Rosemount™ 2051HT Hygienic Pressure Transmitter

- Hygienic design conforms to 3-A® and EHEDG standards

- Reference accuracy up to 0.1%

- Rated for SIP/CIP process temperatures up to 302 °F (150 °C)

- Rangeability of 50:1

- Up to two year stability

- 4–20 mA/HART®, PROFIBUS® PA 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

ROSEMOUNT™

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Features and benefits

A foundation of reliable pressure measurement for the Life Science and Food and Beverage industries

Work more efficiently with the Rosemount™ 2051HT Hygienic Pressure Transmitter, an industry standard device that delivers reliable process data and consistent batch results.

Hygienic design conforms to hygienic standards

The hygienic design of the Rosemount 2051HT features 32 μ-in. Ra mechanically polished wetted surfaces. The stainless steel (SST) design is free of voids and crevices to ensure easy cleaning and wipe downs. The Rosemount 2051HT is also 3-A and EHEDG approved.

Proven Emerson technology improves process reliability and robustness

The Rosemount 2051HT 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

4–20 mA/HART®, PROFIBUS®, 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 2051HT can also provide you with audit trail information to make FDA compliance simpler and paper free.

Easy to use local configuration capabilities

The optional Local Operator Interface (LOI) features straightforward menus and built-in configuration buttons so you can commission without complicated training or additional tools.

Contents

Ordering Information

Table 1: Rosemount™ 2051HT 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.

Rosemount model			
2051HT	Hygienic Pressure Transmitter		★
Pressure type			
G	Gage		★
A	Absolute		★
Performance class			
	Range 1–3	Range 0	
B	0.10% span accuracy and 2-year stability	0.10% span accuracy and 6 month stability	★
C	0.20% span accuracy and 1-year stability	0.20% span accuracy and 6 month stability	★
Pressure range			
	Rosemount 2051HTG[1]	Rosemount 2051HTA	
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		★
W	PROFIBUS® PA Protocol		
Sensor fill fluid			
3	Neobee® M-20		★
Housing material			
1	Crevice-free polished 316 SST		★
2	Aluminum		★
Conduit entry size			
A	1/2–14 NPT		★
B[2]	M20 x 1.5		★

Process connection style [3]				
	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	★
B11	Assemble to one Rosemount 1199 Diaphragm Seal with SST transmitter flange				★

Table 1: Rosemount™ 2051HT Hygienic In-line Pressure Transmitter Ordering Information *(continued)*

Rosemount model		
Options (include with selected model number)		
Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
Plantweb™ control functionality		
A01	FOUNDATION™ Fieldbus advanced control function block suite	★
Product certifications		
I1	ATEX intrinsic safety	★
I5	USA intrinsic safety and non incendive	★
I6	Canada intrinsic safety	★
I7	IECEx intrinsic safety	★
Display and interface options[4]		
M4[5]	LCD display with LOI	★
M5	LCD display	★
Configuration buttons[5][6]		
D4	Analog zero and span	★
DZ	Digital zero trim	★
Transient terminal block		
T1	Transient protection terminal block	★
Software configuration[5]		
C1	Custom software configuration	★
Alarm levels		
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)	★
Special cleaning		
P2	Cleaning for special services	
P3	Cleaning for <1 PPM Chlorine/Fluorine	
Wetted surface finish certification		
Q16	Surface Finish Certification	★
Calibration Certification		
Q4	Calibration Certificate	★

Table 1: Rosemount™ 2051HT Hygienic In-line Pressure Transmitter Ordering Information *(continued)*

Rosemount model						
QP	Calibration certificate and tamper evident seal					★
Material traceability certification						
Q8	Material traceability certification per EN 10204 3.1					★
Certificate of compliance to 3-A						
QA	Certificate of compliance to 3-A					★
Certificate of compliance to EHEDG						
QE	Certification of compliance to EHEDG					★
Conduit electrical connector						
GE	M12, 4-pin, male connector (eurofast®)					★
GM	A size mini, 4-pin, male connector (minifast®)					★
Increased Ingress Protection						
V9	Transmitter IP69K Rating (SST only)					★

