

Rosemount™ 2090P Pulp and Paper Pressure Transmitter



- 1-in. flush mount compatible with a PMC process connection, or 1½-in. threaded mounting connection
- Absolute or gage pressure ranges up to 300 psi
- 20:1 turndown
- 4–20 mA Selectable HART® Protocol
- Performance of 0.10% with high accuracy option

Accurate, stable, and reliable pressure measurements for the pulp and paper industry

1-in. flush mount compatible with PMC process connection, or 1 ½-in. threaded mounting connection

The Rosemount 2090P has process connections that position the isolation diaphragm flush with vessel or pipe walls, eliminating clogging problems associated with highly viscous processes that tend to crystallize, polymerize, or precipitate, such as those in the pulp and paper industry.

Absolute or gauge pressure ranges up to 300 psi and 20:1 turndown

Higher turndown allows for lower inventories by allowing you to measure pressures from 1.5 psi to 300 psi with only three transmitter ranges.

Communicates via the 4–20 mA Selectable HART Protocol

The Rosemount 2090P utilizes the advantages of HART® Communication, enabling quick and easy reranging, calibration and troubleshooting.

0.10 percent reference accuracy performance with P8 high accuracy option

The single-filled sensor system of the Rosemount 2090P leads to outstanding accuracy due to full sensor compensation.

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Ordering information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [Material selection](#) for more information on material selection.

Table 1: Rosemount 2090P Pulp and Paper Pressure Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is manufactured after receipt of order and is subject to additional delivery lead time.

Model	Product Description		
2090P	Pulp and Paper Pressure Transmitter		
Transmitter Type			
A	Absolute		★
G	Gage		★
Pressure Ranges (Range/Minimum Span)			
	Rosemount 2090PG	Rosemount 2090PA	
1	-14.7 to 30 psi/1.5 psi (-1,01 to 2,1 bar/103 mbar)	0 to 30 psia/1.5 psi (0 to 2,1 bar/103 mbar)	★
2	-14.7 to 150 psi/7.5 psi (-1,01 to 10,3 bar/517 mbar)	0 to 150 psia/7.5 psi (0 to 10,3 bar/517 mbar)	★
3	-14.7 to 300 psi/40 psi (-1.01 to 20,7 bar/2,8 bar)	0 to 300 psia/40 psi (0 to 20,7 bar/2,8 bar)	★
Output			
S	4–20 mA dc/digital HART Protocol		
Material of Construction			
	Process Connection	Isolating Diaphragm	Oil Fill
22	316L SST	316L SST	Silicone ★
Process Connection			
A	1 ½-in. threaded, no weld spud, 1 ½-in. PTFE gasket		
C	1 ½-in. threaded, 316L SST weld spud with stress isolation and PTFE gasket		
D	1-in. flush mount		
G	1-in. flush mount with weld-on nipple		
J	G1 threaded, no weld spud, PTFE gasket		
K	G1 threaded, 316L SST weld spud with stress isolation and PTFE gasket		
Conduit Entry			
1	½–14 NPT		
2	M20 3 1.5 female		

Table 2: Options (Include with selected model number)

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is manufactured after receipt of order and is subject to additional delivery lead time.

Extended Product Warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Table 2: Options (Include with selected model number) (continued)

