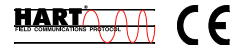


# Rosemount 2088 Absolute and Gage Pressure Transmitter

- *Absolute and gage pressure ranges from 0–1.5 psi to 0–4,000 psi (0–0.1 to 0–276 bar)*
- *Performance of 0.075% with high accuracy option*
- *Rangeability of 20:1*
- *Lightweight, compact design for cost effective installation*
- *Optional HART low power*



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## Rosemount 2088 Gage and Absolute Transmitter

The 2088 Smart Pressure Transmitter is an economical addition to the pressure transmitter line of instruments. The 2088 is designed with reliability, long-term performance, and maintainability in mind. The 2088 maintain a specification conformance of at least  $3\sigma^{(1)}$ . The rugged, reliable performance for which Rosemount transmitters are famous, coupled with Smart capabilities, make these transmitters exceptional values.

The 2088 is available in either gauge or absolute pressure in pressure ranges to 4,000 psi (275 bar). It utilizes a solid-state, polysilicon pressure sensor with a choice of either 316L or Hastelloy C-276 isolating diaphragms. The low oil fill of this design has very little temperature effect and outstanding accuracy.

(1) *Sigma ( $\sigma$ ) is a statistical symbol to designate the standard deviation from the mean value of normal distribution.*

### Features

The 2088 provides accurate, stable, and reliable pressure measurement in difficult applications. Its small compact design allows it to be directly connected to a process - providing a quick, easy, and cost effective installation.

The 2088 standard process connection is 1/2 inch NPT but a variety of optional connections are available. Optional connections range from multiple threaded connections to our full line of manifolds and remote diaphragm seals that provide solutions for virtually any connection.

The 2088 also features an optional, fully configurable LCD that displays pressure and diagnostic information. The information displayed is directly from the microprocessor which accounts for its accuracy and reliability.

### Rosemount Pressure Solutions

#### Rosemount 3051S Series of Instrumentation

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

#### Rosemount 3095 Mass Flow Transmitter

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

#### Rosemount 305, 306 and 304 Manifolds

Factory-assembled, calibrated and seal-tested transmitter-to-manifold assemblies reduce installation costs.

#### Rosemount 1199 Diaphragm Seals

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

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

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

#### **Annubar® Flowmeter Series: Rosemount 3051SFA ProBar®, 3095MFA Mass ProBar®, and 485**

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

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

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

#### **ProPlate® Flowmeter Series: Rosemount 3051SFP ProPlate, 3095MFP Mass ProPlate, and 1195**

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

# Specifications

## Performance Specifications

(Zero-based spans, reference conditions, silicone oil fill, and 316L SST isolating diaphragm.)

### Reference Accuracy

- $\pm 0.10\%$  of calibrated span. Includes combined effects of linearity, hysteresis, and repeatability
- $\pm 0.075\%$  of calibrated span (high accuracy option)

### Ambient Temperature Effect

Expressed as a total effect per 50 °F (28 °C)  
*Total effect includes zero and span effects.*

$\pm (0.15\% \text{ URL} + 0.15\% \text{ of span})$  from  $-40$  °F to 185 °F  
( $-40$  °C to 85 °C)

### Stability

$\pm 0.10\%$  of URL for 12 months

### Vibration Effect

Less than  $\pm 0.1\%$  of URL when subjected to vibration of: peak to peak constant displacement of 4 mm (5–15 Hz) and constant acceleration of 2 g (15–150 Hz) and 1 g (150–2000 Hz).

### Power Supply Effect

Less than 0.01% of calibrated span per volt

### Mounting Position Effect

Zero shift of up to 1.2 inH<sub>2</sub>O (0.30 kPa), which can be calibrated out. No span effect.

### RFI Effect

Less than  $\pm 0.25\%$  of upper range limit from 20–1000 MHz at 30 V/m with leads in conduit. Less than  $\pm 0.25\%$  of upper range limit from 20-1000 MHz at 10 V/m with unshielded twisted pair (no conduit).

