

MS50

Buoyancy level switch

K-TEK products

Measurement made easy



Single Float Multi-Float

Features

- Up To Six SPDT Switches Per Unit (NO & NC Contacts)
- Interface & Total Level Capability
- Trip Point Adjustable Without Removing Vessel From Service
- Vibration Resistant
- Suitable for High Temperature Applications
- 316L Stainless Steel Wetted Parts Standard
- Field Adjustable and Replaceable Switches
- 316/316L Standard, Exotic Alloys & Thermoplastic Available
- Terminal Block(s) Included

Typical applications

- Butane
- Propane
- Oil
- Chlorine
- Acids
- Water
- Interfaces

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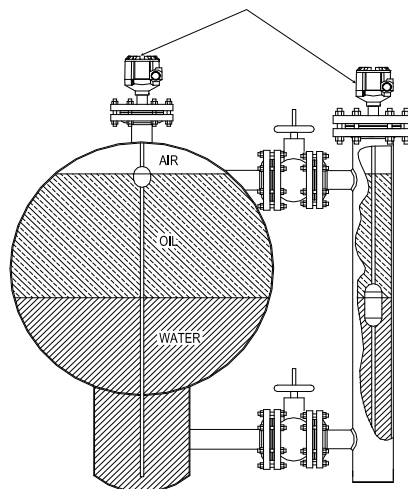
Specifications

Mechanical

Housing Type	Explosion Proof Powder Coated Aluminum Compartment IP 67
Materials of Construction	316L Stainless Steel Standard, Exotic Alloys, Thermoplastic optional
Maximum Pressure	Metallic Units: 800 psig @ 300 °F / 55 bar @ 149 °C Thermoplastic: 50 psig / 3.5 bar at maximum temperature listed
Sensor	5/8 in. OD / 16 mm
Length	Metallic Units: 8 in. to 20 ft. / 0.2 to 6 meters. Thermoplastic: 8 in. to 10 ft. / 0.2 to 3 meters.

Electrical

Switch Type	Magnetically actuated, hermetically sealed, reed switch each contact, single pole double throw (Form C) terminals in housing
Switch Action	Break before make. Position of magnetic float will accuate reed switch
Contact Material	Rhodium
Maximum Deadband	Approximately ± 0.75 in. / 1.9 cm 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
Ambient Operating Temperature Range	-58 °F / -55 °C to 150 °F / 66 °C
Minimum Operating Process Temperature	Metallic Units: -50 °F / -45 °C Thermoplastic Units: 40 °F / 4.5 °C
Maximum Operating Process Temperature	Metallic Units: 200 °F / 93 °C (optional 302 °F / 149 °C) Thermoplastic Units: PVC: 140 °F / 60 °C; CPVC: 210 °F / 99 °C; PVDF: 280 °F / 138 °C (see /HT option)
Hazardous Area Ratings	FM Approved and CSA Certified XP / I / 1 / ABCD; NEMA 4X IS / I / 1 / ABCDEFG (simple apparatus, if installed per MS50-0923/NC) NI / I / 2 / ABCD; DIP / II,III / 1 / EFG; NEMA 4X IEC ATEX: II 2G Ex d IIC T6 Gb [-40C ≤ Tamb ≤ 66C] II 1D Ex ta IIIC T80C Da [-40C ≤ Tamb ≤ 66C]
Accessories	IR10: 10 Amp Relay Output Module and PP10 Pump-Pak controller. See appropriate sales literature for details and hazardous area rating limitations.
Connections	MS50/X: 1/2 in. MNPT conduit and AWG 26 wiring harness (no housing). MS50/A1: 3/4 in. FNPT conduit with terminal block (AWG 30 to AWG 12).



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Ordering Information

MS50.a.b.c.d.e.f.g

a Housing	
X	Wiring Harness Only with No Housing (General Purpose Only)
A1	Explosion Proof Housing, Aluminum optional housing provides the MS50 with a hazardous area rating of XP / I / 1 / ABCD
b Probe Material	
SS6	Type 316L Stainless Steel
A20	Alloy 20**
HSC	C-276 Hastelloy**
PVC	PVC*
CPV	CPVC*
PVD	KYNAR®
Z9	Special
<p>*PVC and CPVC units available standard with 3" MNPT, 3" 150# Flange and 4" 150# Flange. KYNAR® units available with 3" 150# flange or 3" MNPT only. Carbon steel process connections are available on stainless steel units for economy. Contact factory for other requirements.</p> <p>** This material will be provided with KYNAR® float stop collars with Hastelloy set screws.</p> <p>***Flanged process connection only</p> <p>KYNAR® is the registered trademark of Arkema polyvinylidene fluoride (PVDF) resin.</p>	
c Approvals	
X	None
N3	FM and CSA Explosion Proof or Intrinsically Safe
E1	ATEX Intrinsically Safe
E2	ATEX IEC Flame Proof