Digital Display		
M5	LCD display	★
Mounting Brackets		
B4	SST mounting bracket with SST bolts	★
Product Certifications		
E5	USA Explosionproof (XP) and Dust-Ignitionproof (DIP)	★
ED	ATEX Flameproof	★
EM	Technical Regulations Customs Union (EAC) Flameproof	★
I5	USA Intrinsic Safety (IS) and Nonincendive (NI)	★
K5	USA Explosionproof (XP), Dust-Ignitionproof (DIP), Intrinsic Safety (IS), and Nonincendive (NI)	★
I1	ATEX Intrinsic Safety	★
N1	ATEX Type n	★
C6	Canada Explosionproof, Intrinsic Safety, Division 2, and Dust-Ignitionproof	★
KB	USA Explosionproof, Dust-Ignitionproof, Intrinsic Safety, Nonincendive and Canada Explosionproof, Intrinsic Safety, Division 2, and Dust-Ignitionproof	★
KM	Technical Regulation Customs Union (EAC) Flameproof and Intrinsic Safety	★
KH	ATEX Flameproof, Intrinsic Safety, USA Explosionproof, Dust-Ignitionproof, Intrinsic Safety, and Nonincendive	★
ND	ATEX Dust	★
NK	IECEx Dust	★
K7	IECEx Flameproof, Dust, Intrinsic Safety, Type n	★
K1	ATEX Flameproof, Dust, Intrinsic Safety, Type n	★
K6	Canada Explosion-Proof, Intrinsic Safety, Division 2, Dust-ignitionproof and ATEX Flameproof, Intrinsic Safety	★
I3	China Intrinsic Safety	★
IM	Technical Regulation Customs Union (EAC) Intrinsic Safety	★
E3	China Flameproof	★
Terminal Blocks		
T1	Transient protection	★
Special Certificate		
Q4	Calibration certificate	★
Quality calibration certificate traceability certification		
Q8	Material traceability certification per EN 10204 3.1	★
Alarm Limit		
C4	NAMUR alarm and saturation levels, high alarm	★
CN	NAMUR alarm and saturation levels, low alarm	★
Wetted O-ring Material		
W2	Buna-N	★

Table 2: Options (Include with selected model number) (continued)

W3	Ethylene-Propylene	★
Special Procedures		
P2	Cleaning for special service	
Calibration Accuracy		
P8	0.1% accuracy to 10:1 turndown	★
Typical Model Number: 2090P G 2 S 22 A 1		

Standard configuration

Unless otherwise specified, transmitter is shipped as follows:

- Engineering units: psi
- 4 mA: 0 psi
- 20 mA: Upper range limit
- Alarm output: High
- LCD display: 0–100%

Custom configuration

Calibration

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

Tagging

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

Accessories

Item description	Part number
Calibration adapter ⁽¹⁾ Use to connect a calibration device to a transmitter. See Figure 4 .	02088-0197-0001
316 SST plug/heat sink Use during installation to prevent welding damage. See Figure 4 .	02088-0196-0007
1-in. flush mount calibration adapter ⁽²⁾ Use to connect a calibration device to the 1-in. flush mount. See Figure 4 .	02088-0198-0002
1-in. flush mount weld spud See Figure 4 .	02088-0285-0001
1 1/2-in. threaded weld spud kit Includes PTFE O-ring.	02088-0295-0003
Calibration adapter for G1 flush mount process connection	02088-0197-0002

Item description	Part number
G1 flush mount weld spud	02088-0295-0013
G1 flush mount teflon gasket	02088-0078-0003
316SST plug/heat sink for G1 flush mount	02088-0196-0002

- (1) *Process connection codes A and C only.*
(2) *Process connection codes D and G only.*

Specifications

Functional specifications

Service

Liquid, gas, vapor, and high-viscosity applications

Ranges

Range	Minimum span	Upper (URL)	Lower (LRL)	Lower ⁽¹⁾ (LRL)(gage)
1	1.5 psi (103 mbar)	30 psi (2,1 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
2	7.5 psi (517 mbar)	150 psi (10,3 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)
3	40 psi (2,76 bar)	300 psi (20,7 bar)	0 psia (0 bar)	-14.7 psig (-1,01 bar)

(1) Assumes atmospheric pressure of 14.7 psig.

Output

4–20 mA Selectable HART Protocol

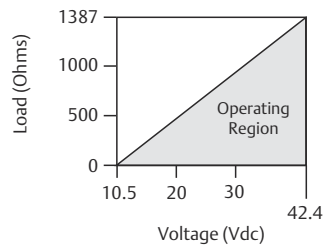
Rangedown

20:1

Load Limitations

Maximum loop resistance is determined by the power supply voltage as described by the following equation:

$$\text{Maximum loop resistance} = 43.5 (\text{Power supply voltage} - 10.5)$$



The Field Communicator requires a minimum loop resistance of 250 Ω for communication.

Note

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

Power Supply

External power supply required. Transmitter operates on 10.5–42.4 V dc with no load. Reverse polarity protection is standard.

