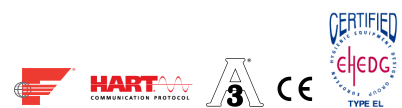


# Rosemount™ 3051HT Hygienic Pressure Transmitter



- Hygienic design conforms to 3-A® and EHEDG standards
- Reference accuracy of 0.065% with high performance option
- Demonstrated best-in-class performance during SIP/CIP for process temperatures up to 302 °F (150 °C)
- Rangeability of 100:1
- Unparalleled 5 year stability reduces calibration frequency
- 4–20 mA/HART® or FOUNDATION™ Fieldbus output and AMS™ Suite: Intelligent Device Manager compatibility ensures easier configurations, calibrations, and operation
- Proven technology from Emerson™ improves process reliability and robustness

# Now you can have the best, most reliable performance... in a hygienic package

The Rosemount 3051HT Hygienic Pressure Transmitter brings best-in-class performance, application expertise, and operational and maintenance cost savings to the biotechnology, pharmaceuticals, and food and beverage industries.

## Hygienic design conforms to hygienic standards

The hygienic design of the Rosemount 3051HT features 32 µ-in. Ra mechanically polished and 15 µ-in. Ra electropolished wetted surfaces. The stainless steel design is free of voids and crevices to ensure easy cleaning and wipe downs. The Rosemount 3051HT is also 3-A and EHEDG approved and is designed according to strict ASME BPE guidelines.

## Demonstrated best-in-class performance during CIP/SIP processes

The Rosemount 3051HT was designed and thoroughly tested to ensure that it minimizes temperature induced errors and recovers rapidly and repeatably from CIP/SIP processes. This is called “batch to batch repeatability” and can reduce your downtime between cleaning cycles, enabling faster turnarounds and increased plant availability.

## Proven Emerson technology improves process reliability and robustness

The Rosemount 3051HT uses the same proven sensor and electronics technology found in other industry leading Rosemount transmitters from Emerson. This ensures the transmitter to be robust and reliable, which improves your process consistency and increases your plant availability.

## Unparalleled stability reduces calibration frequency

Competitor devices can drift out of specification in just a few months and require re-calibration, consuming your time and money while risking regulatory non-compliance. The Rosemount 3051HT provides better stability so you can confidently extend calibration frequencies to reduce maintenance costs.

## 4–20 mA/HART or FOUNDATION Fieldbus output and AMS Suite compatibility ensures easier configurations, calibrations and operation

Lower maintenance costs with AMS Suite software, improve device performance and enable easier configuration and setup. Combining AMS Suite with the Rosemount 3051HT can also provide you with advanced functionality including predictive diagnostics and audit trail information to make FDA compliance simpler and paper free.

---

### Contents

Ordering Information .....	3	Dimensional drawings .....	13
Specifications .....	6	Options .....	14
Product certifications .....	12		

## Ordering Information

**Table 1. Rosemount 3051HT Hygienic In-line Pressure Transmitter Ordering Information**

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.

Model					
3051HT	Hygienic Pressure Transmitter				★
Pressure type					
G	Gage				★
A	Absolute				★
Performance class					
	Range 1–3	Range 0			
A	0.065% span accuracy and 5-year stability	0.065% span accuracy and 1-year stability			★
B	0.075% span accuracy and 3-year stability	0.075% span accuracy and 1-year stability			★
C	0.10% span accuracy and 1-year stability	0.10% span accuracy and 6 month stability			★
Pressure range					
	Rosemount 3051HTG <sup>(1)</sup>	Rosemount 3051HTA			
0	–5 to 5 psi (–0,34 to 0,34 bar-g)	N/A			★
1	–14.7 to 30 psi (–1,01 to 2,1 bar-g)	0 to 30 psia (0 to 2,1 bar-a)			★
2	–14.7 to 150 psi (–1,01 to 10,3 bar-g)	0 to 150 psia (0 to 10,3 bar-a)			★
3	–14.7 to 300 psi (–1,01 to 20,7 bar-g)	N/A			★
Transmitter output					
A	4–20 mA with digital signal based on HART protocol				★
F	FOUNDATION Fieldbus protocol				★
Sensor fill fluid					
3	Neobee® M-20				★
Housing material					
1	Crevice-free polished 316 stainless steel				★
2 <sup>(2)</sup>	Aluminum				★
Conduit entry size					
A	1/2–14 NPT				★
Process connection style <sup>(3)</sup>					
	Type	Size	Diaphragm	Upper housing/extension	
T32	Tri Clamp	1 1/2-in.	316L SST	316L SST	★
T42	Tri Clamp	2-in.	316L SST	316L SST	★

**Table 1. Rosemount 3051HT Hygienic In-line Pressure Transmitter Ordering Information**

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.

