

Rosemount™ 2140:SIS Level Detector

Vibrating Fork



- Increased safety, IEC 61508 certified (SIL 2) as required by IEC 61511
- Integrates into existing wired HART® loops of automated systems without extra wiring costs
- Unique remote proof testing on bus
- Industry first “Media Learn” functionality
- Switch between HART 5 and HART 7
- Smart Diagnostics Suite
- General area, explosion-proof/flameproof, and intrinsically safe options



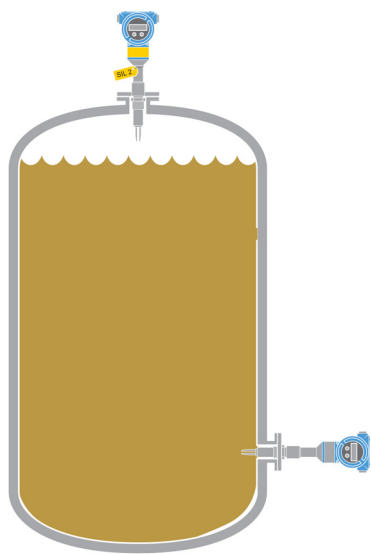
Overview of the Rosemount 2140:SIS Level Detector

Emerson's™ Rosemount 2140:SIS Level Detectors are the newest additions to the expanding range of Rosemount 2100 Series vibrating forks. These Safety Instrumented System (SIS) level detectors are specially designed for safety in tank overfill and dry-run monitoring applications. They are IEC 61508 certified (SIL2), as required by IEC 61511, and feature functionality for both local and remote proof-testing. This unique remote proof-testing functionality can be performed from the control room, and gives the capability for multiple devices to be tested simultaneously on the bus, maximizing both safety and efficiency. Device tag identification provides certainty – and the confidence – that the device in use has been tested.

Utilizing the wired HART protocol, the Rosemount 2140:SIS can be easily integrated into automated systems without the need for additional wiring. Switch easily between HART 5 and HART 7 to further meet requirements.



'Fast drip' forks



Typical application using a Rosemount 2140 for monitoring and control, and a Rosemount 2140:SIS for overfill prevention

Measurement principle

The Rosemount 2140:SIS is a liquid point level device, and is designed to use the principle of a tuning fork. A piezo-electric crystal oscillates the forks at their natural frequency, and changes to this frequency are continuously monitored. The frequency of the vibrating fork sensor changes depending on the medium in which it is immersed.

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

When the Rosemount 2140:SIS is used as a **high level alarm**, the liquid rises in the tank or pipe, making contact with the fork. The change in frequency is detected by the electronics and switches the output state.

Key features and benefits

- Excellent diagnostics coverage, with an industry-leading low number of dangerous undetected failures
- Virtually unaffected by turbulence, foam, vibration, solids content, coating products, and liquid properties
- Adjustable switching delay prevents false switching in turbulent or splashing applications
- Simple upgrade path to have enhanced features package added, future proofing investment
- Plan predictive maintenance with Advanced Diagnostics and Smart Diagnostics Suite
- Media Learn function ensures reliable switching even if media characteristics are unknown

Contents

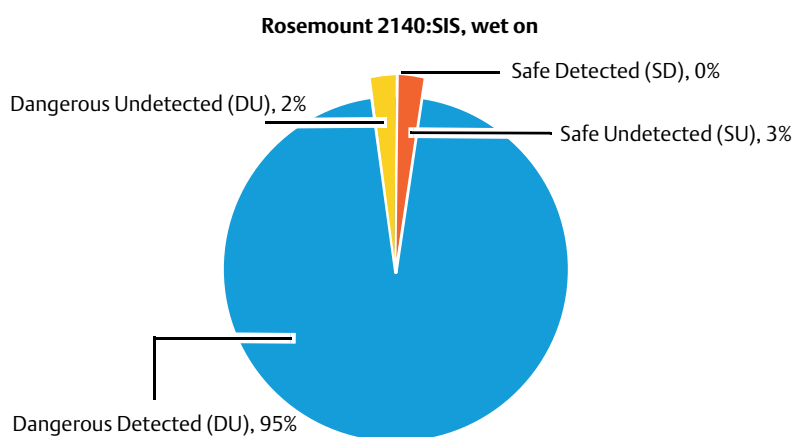
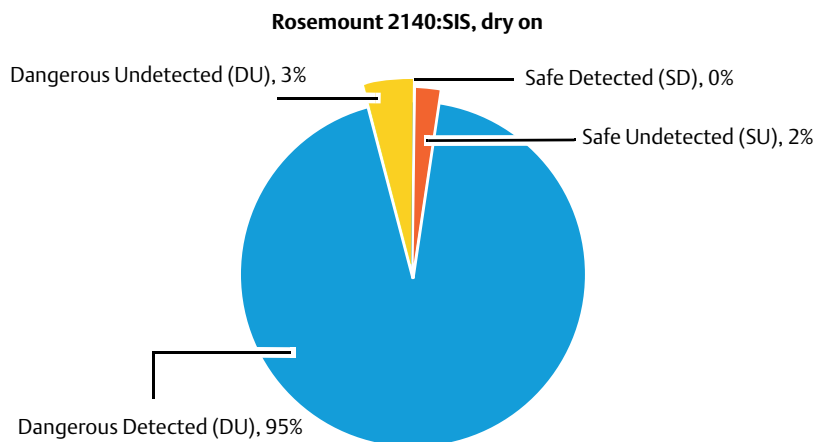
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FMEDA report

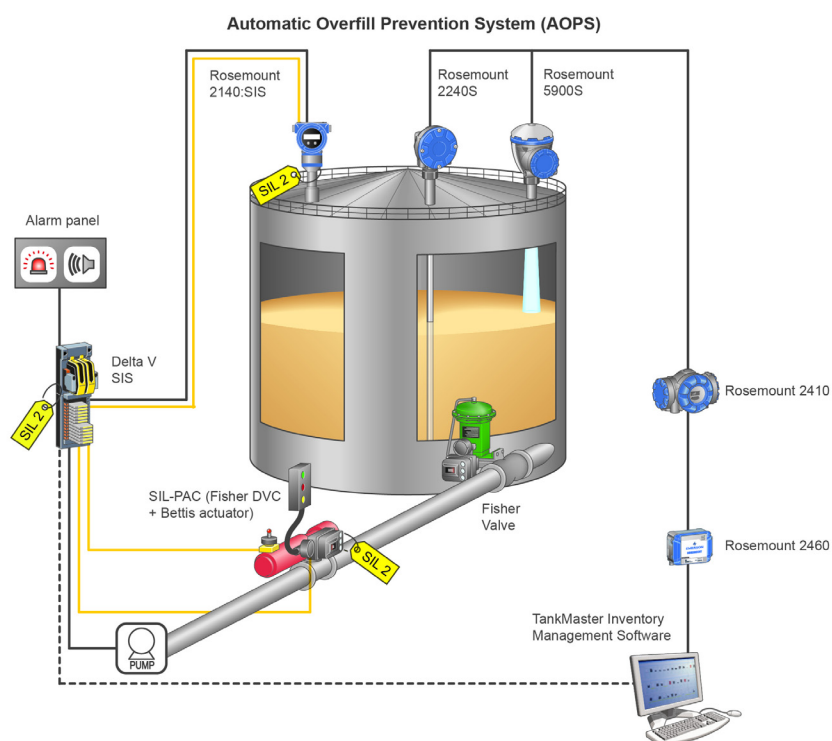
- IEC 61508 certified (SIL2), HFT = 0
- Safe Failure Fraction up to 97.7%
- Diagnostics coverage greater than 91%
- Dangerous Undetected Failure Rate= 13 (FIT)
(when in a 'wet on' or 'dry on' configuration and the T1 terminal block is fitted)

For detailed Rosemount 2140:SIS failure rates, refer to the [FMEDA report](#).



Applications

- Overfill prevention
- Automatic Overfill Prevention System (AOPS)
In an AOPS system, a Rosemount 2140:SIS high level alarm can be used as illustrated.
- Pump run-dry protection



Ordering Information

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [page 9](#) for more information on Material Selection.

