

# Mobrey Squing 2

## Vibrating Fork Liquid Level Switch



- Function virtually unaffected by flow, bubbles, turbulence, foam, vibration, solids content, coating products, liquid properties, and product variations
- No need for calibration and requires a minimum amount of installation
- Easy terminal access, polarity insensitive, and short circuit protection
- Electronic self-checking and condition monitoring
- Adjustable switching delay for turbulent or splashing applications
- Magnetic test point makes functional test easy
- “Fast Drip” Fork Design gives quicker response
- Explosion-proof/Flameproof and Intrinsically Safe options

# Overview of the Mobrey Squing 2



Adjustable Mode and Switching Delay



'Fast Drip' Forks

## Measurement principle

The Mobrey Squing 2 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 Squing 2 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 liquids, or liquid properties
- The Squing 2 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
- No moving parts or crevices for virtually no maintenance

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## Fit and forget

- Once installed, the Squing 2 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

## Superior performance

- The Squing 2 is a popular choice for high and low level alarm and pump control duties for its simplicity, ease of use, and reliability
- Functionality is virtually unaffected by flow, turbulence, bubbles, foam, or vibration
- The 'Fast Drip' design allows the liquid to be quickly drawn away from the fork tip when mounted horizontally, making the Squing 2 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

## 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



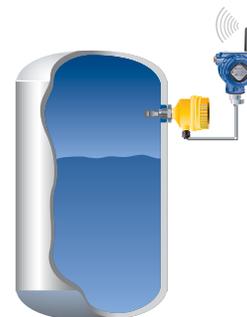
High And Low Level Alarm



High Temperature Applications



Pump Control / Limit Detection



Wireless Applications using a Rosemount 702 Wireless Discrete Transmitter

# Mobrey Squing 2 level switch ordering

**Table 1. Squing 2 ordering information**

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

Model	Product Description	
T	Tuning fork level switch	
<b>Materials of Construction (Process Connection and Fork)</b>		
<b>Standard</b>		<b>Standard</b>
D	316/316L stainless steel (1.4401/1.4404)	★
E	316/316L stainless steel (1.4401/1.4404) 3.1B certs (1.4404)	★
<b>Expanded</b>		
C <sup>(1)</sup>	Alloy C (UNS N10002), Alloy C-276 (UNS N10276), solid	
F <sup>(2)</sup>	ECTFE/PFA copolymer, coated 316/316L SST (1.4401/1.4404)	
G <sup>(2)</sup>	ECTFE/PFA copolymer, coated 316/316L SST (1.4401/1.4404) 3.1B certs (1.4404)	
<b>Process Connection</b>		
Standard		<b>Standard</b>
5A	<sup>3</sup> / <sub>4</sub> -in. BSPT (R) thread	★
5B	<sup>3</sup> / <sub>4</sub> -in. BSPP (G) thread	★
5D	<sup>3</sup> / <sub>4</sub> -in. NPT thread	★
1A	1-in. BSPT (R) thread	★
1B	1-in. BSPP (G) thread	★
1D	1-in. NPT thread	★
1P	1-in. BSPP (G) O-ring hygienic fitting	★
6R	1 <sup>1</sup> / <sub>2</sub> -in. (38 mm) Tri-clamp hygienic fitting	★
2R	2-in. (51 mm) Tri-clamp hygienic fitting	★
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	
6G	1 <sup>1</sup> / <sub>2</sub> -in. ASME B16.5 Class 150 Raised Face (RF) flange	★
6H	1 <sup>1</sup> / <sub>2</sub> -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	★
6K	DN40, EN1092 PN 10/16 flange	★
6L	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	★
SA	25A, 10K, JIS B2220 flange	★

**Table 1. Squing 2 ordering information**

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

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		★	
<b>Expanded</b>				
1J	1-in. ASME B16.5 Class 600 Raised Face (RF) flange			
6J	1 1/2-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			
6M	DN40, EN1092 PN 63 flange			
6N	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			
4N	DN100, EN1092 PN 100 flange			
<b>Electronic Type</b>		<b>Available Certifications</b>		
<b>Standard</b>			<b>Standard</b>	
T	Direct load switching (mains 2-wire) 20 to 264 Vac 50/60 Hz, 20 to 60 Vdc	N, G, E, F, D, J	★	
G	PNP/PLC low voltage (3-wire) 20 to 60 Vdc	N, G, E, F, D, J	★	
V	Relay (DPCO)	N, G, E, F, D, J	★	
K	NAMUR	All	★	
H	8/16 mA	All	★	
<b>Surface Finish</b>		<b>Available Connections</b>		
<b>Standard</b>			<b>Standard</b>	
1	Standard surface finish	All	★	
2	Hand polished (Ra < 0.4 μm)	Hygienic Connection Only	★	
<b>Product Certifications</b>		<b>Electronic Types Allowed</b>	<b>Available Housings</b>	
<b>Standard</b>			<b>Standard</b>	
N	Standard (no approvals)	All	All	★
G	FM and CSA (unclassified, safe area)	All	Y, T	★
E	ATEX Exd	All	X, S	★
F	FM Exd	All	Y, T	★
D	CSA Exd	All	Y, T	★
J	IECEX Exd	All	X, S	★
A	ATEX I.S.	K, H	All	★
K	FM I.S. and Non-incendive	K, H	All	★
C	CSA I.S. and Non-incendive	K, H	All	★
H	IECEX I.S.	K, H	All	★