Overpressure Limits

Range	Overpressure limit ⁽¹⁾
1	120 psi (8,3 bar)
2	300 psi (20,7 bar)
3	600 psi (41,4 bar)

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

Temperature Limits

Process

Process connection codes A and C: –40 to 250 °F (–40 to 121 °C)

Process connection codes D and G: –4 to 250 °F (–20 °C to 121 °C)

Ambient

–4 to 185 °F (–20 to 85 °C)

Storage

–50 to 185 °F (–46 to 85 °C)

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

Max. ambient temperature in °F = $\frac{185 - (\text{Process Temp} - 185)}{1.5}$

Max. ambient temperature in °C = $\frac{85 - (\text{Process Temp} - 85)}{1.5}$

Humidity Limits

0–100% relative humidity

Volumetric Displacement

Less than 0.0005 in³ (0,008 cm³)

Turn-on Time

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

Failure 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 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

Linear output: $3.9 \leq I \leq 20.8$

Fail high: $I \geq 21.75 \text{ mA}$

Low: $I \leq 3.75 \text{ mA}$

NAMUR-compliant operation

Linear output:	$3.8 \leq I \leq 20.5$
Fail high:	$I \geq 22.5 \text{ mA}$
Low:	$I \leq 3.6 \text{ mA}$

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 jumper.

Performance specifications

Zero-based spans, reference conditions, and 316 SST isolating diaphragm.

Reference Accuracy

±0.20% of calibrated span. Includes combined effects of linearity, hysteresis, and repeatability.

High accuracy (P8) option: ±0.10% of calibrated span to 10:1 turndown

Ambient Temperature Effect per 50 °F (28 °C)

±(0.15% URL + 0.15% span) from 1:1 to 20:1

Stability

±0.10% of URL for 1 year, reference stability

Time Response

145 ms (at 75 °F [24 °C] reference conditions)

Vibration Effect

Less than ±0.1% of upper range limit 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 ±0.005% of calibrated span per volt

Electromagnetic compatibility

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.

Mounting Position Effect

Zero shift of up to 5.0 inH₂O (12.4 mbar), which can be calibrated out. No span effect.

Physical specifications

Material selection

Emerson™ provides a variety of Rosemount product 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 Process Management 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.

Electrical Connection

1/2–14 NPT or M20 3 1.5 conduit entry

Process Wetted Parts

Isolating Diaphragm

316L stainless steel

Process Connector

316L stainless steel

Process Connection Size

1½ –11.5 NPT or 1-in. flush mount

Process Connector Gasket (1 ½/-in.)

TFE

Process Connection O-rings (1-in.)

Standard: Viton®

Optional: Buna-N or Ethylene propylene

Non-wetted Parts

Electronics Housing

Low-copper aluminum

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

Paint

Polyurethane

Cover O-rings

Buna-N

Fill Fluid

Silicone oil

Weight

Approximately 2.96 lb (1,34 kg)

Product Certifications

Rev 2.3

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.

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).

North America

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

Certificate: 1015441

Standards: FM Class 3600 – 2011, FM Class 3615 – 2006, FM Class 3810 – 2005

Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III, DIV 1; T5(-50 °C ≤ T_a ≤ +85 °C); Conduit Seal Not Required; 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 T4(-50 °C ≤ T_a ≤ +70 °C); when connected per Rosemount drawing 02088-1024; NI CL 1, DIV 2, GP A, B, C, D; Type 4x

C6 Canada Explosionproof, Intrinsically Safe, and 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: Explosionproof for Class I, Division 1, Groups B, C and D; Class II, Groups E, F, and G; Class III; Intrinsically Safe Class I, Division 1 when connected in accordance with Rosemount drawing 02088-1024, Temperature Code T3C; Ex ia; Class I Division 2 Groups A, B, C and D; Type 4X; Factory Sealed

Europe

ED ATEX Flameproof

Certificate: KEMA97ATEX2378X

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

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

Special Conditions for Safe Use (X):

