11:2013, EN60079-11:2012

Markings: Ⓢ II 1 G Ex ia IIC T4 Ga (-55 °C ≤ T_a ≤ +70 °C)

Table 3: Input Parameters

Parameter	HART
Voltage U _i	30 V
Current I _i	200 mA
Power P _i	0.9 W
Capacitance C _i	0.012 μF

Special Conditions for Safe Use (X):

1. The apparatus is not capable of withstanding the 500 V insulation test required by EN60079-11. This must be taken into account when installing the apparatus.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a Zone 0 environment.

N1 ATEX Type n

Certificate: BAS00ATEX3167X
Standards: EN60079-0:2012 + A11:2013, EN60079-15:2010
Markings: II 3 G Ex nA IIC T5 Gc (-55 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

1. This apparatus is not capable of withstanding the 500 V insulation test required by EN60079-15. This must be taken into account when installing the apparatus.

ND ATEX Dust

Certificate: BAS01ATEX1427X
Standards: EN60079-0:2012 + A11:2013, EN60079-31:2009
Markings: II 1 D Ex t IIC T50 °C T₅₀₀60 °C Da

Special Conditions for Safe Use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient range of the apparatus and capable of withstanding a 7J impact test.

International

E7 IECEx Flameproof

Certificate: IECEx KEM 06.0021X
Standards: IEC 60079-0:2011, IEC 60079-1:2014, IEC 60079-26:2014
Markings: Ex db IIC T6...T4 Ga/Gb T6(-60 °C ≤ T_a ≤ +70 °C), T5/T4(-60 °C ≤ T_a ≤ +80 °C)

Table 4: Process Connection Temperature

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

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm less than 1 mm thickness that forms a boundary between zone 0 (process connection) and zone 1 (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer’s instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. Flameproof joints are not intended for repair.
3. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

- Appropriate cable, glands and plugs need to be suitable for a temperature of 5 °C greater than maximum specified temperature for location where installed.

I7 IECEx Intrinsic Safety

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

Table 5: Input Parameters

Parameter	HART
Voltage U _i	30 V
Current I _i	200 mA
Power P _i	0.9 W
Capacitance C _i	0.012 μF

Special Conditions for Safe Use (X):

- When fitted with a transient suppression terminal block, the Rosemount 3051P is incapable of passing the 500 V isolation test. This must be taken into account during installation.
- The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a Zone 0 environment.

N7 IECEx Type n

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

Special Condition for Safe Use (X):

- When fitted with a transient suppression terminal block, the Model 2088 is incapable of passing the 500 V isolation test. This must be taken into account during installation.

NK IECEx Dust

Certificate: IECEx BAS12.0073X
Standards: IEC60079-0:2011, IEC60079-31:2008
Markings: Ex t IIIC T50 °C T₅₀₀ 60 °C Da

Parameter	HART®
Voltage U _i	36 V
Current I _i	24 mA

Special Conditions for Safe Use (X):

- Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
- Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.

- Cable entries and blanking plugs must be suitable for the ambient temperature range of the apparatus and capable of withstanding a 7 J impact test.

Brazil

E2 INMETRO Flameproof

Certificate: UL-BR 15.0728X

Standards: ABNT NBR IEC 60079-0:2013, ABNT NBR IEC 60079-1:2016, ABNT NBR IEC 60079-26:2016

Markings: Ex db IIC T6...T4 Ga/Gb, T4/T5(-60 °C ≤ T_a ≤ +80 °C), T6(-60 °C ≤ T_a ≤ +70 °C)

Special Conditions for Safe Use (X):

- This device contains a thin wall diaphragm less than 1 mm thickness that forms a boundary between zone 0 (process connection) and zone 1 (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
- Flameproof joints are not intended for repair.
- Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

I2 INMETRO Intrinsic Safety

Certificate: UL-BR 13.0246X

Standards: ABNT NBR IEC60079-0:2008 + Errata 1:2011, ABNT NBR IEC60079-11:2009

Markings: Ex ia IIC T4 Ga (-55 °C ≤ T_a ≤ +70 °C)

Table 6: Input Parameters

Parameter	
Voltage U _i	30 V
Current I _i	200 mA
Power P _i	0.9 W
Capacitance C _i	0.012 μF
Inductance L _i	0 mH

Special Conditions for Safe Use (X):

- When fitted with a transient suppression terminal block, the Model 2088 is incapable of passing the 500 V isolation test. This must be taken into account during installation.
- The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0 environment (areas that require EPL Ga).