### Options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
PlantWeb™ control functionality		
A01	Advanced control function block suite	★
PlantWeb diagnostics functionality		
DA0 <sup>(4)</sup>	Power advisory HART diagnostic	★
D01	FOUNDATION Fieldbus control function block suite	★
Product certifications		
I5	USA intrinsic safety and non incendive	★
I6	Canada intrinsic safety	★
Display and interface options <sup>(5)</sup>		
M4 <sup>(4)</sup>	LCD display with local operator interface	★
M5	LCD display	★
Configuration buttons <sup>(4)</sup>		
D4	Analog zero and span	★
DZ	Digital zero trim	★
Wetted surface finish <sup>(6)</sup>		
F2	Mechanically polished and electropolished to $R_a < 15 \mu\text{-in. (0.38 \mu\text{-m})}$	★
Transient terminal block		
T1	Transient protection terminal block	★
Software configuration <sup>(4)(7)</sup>		
C1	Custom software configuration	★
Alarm levels <sup>(4)</sup>		
C4	NAMUR alarm and saturation levels, high alarm	★
CN	NAMUR alarm and saturation levels, low alarm	★
CR	Custom alarm and saturation signal levels, high alarm (requires C1 and Configuration Data Sheet)	★
C7	Custom alarm and saturation signal levels, low alarm (requires C1 and Configuration Data Sheet)	★
CT	Low alarm (standard Rosemount alarm and saturation levels)	★

**Table 1. Rosemount 3051HT Hygienic In-line Pressure Transmitter Ordering Information**

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.

<b>Special cleaning</b>		
P2	Cleaning for special services	
P3	Cleaning for <1 PPM Chlorine/Fluorine	
<b>Wetted surface finish certification</b>		
Q16	Surface finish certification	★
<b>Calibration certification</b>		
Q4	Calibration certificate	★
QP	Calibration certificate and tamper evident seal	★
<b>Material traceability certification</b>		
Q8	Material traceability certification per EN 10204 3.1	★
<b>Certificate of compliance to 3-A</b>		
QA	Certificate of compliance to 3-A	★
<b>Certificate of compliance to ASME BPE<sup>(8)</sup></b>		
QB	Certificate of compliance to ASME BPE	★
<b>Certificate of compliance to EHEDG<sup>(9)</sup></b>		
QE	Certification of compliance to EHEDG	★
<b>Conduit electrical connector</b>		
GE	M12, 4-pin, male connector (eurofast®)	★
GM	A size mini, 4-pin, male connector (minifast®)	★

1. Rosemount 3051HTG lower range limit varies with atmospheric pressure.
2. Does not meet EHEDG requirements.
3. All process wetted parts have surface finish of  $R_a < 32 \mu\text{-in}$  ( $0.81 \mu\text{-m}$ ) standard unless otherwise specified.
4. Only available with HART 4-20 mA output (code A).
5. Housing material option 1 comes with polycarbonate cover standard. Housing material option 2 comes with Al and glass cover standard.
6. Meets ASME BPE surface designation SF4.
7. CDS required with order, available with output code A only.
8. Available only with wetted surface finish option F2.
9. Available only with housing material option 1.

# Specifications

## Performance specifications

For zero-based spans, reference conditions, Neobee M-20 oil fill, SST materials, 1 1/2-in. Tri Clamp process connections, silicone gasket material, clamping torque of 45 in-lb, digital trim values set to equal range points.

