LS-10K

Plastic Float Switch for Vertical Mounting

- **Complete plastic version**
- **Resistant to hostile media**
- **Reliable and robust technology**
- **Thread, tank joint or flange connection**
- **Mounting from top or into vessel bottom**
- **Contacts available as NC-contact, NO-contact or change-over contact**
- **High repeatability of set points**

Description:
The LS-10K series of level switches operates according to the principle of a float with magnetic transmission. The switch consists of a sliding tube with embedded reed contacts, one or more floats in which ring magnets are mounted, and a connecting module. The float is moved inside the vessel due to the alteration of fluid level; subsequently, it actuates a reed contact as a result of the magnetic field of the permanent magnet situated in the float through the sliding tube wall. The reed contact can be designed as a NC-contact, NO-contact or change-over contact.

Range of application:
The LS-10K level switches are suited for monitoring the level of most fluid media including hostile fluid media, as an alarm for full or empty levels, for controlling valves and pumps or for alert signals. By deploying potential-free reed contacts, the level switches provide an ideal switching element in combination with PLC controls (apply PLC-contact or series resistor).

N 2014 / 02

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Versions:

Material: PVC, PP or PVDF (process connection and sliding tube are made of the same material)

Every magnetic float level sensor consits of the following 3 main component groups which are available in different versions depending on the technical requirements:

- Sliding tube
- Float
- Process connection

Sliding tube: Standard are diameters of 12 mm with a max. length of 500 mm respectively 16 mm with a max. length of 3000 mm and finally diameters of 20 mm with a max. length of 5000 mm.

Float: The choice of float is based on the liquid being monitored (corrosion, density), the process parameters (pressure, temperature) and the slide tube materials and diameters. The available float models are listed in the following table:

Table A: Float types for sliding tube Ø 12 mm:

Type No.	Material	Form Ø A (mm)	Limit S.G. (D) 85%	Nominal S.G. (E) 50%	max. Pressure	max. Temp.
1G12	PVC	cylinder 44	651 kg/m³	1107 kg/m³	3 bar	60°C
2G12	PP	cylinder 44	478 kg/m³	812 kg/m³	3 bar	80°C
3G12	PVDF	cylinder 44	782 kg/m³	1329 kg/m³	3 bar	100°C
9G12	customized special version, please specify in detailed text					

Table B: Float types for sliding tube Ø 16 mm:

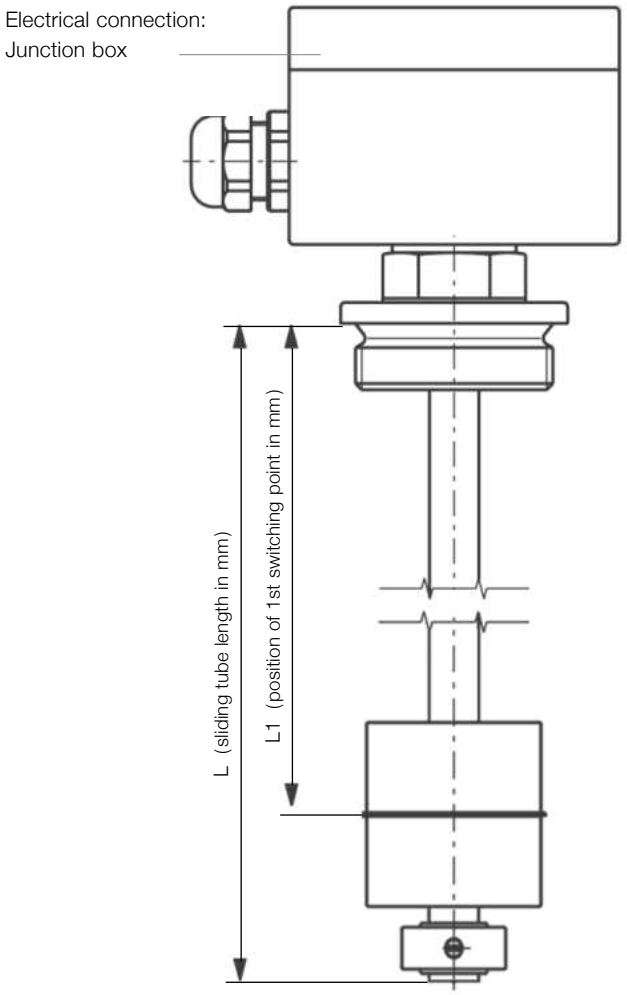
Type No.	Material	Form Ø A (mm)	Limit S.G. (D) 85%	Nominal S.G. (E) 50%	max. Pressure	max. Temp.
1G16	PVC	cylinder 55	798 kg/m³	1357 kg/m³	3 bar	60°C
2G16	PP	cylinder 55	582 kg/m³	989 kg/m³	3 bar	80°C
3G16	PVDF	cylinder 55	821 kg/m³	1396 kg/m³	3 bar	100°C
9G16	customized special version, please specify in detailed text					

