

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*



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M-Switch

M-Switch Float Operated Liquid Level Switch



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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

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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	
Mounting Arrangement⁽¹⁾		
Standard		Standard
A	Mobrey 'A' Flange	★
D ⁽²⁾	Mobrey 'D' Flange	★
B	2-in. BSPT Threaded	★
N	2-in. NPT Threaded	★
Enclosure		
Standard		Standard
1	Weatherproof NEMA 4 (IP66/67)	★
2	Flameproof ATEX 11 1/2G Exd IIcT6 NEMA 4 (IP66/IP67)	★
Typical Model Number: SM B 1		

(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

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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

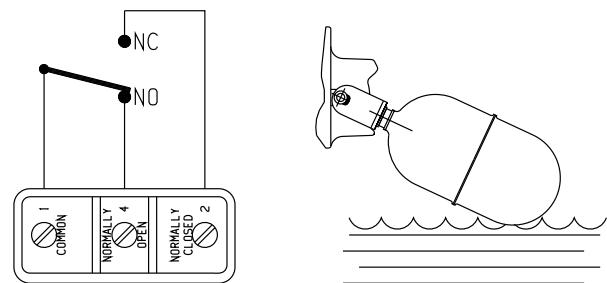
TABLE 2. Maximum Pressure Ratings

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

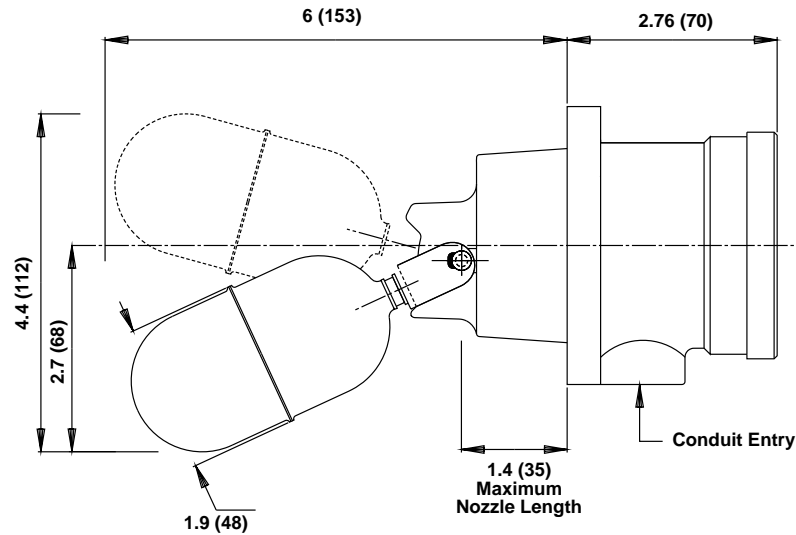
N.C. Makes on rising level

M-Switch

Dimensional Drawings

M-SWITCH DIMENSIONS

Note: Dimensions are in inches (mm)



MOBREY FLANGE DIMENSIONS

Note: See Table 4 for dimensions

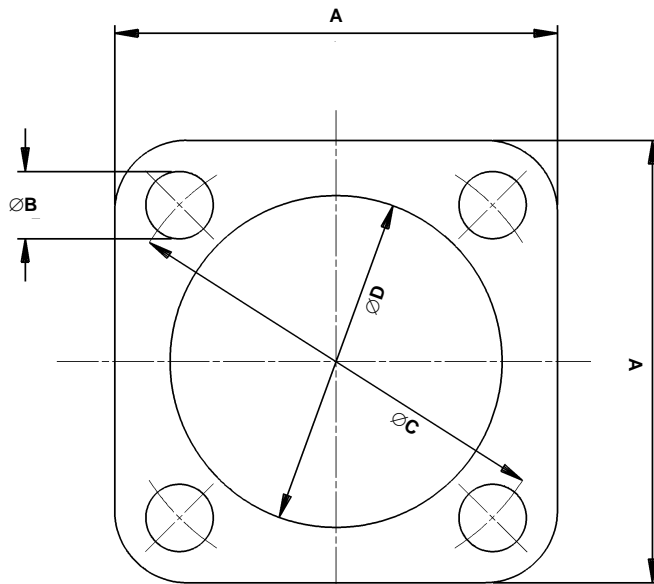


TABLE 4. Mobrey Flange Dimensions⁽¹⁾

Mobrey Flange	A	B	C	D ⁽²⁾
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 ± 0.4 in. (1 mm).

Product Data Sheet

IP116, Rev CA
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Rosemount Level Solutions

Emerson provides a complete range of Rosemount products for level measurement applications.

Vibrating Fork Switches – Point Level Detection

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.

The product line consists of:

- Rosemount 2160 WirelessHART™
- Rosemount 2130 Extreme Temperature
- Rosemount 2120 Full-featured
- Rosemount 2110 Compact

Differential Pressure – Level or Interface Measurement

Flexible mounting for liquid tank levels, including those with wide temperature and pressure requirements. Can be isolated by valves. Unaffected by: vapor space changes, surface conditions, foam, corrosive fluids, internal tank equipment. Optimize performance with direct mount, Tuned-System Assemblies:

- Rosemount DP Level Transmitters and Remote Seals
- Rosemount 3051S_L, 3051L, and 2051L Liquid Level Transmitters

Ultrasonic – Level Measurement

Top mounted, non-contacting for simple tank and open air level measurements. Unaffected by fluid properties such as: density, viscosity, dirty coating and corrosiveness. Appropriate for routine applications outside of explosion proof areas.

The product line consists of:

- Rosemount 3100 Series Ultrasonic Process Level Transmitters

Guided Wave Radar – Level and Interface Measurement

Top mounted, direct level and interface measurement of liquids or solids, including those with wide temperature and pressure requirements. Unaffected by changing process conditions. Good fit for small spaces and easy swap for older technologies.

The product line consists of:

- Rosemount 5300 Series – Accurate, superior performance transmitter in most applications including process vessels and control
- Rosemount 3300 Series – Versatile and easy-to-use transmitter in most liquid storage and monitoring applications

Non-contacting Radar – Level Measurement

Top mounted, direct level measurement for liquids or solids, including those with wide temperature and pressure requirements. Can be isolated by valves. Unaffected by changing process conditions. Good for dirty, coating and corrosive applications.

The product line consists of:

- Rosemount 5400 Series – Accurate, superior performance 2-wire transmitters for most liquid level applications and process conditions
- Rosemount 5600 Series – 4-wire transmitters with maximum sensitivity and performance for solids, challenging reactors, rapid level changes and excessive process conditions

Chambers for Process Level Instrumentation

- Rosemount 9901 – High quality chambers for external mounting of level measurement and control instrumentation on process vessels

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