Product Data Sheet
February 2015
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Rosemount 2130

Enhanced Vibrating Fork Liquid Level Switch

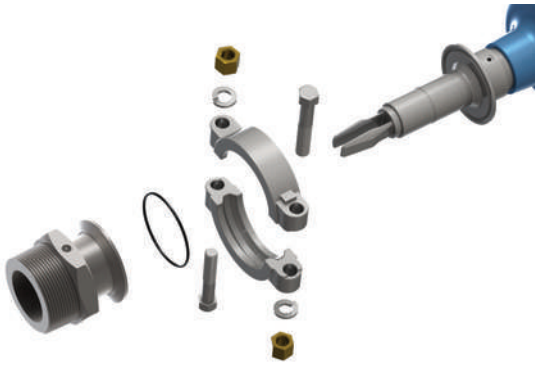


- Designed for operation in process temperatures of –94 to 500 °F (–70 to 260 °C)
- Electronic self-checking and condition monitoring – 'Heartbeat' LED gives status and instrument health information
- Increased safety, **SIL2**-certified to IEC 61508 as required by IEC 61511 and **SIL3** capable
- Adjustable switching delay for turbulent or splashing applications
- "Fast drip" fork design gives quicker response time especially with viscous liquids
- General area, explosion-proof/flameproof, and intrinsically safe options

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Overview of the Rosemount 2130



The Quick Release kit is a new optional set of accessories. It makes inspection, proof-testing, and servicing easier than ever (see Table 2 on page 7 for accessories)



There is a variety of plug-in electronics options, with each having an adjustable mode and switching delay (see "Electrical connections" on page 10)



'Fast drip' forks

Measurement principle

The Rosemount 2130 is designed using the principle of a tuning fork. A piezo-electric crystal oscillates the forks at their natural frequency. Changes to this frequency are continuously monitored. The frequency of the vibrating fork sensor changes depending on the medium in which it is immersed. The denser the liquid, the lower the frequency.

When used as a **low level alarm**, the liquid in the tank or pipe drains down past the fork, causing a change of natural frequency that is detected by the electronics and switches the output state.

When the 2130 is used as a **high level alarm**, the liquid rises in the tank or pipe, making contact with the fork which then causes the output state to switch.

Key features and benefits

- Virtually unaffected by turbulence, foam, vibration, solids content, coating products, and liquid properties
- The *mid-range temperature* 2130 is designed for operation in process temperatures from –40 to 356 °F (–40 to 180 °C)
- The *extreme temperature* 2130 is designed for operation in process temperatures from –94 to 500 °F (–70 to 260 °C). It has a stainless steel thermal tube to move the electronics away from the process
- Electronic self-checking and condition monitoring. The 'heartbeat' LED gives status and health information on the 2130
- Adjustable switching delay prevents false switching in turbulent or splashing applications
- 'Fast Drip' fork design gives quicker response time when mounted horizontally, especially with viscous liquids
- Rapid wet-to-dry time for highly responsive switching
- Fork shape is optimized for hand polishing to meet hygienic requirements
- No moving parts or crevices for virtually no maintenance

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Superior diagnostics

- Built-in diagnostics continuously check electronic and mechanical health
- Fork conditions detected including internal and external damage, coated or blocked, and extreme corrosion
- Ideal for critical alarm duties

Fit and forget

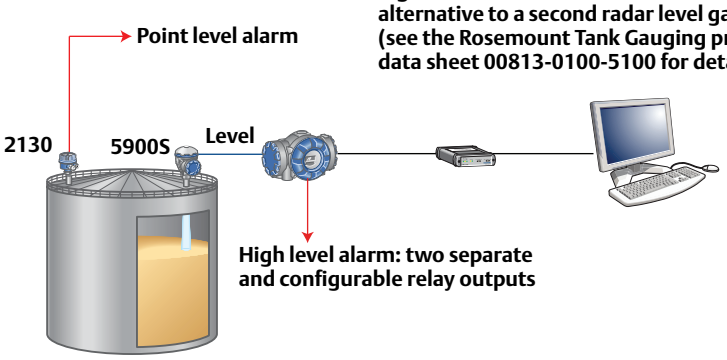
- Once installed, the 2130 is ready to go.
  It needs no calibration and requires minimum installation
- The 'heartbeat' LED gives an instant visual indication that the unit is operational
- Functional testing of the instrument and system is easy with a magnetic test point
- You can install, and forget it

Extended high and low temperature performance

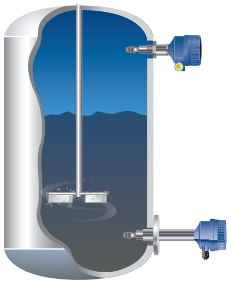
- The *extreme temperature* 2130 enables standardization of Rosemount vibrating fork switches across a wide range of process environments, and is ideally suited for harsh conditions where high reliability is essential

Applications

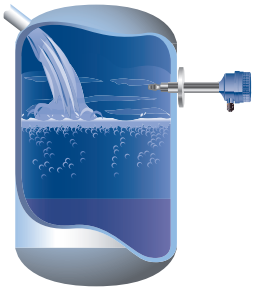
- Overfill protection
- High and low level alarms
- Pump control or limit detection
- Run dry or pump protection
- Hygienic applications
- High temperature applications
- Wireless applications



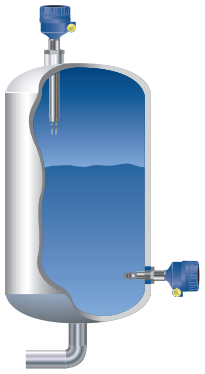
In tank gauging systems, a Rosemount 2130 high level alarm switch can be used as an alternative to a second radar level gauge (see the Rosemount Tank Gauging product data sheet 00813-0100-5100 for details)



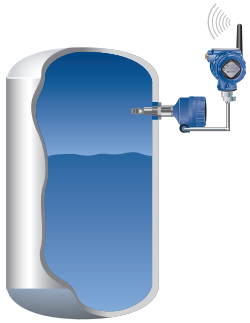
High and low level alarm



High temperature applications



Pump control / limit detection



Wireless applications using a Rosemount 702 Wireless Discrete Transmitter

Rosemount 2130 Ordering Information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment.
See page 8 for more information on Material Selection.