(1)   *Rosemount 2051HTG lower range limit varies with atmospheric pressure.*
(2)   *For aluminum housings, transmitter conduit entry will be 1/2-NPT and a 1/2-NPT to M20 thread adapter will be provided.*
(3)   *All process wetted parts have surface finish of Ra < 32 μ-in (0.81 μ-m) standard unless otherwise specified.*
(4)   *Housing material option 1 comes with polycarbonate cover standard. Housing material optin 2 comes with Al and glass cover standard.*
(5)   *Only available with HART 4—20mA output (code A) and PROFIBUS PA (code W).*
(6)   *CDS required with order, available with output code A only.*

Specifications

Performance specifications

For zero-based spans, reference conditions, Neobee® M-20 oil fill, SST materials, 1 ½-in. Tri-Clamp process connections, silicone gasket material, clamping torque of 45 in-lb, digital trim values set to equal range points.

For assemblies attached to a Rosemount™ 1199 Diaphragm Seal (option code B11), use Instrument Toolkit™ or the QZ option to quantify the total performance of the assembly under operating conditions.

Note

QZ option is to be added to the Rosemount 1199 model string.

Table 2: Reference accuracy

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

Range	Performance class option B	Performance class option C
0	±0.10% of span For spans less than 5:1, accuracy = $\pm\left(0.02\left[\dfrac{URL}{Span}\right] + 0.01\right)\%$ of span	±0.20% of span For spans less than 5:1, $\pm\left(0.075 + 0.025\left[\dfrac{URL}{Span}\right]\right)\%$ of span
1	±0.10% of span For spans less than 5:1, accuracy = $\pm\left(0.013\left[\dfrac{URL}{Span}\right] + 0.035\right)\%$ of span	±0.20% of span For spans less than 5:1, $\pm\left[0.135 + 0.013\left(\dfrac{URL}{Span}\right)\right]\%$ of span
2	±0.10% of span For spans less than 10:1, accuracy = $\pm\left(0.012\left[\dfrac{URL}{Span}\right]\right)\%$ of span	±0.20% of span For spans less than 10:1, $\pm\left[0.08 + 0.012\left(\dfrac{URL}{Span}\right)\right]\%$ of span
3	±0.10% of span For spans less than 2:1, accuracy = $\pm\left(0.025\left[\dfrac{URL}{Span}\right] + 0.08\right)\%$ of span	±0.20% of span For spans less than 2:1, $\pm\left[0.15 + 0.025\left(\dfrac{URL}{Span}\right)\right]\%$ of span

Table 3: Long term stability

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

Range	Performance class option B	Performance class option C
0	±0.3% of URL for 1 year	±0.2% of URL for 6 months
1–2	±0.15% of URL for 2 years	±0.15% of URL for 1 year
3	±0.2% of URL for 2 years	±0.2% of URL for 1 year

Table 4: Dynamic performance

	4–20 mA HART® Protocol[1]	FOUNDATION™ Fieldbus and PROFIBUS® PA Protocols [2]	Typical HART transmitter response time
Total response time ($T_d + T_c$)[3]:			
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 (FOUNDATION Fieldbus) 20 times per second (PROFIBUS)	

(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.

Table 5: Ambient temperature effect per 50 °F (28 °C)

Range	Ambient temperature effect
0	±(0.70% URL + 0.30% span)
1	±(0.35% URL + 0.20% span)
2	±(0.10% URL + 0.075% span)
3	±(0.10% URL + 0.075% span)

For assemblies attached to a Rosemount 1199 Diaphragm Seal (option code B11) see Instrument Toolkit™

Mounting position effects

Zero shifts to ±2.5 inH_2O (6,22 mbar), which can be calibrated out. No span effect.

Vibration effect

Less than ±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.

