high-accuracy
measurement
instruments

FICHA TÉCNICA DE PRODUTO

PRODUCT DATASHEET

HMI – Automação e Instrumentação, Lda.

Travessa da Indústria, nº 111
4780-573 Santo Tirso
PORTUGAL

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

Web: www.hmi.pt

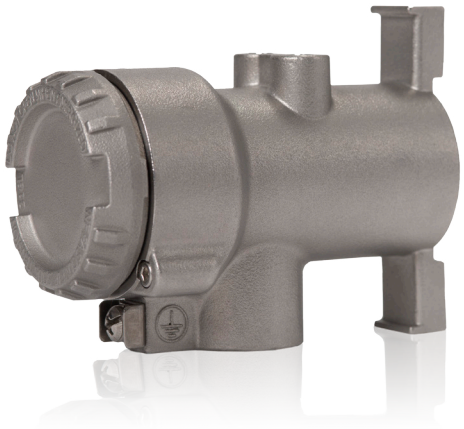
Email: hmi@hmi.pt

Data Sheet DS/LMS100-EN Rev. B

LMS100
Magnetic level gauge switch

Measurement made easy

K-TEK Level products



Introduction

The LMS100 is a magnetically actuated single pole double throw switch. When the LMS100 is mounted on a KM26 Magnetic liquid level indicator, LS Series Cage Level switch or an external chamber that contains a magnetic float, it can sense high or low levels within a vessel. The unique magnetic coupling action eliminates the need for seals, diaphragms, springs, or torque tubes. There is no physical contact between the switch and the process. Magnetic coupling also eliminates the necessity of process connections and insures total isolation from the process.

Features

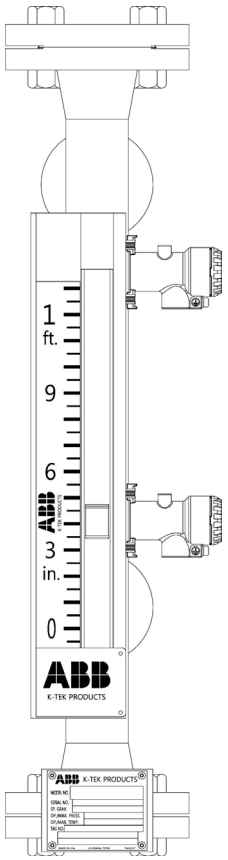
- Unique concept of magnetic coupling, eliminating direct contact with process
- No process piping or valves required
- Easy mounting and adjustment; only small screwdriver required
- Trip point infinitely adjustable (excluding cryogenic applications) without changing process piping
- Hermetically sealed SPDT switch contacts (NO or NC)
- Switch is encapsulated within a Stainless Steel housing
- Designed and constructed to FM/FM-C, UL, NEMA, ANSI / ISA and ATEX / IEC guidelines

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. +/- 0.75 in. (1.9 cm) of float travel
Contact Ratings	Maximum voltage: 250 V AC/DC Maximum current: 1 A Maximum power: 60 W/VA
Minimum operating temperature	-40 °F (-40 °C) Contact factory regarding use in colder applications
Maximum operating temperature	300 °F (149 °C) For process temperatures to 800 °F (427 °C), see mounting options, below
Vibration	Tested to IEC 60068-2-6 (2-2000 Hz, 2 g)
Shock	Tested to IEC 60068-2-29 (10 g) and IEC 60068-2-27
Impact	Tested to IEC 60079-0 (1 kg)
Freefall	Test to IEC 60068-2-31 (0.5 m, 6 falls)
Hazardous Area Rating:	**FM / FM-C** • -40 °C ≤ T_A ≤ 70 °C • IS: CLI GP ABCD T6 / CLI Zn0 AEx ia IIC T6...T1 / Ex ia IIC T6...T1 Ga / CLII GP EFG T6 / CLIII T6 / Zn20 AEx ia IIIC T85°C...T450°C • XP: CLI GP ABCD T6 / CLI Zn1 AEx d IIC T6...T1 / Ex d IIC T6...T1 Gb / CLII GP EFG T6 / CLIII T6 / Zn21 AEx tb IIIC T85°C...T450°C • NI: CLI DIV2 GP ABCD T6 / CLI Zn2 AEx nC IIC T6...T1 / Ex nC IIC T6...T1 Gc / CLII DIV2 GP EFG T6 / CLIII **ATEX / IECEx** • -40 °C ≤ T_A ≤ 70 °C • II 1 G / Ex ia IIC T6...T1 Ga • II 1 D / Ex ia IIIC T85°C...T450°C Da • II 2 G / Ex d IIC T6...T1 Gb • II 2 D, Ex tb IIIC T85°C...T450°C Db • II 3 G / Ex nC IIC T6...T1 Gc **EAC / Ex** • 1Ex d IIC T6...T1 Gb X Ex tb IIIC T85°C...T450°C Db X • Ex nC IIC T6...T1 Gc X • 0Ex ia IIC T6...T1 Gb X Ui<1В, Ci<10нФ, Ii<250мА, Li<10мкГн
Electrical Cable Connection	1/2 in. FNPT connection
Mounting options	For process temperatures to 575 °F (301.6 °C) use switch LMS100.P1 with insulation pad. For process temperatures to 800 °F (427 °C) use switch LMS100.A2 with rod mount brackets with insulated KM26 Gauges, or, on ST95 Seal Fluid Supply Tanks with rod mount brackets.
Housing	316SS, NEMA 4X IP66/IP67, Cable entry 1/2” FNPT
Application note	Inductive and Capacitive loads require special considerations. Contact factory for technical literature and assistance.
Accessories	**IR10 10 Amp Relay Output Module and PP10 PUMP-PAK Controller. See appropriate sales literature for details.**