Technical Regulations Customs Union (EAC)

EM EAC Flameproof

Certificate: EAEC RU C-US.EX01.B.00176
Markings: Ga/Gb Ex db IIC T5/T6 X, T5(-60 °C ≤ T_a ≤ +80 °C), T6(-60 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

1. See certificate for special conditions.

IM EAC Intrinsic Safety

Certificate: EAEC RU C-US.EX01.B.00176
Markings: 0Ex ia IIC T4 Ga X, T4(-55 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Combinations

K1 Combination of E1, I1, and N1
K5 Combination of E5 and I5
K6 Combination of E6 and I6
K7 Combination of E7, I7, N7, and NK
KB Combination of K5 and K6
KD Combination of E1, I1, K5 and K6
KM Combination of EM and IM

Conduit plugs and adapters

IECEx Flameproof and Increased Safety

Certificate: IECEx FMG 13.0032X
Standards: IEC60079-0:2011, IEC60079-1:2007, IEC60079-7:2006-2007
Markings: Ex d e IIC Gb

ATEX Flameproof and Increased Safety

Certificate: FM13ATEX0076X
Standards: EN60079-0:2012, EN60079-1:2007, IEC60079-7:2007
Markings: Ⓜ II 2 G Ex d e IIC Gb

Table 7: Conduit Plug Thread Sizes

Thread	Identification mark
M20 × 1.5	M20
½-14 NPT	½ NPT
G½	G½

Table 8: Thread Adapter Thread Sizes

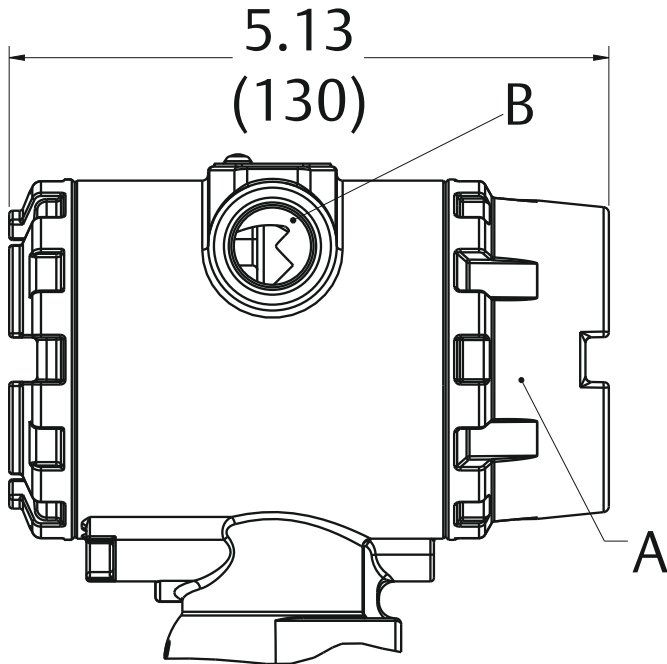
Male thread	Identification mark
M20 x 1.5 – 6H	M20
½–14 NPT	½–14 NPT
¾–14 NPT	¾–14 NPT
Female thread	Identification mark
M20 x 1.5 – 6H	M20
½–14 NPT	½–14 NPT
G½	G½

Special Conditions For Safe Use (X):

1. When the thread adapter or blanking plug is used with an enclosure in type of protection increased safety “e” the entry thread shall be suitably sealed in order to maintain the ingress protection rating (IP) of the enclosure.
2. The blanking plug shall not be used with an adapter.
3. Blanking Plug and Threaded Adapter shall be either NPT or Metric thread forms. G½ thread forms are only acceptable for existing (legacy) equipment installations.