Table C: Float types for sliding tube Ø 20 mm:

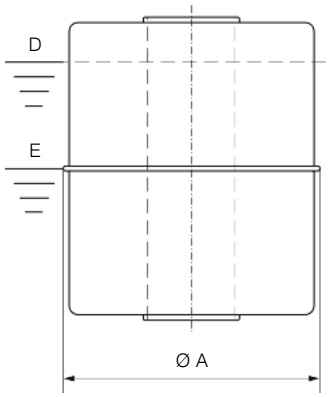
Type No.	Material	Form Ø A (mm)	Limit S.G. (D) 85%	Nominal S.G. (E) 50%	max. Pressure	max. Temp.
1G20	PVC	cylinder 55	919 kg/m³	1563 kg/m³	3 bar	60°C
2G20	PP	cylinder 55	669 kg/m³	1137 kg/m³	3 bar	80°C
3G20	PVDF	cylinder 55	1140 kg/m³	1938 kg/m³	3 bar	100°C
4G20	PVC	cylinder 80	573 kg/m³	974 kg/m³	3 bar	60°C
5G20	PP	cylinder 80	431 kg/m³	732 kg/m³	3 bar	80°C
6G20	PVDF	cylinder 80	681 kg/m³	1157 kg/m³	3 bar	100°C
9G20	customized special version, please specify in detailed text					

Process connection: Typically, the magnetic float level sensors are screwed in the wall of the vessel from inside with a male-threaded fitting. When installed in this fashion, the devices are supplied with a PVC- or PUR-jacket connection cable. To mount the float sensor from outside through the wall of the vessel the device must be fitted with a tank fitting or flange. The diameter of the tank fitting must be large enough to allow the float to pass through the opening in the wall of vessel.

Version with tank joint:



Limit- and nominal density for cylindrical floats:



Technical specifications:

Process connection

- Sliding tube 12 mm: · male thread G 3/8“ installation upwards,
· tank joint G 1 1/2“ or G 2“,
· flange connection:
DIN DN50 to DN100 PN10 Form A,
ANSI 2“ to 4“ Class 150 RF

- Sliding tube 16 mm: · male thread G 1/2“ installation upwards,
· tank joint G 2“,
· flange connection:
DIN DN65 to DN125 PN10 Form A,
ANSI 2.5“ to 4“ Class 150 RF

- Sliding tube 20 mm: · male thread G 1“ installation upwards,
· tank joint G 2“,
· flange connection:
DIN DN65 to DN125 PN10 Form A,
ANSI 2.5“ to 5“ Class 150 RF

Material: PVC, PP or PVDF
(process connection and sliding tube)

Sliding tube length

- Sliding tube 12 mm: max. 500 mm

- Sliding tube 16 mm: max. 3000 mm,
reinforced with metal insert

- Sliding tube 20 mm: max. 5000 mm,
reinforced with metal insert

max. Temperature: PVC = 0°C to +60°C
PP = -10°C to +80°C
PVD = -10°C to +100°C

Material float: PVC, PP or PVDF

- Limit S.G. 85%: as per table A, B or C „Float types“

- Nominal S.G. 50%: as per table A, B or C „Float types“

max. Pressure: 3 bar

Mounting positon: vertical ±30°

Electrical specifications:

Electr. connection: · 1 m PVC-grey cable
· 1 m PVC-blue cable
· 1 m PUR cable,
· polypropylene junction box
80 x 82 x 55 mm (f. sliding tube ø 12 mm)
· polyester junction box
80 x 75 x 55 mm (f. sliding tube ø 16, 20)