### Reference accuracy

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

Range	Performance class option A	Performance class option B	Performance class option C
Range 0	±0.065% of span For spans less than 5:1, accuracy = $\pm\left(0.0075\left[\frac{URL}{Span}\right] + 0.065\right)\%$ of span	±0.075% of span For spans less than 5:1, accuracy = $\pm\left(0.03\left[\frac{URL}{Span}\right] + 0.055\right)\%$ of span	±0.10% of span For spans less than 5:1, $\pm\left(0.055 + 0.050\left[\frac{URL}{Span}\right]\right)\%$ of span
Range 1	±0.065% of span For spans less than 5:1, accuracy = $\pm\left(0.0075\left[\frac{URL}{Span}\right] + 0.065\right)\%$ of span	±0.075% of span For spans less than 5:1, accuracy = $\pm\left(0.009\left[\frac{URL}{Span}\right] + 0.045\right)\%$ of span	±0.10% of span For spans less than 5:1, $\pm\left[0.065 + 0.012\left(\frac{URL}{Span}\right)\right]\%$ of span
Range 2	±0.065% of span For spans less than 10:1, accuracy = $\pm\left(0.0075\left[\frac{URL}{Span}\right]\right)\%$ of span	±0.075% of span For spans less than 10:1, accuracy = $\pm\left(0.009\left[\frac{URL}{Span}\right]\right)\%$ of span	±0.10% of span For spans less than 10:1, $\pm\left[0.012\left(\frac{URL}{Span}\right)\right]\%$ of span
Range 3	±0.065% of span For spans less than 2:1, accuracy = $\pm\left(0.020\left[\frac{URL}{Span}\right] + 0.065\right)\%$ of span	±0.075% of span For spans less than 2:1, accuracy = $\pm\left(0.022\left[\frac{URL}{Span}\right] + 0.075\right)\%$ of span	±0.10% of span For spans less than 2:1, $\pm\left[0.075 + 0.030\left(\frac{URL}{Span}\right)\right]\%$ of span

### Long term stability

±50 °F (28 °C) temperature changes, and up to 300 psi (20,68 bar) line pressure

Range	Performance class option A	Performance class option B	Performance class option C
Range 0	±0.2% of URL for 1 year	±0.2% of URL for 1 year	±0.2% of URL for 6 months
Ranges 1–2	±0.125% of URL for 5 years	±0.1% of URL for 3 years	±0.1% of URL for 1 year
Range 3	±0.2% of URL for 5 years	±0.2% of URL for 3 years	±0.2% of URL for 1 year

**Dynamic performance**

	4-20 mA HART <sup>(1)</sup>	FOUNDATION Fieldbus <sup>(2)</sup>	Typical HART transmitter response time
Total response time ( $T_d + T_c$ ) <sup>(3)</sup> :			<p>Transmitter Output vs. Time</p> <p>Pressure released</p> <p><math>T_d</math> = Dead time  <math>T_c</math> = Time constant                  Response time = <math>T_d + T_c</math></p> <p>100% 36.8% 0%</p> <p>63.2% of total step change</p> <p>Time</p>
Ranges 0–3	145 ms	197 ms	
Dead time ( $T_d$ )	60 ms (nominal)	112 ms	
Update rate	22 times per second	22 times per second	

1. Dead time and update rate apply to all models and ranges; analog output only.
2. Transducer Block response time, Analog Input block execution time not included.
3. Nominal total response time at 75 °F (24 °C) reference conditions.

**Ambient temperature effect per 50 °F (28 °C)**

Range	Ambient temperature effect
Range 0	$\pm(0.35\% \text{ URL} + 0.20\% \text{ span})$
Range 1	$\pm(0.10\% \text{ URL} + 0.20\% \text{ span})$
Range 2	$\pm(0.05\% \text{ URL} + 0.075\% \text{ span})$
Range 3	$\pm(0.10\% \text{ URL} + 0.075\% \text{ span})$

**Batch to batch repeatability**

One batch is an exposure to steam in place (SIP) with a process temperature of 284 °F (140 °C) for 4 hours.

Range	Batch to batch repeatability
Range 0	$\pm 0.20\% \text{ URL}$ for 60 batches (0.010 psi, 0,89 mbar)
Range 1	$\pm 0.05\% \text{ URL}$ for 60 batches (0.015 psi, 1,03 mbar)
Range 2	$\pm 0.02\% \text{ URL}$ for 60 batches (0.030 psi, 2,07 mbar)
Range 3	$\pm 0.065\% \text{ URL}$ for 60 batches (0.195 psi, 13,44 mbar)

**Mounting position effects**

Zero shifts to  $\pm 2.5$  inH<sub>2</sub>O (6,22 mbar), which can be calibrated out. No span effect.

**Vibration effect**

Less than  $\pm 0.1\%$  of URL when tested per the requirements of IEC 60770 control room level.