Table 1. Rosemount 2130 ordering information

The starred options (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Product description		
2130	Enhanced Vibrating Fork Liquid Level Switch		
Output			
L	Direct Load Switching (Mains 2-wire) 20 to 264 Vac, 50/60 Hz, 20 to 60 Vdc, Self-checking		★
P	PNP/PLC Low Voltage (3-wire) 20 to 60 Vdc, Self-checking		★
D	Relay (DPCO), 20 to 264 Vac, 50/60 Hz, 20 to 60 Vdc, Self-checking		★
F[1]	Fault and Alarm Relays (2 x SPCO)		★
N	NAMUR, 8 Vdc, Self-checking		★
M	8/16 mA, Self-checking		★
Housing material			
A	Aluminum		★
S	Stainless Steel		★
Conduit entry / cable threads		**Product certifications**	
9	3/4-in. ANPT	NA, E5, E6, EP, G5, G6, GP, I1, I2, I3, I5, I6, I7, IP	★
2	M20	NA, E1, E2, E3, E7, EP, I1, I2, I3, I5, I6, I7, IP	★
Operating temperature			
M	Mid-Range: –40 °F (–40 °C) ... 356 °F (180 °C)		★
E	Extreme: –94 °F (–70 °C) ... 500 °F (260 °C)		★
Materials of construction: process connection / fork[2]			
S	316/316L Stainless Steel (1.4401/1.4404)		★
F[3][4][5]	ECTFE/PFA Copolymer, Coated 316/316L Stainless Steel (1.4401/1.4404)		★
H[6]	Alloy C (UNS N10002), Alloy C-276 (UNS N10276), solid		
Process connection size[7]			
9	3/4 in. / 19 mm		★
1	1 in. / 25 mm (DN25)		★
2	2 in. / 50 mm (DN50)		★
5	1 1/2 in. / 40 mm (DN40)		★
3	3 in. / 80 mm (DN80)		★
4	4 in. / 100 mm (DN100)		★
7	2 1/2 in. / 65 mm (DN65)		★
Process connection rating[7]			
AA	ASME B16.5 Class 150 flange		★
AB	ASME B16.5 Class 300 flange		★
AC	ASME B16.5 Class 600 flange		★
DA	EN1092-1 PN 10/16 flange		★
DB	EN1092-1 PN 25/40 flange		★
DC	EN1092-1 PN 63 flange		★
DD	EN1092-1 PN 100 flange		★
NN	For use with non-flange process connection type		★

Table 1. Rosemount 2130 ordering information

The starred options (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Process connection type[7]				
R	Raised Face (RF) Flange			★
B	BSPT (R) Thread			★
G	BSPP (G) Thread			★
N	NPT Thread			★
P	BSPP (G) O-ring			★
C	Tri-Clover Clamp			★
Fork length				
			Process connection	
A	Standard length 1.7-in. (44 mm)		All except flanged models	★
H[4]	Standard length flange 4.0-in. (102 mm)		All flanged models	★
E[8]	Extended, customer specified length in tenths of inches		All except connection 1-NN-P	★
M[8]	Extended, customer specified length in millimeters		All except connection 1-NN-P	★
Specific extended fork length				
0000	Factory default length (only if Fork Length A or H is selected)			★
XXXX[8]	Specific customer specified length in tenths of inches, or millimeters (XXXX mm or XXX.X inches)			★
Surface finish			**Process connection**	
1	Standard surface finish		All	★
2[9][10]	Hand polished (Ra < 0.4 µm)		Hygienic Connections P or C	★
Product certifications				
		Output	**Conduit entry/cable threads**	
NA	No Hazardous Locations Certifications	All models	All models	★
G5[11]	FM Ordinary Locations (unclassified, safe area)	All models	3/4-in. ANPT models only	★
G6[12][13]	CSA Ordinary Locations (unclassified, safe area)	All models	3/4-in. ANPT models only	★
GM[1]	Technical Regulation Customs Union (EAC), ordinary location	[1]	[1]	★
GP[1]	Korean Testing Laboratory (KTL), KCC Mark for ordinary location	[1]	[1]	★
E1	ATEX Flameproof	All models	M20 models only	★
E2	INMETRO Flameproof	All except Fault Relays	M20 models only	★
E3	NEPSI Explosion-proof	All models	M20 models only	★
E5[11]	FM Explosion-proof	All models	3/4-in. ANPT models only	★
E6[12][13]	CSA Explosion-proof	All models	3/4-in. ANPT models only	★
E7	IECEx Explosion-proof	All models	M20 models only	★
EM[1]	Technical Regulation Customs Union (EAC) Flameproof	[1]	[1]	★
EP[1]	KTL/KOSHA Flameproof	[1]	[1]	★
I1	ATEX Intrinsic Safety	Namur or 8/16 mA	All models	★
I2	INMETRO Intrinsic Safety	Namur or 8/16 mA	All models	★
I3	NEPSI Intrinsic Safety	Namur or 8/16 mA	All models	★
I5	FM Intrinsic Safety	Namur or 8/16 mA	All models	★
I6[13]	CSA Intrinsic Safety	Namur or 8/16 mA	All models	★
I7	IECEx Intrinsic Safety	Namur or 8/16 mA	All models	★
IM[1]	Technical Regulation Customs Union (EAC) Intrinsic Safety	[1]	[1]	★
IP[1]	KTL/KOSHA Intrinsic Safety	[1]	[1]	★
Typical Model Number: 2130 L A 2 E S 9 NN B A 0000 1 NA				

Table 1. Rosemount 2130 ordering information

The starred options (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Options (include with the selected model number)

Calibration data certification		
Q4	Certificate of functional test	★
Material traceability certification		
Q8(3)(4)	Material traceability certification per EN 10204 3.1	★
Material certification		
Q15(3)(4)	NACE MR0175 / ISO 15156	★
Q25(3)(4)	NACE MR0103	★
Safety certifications		
QS	Prior-use certificate of FMEDA Data	★
QT	Safety certificate to IEC61508	★
Special procedures		
P1	Hydrostatic testing with certificate	★
Low liquid density range		
LD	Low density liquids – minimum density is 31.2 lb/ft^3 (500 kg/m^3)	★
Overfill		
U1(1)	WHG/DIBt overfill protection	★
Extended product warranty		
WR3(1)	3-year limited warranty	★
WR5(1)	5-year limited warranty	★
Example of options included with the model number: 2130 L A 2 E S 9 NN B A 0000 1 NA Q8 WR3		

(1) Contact an Emerson Process Management representative for additional information.

(2) Flanges are dual certified 316 and 316L Stainless Steel (1.4401 and 1.4404).

(3) Only available for wetted parts.

(4) Option is not available for hand polished wet side as standard.

(5) Only available for a flanged 2130; the Operating Temperature code M must be selected (mid-range) and the process temperature must be below 302 °F (150 °C).

(6) Only available for BSPT and NPT threaded process connection codes 9-NN-B, 9-NN-N, 1-NN-B, and 1-NN-N as standard, other upon request.

(7) Other process connections available upon request.

(8) Example Fork Length code E1181 is 118.1 inches. Code M4000 is 4000 millimeters. See "Extended Lengths" on page 8 for min. and max. extended lengths.

(9) Not available with Material of Construction Process / Fork option code H.

(10) 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).

(11) See "Product Certifications" on page 11. E5 includes G5 requirements. G5 is for use in unclassified, safe area locations only.

(12) See "Product Certifications" on page 11. E6 includes G6 requirements. G6 is for use in unclassified, safe area locations only.

(13) The requirements of CRN are met when a Rosemount 2130 CSA approved vibrating fork level switch (with Product Certifications code G6, E6, or I6) is configured with stainless steel wetted parts and either NPT threaded or ASME B16.5 2-in. to 8-in. flanged process connections.

Safety Integrity Level (SIL) certification option

- The Rosemount 2130 is SIL2-certified, and is also SIL3 capable.
- The Rosemount 2130 has been independently certified to IEC 61508 as required by IEC 61511. Certification was conducted by Exida. If required, add "**QT**" to the end of the model number. For example, 2130 L A 2 E S 9 NN B A 0000 1 NA Q8 **QT**. (Note that you can have one or more OPTIONS codes at the end of the model number).
- Contact an Emerson Process Management representative or go to http://www.emersonprocess.com/rosemount/safety/ for additional information.