### Transient Protection Limits

#### IEEE 587 Category B

- 6 kV Crest ( $1.2 \times 50 \mu\text{s}$ )
- 3 kA Crest ( $8 \times 20 \mu\text{s}$ )
- 6 kV Crest ( $0.5 \mu\text{s}$  by 100 kHz)

#### IEEE 472

SWC 2.5 kV Crest, 1 MHz waveform

### General Specifications

Tested to IEC 801-3

## Functional Specifications

### Service

Liquid, gas, and vapor applications

## Ranges

Range	Minimum Span	URL/Max. span/ Sensor Limit
1	1.5 psi (103 mbar)	30 psi (2,1 bar)
2	7.5 psi (517 mbar)	150 psi (10,3 bar)
3	40 psi (2,8 bar)	800 psi (55,2 bar)
4	200 psi (13,8 bar)	4000 psi (275,8 bar)

## Output

Code S: 4–20 mA dc

Code N: 1-5 volt dc, low power

(Outputs are directly proportional to the input pressure)

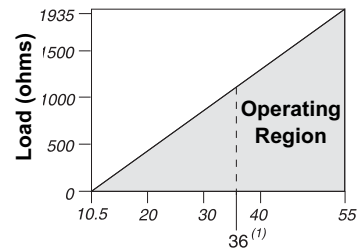
## Rangedown

20 to 1

## Load Limitations

Reverse polarity protection is standard. Maximum loop resistance is determined by the power supply voltage as described by the following equations:

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



### Power Supply Output Code S (dc Volts)

Communication requires a minimum loop resistance of 250 ohms.

(1) For hazardous location approvals, power supply must not exceed 36 V.

(2) For GENELEC Ex ia approval, the power supply must not exceed 30 V.

## Power Supply

External power supply required. Transmitter operates on 10.5–36 V dc with no load (6–12V for Low Power). Reverse polarity protection is standard.

## Current Draw

Output Code N:  $\leq 3$  mA without LCD display.

## Overpressure Limits

Range 1: 120 psig max

All other ranges: two times the URL

## Burst Pressure

11,000 psi for all ranges

## Zero Elevation and Suppression

Zero can be suppressed between atmosphere for gage transmitters or 0 psia for absolute transmitters and upper range limit, provided the calibrated span is equal to or greater than the minimum span, and the upper range value does not exceed the upper range limit.

## Time Response

Time Constant: 200 milliseconds  
Dead time: < 0.1 s  
Update rate: 20 times per second minimum

## Temperature Limits

Process

Silicone fill sensor: -40 to 250 °F (-40 to 121 °C)  
Inert fill sensor: -22 to 250 °F (-30 to 121 °C)  
Process temperatures above 185 °F (85 °C) require derating the ambient limits by a 1.5:1 ratio:

Ambient:

-40 to 185 °F (-40 to 85 °C)  
-4 to 175 °F (-20 to 80 °C) with LCD display<sup>(1)</sup>

(1) LCD display may not be readable and LCD updates will be slower at temperatures below -4 °F (-20 °C).

Storage:

-50 to 230 °F (-46 to 110 °C)  
-40 to 185 °F (-40 to 85 °C) with LCD display

$$\text{Maximum Ambient Temperature in } ^\circ\text{F} : 185 - \frac{(\text{Process Temp} - 185)}{1.5}$$

$$\text{Maximum Ambient Temperature in } ^\circ\text{C} : 85 - \frac{(\text{Process Temp} - 85)}{1.5}$$

## Humidity Limits

0-100% relative humidity

## Volumetric Displacement

Less than 0.00042 cm<sup>3</sup>

## Turn-on Time

2.0 seconds, no warm-up required

## Transmitter Security

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

## Failure Mode

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 on the transmitter. The values to which the transmitter drives its output in failure mode depend on whether it is factory-configured to *standard* or *NAMUR-compliant* operation. The values for each are as follows:

### Standard Operation

Output Code	Linear Output	Fail High	Fail Low
S	$3.9 \leq I \leq 20.8$	$I \geq 21.75 \text{ mA}$	$I \leq 3.75 \text{ mA}$
N	$0.97 \leq V \leq 5.2$	$V \geq 5.4 \text{ V}$	$V \leq 0.95 \text{ V}$
N with Code C2	$0.78 \leq V \leq 3.44$	$V \geq 4.0 \text{ V}$	$V \leq 0.77 \text{ V}$

### NAMUR-Compliant Operation

Output Code	Linear Output	Fail High	Fail Low
Output Code S	$3.8 \leq I \leq 20.5$	$I \geq 22.5 \text{ mA}$	$I \leq 3.6 \text{ mA}$

## Physical Specifications

### Electrical Connection

$\frac{1}{2}$ -14 NPT, M20 × 1.5 (CM20), PG 13.5, or G  $\frac{1}{2}$  female (PF  $\frac{1}{2}$  female) conduit entry