1. This 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. 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.

Table 3: Process Connection Temperature

Temperature Class	Process Connection Temperature	Ambient Temperature
T6	-60 °C to +70 °C	-60 °C to +70 °C
T5	-60 °C to +80 °C	-60 °C to +80 °C
T4	-60 °C to +120 °C	-60 °C to +80 °C

I1 ATEX Intrinsic Safety

Certificate: BAS00ATEX1166X

Standards: EN60079-0:2012, EN60079-11:2012

Markings: Ⓢ II 1 G Ex ia IIC T5/T4 Ga, T5(-55 °C ≤ T_a ≤ +40 °C), T4(-55 °C ≤ T_a ≤ +70 °C)

Table 4: 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 (-40 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

When fitted with a transient suppression terminal block, the equipment is not capable of withstanding the 500V insulation test that is 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 IIIC T 50 °C T ₅₀₀ 60 °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 7 J impact test.

International**K7 Combination****IECEx Flameproof**

Certificate:	IECEx KEM 06.0021X
Standards:	IEC60079-0:2011, IEC60079-1:2014, IEC60079-26:2014
Markings:	Ex db IIC T6...T4 Ga/Gb, T6(-60 °C ≤ T _a ≤ +70 °C), T4/T5(-60 °C ≤ T _a ≤ +80 °C)

Table 5: Process Connection Temperature

Temperature Class	Process Connection Temperature	Ambient Temperature
T6	-60 °C to +70 °C	-60 °C to +70 °C
T5	-60 °C to +80 °C	-60 °C to +80 °C
T4	-60 °C to +120 °C	-60 °C to +80 °C

Special Conditions for Safe Use (X):

1. The device contains a thin wall diaphragm less than 1 mm thickness that forms a boundary between EPL Ga (process connection) and EPL Gb (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 shall 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.

IECEx Dust

See Approval Option NK

IECEx Intrinsic Safety

Certificate:	IECEx BAS 12.0071X
Standards:	IEC60079-0:2011, IEC60079-11:2011

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

Table 6: 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. When fitted with a transient suppression terminal block, the Model 2088 is incapable of passing the 500V isolation test. This must be taken into account during installation.
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.

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 device 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 T 50 °C T₅₀₀ 60 °C Da

Table 7: Input Parameters

Parameter	HART
Voltage U _i	36 Vdc

Special Conditions for Safe Use (X):

1. Cable entries must be used which mention 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 7 J impact test.

China

E3 China Flameproof

Certificate:	GYJ20.1549X
Standards:	GB3836.1-2010, GB3836.2-2010, GB3836.20-2010
Markings:	Ex d IIC T6 ~ T4 Ga/Gb,

产品安全使用特殊条件

证书编号后缀“X”表明产品具有安全使用特殊条件：涉及隔爆接合面的维修须联系产品制造商。

产品使用注意事项

1. 产品使用环境温度为：

温度组别	环境温度
T6	$-60\text{ }^{\circ}\text{C} \leq T_{a} \leq +70\text{ }^{\circ}\text{C}$
T5	$-60\text{ }^{\circ}\text{C} \leq T_{a} \leq +80\text{ }^{\circ}\text{C}$
T4	$-60\text{ }^{\circ}\text{C} \leq T_{a} \leq +80\text{ }^{\circ}\text{C}$

2. 产品外壳设有接地端子，用户在使用时应可靠接地。
3. 安装现场应不存在对产品外壳有腐蚀作用的有害气体。
4. 现场安装时，电缆引入口须选用经国家指定的防爆检验机构检验认可、具有 Ex dIIC Gb 防爆等级的电缆引入装置或堵封件，冗余电缆引入口须用堵封件有效密封。
5. 用于爆炸性气体环境中，现场安装、使用和维护必须严格遵守“断电后开盖！”的警告语。
6. 用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。
7. 产品的安装、使用和维护应同时遵守产品使用说明书、GB3836.13-2013“爆炸性环境 第 13 部分：设备的修理、检修、修复和改造”、GB3836.15-2000“爆炸性气体环境用电气设备 第 15 部分：危险场所电气安装（煤矿除外）”、GB3836.16-2006“爆炸性气体环境用电气设备 第 16 部分：电气装置的检查和维护（煤矿除外）”和 GB50257-2014“电气装置安装工程爆炸和火灾危险环境电力装置施工及验收规范”的有关规定。