Overfill approval option

- The Rosemount 2130 has been TÜV-tested and approved for overfill protection according to the German DIBt/WHG regulations. If required, add **"U1"** to the end of the model number. For example, 2130 L A 2 E S 9 NN B A 0000 1 NA Q8 **U1** (Note that you can have one or more OPTIONS codes added at the end of the model number).

Rosemount 2130 Spare Parts and Accessories

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 8 for more information on Material Selection.

Table 2. Rosemount 2130 Spare parts and accessories

The starred options (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Spares and accessories [1] [2]		
02100-1000-0001	Seal for 1-in. BSPP (G1A). Material: Non-asbestos BS7531 grade X carbon fiber with rubber binder	★
02100-1040-0001	Seal for 3/4-in. BSPP (G3/4A). Material: Non-asbestos BS7531 grade X carbon fiber with rubber binder	★
02100-1010-0001	Hygienic adaptor boss 1-in. BSPP. Material: 316 SS fitting. FPM/FKM 'O' ring	★
02100-1020-0001	2-in. (51 mm) Tri-clamp kit (vessel fitting, clamp ring, and seal). Material: 316 SST NBR Nitrile	★
02100-1030-0001	Telescopic test magnet	★
02120-2000-0001[3]	316 SST adjustable clamp gland for 1-in. threaded extended length. 1 1/2-in. BSPP male connection	★
02120-2000-0002[3]	316 SST adjustable clamp gland for 1-in. threaded extended length. 1 1/2-in. NPT male connection	★
02130-7000-0001[4]	Replacement Cassette: Direct load switching (Red)	★
02130-7000-0002[5]	Replacement Cassette: PNP/PLC low voltage (Yellow)	★
02130-7000-0003[6]	Replacement Cassette: NAMUR current switching (Light Blue)	★
02130-7000-0004[7]	Replacement Cassette: DPCO Relay (Dark Green)	★
02130-7000-0005[8]	Replacement Cassette: Direct load switching, low density range selection (Red)	★
02130-7000-0006[9]	Replacement Cassette: PNP/PLC low voltage, low density range selection (Yellow)	★
02130-7000-0007[10]	Replacement Cassette: NAMUR current switching, low density range selection (Light Blue)	★
02130-7000-0008[11]	Replacement Cassette: DPCO Relay, low density range selection (Dark Green)	★
02130-7000-0009[12]	Replacement Cassette: 8/16 mA, (Dark Blue)	★
02130-7000-0010[13]	Replacement Cassette: 8/16 mA, low density range selection (Dark Blue)	★
02130-7000-0011[14]	Replacement Cassette: Fault and Alarm Relays (2 x SPCO) (Light Green)	★
02130-7000-0012[15]	Same as replacement cassette 02130-7000-011 but with Low density range selection	★
02100-1060-0001[16]	Quick Release kit (contains 2-in. Tri-Clamp, seal, and quick release device for 2-in. NPT process connection)	

(1) 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.

(2) When ordering a replacement cassette, check the Product Certification section in Table 1 on page 4 for availability conditions.

(3) The adjustable clamp gland is not explosion-proof. It has a silicone rubber seal. Maximum pressure is 1.3 barg. Maximum temperature is 257 °F (125 °C).

(4) Available for units with Direct Load electronics (Output code L). **Not available for units with Options code LD is included in the model number**.

(5) Available for units with PNP/PLC electronics (Output code P). **Not available for units with Options code LD is included in the model number**.

(6) Available for units with NAMUR electronics (Output code N). **Not available for units with Options code LD is included in the model number**.

(7) Available for units with DCPO Relay electronics (Output code D). **Not available for units with Options code LD is included in the model number**.

(8) Available for units with Direct Load electronics (Output code L) and Options code LD included in the model number.

(9) Available for units with PNP/PLC electronics (Output code P) and Options code LD included in the model number.

(10) Available for units with NAMUR electronics (Output code N) and Options code LD included in the model number.

(11) Available for units with DCPO Relay electronics (Output code D) and Options code LD included in the model number.

(12) Available for units with 8/16 mA electronics (Output code M). **Not available for units with Options code LD is included in the model number**.

(13) Available for units with 8/16 mA electronics (Output code M) and Options code LD included in the model number.

(14) Available for units with Fault and Alarm Relay electronics (Option code F) only. **Not available for units with Options code LD is included in the model number**.

(15) Available for units with Fault and Alarm Relay electronics (Option code F) and Options code LD included in the model number.

(16) The Quick Release kit is a set of accessories requiring a Rosemount 2130 with the 2-in. Tri-clamp option and an existing 2-in. NPT process connection on the vessel. For additional information, see the Quick Release kit – quick start guide (document number 00825-0200-4030). Contact an Emerson Process Management representative for the current availability of the kit.

Specifications

General

Product

- Rosemount 2130 Enhanced Vibrating Fork Liquid Level Switch.

Measuring principle

- Vibrating Fork.

Applications

- Most liquids including coating liquids, aerated liquids, and slurries.

Mechanical

Housing / Enclosure

Table 3. Housing / Enclosure Specification

Housing code	A-2	A-9	S-2	S-9
Housing material	Al Alloy ASTM B85 A360.0		316C12 Stainless Steel	
Rotational	No		No	
Housing paint	Polyurethane paint		Not applicable	
LED window	None		None	
Conduit entry	M20	3/4-in. ANPT	M20	3/4-in. ANPT
Ingress protection	IP66/67 to EN60529, NEMA 4X		IP66/67 to EN60529, NEMA 4X	

Process connections

- Threaded, hygienic, and flanged process connections. See Table 1 on page 4 for a complete list.

Extended Lengths

- The maximum extended length is 157.5 in. (4000 mm) except for ECTFE/PFA copolymer coating and hand-polished process connection options which have a maximum length of 59.1 in. (1500 mm) and 39.4 in. (1000 mm) respectively.

Table 4. Minimum extended lengths

Process connection	Minimum extended length
3/4–in. Threaded	3.8 in. (95 mm)
1–in. Threaded	3.7 in. (94 mm)
Flanged	3.5 in. (89 mm)
Tri-Clamp	4.1 in. (105 mm)

Process connection 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 BSPT and NPT threaded process connections (3/4-in. and 1-in. BSPT (R), and 3/4-in. and 1-in. NPT).*
- ECTFE/PFA co-polymer coated 316/316L Stainless Steel (1.4401/1.4404 dual certified) *– only available for a flanged 2130.*
- Hand-polished to better than 0.4 µm option for hygienic connections
- Gasket material for 3/4-in. and 1-in. BSPP (G) is non-asbestos BS7531 Grade X carbon fiber with rubber binder.

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.

Dimensional drawings

- See "Dimensional Drawings" on page 14.

Performance

Hysteresis (water)

- 0.1 in. (2.5 mm).

Switching point (water)

- 0.5 in. (13 mm) from tip of fork (if vertical installation) or from edge of fork (if horizontal installation) – *varies with different liquid densities.*

Functional

Maximum operating altitude

- 6562 ft. (2000 m).