Table 1. Rosemount 2140:SIS 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	
2140	Vibrating Fork Liquid Level Detector	
Profile		
F	Functional Safety / SIS applications	★
Output		
H	4–20 mA with HART communication	★
Housing material		
A	Aluminum Alloy ASTM B85 A360.0	★
S	Stainless Steel, 316C	★
Conduit entry / cable threads		
1	1/2-in. ANPT	★
2	M20	★
Operating temperature		
M	Mid-Range: -40 °F (-40 °C)... 356 °F (180 °C)	★
E	High: -94 °F (-70 °C)... 500 °F (260 °C)	★
Materials of construction: process connection / fork		
S	316/316L Stainless Steel (1.4401/1.4404)	★
F ⁽¹⁾	ECTFE copolymer, coated 316/316L SST (1.4401/1.4404)	
H	Alloy C (UNS N10002), Alloy C-276 (UNS N10276), Solid	
Process connection size		
9	3/4-in. / 19 mm	★
1	1-in. / 25 mm (DN25) / 25A	★
2	2-in. / 50 mm (DN50) / 50A	★
5	1 1/2-in. / 40 mm (DN40) / 40A	★
3	3-in. / 80 mm (DN80) / 80A	★
4	4-in. / 100 mm (DN100) / 100A	★
7	2 1/2-in. / 65 mm (DN65) / 65A	★
M	For use with Mobrey™ flange	★
Process connection rating		
AA	ASME B16.5 Class 150 flange	★
AB	ASME B16.5 Class 300 flange	★
AC	ASME B16.5 Class 600 flange	★

Table 1. Rosemount 2140:SIS 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.

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		★
JA	JIS B2220, 10K flange		★
JB	JIS B2220, 20K flange		★
MA	Mobrey A flange		★
MG	Mobrey G flange		★
NN	For use with non-flange process connection type		★
Process connection type			
R	Raised Face (RF) flange		★
M	Mobrey flange		★
B	BSPT (R) thread		★
G	BSPP (G) thread		★
N	NPT thread		★
P	BSPP (G), O-ring		★
C	Tri Clamp		★
Fork length		Available connection	
A	Standard length 1.7 in. (44 mm)	All except flanged options	★
H ⁽²⁾	Standard length flange 4.0 in. (102 mm)	All flanged options	★
E ⁽³⁾	Extended, customer specified length in tenths of inches	All except 1-in. BSPP O-ring (1P)	★
M ⁽³⁾	Extended, customer specified length in millimeters	All except 1-in. BSPP O-ring (1P)	★
M0150	Extended length 150 mm	All except 1-in. BSPP O-ring (1P)	★
M0300	Extended length 300 mm	All except 1-in. BSPP O-ring (1P)	★
M0500	Extended length 500 mm	All except 1-in. BSPP O-ring (1P)	★
E0060	Extended length 6 in.	All except 1-in. BSPP O-ring (1P)	★
E0090	Extended length 9 in.	All except 1-in. BSPP O-ring (1P)	★
E0120	Extended length 12 in.	All except 1-in. BSPP O-ring (1P)	★
E0240	Extended length 24 in.	All except 1-in. BSPP O-ring (1P)	★
Specific extended fork length			
0000	Factory default length (only if Fork Length A or H is selected). Maximum length 157.5 in. (4000 mm)		★
XXXX ⁽³⁾	Specific customer specified length in tenths of inches, or millimeters (XXX.X inches or XXXX mm) if codes M or E is selected		★
Surface finish		Available connections	
1	Standard surface finish	All	★
2	Mechanically polished (Ra < 0.1 μm)	Tri Clamp connection only	★

Table 1. Rosemount 2140:SIS 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.

Product certifications		
NA	No hazardous locations certifications	★
ND	ATEX, Dust Zone 20	★
NK	IECEX, Dust Zone 20	★
G5 ⁽⁴⁾	American Ordinary Locations (unclassified, safe area)	
G6 ⁽⁵⁾	Canadian Ordinary Locations (unclassified, safe area)	
E1	ATEX Flameproof	★
E5 ⁽⁴⁾	American Explosion-proof	
E6 ⁽⁵⁾	Canadian Explosion-proof	
E7	IECEX Flameproof and Dust	★
E8	ATEX Flameproof and Dust	★
I1	ATEX Intrinsic Safety and Dust, Zone 0, 20	★
I5	American Intrinsic Safety and Non-incendive	
I6	Canadian Intrinsic Safety and Non-incendive	
I7	IECEX Intrinsic Safety, Zone 0	★
I8	ATEX Intrinsic Safety, Zone 1	★
Typical Model Number: 2140 F H A 1 M S 1 N N B A 0000 1 NA		

Options (include with the selected model number)

Calibration data certification		
Q4	Certificate of functional test	★
Material traceability certification ⁽²⁾⁽⁶⁾		
Q8	Material traceability certification per EN 10204 3.1	★
Material certification ⁽²⁾⁽⁶⁾		
Q15	NACE® MR0175 / ISO 15156	★
Q25	NACE MR0103	★
Product features		
EF1	Ready for upgrade to Rosemount 2140:SIS with enhanced features	★
EF2 ⁽⁷⁾	Rosemount 2140:SIS safety certified to IEC 61508 with remote proof testing, plus enhanced features enabled	★
Terminal block		
T1	Transient protection terminal block	★
Display		
M4	LCD display with Local Operator Interface	★
Special procedures ⁽⁸⁾		
P1	Hydrostatic testing with certificate	★

Table 1. Rosemount 2140:SIS 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.

Alarm levels		
C4	Analog output levels compliant with NAMUR recommendation NE43, high alarm	★
C5	Analog output levels compliant with NAMUR recommendation NE43, low alarm	★
C1	Custom alarm and saturation signal levels (requires Configuration Data Sheet)	★
C8	Low alarm (standard Rosemount alarm and saturation levels)	★
HART revision configuration		
HR7	Device configured for HART 7 communication protocol	★
Safety certification ⁽⁹⁾		
Q5	Prior-use certificate of FMEDA Data	★
QT ⁽¹⁰⁾	Safety certificate to IEC61508	★
Example of options included with the model number: 2140 F H A 1 M S 1 N N B A 0000 1 N A Q4 Q8		

- ECTFE co-polymer coating is only available for a flanged Rosemount 2140:SIS but excludes 1-in./DN25/25A flanges. Flanges are dual certified 316 and 316L Stainless Steel (1.4401 and 1.4404).
- Not available for hand polished wet side.
- Minimum length available for $\frac{3}{4}$ -in. threaded connection is 3.8 in. (95 mm); for 1-in. threaded, it is 3.7 in. (94 mm); for flanged, it is 3.5 in. (89 mm); and for Tri Clamp, it is 4.1 in. (105 mm). Maximum length is 157.5 in. (4000 mm), except for ECTFE copolymer coating and mechanically-polished process where the maximum length is 59.1 in. (1500 mm) and 39.4 in. (1000 mm) respectively. Examples: Code E1181 is 118.1 inches. Code M3000 is 3000 millimeters.
- See “[Ordinary locations certifications](#)” on [page 11](#). E5 includes G5 requirements. G5 is for use in unclassified, safe area locations only.
- See “[Ordinary locations certifications](#)” on [page 11](#). E6 includes G6 requirements. G6 is for use in unclassified, safe area locations only.
- Only available for process-wetted parts.
- The enhanced features package includes Smart Diagnostics Suite and Media Learn.
- Option limited to units with extended lengths up to 59.1-in. (1500 mm). Option is not available for ECTFE coating.
- The Rosemount 2140:SIS is SIL2-certified.
- The Rosemount 2140:SIS has been independently certified to IEC 61508 as required by IEC 61511. Certification was conducted by Exida. If documentation is required, add OPTION code “QT” to the end of the model number. One or more OPTION codes can be added at the end of the model number.

Spares and Accessories

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See [page 9](#) for more information on Material Selection.

Table 2. Rosemount 2140:SIS Spares 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.

Part number	Description	
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 $\frac{3}{4}$ -in. BSPP (G3/4A). Material: Non-asbestos BS7531 grade X carbon fiber with rubber binder	★
02100-1010-0001	Adapter boss 1-in. BSPP to 1 $\frac{1}{2}$ -in. (38 mm) Tri Clamp. 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	★
02100-1060-0001	Quick Release Kit (contains 2-in. Tri Clamp, seal, and quick release device for 2-in. NPT process connection)	★

Specifications

General

Products

Rosemount 2140:SIS Level Detector

Measuring technology

Vibrating fork

Applications

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

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 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.

Electronics housing

Materials

Aluminum Alloy ASTM B85 A360.0 or stainless steel (316C)

Rotation

Rotatable housing to allow more convenient cable position.

Display

Optional two-line LCD display with Local Operator Interface (LOI) by selecting option code M4. There are two internal and two external configuration buttons. Includes extended cover with glass window.

Proof-test button

The Rosemount 2140:SIS comes supplied with an external button for local proof-testing. This can be upgraded to the LCD display with LOI by selecting the M4 option code.

Conduit entries

Two M20 X 1.5 or 1/2-in ANPT conduit entries for cabling.