I3 China Intrinsic Safety

Certificate:	GYJ20.1551X
Standards:	GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
Markings:	Ex ia IIC T4 Ga

一、产品安全使用特殊条件

证书编号后缀“X”表明产品具有安全使用特殊条件：

1. 产品外壳含有轻金属，用于 0 区时需注意防止由于冲击或摩擦产生的点燃危险。
2. 当选择 T1 瞬态抑制端子时此设备不能承受 GB3836.4-2010 标准中第 6.3.12 条规定的 500V 交流有效值试验电压的介电强度试验。

二、产品使用注意事项

1. 产品使用环境温度为：

温度组别	环境温度
T4	$-55\text{ }^{\circ}\text{C} \leq T_{a} \leq +70\text{ }^{\circ}\text{C}$

■ 本安电气参数：

最高输入电压 U_i (V)	最大输入电流 I_i (mA)	最大输入功率 P_i (W)	最大内部等效参数	
			C_i (nF)	L_i (mH)
30	200	0.9	12	0

该产品必须与已通过防爆认证的关联设备配套共同组成本安防爆系统方可用于爆炸性气体环境。其系统接线必须同时遵守本产品和所配关联设备的使用说明书要求，接线端子不得接错。

用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。

产品的安装、使用和维护应同时遵守产品使用说明书、GB3836.13-2013“爆炸性环境 第 13 部分：设备的修理、检修、修复和改造”、GB3836.15-2000“爆炸性气体环境用电气设备 第 15 部分：危险场所电气安装（煤矿除外）”、GB3836.16-2006“爆炸性气体环境用电气设备 第 16 部分：电气装置的检查和维护（煤矿除外）”、GB3836.18-2010“爆炸性环境 第 18 部分：本质安全系统”和 GB50257-2014“电气装置安装工程爆炸和火灾危险环境电力装置施工及验收规范”的有关规定。

Technical Regulations Customs Union (EAC)

EM EAC Flameproof

Certificate: RU C-US.GB05.B.01197

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

Special Conditions for Safe Use (X):

See certificate for special conditions.

IM EAC Intrinsically Safe

Certificate: RU C-US.GB05.B.01197

Markings: 0Ex ia IIC T4 Ga X (-55 °C ≤ T_a ≤ +70 °C)

Special Conditions for Safe Use (X):

See certificate for special conditions.