**Table 1. Squing 2 ordering information**

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

Housing		Available for Certifications	
<b>Standard</b>			<b>Standard</b>
A	Glass Filled Nylon, M20 conduits/cable threads	N, A, K, C, H	★
D	Glass Filled Nylon, 1/2-in. NPT conduits/cable threads	N, A, K, C, H	★
X	Aluminum Alloy, M20 conduits/cable threads	All except G, F, D	★
Y	Aluminum Alloy, 3/4-in. NPT conduits/cable threads	All except A, H	★
S	Stainless Steel, M20 conduits/cable threads	All except G, F, D	★
T	Stainless Steel 3/4-in. NPT conduits/cable threads	All except A, H	★
Fork Length		Available Connection	
<b>Standard</b>			<b>Standard</b>
A	Standard length 1.7 in. (44 mm)	All except flanged models	★
H <sup>(3)</sup>	Standard length flange 4.0 in. (102 mm)	All flanged models	★
B	Ext. 5.9 in. (150 mm)	All except 1-in. BSPP O-ring 1P	★
C	Ext. 11.8 in. (300 mm)	All except 1-in. BSPP O-ring 1P	★
D	Ext. 19.7 in. (500 mm)	All except 1-in. BSPP O-ring 1P	★
L	Semi-Ext 3.9 in. (98 mm)	All except 1-in. BSPP O-ring 1P	★
M <sup>(4)</sup>	Extended, customer specified length in millimeters	All except 1-in. BSPP O-ring 1P	★
Extension Range			
<b>Standard</b>			<b>Standard</b>
XXXX <sup>(4)</sup>	Specific customer specified length in millimeters (Only if fork length M is specified)		★
<b>Typical Model Number: T D 1 A V 1 N A A</b>			

- (1) Available for threaded process connection codes 0A, 0D, 1A, and 1D and flanged process connections as standard, other upon request.
- (2) Available only for a flanged Squing 2 but excludes 1-in./DN25/25A flanges.
- (3) Not available for hand polished wet side.
- (4) Minimum extended length available for 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/PFA copolymer coating and hand-polished process where the maximum length is 59.1 in. (1500 mm) and 39.4 in. (1000 mm) respectively. Example: Code M4000 is 4000 millimeters.

**Spare parts and accessories**

**Table 2. Spare parts and accessories**

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

Spares and Accessories <sup>(1) (2)</sup>			
<b>Standard</b>			<b>Standard</b>
02100-1000-0001	Seal for 1-in. BSPP (G1A). Material: Non-asbestos BS7531 grade X carbon fiber with rubber binder		★
02100-1010-0001	Hygienic adaptor boss 1-in. BSPP. Material: 316 SST 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 <sup>(3)</sup>	1 1/2-in. BSPP adjustable 316 SST clamp gland for 1-in. extended lengths. Silicone (Si) rubber seal		★
02120-2000-0002 <sup>(3)</sup>	1 1/2-in. NPT adjustable 316 SST clamp gland for 1-in. extended lengths. Silicone (Si) rubber seal		★
02120-7000-0001	Replacement Cassette: Direct load switching (2 Wire) (Red)		★
02120-7000-0002	Replacement Cassette: PNP/PLC low voltage cassette (Yellow)		★
02120-7000-0003	Replacement Cassette: NAMUR (Light Blue)		★
02120-7000-0004	Replacement Cassette: Relay (DPCO) cassette (Green)		★
02120-7000-0005	Replacement Cassette: 8/16 mA output cassette (Dark Blue)		★

- (1) Check the Electronic Type and Product Certification sections in Table 1 on page 4 for availability conditions.
- (2) 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.
- (3) The adjustable clamp gland is not explosion-proof.