The Rosemount 2140:SIS ships with dust caps installed in the conduit entries. One blanking plug is supplied in a plastic bag, ready to be installed. No cables or cable glands are supplied.

Ingress protection

IP66/67 to EN60529, NEMA® 4X (when supplied blanking plug and a suitably rated cable glands are used).

Process-wetted connections

Connections

Threaded, Tri Clamp, and flanged process connection options. See [Table 1 on page 4](#) for a complete list.

Materials

316/316L Stainless Steel (1.4401/1.4404 dual-certified). Mechanically-polished option to better than 0.1 µm for Tri Clamp connections.

Alloy C (UNS N10002) and Alloy C-276 (UNS N10276) – available for flanged, and selected threaded process connections (3/4- and 1-in. BSPT (R), and 3/4- and 1-in. NPT).

ECTFE co-polymer coated 316/316L Stainless Steel (1.4401/1.4404 dual certified) – only available for a flanged Rosemount 2140:SIS but excludes 1-in./DN25/25A flanges.

Gasket material for 3/4-in. and 1-in. BSPP (G) is non-asbestos BS 7531 Grade X carbon fiber with rubber binder. Gaskets are not supplied with flanged process connections.

Extended fork lengths

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.

[Table 3 on page 9](#) has a summary of the minimum extended lengths. See “[Dimensional Drawings](#)” on [page 13](#) for other dimensions.

Table 3. Minimum Extended Lengths

Process connection	Minimum extended length
$\frac{3}{4}$ -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)

Performance specifications

Hysteresis (water)

Approximately 0.1 in. (2.5 mm)

Switching point (water)

Approximately 0.5 in. (13 mm) from tip of fork (if vertical installation) or from edge of fork (if horizontal installation).

Switching points vary with different liquid densities. The Rosemount 2140:SIS, with Extended Features Package added, allows pre-selection of a liquid type, and has a media-learning function to make it even easier.

Switching delay

Switching delay programmable from 0 to 3600 seconds. Default delay is 1 second.

Liquid density requirement

Low (400 to 600 kg/m³)

Medium (500 to 900 kg/m³)

Standard (800 to 1300 kg/m³)

High (1200 to 3000 kg/m³)

Liquid viscosity range

Up to 1000 cP (centiPoise) in Enhanced mode.

Up to 10000 cP (centiPoise) in Normal mode.

Electrical specifications

Power supply

10.5 to 42.4 Vdc (with no load).

Output

Software selectable analog output type:

- 8/16 mA HART switched output state,
- Custom mA HART switched output state,
- 4–20 mA HART, or
- LEVELTESTER switched output state.

Digital process variable is superimposed on 4–20 mA signal, available to any host that conforms to HART protocol.

Selectable digital HART revisions, HART5 (default) or HART7. The revision can be switched using any HART-based configuration tool or the optional local operator interface.

Grounding

The Rosemount 2140:SIS must always be grounded through the provided external ground connection.

Terminal connections (wire diameter)

Minimum 24 AWG and maximum 14 AWG (0.2 to 2.5 mm²)

Environmental specifications

Ambient temperature limits

–40 to 175 °F (–40 to 80 °C) with or without the LOI display

See also “[Product Certifications](#)” on page 11 for the reduced ambient temperature limits required by approvals.

Minimum and maximum operating temperatures

See [Figure 1](#) for operating temperatures.

Check “[Product Certifications](#)” on page 11 for operating temperature limits required by approvals.

Maximum operating pressures

The final rating depends on the process-wetted connection.

- Threaded connection: see [Figure 2](#) for operating pressures.
- Tri Clamp connection: 435 psig (30 bar g).
- Flanged connection: see [Figure 2](#) or [Table 4](#) on page 10 (whichever gives the lowest pressure).

Figure 1. Operating Temperatures

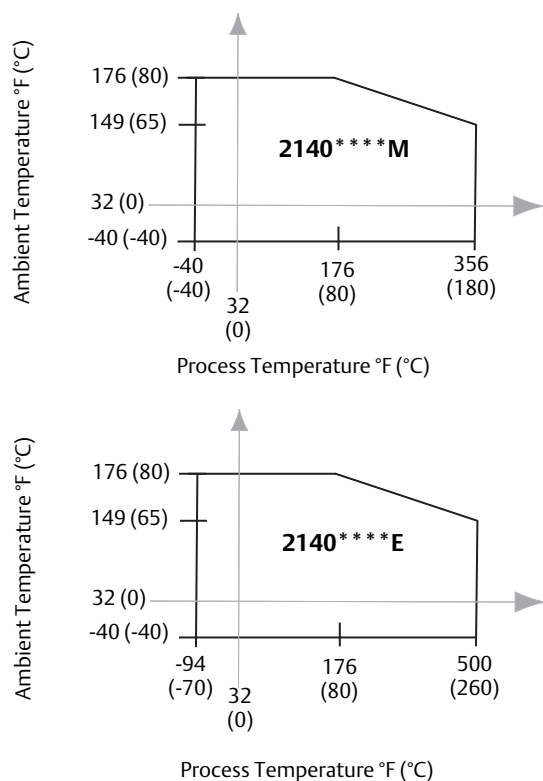


Figure 2. Operating Pressures

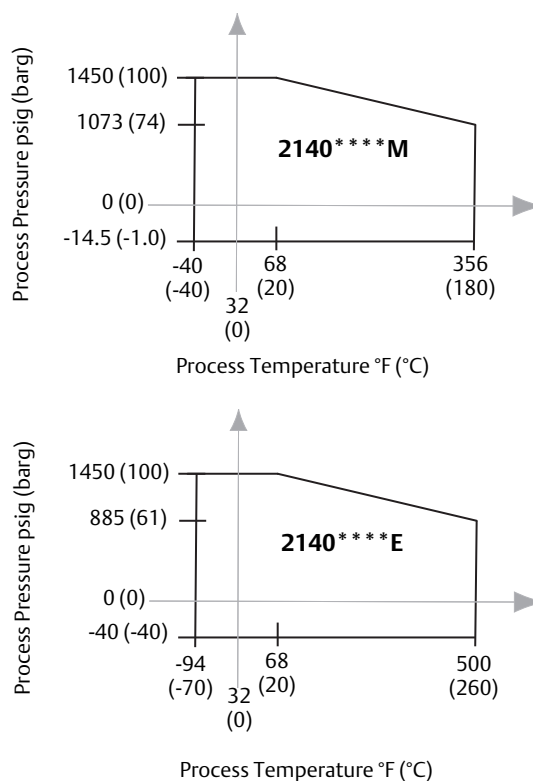


Table 4. Maximum Flange Pressure Rating

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 10/16	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⁾
Mobrey A flange	Not applicable	33 bar
Mobrey G flange	Not applicable	21 bar

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

Product Certifications

Note

For full product approvals information, refer to the Rosemount 2140 [Product Certifications Manual](#).

European Union directive information

A copy of the EU Declaration of Conformity can be found at the end of the Rosemount 2140 [Product Certifications Manual](#) and at Emerson.com/Rosemount.

Ordinary locations certifications

G5 USA ordinary location certification

Certificate: 16 CSA 70098390

Standards: UL 61010-1 (3rd Edition)

The level detector 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 (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA). Type 4X.

G6 Canada ordinary location certification

Certificate: 16 CSA 70098390

Standards:

CAN/CSA C22.2 No 61010-1-12, and
ANSI/ISA-12.27.01:2003

The level detector 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). Type 4X.
Single Seal.

