

# M-Switch

## Float Operated Liquid Level Switch

- *Reliably detects the liquid level to give a voltage free contact operation for alarm signalling or as part of a pump control system*
- *Small in-tank dimensions, suitable for use where space in a vessel is limited*
- *Available for side mounting with either a flanged or 2 in. threaded connection*
- *Tough industrial build quality with 316 Stainless steel construction throughout*
- *European Directive compliance*
- *ATEX Flameproof models Exd*



### Contents

M-Switch Float Operated Liquid Level Switch. . . . .	page 2
M-Switch Specification . . . . .	page 3
Dimensional Drawings. . . . .	page 4

# Mobrey M-Switch

## M-Switch Float Operated Liquid Level Switch



M-Switch

M-Switch features include:

- Small in-tank dimensions
- Simple liquid level alarm
- Traditional high reliability switching
- Side mounting, either direct into a vessel or in an external chamber

### Additional Information

Specifications: page 3

Dimensions: page 4

TABLE 1. M-Switch 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	
SM	M-Switch, 316 Stainless steel construction	
<b>Mounting Arrangement<sup>(1)</sup></b>		
<b>Standard</b>		<b>Standard</b>
A	Mobrey 'A' Flange	★
D <sup>(2)</sup>	Mobrey 'D' Flange	★
B	2-in. BSPT Threaded	★
N	2-in. NPT Threaded	★
<b>Enclosure</b>		
<b>Standard</b>		<b>Standard</b>
1	Weatherproof NEMA 4 (IP66/67)	★
2	Flameproof ATEX 11 1/2G Exd IIcT6 NEMA 4 (IP66/IP67)	★
<b>Typical Model Number: SM B 1</b>		

(1) See Table 2 on page 3 for the maximum pressure rating of each mounting arrangement.

(2) Not available on the flameproof version of the M-Switch.

# Product Data Sheet

IP116, Rev CA  
May 2010

# Mobrey M-Switch

## M-Switch Specification

General	
Product	M-Switch Float Operated Liquid Level Switch
Minimum Specific Gravity (SG)	0.75
Differential	1 in. (25 mm)
Length Into Tank	6 in. (153 mm)
Float Diameter	1.9 in. (48 mm)
Maximum Float Swing	4.4 in. (112 mm)
Switching Function (See Figure 1)	SPCO
Construction Materials	
Wetside Material	316 Stainless steel
Body material	316 Stainless steel
End cover material	316 Stainless steel
Gasket	Non-Asbestos for A flange Ethylene Propylene for D flange
Electrical	
Conduit Entry	M20 for A and D flanged and BSPT threaded versions ½-in. NPT for NPT threaded versions
Maximum Voltage and Current	See Table 3 for the maximum voltage and current The microswitch contacts are gold plated and are suitable for use in low power circuits. Switching high power circuits will permanently damage the gold plating. Not suitable for the direct starting of large motors.
Environment	
Operating Temperature	32 to 266 °F (0 to 130 °C)
Ambient Temperature	32 to 140 °F (0 to 60 °C)
Operating Pressure	See Table 2 for the maximum pressure ratings
Approvals	
Enclosure Rating	Weatherproof M-Switch: IP66/67 (NEMA 4) Flameproof M-Switch: ATEX 11 1/2G EExd IIcT6 (IP66/IP67) (NEMA 4)
Marine	Germanischer Lloyd

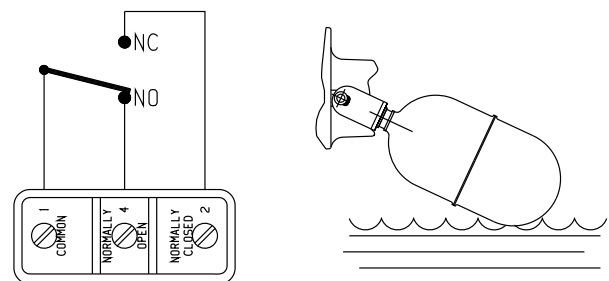
TABLE 2. Maximum Pressure Ratings

Mounting Arrangement	Maximum Pressure			
	68 °F	20 °C	266 °F	130 °C
Mobrey 'A' Flange	275 psi	19 bar	223 psi	15.4 bar
Mobrey 'D' Flange	43 psi	3 bar	43 psi	3 bar
2-in. BSPT Threaded	275 psi	19 bar	223 psi	15.4 bar
2-in. NPT Threaded	275 psi	19 bar	223 psi	15.4 bar