Liquid density requirement

- Minimum standard density is 37.5 lb/ft^3 (600 kg/m^3).
- Minimum density is 31.2 lb/ft^3 (500 kg/m^3) when ordered with the Low Density Range option.

Liquid viscosity range

- Up to 10000 cP (centiPoise) when operating in Normal mode.
- Up to 1000 cP (centiPoise) when operating in Self-check mode.

Solids content and coating

- The maximum recommended diameter of solid particles in the liquid is 0.2 in. (5 mm) when used in normal mode only.
- For coating products, avoid bridging of forks.

Switching delay

- There is a user-selectable 0.3, 1, 3, 10, 30 seconds delay for dry-to-wet and wet-to-dry switching.

CIP (Clean In Place) cleaning

- The 2130 withstands steam cleaning routines.

Maximum operating pressure

- The final rating depends on the selected process connection.
- Threaded connection: see Figure 1 for operating pressures. Note: Clamp glands 02120-2000-0001 and 02120-2000-0002 (page 7) limit the maximum pressure to 18.85 psig (1,3 bar g).
- Hygienic connection: 435 psig (30 bar g).
- Flanged connection: See Figure 1 or Table 5 (whichever gives the lowest pressure).

Figure 1. Process pressure

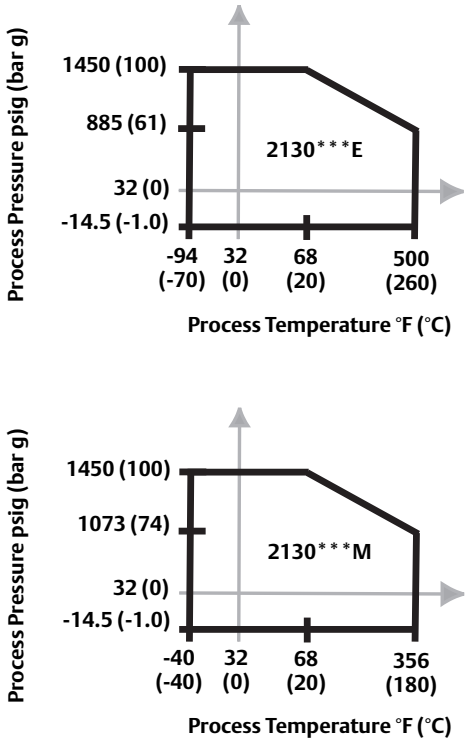


Table 5. Maximum flange pressure rating

Standard	Class/Rating	Stainless steel flanges
ASME B16.5	Class 150	275 psig (1)
ASME B16.5	Class 300	720 psig (1)
ASME B16.5	Class 600	1,440 psig (1)
EN1092-1	PN 10	10 barg (2)
EN1092-1	PN 16	16 barg (2)
EN1092-1	PN 25	25 barg (2)
EN1092-1	PN 40	40 barg (2)
EN1092-1	PN 63	63 barg (2)
EN1092-1	PN 100	100 barg (2)

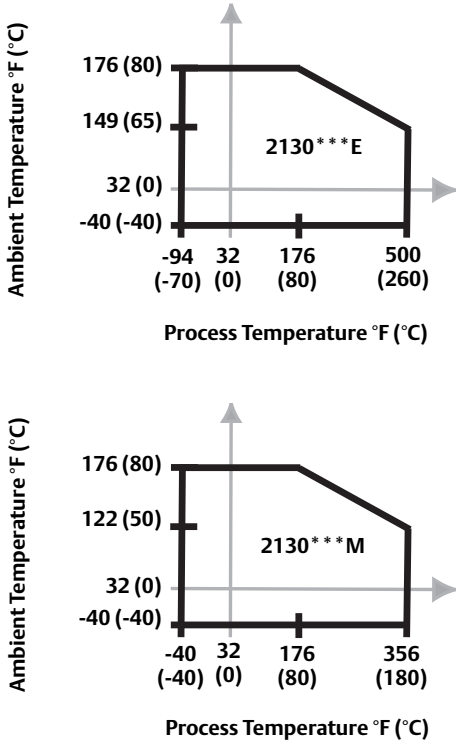
(1) At 100 °F (38 °C), the pressure rating decreases with an increasing process temperature.

(2) At 122 °F (50 °C), the pressure rating decreases with an increasing process temperature.

Minimum and maximum operating temperatures

- See Figure 2 for operating temperatures.
- Clamp glands 02120-2000-0001 and 02120-2000-0002 (page 7) limit the maximum temperature to 257 °F (125 °C).
- The ambient temperature for a 8/16 mA cassette is limited to 158 °F (70 °C) in dust applications.

Figure 2. Operating temperatures



Electrical

Switching mode

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

Protection

- Polarity insensitive – *Direct Load and Relay 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) – *Available on all versions of the 2130*

Terminal connection (wire diameter)

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

Conduit plugs/cable gland

- 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. See Table 3 on page 8 for conduit/cable entry options.

Grounding

- The Rosemount 2130 must always be grounded either through the terminals or using the provided external ground connection

Operating modes

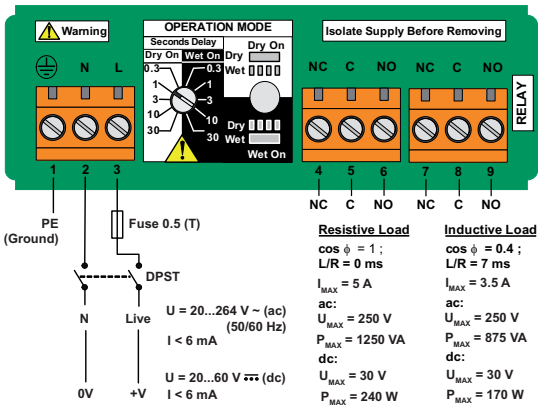
Table 6. Operating modes

Fault Conditions Detected	Normal Mode	Self-Check Mode
PCB Control Circuit Corruption	Yes	Yes
External Damage to Fork	No	Yes
Internal Damage to Sensor	No	Yes
Excessive Corrosion	No	Yes
Over-temperature	No	Yes

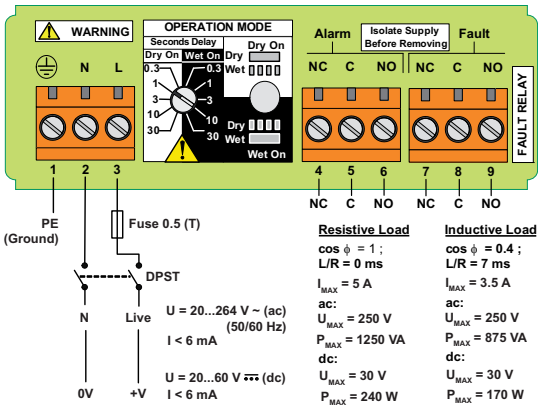
Electrical connections

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

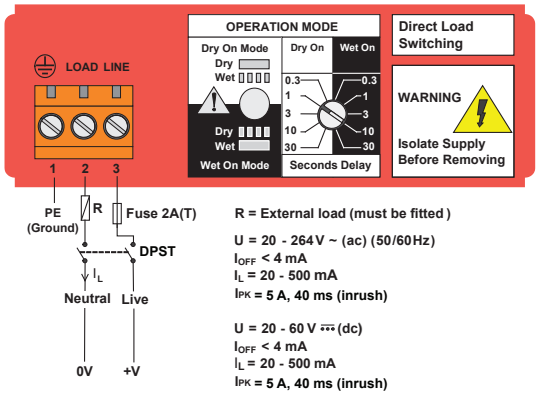
- DPCO relay cassette (dark green)