Note
During surge event, device with 4-20mA (Transmitter output option code A) may exceed maximum EMC deviation limit or reset; however, device will self-recover and return to normal operation within specified start-up time.

Note
During ESD event, device with FOUNDATION™ Fieldbus or PROFIBUS® (Transmitter output option code F or W) may exceed maximum EMC deviation limit, 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 μs–100 kHz)

3 kA crest (8 x 20 μs)

6 kV crest (1.2 x 50 μs)

Functional specifications

Table 6: Range and Sensor Limits

Range	Minimum span	Range and sensor limits		
		URL	LRL	
			2051HTA	2051HTG[1]
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)		
3	15.00 psi (1,03 bar)	300.00 psi (20,68 bar)	N/A	

(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:

Max. loop resistance = 43.5 (Power Supply voltage – 10.5)
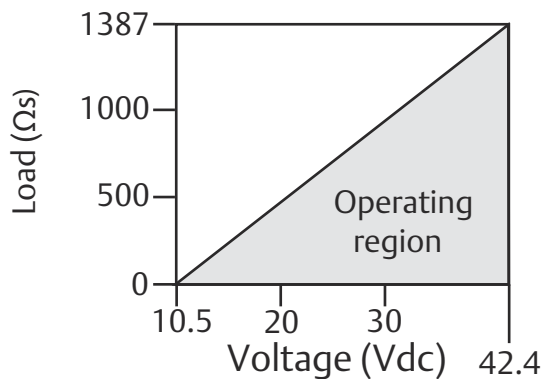
Communication requires a minimum loop resistance of 250 ohms.

Communication requires a minimumloop resistance of 250 ohms.

Note
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 2051 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).

Local Operator Interface (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 2051 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 Vdc 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

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 (AI) block

The analog input 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 (ISEL) block

The Input Selector 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 (INT) block

The Integrator 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 (ARTH) block

The Arithmetic 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 (SGCR) block

The Signal Characterizer 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.

Proportional/Integral/Derivative (PID) block

The PID Function Block combines all of the necessary logic to perform 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.

PROFIBUS® PA Protocol (output code W)

Profile version

3.02

Power supply

External power supply required; transmitters operate on 9.0 to 32.0 Vdc transmitter terminal voltage. FISCO transmitters operate on 9.0 to 17.5 Vdc.

Current draw

17.5 mA for all configurations (including LCD display option)

Output update rate

50 times per second

Standard function blocks

Analog input (AI block)

The AI function block processes the measurements and makes them available to the host device. The output value from the AI block is in engineering units and contains a status indicating the quality of the measurement.

Physical block

The physical block defines the physical resources of the device including type of memory, hardware, electronics and diagnostic information.

Transducer block

Contains actual sensor measurement data including the sensor diagnostics and the ability to trim the pressure sensor or recall factory defaults.

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)[1]

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

Max. ambient temperature in °F = $185 - \dfrac{(ProcessTemp - 185)}{1.5}$

Max. ambient temperature in °C = $85 - \dfrac{(ProcessTemp - 85)}{1.5}$

For assemblies attached to a Rosemount 1199 Diaphragm Seal (option code B11), see Rosemount 1199 Seal Systems Product Data Sheet for process temperature limits.

Turn-on time

Performance within specifications less than two seconds (7 seconds for PROFIBUS® PA and 20 seconds for FOUNDATION Fieldbus) after power is applied to the transmitter.

Damping

4–20 mA HART® Protocol

Analog output response to a step input change is user-selectable from 0 to 60 seconds for one time constant. This software damping is in addition to sensor module response time.

FOUNDATION Fieldbus Protocol

Transducer block: User-configurable

AI block: User-configurable

PROFIBUS® PA Protocol

AI block only: User-configurable

Failure mode alarm

HART 4–20mA Protocol (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 Table 7 below). The values for each are as follows:

(1) Temperature limits are reduced in vacuum service; 212 °F (100 °C) limit for pressures below 3.9 psia.