**Electromagnetic compatibility (EMC)**

Meets all industrial environment requirements of EN61326. Maximum deviation < 1% Span during EMC disturbance.<sup>(1)</sup>

1. During surge or ESD 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)**

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

- 6 kV crest (0.5  $\mu$ s–100 kHz)
- 3 kA crest (8  $\times$  20  $\mu$ s)
- 6 kV crest (1.2  $\times$  50  $\mu$ s)

## Functional specifications

### Range and sensor limits

Range	Minimum span	Range and sensor limits		
		URL	LRL	
			3051HTA	3051HTG <sup>(1)</sup>
0	0.50 psi (0,034 bar)	5.00 psi (0,34 bar)	N/A	-5.00 psig (-0,34 bar)
1	1.00 psi (0,069 bar)	30.00 psi (2,07 bar)	0 psia (0 bar)	-14.70 psig (-1,01 bar)
2	1.50 psi (0,10 bar)	150.00 psi (10,34 bar)	0 psia (0 bar)	-14.70 psig (-1,01 bar)
3	15.00 psi (1,03 bar)	300.00 psi (20,68 bar)	N/A	-14.70 psig (-1,01 bar)

1. Assumes atmospheric pressure of 14.70 psia (1,01 bar-a).

### Service

Liquid, gas, and vapor applications

### 4–20 mA HART (output code A)

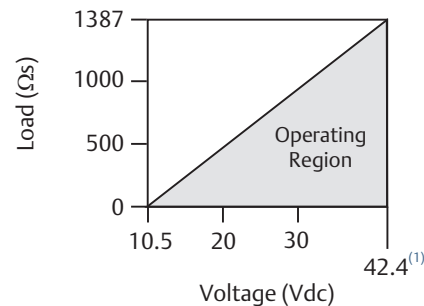
#### Power supply

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:

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



Communication requires a minimum loop resistance of 250 ohms.

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

### Indication

Optional two-line LOI/LCD display

### Optional configuration buttons

Configuration buttons need to be specified:

Digital zero trim (option code DZ) changes digital value of the transmitter and is used for performing a sensor zero trim.

Analog zero span (option code D4) changes analog value and can be used to rerange the transmitter with an applied pressure.

### Output

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

The Rosemount 3051 comes with Selectable HART Revisions. Digital communications based on HART Revision 5 (default) or Revision 7 (option code HR7) protocol can be selected. The HART revision can be switched in the field using any HART based configuration tool or the optional local operator interface (M4).

### Power advisory diagnostics

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

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

### LOI

The LOI utilizes a two-button menu with internal and external/terminal side configuration buttons. Internal buttons are always configured for LOI. External buttons can be configured for either LOI (option code M4), Analog zero and span (option code D4) or digital zero trim (option code DZ). See Rosemount 3051 [Reference Manual](#) for LOI configuration menu.

### FOUNDATION Fieldbus (output code F)

#### Power supply

External power supply required; transmitters operate on 9.0 to 32.0 V dc transmitter terminal voltage.

#### Current draw

17.5 mA for all configurations (including LCD display option)

### Indication

Optional two-line LCD display



**FOUNDATION Fieldbus block execution times**

Block	Execution time
Resource	N/A
Sensor and SPM Transducer	N/A
LCD Display	N/A
Analog Input 1, 2	20 milliseconds
PID	25 milliseconds
Input Selector	20 milliseconds
Arithmetic	20 milliseconds
Signal Characterizer	20 milliseconds
Integrator	20 milliseconds
Output Splitter	20 milliseconds
Control Selector	20 milliseconds

**FOUNDATION Fieldbus parameters**

Links	25 (max.)
Virtual Communications Relationships (VCR)	20 (max.)

**FOUNDATION Fieldbus function blocks (option A01)****Resource block**

The resource block contains diagnostic, hardware, and electronics information. There are no linkable inputs or outputs to the resource block.

**Sensor Transducer Block**

The sensor Transducer Block contains sensor information and the ability to calibrate the pressure sensor or recall factory calibration.

**LCD Transducer Block**

The LCD Transducer Block is used to configure the LCD display meter.

**Analog input block**

The analog input (AI) function block processes the measurements from the sensor and makes them available to other function blocks. The output value from the AI Block is in engineering units and contains a status indicating the quality of the measurement. The AI Block is widely used for scaling functionality.

**Input selector block**

The input selector (ISEL) function block can be used to select the first good, hot backup, maximum, minimum, or average of as many as eight input values and place it at the output. The block supports signal status propagation.

**Integrator block**

The integrator (INT) function block integrates one or two variables over time. The block compares the integrated or accumulated value to pre-trip and trip limits and generates discrete output signals when the limits are reached.

The INT function block is used as a totalizer. This block will accept up to two inputs, has six options how to totalize the inputs, and two trip outputs.

**Arithmetic block**

The arithmetic (ARTH) function block provides the ability to configure a range extension function for a primary input. It can also be used to compute nine different arithmetic functions including flow with partial density compensation, electronic remote seals, hydrostatic tank gaging, ratio control, and others.

