

## MS10

### Buoyancy Level Switch

Horizontal electric float level  
switch  
K-TEK Products



#### Introduction

The MS10 is a single-pole, double-throw electric switch capable of sensing the liquid level inside a process vessel. The unit is typically mounted via the integral 1-1/2" MNPT connection. Several standard adapters are available for use when a 1-1/2" FNPT is not available on the vessel. The MS10 requires no preventative maintenance as it is totally sealed. The MS10 provides either a normally open or normally closed dry contact to activate external devices such as alarms or solenoids. Variations in process fluid specific gravity have minimal effect on the level measured because of the small size of the integral float.

#### Features

- Electrical Contacts are Magnetically Isolated from Process
- Mounting Via 1-1/2" NPT Process Connection
- Optional Flange Mounting Adapters Available
- Hermetically Sealed SPDT Switch (NO / NC Contact)
- Vibration Resistant
- Switch is Totally Enclosed within Stainless Steel Housing
- Hex Shaped Housing & SPDT Contacts Allow for Easy Installation
- FM, CSA, ATEX and GOST Russia Approved

## 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. +/- 0.50" of float travel
Contact Ratings	AC rating (max): 250 V or 1 amp resistive or 100 VA DC rating (max): 125 V or 0.5 amp resistive or 100 W Lamp Load Rating: 1/3 A @ 125 VAC See IR10 for higher Switch Contact Ratings
Process Temp.	-40 to 450°F / -40 to 232°C Contact factory regarding use in colder applications
Contact Temp.	-40 to 302°F / -40 to 150°C
Maximum Pressure	1500 psig / 103 bar standard 5000 psig / 345 bar with HP option
Customer Connections	1-1/2" MNPT Process, 1/2" FNPT conduit and AWG 20 wiring harness (18 inch). MS-10 housing is 2" Hex for tightening into process connection
Insertion Length	4" (101mm) Standard; Optional 5" (127mm), 6" (152mm) or 6-1/2" (165mm) Up to 14" (356mm) Insertion Length
Materials	316/L Stainless Steel
Specific Gravity	0.4 Minimum (Clean Fluids)

**Consult Factory for Special Application Requirements**

## APPROVALS

Factory Mutual Research Corp and CSA Canadian Standards Associations Hazardous Locations:

FM



XP CL I, Div 1 & 2, GP A,B,C,D  
T6@Ta=176°F (80°C)

DIP CL II, Div 1 & 2, GP E,F,G CL III  
I/1 / AEx d IIC T6@Ta=176°F(80°C)  
IS I/1 / A,B,C,D T6@Ta=176°F(80°C)  
I/0/ AEx ia IIC T6@Ta=176°F(80°C)

ATEX



II 1 G EEx ia IIC T6  
(-40°C < Tamb < +80°C)  
(-40°F < Tamb < +176°F)

GOST Russia

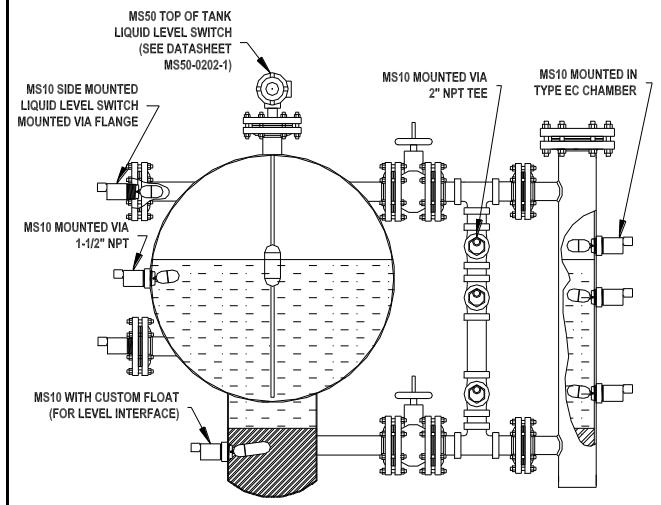
GOST Kazakhstan

0ExiaIIC6 IP67

0ExiaIIC6 IP65



## Sample Application Using K-TEK Level Switches



## ORDERING INFORMATION

- Omit items that are standard or not required

MS10 / a / b / c / d / e:

### /a Process Connection

**CAUTION: Requires minimum 2 1/2" nozzle ID.**

- 15 1 1/2" MNPT (Standard)
- 20 2" MNPT
- S6 316/L Stainless Steel
- S4 304/L Stainless Steel
- CST Carbon Steel
- WPxx Welded Flange (specify type, material & rating from SLG-0001-1 Flange Designation Chart)
- FLxx Loose Flange (specify type, material & rating from SLG-0001-1 Flange Designation Chart)

