Product Data Sheet
00813-0100-4030, Rev HE
March 2022

Rosemount™ 2120 Level Switch

Vibrating Fork



- Designed for operation in process temperatures of –40 to 302 °F (–40 to 150 °C)
- Electronic self-checking and condition monitoring
- Increased safety, SIL2-certified to IEC 61508 as required by IEC 61511 and SIL3 capable
- Adjustable switching delay for turbulent or splashing applications
- “Fast drip” fork design gives a quicker response time, especially with viscous liquids
- General area, explosion-proof/flameproof, and intrinsically safe options
- Hygienically certified to 3-A® and EHEDG, and complies with FDA, EC 1935/2004, and ASME-BPE

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Introduction

Measurement principles

Using the principle of a tuning fork, a piezo-electric crystal oscillates the forks at their natural frequency. Changes to the oscillation frequency are continuously monitored by electronics as it varies depending on the liquid medium in which the forks are immersed. The denser the liquid, the lower the oscillation frequency.

When used as a low-level point alarm, the liquid medium in the vessel (tank) or pipe drains down past the fork, causing a change of oscillation frequency that is detected by the electronics and switches the output state i.e. wet-to-dry.

When the level switch is used as a high-level point alarm, the liquid rises in the vessel (tank) or pipe making contact with the fork and causing the output state to switch i.e. dry-to-wet.

Key features and benefits

- Virtually unaffected by flow, bubbles, turbulence, foam, vibration, solids content, coating products, liquid properties, and product variations.
- The Rosemount 2120 is designed for operation in process temperatures from –40 to 302 °F (–40 to 150 °C).
- A ‘heartbeat’ LED indicates its operating state. The LED also flashes when the switch output is ‘off’ and is constantly lit when 'on'.
- Adjustable switching delay prevents false switching in turbulent or splashing applications.
- ‘Fast drip’ fork design gives quicker response time, especially with viscous liquids.
- Rapid wet-to-dry and dry-to-wet time setting for highly responsive switching.
- Fork shape is optimized for hand polishing to meet hygienic requirements. Mechanical- and electro-polishing options.
- Magnetic test point makes functional test easy.
- No moving parts or crevices for virtually no maintenance.
- There is a variety of plug-in electronics options, with each having an adjustable mode and switching delay.

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Superior performance

- Functionality is virtually unaffected by turbulence, foam, vibration, coating, or liquid properties.
- The ‘fast drip’ design allows the liquid to be quickly drawn away from the fork tip, making the level switch quicker and more responsive in high density or viscous liquid applications.
- With a user-selectable time delay feature, the risk of false switching is minimized in turbulent or splashing applications.

Figure 1: ‘Fast Drip’ Forks



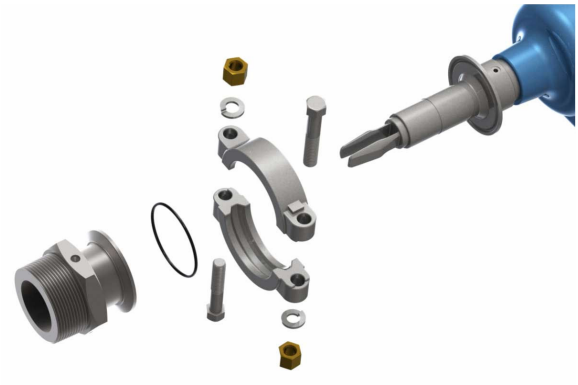
Fit and forget

- Once installed, the Rosemount 2120 is ready to go. It needs no calibration and requires minimum installation.
- The ‘heartbeat’ LED gives an instant visual indication that the unit is operational.
- Functional testing of the instrument and system is easy with a magnetic test point.
- You can install, and forget it.

Quick release kit

The Quick Release kit makes inspection, proof-testing, and servicing easier than ever.

Figure 2: Quick Release Kit



Related information

Spare parts and accessories

Access information when you need it with asset tags

Newly shipped devices include a unique QR code asset tag that enables you to access serialized information directly from the device. With this capability, you can:

- Access device drawings, diagrams, technical documentation, and troubleshooting information in your MyEmerson account
- Improve mean time to repair and maintain efficiency
- Ensure confidence that you have located the correct device
- Eliminate the time-consuming process of locating and transcribing nameplates to view asset information

Application examples

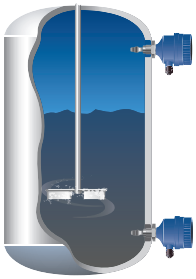
Overfill prevention

Spillage caused by overfilling can be hazardous to people and the environment, resulting in lost product and potentially high clean-up costs. The Rosemount 2120 is an overfill prevention product from Emerson that can be used as one of multiple layers of protection. It has been third party assessed and certified to IEC 61508.



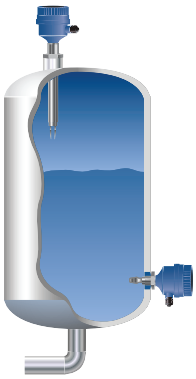
High and low level point alarm

Maximum and minimum level detection in tanks containing different types of liquids are ideal applications. It is common practice to have an independent high level alarm switch as a backup to an installed level device in case of primary failure.



Pump control or limit detection

Batch processing tanks often contain stirrers and agitators to ensure mixing and product ‘fluidity’. The Rosemount 2120 has a user-selectable time delay, from 0.3 to 30 seconds, that virtually eliminates the risk of false switching from splashing.



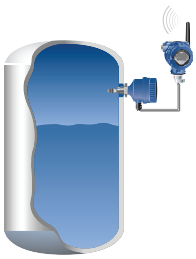
Pump protection or empty pipe detection

With the fork projecting only 2 in. (50 mm) (dependent on connection type), the Rosemount 2120 can be installed in small diameter pipes. Short forks mean minimum intrusion on the wetside and allow for simple, low cost installation at any angle into pipes or tanks. By selecting the option of direct load switching or relay electronics, the Rosemount 2120 is ideal for reliable pump control and can be used to protect against pumps running dry.



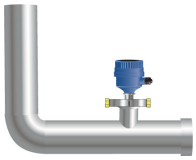
Wireless applications

The advent of wireless communications allows process plant managers to save up to 90% on installation cost compared with wired technologies. More data can be collected at central locations than has ever been possible before. The Rosemount 2120 can be used with a Rosemount 702 Wireless Discrete Transmitter to enable these benefits for your applications.



Hygienic applications

With the highly polished forks option providing a surface finish (Ra) better than 0.4 µm, the Rosemount 2120 meets the most stringent hygienic requirements used in food and beverage, and pharmaceutical applications. The Rosemount 2120 is robust enough to easily withstand CIP (Clean-In- Place) and SIP (Steam-In-Place) cleaning routines.



Ordering information

Online product configurator

Many products are configurable online using our Product Configurator. Select the **Configure** button or visit our website to start. With this tool's built-in logic and continuous validation, you can configure your products more quickly and accurately.

Specifications and options

See the Specifications and options section for more details on each configuration. Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See the Material selection section for more information.

Related information

Specifications
Material selection

Model codes

Model codes contain the details related to each product. Exact model codes will vary; an example of a typical model code is shown in Figure 3.

Figure 3: Model Code Example

2120 D 0A K 1 I1 A A 0000 (1) **Q8** (2)

1. Required model components (choices available on most)
2. Additional options (variety of features and functions that may be added to products)

Optimizing lead time

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 2120 Level Switch ordering information



The Rosemount 2120 Level Switch provides easy to install, reliable level detection and control. Third party IEC61508 (SIL2) safety and hygienic certification with choice of outputs makes it suitable for a wide range of applications. It has no moving parts, needs no calibration and is virtually unaffected by process conditions. Adjustable switching delay prevents false switching in turbulent applications.

