Data Sheet DS/MS50-EN Rev. X_09_2015

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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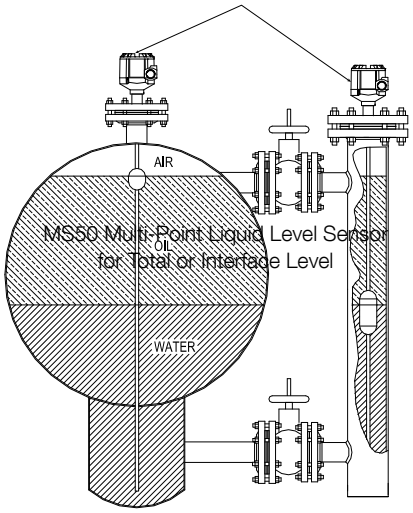
Specifications

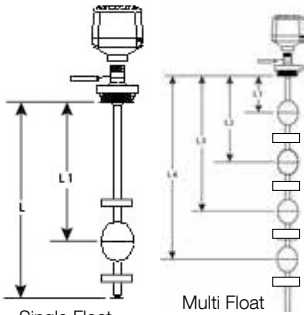
Mechanical	
Housing Type	Explosion Proof Powder Coated Aluminum Compartment IP 67
Materials of Construction	316L Stainless Steel Standard, Exotic Alloys, Thermoplastic Optional
Maximum Pressure	Metallic Units: 800 psig @ 300ºF / 55 bar @ 149ºC Thermoplastic: 50 psig / 3.5 bar at maximum temperature listed
Sensor	5/8" OD / 16 mm
Length	Metallic Units: 8 inches to 20 feet / 0.2 to 6 meters Thermoplastic: 8 inches to 10 feet / 0.2 to 3 meters
Electrical	
Switch Type	Magnetically actuated, hermetically sealed, reed switch Each contact, single pole double throw (Form C)
Switch Action	Break before make
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	-58ºF/ -55ºC to 150ºF/ 66ºC
Minimum Operating Process Temperature	Metallic Units: -50ºF/ -45ºC Thermoplastic Units: 40ºF / 4.5ºC
Maximum Operating Process Temperature	Metallic Units: 200ºF / 93ºC (optional 302ºF / 149ºC) Thermoplastic Units: PVC: 140ºF / 60ºC; CPVC: 210ºF / 99ºC; PVDF: 280ºF / 138ºC (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: ½" MNPT conduit and AWG 26 wiring harness (no housing). MS50/A1: ¾" FNPT conduit with terminal block (AWG 30 to AWG 12).



MS50 Multi-Point Liquid Level Sensor for Total or Interface Level

Ordering Information

MS50.a.b.c.d.e.f.g		
a	Housing X A1	 Wiring Harness Only with No Housing (General Purpose Only) Explosion Proof Housing, Aluminum optional housing provides the MS50 with a hazardous area rating of XP / I / 1 / ABCD
b	Material SS6 A20 HSC PVC CPV PVD	 Type 316L Stainless Steel Alloy 20** C-276 Hastelloy** PVC* CPVC* KYNAR *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. Insert "CST-" in front of the process connection designator to specify. Contact factory for other requirements. ** This material will be provided with Kynar float stop collars with Hastelloy set screws. ***Flanged process connection only



Single Float Standard

Multi Float Option

c	Approvals X N3 E1 E2	None FM and CSA Explosion Proof or Intrinsically Safe ATEX Intrinsically Safe ATEX IEC Flame Proof				
d	Process connection					
	P7	3/4" MNPT	P7A	3/4" MNPT with compression fitting for adjustable length "L"		
	P1	1.0" MNPT	SR11	1.0" 150# Flange	SR13	1.0" 300# Flange
	P15	1.5" MNPT	SR151	1.5" 150# Flange	SR153	1.5" 300# Flange
	P2	2.0" MNPT	SR21	2.0" 150# Flange	SR23	2.0" 300# Flange
	P3	3.0" MNPT	SR31	3.0" 150# Flange	SR33	3.0" 300# Flange
	P4	4.0" MNPT	SR41	4.0" 150# Flange	SR43	4.0" 300# Flange
	Note: CST should be used as prefix for carbon steel flange requirements. Example CSTSR11					
e	Float					
	FXX	Float Refer to Float Selection Guide SLG-0003-1 for standard available floats. NOTES: 1. Smaller floats have a tendency to stick to the MS50 chamber 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. Standard Switch Rated to 200°F (Single Float with Top and Bottom Collars)				
f	High Temperature Switch HT (Standard)	The high temperature option is required for process temperatures above 200ºF / 93ºC up to 300ºF / 149ºC.				
g	Multi-float option SF Single Float MF (2-6)	Number represents how many set points on switch Single Float (Leave blank if model code E1 or E2 (ATEX) is selected. 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. It is used where multiple floats are necessary such as in total level plus interface level applications. Note: Dimension starts from the process connection.				

Notes:
Select the appropiate MS50 dimensions from the diagram on the right. L1 thought 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 switfhes 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 readjustement.
Important: The mult-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/L there may be no more than 3 switches per 0.6mm (24").

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

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

Origin Documents	
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)
GS7	Approved Material List*
NACE	
CN1	NACE (MR 0103) Hardness Certificate*
CN3	NACE (MR 00175 / ISO 15156) Hardness Certificate*

***Requires C2 or C3 in Additional Services**
†Requires CP1, CP2, CP3, CP4 or CPZ in Hydrostatic Examination
Note: The services selected will not appear in the model # on engineering drawings or nameplates.

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DS/MS50-EN Rev. X 09_2015

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