Table 7: Alarm Configuration

	High alarm	Low alarm
Default	≥ 21.75 mA	≤ 3.75 mA
NAMUR compliant[1]	≥ 22.5 mA	≤ 3.6 mA
Custom levels[1]	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.

FOUNDATION Fieldbus Protocol (output code F) and PROFIBUS PA Protocol (output code W)

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 percent 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 SST

Process connector

316L SST

Surface finish

- R_a < 32 μ-in. (0.81 μ-m) mechanically polished (standard on all connections)
- R_a < 15 μ-in. (0.38 μ-m) mechanically polished and electropolished (requires wetted surface finish option F2)

Transmissible Spongiform Encephalopathy (TSE) Declaration

Emerson certifies no process wetted components used in this product contain substances of animal origin. Materials used in the production or processing of wetted components for this product meet the requirements stated in EMA/410/01 Rev. 3 and ISO 22442-1:2015. Wetted components in this product are considered free of TSE.

Non-wetted parts

Electronics housing

316 SST or low-copper aluminum

Enclosures meet NEMA® Type 4x, IP66, IP68, and IP69K when properly installed.

Note
IP69K rating only available on units with a SST housing and option code V9 in the model string.

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 2051HT

3.44 lb (1,56 kg) with SST housing, LCD display with polycarbonate cover, and 1 ½-in. tri-clamp connection

Product certifications

Rev 1.0

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.

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).

Additional Certifications

3-A

All Rosemount™ 2051HT transmitters with the following connections are 3-A approved and labeled:

T32:	1½-in. Tri-Clamp
T42:	2-in. Tri-Clamp

- If process connection B11 is selected, please reference the ordering table of the Rosemount 1199 Diaphragm Seal Product Data Sheet for availability of 3-A certifications.

- A 3-A certificate of compliance is available by selecting option code **QA**.

EHEDG

All Rosemount 2051HT transmitters with the following connections are EHEDG approved and labeled:

T32:	1½-in. Tri-Clamp
T42:	2-in. Tri-Clamp

- If process connection B11 is selected, please reference the ordering table of the Rosemount 1199 Diaphragm Seal Product Data Sheet for availability of EHEDG certifications.

- An EHEDG certificate of compliance is available by selecting option code **QE**.

- Ensure gasket selected for installation is approved to meet both application and EHEDG certification requirements.
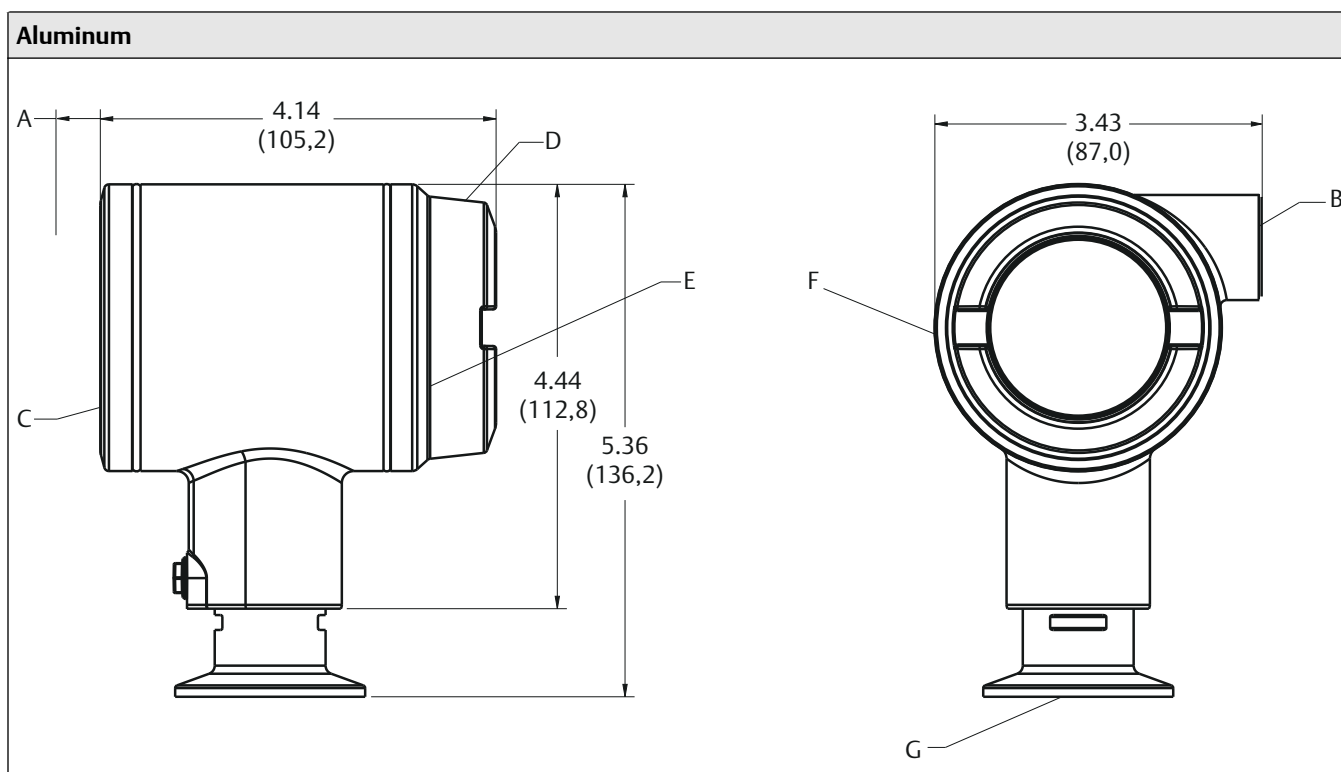
Dimensional drawings