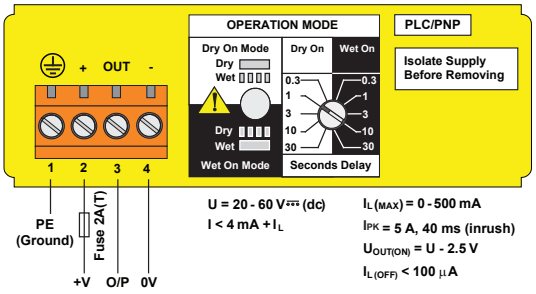
- Fault and Alarm relays (2 x SPCO) cassette (light green)



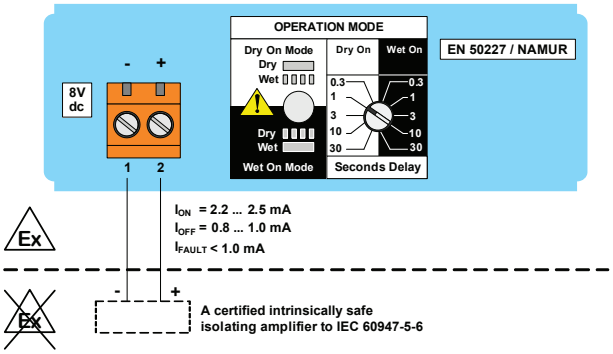
- Direct load switching (mains two-wire) cassette



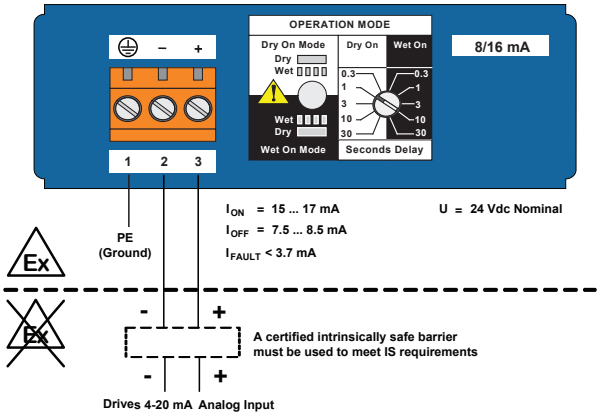
- Solid state PNP output for direct interface to a PLC



- NAMUR cassette (light blue)



- 8/16 mA cassette (dark blue)



Product Certifications

European Union directive information

The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at www.rosemount.com.

ATEX directive (94/9/EC)

Complies with the ATEX directive.

Pressure equipment directive (PED) (97/23/EC)

The Rosemount 2130 is outside the scope of the PED directive.

Low voltage directive (LVD)

EN61010-1 Pollution degree 2, Category II (264V max), Pollution degree 2, Category III (150V max)

Electro magnetic compatibility (EMC) directive

EN61326 Emissions to Class B.
Immunity to industrial location requirements.
NAMUR NE21.

CE-mark

Complies with applicable directives (EMC, ATEX, LVD).

NAMUR approval

NAMUR NE95 type test report is available upon request.
Complies with NAMUR NE21.

Overfill approval

Certificate number: Z-65.11-519.

TÜV-tested and approved for overfill protection according to the German DIBt/WHG regulations.

If required, add "**U1**" to the end of the model number.
For example, 2130 L A 2 E S 9 NN B A 0000 1 NA Q8 **U1**.

Marine approvals

ABS American Bureau of Shipping

GL Germanischer Lloyd (*excludes Alarm and Fault relays*)

SRS Russian Maritime Registered Shipping (RMRS)

Drinking water approval

Rosemount Measurement Ltd., Slough, UK confirms that the wetted parts of the Rosemount type 2130 vibrating level switches are suitable and approved for use in potable water.

The wetted parts of the vibrating level switches executed in: Stainless steel (option code S) and Alloy C / Alloy C-276 (option code H) with Flanged (option code R), NPT thread (option code N), BSPT(R) thread (option code B) or Tri-clamp (option code C) process connections, are in accordance with the requirements of DVGW*- Worksheet W270.The materials used are classified as toxicologically and microbiologically free.

Ordinary location certification for FM

G5 Project ID: 3021776
The switch has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Ordinary location certification for CSA

G6 Certificate Number: 06 CSA 1805769
The switch has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by CSA, a nationally recognized testing laboratory as accredited by the Standards Council of Canada (SCC). **Single Seal**

Technical Regulation Customs Union (EAC), ordinary locations mark

GM Contact an Emerson Process Management representative for additional information.

Korean Testing Laboratory (KTL), KCC mark for ordinary locations use

GP EMC Certificate: KCC-REM-ERN-RMDSWIT2130XXX

Safety Integrity Level (SIL) certification

The Rosemount 2130 is SIL2-certified, and is also SIL3 capable. It has been independently certified to IEC 61508 as required by IEC 61511. Certification was conducted by Exida.
If required, add "**QT**" to the end of the model code.
For example, 2130 L A 2 E S 9 NN B A 0000 1 NA Q8 **QT**.

Canadian Registration Number

CRN 0F04227.2C

Note
The requirements of CRN are met when a Rosemount 2130 CSA-approved (G6, E6, or I6 codes) vibrating fork level switch is configured with 316/316L stainless steel (1.4401/1.4404) wetted parts and either NPT threaded or 2-in. to 8-in. ASME B16.5 flanged process connections.

Hazardous locations certifications

North American approvals

Factory Mutual (FM) explosion-proof approval

E5 Project ID: 3012658
Explosion-proof for Class I, Div. 1, Groups A, B, C, and D
Temperature Class: T6 (T_{amb} –50 to +75 °C)
Enclosure: Type 4X

Factory Mutual (FM) intrinsically safe approval and non-incendive approvals

I5 Project ID: 3011456
Intrinsically Safe for Class I, Div. 1, Groups A, B, C, and D
Class I, Zone 0, AEx ia IIC
Non-incendive for Class I, Div. 2, Groups A, B, C, and D
Class I, Zone 2, IIC
Temperature Code: T5 (Tamb –40 to 80 °C, Tproc < 80 °C)
Control Drawing: 71097/1154 (*with NAMUR electronics*)
Control Drawing: 71097/1314 (*with 8/16 mA electronics*)

Note
A certified isolating amplifier or barrier must be used for intrinsic safety.