Hazardous locations certifications

North America and Canada

E5 USA Explosion-proof (XP)

Certificate: CSA 16CA70098990X

Standards:

FM Class 3600 - 2011,
FM Class 3615 - 2015, and
UL 61010-1 (3rd Edition)

Markings:

Class I Groups B, C and D, T5, Type 4X
Class I, Zone 1, AEx db IIC T6...T2 Gb

E6 Canada Explosion-proof

Certificate: CSA 16CA70098990X

Standards:

ANSI/ISA 12.27.01:2003,
CSA Std. C22.2 No. 30 -M1986,
CSA Std. C22.2 No.60079-0-15,
CSA Std. C22.2. No.60079-1-16,
CSA Std. C22.2 No. 61010-1-12, and
CSA Std. C22.2 No.94-M91

Markings:

Class I Groups B, C and D, T5, Type 4X
Ex db IIC T6...T2 Gb

I5 USA Intrinsic Safety (IS) and Non-Incendive (NI)

Certificate: CSA 16CA70098990X

Standards:

FM Class 3600 - 2011,
FM Class 3610 - 2015, and
FM Class 3611 - 2004

Markings:

Class I Groups A, B, C and D, T5...T2, Type 4X
Class I, Zone 0, AEx ia IIC T5...T2 Ga
Class I, Division 2, Groups A, B, C, and D
when connected using installation drawing 71097/1387

I6 Canada Intrinsic Safety and Non-Incendive

Certificate: CSA 16CA70098990X

Standards:

ANSI/ISA 12.27.01:2003,
CSA Std. C22.2 No. 157 -92,
CSA Std. C22.2 No.60079-0-15,
CSA Std. C22.2. No.60079-11-14, and
CSA Std. C22.2 No.213-M1987

Markings:

Class I Groups A, B, C and D, T5...T2, Type 4X
Ex ia IIC T5...T2 Ga
Class I, Division 2, Groups A, B, C, and D
when connected using installation drawing 71097/1387

Europe

E1 ATEX Flameproof

Certificate: Dekra 16ATEX0082X

Standards:

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

Markings:  II 1/2 G, Ex db IIC T6...T2 Ga/Gb

ND ATEX Dust

Certificate: Baseefa 16ATEX0137X

Standards:

EN60079-0:2012+A11:2013 and EN60079-31:2014

Markings:

 II 1 D Ex ta IIIC
(T92°C...T272°C) (T500 100°C...T500 280°C) Da

E8 Combines E1 and ND

- I1** ATEX Intrinsically Safe and Dust (Zone 0, 20)
 Certificates:
 Baseefa 16ATEX0136X and Baseefa 16ATEX0137X
 Standards:
 EN60079-0:2012+A11:2013,
 EN60079-11:2012,
 EN60079-26:2015, and
 EN60079-31:2014
 Markings:
 Ⓔ II 1 G, Ex ia IIC T5...T2 Ga
 Ⓔ II 1 D Ex ta IIIC
 (T92...T272°C) (T₅₀₀100°C...T₅₀₀280°C) Da
 (I1 includes the **ND** approval)

- I8** ATEX Intrinsically Safe (Zone 1)
 Certificate: Baseefa 16ATEX0136X
 Standards:
 EN60079-0:2012+A11:2013,
 EN60079-11:2012, and
 EN60079-26:2015
 Markings: Ⓔ II 1/2 G, Ex ia IIC T5...T2 Ga/Gb

International

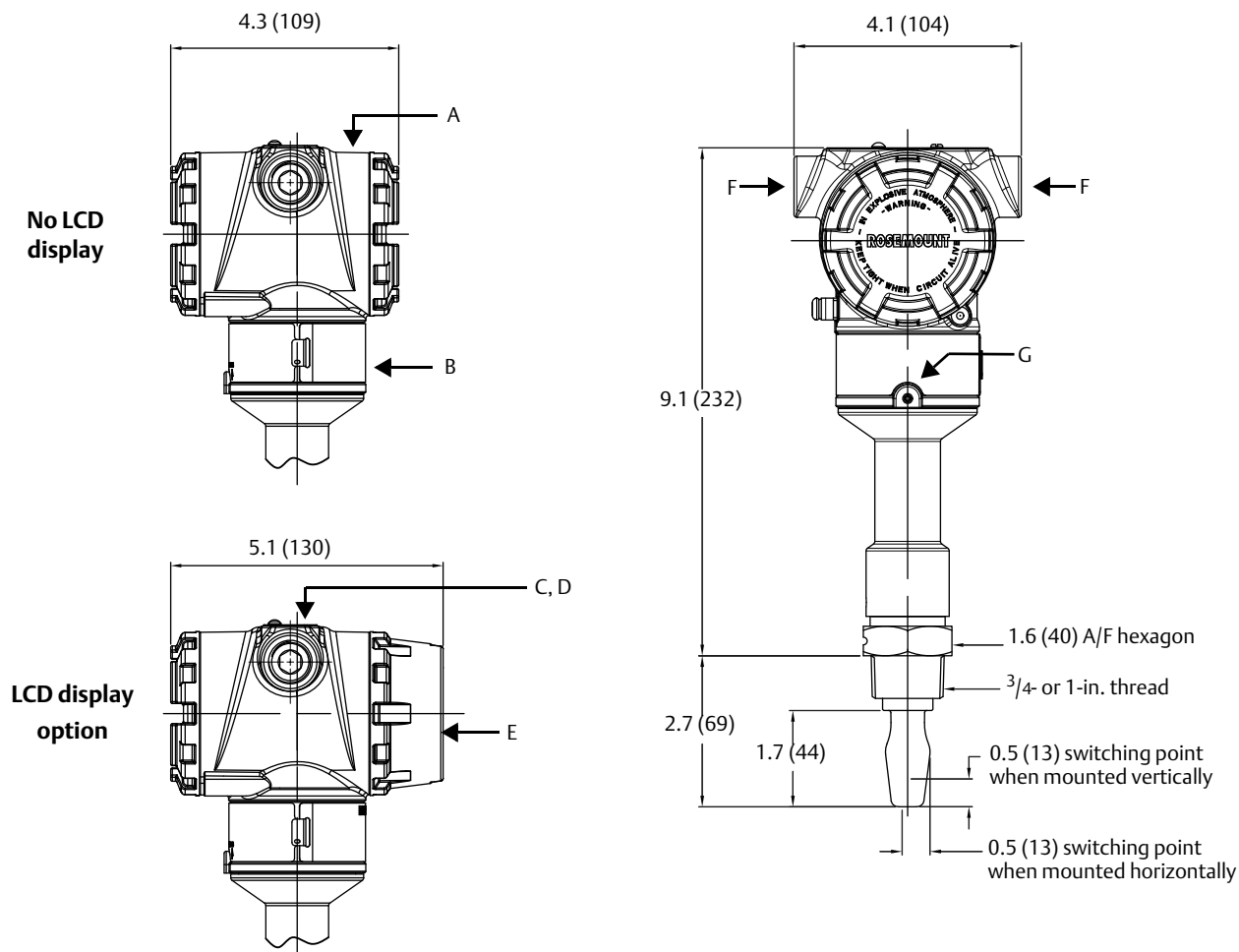
- E7** IECEx Flameproof and Dust
 Certificates: IECEx DEK 16.0040X and IECEx BAS 16.0106X
 Standards:
 IEC60079-0:2011,
 IEC60079-1:2014,
 IEC60079-26:2014, and
 IEC60079-31:2013
 Markings:
 Ex db IIC T6...T2 Ga/Gb
 Ex ta IIIC (T92°C...T272°C) (T₅₀₀100°C...T₅₀₀280°C) Da
 (E7 also includes the **NK** approval)

- I7** IECEx Intrinsically Safe
 Certificate: IECEx BAS 16.0105X
 Markings:
 Ex ia IIC T5...T2 Ga
 Standards:
 IEC60079-0:2011 and IEC60079-11:2011

- NK** IECEx Dust
 Certificate: IECEx BAS 16.0106X
 Standards:
 IEC60079-0:2011 and IEC60079-31:2013
 Markings:
 Ex ta IIIC (T92°C...T272°C) (T₅₀₀100°C...T₅₀₀280°C) Da