Figure 1: Rosemount™ 2051HT

(2)

Aluminum

Polished 316 SST
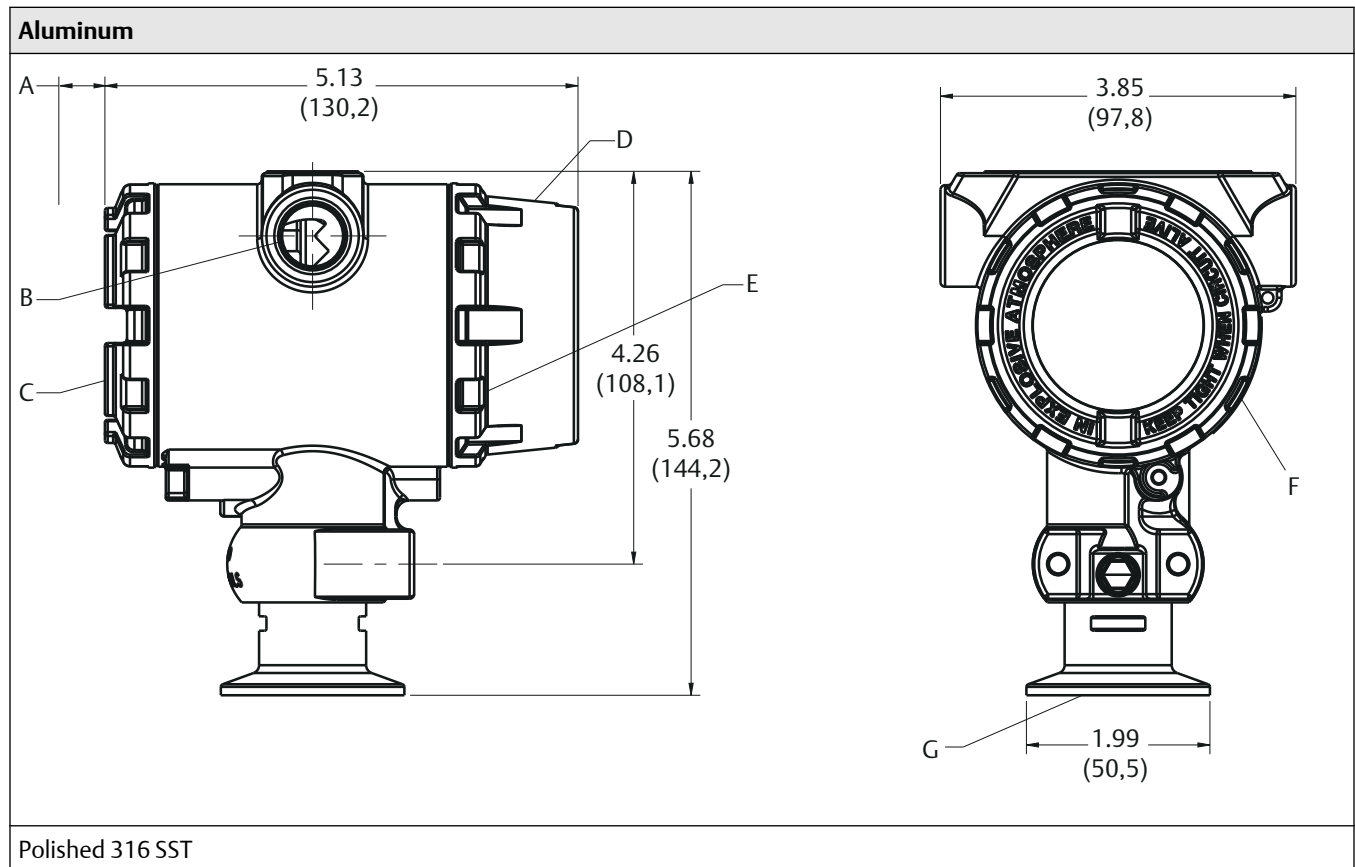
(2) For assemblies attached to a Rosemount 1199 Diaphragm Seal (option code B11), see *Rosemount 1199 Diaphragm Seal System Type 1 Drawings*.

