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PRODUCT DATASHEET

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Product Data Sheet
November 2016
00813-0100-4699, Rev HC

Rosemount™ 2090P
Pulp and Paper Pressure Transmitter

- 1-in. flush mount compatible with a PMC process connection, or 1 1/2-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 1/2-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% 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.

Contents

Ordering information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 7 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 1/2-in. threaded, no weld spud, 1 1/2-in. PTFE gasket			★
C	1 1/2-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			★
Conduit entry				
1	1/2–14 NPT			★
2	M20 × 1.5 female			★

Options (include with selected model number)

Extended product warranty		
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★
Digital display		
M5	LCD display	★
Mounting brackets		
B4	SST mounting bracket with SST bolts	★

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.

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	★
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 3.	02088-0197-0001
316 SST plug/heat sink(1) Use during installation to prevent welding damage. See Figure 3.	02088-0196-0001
1-in. flush mount calibration adapter(2) Use to connect a calibration device to the 1-in. flush mount. See Figure 3.	02088-0198-0002
1-in. flush mount weld spud See Figure 3.	02088-0285-0001
1 1/2-in. threaded weld spud kit Includes PTFE O-ring.	02088-0295-0003

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

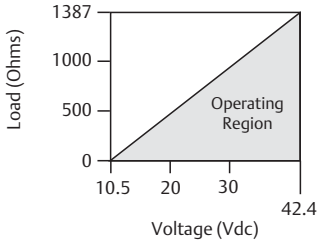
Rangedown

20:1

Load limitations

Maximum loop resistance is determined by the power supply voltage as described by the following equation:[1]

Maximum loop resistance = 43.5 (Power supply voltage – 10.5)



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

1. 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.

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

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

Humidity limits

0–100% relative humidity

Volumetric displacement

Less than 0.0005 in^3 (0,008 cm^3)

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: $3.9 \le I \le 20.8$
Fail high: $I \ge 21.75$ mA
Low: $I \le 3.75$ mA

NAMUR-compliant operation

Linear output: $3.8 \le I \le 20.5$
Fail high: $I \ge 22.5$ mA
Low: $I \le 3.6$ 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 (EMC)

Meets all industrial environment requirements of EN61326 and NAMUR NE-21[(1)]. Maximum deviation < 1% span during EMC disturbance[(2)].

1. NAMUR NE-21 does not apply to Low-Power (Transmitter output option code N).
2. 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 inH_2O (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 × 1.5 conduit entry

Process wetted parts

Isolating diaphragm

316L stainless steel

Process connector

316L stainless steel

Process connection size

1 1/2 –11.5 NPT or 1-in. flush mount

Process connector gasket (1 1/2-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 1.6

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 EmersonProcess.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: 1V2A8.AE
Standards: FM Class 3600 – 2011, FM Class 3615 – 2006, FM class 3616 – 2011, FM Class 3810 – 2005, ANSI/NEMA 250 – 1991
Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III, DIV 1; T5(–40 °C ≤ T_a ≤ +85 °C); Factory Sealed; Type 4X

I5 USA Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 0V9A7.AX
Standards: FM Class 3600 – 1998, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 1989
Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; DIV 1 when connected per Rosemount drawing 02088-1018; NI CL 1, DIV 2, GP A, B, C, D; T4(–40 °C ≤ T_a ≤ +70 °C); Type 4x

Special Condition for Safe Use (X):

1. The Rosemount 2090 Transmitter with the transient terminal block (option code T1) will not pass the 500 V r.m.s.dielectric strength test and this must be taken into account during installation.

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: Ⓔx 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.

I1 ATEX Intrinsic Safety
Certificate: BAS00ATEX1166X
Standards: EN60079-0:2012, EN60079-11:2012
Markings: Ⓔx II 1 G Ex ia IIC T5/T4 Ga, T5(–55 °C ≤ T_a ≤ +40 °C), T4(–55 °C ≤ T_a ≤ +70 °C)

Table 2. 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 Condition 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.

N1 ATEX Type n
Certificate: BAS00ATEX3167X
Standards: EN60079-0:2012, EN60079-15:2010
Markings: Ⓔx II 3 G Ex nA IIC T5 Gc (–40 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

1. This apparatus is not capable of withstanding the 500 V 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, EN60079-31:2009
Markings: Ex t IIIC T 50 °C T_{500} 60 °C Da

Special Conditions for Safe Use (X):

1. The user must ensure that the maximum rated voltage and current (36 volts, 24 milliamps, d.c.) are not exceeded. All connection to other apparatus or associated apparatus shall have control over this voltage and current to a category 'ib' circuit.
2. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
3. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
4. Cable entries and blanking plugs must be suitable for the ambient range of the apparatus and capable of withstanding a 7 J impact test.
5. The Rosemount 2090 sensor module must be securely screwed in place to maintain the ingress protection of the enclosure.

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)

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.