### Process Connection

$\frac{1}{2}$ -14 NPT female, DIN 16288 G  $\frac{1}{2}$  male, RC  $\frac{1}{2}$  female (PT  $\frac{1}{2}$  female), M20 × 1.5 (CM20) male

### Process Wetted Parts

#### Isolating Diaphragm

316L stainless steel or Hastelloy C-276

#### Process Connector

316L stainless steel CF-3M (Cast version of 316L SST, material per ASTM\_A743) or Hastelloy C-276

### Non-wetted Parts

#### Electronics Housing

Low-copper aluminum, NEMA 4X, IP65, IP67, CSA enclosure Type 4X

#### Paint

Polyurethane

#### Cover O-rings

Buna-N

#### Fill Fluid

Silicone or inert fill

#### Weight

Output Code S and N: Approximately 2.44 lb (1.11 kg)

### Tagging

The transmitter is tagged, at no charge, in accordance with customer requirements. All tags are stainless steel. The standard tag is permanently attached to the transmitter. Tag character height is  $\frac{1}{8}$  in. (0.318 cm). A wired tag is available upon request.

### Accessory Block and Bleed Valve (S5 Option)

The Rosemount 306 Integral Manifold is pre-assembled to transmitter and leak checked.

## Product Certifications

### Approved Manufacturing Locations

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

### European Union Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found at [www.rosemount.com](http://www.rosemount.com). A hard copy may be obtained by contacting our local sales office.

#### ATEX Directive (94/9/EC)

Emerson Process Management complies with the ATEX Directive.

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

2088/2090 Pressure Transmitters  
 — Sound Engineering Practice

#### Electro Magnetic Compatibility (EMC) (2004/108/EC)

All 2088/2090 Smart Pressure Transmitter:  
 EN 61326-1:1997 with Amendments A1, A2, and A3

### Hazardous Locations Certifications

#### North American Certifications

##### Ordinary Location Certification for Factory Mutual

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

##### Factory Mutual (FM) Approvals

- E5** Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition-Proof for Class II, Division 1, Groups E, F, G, Class III, Division 1, indoor and outdoor (Type 4X) hazardous locations; factory sealed.
- I5** Intrinsically safe for use in Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, and G; and Class III, Division 1 when connected in accordance with Rosemount drawing 02088-1018. Non-incendive for Class I, Division 2, Groups A, B, C, and D.  
 For input parameters see control drawing 02088-1018.

#### Canadian Standards Association (CSA)

- C6** Explosion-Proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition-Proof for Class II, Division 1, Groups E, F, G, Class III, indoor and outdoor hazardous locations. CSA enclosure Type 4X; factory sealed. Suitable for Class I, Division 2, Groups A, B, C, and D.  
 Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D. Temp. Code T3C. Intrinsically safe when connected with approved barriers in accordance with Rosemount drawing 02088-1024.  
 For input parameters see control drawing 02088-1024.

### European Certifications



- I1** ATEX Intrinsically Safe  
 Certificate No.: BAS00ATEX1166X  II 1 G  
 EEx ia IIC T5 (T<sub>amb</sub> = -55 to 40 °C)  
 EEx ia IIC T4 (T<sub>amb</sub> = -55 to 70 °C)  
**CE** 1180

TABLE 1. Input Parameters

Loop/Power	Input Type
U <sub>i</sub> = 30 V dc	Smart
I <sub>i</sub> = 200 mA	Smart
P <sub>i</sub> = 0.9 W	Smart
C <sub>i</sub> = 0.012 μF	Smart


#### Special Conditions For Safe Use (x):

When the optional transient protection terminal block is installed, the apparatus is not capable of withstanding a 500V rms test to case. This must be taken into account on any installation in which it is used, for example by assuring that the supply to the apparatus is galvanically isolated.

- N1** ATEX Type n  
 Certification No.: BAS00ATEX3167X  II 3 G  
 EEx nL IIC T5 (T<sub>a</sub> = -40 °C to 70 °C)  
 U<sub>i</sub> = 50 V dc max  
**CE**


#### Special Conditions For Safe Use (x):

When the optional transient protection terminal block is installed, the apparatus is not capable of withstanding a 500 V r.m.s. test to case. This must be taken into account on any installation in which it is used, for example, by assuring that the supply to the apparatus is galvanically isolated.