# Specifications

## General

### Product

- Mobrey Squing 2 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	D	X	Y	S	T
Housing Material	Nylon PA66 30%GF		Al alloy ASTM B85 A360.0		316C12 SST	
Rotational	Yes		No		No	
Housing Paint	Not Applicable		Polyurethane Paint		Not Applicable	
LED Window	Nylon PA12		None		None	
Conduit Entry	M20	1/2-in. NPT	M20	3/4-in. NPT	M20	3/4-in. NPT
Ingress Protection	IP66/67 to EN60529		IP66/67 to EN60529, NEMA 4X		IP66/67 to EN60529, NEMA 4X	

### Connections

- Threaded, hygienic, and flanged process connections.  
See "Process Connection" 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 Squing 2 but excludes 1-in./DN25/25A flanges
- 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

### Dimensional drawings

- See "Dimensional drawings" on page 12

## Performance

### Hysteresis (water)

- ±0.039-in. (±1 mm) nominal

### Switching point (water)

- 0.5 in. (13 mm) from tip (vertical) / from edge (horizontal) of fork (this will vary with different liquid densities)

## Functional

### 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 6) 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

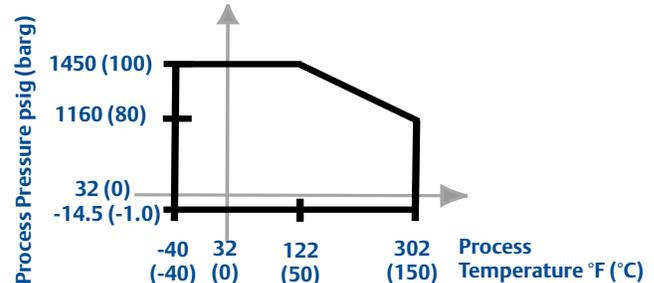


Table 5. Maximum flange pressure rating

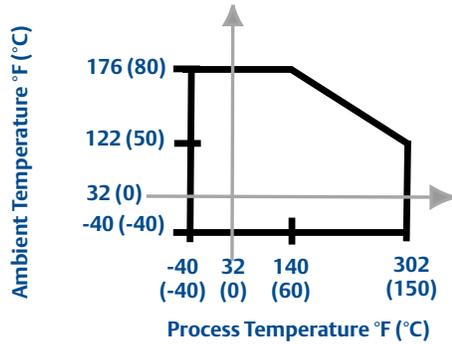
Standard	Class/Rating	SST Flanges
ASME B16.5	Class 150	275 psig <sup>(1)</sup>
ASME B16.5	Class 300	720 psig <sup>(1)</sup>
ASME B16.5	Class 600	1440 psig <sup>(1)</sup>
EN1092-1	PN 10	10 barg <sup>(2)</sup>
EN1092-1	PN 16	16 barg <sup>(2)</sup>
EN1092-1	PN 25	25 barg <sup>(2)</sup>
EN1092-1	PN 40	40 barg <sup>(2)</sup>
EN1092-1	PN 63	63 barg <sup>(2)</sup>
EN1092-1	PN 100	100 barg <sup>(2)</sup>
JIS B2220	10K	14 barg <sup>(3)</sup>
JIS B2220	29K	34 barg <sup>(3)</sup>

- (1) At 100 °F (38 °C), the rating decreases with an increasing process temperature.
- (2) At 122 °F (50 °C), the rating decreases with an increasing process temperature.
- (3) At 248 °F (120 °C), the 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 6) 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



**Liquid density requirement**

- Minimum 37.5 lb/ft<sup>3</sup> (600 kg/m<sup>3</sup>)

**Liquid viscosity range**

- 0.2 to 10000 cP (centiPose)

**Solids content and coating**

- Maximum recommended diameter of solid particles in the liquid is 0.2 in. (5 mm)
- For a coating product, avoid bridging of forks

**Switching delay**

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

**CIP (Clean In Place) and SIP (Steam In Place) cleaning**

- Withstands cleaning routines up to 275 °F (135 °C)

**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) – *Direct Load and PNP/PLC electronics*

**Heartbeat LED**

- The Squing 2 has a status-indicating heartbeat LED, which can be seen at all times and from all angles through a lens in the cover (no lens in metal housings)
- The LED flashes when the output is 'off' and is constantly lit when it is 'on'. The LED gives a constant indication that the Squing 2 is functioning correctly (different flash rates are used to indicate a product malfunction) and gives a local indication of the process state

**Magnetic test point**

- A magnetic test point is located on the side of the housing, allowing a functional test of the Squing 2 and a system connected to it. By holding a magnet to the target, the Squing 2 output changes state for as long as the magnet is held there

**Terminal connection (wire diameter)**

- Minimum 26 AWG, Maximum 14 AWG (0.13 to 2.5 mm<sup>2</sup>). Note national regulations.