**Signal characterizer block**

The signal characterizer (SGCR) function block characterizes or approximates any function that defines an input/output relationship. The function is defined by configuring as many as twenty X,Y coordinates. The block interpolates an output value for a given input value using the curve defined by the configured coordinates. Two separate analog input signals can be processed simultaneously to give two corresponding separate output values using the same defined curve.

**PID block**

The PID function block combines all of the necessary logic to perform proportional/integral/derivative (PID) control. The block supports mode control, signal scaling and limiting, feed forward control, override tracking, alarm limit detection, and signal status propagation.

**Control selector block**

The control selector function block selects one of two or three inputs to be the output. The inputs are normally connected to the outputs of PID or other function blocks. One of the inputs would be considered normal and the other two overrides.

**Output splitter block**

The output splitter function block provides the capability to drive two control outputs from a single input. It takes the output of one PID or other control block to control two valves or other actuators.

**Backup link active scheduler (LAS)**

The transmitter can function as a link active scheduler if the current link master device fails or is removed from the segment.

**FOUNDATION Fieldbus diagnostics suite (option code D01)**

The Rosemount 3051HT FOUNDATION Fieldbus diagnostics suite features SPM technology to detect changes in the process, process equipment, or installation conditions (such as plugged impulse lines) of the transmitter. This is done by modeling the process noise signature (using the statistical values of mean and standard deviation) under normal conditions and then comparing the baseline values to current values over time. If a significant change in the current values is detected, the transmitter can generate an alert.

**Sensor overpressure limits**

- Range 0: 60 psi (4,14 bar)
- Range 1: 150 psi (10,34 bar)
- Range 2: 300 psi (20,68 bar)
- Range 3: 600 psi (41,36 bar)

**Note**

Overpressure limit is dependent on the clamp/pressure adapter or sensor rating (whichever is lower).

**Sensor burst pressure**

All ranges: 900 psi (62,05 bar)

**Temperature limits**

**Ambient**

32 to 185 °F (0 to 85 °C)  
175 °F with LCD display

**Storage**

-22 to 185 °F (-30 to 85 °C)

**Process temperature limits**

32 to 302 °F (0 to 150 °C)

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

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

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

**Turn-on time**

Performance within specifications less than two seconds (20.0 seconds for FOUNDATION Fieldbus protocols) after power is applied to the transmitter.

**Damping**

**4–20 mA HART**

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

**FOUNDATION Fieldbus**

Transducer Block: User-configurable

AI Block: User-configurable

**Failure mode alarm**

**HART 4–20mA (output code A)**

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:

**Table 2. Alarm Configuration**

	High alarm	Low alarm
Default	≥ 21.75 mA	≤ 3.75 mA
NAMUR compliant <sup>(1)</sup>	≥ 22.5 mA	≤ 3.6 mA
Custom levels <sup>(1)</sup>	20.2–23.0 mA	3.4–3.8 mA

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

**FOUNDATION Fieldbus (output code F)**

If self-diagnostics detect a gross transmitter failure, that information gets passed as an alert and a status along with the process variable.

**Humidity limits**

0–100% relative humidity

## Physical specifications

### Material selection

Emerson provides a variety of Rosemount products with various product options and configurations including materials of construction that can be expected to perform well in a wide range of applications. The Rosemount product information presented is intended as a guide for the purchaser to make an appropriate selection for the application.

It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product materials, options, and components for the particular application. Emerson is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product options, configuration, or materials of construction selected.

### Process connections

- 1½-in. Tri Clamp
- 2-in. Tri Clamp

### Process-wetted parts

#### Isolation diaphragm

316L stainless steel

#### Process connector

316L stainless steel

#### Surface finish

- $R_a < 32 \mu\text{-in.}$  (0.81  $\mu\text{-m}$ ) mechanically polished (standard on all connections)
- $R_a < 15 \mu\text{-in.}$  (0.38  $\mu\text{-m}$ ) mechanically polished and electropolished (requires wetted surface finish option F2)

### Non-wetted parts

#### Electronics housing

316 SST or low-copper aluminum

Enclosures meet NEMA® Type 4x, IP66, IP68 when properly installed.

---

#### Note

Consult factory for availability of IP69 rating.