Dimensional Drawings

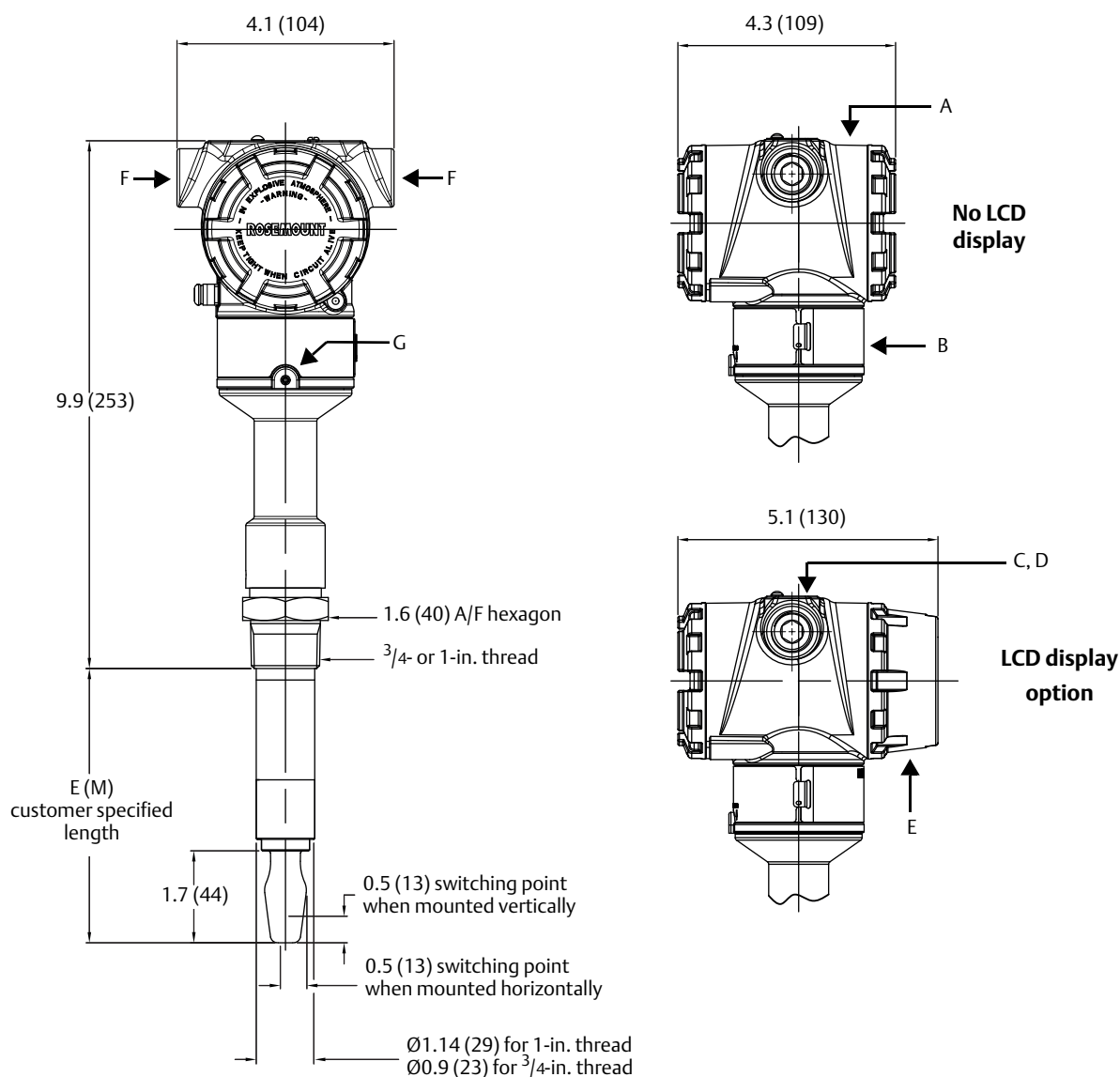
Figure 3. $\frac{3}{4}$ - and 1-in. Threaded Process Connection (Mid Temperature Range, Standard Length Fork)



- A. Aluminum or stainless steel housing
- B. Certification plate
- C. Cover plate (with logo, product name, and conduit entry size)
- D. External button(s) under movable plate
- E. LCD display cover

- F. Conduit/cable entry M20 x 1.5 or $\frac{1}{2}$ -in. ANPT
- G. Housing rotation set screw. Do not unscrew all the way. Rotating the housing, without this screw in place, can damage the internal wiring

Dimensions are in inches (mm).

Figure 4. $\frac{3}{4}$ - and 1-in. Threaded Process Connection (Mid Temperature Range, Extended Length Fork)

A. Aluminum or stainless steel housing

B. Certification plate

C. Cover plate (with logo, product name, and conduit entry size)

D. External button(s) under movable plate

E. LCD display cover

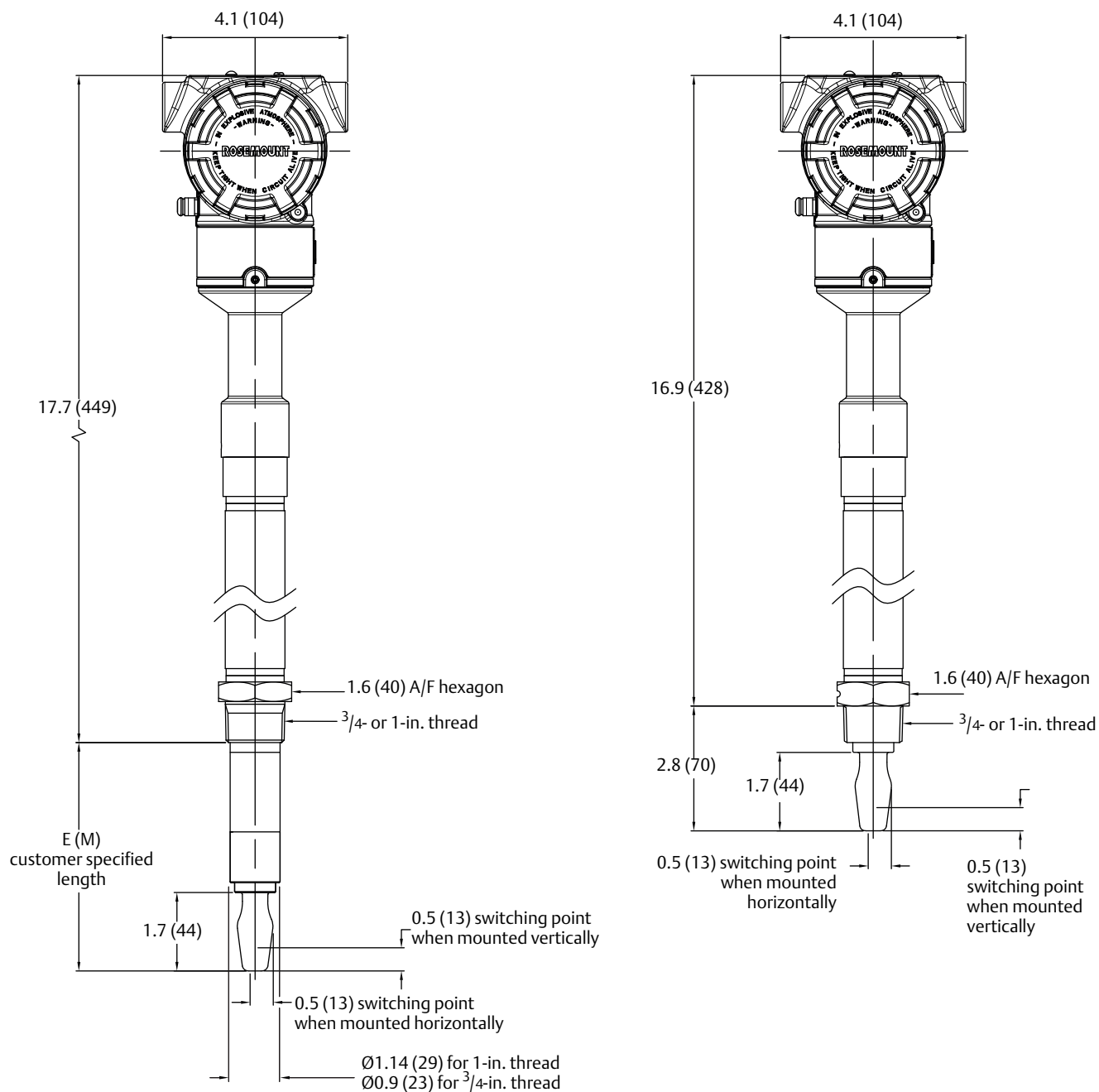
F. Conduit/cable entry M20 x 1.5 or $\frac{1}{2}$ -in. ANPT

G. Housing rotation set screw. Do not unscrew all the way. Rotating the housing, without this screw in place, can damage the internal wiring

Dimensions are in inches (mm).

Table 5. Fork Length for $\frac{3}{4}$ - and 1-in. Threaded Rosemount 2140:SIS

Process connection	Standard length fork length code A	Minimum length fork length code E (M)	Maximum length fork length code E (M)
$\frac{3}{4}$ -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)