**Conduit plugs/cable gland**

- 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
- Glass-filled nylon housing with direct load, PNP/PLC and IS electronics are shipped with one PA66<sup>(1)</sup> cable gland and one blanking plug
- Glass-filled nylon housing with relay electronics are shipped with two PA66<sup>(1)</sup> cable glands

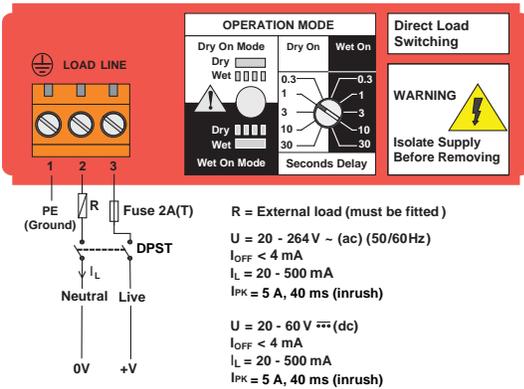
**Grounding**

- The Squing 2 must always be grounded either through the terminals or using the external ground connection provided.

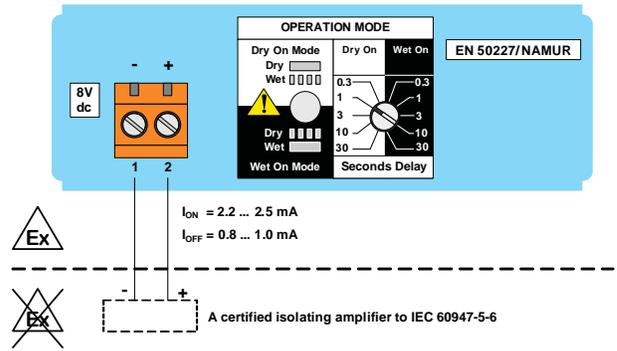
(1) Cable diameter 0.2 to 0.3 in. (5 to 8 mm)

**Electrical connections**

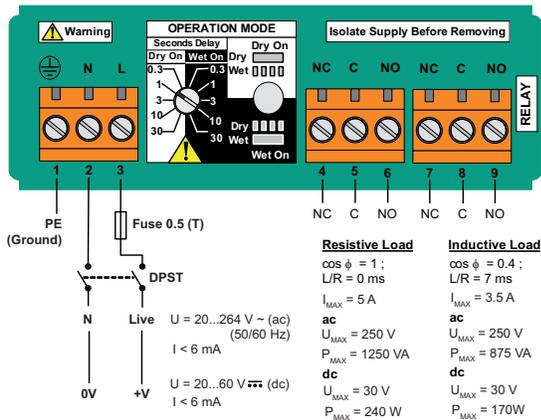
■ Direct load switching (two-wire) cassette



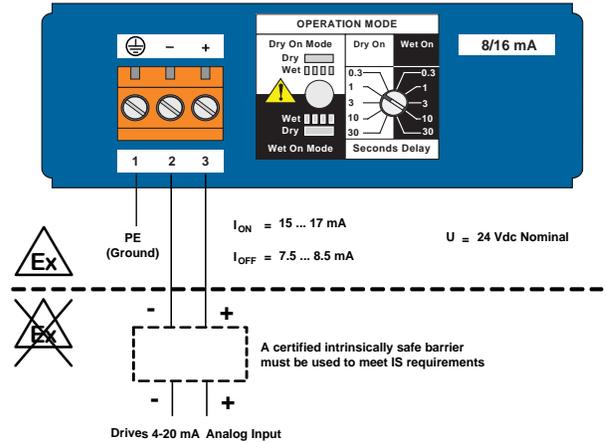
■ NAMUR (light blue) cassette



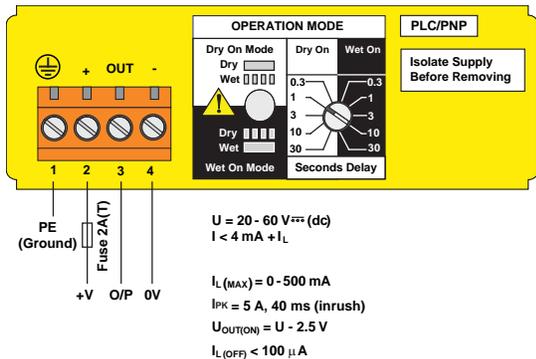
■ DPCO dual relay for voltage free contacts cassette



■ 8/16 mA (dark blue) cassette



■ Solid state PNP output for direct interface to PLC's (three wires) cassette



# Product certifications

## European directive information

The EC declaration of conformity for all applicable European directives for this product can be found in the Safety Instructions manual supplied with the Squing 2. A hard copy may be obtained by contacting your local sales office.

