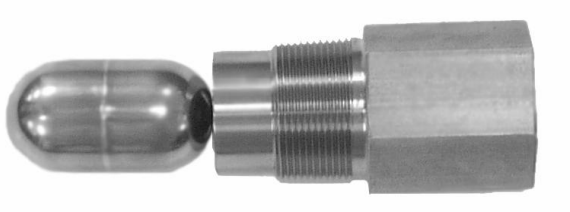
Data sheet DS/MS10-EN Rev. R 10.2016

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-$^{1}/_{2}$ in. MNPT connection. Several standard adapters are available for use when a 1-$^{1}/_{2}$ in. 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-$^{1}/_{2}$ in. 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, and ATEX

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 in. 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-$^1/_2$ in. MNPT Process, $^1/_2$ in. FNPT conduit and AWG 20 wiring harness (18 in.). MS-10 housing is 2 in. Hex for tightening into process connection
Insertion Length	4 in. (101mm) Standard; Optional 5 in. (127mm), 6 in. (152mm), 6-$^1/_2$ in. (165mm) Up to 14 in. (356mm) Insertion Length
Materials	316/L Stainless Steel
Specific Gravity	0.4 Minimum (Clean Fluids)
	Consult Factory for Special Application Requirements

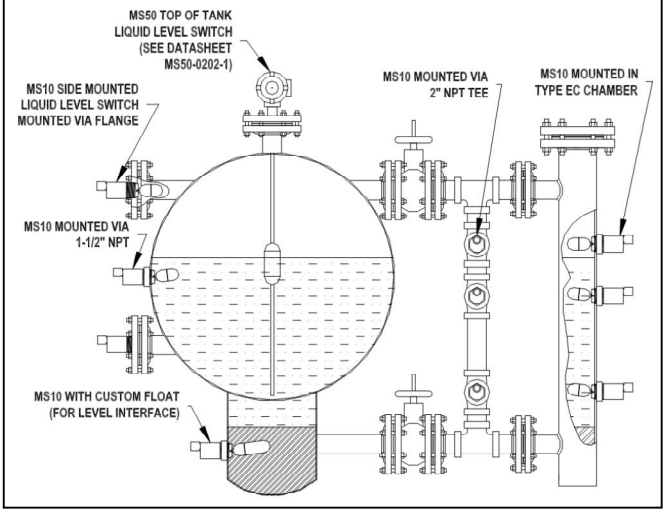
APPROVALS

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 Ex ia IIC T6
(-40°C < Tamb < +80°C)
(-40°F < Tamb < +176°F)
2460

Sample Application Using K-TEK Level Switches



ORDERING INFORMATION
- Omit items that are standard or not required

MS10.a.b.c.d.e.f.g

a. Process Connection
CAUTION: Requires minimum 2 ½" nozzle ID.
15 1½ MNPT (Standard 316/L Stainless Steel)
20 2" MNPT (Standard 316/L Stainless Steel)
WP Welded Flange
FL Loose Flange
Mounting Adapter Material
T2 2 in. NPT, 3000# Modified Tee Includes 1½ x 2 in. reducer bushing
S2 2 in. Socket Weld, 3000# Modified Tee Includes 1½ x 2 in. reducer bushing

b. Flange Process Connection Material
X None
316 316L Stainless Steel
CST Carbon Steel

c. Process Connection Size / Rating / Type
xxx Specify type, material & rating from SLG-0001-1 Flange Designation Chart

d. Tag with Customer Specified Information
X None
NT 316 Stainless Steel

e. Insertion Length
EXT1 4 in. / 101 mm Insertion Length (Standard)
EXT2 5 in. / 127 mm Insertion Length
EXT3 6½ in. / 165 mm Insertion Length
EXT4 6 in. / 152 mm Insertion Length (HP Option Only)
EXTN Custom Insertion Length (6⅝ to 14 in / 168 to 356 mm)

f 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 3½" minimum nozzle ID.

g. Approvals
X None
N3 Factory Mutual / CSA
E1 ATEX / IECEx Exia or Ex nA

2460

Application Note: Inductive and Capacitive loads require special considerations. Contact factory for technical literature and/or applications assistance.
Services will follow the model code with - and will not be included on the tag