Dimensional drawings

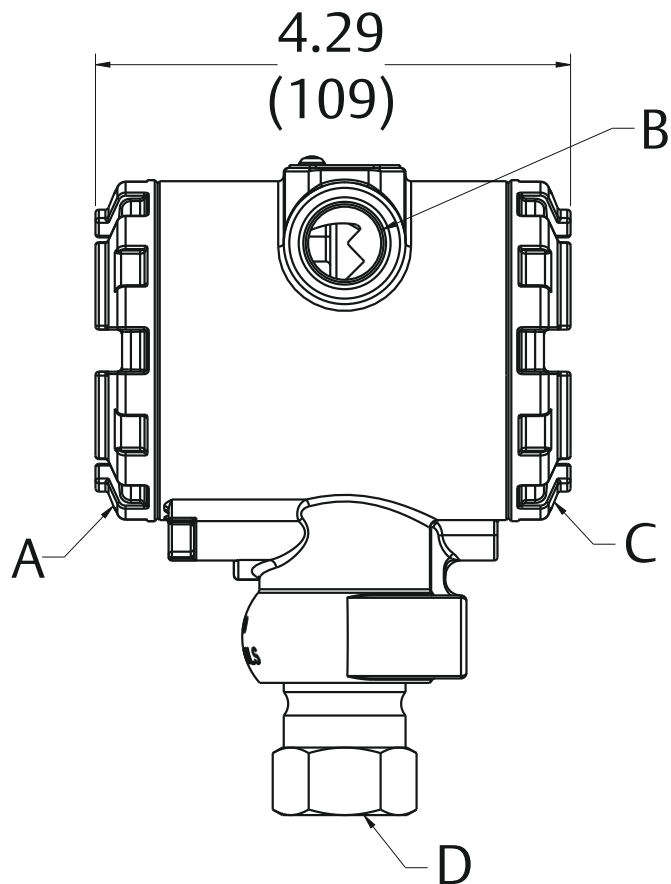
Figure 2: Rosemount 3051P with Optional Digital Display



- A. Digital display cover
- B. 2 ½-14 NPT conduit connection

Dimensions are in inches (millimeters).

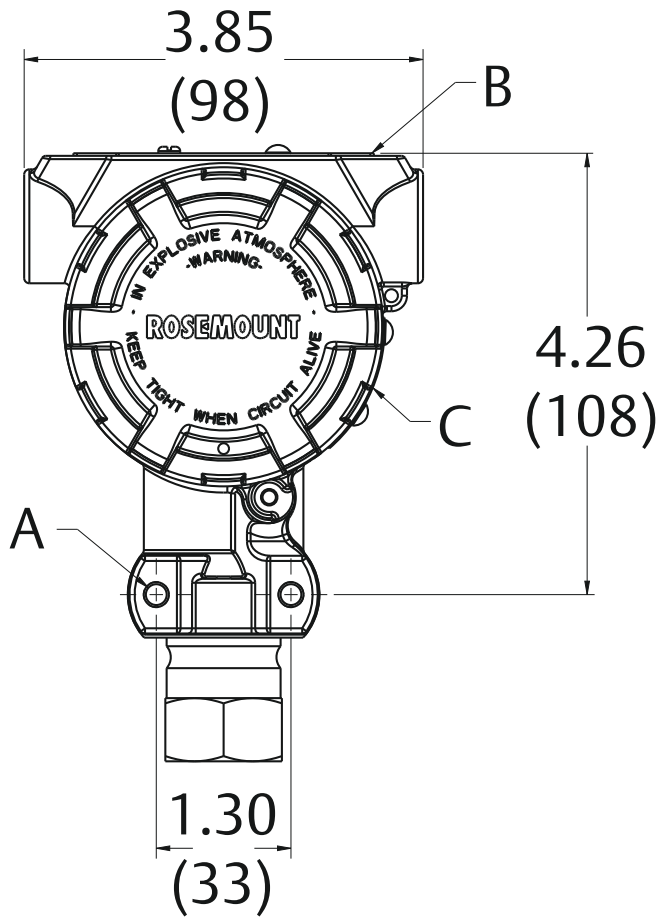
Figure 3: Rosemount 3051P Process Connection



- A. Field terminals
- B. Conduit connection
- C. Transmitter electronics
- D. 1/2-14NPT female connection

Dimensions are in inches (millimeters).