Canadian approvals

Canadian Standards Association (CSA) explosion-proof

E6 Project ID: 1786345
Explosion-proof for Class I, Div. 1, Groups A, B, C, and D
Temperature Class: T6 (T_{amb} –50 to +75 °C)
Enclosure: Type 4X
Single Seal

Canadian Standards Association (CSA) intrinsically safe and non-incendive approvals

I6 Certificate Number: 06 CSA 1786345
Intrinsically Safe for Class I, Div. 1, Groups A, B, C, and D
Class 1, Zone 0, Ex ia IIC
Non-incendive for Class I, Div. 2, Groups A, B, C, and D
Temperature Code: T5 (T_{amb} –50 to +80 °C, Tproc < 80 °C)
Control Drawing: 71097/1179 (*with NAMUR electronics*)
Control Drawing: 71097/1315 (*with 8/16 mA electronics*)
Single Seal

Note
A certified isolating amplifier or barrier must be used for intrinsic safety.

European approvals

ATEX flameproof and dust proof approval

E1 Certificate: Sira 05ATEX1129X
Flameproof and dust proof:
ATEX Marking ⟨Ex⟩ II 1/2 G D
Ex d IIC T6...T2 Ga/Gb
Ex tb IIIC T85 °C...T265 °C Db

ATEX intrinsically safe approval

I1 Certificate: Sira 05ATEX2130X
Intrinsic Safety for gas and dust atmospheres:
ATEX Marking ⟨Ex⟩ II 1 G D
Ex ia IIC T5...T2 Ga
Ex ia IIIC T85 °C...T265 °C Da

Note
A certified isolating amplifier or barrier must be used for intrinsic safety.

International approvals

INMETRO flameproof and dust proof approval

E2 Certificate Number: TÜV 12.1285 X
Flameproof and dust proof:
Ex d IIC T6 to T1 Ga/Gb, Ex tb IIIC T85 °C to T265 °C Db

INMETRO intrinsically safe approval

I2 Certificate Number: TÜV 12.1391 X
Intrinsically Safe for gas and dust atmospheres:
Ex ia IIC T* Ga, Ex ia IIIC T* Da (* See table in the certificate)
Ta* (* See table in the certificate)

Note
A certified isolating amplifier or barrier must be used for intrinsic safety.

National Supervision and Inspection Centre for Explosion Protection and Safety Instrumentation (NEPSI) flameproof and dust proof approval

E3 Certificate Number: GYJ101373
Flameproof and dust proof:
Ex d IIC T6 to T2
DIP A21 T_A (T85°C to 265°C) IP6X

National Supervision and Inspection Centre for Explosion Protection and Safety Instrumentation (NEPSI) intrinsically safe approval

I3 Certificate Number: GYJ101372X (*NAMUR electronics only*)
Intrinsic Safety:
Ex ia IIC T5 to T2

Note
A certified isolating amplifier or barrier must be used for intrinsic safety.

International Electrotechnical Commission (IEC) flameproof and dust proof approval

E7 Certificate: IECEx SIR 06.0051X
Flameproof and dust proof:
Ex d IIC T6...T2 Ga/Gb
Ex tb IIIC T85 °C...T265 °C Db

International Electrotechnical Commission (IEC) intrinsically safe approval

I7 Certificate: IECEx SIR 06.0070X
Intrinsically Safe for gas and dust atmospheres:
Ex ia IIC T5...T2 Ga
Ex ia IIIC T85 °C...T265 °C Da

Note
A certified isolating amplifier or barrier must be used for intrinsic safety.

KTL/KOSHA flameproof approval

EP Certificates:
13-KB4BO-0144X (SMMC, Singapore) or
13-KB4BO-0298X (Rosemount Measurement Ltd., UK)
(depends on the manufacturing location)

Zone 0/1 Ex d IIC T6...T2
Ta (see table in the certificate)

KTL/KOSHA intrinsically safe approval

IP Certificates:
13-KB4BO-0143X (SMMC, Singapore) or
13-KB4BO-0297X (Rosemount Measurement Ltd., UK)
(depends on the manufacturing location)

Ex ia IIC T5...T2
Ta (see table in the certificate)

Note
A certified isolating amplifier or barrier must be used for intrinsic safety.

Technical Regulation Customs Union (EAC) approvals

EM Certificate: RU C-GB.ГБ06.B.00072

Flameproof:
1Exd IIC T6...T2 X
Ta (see table in the certificate)

(Contact an Emerson Process Management representative for additional information).

IM Certificate: RU C-GB.ГБ06.B.00072

Intrinsic Safety:
0Exia IIC T5...T2 X
Ta (see table in the certificate)

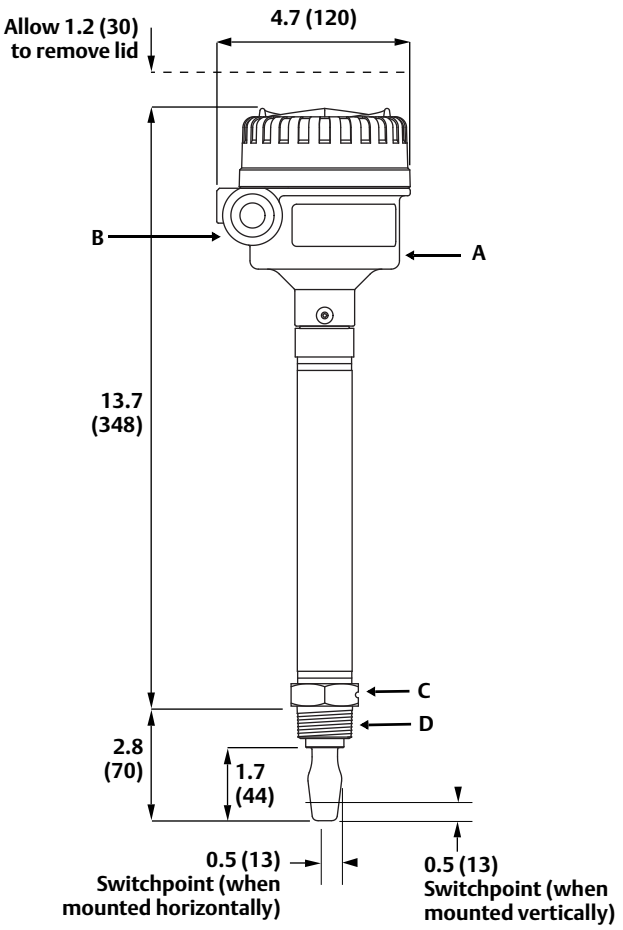
(Contact an Emerson Process Management representative for additional information).