CONFIGURE > VIEW PRODUCT >

Required model components

Model

Code	Description	
2120	Vibrating Fork Liquid Level Switch / –40...302 °F (–40...150 °C)	★

Materials of construction: process connection/fork

Code	Description	
D	316/316L Stainless Steel (1.4401/1.4404) dual certified	★
F(1)	ECTFE copolymer, coated 316/316L SST (1.4401/1.4404)	
C	Alloy C (UNS N10002), Alloy C-276 (UNS N10276)	

(1) *ECTFE copolymer coating is only available for a flanged Rosemount 2120 but excludes 1-in./DN25/25A flanges. Flanges are dual certified 316 and 316L Stainless Steel (1.4401 and 1.4404).*

Process connection size/type

Code	Description	
0A	¾-in. BSPT (R) Thread	★
0B	¾-in. BSPP (G) Thread	★
0D	¾-in. NPT Thread	★
1A	1-in. BSPT (R) Thread	★
1B	1-in. BSPP (G) Thread	★
1D	1-in. NPT Thread	★
2D	2-in. NPT Thread	★
1P	1-in. BSPP (G), O-ring	★
5R	1½-in. (38 mm) Tri Clamp	★
2R	2-in. (51 mm) Tri Clamp	★
8Q	Mobrey A Flange	★
9Q	Mobrey G Flange	★
1G	1-in. ASME B16.5 Class 150 Raised Face (RF) Flange	★
1H	1-in. ASME B16.5 Class 300 Raised Face (RF) Flange	★

Code	Description	
1J	1-in. ASME B16.5 Class 600 Raised Face (RF) Flange	★
5G	1½-in. ASME B16.5 Class 150 Raised Face (RF) Flange	★
5H	1½-in. ASME B16.5 Class 300 Raised Face (RF) Flange	★
2G	2-in. ASME B16.5 Class 150 Raised Face (RF) Flange	★
2H	2-in. ASME B16.5 Class 300 Raised Face (RF) Flange	★
3G	3-in. ASME B16.5 Class 150 Raised Face (RF) Flange	★
3H	3-in. ASME B16.5 Class 300 Raised Face (RF) Flange	★
4G	4-in. ASME B16.5 Class 150 Raised Face (RF) Flange	★
4H	4-in. ASME B16.5 Class 300 Raised Face (RF) Flange	★
1K	DN25, EN1092 PN 10/16 Flange	★
1L	DN25, EN1092 PN 25/40 Flange	★
1M	DN25, EN1092 PN 63 Flange	★
1N	DN25, EN1092 PN 100 Flange	★
5K	DN40, EN1092 PN 10/16 Flange	★
5L	DN40, EN1092 PN 25/40 Flange	★
2K	DN50, EN1092 PN 10/16 Flange	★
2L	DN50, EN1092 PN 25/40 Flange	★
7K	DN65, EN1092 PN 10/16 Flange	★
7L	DN65, EN1092 PN 25/40 Flange	★
3K	DN80, EN1092 PN 10/16 Flange	★
3L	DN80, EN1092 PN 25/40 Flange	★
4K	DN100, EN1092 PN 10/16 Flange	★
4L	DN100, EN1092 PN 25/40 Flange	★
5J	1½-in. ASME B16.5 Class 600 Raised Face (RF) Flange	
2J	2-in. ASME B16.5 Class 600 Raised Face (RF) Flange	
3J	3-in. ASME B16.5 Class 600 Raised Face (RF) Flange	
4J	4-in. ASME B16.5 Class 600 Raised Face (RF) Flange	
5M	DN40, EN1092 PN 63 Flange	
5N	DN40, EN1092 PN 100 Flange	
2M	DN50, EN1092 PN 63 Flange	
2N	DN50, EN1092 PN 100 Flange	
7M	DN65, EN1092 PN 63 Flange	
7N	DN65, EN1092 PN 100 Flange	
3M	DN80, EN1092 PN 63 Flange	
3N	DN80, EN1092 PN 100 Flange	
4M	DN100, EN1092 PN 63 Flange	

Code	Description	
4N	DN100, EN1092 PN 100 Flange	
SA	25A, 10K, JIS B2220 Flange	
SB	25A, 20K, JIS B2220 Flange	
TA	40A, 10K, JIS B2220 Flange	
TB	40A, 20K, JIS B2220 Flange	
UA	50A, 10K, JIS B2220 Flange	
UB	50A, 20K, JIS B2220 Flange	
VA	80A, 10K, JIS B2220 Flange	
VB	80A, 20K, JIS B2220 Flange	
XA	100A, 10K, JIS B2220 Flange	
XB	100A, 20K, JIS B2220 Flange	
XX(1)	Customer specific	

(1) *Other process connections available upon request.*

Electronic type

Code	Description	Available certifications	
T	Direct load switching (Mains 2-wire) 20 to 264 Vac, 50/60Hz, 20 to 60 Vdc	NA, E*, and G*	★
G	PNP/PLC (3-wire) 20 to 60 Vdc	NA, E*, and G*	★
V	Relay DPCO (Double Pole Changeover), 20 to 264 Vac, 50/60Hz, 20 to 60 Vdc	NA, E*, and G*	★
E	Relay DPCO, 9 to 30 Vdc	E5, E6, and G*	★
K	NAMUR	All except IP	★
H	8/16 mA	All	★

Related information

Electrical connections

Surface finish

Code	Description	Available connections	Available housings	
1	Standard surface finish	All	All	★
2(1)	Hand polished (Ra < 0.4 µm)	Tri Clamp only	All	★
3(2)	Ra < 0.76 µm, hygienically approved	Tri Clamp only	A, X	★
4(2)	Electro-polished to < 0.76 µm, hygienically approved	Tri Clamp only	A, X	★
7(2)	Mechanically-polished to Ra < 0.1 µm, hygienically approved	Tri Clamp only	A, X	★
8(2)	Electro-polished to Ra < 0.38 µm, hygienically approved	Tri Clamp only	A, X	★

(1) *Hand-polished for hygienic connections to better than 0.4 µm Ra such that there are no pits, folds, crevices or cracks discernible to the naked eye (i.e. no features larger than 75 micrometers based on resolving 1/60 degree at a distance of 250 mm).*
(2) *Not available for explosion-proof or flameproof product certifications.*

Product certifications

Code	Description	Electronic types allowed	Available housings	
NA[1]	No hazardous locations certifications (safe area use only)	All except E	All	★
G5[2]	FM Ordinary Locations (unclassified, safe area)	All	Y, T	★
G6[3]	CSA Ordinary Locations (unclassified, safe area)	All	Y, T	★
E1	ATEX Flameproof	All except E	X, S	★
E2	INMETRO Flameproof	All except E	X, S	★
E3	NEPSI Flameproof	All except E	X, S	★
E5[2]	FM Explosion-proof	All	Y, T	★
E6[3]	CSA Explosion-proof	All	Y, T	★
E7	IECEx Explosion-proof	All except E	X, S	★
EM	Technical Regulation Customs Union (EAC), Flameproof	All except E	X, S	★
EP	KTL/KOSHA Flameproof	All	X, S	★
I1	ATEX Intrinsic Safety	K, H	All	★
I2	INMETRO Intrinsic Safety	K, H	All	★
I3	NEPSI Intrinsic Safety	K	All	★
I5	FM Intrinsic Safety	K,H	All	★
I6	CSA Intrinsic Safety	K,H	All	★
I7	IECEx Intrinsic Safety	K,H	All	★
IM	Technical Regulation Customs Union (EAC), Intrinsic Safety	K,H	All	★
IP	KTL/KOSHA Intrinsic Safety	H	All	★

(1) *Includes the Technical Regulation Customs Union (EAC) ordinary location mark.*
(2) *E5 includes G5 requirements. G5 is for use in unclassified, safe area locations only.*
(3) *E6 includes G6 requirements. G6 is for use in unclassified, safe area locations only.*

Related information

Product certifications

Housing

Code	Description	Available certifications	
A	Glass Filled Nylon, M20 conduits/cable threads	NA, I1, I2, I3, I5, I6, I7, and IP	★
D	Glass Filled Nylon, ½-in. NPT conduits/cable threads	NA, I1, I2, I3, I5, I6, I7, and IP	★
X	Aluminum Alloy, M20 conduits/cable threads	All except G5, G6, E5, E6	★
Y	Aluminum Alloy, ¾-in. NPT conduits/cable threads	All except E1, E2, E3, E7, EM, EP	★
S	Stainless Steel, M20 conduits/cable threads	All except G5, G6, E5, E6	★
T	Stainless Steel, ¾-in. NPT conduits/cable threads	All except E1, E2, E3, E7, EM, EP	★

