

Mobrey Squitch 2 Ultrasonic Liquid Level Switch

- *A compact, self-contained, ultrasonic gap sensor, designed for switching in clean liquids*
- *Mounting options including threads and hygienic couplings*
- *Can be interfaced directly to a PLC using a simple instrument cable*
- *Simple two-wire installation*
- *LED status indicator*
- *316 Stainless steel wetted parts*



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Mobrey Squitch 2

Mobrey Squitch 2 Level Switch Overview



Threaded Squitch 2

OVERVIEW

The Mobrey Squitch 2 is a compact, self-contained ultrasonic sensor with a 240 Vac/Vdc switching capability. This switching electronics requires only two electrical connections and using simple instrument cable.

When connected in series with the load (contactor, starter, relay, etc.), the Squitch 2 acts as a simple switch that is operated by a liquid presence. It may also be interfaced directly to a Programmable Logic Controller (PLC). For this purpose, a dedicated PLC terminal is provided within the housing.

The Squitch 2 sensor is for use in non-hazardous areas only. There are a variety of mounting options including threads and hygienic couplings, and installation can be in any position in the vessel.

OPERATION

When a liquid fills the sensor gap, an ultrasonic signal is transmitted across the gap and the presence of liquid is signalled. When the sensor gap is filled with air, there is no signal transmitted and a “dry” state is signalled.

Easy On-site Set-up

A selector switch sets the Squitch 2 to energise in either wet or dry conditions.

When the Squitch 2 is 'off', less than 4.5 mA is drawn through the load and a red LED (viewed through a cover lens) flashes approximately once per second.

When the Squitch 2 is 'on', the full load current of 0.5 A (maximum) flows and the red LED is lit constantly.

In this way, there is always an indication that the ultrasonic gap sensor is “alive and well”.

A typical Application is point level detection in a wide variety of industries including vegetable oil refineries, confectionery, breweries, food machinery, and pharmaceutical plant.



High and Low Level Alarm Application
Using Two Threaded Squitches

NOTE:

The Mobrey Squitch 2 is not designed to be used in aerated liquids such as carbonated drinks or in liquids with high concentrations of suspended solids such as liquid chocolate. For these applications, see the Mobrey Squing 2.

FEATURES AND BENEFITS

- 316 stainless steel wetted parts (*hygienic versions are available*)
- LED status indicator
- May be interfaced directly to a Programmable Logic Controller (PLC), or mounted in pipes for low cost installation
- Low cost, easy to maintain, and no moving parts
- Simple to install
- Low level failsafe

See “Specifications” on page 5 for technical details.

Product Data Sheet

IP207, Rev BA
March 2012

Mobrey Squitch 2

Ordering Information



Squitch 2 Level Switch

- A compact, self-contained ultrasonic sensor with direct load switching capability
- Mounting options including 1-in. threaded and 2-in. hygienic couplings
- Accessories ordering information is on page 4

Additional Information

Specifications: page 5
Dimensions: page 6

TABLE 1. Squitch 2 Sensor Ordering Information

★The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Model	Product Description
8	Mobrey Squitch 2 ultrasonic liquid level switch
Mounting	
30	1-in. BSPT Thread (R 1 in.)
34	1-in. BSPP Thread (G 1 in.)
35	1-in. NPT Thread
57 ⁽¹⁾	2-in. (51 mm) Tri-Clover fitting (ISO 2852/BS4825)
3A ⁽²⁾	Adjustable clamp 1 1/2-in. BSPP, Silicone rubber seal
Wetside Material	
SD	316L Stainless steel (1.4044)
Housing	
S	Yellow glass-filled nylon housing
Use	
0	Non-hazardous (safe) area use only
Output	
0	Direct load switching (24 to 240 Vac/Vdc)
Wetside Finished	
0	Electro polished
Materials Certificates	
0	Typical (on request only)
Fork Length	
0	Standard Length
L	Extended: A = 83 mm (Switching point as liquiphant) (E = 92 mm)
E	Extended Length (<i>select additional codes from Specified Extended Fork Length options below</i>)
OPTIONS	
Specified Extended Fork Length⁽³⁾	
150	E150 Extended: Fixed length E = 150 mm
300	E300 Extended: Fixed length E = 300 mm
500	E500 Extended: Fixed length E = 500 mm
1000	E1000 Extended: Fixed length E = 1000 mm
****	Any length, made to order: E = 100 up to 3000 mm
Typical Model Number: 8 30 SD S 0 0 0 0 E2000	

(1) See Table 2 on page 4 for the Tri-Clover mounting kit accessory.

(2) A minimum extended length of 12 in. (300 mm) is required for the adjustable clamp option.

(3) See "Dimensional Drawings" on page 6 for dimension E.