Dimensional Drawings

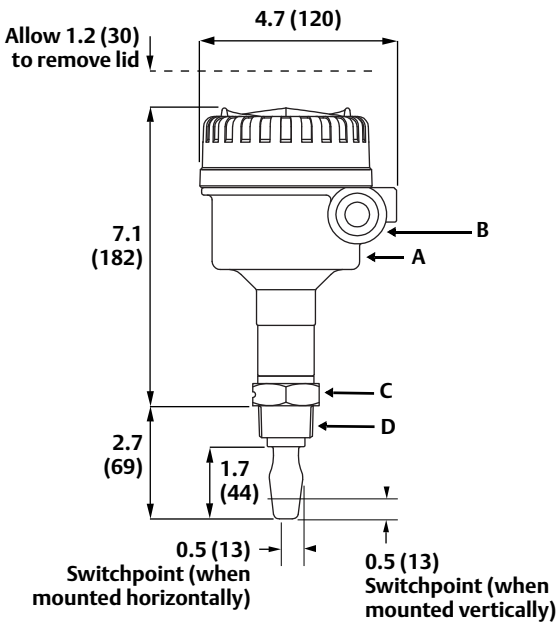
Thread mounting (standard length) . . . . . page 14
Thread mounting (extended length) . . . . . page 15
Flange mounting (standard length) . . . . . page 16
Flange mounting (extended length) . . . . . page 17

Thread mounting (standard length)

2130*E



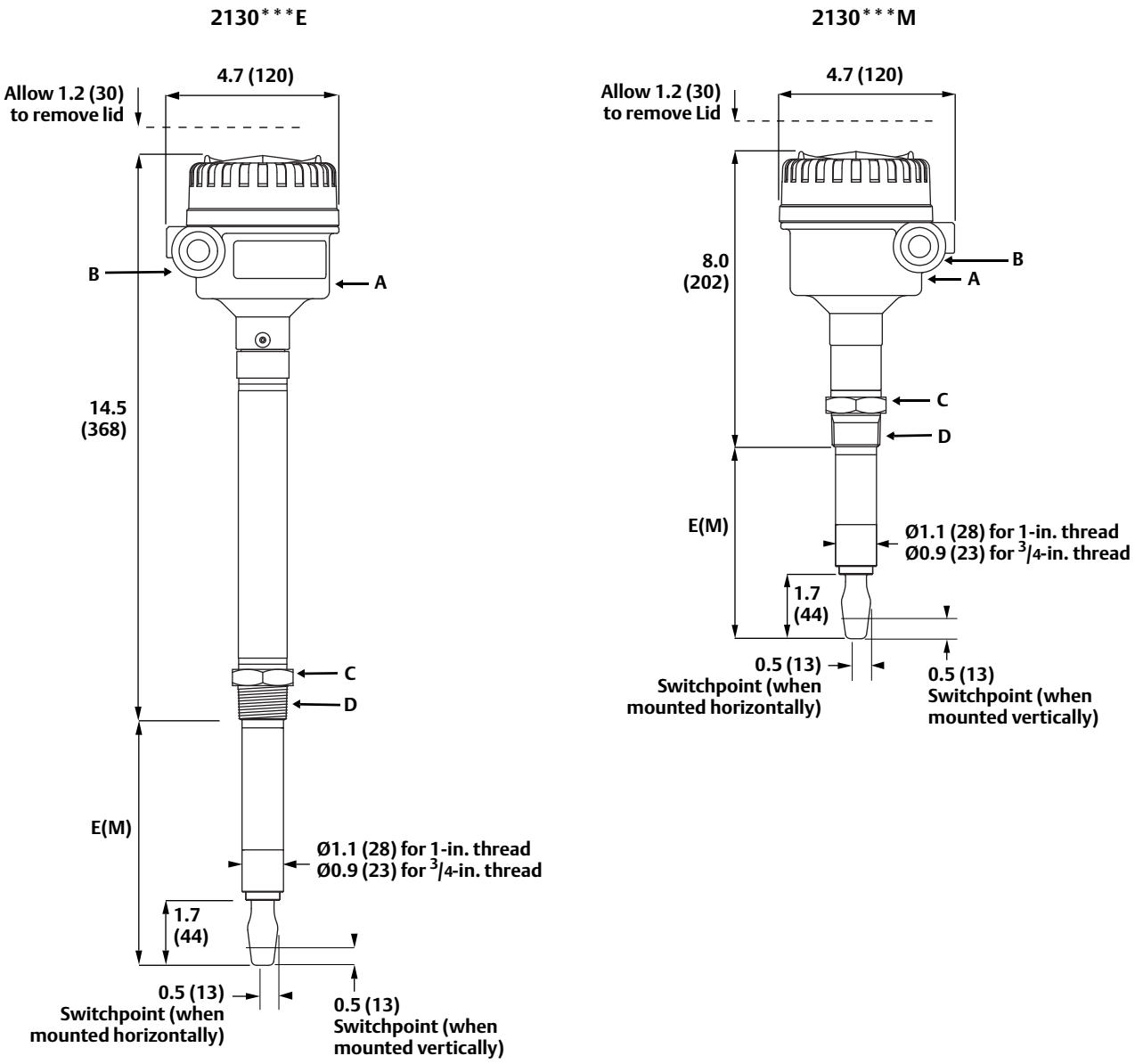
2130*M



A. Aluminum or SST Housing
B. Cable Entry M20x1.5 or $^{3}/_{4}$-in. ANPT
C. 1.575 (40) A/F Hexagon
D. $^{3}/_{4}$-in. or 1-in. Thread

Note
Dimensions are in inches (millimeters).
For Hygienic 2130 dimensions, see Type 1 drawing downloads on www.rosemount.com.

Thread mounting (extended length)



A. Aluminum or SST Housing B. Cable Entry M20x1.5 or 3/4-in. ANPT C. 1.575 (40) A/F Hexagon D. 3/4-in. or 1-in. Thread

Note

Dimensions are in inches (millimeters).

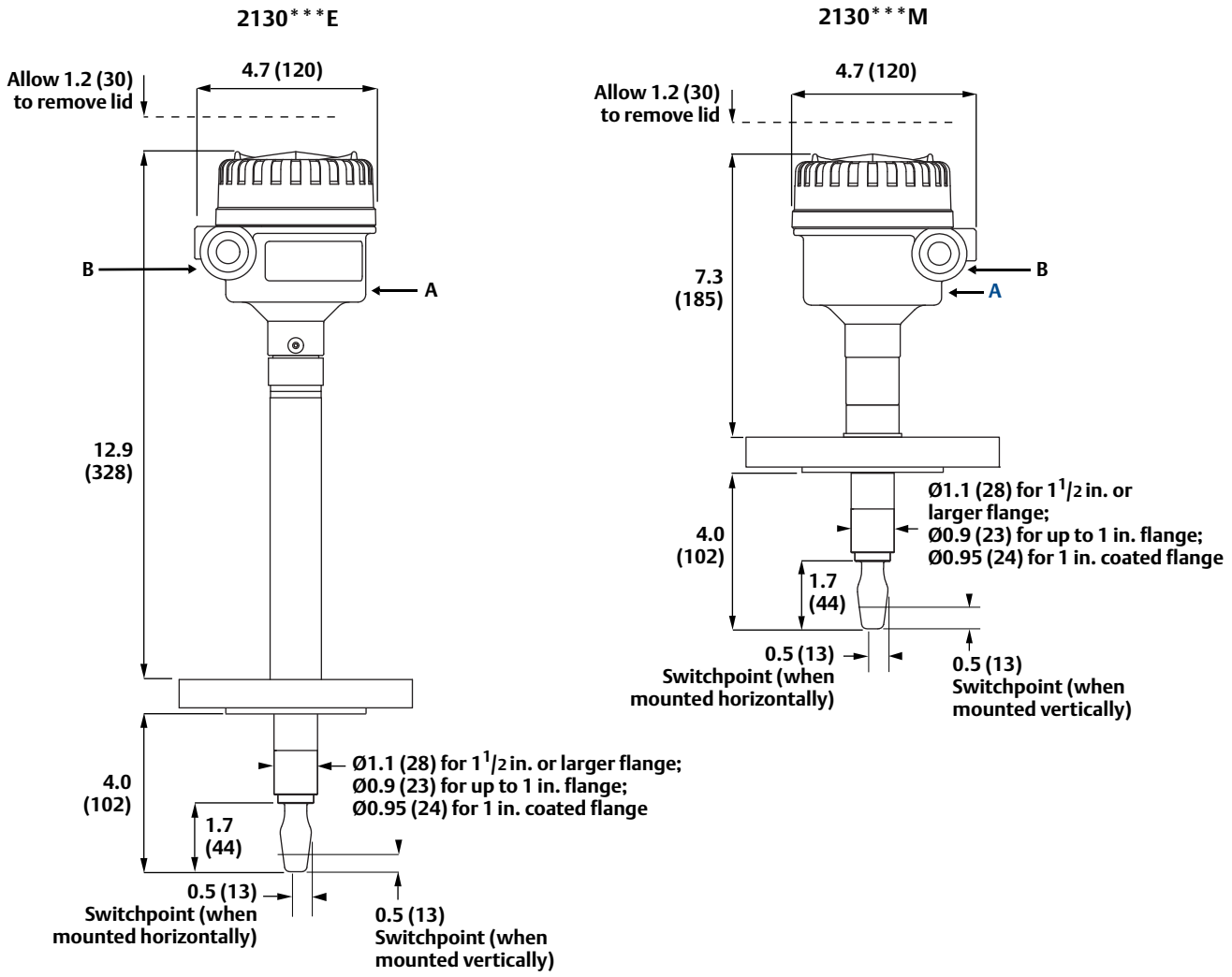
For Hygienic 2130 dimensions, see Type 1 drawing downloads on www.rosemount.com.