Fork length

Code	Description	Available connection	
A	Standard length 1.7 in. (44 mm)	All except flanged and 2-in. NPT	★
H	Standard length flange 4.0 in. (102 mm)	All flanged options	★
E	Extended, customer specified length in tenths of inches	All except 1-in. BSPP O-ring (1P)	★
M	Extended, customer specified length in millimeters	All except 1-in. BSPP O-ring (1P)	★

Related information

Customer specified fork length

Specific extended fork length

Code	Description	
0000	Factory default length (only if fork length A or H is selected)	★
xxxx(1)	Specific customer specified length in tenths of inches or millimeters (xxx.x inches or xxxx mm)	★

(1) *Examples: Code E1181 is 118.1 inches. Code M3000 is 3000 millimeters.*

Related information

Customer specified fork length

Additional options

Calibration data certification

Code	Description	
Q4	Certificate of functional test	★

Material traceability certification

Only available for process-wetted parts.

Not available for hand polished wet side.

Code	Description	
Q8	Material traceability certification per EN 10204 3.1	★

Material certification

Code	Description	
Q15	NACE® MR0175 / ISO 15156	★
Q25	NACE MR0103	★

Safety certification

Not available with electronic type code T or E.

Code	Description	
QS	Prior-use certificate of FMEDA Data	★
QT	Safety certified to IEC61508	★

Hygienic certifications

Available only for a Rosemount 2120 with a Tri Clamp fitting, product certification code NA, G*, or I*, and surface finish code 3, 4, 7, or 8.

Code	Description	
QA	3-A® certificate	★
QE	EHEDG certificate	★

ASME-BPE statement

Available only for a Rosemount 2120 with a Tri Clamp fitting, product certification code NA, G*, or I*, and surface finish code 3, 4, 7, or 8.

Code	Description	
QB	ASME-BPE statement	★

Food and Drug Administration (FDA) statement

Available only for a Rosemount 2120 with a Tri Clamp fitting, product certification code NA, G*, or I*, and surface finish code 3, 4, 7, or 8.

Code	Description	
QH	FDA statement	★

Surface finish certification

Available only for a Rosemount 2120 with a Tri Clamp fitting, product certification code NA, G*, or I*, and surface finish code 3, 4, 7, or 8.

Code	Description	
Q16	Surface finish certification	★

Special procedures

This option is limited to units with extended lengths up to 59.1 in. (1500 mm). Option is not available for ECTFE coating.

Code	Description	
P1	Hydrostatic testing with certificate	★

Overfill prevention

Code	Description	
U1	WHG/DIBt overfill protection	★

Extended product warranty

Rosemount extended warranties have a limited warranty of three or five years from date of shipment.

Code	Description	
WR3	3-year limited warranty	★
WR5	5-year limited warranty	★

Spare parts and accessories

Seal

Part number	Description
02100-1000-0001	Seal for 1-in. BSPP (G1A) process connection. Material: Non-asbestos BS7531 grade X carbon fiber with rubber binder
02100-1040-0001	Seal for ¾-in. BSPP (G3/4A) process connection. Material: Non-asbestos BS7531 grade X carbon fiber with rubber binder

Adaptor boss

Part number	Description
02100-1010-0001	Adaptor boss, 1-in. BSPP to 1½-in. (38 mm) Tri Clamp Materials: 316 stainless steel fitting, FPM/FKM O-ring

Tri Clamp kit

The kit is not approved to be used with a 3-A® or EHEDG approved products and is not assessed for use with FDA or ASME-BPE compliant products.

Part number	Description
02100-1020-0001	2-in. (51 mm) Tri Clamp kit (vessel fitting, clamp ring and seal) Materials: 316 stainless steel, NBR Nitrile

Test magnet

Part number	Description
02100-1030-0001	Telescopic test magnet

Replacement cassettes

These replacement cassettes are for versions of the Rosemount 2120 shipped since June 2013.

Intrinsically Safe (IS) approved cassettes can only be replaced with the same type of IS cassette. Non-IS cassette types can be interchanged with other non-IS cassettes, but the new label must be fitted and the original part number transferred to the new label.

Part number	Description
02120-7000-0001	Replacement cassette: Direct load switching (2-wire) (Red)
02120-7000-0002	Replacement cassette: PNP/PLC, 20 to 60 Vdc (Yellow)
02120-7000-0003	Replacement cassette: NAMUR (Light Blue)
02120-7000-0004	Replacement cassette: Relay DPCO, standard version (Green)
02120-7000-0005	Replacement Cassette: 8/16 mA output (Dark Blue)
02120-7000-0007	Replacement Cassette: Relay DPCO, 9 to 30 Vdc (12 Vdc nominal) version (Green)

Related information

Electronic type
Product certifications

Quick release kit

The quick release kit is a set of accessories requiring a Rosemount 2120 with the 2-in. Tri Clamp option and an existing 2-in. NPT process connection on the vessel.

The kit is not approved to be used with a 3-A® or EHEDG approved products and is not assessed for use with FDA or ASME-BPE compliant products.

Part number	Description
02100-1060-0001	Quick release kit (contains 2-in. Tri Clamp, seal, and quick release device for 2-in. NPT process connection)

Related information

Release Kit Quick Start Guide

Specifications

General

Measuring technology

Vibrating fork

Applications

Point level detection in liquid process mediums, including coating liquids, aerated liquids, and slurries. Suitable for horizontal and vertical installation.

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.

Housing/Enclosure

Table 1: Housing / Enclosure Specifications

Housing code	A	D	X	Y	S	T
Housing material	Nylon PA66 30%GF		Al alloy ASTM B85 A360.0		316C12 SST	
Rotational	Yes		No		No	
Paint	Not applicable		Polyurethane		Not applicable	
LED window	Nylon PA12		None		None	
Conduit entry	M20	½-in. NPT	M20	¾-in. NPT	M20	¾-in. NPT
Ingress protection	IP66/67 to EN60529		IP66/67 to EN60529, NEMA® 4X		IP66/67 to EN60529, NEMA 4X	

Process wetted connections

Connections

Threaded, Tri Clamp, and flanged process connection options.

Materials

- 316/316L stainless steel (1.4401/1.4404 dual-certified)
- Alloy C (UNS N10002) and Alloy C-276 (UNS N10276)
  Available for flanged, and selected threaded process connections (¾-in. and 1-in. BSPT (R), and ¾-in., 1-in. and 2-in. NPT).
- ECTFE co-polymer coated 316/316L Stainless Steel (1.4401/1.4404 dual certified)
  Available only for flanged process connections, but excludes 1-in./DN25/25A flanges.
- Gasket material for ¾-in. and 1-in. BSPP (G) is non-asbestos BS7531 Grade X carbon fiber with rubber binder.
  Gaskets are not supplied with flanged process connections.

Customer specified fork length

Table 2: Extended Fork Lengths

Process connection	Minimum	Maximum(1)
¾-in. threaded	3.8 in. (95 mm)	157.5 in. (4000 mm)
1-in. threaded	3.7 in. (94 mm)	157.5 in. (4000 mm)
2-in. threaded	3.7 in. (94 mm)	157.5 in. (4000 mm)
Flanged	3.5 in. (89 mm)	157.5 in. (4000 mm)
Tri Clamp	4.1 in. (105 mm)	157.5 in. (4000 mm)

(1) *The maximum extended length is 157.5 in. (4000 mm), except for ECTFE co-polymer coating and polished process connection options which have a maximum length of 59.1 in. (1500 mm) and 39.4 in. (1000 mm) respectively.*

Related information

Dimensional drawings

Transmissible Spongiform Encephalopathy (TSE) declaration

This declaration is applicable to Tri Clamp connections, i.e. the 1½-in. (38 mm) and 2-in. (51 mm) sizes, when ordered with Surface Finish option codes 3, 4, 7 and 8.