**ND** ATEX Combustible Dust  
Certificate No.: BAS01ATEX1427X  II 1 D  
T105°C (T<sub>amb</sub> = -20°C to 85°C)  
IP66  
CE 1180  
V<sub>max</sub> = 36 V dc Max  
I<sub>i</sub> = 24 mA

**Special Conditions For Safe Use (x):**

- The user must ensure that the maximum rated voltage and current (36 volts, 24 mA, D.C.) are not exceeded. All connections to other apparatus or associated apparatus shall have control over this voltage and current equivalent to a category "ib" circuit according to EN50020.
- 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 range of the apparatus and capable of withstanding a 7J impact test.
- The 2088/2090 sensor module must be securely screwed in place to maintain the ingress protection of the enclosure.

**ED** ATEX Flameproof  
Certificate No.: KEMA97ATEX2378  II 1/2 G  
EEx d IIC T6 (T<sub>a</sub> = -40 °C to 40°C)  
T4 (T<sub>a</sub> = -40 °C to 80 °C)  
CE 1180  
V<sub>max</sub> = 36 (with Smart output option)  
V<sub>max</sub> = 14 (with low power output option)

**Japanese Certifications**

**E4** TIIS Flameproof  
Ex d IIC T6 (T<sub>amb</sub> = 85 °C)

Certificate	Description
TC15879	2088 Smart with SST wetted parts (with display)
TC15877	2088 Smart with Hast wetted parts (with display)
TC15876	2088 Smart with Hast wetted parts (no display)
TC15875	2088 Smart with SST wetted parts (no display)
TC15874	2088 Smart with Hast wetted parts (with display)
TC15873	2088 Smart with Hast wetted parts (no display)
TC15872	2088 Smart with SST wetted parts (with display)
TC15871	2088 Smart with SST wetted parts (no display)

**Australian Certifications**

**I7** SAA Intrinsic Safety  
Certification No.: AUS Ex 1249X  
Ex ia IIC T4 (T<sub>amb</sub> = 70 °C)  
Ex ia IIC T5 (T<sub>amb</sub> = 40 °C)  
IP66  
When connected per Rosemount drawing 03031-1026

TABLE 2. Input Parameters

Loop/Power	Input Type
U <sub>max</sub> = 30 V	Smart
I <sub>max</sub> = 200 mA	Smart
I <sub>max</sub> = 160 mA (Output Code A with T1)	Smart
P <sub>max</sub> = 0.9 W	Smart
P <sub>max</sub> = 1.3 W (Fieldbus/Profibus)	Smart
C <sub>i</sub> = 0.01 µF	Smart
C <sub>i</sub> = 0.042 µF (Output Code M)	Smart
L <sub>i</sub> = 10 µH	Smart
L <sub>i</sub> = 1.05 µH (Output Code A with T1)	Smart
L <sub>i</sub> = 0.75 µH (Output Code M)	Smart

**Special Conditions For Safe Use (X):**

Observe barrier/entity parameters during installation. A passive current limited power source must be used. The power source must be such that  $P_o \leq (U_o * I_o)/4$ . For modules using transient protection in the terminal assembly (T1 transient protection models), the apparatus enclosure is to be electrically bonded to the protective earth. The conductor used for the connection shall be equivalent to a copper conductor of 4mm<sup>2</sup> minimum cross-sectional area.

**N7** SAA Type n (Non-Sparking)  
Certificate No.: AUS Ex 1249X  
Ex n IIC T4 (T<sub>amb</sub> = 70 °C)  
Ex n IIC T5 (T<sub>amb</sub> = 40 °C)  
IP66

**Special Conditions For Safe Use (X):**

Where the equipment is installed such that there is an unused conduit entry, it must be sealed with a suitable blanking plug to maintain the IP66 degree of protection. Any blanking plug used with the equipment shall be of a type which requires the use of a tool to effect its removal. Voltage source shall not exceed 60V ac or 75V dc.