Ordering Information:

LMS100.a.b.c.d		
a	Mounting	
	A1	Standard, up to 300 °F (149 °C) (mounted to chamber via gear clamps)
	A2	Switch rod mount up to 350 °F (176.6 °C) max process temperatures. When used with chamber insulation option, 800 °F (427 °C) max process temperatures
b	High temperature processes insulation options	
	Y0	Standard, without insulation pad, up to 300 °F (149 °C) (standard gear clamp mounting)
	P1	Insulation pad (IH) for temperature, up to 575 °F (301.6 °C) (with standard gear clamp mounting only)
c	Approvals	
	Y0	General Purpose, (not for hazardous locations)
	N4	FM / FM-C (Canada), (see applicable approval markings on page 2)
	E4	ATEX, IECEx, (see applicable approval markings on page 2)
d	Electrical cable connection	
	A1	Standard 1/2 inch FNPT
	U8	M20 adapter 316 SS, ATEX, IEC, CSA, Ex approved
	E8	1/2 inch by 1/2 inch NPT elbow for cyrogenic insulation applications, ATEX, IEC, CSA, Ex approved
	E9	1/2 inch NPT by M20 elbow for cyrogenic insulation applications, ATEX, IEC, CSA, Ex approved
Accessories ordered separately		
	AR1	10 A relay output module (IR10)
	AR2	Pump pack controller (PP10)
Services		
	GS1	Certficate of Origin
	CU3	Cerftificate of Functionality



Mounting

The LMS100 is mounted using two stainless steel clamps that pass behind the housing's integrated mounting tabs. The switch can be easily positioned by loosening the clamp and sliding the switch to the correct position on the chamber. Other switches can be added at any time, without the concern for additional process piping or valves. Note that two switches can be mounted so that they can trip at the same point or at two points separated by more than the height of the switch.

Operation

The LMS100 consists of a form C reed switch actuated by a rotating permanent magnet. The reed switch uses precious metal contacts in an inert gas atmosphere sealed by glass to metal bond. A magnetic float traveling in a chamber, relative to the LMS100 causes the reed switch to change state. After the float has passed, the reed switch will maintain it's state until the float reverses direction and passes the switch in the opposite direction. The action of the switch is break before make. The hermetically sealed contacts serve to insure a high degree of hazardous area safety, weather resistance and general reliability of the product.

Application

The LMS100 will provide either a normally open or normally closed dry contact which may be used to activate external devices such as alarms or annunciator. Its main application is to sense the passing of a magnetic float in a KM26 level gauge, or similar chamber, attached to a vessel containing a fluid. These trip points can be used for alarms to activate a pump motor starter relay.

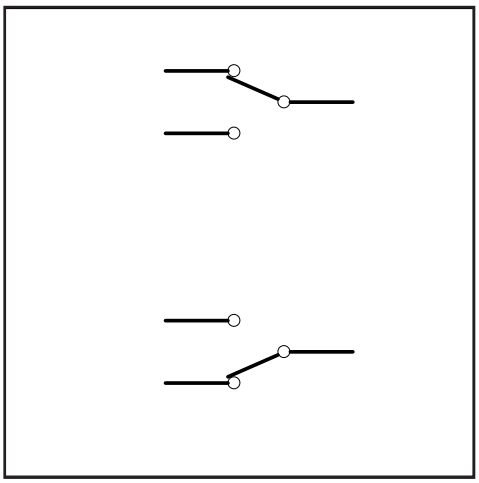


Figure 1: Contact closure shown for both conditions of the switch relative to the magnetic float.

Contact us

ABB Inc.
Industrial Automation
125 E. County Line Road
Warminster, PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

ABB Inc.
Industrial Automation
17100 Manchac Park Lane - Suite B
Baton Rouge, LA 70817
USA
Tel: +1 225 408 0800
Service: +1 225 408 0898
Service e-mail: ktek-service@us.abb.com

www.abb.com/level

3KXL130100GR1001

Sales

Service

DS/LMS100-EN Rev.B 04.2017

Power and productivity
for a better world™

high-accuracy
measurement
instruments

Our offering:

	Actuators and Positioners		Analytical Instruments
	Device Management, Fieldbus and Wireless		Flow Measurement
	Force Measurement		Level Measurement
	Natural Gas Measurement		Pressure Measurement
	Recorders and Controllers		Temperature Measurement

HMI – Automação e Instrumentação, Lda.

Travessa da Indústria, nº 111
4780-573 Santo Tirso
PORTUGAL

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

Web: www.hmi.pt

Email: hmi@hmi.pt