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.

Performance specifications

Hysteresis (water)

0.1 in. (2.5 mm)

Switching point (water)

0.5 in. (13 mm) from fork tip if mounted vertically.

0.5 in. (13 mm) from the fork edge if mounted horizontally.

The switching point varies with different liquid densities.

Liquid density requirements

Minimum liquid density is 37.5 lb/ft^3 (600 kg/m^3).

Liquid viscosity range

Up to 10000 cP (centiPoise)

Solids content and coating

The maximum recommended diameter of solid particles in the liquid is 0.2 in. (5 mm). Avoid bridging of forks (fork-to-fork).

Electrical specifications

Protections

Table 3: Electrical Protections

Protection	Availability on Cassettes
Polarity insensitive	Relay (except 12 Vdc version) and Direct Load electronics
Over-current protection	Direct Load and PNP/PLC electronics
Short-circuit protection	Direct Load and PNP/PLC electronics
Load-missing protection	Direct Load and PNP/PLC electronics
Surge protection (to IEC61326)	All electronics

Terminal connection (wire diameter)

Minimum 26 AWG, maximum 14 AWG (0.13 to 2.5 mm^2). Note national regulations.

Conduit plugs/cable glands

Metal housing

Conduit entries for explosion-proof areas are shipped with one Exd plug (loose in bag) and two dust caps fitted. Use suitably rated cable glands. Unused conduit entries must be sealed with a suitably rated blanking plug.

Plastic housing

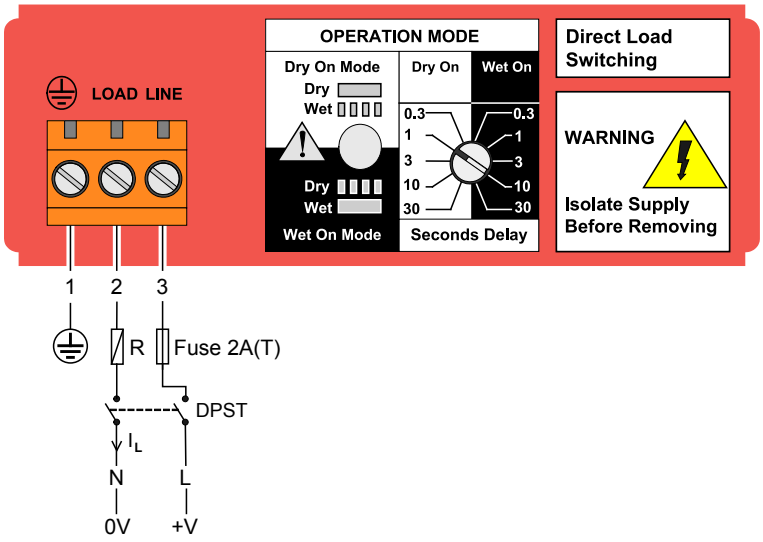
Glass-filled nylon housings with direct load, PNP/PLC and IS electronics are shipped with one PA66 cable gland and one blanking plug. The cable gland supports cable diameters in the range 0.2 to 0.3 in. (5 to 8 mm).

Glass-filled nylon housings with relay electronics are shipped with two PA66 cable glands. The cable gland supports cable diameters in the range 0.2 to 0.3 in. (5 to 8 mm).

Electrical connections

Note
The external DPST switch that is shown in the wiring diagrams is an optional local disconnect (customer supplied).

Figure 4: Direct Load Switching (2-wire) Cassette (Red Label) – Code T

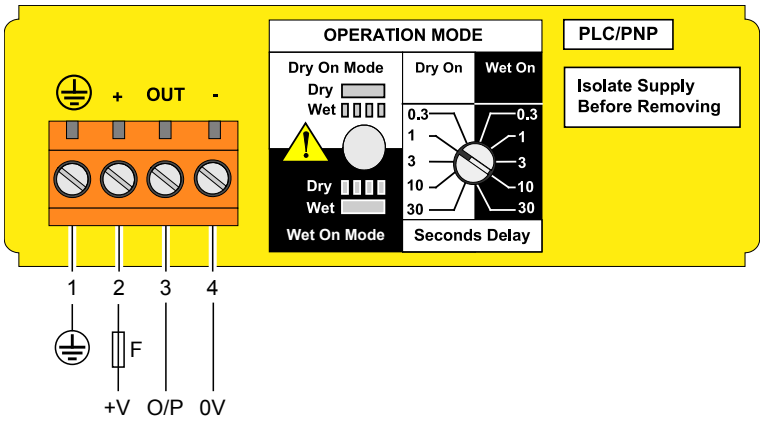


R = External load (must be fitted)

N = Neutral

L = Live

Figure 5: PNP/PLC (3-wire) Cassette (Yellow Label) – Code G



F = Fuse 2A(T)

