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MAGNETICALLY ACTUATED 1 AMP SPDT ELECTRIC SWITCH

Model MS30
Model MS30/EX

FEATURES

- Unique Concept of Magnetic Coupling, Eliminating Direct Contact with Process
- No Process Piping or Valves Required
- Easy Mounting and Adjustment; Only Small Screwdriver Required
- Trip Point Infinitely Adjustable without Changing Process Piping
- Hermetically Sealed SPDT Switch (NO or NC Contacts)
- Vibration Resistant
- Switch is Encapsulated within a Stainless Steel Housing
- Designed and Constructed to FM, UL, NEMA, and ANSI/ISA Guidelines



MS30



MS30EX
Explosion Proof

DESCRIPTION

The K-TEK MS30 is a magnetically actuated single pole double throw switch. When the MS30 is mounted on a KM26 Magnetic liquid level indicator, LS Series Cage Level switch or an External Chamber that contains a K-TEK magnetic float, it can sense high or low levels within a vessel. The unique magnetic coupling action eliminates the need for such things such as seals, diaphragms, springs, or torque tubes because there is no physical contact with the process. Magnetic coupling also eliminates the necessity of process connections and insures total isolation from the process.

SPECIFICATIONS:

Switch type	Magnetically actuated, hermetically sealed, bi-stable switch. Single pole, double throw (Form C)
Contact Material	Rhodium alloy
Switch Action	Break before make
Max Deadband	Approx. +/- 0.75" (1.9cm) of float travel
Contact Ratings	AC Rating: 250 VAC, 1 Amp, 250 VA, resistive DC Rating: 250 VDC, 1 Amp, 250 W, resistive
Minimum operating temperature	-40°F (-40°C) Contact factory regarding use in colder applications
Maximum operating temperature	300°F (149°C) For process temperatures to 800°F, see mounting options, below
Hazardous Area Rating	FM Approved and CSA Certified Intrinsically Safe - Class I, II, III, Division 1, Groups A - G, (simple apparatus, if installed per control drawing MS21-0923). Entity Parameters: $V_{max} = 100$ V, $I_{max} = 750$ mA, $C_i = 0$ uF, $L_i = 0$ mH. FM rated Non-Incendive: 1, Division 2, Groups A, B, C, D, Dust-Ignition Proof - Class II, Division 1, Groups E, F, G, Suitable for Class III, - when installed as per NEC 501-4 (a)(b). NEMA 4X (Type 4X)
MS30:	Same as above except
MS30EX	Explosion Proof - Class I, Division 1, Groups C & D, NEMA 4 (Type 4)
Customer Connections	1/2" NPT conduit and 20 AWG wiring harness.
Mounting options	For process temperatures to 600°F use switch MS30/IH or MS30/EX/IH with insulation pad. For process temperatures to 800°F use switch MS30/RD or, MS30/EX/RD with rod mount brackets with insulated KM26 Gauges, or, on ST95 Seal Fluid Supply Tanks with rod mount brackets.
Housing	MS30: 316SS, NEMA 4X (Type 4) MS30/EX: Copper Free Aluminum, NEMA 4 (Type 4)
Application note	Inductive and Capacitive loads require special considerations. Contact factory for technical literature and assistance.
Accessories	IP10 10 Amp Relay Pitput Module and PP10 PUMP-PAK Controller. See appropriate sales literature for details.



Mounting

The MS30 is mounted using two stainless steel clamps that pass through the mounting slots attached to the switch housing. The switch can be easily positioned by loosening the clamp and sliding the switch to the correct position on the chamber. Other switches can be added at any time, without the concern for additional process piping or valves. Note that two switches can be mounted so that they can trip at the same point or at two points separated by less than the length of a switch.

Operation

The MS30 consists of a form C reed switch and a bias magnet. The reed switch uses precious metal contacts in an inert gas atmosphere sealed by glass to metal bond. The bias magnet allows the switch to maintain its last state (latch) after the activating magnetic field is removed. A magnetic K-TEK float traveling relative to the MS30 causes the reed switch to change state. After the float has passed, the reed switch will maintain its state until the float reverses direction and passes the switch in the opposite direction. The action of the switch is break before make. The hermetically sealed contacts serve to insure a high degree of hazardous area safety, weather resistance and general reliability of the product.

Application

The MS30 will provide either a normally open or normally closed dry contact which may be used to activate external devices such as alarms or solenoids. Its main application is to sense the passing of a magnetic float in a KM26, or similar chamber, attached to a vessel containing a fluid. These trip points can be used for alarms for to activate a pump motor starter relay.

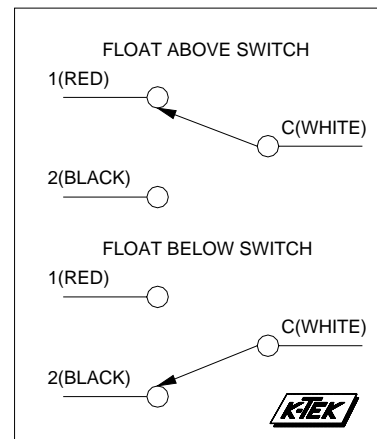


Figure 1:
Contact closure shown for both conditions of the switch relative to the magnetic float.

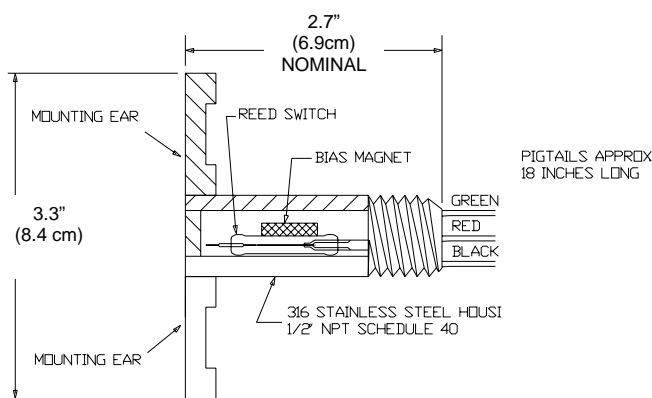


Figure 2: Dimensional diagram of the MS30 Switch for Class 1, Division 2 applications
MS30 Housing Cut Away View

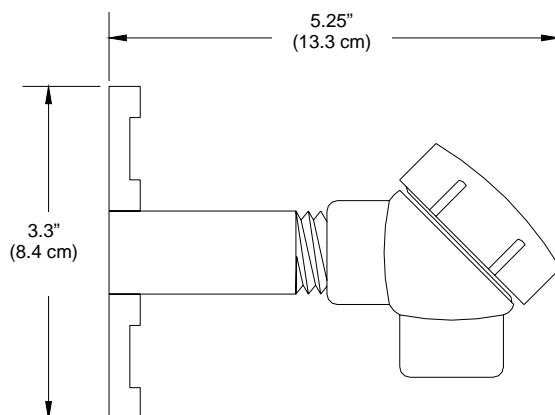


Figure 3: Dimensional diagram of the MS30 Switch for Class 1, Division 2 applications
MS30 Housing Cut Away View