**E7** IECEx Flameproof (Explosion-Proof)  
IECEx Certificate number: IECEx KEM 06.0021X  
Ex d IIC T6(T<sub>amb</sub> = -20°C to 40°C)  
Ex d IIC T4(T<sub>amb</sub> = -20°C to 80°C)  
V<sub>max</sub> = 55Vdc  
I<sub>i</sub> = 23mA

**NK** IECEx Dust Ignition Proof  
IECEx Certificate number: IECEx KEM 06.0021X  
Ex tD A22 IP66 T90°C(T<sub>amb</sub> = -20°C to 80°C)  
V<sub>max</sub> = 55Vdc  
I<sub>i</sub> = 23mA

## Product Data Sheet

00813-0100-4690, Rev JA

Catalog 2008-2009

# Rosemount 2088

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### Special Conditions For Safe Use (x):

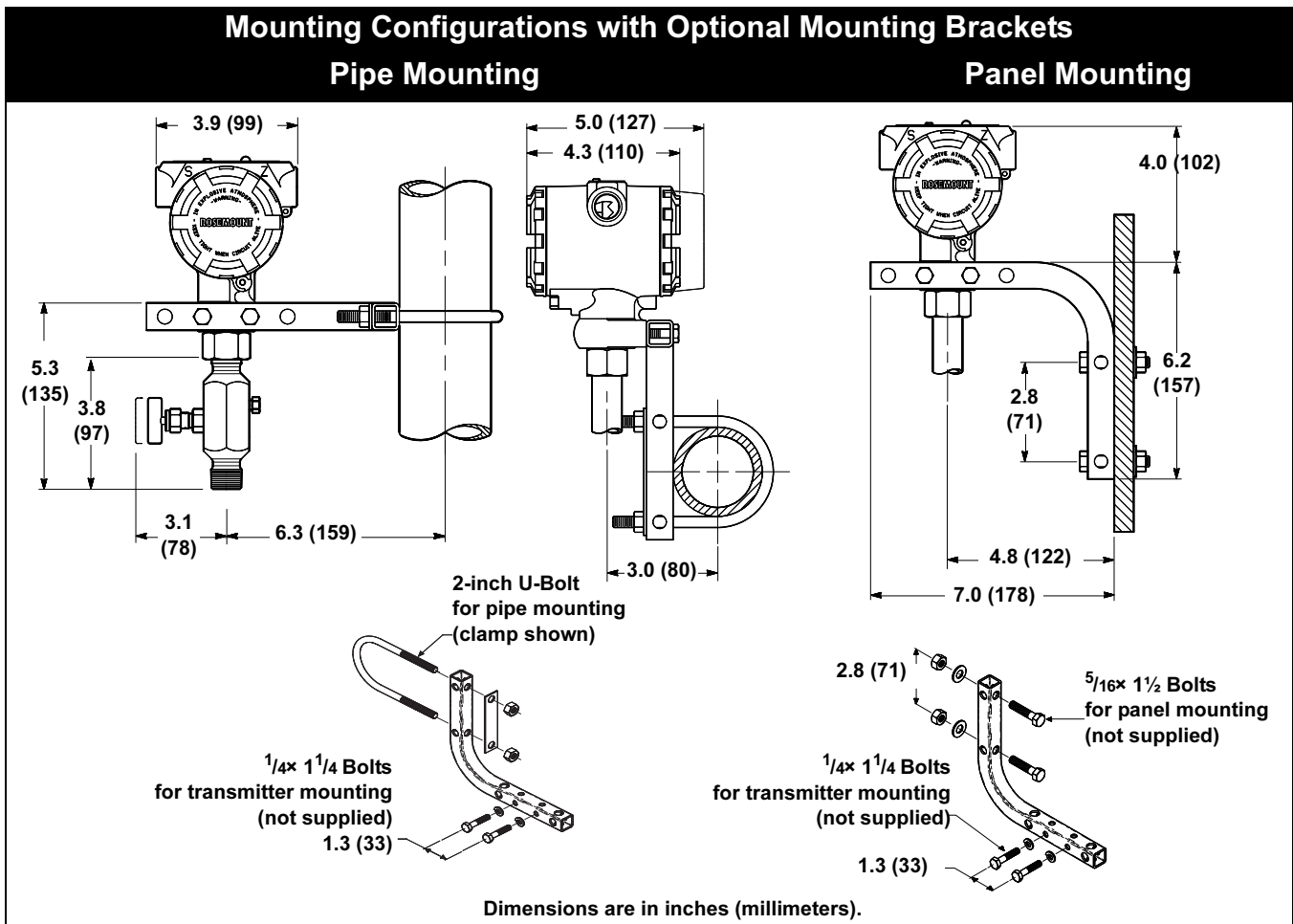
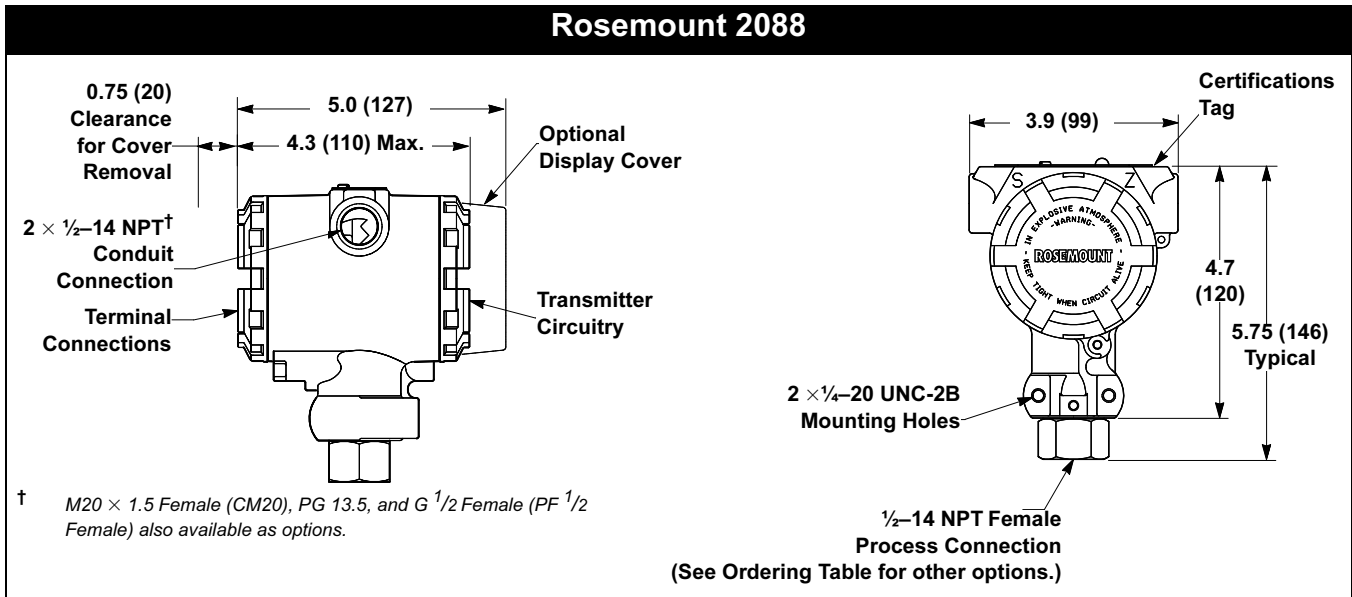
1. The device contains a thin wall diaphragm. Installation, maintenance, and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP 66.
3. Unused cable entries must be used which maintain the ingress protection of the enclosure to at least IP 66.
4. Cable entries and blanking plugs must be suitable for the ambient range of the apparatus and capable of withstanding a 7J impact.
5. The 2088/2090 sensor module must be securely screwed in place to maintain the ingress protection of the enclosure