### ATEX Directive (94/9/EC)

Complies with the ATEX Directive.

### Pressure Equipment Directive (PED) (97/23/EC)

The Mobrey Squing 2 is outside the scope of PED Directive.

### L.V. Directive

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

### Electro Magnetic Compatibility (EMC) Directive

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

### CE-mark

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

## Ordinary location certification for FM

- G 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

- G 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

## Canadian Registration Number

CRN 0F04227.2C

### NOTE

The requirements of CRN are met when a Mobrey Squing 2 CSA IS-approved (C code) vibrating fork level switch model 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

- F Explosion-proof for Class I, Div. 1, Groups A, B, C, and D  
Temperature Class: T6 ( $T_{amb}$  -40 to 75 °C)  
Enclosure: Type 4X

#### Factory Mutual (FM)

#### intrinsically safe and non-incendive approval

- K 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 ( $T_{amb}$  -40 to 80 °C,  $T_{proc}$  < 80 °C)  
Control Drawing: 71097/1013 (with NAMUR electronics)  
Control Drawing: 71097/1316 (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

- D Explosion-proof for Class I, Div. 1, Groups A, B, C, and D  
Temperature Class: T6 ( $T_{amb}$  -40 to 75 °C)  
Enclosure: Type 4X  
Single seal

#### Canadian Standards Association (CSA)

#### intrinsically safe and non-incendive

- C 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 ( $T_{amb}$  -40 to 80 °C,  $T_{proc}$  < 80 °C)  
Control Drawing: 71097/1177 (with NAMUR electronics)  
Control Drawing: 71097/1317 (with 8/16 mA electronics)  
Single seal

### NOTE

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

## European approvals

### ATEX flameproof approval

E Certificate: Sira 01ATEX1163X  
Flameproof and Dust:  
ATEX Marking  II 1/2 G D  
Ex d IIC T6...T2 Ga/Gb  
Ex tb IIIC T85 °C...T265 °C Db

### ATEX intrinsically safe approval

A Certificate: Sira 01ATEX2121X  
Intrinsic Safety and Dust:  
ATEX Marking  II 1 G D  
Ex ia IIC T5...T2 Ga  
Ex ia IIIC T85 °C...T265 °C Da

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**NOTE**

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

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## International approvals

### International Electrotechnical Commission (IEC) flameproof approval

J Certificate: IECEX SIR 06.0050X  
Flameproof and Dust:  
Ex d IIC T6...T2 Ga/Gb  
Ex tb IIIC T85 °C...T265 °C Db

### International Electrotechnical Commission (IEC) intrinsically safe approval

H Certificate: IECEX SIR 06.0065X  
Intrinsically Safe and Dust:  
Ex ia IIC T5...T2 Ga  
Ex ia IIIC T85 °C...T265 °C Da

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**NOTE**

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

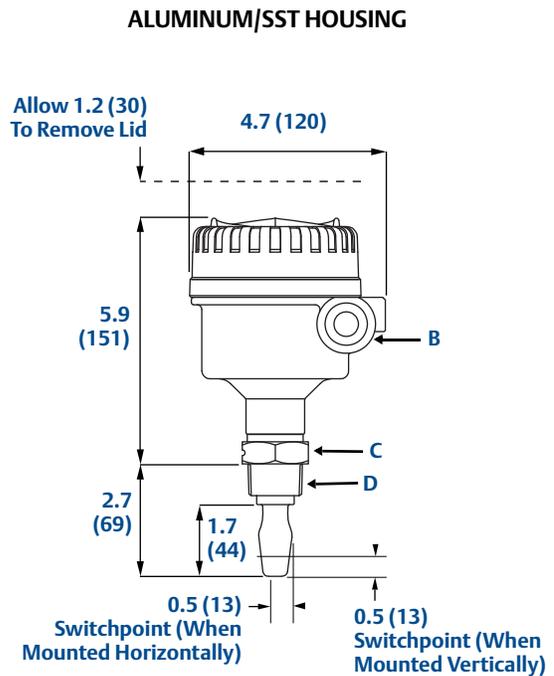
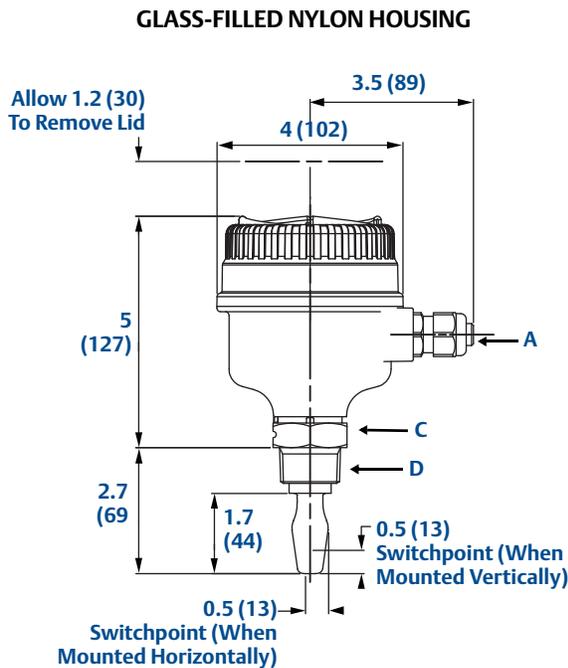
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# Dimensional drawings