Table 7. Fork length for threaded 2130

Process connection	Standard length Fork Length code A	Minimum length Fork Length code E (M)	Maximum length Fork Length code E (M)(1)
3/4-in. Thread	1.7 in. (44 mm)	3.75 in. (95 mm)	157.5 in. (4000 mm)
1-in. Thread	1.7 in. (44 mm)	3.74 in. (94 mm)	157.5 in. (4000 mm)

(1) Maximum extended length of fork with hand-polished option is 39.4 in. (1000 mm).

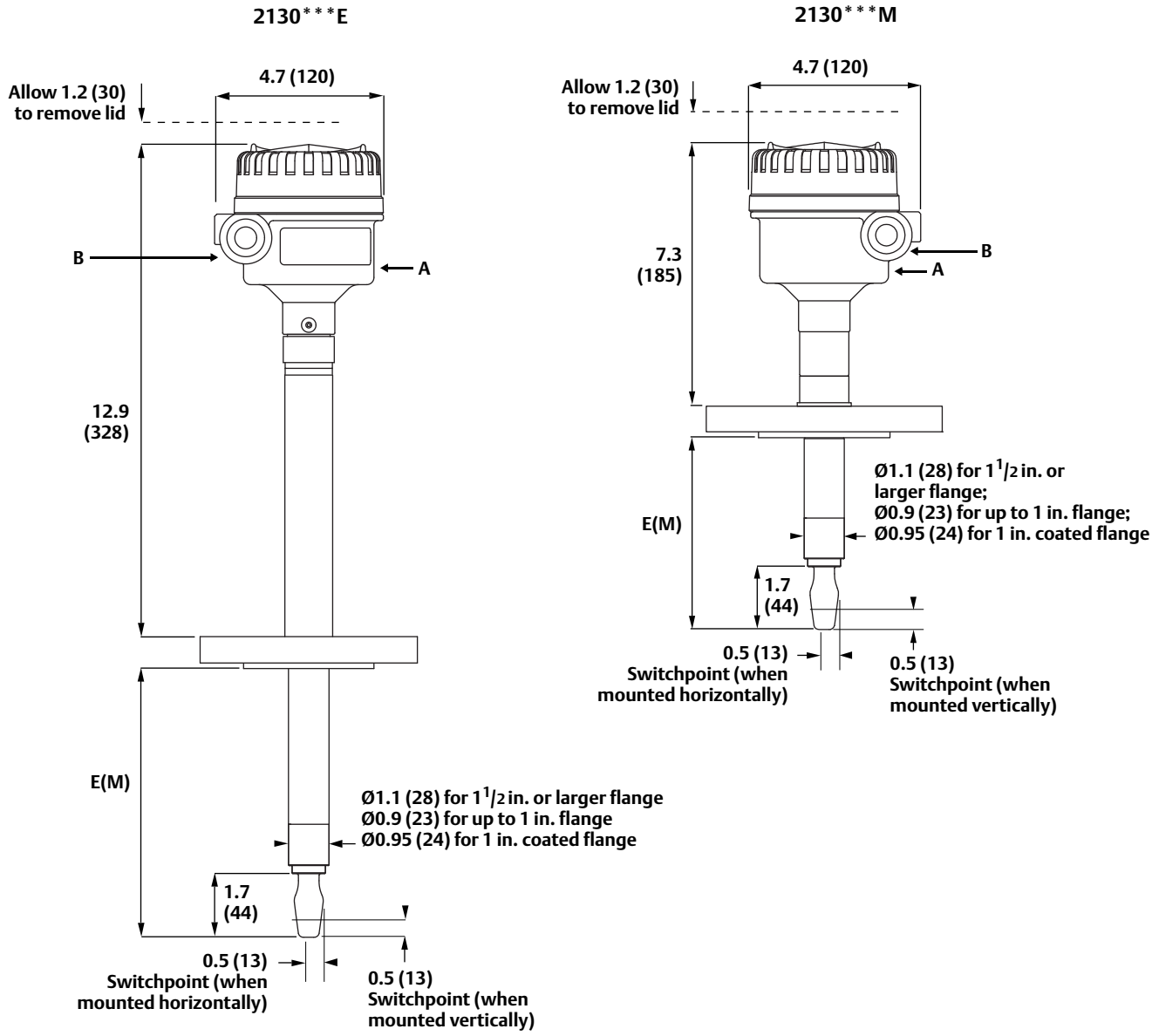
Flange mounting (standard length)



A. Aluminum or SST Housing B. Cable Entry M20x1.5 or 3/4-in. ANPT C. 1.575 (40) A/F Hexagon D. 3/4-in. or 1-in. Thread

Note
Dimensions are in inches (millimeters).

Flange mounting (extended length)



A. Aluminum or SST Housing B. Cable Entry M20x1.5 or 3/4-in. ANPT

Note
Dimensions are in inches (millimeters).

Table 8. Fork length for flanged 2130

Material	Standard length Fork Length code H	Minimum length Fork Length code E(M)	Maximum length Fork Length code E(M)(1)
Stainless Steel	4.0-in. (102 mm)	3.5 in. (89 mm)	157.5 in. (4000 mm)
ECTFE/PFA Copolymer Coated	4.0-in. (102 mm)	3.5 in. (89 mm)	59.1 in. (1500 mm)

(1) Maximum extended length of fork with hand-polished option is 39.4 in. (1000 mm).

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