TABLE 3. Maximum Voltage and Current

Maximum Voltage & Current	AC	DC (Resistive)	DC (Conductive)
Max. Voltage (V)	250	250	250
Max. Current (A)	15	0.25	15

Figure 1. Switching Function

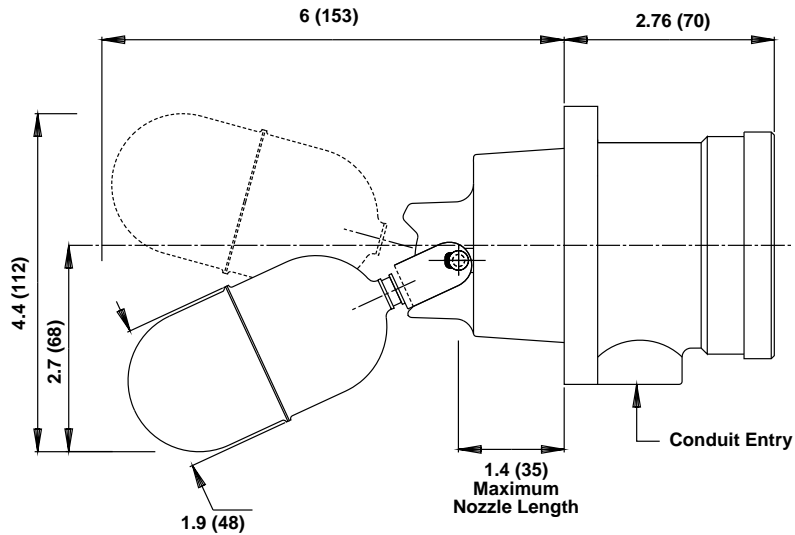


N.O. Makes on falling level  
N.C. Makes on rising level

## Dimensional Drawings

### M-SWITCH DIMENSIONS

Note: Dimensions are in inches (mm)



### MOBREY FLANGE DIMENSIONS

Note: See Table 4 for dimensions

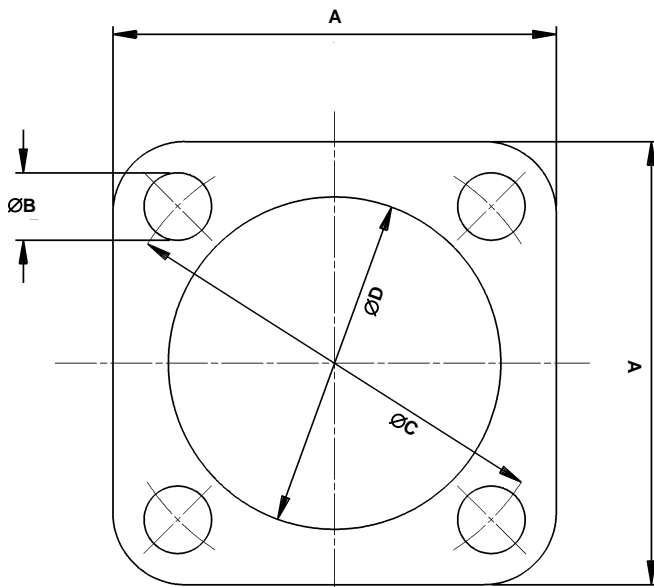


TABLE 4. Mobrey Flange Dimensions<sup>(1)</sup>

Mobrey Flange	A	B	C	D <sup>(2)</sup>
Mobrey 'A' Flange	3.6 (92)	0.55 (14)	3.6 (92)	2.6 (66)
Mobrey 'D' Flange	3.6 (92)	0.35 (9)	3.3 (83)	2.0 (50)

(1) Dimensions are in inches (mm)

(2) Mounting hole diameter D to be  $\pm 0.4$  in. (1 mm).

**Product Data Sheet**

IP116, Rev CA

May 2010

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# Mobrey M-Switch

## 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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