Threaded mounting (standard length) ..... page 12  
 Thread mounting (extended length) ..... page 13  
 Flange mounting (standard length) ..... page 14  
 Flange mounting (extended length) ..... page 15

## Threaded mounting (standard length)

Note: Dimensions are in inches (millimeters)

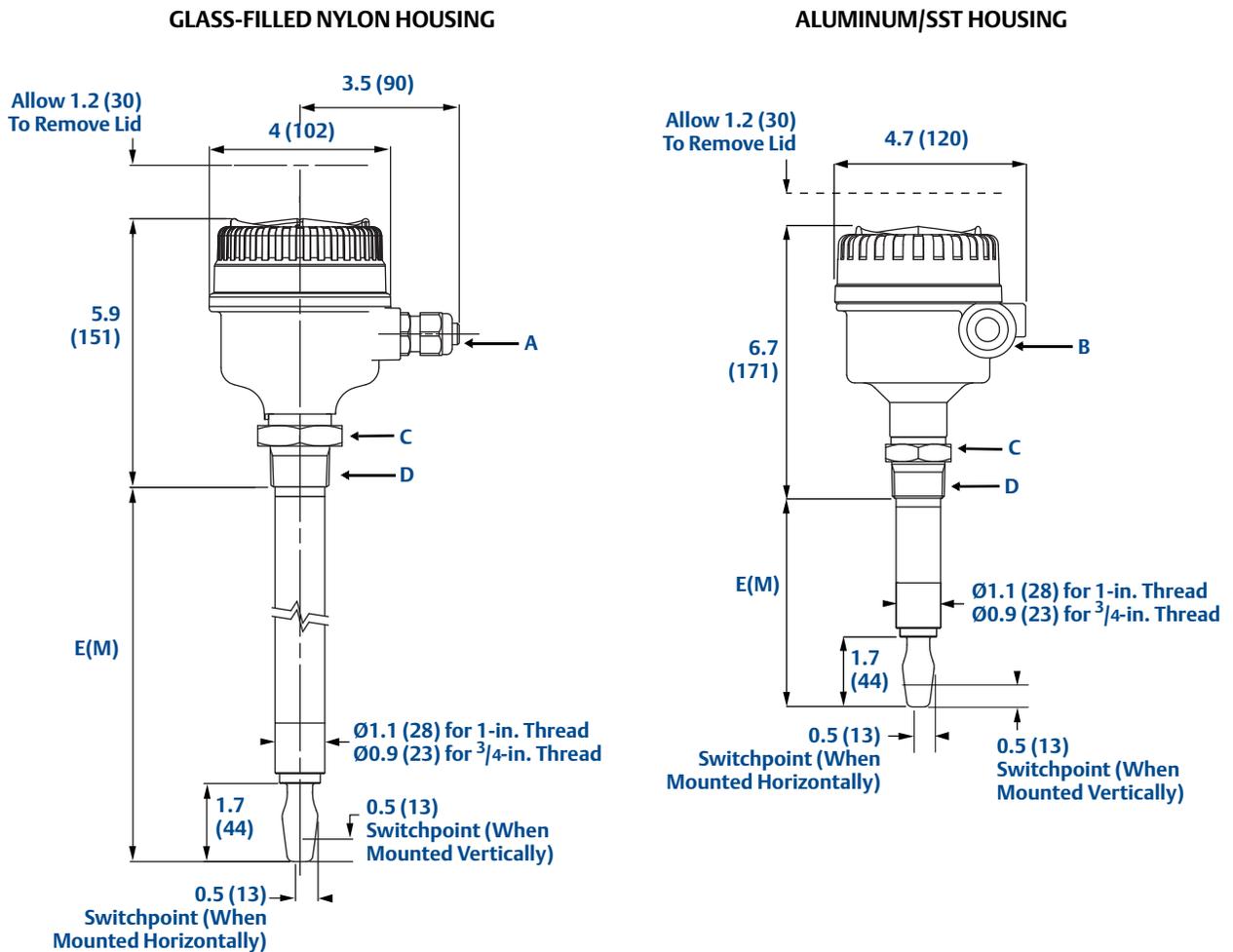


**NOTE: FOR HYGIENIC SQUING 2 DIMENSIONS, SEE TYPE 1 DRAWING DOWNLOADS ON WEB SITE**

- A. Cable Entry M20x1.5 or 1/2-in. NPT
- B. Cable Entry M20x1.5 or 3/4-in. NPT