---

#### LOI and LCD display covers

- Non-glass, polycarbonate LCD display cover with SST housing material (option 1)
- Low-copper aluminum and glass LCD display cover with low-copper aluminum housing material (option 2)

### Sensor module fill fluid

Neobee M-20 (FDA Approved)

### Shipping weight for Rosemount 3051HT

3.44 lb (1,56 kg) with SST housing, LCD display with polycarbonate cover, and 1½-in. Tri Clamp connection

# Product certifications

Rev 1.3

## 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](http://Emerson.com/Rosemount).

## Ordinary Location Certification

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

Altitude	Pollution degree
5000 m max	4 (metallic enclosure) 2 (non-metallic enclosure)

## Installing Equipment in North America

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

### USA

- I5** Intrinsic Safety; Nonincendive  
 Certificate: 1053834  
 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 when connected per Rosemount drawing 03031-1024, CL I ZONE 0 AEx ia IIC T4; NI CL 1, DIV 2, GP A, B, C, D T5; T4(-20 °C ≤ T<sub>a</sub> ≤ +70 °C) [HART]; T4(-20 °C ≤ T<sub>a</sub> ≤ +60 °C) [Fieldbus]; Type 4x

### Canada

- I6** Intrinsic Safety  
 Certificate: 1053834  
 Standards: ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2. No.157-92, CSA Std. C22.2 No. 213 - M1987  
 Markings: Intrinsically Safe Class I, Division 1 Groups A, B, C, D when connected in accordance with Rosemount drawing 03031-1024, Temperature Code T4; Suitable for Class I, Zone 0; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

## Additional Certifications

### 3-A

All Rosemount 3051HT Transmitters are 3-A approved and labeled. A certificate of compliance is also available (option QA).

### EHEDG

All Rosemount 3051HT Transmitters with polished stainless steel housings (housing material option1) are EHEDG approved and labeled. A certificate of compliance is also available (option QE).

### ASME-BPE

All Rosemount 3051HT Transmitters with option F2 and the following connections are designed to ASME-BPE SF4 standards<sup>(1)</sup>:

T32: 1 1/2-in. Tri Clamp

T42: 2-in. Tri Clamp

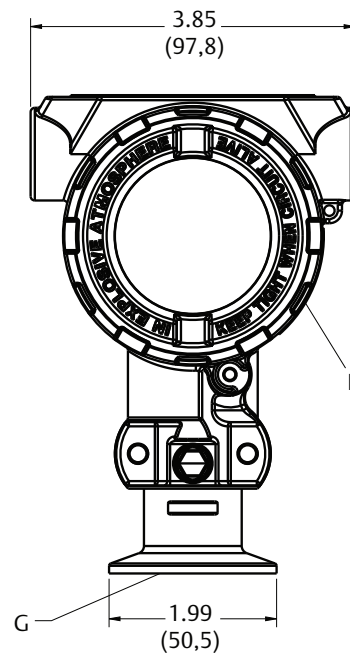
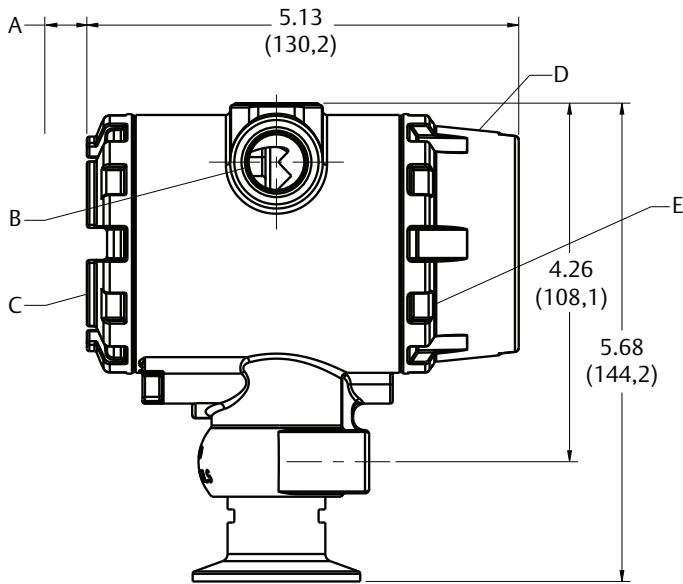
A self-certified certificate of compliance to ASME-BPE is also available (option QB).