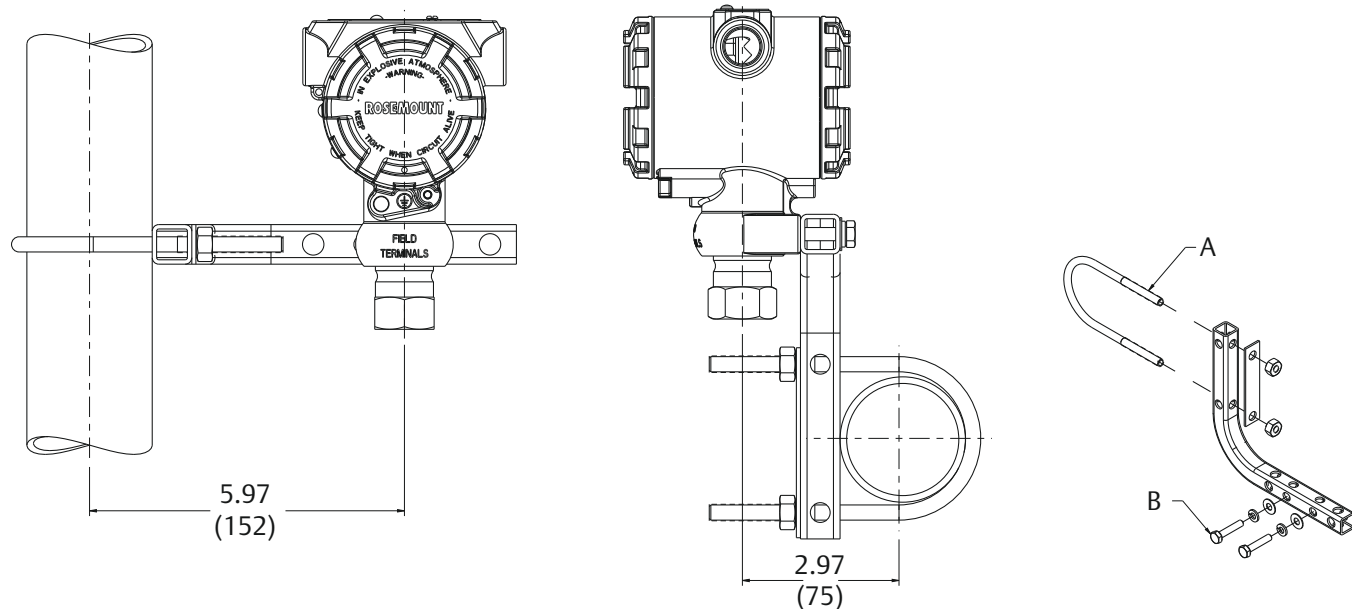
Figure 4: Rosemount 3051P Nameplate and Labels



- A. Bracket mounting holes(1/4-20 UNC)
- B. Nameplate
- C. Certification label (located on side)

Dimensions are in inches (millimeters).