- C. 1.6 (40) A/F Hexagon
- D. 3/4-in. or 1-in. Thread

**Thread mounting (extended length)**

Note: Dimensions are in inches (millimeters)



**NOTE: FOR HYGIENIC SQUIING 2 DIMENSIONS, SEE TYPE 1 DRAWING DOWNLOADS ON WEB SITE**

- A. Cable Entry M20x1.5 or 1/2-in. NPT
- B. Cable Entry M20x1.5 or 3/4-in. NPT
- C. 1.6 (40) A/F Hexagon
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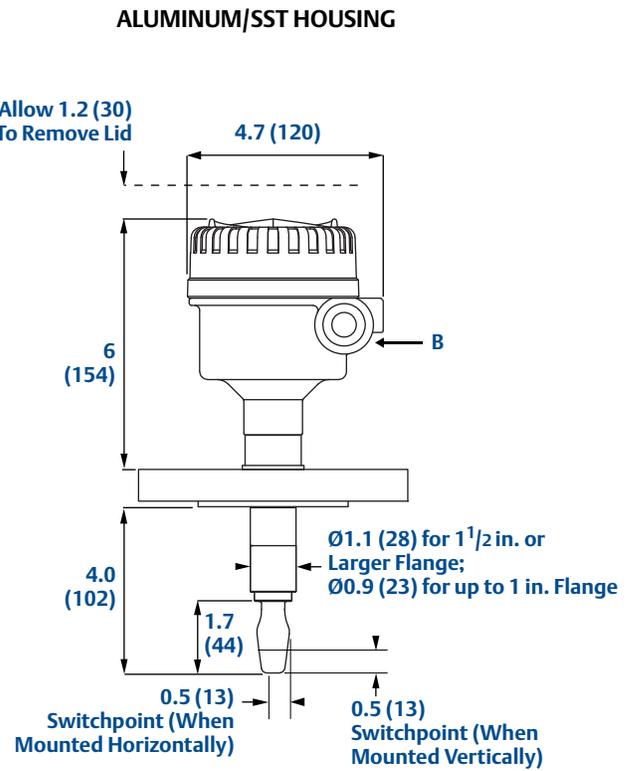
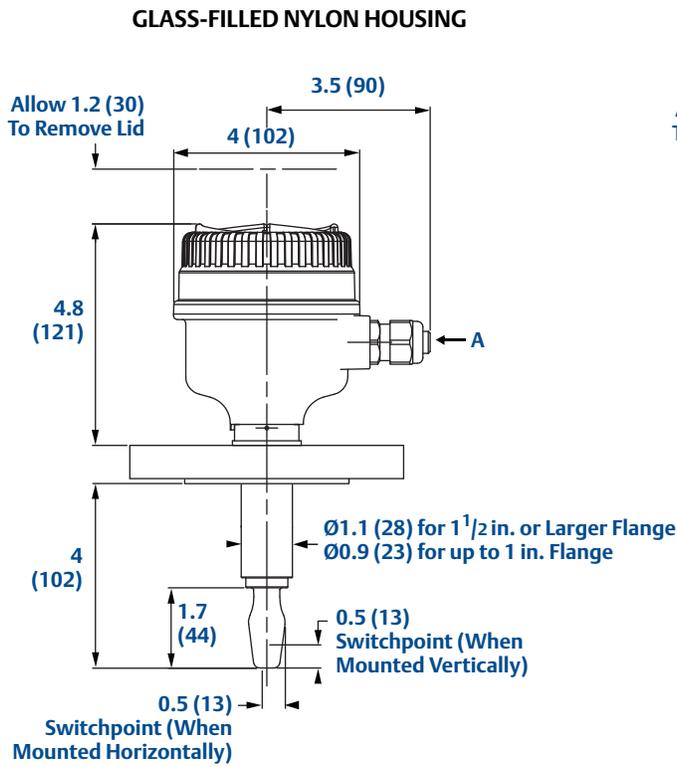
**Table 6. Fork length for threaded Squing 2**