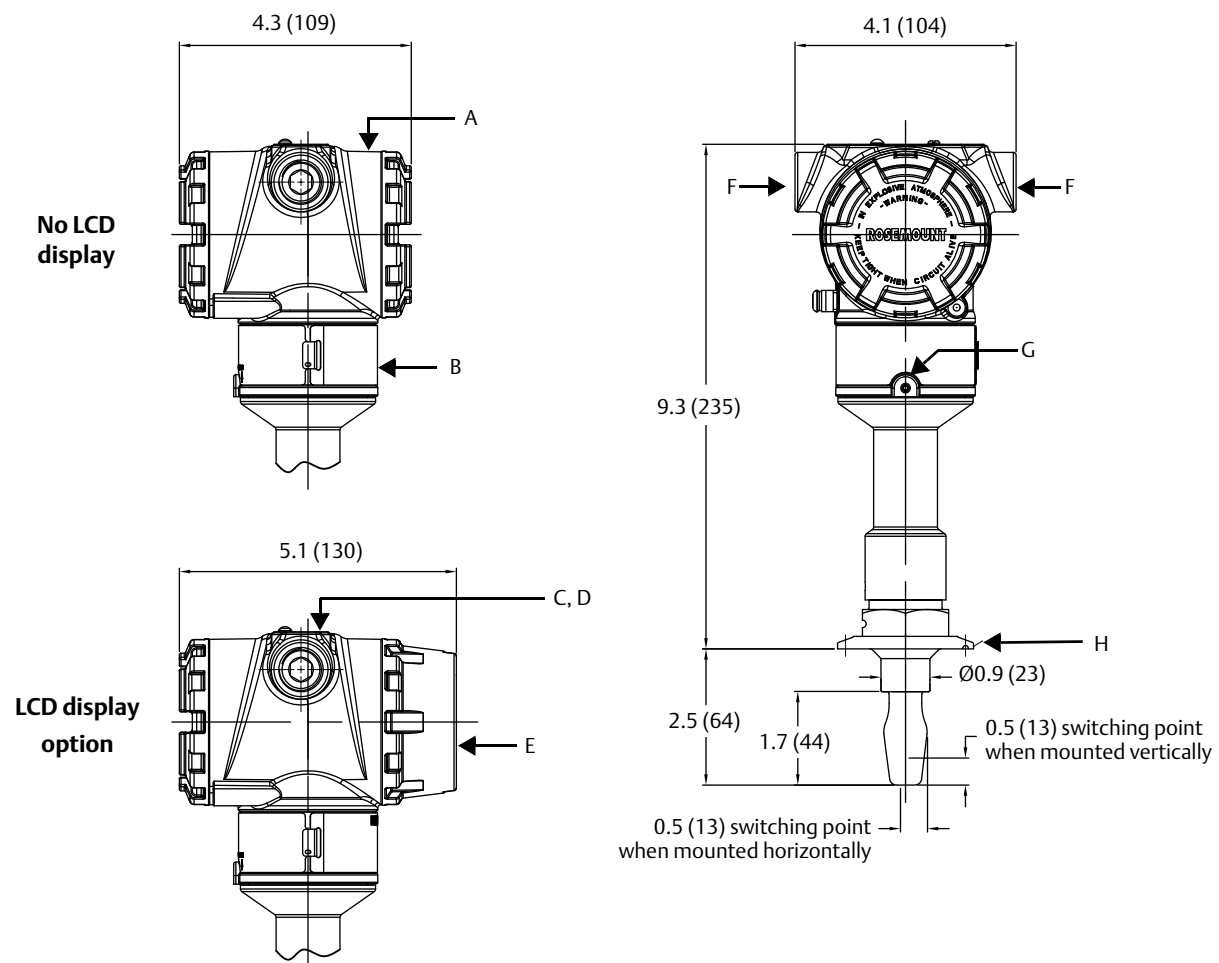
Figure 5. $\frac{3}{4}$ - and 1-in. Threaded Process Connection (High Temperature Range, All Fork Lengths)

A. Thermal tube

Dimensions are in inches (mm).

For dimensions and features not shown here, see [Figure 3 on page 13](#).

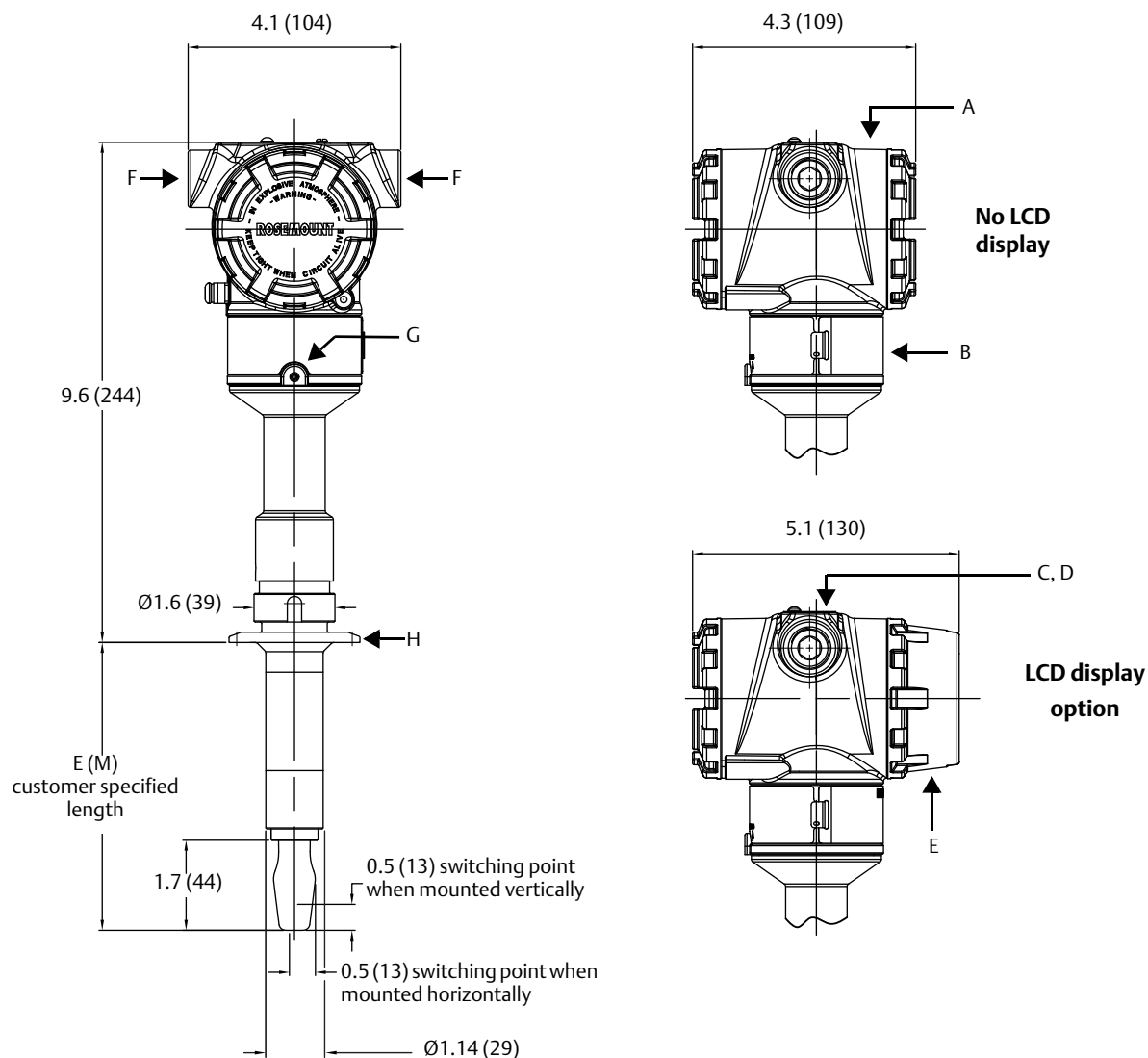
Figure 6. Tri Clamp Process Connection (Mid Temperature Range, Standard Length Fork)



- A. Aluminum or stainless steel housing
- B. Certification plate
- C. Cover plate (with logo, product name, and conduit entry size)
- D. External button(s) under movable plate
- E. LCD display cover

- F. Conduit/cable entry M20 x 1.5 or 1/2-in. ANPT
- G. Housing rotation set screw. Do not unscrew all the way. Rotating the housing, without this screw in place, can damage the internal wiring
- H. 1 1/2- or 2 1/2-in. Tri Clamp

Dimensions are in inches (mm)

Figure 7. Tri Clamp Process Connection (Mid Temperature Range, Extended Length Fork)

A. Aluminum or stainless steel housing

B. Certification plate

C. Cover plate (with logo, product name, and conduit entry size)

D. External button(s) under movable plate

E. LCD display cover

F. Conduit/cable entry M20 x 1.5 or 1/2-in. ANPT

G. Housing rotation set screw. Do not unscrew all the way. Rotating the housing, without this screw in place, can damage the internal wiring