Combinations

K1 Combination of ED, I1, ND, and N1

K5 Combination of E5 and I5

K6 Combination of C6, ED, and I1

KB Combination of K5 and C6

KM Combination of EM and IM

KH Combination of ED, I1, and K5

Conduit plugs and adapters

IECEx Flameproof and Increased Safety

Certificate: IECEx FMG 13.0032X

Standards: IEC60079-0:2011, IEC60079-1:2007-04, IEC60079-7:2006-07

Markings: Ex de IIC Gb

ATEX Flameproof and Increased Safety

Certificate: FM13ATEX0076X

Standards: EN60079-0:2012, EN60079-1:2007, EN60079-7:2007

Markings: Ⓜ II 2 G Ex de IIC Gb

Table 8: Conduit Plug Thread Sizes

Thread	Identification mark
M20 × 1.5	M20
½–14 NPT	½ NPT
G½A	G½

Table 9: Thread Adapter Thread Sizes

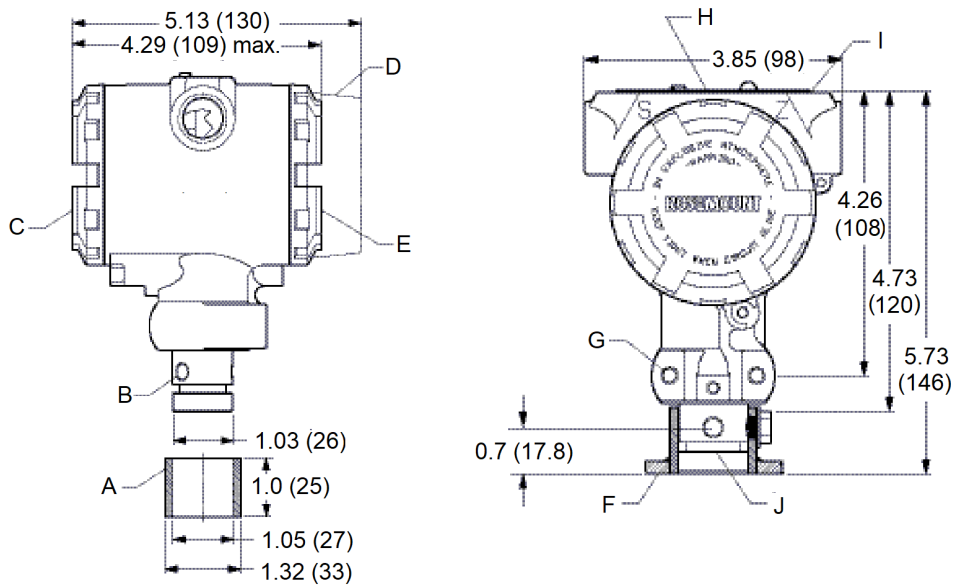
Male thread	Identification mark
M20 × 1.5 – 6H	M20
½–14 NPT	½–14 NPT
¾–14 NPT	¾–14 NPT
Female thread	Identification mark
M20 × 1.5 – 6H	M20
½–14 NPT	½–14 NPT
PG 13.5	PG 13.5

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 and PG 13.5 thread forms are only acceptable for existing (legacy) equipment installations.

Dimensional drawings

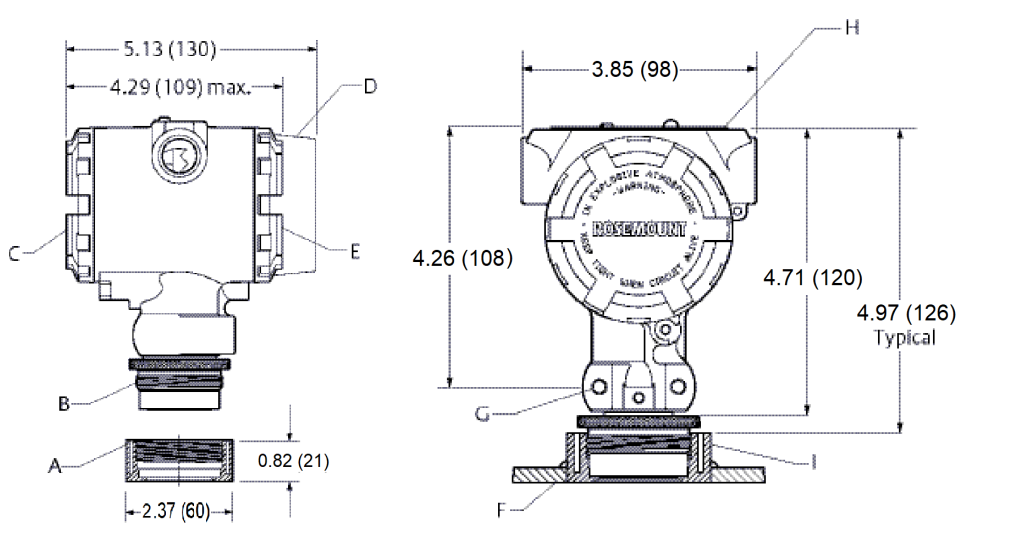
Figure 1: Rosemount 2090P 1-in. Flush Mount



- A. Weld spud
- B. 3 X 5/16-18 UNC mounting holes for rotational mounting
- C. Terminal connections side
- D. Optional display cover
- E. Transmitter circuitry side
- F. Vessel wall
- G. 2 X 1/4-20 UNC-2BX 0.60 deep mounting bracket holes
- H. External zero/span under nameplate
- I. Nameplate
- J. O-ring (Viton standard)

Dimensions are in inches (millimeter).

