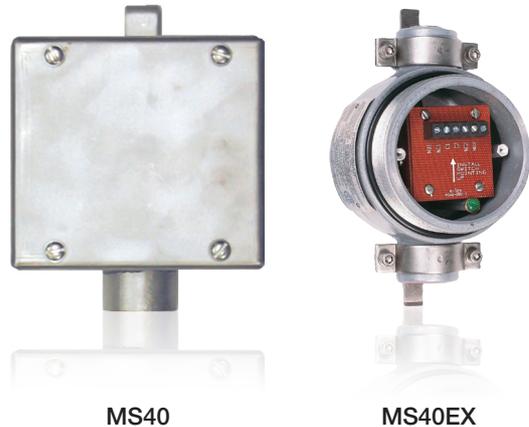


MS40 / MS40EX

Magnetic level gauge switch

Measurement made easy

K-TEK Level products



MS40

MS40EX

Introduction

The MS40 electric switch is a magnetically actuated double pole double throw switch. When the MS40 is mounted on a KM26 Magnetic liquid level indicator, LS Series Cage Level switch or an External Chamber that contains a 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. The magnetic coupling eliminates process connections to the switch and insures complete isolation from the process. No valves are required to block off the switch from the process to perform any maintenance or operational checks, and since the MS40 is isolated from the process, it does not need to be cleaned.

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
- DPDT switch (NO or NC contacts)
- Vibration resistant
- Compact design
- Suitable for high temperature applications
- Designed and constructed to FM, UL, NEMA, and ANSI/ISA guidelines

SPECIFICATIONS

Switch type	Magnetically actuated, cam driven snap action bistable switch
Contact Material	Silver-Cadmium Alloy
Switch Action	Break before make
Max Deadband	Approx. +/- 0.75" (1.9 cm) of float travel
Contact Ratings	AC Rating: 10 amp resistive, 1/4 HP @ 125 AC or 250 VAC DC Rating: 2.6 amp @ 24 VDC, 1/2 amp @ 125 VDC, 1/4 amp @ 250 VDC Lamp Load rating: 3A @ 125 VAC
Minimum operating temperature	-60°F (-51°C)
Maximum operating temperature	304°F (151°C)
Hazardous Area Rating MS40:	FM Approved NEMA 4X and Intrinsically Safe - Class I, II, III, Division 1, Groups A - G, (simple apparatus, if installed per MS40-0923-1). Entity Parameters: $V_{max} = 100$ V, $I_{max} = 750$ mA, $C_i = 0$ uF, $L_i = 0$ mH. Dust-Ignition Proof - Class II, Division 1, Groups E, F, G when installed as per NEC 501-4 (a) (b). FM rated Non-Incendive if installed per MS40-0924-1.
 Also available as: MS40EX	Same as above, including: Explosion Proof - Class I, Division 1, Groups C & D
Customer Connections	1/2" FNPT conduit and terminal block (AWG 30 to AEG 12)
Mounting options	For process temperatures to 600°F use switch MS40 or MS40EX with insulation pad (IH). For process temperatures to 800°F use switch MS40 or, MS40EX with rod mount brackets (RD) with insulated KM26 Gauges, or on ST95 Seal Fluid Supply Tanks with rod mount brackets.
Housing	MS40: 316SS, NEMA 4X (Type 4X) MS40EX: Copper Free Aluminum, NEMA 4 (Type 4)

Ordering Information:

MS40 or MS40EX a.b:

a Mounting

X	None
RD	Rod Mount Bracket

b Insulation

X	None
IH	Insulation Pad

Services

GS1	Certificate of Origin
CU3	Certificate of Functionality

Mounting

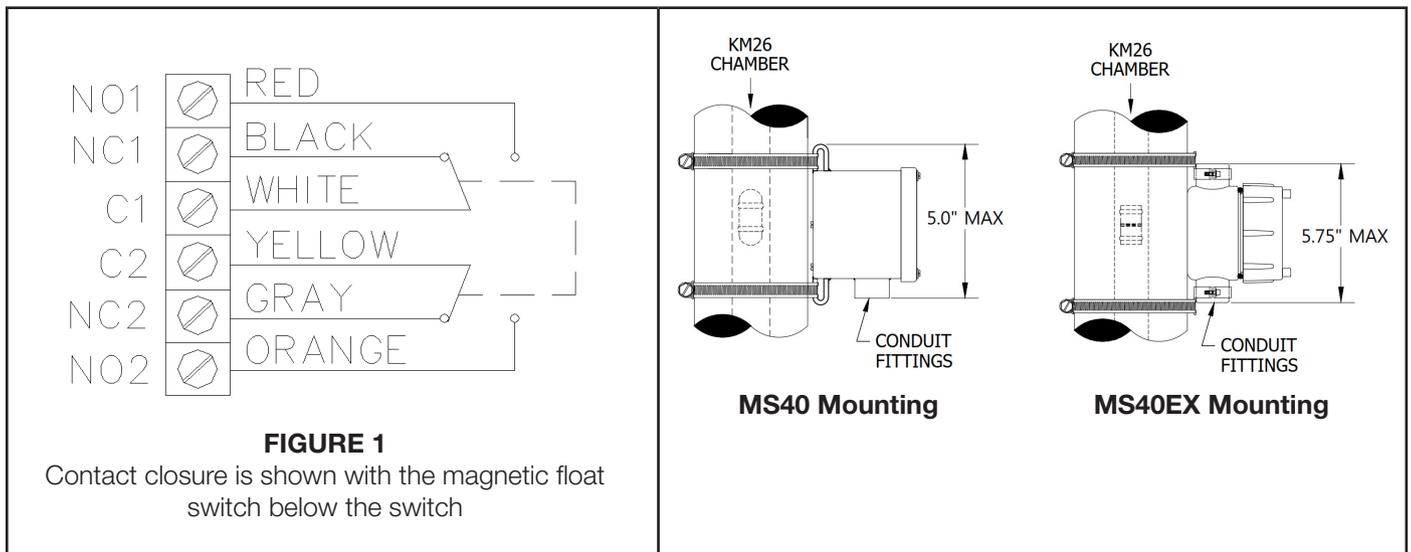
The simplicity of mounting the MS40 switch housing is such that a small screwdriver is the only necessary tool. The MS40 is mounted using two stainless steel clamps that pass through the mounting slots attached to the switch housing. The clamp is then fastened to the KM26, or similar chamber. The switch 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.

Operation

The MS40 consists of two snap action switches operated by a precision actuation mechanism. The actuation mechanism consists of two cams arranged on a spindle assembly. A rod magnet is situated through a spindle assembly in such a way as to cause the spindle to rotate when a magnetic field of proper orientation passes near the switch. A magnetic KM26 float passing by the MS40 in either the upward or downward direction will cause the switch to change states. After the float has passed, the switch will remain in its respective state until the float passes the switch going in the opposite direction. The action of the switch is break before make. See Figure 1.

Application

The MS40 provides electrical current switching in the form of two isolated normally open or normally closed contacts. Since the switch is configured in a double pole double throw configuration, two separate devices can be controlled with the same switch. The current switching capacity of the switch allows for a wide variety of devices to be switched as long as the stated limits are not exceeded. Since the MS40 is magnetically actuated, it is suited for any application where it is necessary to sense the passing of a magnet or magnetic field in close proximity. However, its main application is to sense the passing of a magnetic float on a KM26, or similar chamber, attached to a vessel containing fluid. This will provide for the detection of a start/stop trip point of either a total or interface level on any vessel. These trip points can be used for alarms or to activate a pump motor starter relay.



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