H. 1 1/2- or 2 1/2-in. Tri Clamp

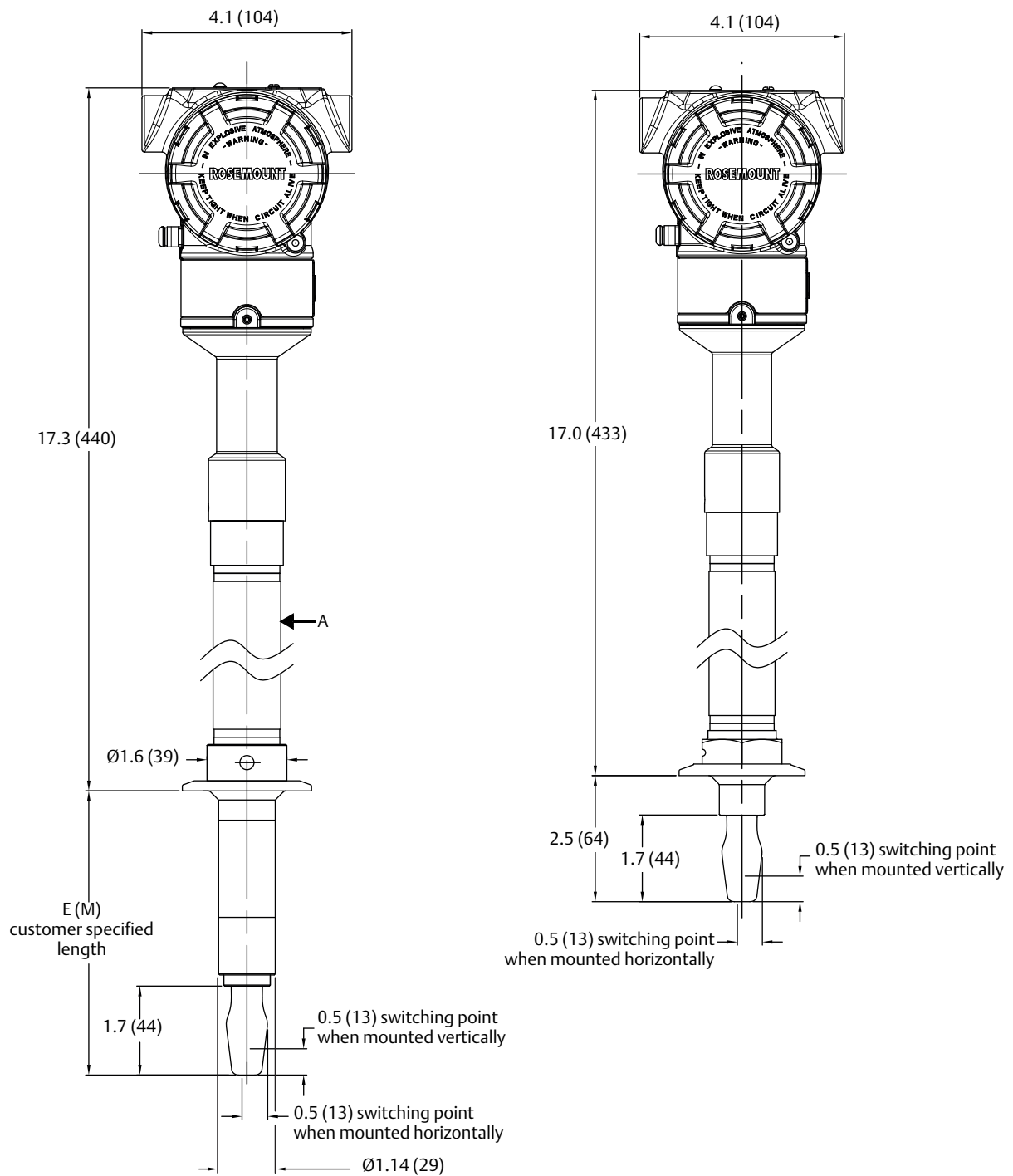
Dimensions are in inches (mm).

Table 6. Fork Length for Hygienic Rosemount 2140:SIS

Process connection	Standard length fork length code A	Minimum length fork length code E (M)	Maximum length fork length code E (M)
Tri Clamp	1.7 in. (44 mm)	4.13 in. (105 mm)	157.5 in. (4000 mm)
O-ring seal (1-in. BSPP) ⁽¹⁾	1.7 in. (44 mm)	4.13 in. (105 mm)	38.4 in. (1000 mm)

1. For these dimension drawings, refer to the Rosemount 2140:SIS Type 1 drawings at Emerson.com/Rosemount.

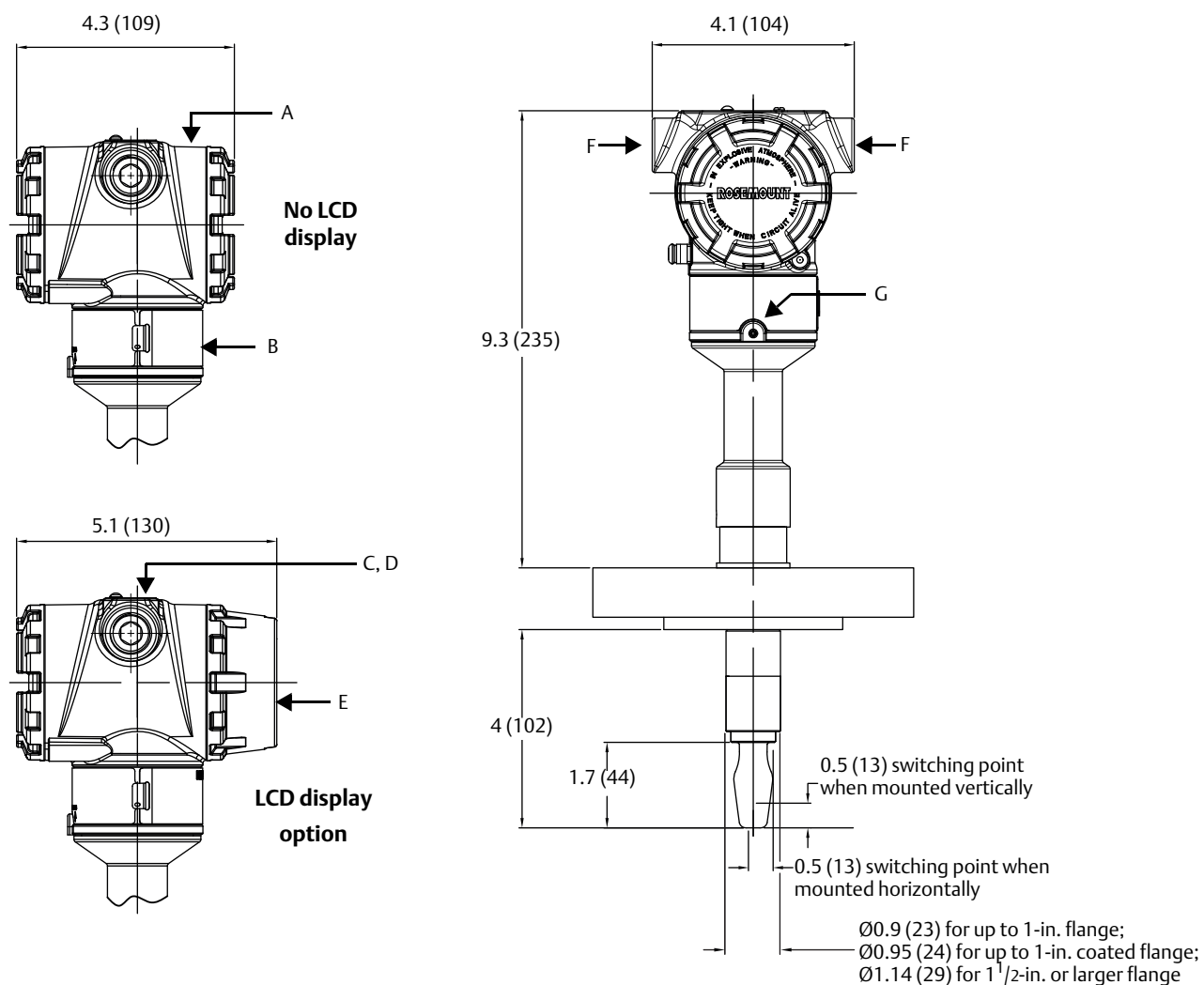
Figure 8. Tri Clamp Process Connection (High Temperature Range, All Fork Lengths)



A. Thermal tube

Dimensions are in inches (mm).