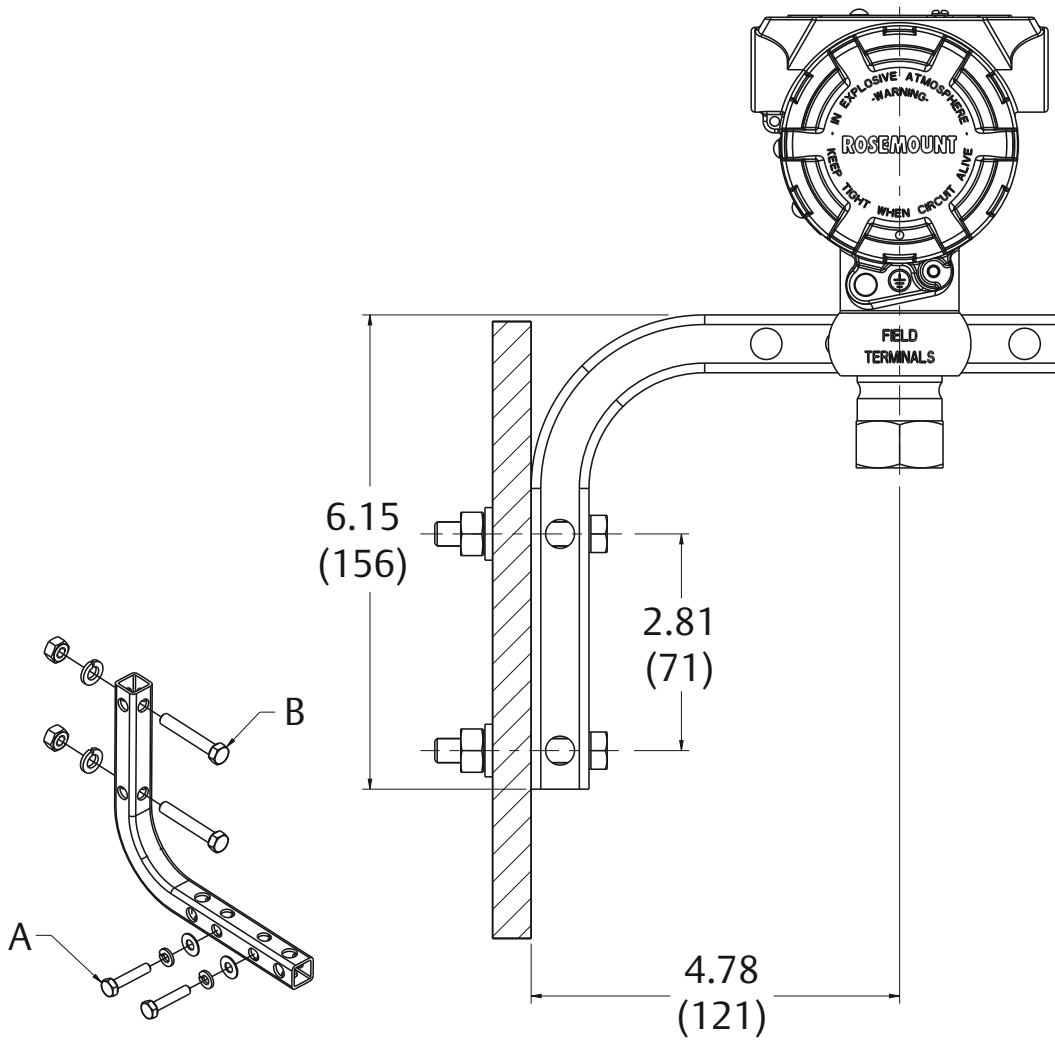
Figure 5: Rosemount 3051P with Optional Pipe Mounting Bracket



- A. 2-in. U-bolt for pip mounting (clamp shown)
- B. 1/4 x 1 1/4 bolts for transmitter mounting

Dimensions are in inches (millimeters).

Figure 6: Rosemount 3051P with Optional Panel Mounting Bracket



- A. $\frac{1}{4} \times 1 \frac{1}{4}$ bolts for transmitter mounting
- B. $\frac{5}{16} \times 1 \frac{1}{2}$ bolts for panel mounting (not supplied)

Dimensions are in inches (millimeters).

Options

Standard configuration

Unless otherwise specified, transmitter is shipped as follows:

Engineering units	psi (all ranges)
4 mA	0 (engineering units)
20 mA	Upper range limit
Output	Linear
Flange type	Specified model code option
Flange material	Specified model code option
O-ring material	Specified model code option
Drain/vent	Specified model code option
LCD display	Installed or none
Alarm	High
Software tag	(Blank)

Custom configuration

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

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

Refer to the Rosemount 3051 [Configuration Data Sheet](#).

Tagging (3 options available)

- Standard SST hardware tag is permanently affixed on transmitter.
- Tag character height is 0.125-in. (3, 18, mm), 84 characters maximum.
- Tag may be wired to the transmitter nameplate upon request, 85 characters maximum.
- Tag may be stored in transmitter memory (eight characters maximum).
- Software tag is left blank unless specified.
- HART Revision 5:8 characters
- HART Revision 7:32 characters

Optional Rosemount 306 integral manifolds

Factory assembled to Rosemount 3051P Transmitters. See the Rosemount 306 [Product Data Sheet](#) for additional information.

Other seals

Refer to Rosemount DP Level [Product Data Sheet](#) for additional information.

Output information

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

Pressure units		
torr	psf	cmH ₂ O at 4 °C
atm	inH ₂ O	mH ₂ O at 4 °C
Pa	inH ₂ O at 4 °C	inHg
kPa	inH ₂ O at 60 °F	mmHg
iMPa	ftH ₂ O	cmHg at 0 °C
hPa	ftH ₂ O at 4 °C	mHg at 0 °C
mbar	ftH ₂ O at 60 °F	g/cm ²
bar	mmH ₂ O	kg/m ²
ft ³	mmH ₂ O at 4 °C	kg/cm ²

Display and interface options

M4 Digital Display with LOI

- Available for 4-20 mA HART, 4-20 mA HART Low Power

M5 Digital Display

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

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