Figure 6: Relay DPCO Cassette, Standard Version (Green Label) – Code V

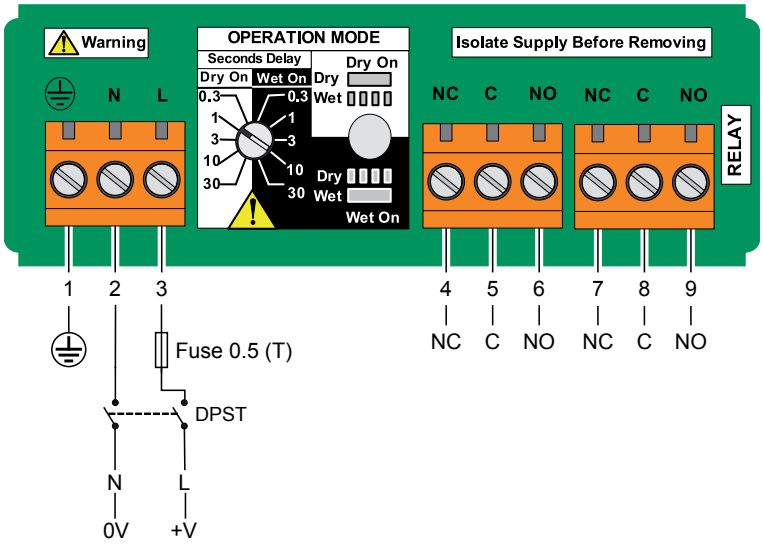


Figure 7: Relay DPCO Cassette, 12 Vdc Nominal Version (Green Label) – Code E

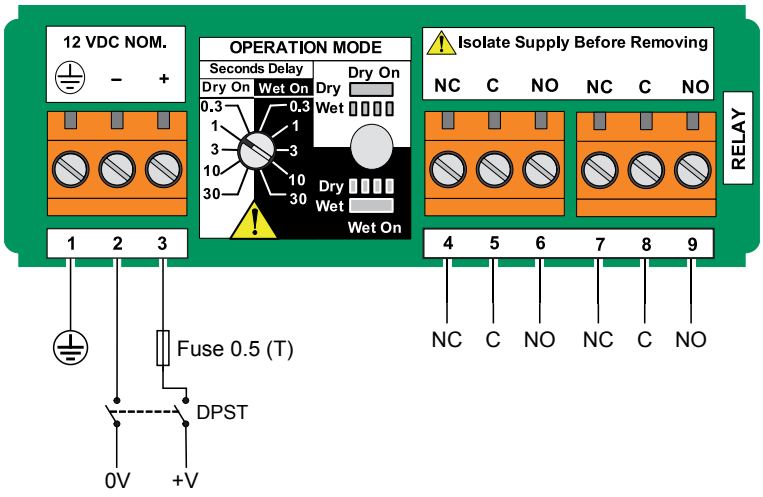
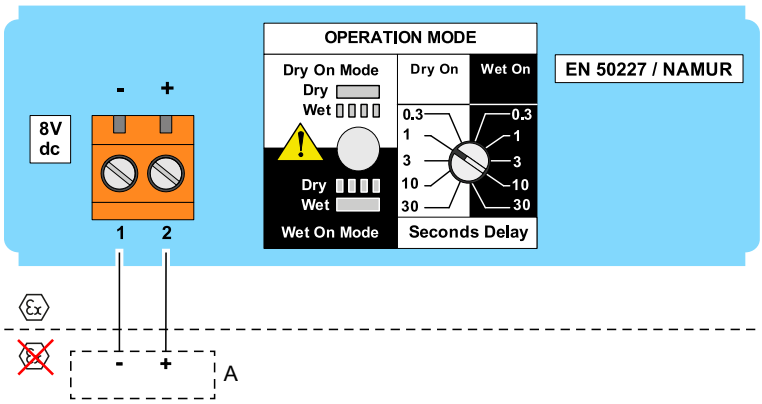
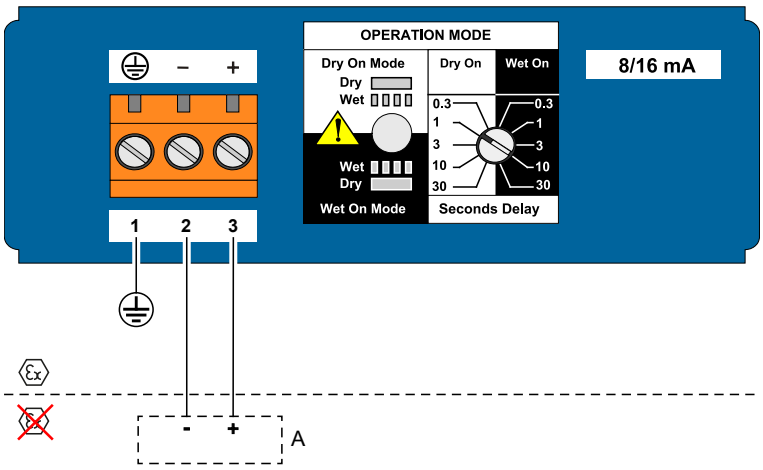


Figure 8: NAMUR Cassette (Light Blue Label) – Code K



A. A certified intrinsically safe isolating amplifier to IEC 60947-5-6

Figure 9: 8/16 mA Cassette (Dark Blue Label) – Code H



A. A certified intrinsically safe isolating amplifier to IEC 60947-5-6

Functional specifications

Switching delay

User-selectable 0.3, 1, 3, 10, 30 seconds delay for dry-to-wet and wet-to-dry switching.

Switching mode

User selectable switching mode (Dry=on or Wet=on).

Magnetic test point

A magnetic test point is located on the side of the housing, allowing a functional test of the Rosemount 2120 and a system connected to it. Holding a magnet to the test point causes the output to change state.

Heartbeat LED

Each electronics cassette of the level switch has a ‘heartbeat’ LED indicating its operation status, which can always be seen from all angles through a lens in the cover of non-metal housings. The LED flashes when the level switch output is ‘off’ and is constantly lit when 'on'.

The LED gives a constant indication that the level switch is functioning correctly (different flash rates are used to indicate a product malfunction) and gives a local indication of the process state.

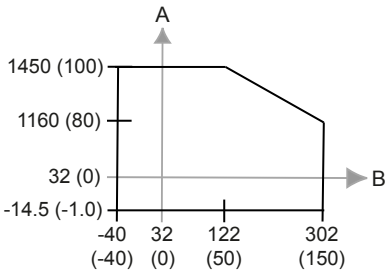
Environmental specifications

Maximum operating altitude

6562 ft. (2000 m)

Maximum operating pressures

Figure 10: Process Pressure



A. Process pressure, psig (barg)
B. Process temperature, °F (°C)

The final rating depends on the selected process connection.

Threaded connection

See Figure 10.

Tri Clamp connection

435 psig (30 barg)

Flanged connection

The maximum operating pressure is the lower of the process pressure (Figure 10) and flange pressure rating (see Table 4).

Table 4: Maximum Flange Pressure Rating

Standard	Class/Rating	Stainless steel flanges
Mobrey A	Not applicable	34 barg
Mobrey G	Not applicable	21 barg
ASME B16.5	Class 150	275 psig(1)
ASME B16.5	Class 300	720 psig(1)
ASME B16.5	Class 600	1440 psig(1)
EN1092-1	PN 10/16	16 barg(2)
EN1092-1	PN 25/40	40 barg(2)
EN1092-1	PN 63	63 barg(2)
EN1092-1	PN 100	100 barg(2)
JIS B2220	10K	14 barg(3)
JIS B2220	20K	34 barg(3)

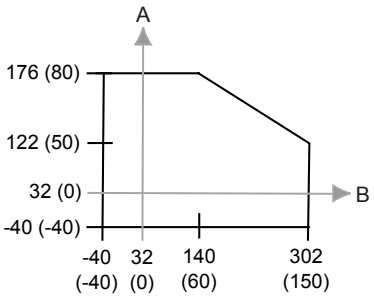
(1) *At 100 °F (38 °C), the pressure rating decreases with an increasing process temperature.*
(2) *At 122 °F (50 °C), the pressure rating decreases with an increasing process temperature.*
(3) *At 248 °F (120 °C), the rating decreases with an increasing process temperature.*

Maximum and minimum operating temperatures

See Figure 11 for the maximum and minimum operating temperatures.

The ambient temperature for a 8/16 mA cassette is limited to 158 °F (70 °C) in dust applications.

Figure 11: Operating Temperature



A. Ambient Temperature, °F (°C)
B. Process Temperature, °F (°C)

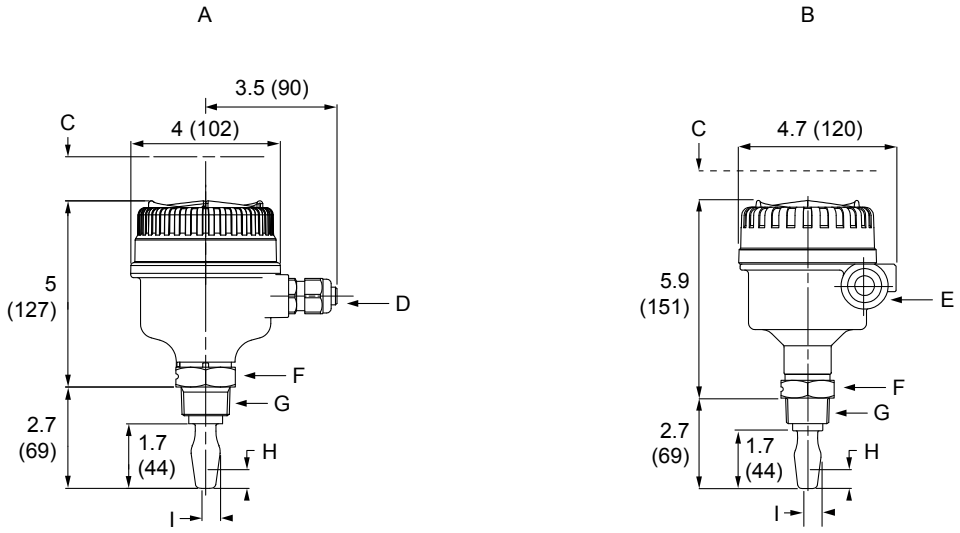
Product certifications

See the Rosemount 2120 Product Certifications document for detailed information on the existing approvals and certifications.

Dimensional drawings

Refer to the Type 1 Drawings on the Rosemount 2120 web page for dimensions of the 1-in. BSPP threaded versions.