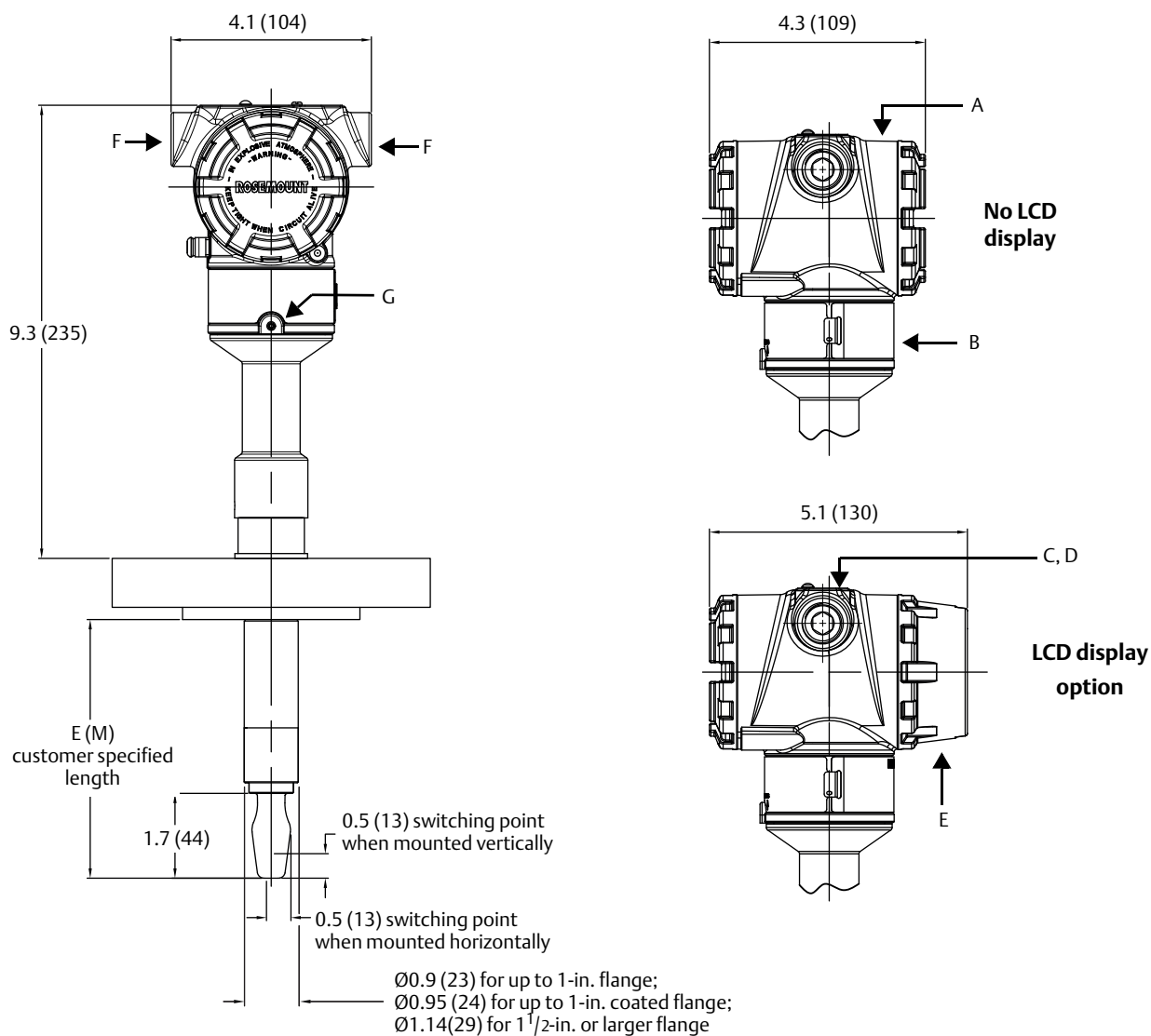
For dimensions and features not shown here, see [Figure 6 on page 16](#).

Figure 9. Flanged Process Connection (Mid Temperature Range, Standard Length Fork)

- A. Aluminum or stainless steel housing
- B. Certification plate
- C. Cover plate (with logo, product name, and conduit entry size)
- D. External button(s) under movable plate
- E. LCD display cover

- F. Conduit/cable entry M20 x 1.5 or 1/2-in. ANPT
- G. Housing rotation set screw. Do not unscrew all the way. Rotating the housing, without this screw in place, can damage the internal wiring

Dimensions are in inches (mm).

Figure 10. Flanged Process Connection (Mid Temperature Range, Extended Length Fork)

A. Aluminum or stainless steel housing

B. Certification plate

C. Cover plate (with logo, product name, and conduit entry size)

D. External button(s) under movable plate

E. LCD display cover

F. Conduit/cable entry M20 x 1.5 or 1/2-in. ANPT

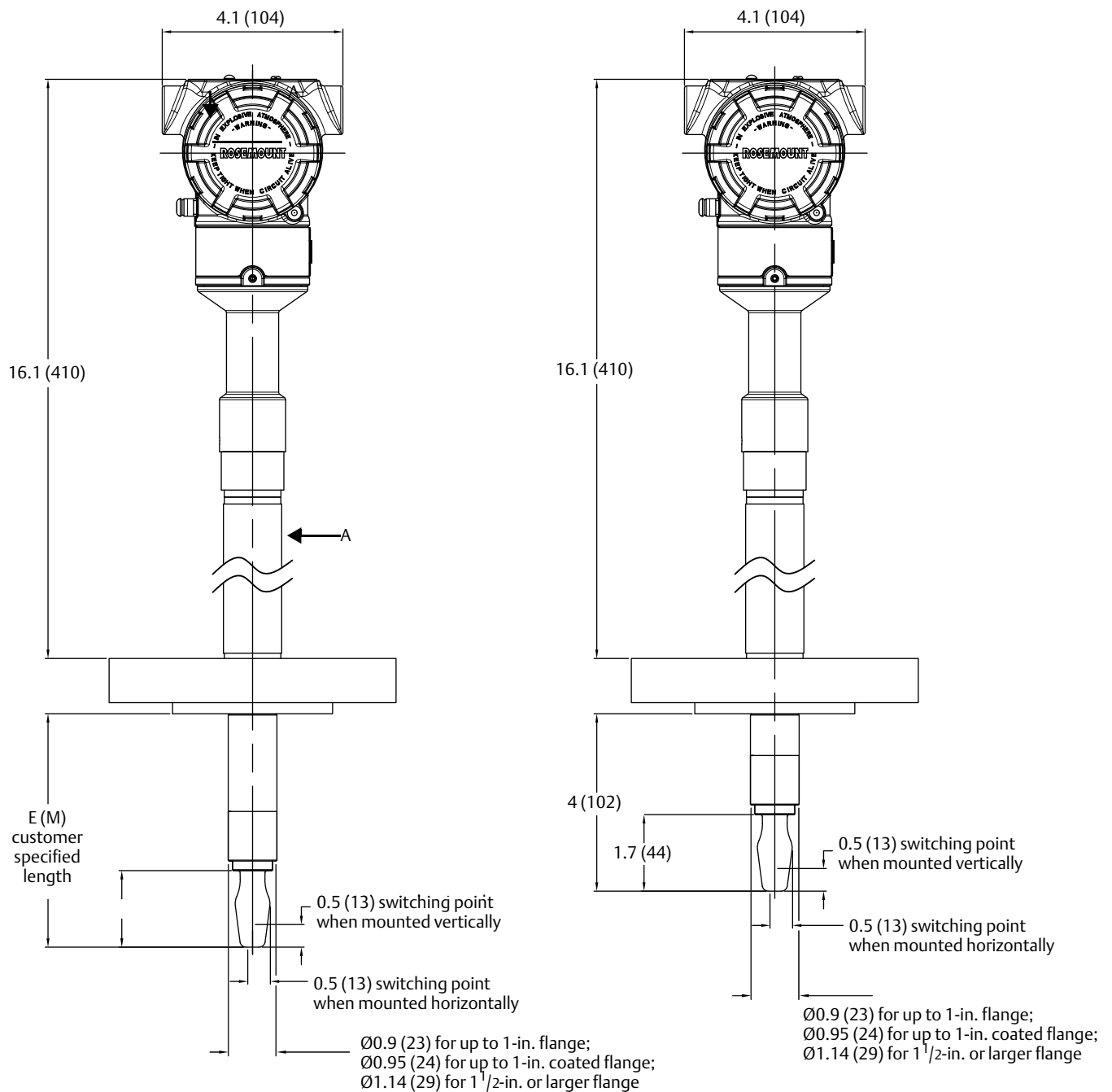
G. Housing rotation set screw. Do not unscrew all the way. Rotating the housing, without this screw in place, can damage the internal wiring

Dimensions are in inches (mm).

Table 7. Fork Length for Flanged Rosemount 2140:SIS

Process connection material	Standard length fork length code H	Minimum length fork length code E (M)	Maximum length fork length code E (M)
Stainless steel	4 in. (102 mm)	3.5 in. (89 mm)	157.5 in. (4000 mm)
ECTFE co-polymer coated	4 in. (102 mm)	3.5 in. (89 mm)	59.1 in. (1500 mm)
Alloy C, alloy C-276, solid	4 in. (102 mm)	3.5 in. (89 mm)	157.5 in. (4000 mm)

Figure 11. Flanged Process Connection (High Temperature Range, All Fork Lengths)



A. Thermal tube

Dimensions are in inches (mm).

For dimensions and features not shown here, see [Figure 9 on page 19](#).

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