Accessories

TABLE 2. Accessories Ordering Information

Accessories	
SK266	2-in. (51 mm) Tri-Clover mounting kit (vessel fitting, clamp ring, and seal) Materials: 316 Stainless steel and NBR Nitrile
SK304	1 1/2-in. BSPP adjustable gland for 1-in. extended length versions of the Squitch 2. Material: 316 Stainless steel body, and (Si) Silicone rubber seal
SK462	1 1/2-in. NPT adjustable gland for 1-in. extended lengths versions of the Squitch 2. Material: 316 Stainless steel body, and (Si) Silicone rubber seal

Tri-Clover Mounting Kit (SK266)

NOTE:

For use with Tri-clover Squitch 2 (857*****) only.

This kit contains a vessel fitting and clamp ring in 316 stainless steel, and a NBR Nitrile rubber seal.

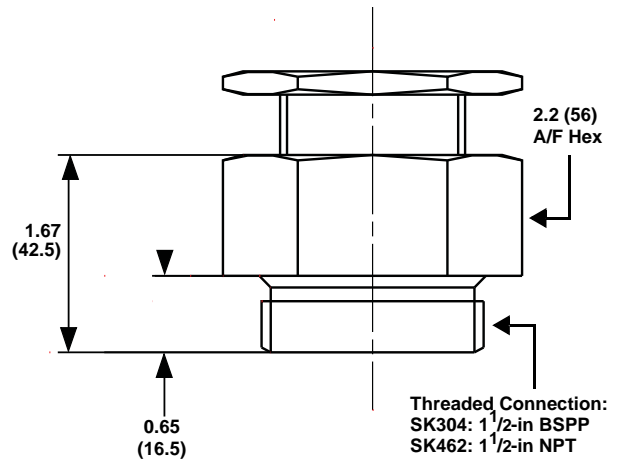
Adjustable Gland Kit (SK304 or SK462)

An adjustable gland is available to allow site adjustment of the switching level for top mounted extended length Squitch 2.

The gland is ordered as a separate item (SK304 or SK462) and may be used with any Squitch 2 with an extended length greater than 12 in. (300 mm).

Figure 1. Adjustable Gland

Note: Dimensions are in inches (mm) unless otherwise stated.



Maximum Operating Pressure: 19 psi (1.3 bar)
Maximum Operation Temperature: 257 °F (125 °C)

Specifications

TABLE 3. Specification for the Mobrey Squitch 2

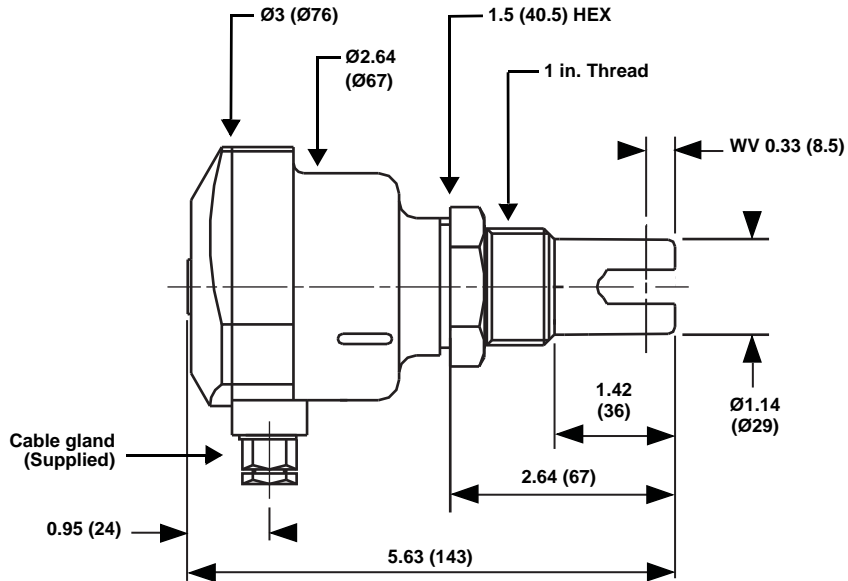
Construction	
Wetside material	316L Stainless steel (1.4044)
Dryside material	Glass-filled nylon, housing yellow, black housing cover
Operating conditions	
Process temperature	-40 to 125 °C
Ambient temperature	-40 to 50 °C
Process pressure	0.25 to 20 bar g
Liquid density (SG)	0.6 to 2.0
Liquid viscosity	0.2 to 10000 cPs
Switching point (H ₂ O)	8.5 mm from tip (<i>when installed vertically</i>) or edge (<i>when installed horizontally</i>)
Hysteresis (H ₂ O)	±1 mm nominal
Switching delay	1 second dry-to-wet/wet-to-dry
Maximum altitude	2000 metres
Maximum humidity	100% R.H.
Protection class	IP66/67
Electrical	
Switching mode	User selectable (Dry = on or Wet = on)
Protection	Reverse polarity protected. Missing load / short circuit protection
Terminal connection (wire diameter)	Maximum 2.5 mm ² (Note national regulations)
Cable gland	Supplied with M16, cable diameter 5 to 8 mm
Earthing	Squitch 2 should always be earthed to a protective earthing system
Safety EMC	
E.M.C. Directive	EN61326 (Emissions) for Class B Equipment.
	EN61326 (Immunity) for continuous un-monitored operation in industrial locations
L.V. Directive	EN61010-1
	Pollution degree 2, Category II (264V max)
	Pollution degree 2, Category III (150V max)
Mechanical	
Dimensions	See "Dimensional Drawings" on page 6
Weight	0.43 kg (0.95 lb)

