high-accuracy
measurement
instruments

FICHA TÉCNICA DE PRODUTO

PRODUCT DATASHEET

HMI – Automação e Instrumentação, Lda.

Rua dos 5 Caminhos, nº 570
4780-382 Santo Tirso
PORTUGAL

Tel. +351 252 850 501
Fax. +351 300 013 487

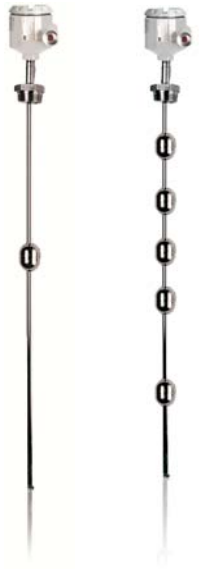
Web: www.hmi.pt

Email: hmi@hmi.pt

Data sheet DS/MS50-EN Rev. W

MS50
Buoyancy level switch
KTEK 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

Power and productivity for a better world™

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

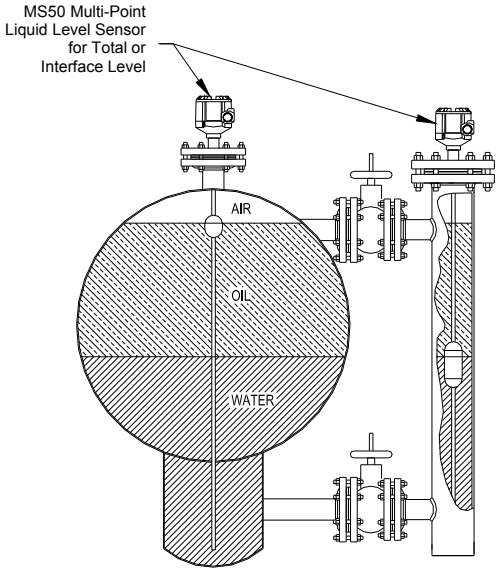
Electrical

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 **GOST Russia:** 0ExiaIICT6, 1ExdIICT6, 2ExnCIICT6 **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).

3/18/10

10/24/11

2/19/04



ORDERING INFORMATION:

MS50.a.b.c.d.e

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

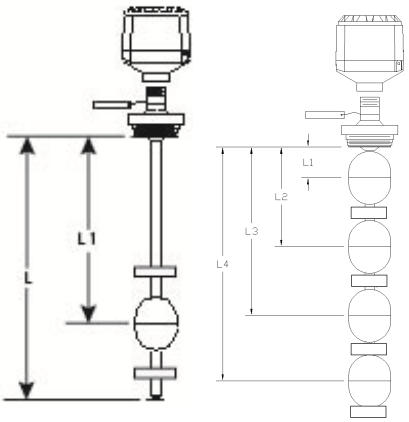
b Material

SS6	Type 316L Stainless Steel
A20	Alloy 20**
HSC	C-276 Hastelloy**
PVC	PVC*
CPV	CPVC*
PVD	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	None
FM	FM and CSA Explosion Proof or Intrinsically Safe
GR	GOST Russia
E2	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**

X None

HT The high temperature option is required for process temperatures above 200ºF / 93ºC up to 300ºF / 149ºC.

g **Multi-Float Option**

MF(2-6) 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.

Note: Dimensions L1/L2/L3/L4/L5/L6/L
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 3.5inches 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 future readjustment.
Important: The multi-float (MF) option may require additional spacing, depending on float size. Please consult factory for details.

Additional Ordering Codes

Additional ordering codes will follow the model number with a dash (-)
Services will follow the model code with // and will not be included on the device tag

Factory Services

COC	Certificate of Compliance
MTR	Material Test Report
FUT	Functional Test
ABD	Certified as Built Drawings
HYD	Hydrostatic Examination
NAC	NACE Hardness Certificate
CRN	Canadian Registration Number

Vendor Services

RAD	100% Radiographic Examination
DYE	100% Liquid Dye Penetrant Exam
PMI	Positive Material Identification Without Carbon Content
PMC	Positive Material Identification With Carbon Content

Contact us

ABB Inc.
18321 Swamp Road
Prairieville, LA 70769 USA
Phone: +1 225 673 6100
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

ABB Inc.
585, Boulevard Charest E., Suite 300
Quebec, QC Canada G1K 9H4
Phone: +1 418 877 2944
Service: +1 800 858 3847
Fax: +1 418 877 2834
E-mail: qc_rfq@ca.abb.com
Service e-mail: laserscanner.support@ca.abb.com

ABB Engineering (Shanghai) Ltd.
No. 5, Lane 369, Chuangye Road
Kangqiao Town, Pudong District
Shanghai, 201319, P.R. China
Phone: +86 10 64231407
Service: +86 21 61056421
Fax: +86 10 64371913
E-mail: shan.li@cn.abb.com
Service e-mail: rola.li@cn.abb.com

ABB Limited
Salterbeck Trading Estate
Workington, Cumbria, England CA14 5DS
Phone: +44 7885333752
Service: +44 145 3826661
E-mail: enquiries.mp.uk@gb.abb.com
Service e-mail: abb.service@gb.abb.com

www.abb.com/level

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