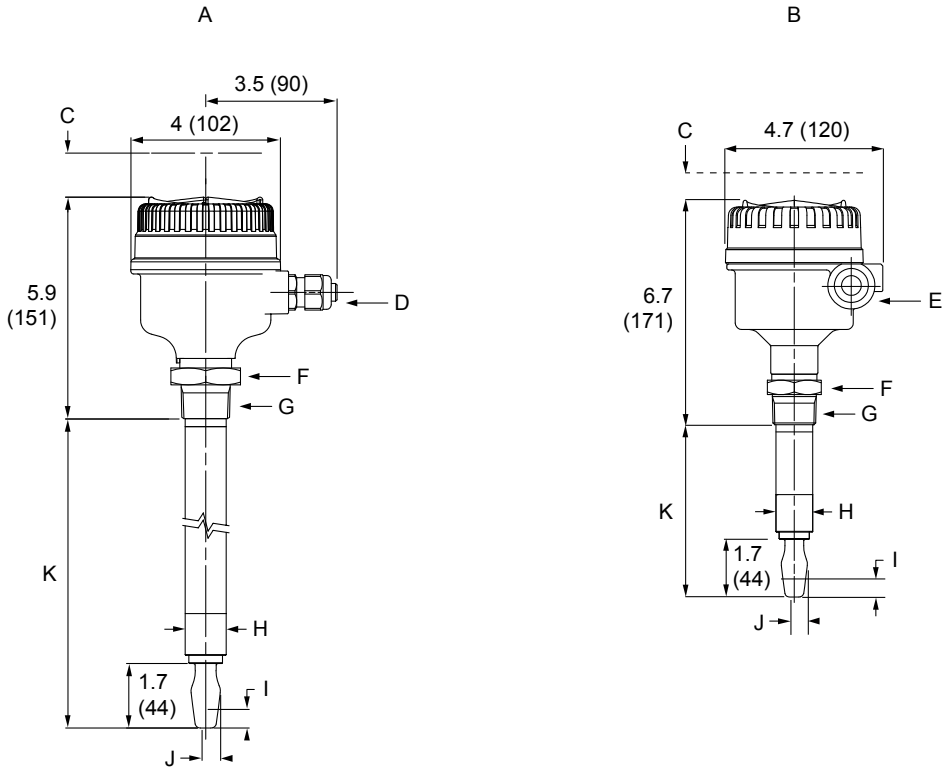
Figure 12: ¾- and 1-in. Threaded Mounting (Standard Length)



A. Glass-filled nylon housing
B. Aluminum/stainless steel housing
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. 1.6 (40) A/F hexagon
G. ¾- or 1-in. thread
H. 0.5 (13) switchpoint (when mounted vertically)
I. 0.5 (13) switchpoint (when mounted horizontally)

Dimensions are in inches (millimeters).

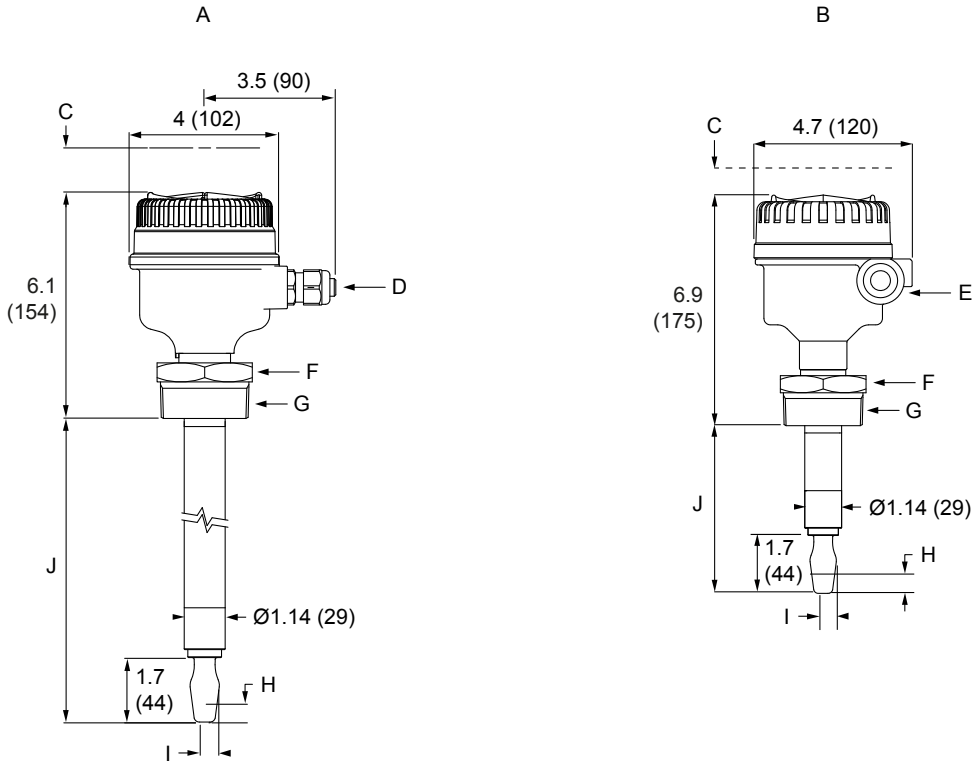
Figure 13: ¾- and 1-in. Threaded Mounting (Extended Length)



A. Glass-filled nylon housing
B. Aluminum/stainless steel housing
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. 1.6 (40) A/F hexagon
G. ¾- or 1-in. thread
H. Ø1.14 (29) for 1-in. thread; Ø0.9 (23) for ¾-in. thread
I. 0.5 (13) switchpoint (when mounted vertically)
J. 0.5 (13) switchpoint (when mounted horizontally)
K. Customer specified fork length (see Table 2)

Dimensions are in inches (millimeters).

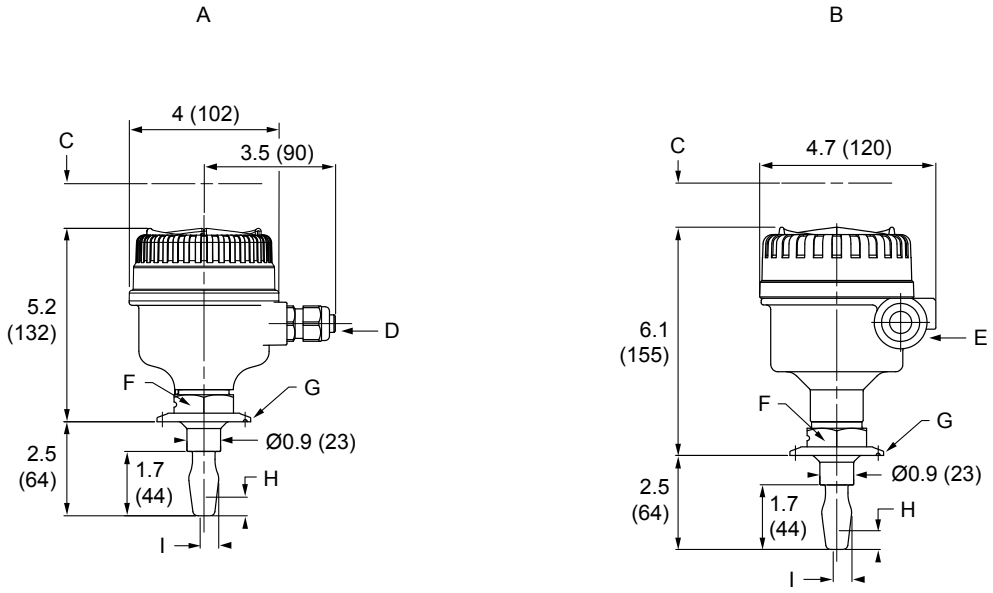
Figure 14: 2-in. Threaded Mounting (Standard and Extended Length)



A. Glass-filled nylon housing
B. Aluminum/stainless steel housing
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. 2.6 (65) A/F hexagon
G. 2-in. thread
H. 0.5 (13) switchpoint (when mounted vertically)
I. 0.5 (13) switchpoint (when mounted horizontally)
J. Customer specified fork length (see Table 2)

Dimensions are in inches (millimeters).