### Mounting Adapter Material

- T2 2" NPT, 3000# Modified Tee  
Includes 1 1/2" x 2" reducer bushing
- S2 2" Socket Weld, 3000# Modified Tee  
Includes 1 1/2" x 2" reducer bushing

### /b Tag with Customer Specified Information

- X None

- NT 316 Stainless Steel Hanging Name Tag

### /c Insertion Length

- EXT1 4 in. / 101 mm Insertion Length (Standard)
- EXT2 5 in. / 127 mm Insertion Length
- EXT3 6 1/2 in. / 165 mm Insertion Length
- EXT4 6 in. / 152 mm Insertion Length (HP Option Only)
- EXTn Custom Insertion Length  
 $n = 6\frac{5}{8}$  to 14 in / 168 to 356 mm

### /d Other Options

- X None
- HP Up to 5000 psig / 345 bar
  - 1. 3900 psig max with CRN approval.
  - 2. Flanged process connection required.
  - 3. Only available with EXT4 insertion length.
  - 4. Contact factory regarding materials of construction.
  - 5. Requires a 3 1/2" minimum nozzle ID.

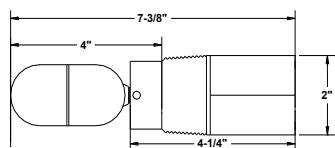
### /e Approvals

- X None
- FM Factory Mutual
- CSX Canadian Standards Association Flameproof
- CSI Canadian Standards Association Intrinsically Safe
- CEI ATEX Intrinsically Safe
- GR GOST Russia
- GK GOST Kazakhstan

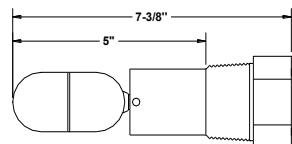


**Application** Inductive and Capacitive loads require special considerations.

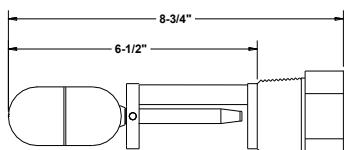
**Note** Contact factory for technical literature and/or applications assistance.



/ EXT1 option (standard)

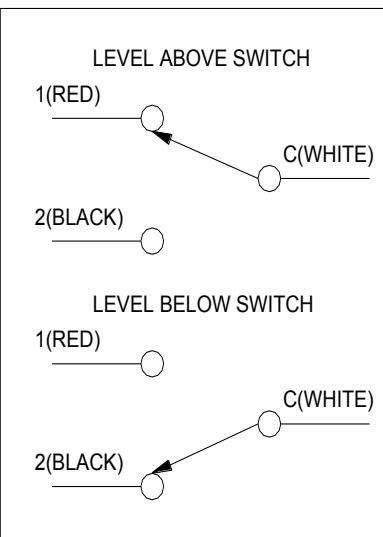


/ EXT2 option

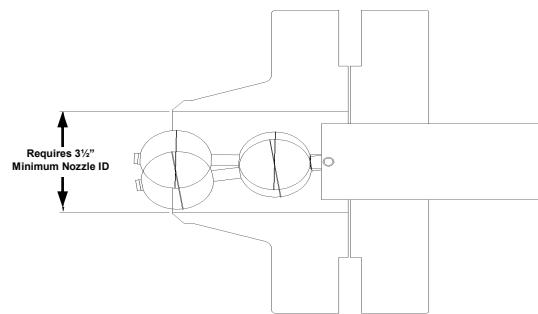


/ EXT3 option

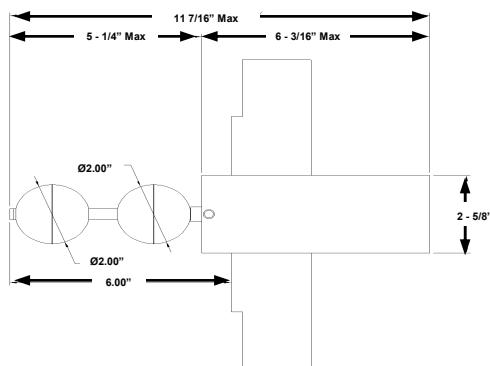
**Figure 1—Operation of Electrical Contacts**



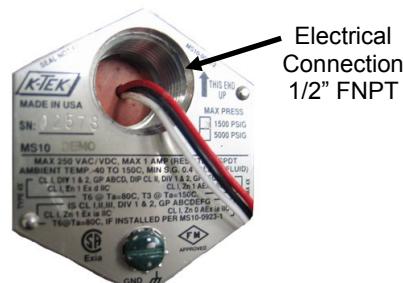
**HP Option Through Nozzle Installation**



**High Pressure (HP) / EXT 4 Option**



**Wiring Connection Photo**



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