IECEx Dust
Certificate: IECEx BAS12.0073X
Standards: IEC60079-0:2011, IEC60079-31:2008
Markings: Ex t IIIC T 50 °C T_{500} 60 °C Da

Table 3. Input Parameters

Parameter	HART
Voltage U_i	36 Vdc
Current I_i	24 mA

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 temperature range of the apparatus and capable of withstanding a 7 J impact test.

IECEx Intrinsic Safety
Certificate: IECEx BAS 12.0071X
Standards: IEC60079-0:2011, IEC60079-11:2011
Markings: 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. When fitted with a transient suppression terminal block, the Rosemount 2090 is incapable of passing the 500 V 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):

1. When fitted with a transient suppression terminal block, the Rosemount 2090 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 T_{500} 60 °C Da

Table 5. Input Parameters

Parameter	HART
Voltage U_i	36 Vdc
Current I_i	24 mA

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: GYJ15.1506X
Standards: GB3836.1-2010, GB3836.2-2010
Markings: Ex d IIC T6/T4 Gb, T6(–20 °C ≤ T_a ≤ +40 °C), T4(–20 °C ≤ T_a ≤ +80 °C)

Special Conditions for Safe Use (X):

1. The ambient temperature is as follows:

T_a	Temperature class
–20 °C ≤ T_a ≤ 80 °C	T4
–20 °C ≤ T_a ≤ 40 °C	T6

2. The earth connection facility in the enclosure should be connected reliably.
3. During installation in hazardous location, cable glands, conduits, and blanking plugs, certified by state-appointed inspection bodies with Ex d IIC type of protection, should be used.
4. During installation, use and maintenance in explosive gas atmospheres, observe the warning “Do not open when energized.”
5. During installation, there should be no mixture harm to flameproof housing.
6. End user is not permitted to change any components insides, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. Maintenance should be done in non-hazardous location.
8. During installation, use and maintenance of this product, observe the following standards: GB3836.13-2013, GB3836.15-2000, GB3836.16-2006, GB50257-2014.

I3 China Intrinsic Safety
Certificate: GYJ15.1508X
Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
Markings: Ex ia IIC T4/T5 Ga

Special Conditions for Safe Use (X):

1. 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.
2. This apparatus is not capable of withstanding the 500 V r.m.s. insulation test required by Clause 6.3.12 of GB3836.4-2010.
3. The ambient temperature is:

T_a	Temperature class
–55 °C ≤ T_a ≤ 40 °C	T5
–55 °C ≤ T_a ≤ 70 °C	T4

4. Intrinsically safe 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
Inductance L_i	0 mH

5. The product should be used with Ex-certified linear associated apparatus to establish explosion protection system that can be used in explosive gas atmospheres. Wiring and terminals should comply with the instruction manual of the product and associated apparatus.
6. The cables between this product and associated apparatus should be shielded cables (the cables must have insulated shields). The shield has to be grounded reliably in a non-hazardous area.
7. End users are not permitted to change any internal components, but to settle the problem in conjunction with the manufacturer to avoid damage to the product.
8. During installation, use and maintenance of this product, observe the following standards: GB3836.13-2013, GB3836.15-2000, GB3836.16-2006, G3836.18-2010, GB50257-2014.

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(-40 °C ≤ T_a ≤ +80 °C), T6(-40 °C ≤ T_a ≤ +40 °C)

Special Condition 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
K7 Combination of E7, I7, NK, and N7
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, IEC60079-7:2006-2007
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 6. Conduit Plug Thread Sizes

Thread	Identification mark
M20 × 1.5	M20
1/2–14 NPT	1/2 NPT
G1/2A	G1/2

Table 7. Thread Adapter Thread Sizes

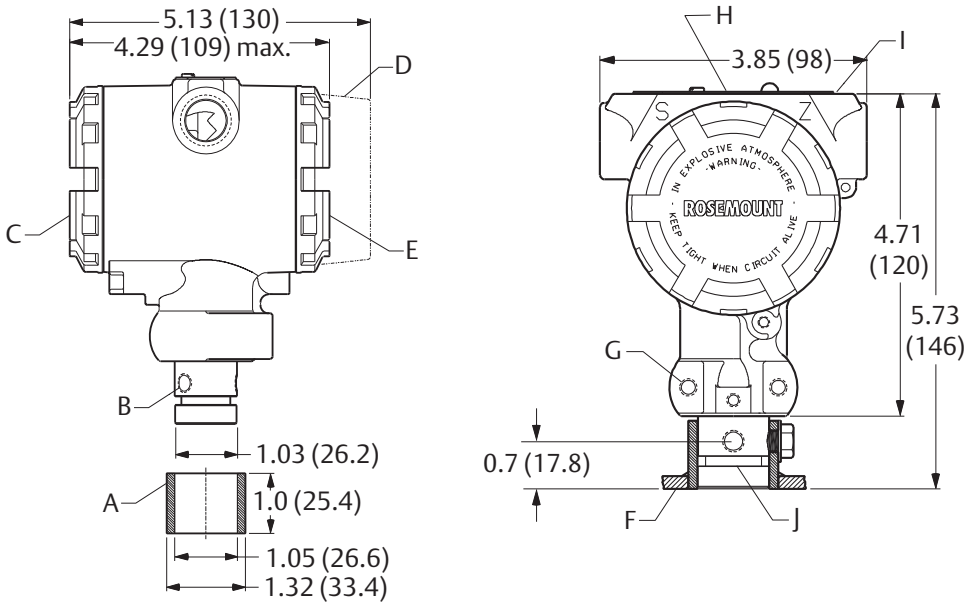
Male thread	Identification mark
M20 × 1.5 – 6H	M20
1/2–14 NPT	1/2–14 NPT
3/4–14 NPT	3/4–14 NPT
Female thread	**Identification mark**
M20 × 1.5 – 6H	M20
1/2–14 NPT	1/2–14 NPT
PG 13.5	PG 13.5