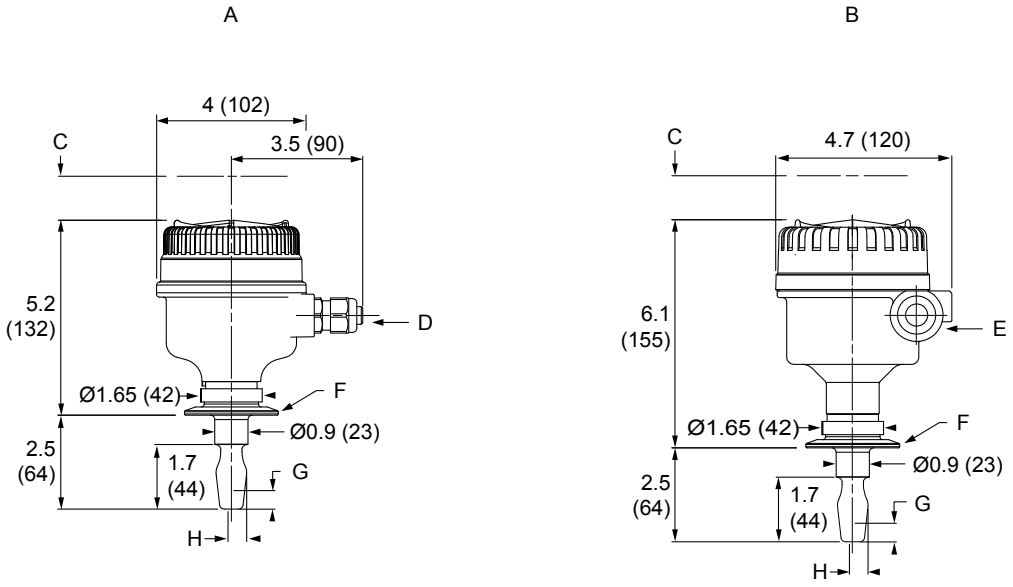
Figure 15: Tri Clamp Mounting (Standard Length, Surface Finish Codes 1 and 2)



A. Glass-filled nylon housing (and not hygienically approved)
B. Aluminum/stainless steel housing (and not hygienically approved)
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. 1.6 (40) A/F hexagon
G. 1½-in. (38 mm) or 2-in (51 mm) Tri Clamp
H. 0.5 (13) switchpoint (when mounted vertically)
I. 0.5 (13) switchpoint (when mounted horizontally)

Dimensions are in inches (millimeters).

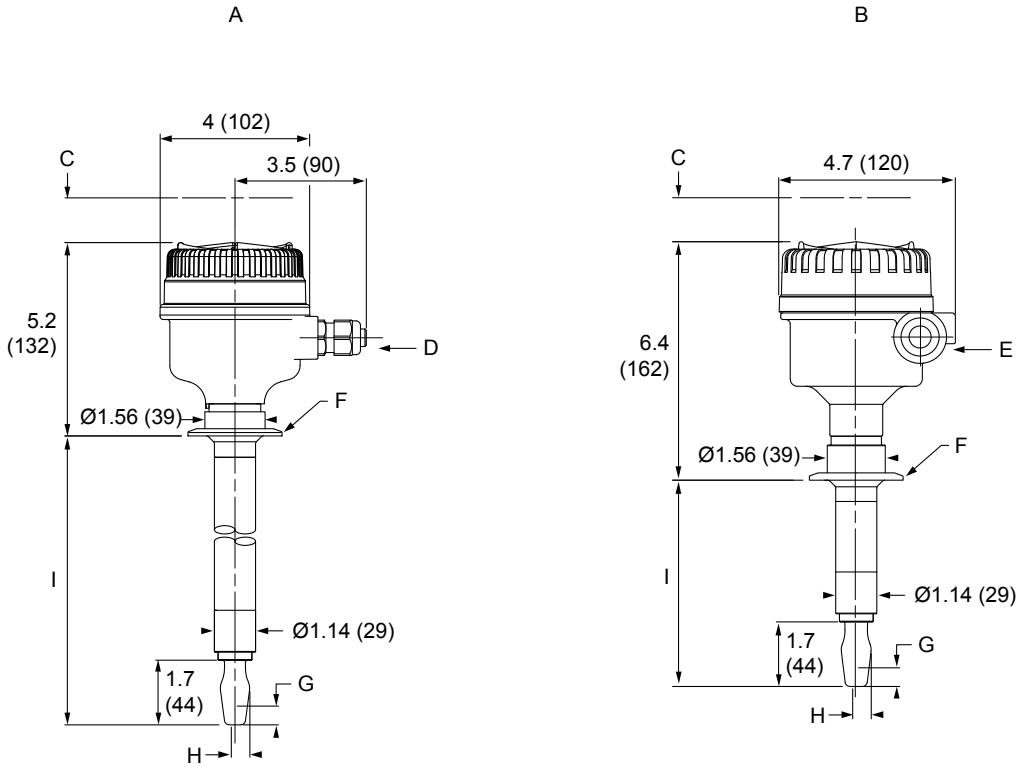
Figure 16: Tri Clamp Mounting (Standard Length, Surface Finish Codes 3, 4, 7, and 8)



A. Glass-filled nylon housing (and hygienically approved)
B. Aluminum/stainless steel housing (and hygienically approved)
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. 1½-in. (38 mm) or 2-in (51 mm) Tri Clamp
G. 0.5 (13) switchpoint (when mounted vertically)
H. 0.5 (13) switchpoint (when mounted horizontally)

Dimensions are in inches (millimeters).

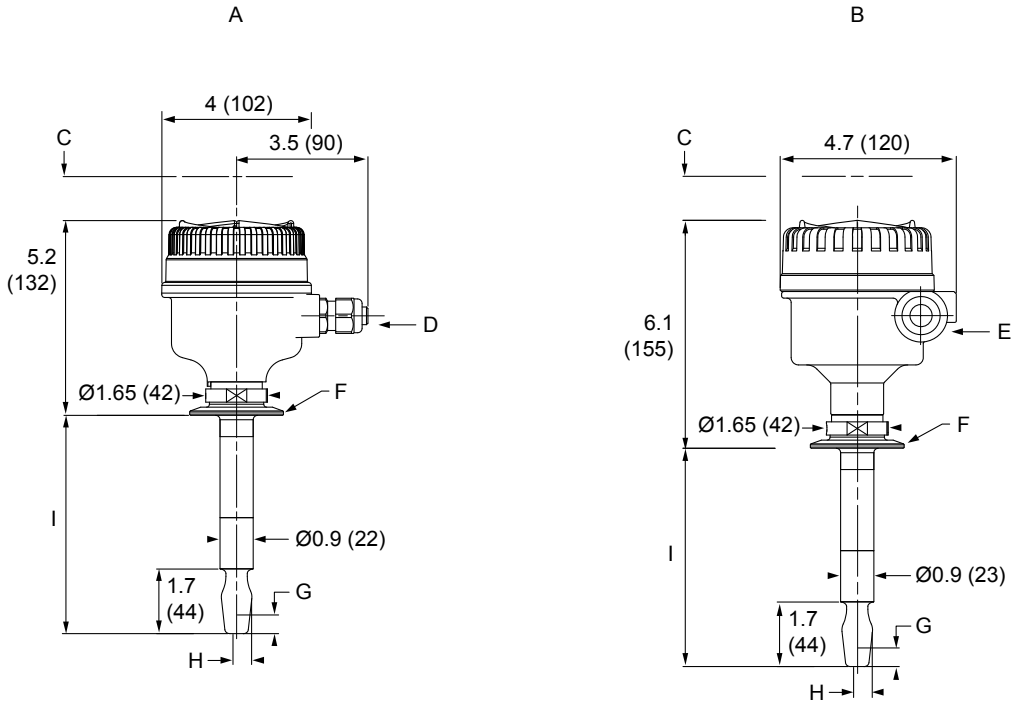
Figure 17: Tri Clamp Mounting (Extended Length, Surface Finish Codes 1 and 2)



A. Glass-filled nylon housing (and not hygienically approved)
B. Aluminum/stainless steel housing (and not hygienically approved)
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. 1½-in. (38 mm) or 2-in. (51 mm) Tri Clamp
G. 0.5 (13) switchpoint (when mounted vertically)
H. 0.5 (13) switchpoint (when mounted horizontally)
I. Customer specified fork length (see Table 2)

Dimensions are in inches (millimeters).