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d	Process connection
P7	3/4 in. // ANSI / ASME Class 3000 // NPT-m Hex Plug MNPT
P1	1.0 in. // ANSI / ASME Class 3000 // NPT-m Hex Plug MNPT
P15	1.5 in. // ANSI / ASME Class 3000 // NPT-m Hex Plug MNPT
P2	2.0 in. // ANSI / ASME Class 3000 // NPT-m Hex Plug MNPT
P3	3.0 in. // ANSI / ASME Class 3000 // NPT-m Hex Plug MNPT
P4	4.0 in. // ANSI / ASME Class 3000 // NPT-m Hex Plug MNPT
P7A	3/4 in. // ANSI / ASME Class 3000 // NPT-m Hex Plug MNPT with compression fitting for adjustable length "L"
SR11	1.0 in. // ANSI / ASME Class 150 // Raised Face Blind Flange
SR13	1.0 in. // ANSI / ASME Class 300 // Raised Face Blind Flange
SR151	1.5 in. // ANSI / ASME Class 150 // Raised Face Blind Flange
SR153	1.5 in. // ANSI / ASME Class 300 // Raised Face Blind Flange
SR21	2.0 in. // ANSI / ASME Class 150 // Raised Face Blind Flange
SR23	2.0 in. // ANSI / ASME Class 300 // Raised Face Blind Flange
SR31	3.0 in. // ANSI / ASME Class 150 // Raised Face Blind Flange
SR33	3.0 in. // ANSI / ASME Class 300 // Raised Face Blind Flange
SR41	4.0 in. // ANSI / ASME Class 150 // Raised Face Blind Flange
SR43	4.0 in. // ANSI / ASME Class 300 // Raised Face Blind Flange
SR61	6.0 in. // ANSI / ASME Class 150 // Raised Face Blind Flange
SR63	6.0 in. // ANSI / ASME Class 300 // Raised Face Blind Flange
RCC	DN25 / PN16 // Raised Face Type B1 Flange
RCD	DN25 / PN25 // Raised Face Type B1 Flange
REC	DN40 / PN16 // Raised Face Type B1 Flange
RED	DN40 / PN25 // Raised Face Type B1 Flange
RFC	DN50 / PN16 // Raised Face Type B1 Flange
RFD	DN50 / PN25 // Raised Face Type B1 Flange
RHC	DN80 / PN16 // Raised Face Type B1 Flange
RHD	DN80 / PN25 // Raised Face Type B1 Flange
RJC	DN100 / PN16 // Raised Face Type B1 Flange
RJD	DN100 / PN25 // Raised Face Type B1 Flange
RMC	DN150 / PN16 // Raised Face Type B1 Flange
RMD	DN150 / PN25 // Raised Face Type B1 Flange
Z9	Special