1. Per Clause SD-2.4.4.2 (m), suitability of painted aluminum housings to be determined by end user.

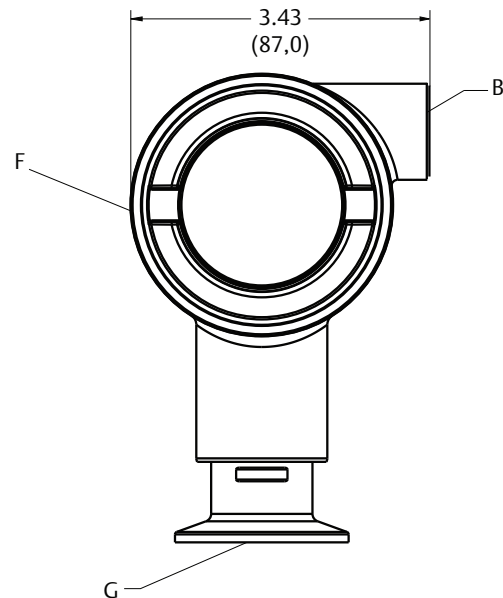
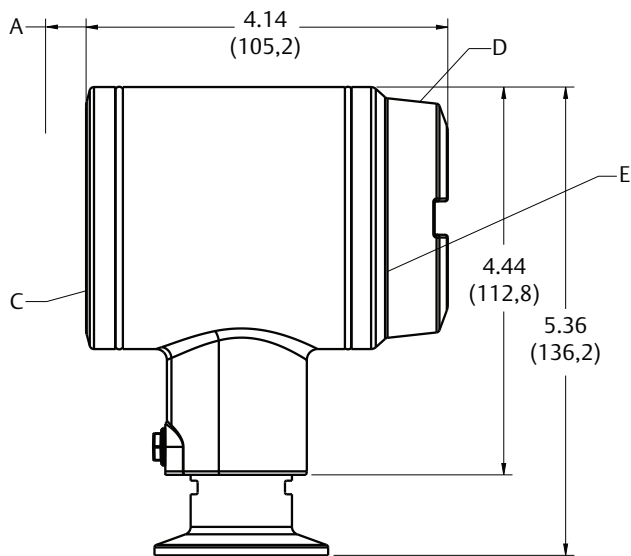
# Dimensional drawings

Figure 1. Rosemount 3051HT

### Aluminum



### Polished 316 SST



- A. 0.75 (20) clearance for cover removal
- B. 1/2-14 NPT conduit connection
- C. Terminal connections
- D. Optional display cover
- E. Transmitter circuitry

- F. Certifications tag
  - G. 1 1/2 Tri Clamp
- (See Table 1 for other options.)  
Dimensions are in inches (millimeters).

# Options

## Standard configuration

Unless otherwise specified, transmitter is shipped as follows:

<b>Engineering units</b>	psi (all ranges)
<b>4 mA<sup>(1)</sup></b>	0 (engineering units)
<b>20 mA<sup>(1)</sup></b>	Upper range limit
<b>Output</b>	Linear
<b>LCD display</b>	Installed or none
<b>Alarm<sup>(1)</sup></b>	High
<b>Software tag</b>	N/A
<b>Damping</b>	0.4 seconds

1. Not applicable to FOUNDATION Fieldbus.

## Custom configuration<sup>(1)</sup>

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
- Scaled variable
- and more

For Rosemount 3051 with HART protocol, refer to the Rosemount 3051 [Configuration Data Sheet](#).

## Tagging (2 options available)

- Tag may be permanently stamped on transmitter nameplate upon request, 56 characters maximum.
- Tag may be stored in transmitter memory. Character limit is dependent on protocol.
  - HART Revision 5: 8 characters
  - HART Revision 7: 32 characters
  - FOUNDATION Fieldbus: 32 characters

1. Only available with HART 4-20 mA output (code A).

## Commissioning tag

For FOUNDATION Fieldbus only: A temporary commissioning tag is placed in the transmitter box. The tag indicates the device ID and allows an area for writing the location.

## Output information

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

torr	psf <sup>(1)</sup>	cmH <sub>2</sub> O @ 4 °C <sup>(1)</sup>
atm	inH <sub>2</sub> O	mH <sub>2</sub> O @ 4 °C <sup>(1)</sup>
Pa	inH <sub>2</sub> O @ 4 °C	inHg
kPa	inH <sub>2</sub> O @ 60 °F	mmHg
MPa	ftH <sub>2</sub> O	cmHg @ 0 °C <sup>(1)</sup>
hPa <sup>(1)</sup>	ftH <sub>2</sub> O @ 4 °C <sup>(1)</sup>	mHg @ 0 °C <sup>(1)</sup>
mbar	ftH <sub>2</sub> O @ 60 °F <sup>(1)</sup>	g/cm <sup>2</sup>
bar	mmH <sub>2</sub> O	kg/m <sup>(1)</sup>
psi	mmH <sub>2</sub> O @ 4 °C	kg/cm

1. Field configurable only, not available for factory calibration or custom configuration (option code C1 "Software configuration").