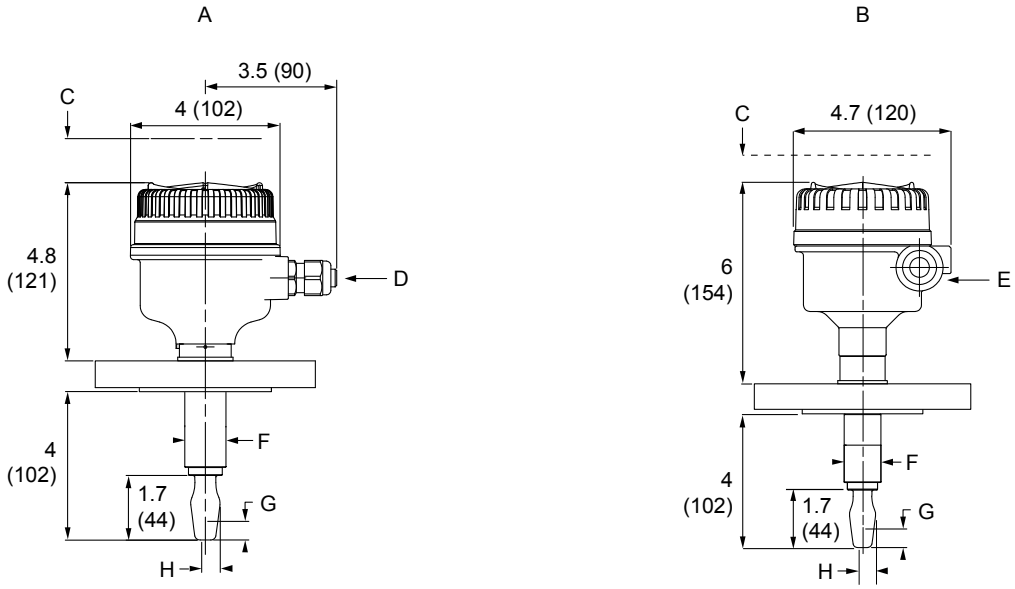
Figure 18: Tri Clamp Mounting (Extended Length, Surface Finish Codes 3, 4, 7, and 8)



A. Glass-filled nylon housing (and hygienically approved)
B. Aluminum/stainless steel housing (and hygienically approved)
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. 1½-in. (38 mm) or 2-in. (51 mm) Tri Clamp
G. 0.5 (13) switchpoint (when mounted vertically)
H. 0.5 (13) switchpoint (when mounted horizontally)
I. Customer specified fork length (see Table 2)

Dimensions are in inches (millimeters).

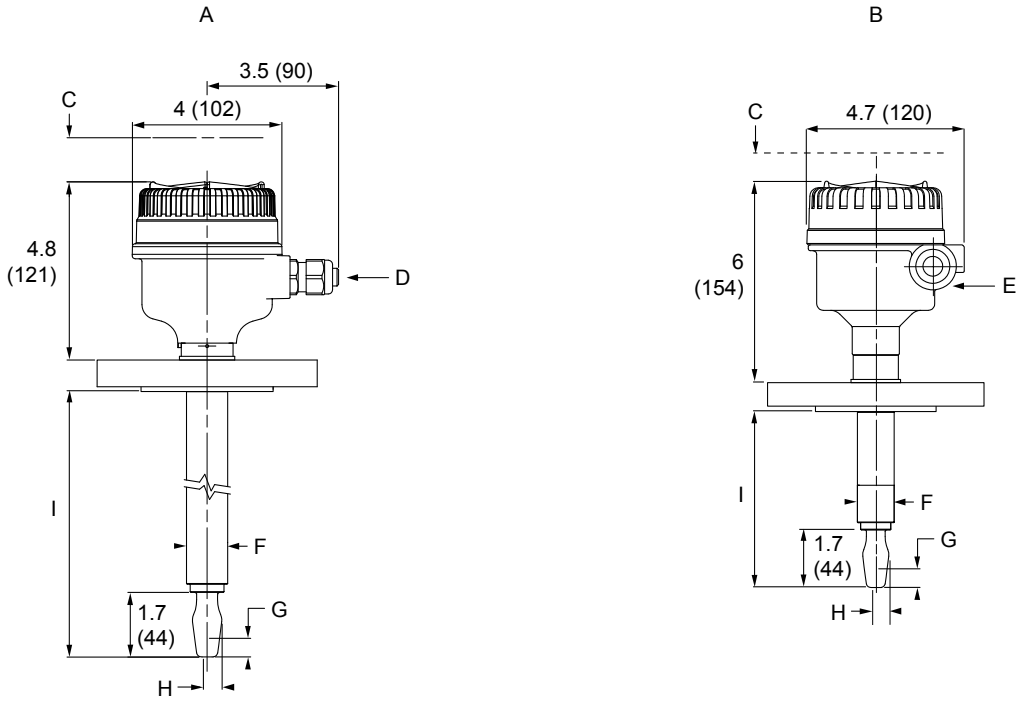
Figure 19: Flange Mounting (Standard Length)



A. Glass-filled nylon housing
B. Aluminum/stainless steel housing
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. Ø0.9 (23) for up to 1 in. flange; Ø1.14 (29) for 1½ in. or larger flange; Ø1.18 (30) for 1½ in. or larger coated flange
G. 0.5 (13) switchpoint (when mounted vertically)
H. 0.5 (13) switchpoint (when mounted horizontally)

Dimensions are in inches (millimeters).

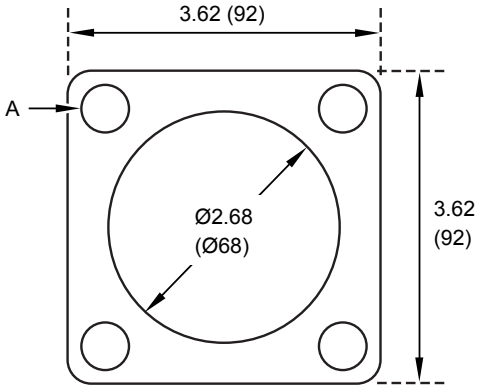
Figure 20: Flange Mounting (Extended Length)



A. Glass-filled nylon housing
B. Aluminum/stainless steel housing
C. Allow 1.2 (30) clearance to remove cover
D. Cable entry M20 x 1.5 or ½-in. NPT
E. Cable entry M20 x 1.5 or ¾-in. NPT
F. Ø0.9 (23) for up to 1 in. flange; Ø1.14 (29) for 1½ in. or larger flange; Ø1.18 (30) for 1½ in. or larger coated flange
G. 0.5 (13) switchpoint (when mounted vertically)
H. 0.5 (13) switchpoint (when mounted horizontally)
I. Customer specified fork length (see Table 2)

Dimensions are in inches (millimeters).

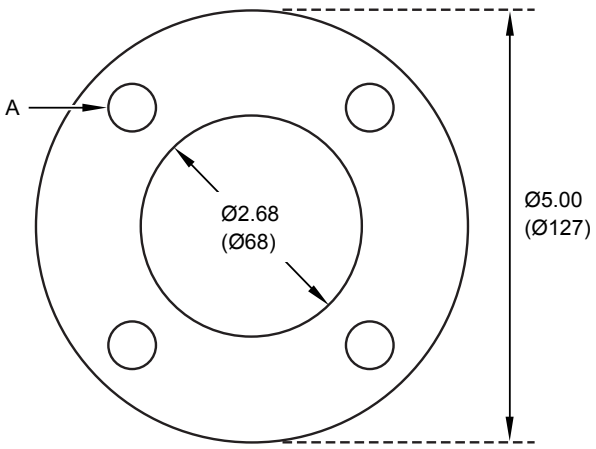
Figure 21: Mobrey 'A' Flange



A. 4 off Ø0.55 (Ø14) holes equi-spaced on 3.62 (92) PCD

Dimensions are in inches (millimeters).

Figure 22: Mobrey 'G' Flange



A. 4 off Ø0.55 (Ø14) holes equi-spaced on 3.97 (98.4) PCD

Dimensions are in inches (millimeters).

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