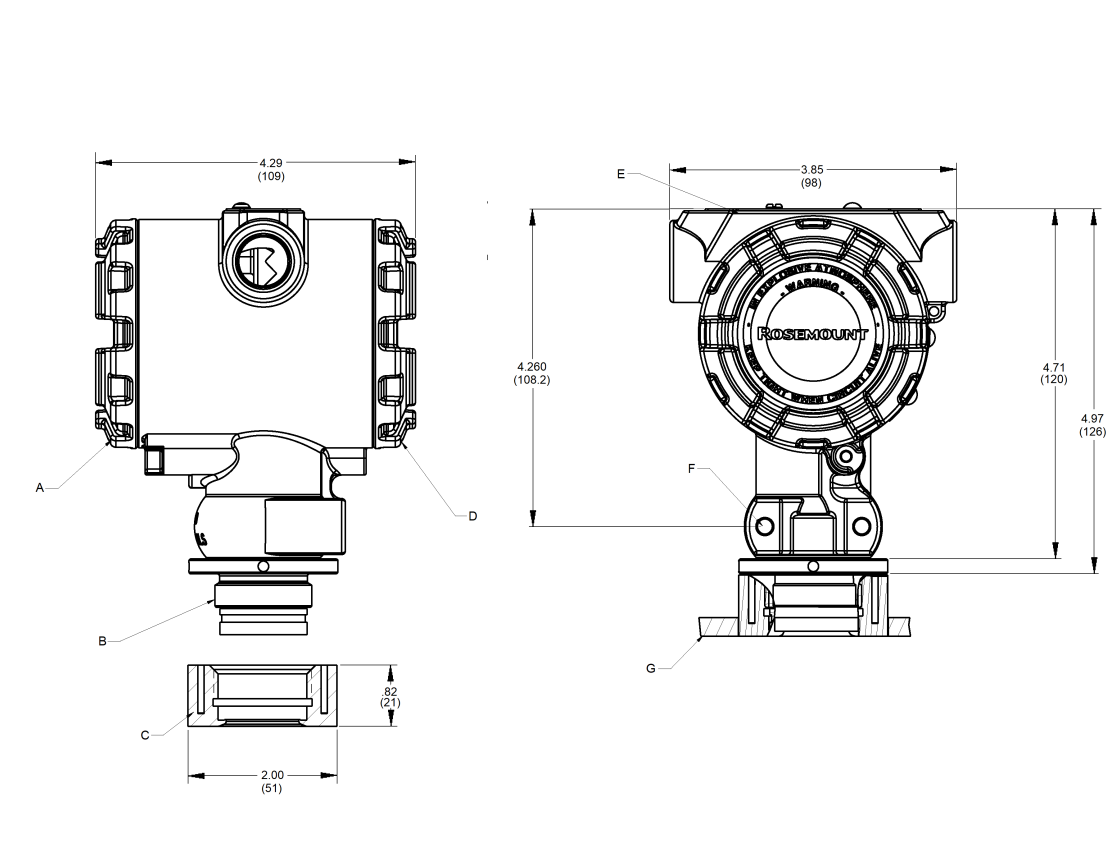
Figure 2: Rosemount 2090P 1½-inch Flush Mount



- A. Weld spud
- B. M44 X 1.25
- C. Terminal connections
- D. Optional display cover
- E. Transmitter circuitry
- F. Vessel wall
- G. 2 X ¼ -20 UBC -2BX depth 0.60 mounting bracket holes
- H. Nameplate
- I. Stress isolator groove

Dimensions are in inches (millimeter).

Figure 3: Rosemount 2090P Transmitter G1 in Flush Mount Process Connection



- A. Field Terminals
- B. G1" per DIN-EN-ISO 228.15 Class A
- C. Weld spud
- D. Transmitter circuitry
- E. Nameplate
- F. Bracket mounting holes (1/4-20 UNC)
- G. Vessel wall

Dimensions are in inches (millimeter).

Figure 4: 2090P Process Connection Accessories

Calibration adapter ⁽¹⁾	316 SST plug/heat sink for process connection codes A and C	Weld spud for process connection codes D and G

(1) See ordering information.

April 2021

Note

See [Accessories](#) for part numbers.

For more information: www.emerson.com

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