### Combinations of Certifications

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

- KB** Combination of K5 and C6
- KH** Combination of K5, I1, and ED
- K5** Combination of E5 and I5
- K6** Combination of C6, I1, and ED
- K7** Combination of I7, N7, E7, and NK
- K1** Combination of I1, N1, ED, and ND

## Dimensional Drawings





## Ordering Information

Model	Product description		
2088	Pressure Transmitter		
Code	Transmitter type		
A	Absolute		
G	Gage		
Code	Range	Minimum span	URL/Max.span
1	0–30 psi (0–2,1 bar)	1.5 psi (103,0 mbar)	30 psi (2,1 bar)
2	0–150 psi (0–10,3 bar)	7.5 psi (517,0 mbar)	150 psi (10,3 bar)
3	0–800 psi (0–55,2 bar)	40 psi (2,8 bar)	800 psi (55,2 bar)
4	0–4,000 psi (0–275,8 bar)	200 psi (13,8 bar)	4000 psi (275,8 bar)
Code	Output		
S	4–20 mA dc/Digital HART® Protocol		
N	1-5 V dc Low Power/ Digital HART protocol		
Materials of Construction			
Code	Process connection	Isolating diaphragm	Oil fill
22 <sup>(1)</sup>	316L SST	316L SST	Silicone
33 <sup>(1)</sup>	Hastelloy C-276	Hastelloy C-276	Silicone
2B <sup>(1)(2)</sup>	316L SST	316L SST	Inert
Code	Process connection		
A	½–14 NPT Female		
B <sup>(2)</sup>	DIN 16288 G ½ Male		
C <sup>(3)</sup>	RC ½ Female (PT ½ Female)		
D <sup>(3)</sup>	M20 × 1.5 Male (CM20 Male)		
Code	Conduit thread		
1	½–14 NPT		
2 <sup>(2)</sup>	M20 × 1.5 Female (CM20)		
3 <sup>(4)</sup>	PG 13.5		
4 <sup>(4)</sup>	G ½ Female (PF ½ Female)		
Code	Options		
<b>Integral manifold</b>			
S5 <sup>(5)(6)</sup>	Assemble to Rosemount 306 integral manifold		
<b>Diaphragm seal assemblies</b>			
S1 <sup>(6)</sup>	Assemble to one Rosemount 1199 diaphragm seal		
<b>Mounting brackets</b>			
B4	SST mounting bracket with SST Bolts		
<b>Special configuration (software)</b>			
C4 <sup>(4)</sup>	NAMUR alarm and saturation levels, high alarm		
CN <sup>(4)</sup>	NAMUR alarm and saturation levels, low alarm		
C9 <sup>(7)</sup>	Software configuration (Requires completed Configuration Data Sheet)		
<b>Special configuration (hardware)</b>			
C2	0.8 - 3.2 V dc output with HART protocol, Output code N only.		

# Rosemount 2088

## Product Certifications

I1	ATEX Intrinsic Safety
N1 <sup>(4)</sup>	ATEX Type n
ND <sup>(4)</sup>	ATEX Dust
ED	ATEX Flameproof
C6	CSA Explosion-Proof, Intrinsically Safe, and non-Incendive
K6 <sup>(4)</sup>	CSA Explosion-Proof, Dust Ignition-proof, Intrinsically Safe, Division 2
E4 <sup>(4)</sup> (8)	TIIS Flameproof
E5	FM Explosion-Proof, Dust Ignition-proof
E7	IECEx Flameproof
I5	FM Intrinsically safe, Division 2
K5	FM Explosion-Proof, Dust Ignition-proof, Intrinsically Safe, Division 2
KB	FM and CSA Explosion-Proof, Dust Ignition-proof, Intrinsically Safe, Division 2
KH <sup>(4)</sup>	FM Approvals and ATEX Explosion-Proof and Intrinsically Safe
I7	SAA Intrinsic Safety
N7	SAA Type n
NK	IECEx Dust
K7	SAA Flameproof, Dust Ignition-proof, Intrinsic Safety, Type n
K1	ATEX Flameproof, Intrinsic Safety, Type n, Dust

## Water Approval

DW <sup>(9)</sup>	NSF drinking water approval
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## Display

M5	LCD display, scaled 0–100%
M7	LCD display, special configuration

## Special procedures

P1	Hydrostatic testing
P2	Cleaning for special service
P8 <sup>(10)</sup>	0.075% accuracy to 10:1 turndown

## Special certifications

Q4	Calibration certificate
Q8	Material Traceability Certification per EN 10204 3.1B
Q16	Surface finish certification for sanitary remote seals

## Toolkit Total System Performance Reports

QZ	Remote Seal System Performance Calculation Report
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## Terminal blocks

T1	Transient protection (Available with Option codes E5, ED, I1, I5, N1, C6, and K5)
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**Typical Model Number: 2088 G 2 S 22 A 1 B4 M5**

- (1) *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.*
- (2) *Not available with Range 4 or process connection code D.*
- (3) *Not available with Hastelloy C-276, Materials of Construction code 33 and low power output code N.*
- (4) *Not available with low-power Output code N.*
- (5) *Use 1/2 - 14 NPT Female Process Connection code A.*
- (6) *"Assemble-to" items are specified separately and require a completed model number.*
- (7) *A Configuration Data Sheet, see document number 00806-0100-4690, must be completed.*
- (8) *Available with Conduit Thread code 4 and with or without Digital Display codes M5 and M7.*
- (9) *Requires Materials of Construction code 22 with Process Connection code A.*
- (10) *Available with Output code S, stainless steel isolators, and silicone fill.*



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HART is a registered trademark of the HART Communications Foundation.  
PlantWeb is a registered trademark of one of the Emerson Process Management group of companies.  
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