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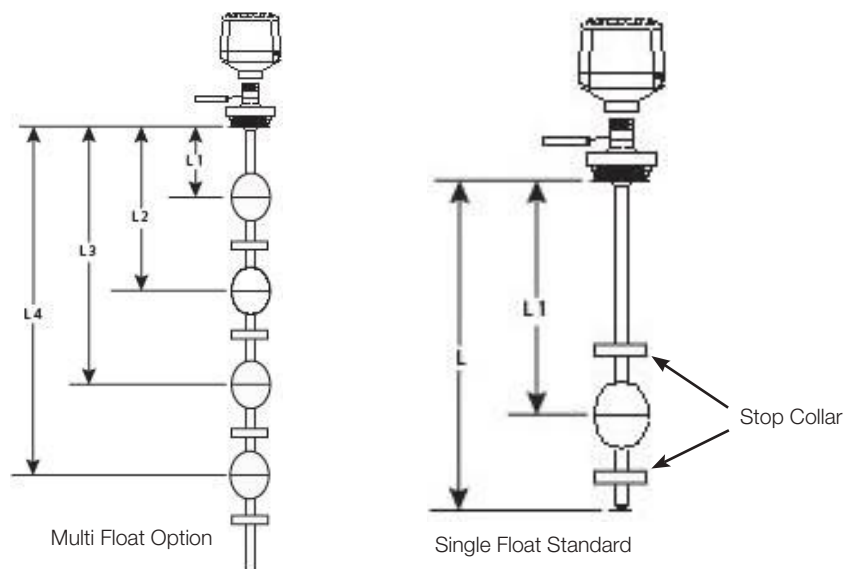
e	Float
FXX	<p>Float Refer to Float Selection Guide SLG-0003-1 for standard available floats.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. Smaller floats have a tendency to stick to the MS50 probe when used in thick or dirty liquids. To insure the highest reliability it is always advisable to use as large a float as possible. 2. Float selection is not limited to those listed on SLG-0003-1. Custom floats are available. 3. Interface level floats require custom weighting and generally require a float with a larger volume for proper operation. Consult factory for application assistance. 4. PVC, CPVC, and KYNAR® units must use PVC, CPVC, or KYNAR® floats only due to dimensional differences in the thermoplastic and stainless steel floats.
f	Switch
HT	The high temperature option is standard. For process temperatures up to 300 °F / 149 °C.
g	Multi-float option
SF1	<p>Single Float (Leave blank if model code E1 or E2 (ATEX) is selected.)</p> <p>With this option non-latching reed switches are used. Each switch has a float and a stop collar that stops the float magnets at the switch to accomplish the latching.</p> <p>Note: Dimension starts from the process connection.</p>
MF2	<p>2 Multi Level Floats (Each set point will have a float and an upper & lower stop collar.)</p> <p>Example: MF3 will have three floats and required stop collars.</p>
MF3	3 Multi Level Floats
MF4	4 Multi Level Floats
MF5	5 Multi Level Floats
MF6	6 Multi Level Floats

Notes: Select the appropriate MS50 dimensions from the diagram on the right. L1 through L6 are the actuation points of the limit switches. All dimensions should be specified in inches. At least 3.5 inches are required between limit switches and dimension "L". Allow 3.5 inches below lower limit. Note that dimension "L" should allow enough clearance for the float to drop to the lower limit and for the future readjustment.

Important: The multi-float (MF) option may require additional spacing, depending on float size. Please consult factory for details.

Note: Set Point Dimensions L1.L2.L3.L4.L5.L6 there may be no more than 3 switches per 0.6 mm (24 in.).

Note: When using Floats on a MS50 in EC Chambers or Stilling Wells, there must be a minimum of 1 in. Clearance between the Float and the ID of the Chamber / Stilling Well being used.



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Additional ordering codes

Additional ordering codes will follow the dash in model number with a period.

Engineering Documents

GD1	Drawings for Approval - NOTE: Lead time will start after receipt of customer approved drawings
GD2	Drawings for Record
GD3	Certified as Built Drawings - NOTE: Lead time will start after receipt of Purchase Order

Liquid Dye Penetrant

CNA	Liquid Dye Penetrant Examination on all Pressure containing Welds (Final Pass Only) (Per Tag)
CNC	Liquid Dye Penetrant Examination on 10% of all Pressure containing Welds (Final Pass Only) (Per Tag)

Positive Material Identification

CHC	Positive Material Identification with Carbon Content
CHD	Positive Material Identification without Carbon Content

Hydrostatic Examination

CP1	Hydrostatic Examination - (10 Minutes)
CP2	Hydrostatic Examination with Chart Recording - (30 Minutes)

Material Monitoring

C2	Material Monitoring with Inspection Certificate 3.1 acc. EN 10204
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Additional Services

CU3	Certificate of Functionality
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Origin Documents

GS1	Certificate of Origin
GS2	Certificate of Origin Notarized by Local Chamber of Commerce
GS3	Certificate of Origin Legalized by Specific Country Chamber of Commerce - Lead Time may be extended depending on Country
GS4	Korean Foreign Trade certificate
GS5	NAFTA Certificate
GS6	EX-IM BANK Certificate (One per Tag)

Certifications

CK	Certificate of compliance for ANSI / ASME**†
CRN	Canadian Registration Number**†
CL	General Certificate of Compliance

NACE

CN1	NACE (MR 0103) Hardness Certificate*
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*Requires C2 or C3 in Additional Services

†Requires CP1 or CP2 in Hydrostatic Examination

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Contact us

ABB Inc.

17100 Manchac Park Lane (Suite B)
Baton Rouge, LA 70817 USA
Phone: +1 225 408 0800
Service: +1 225 677 5836
Fax: +1 225 673 2525
E-mail: quotes.ktek@us.abb.com
Service e-mail: ktek-service@us.abb.com

www.abb.com/level

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Sales



Service