Aluminum

   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:

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

(1)   Not applicable to FOUNDATION Fieldbus and PROFIBUS® PA. Protocols

Custom configuration

Note
Only available with HART® 4–20 mA output (code A).

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™ 2051HT with HART® Protocol, refer to the Rosemount 2051 Configuration Data Sheet.

Tagging (two 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

    — PROFIBUS PA: 32 Characters

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[1]	cmH_2O at 4 °C[1]
atm	inH_2O	mH_2O at 4 °C[1]
Pa	inH_2O at 4 °C	inHg
kPa	inH_2O at 60 °F	mmHg
MPa	ftH_2O	cmHg at 0 °C[1]
hPa at 0 °C[1]	ftH_2O at 4 °C[1]	mHg at 0 °C[1]
mbar	ftH_2O at 60 °F[1]	g/cm^2
bar	mmH_2O[2]	kg/m^2[1]
psi	mmH_2O at 4 °C	kg/cm^2
ftH_2O at 68 F[3]	mmH_20 at 68 F	inHg at 0 C

(1) Field configurable only, not available for factory calibration or custom configuration (option code C1 "Software configuration").
(2) This unit is not available with PROFIBUS PA Protocol.
(3) Units only available with PROFIBUS PA Output.

Display and Interface options

M4 Digital display with LOI

Available for 4–20 mA HART and PROFIBUS PA Protocols

M5 Digital display

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

Configuration Buttons

Rosemount 2051 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 4–20 mA Hart output; PROFIBUS; code A)

External or rear/terminal side

Table 8: Button Configuration

Option codes[1]	Internal	External or rear/ terminal side
DZ[2]	N/A	Digital zero trim
D4[1]		Analog zero and trim
M4	LOI	LOI[3]
M4 + DZ[3]		Digital zero trim
M4 + D4[3]		Analog zero and trim

(1)   Available with 4–20 mA HART and PROFIBUS PA Protocols. Housing material option 1 comes with rear/terminal-side buttons; housing material option 2 comes with external buttons.
(2)   Not available for PROFIBUS.
(3)   Not provided with housing material option 1.

Global Headquarters

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