## Display and interface options

### M4 Digital Display with Local Operator Interface (LOI)

- Available for 4–20 mA HART

### M5 Digital Display

- Two-line, 8-digit LCD display for 4–20 mA HART and FOUNDATION Fieldbus.
- Direct reading of digital data for higher accuracy
- Displays user-defined flow, level, volume, or pressure units
- Displays diagnostic messages for local troubleshooting
- 90-degree rotation capability for easy viewing

## Configuration buttons

Rosemount 3051 will ship with no buttons unless option D4 (analog zero and span), DZ (digital zero), or M4 (LOI) for local configuration buttons are specified. (Only available with Hart 4-20 mA output; code A)

## External or rear/terminal side

Table 3. Button Configuration<sup>(1)</sup>

Option codes	Internal	External or rear/terminal side
DZ	N/A	Digital zero trim
D4	N/A	Analog zero and trim
M4	LOI	LOI <sup>(2)</sup>
M4 + DZ	LOI	Digital zero trim
M4 + D4	LOI	Analog zero and trim

- Only available with 4-20mA HART protocol. Housing material option 1 comes with rear/terminal-side buttons; housing material option 2 comes with external buttons.
- Not provided with housing material option 1.

## Transient protection (option code T1)

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

- 6 kV crest (0.5  $\mu$ s–100 kHz)
- 3 kA crest (8  $\times$  20  $\mu$ s)
- 6 kV crest (1.2  $\times$  50  $\mu$ s)

## Global Headquarters

### Emerson Automation Solutions

6021 Innovation Blvd.  
Shakopee, MN 55379, USA  
+1 800 999 9307 or +1 952 906 8888  
+1 952 949 7001  
RFQ.RMD-RCC@Emerson.com

## North America Regional Office

### Emerson Automation Solutions

8200 Market Blvd.  
Chanhassen, MN 55317, USA  
+1 800 999 9307 or +1 952 906 8888  
+1 952 949 7001  
RMT-NA.RCCRFQ@Emerson.com

## Latin America Regional Office

### Emerson Automation Solutions

1300 Concord Terrace, Suite 400  
Sunrise, FL 33323, USA  
+1 954 846 5030  
+1 954 846 5121  
RFQ.RMD-RCC@Emerson.com

## Europe Regional Office

### Emerson Automation Solutions Europe GmbH

Neuhofstrasse 19a P.O. Box 1046  
CH 6340 Baar  
Switzerland  
+41 (0) 41 768 6111  
+41 (0) 41 768 6300  
RFQ.RMD-RCC@Emerson.com

## Asia Pacific Regional Office


### Emerson Automation Solutions Asia Pacific Pte Ltd


1 Pandan Crescent  
Singapore 128461  
+65 6777 8211  
+65 6777 0947  
Enquiries@AP.Emerson.com

## Middle East and Africa Regional Office


### Emerson Automation Solutions


Emerson FZE P.O. Box 17033  
Jebel Ali Free Zone - South 2  
Dubai, United Arab Emirates  
+971 4 8118100  
+971 4 8865465  
RFQ.RMTMEA@Emerson.com

 [Linkedin.com/company/Emerson-Automation-Solutions](https://www.linkedin.com/company/Emerson-Automation-Solutions)

 [Twitter.com/Rosemount\\_News](https://twitter.com/Rosemount_News)

 [Facebook.com/Rosemount](https://www.facebook.com/Rosemount)

 [Youtube.com/user/RosemountMeasurement](https://www.youtube.com/user/RosemountMeasurement)

 [Google.com/+RosemountMeasurement](https://www.google.com/+RosemountMeasurement)

Standard Terms and Conditions of Sale can be found on the [Terms and Conditions of Sale page](#).

The Emerson logo is a trademark and service mark of Emerson Electric Co. AMS, PlantWeb, Rosemount, and Rosemount logotype are trademarks of Emerson.

HART is a registered trademark of the FieldComm Group.

FOUNDATION Fieldbus is a trademark of the FieldComm Group.

Neobee is a registered trademark of Stepan Specialty Products, LLC.

NEMA is a registered trademark and service mark of the National Electrical Manufacturers Association.

3-A is a registered trademark of 3-A Sanitary Standards, Inc.

euofast and minifast are registered trademarks of TURCK.

All other marks are the property of their respective owners.

© 2017 Emerson. All rights reserved.