Certifications
CK Certificate of Compliance for ANSI / ASME*†
CU3 Certificate of Functionality (Mechanical Function Test)
CRN Canadian Registration Number*†

Material Monitoring
C2 Material Monitoring with Inspection Certificate 3.1 acc. EN 10204 (MTR)

Engineering Documents
GD3 Certified as Built Drawings

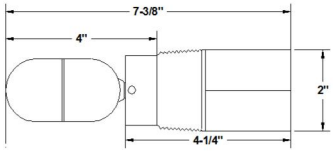
Hydrostatic Examination
CP1 Hydrostatic Examination (10 minutes)
CP2 Hydrostatic Examination with Chart Recording (30 minutes)
CP3 Hydrostatic Examination with Chart Recording (60 minutes)
CP4 Hydrostatic Examination with Chart Recording (120 minutes)

NACE
CN1 NACE (MR 0103) Hardness Certificate*

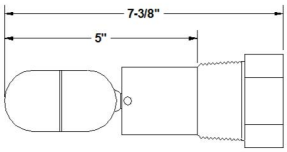
Radiographic Services—Per Tag
CRA Radiographic Examination on all Pressure containing Butt Welds / and all other pressure containing welds are Liquid Dye Penetrant tested (Final Pass Only)

Liquid Dye Penetrant—Per Tag
CNA Liquid Dye Penetrant Examination on all Pressure containing Welds (Final Pass Only)

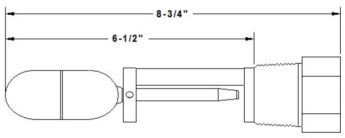
Positive Material Identification
CHC Positive Material Identification with Carbon Content
CHD Positive Material Identification without Carbon Content
*Requires C2 in Material Monitoring † Requires CP1, CP2, CP3 or CP4 in Hydrostatic Examination



EXT1 option (standard)

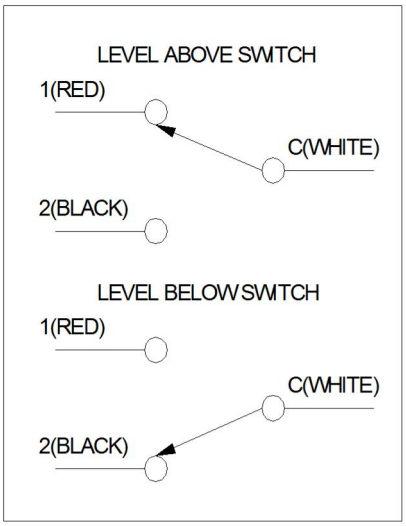


EXT2 option

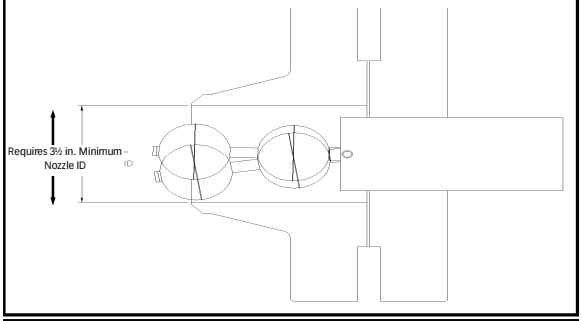


EXT3 option

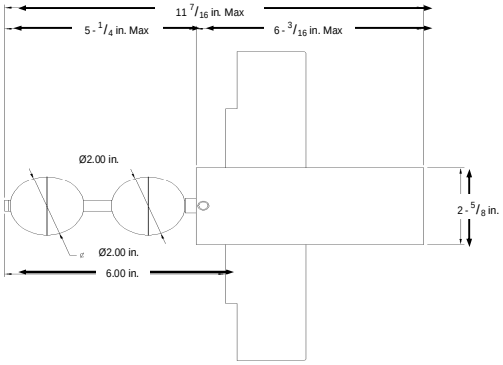
Figure 1—Operation of Electrical Contacts



HP Option Through Nozzle Installation



High Pressure (HP) / EXT 4 Option



Wiring Connection

Electrical Connection 1/2 in. FNPT

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