Mobrey Squitch 2
Ultrasonic Liquid Level Switch

- *A compact, self-contained, ultrasonic gap sensor, designed for switching in clean, non-aerated liquids*
- *BSPT and NPT threaded mounting options*
- *Can be interfaced directly to a PLC using a simple instrument cable*
- *Simple two-wire installation*
- *LED indicator for health status*
- *316 Stainless steel wetted parts*

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EMERSON
Process Management

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 can use a 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 threaded options available, and installation can be in any position on 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, vibrating fork technology is recommended – visit www.mobrey.com for more information.

FEATURES AND BENEFITS

- 316 stainless steel wetted parts
- 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 fail-safe

See “Specifications” on page 4 for technical details.

Ordering Information

Squitch 2 Level Switch

- A compact, self-contained ultrasonic sensor with direct load switching capability
- 1-in. BSPT and NPT threaded mounting options

Additional Information

Specifications: page 4
Dimensions: page 5

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
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
Typical Model Number: 8 30 SD S 0 0 0 0 0	

Specifications

TABLE 2. 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_20)	8.5 mm from tip (*when installed vertically*) or edge (*when installed horizontally*)
Hysteresis (H_20)	±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 5
Weight	0.43 kg (0.95 lb)

Dimensional Drawings

MOBREY SQUITCH 2 DIMENSIONS

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

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, overfill 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

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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