Dimensional Drawings

MOBREY SQUITCH 2 DIMENSIONS

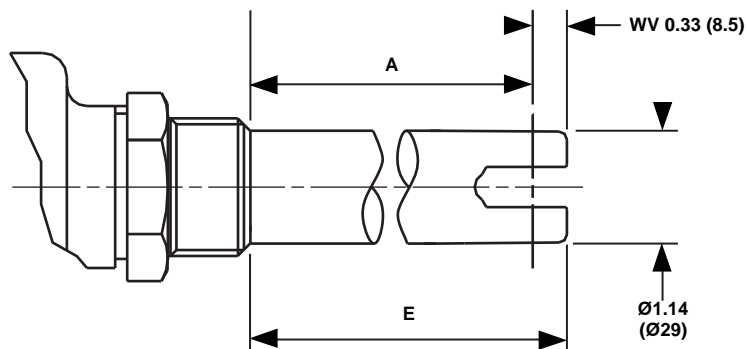
Note: Dimensions are in inches (mm) unless otherwise stated.

STANDARD LENGTH SQUITCH 2



WV = Switching Point When Squitch 2 Mounted vertically

EXTENDED LENGTH SQUITCH 2



Specify the dimension A and E when ordering: $E = A + 0.33 \text{ in. (8.5 mm)}$

Maximum E = 118 in. (3000 mm)

Minimum E = 5.91 in. (150 mm)

Product Data Sheet

IP207, Rev BA

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Mobrey Squitch 2

Mobrey Squitch 2

Mobrey Level Solutions

Emerson provides a wide range of Mobrey products for level measurement applications.

POINT LEVEL DETECTION

Vibrating Fork Liquid Level Switches

For high and low alarms, overflow protection, pump control, including wide pressure and temperature requirements, and hygienic applications. Flexible mounting. Immune to changing process conditions and suitable for most liquids.

- Mobrey Mini-Squing (Compact)
- Mobrey Squing 2 (Full-featured)

Ultrasonic Gap Sensor Liquid Level Switches

For use in non-hazardous industrial processes to detect high or low liquid levels and liquid interface. Immune to changing density, and wide dielectric and pH variations. Suitable for use in most clean and non-aerated liquids, with options for sludges and slurries.

Float and Displacer Liquid Level Switches

Mobrey electromechanical float and displacer level switches are ideal for alarm and pump control duties, especially in critical applications or hazardous areas.

- Mobrey Horizontal Level Switches
- Mobrey Vertical Level Switches

Chambers are available for external mounting of these level switches on process vessels.

Dry Products Level Switches

For high and low level alarms. Including threaded mounting connections, extended lengths, high temperature capability, and multiple detection techniques. Suitable for a wide variety of powders, granules, and free flowing solids with wide variations in bulk densities.

- Mobrey VLS Series – Vibrating Rod Level Switch
- Mobrey PLS Series – Paddle Level Switch
- Mobrey CLS Series – Capacitance Level Switch

CONTINUOUS MEASUREMENT

Ultrasonic Continuous Level Transmitters and Controllers

Top mounted, non-contacting for simple tank and open-air process level measurements. Unaffected by fluid properties such as density, viscosity, dirty coating, and corrosiveness. Intrinsically Safe versions are available for operating in hazardous areas.

- Mobrey MSP Series Ultrasonic Level and Flow Transmitters
- Mobrey MCU900 Series Universal Controllers

Ultrasonic Sludge Density Blanket Monitoring and Control

Ultrasonic in-line pipe or tank mounted sensors for sludge density measurement and control, and top mounted ultrasonic sensors for continuous measurement of sludge blanket level in Industrial and Municipal effluent treatment processes.

- Mobrey MSM400 – Sludge Density Monitor
- Mobrey MSL600 – Sludge Blanket Level Monitor

Displacer Continuous Level Measurement

Top mounted in a vessel or externally mounted in a vertical chamber. For use in hazardous areas.

- Mobrey MLT100 – Displacer Level Transmitter

Hydrostatic Continuous Level Transmitter

For level measurements in non-pressurized tanks where in-tank problems such as foaming, vapor layers, and temperature gradients prohibit the use of other instrumentation.

- Mobrey 9700 Series hydrostatic electronic level transmitters

SPECIALIZED CONDUCTIVITY

Conductivity Water and Steam Interface Monitoring

Steam/water interface level gauges using specialized, high performance conductivity probes in external columns and manifolds, ideal for steam plants where reliable and redundant indication of boiler water level and turbine protection is critical.

- Hydratect 2462 – Water/Steam detection Systems
- Hydrastep 2468 – Water/Steam Monitoring Systems

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