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. G1/2 and PG 13.5 thread forms are only acceptable for existing (legacy) equipment installations.

Dimensional drawings

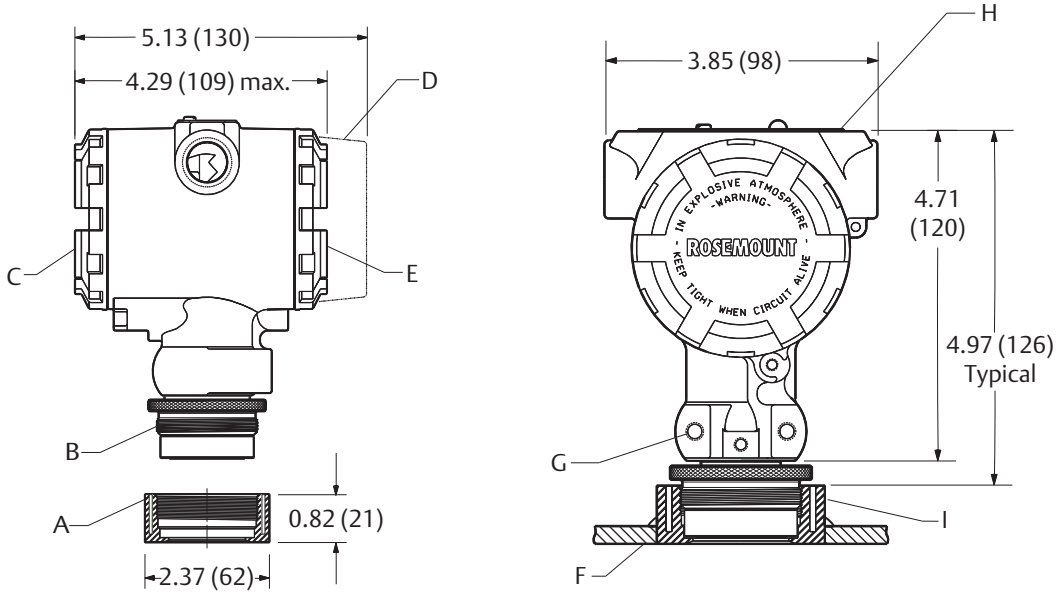
Figure 1. Rosemount 2090P 1-in. Flush Mount



A. Weld spud
B. 3 × 5/16–18 UNC mounting holes for rotational mounting
C. Terminal connections side
D. Optional display cover
E. Transmitter circuitry side
Dimensions are in inches (millimeter).

F. Vessel wall
G. 2 × 1/4–20 UNC–2BX 0.60 deep mounting bracket holes
H. External zero/span under nameplate
I. Nameplate
J. O-ring (Viton standard)

Figure 2. Rosemount 2090P 1 1/2-in. Flush Mount

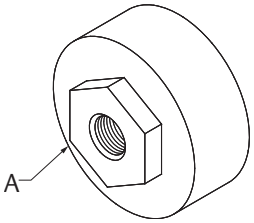


A. Weld spud
B. M44× 1.25
C. Terminal connections
D. Optional display cover
E. Transmitter circuitry
Dimensions are in inches (millimeter).

F. Vessel wall
G. 2 × 1/4–20 UNC–2BX depth 0.60 mounting bracket holes
H. Nameplate
I. Stress isolator groove

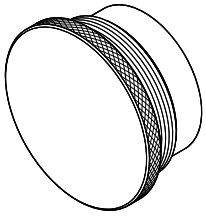
Figure 3. 2090P Process Connection Accessories

Calibration adapter[1]

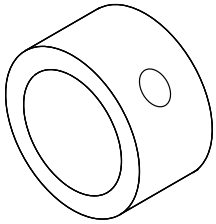


A. 1/4–18 NPT

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.

Note

See "Accessories" on page 5 for part numbers.

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