Process Connection	Standard Length Fork Length Code A	Minimum Length Fork Length Code E (M)	Maximum Length Fork Length Code E (M) <sup>(1)</sup>
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)**

Note: Dimensions are in inches (millimeters)

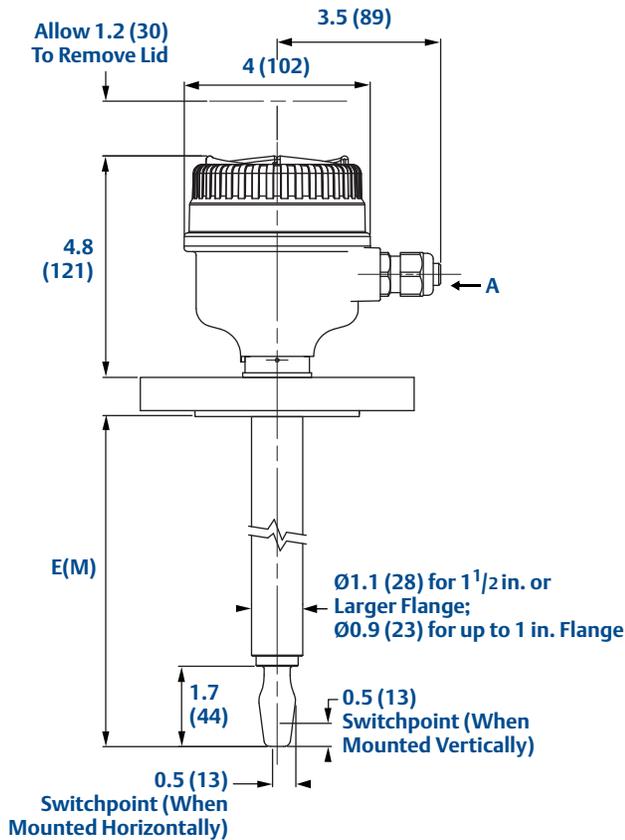


- A. Cable Entry M20x1.5 or 1/2-in. NPT
- B. Cable Entry M20x1.5 or 3/4-in. NPT

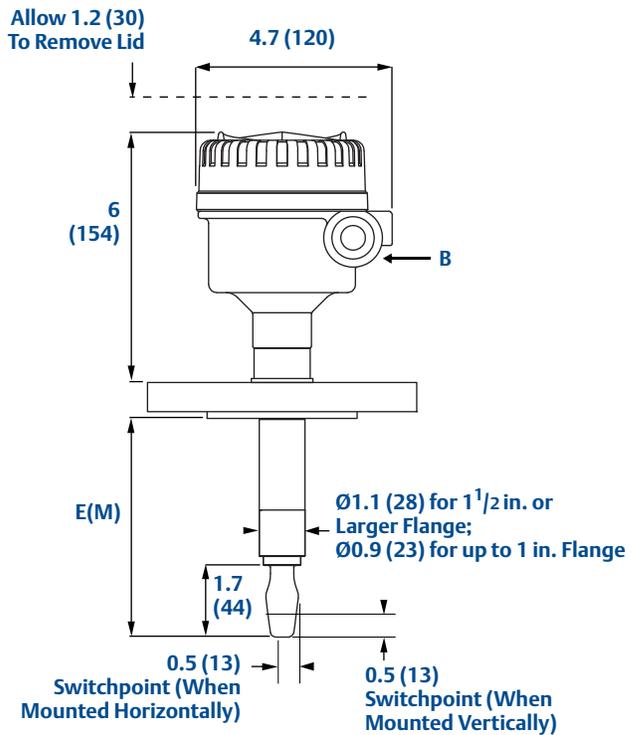
**Flange mounting (extended length)**

Note: Dimensions are in inches (millimeters)

**GLASS-FILLED NYLON HOUSING**



**ALUMINUM/SST HOUSING**



- A. Cable Entry M20x1.5 or 1/2-in. NPT
- B. Cable Entry M20x1.5 or 3/4-in. NPT

**Table 7. Fork length for flanged Squing 2**

Process Connection Material	Standard Length Model Code H	Minimum Length Model Code E (M)	Maximum Length Model Code E (M)
Stainless steel <sup>(1)</sup>	4 (102)	3.5 (89)	157.5 (4000)
ECTFE/PFA co-polymer coated	4 (102)	3.5 (89)	59.1 (1500)
Alloy C and Alloy C-276	4 (102)	3.5 (89)	157.5 (4000)

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





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