Contact function: NO-contact (S), NC-contact (O)
or change-over-contact (U)
(for increasing level)

max. Contacts

- Sliding tube 12 mm: 4 x **S** or **O** (PP max. 3),
or. 3 x **U** (PP max. 2)

- Sliding tube 16 mm: 6 x **S** or **O** or 4 x **U**

- Sliding tube 20 mm: 6 x **S** or **O** or 4 x **U**

Contact rating

- NO-contact: 230 V AC; 100 VA; 1 A
230 V DC; 50 W; 0.5 A

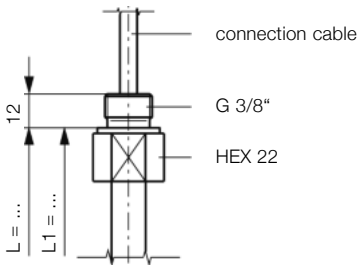
- NC-contact: 230 V AC; 100 VA; 1 A
230 V DC; 50 W; 0.5 A

- Change-over-cont.: 230 V AC; 40 VA; 1 A
230 V DC; 20 W; 0.5 A

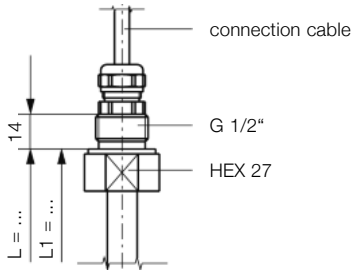
Protection class: IP65 (IP54 for sliding tube ø 12 mm and
male thread G 3/8“ installation upwards)

Process connections:

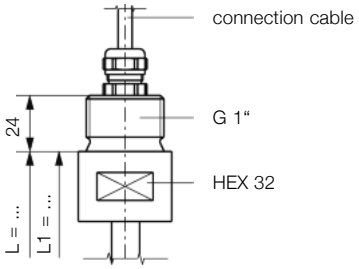
male thread G 3/8“, installation upwards



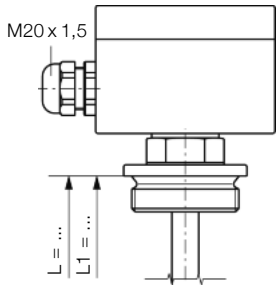
male thread G 1/2“, installation upwards



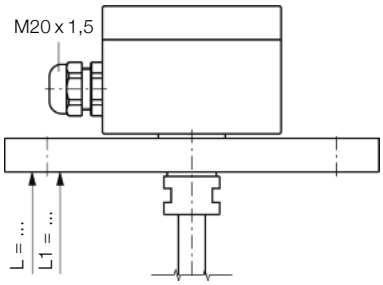
male thread G 1“, installation upwards



tank joint with junction box:



flange connection with junction box:



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Ordering codes (general):

Ordering number: **LS-10K. | 1. | 1. | 1001. | 1G12. | 1. | [S].[S]... | 0**

Plastic Float Switch for Vertical Mounting

Material sliding tube and process connection:

1 = PVC
2 = PP
3 = PVDF
9 = others

Sliding tube diameter:

1 = 12 mm
2 = 16 mm
3 = 20 mm
9 = others

Process connection:

1001 to 4999 = as per table „Process connection“

Float type:

[x]G12 = as per table „A“ for sliding tube diameter 12 mm
[x]G16 = as per table „B“ for sliding tube diameter 16 mm
[x]G20 = as per table „C“ for sliding tube diameter 20 mm
9G[x][x] = others

Electrical connection:

1 = 1 m PVC-grey cable
2 = 1 m PVC-blue cable
3 = 1 m PUR cable
4 = polypropylene junction box 80x82x55mm
5 = polyester junction box 80x75x55mm
9 = others

Contact function for increasing level:

S = NO-contact
O = NC-contact
U = change-over-contact
Example [O][S]: 2 contacts in engaging sequence from sealing edge screw joint
Contact No. 1 = NC-contact [O], Contact No. 2 = NO-contact [S]

Special versions:

0 = none
1 = contact type for PLC
9 = please specify in detailed text

Ordering codes (Process connection):

Ordering number: **x | y y y**

Process connection

1 = male thread (Installation upwards)
2 = tank joint (Installation downwards)
3 = flange connection DIN
4 = flange connection ANSI

x = 1: Male thread **1 | 0 0 1**

001 = G 3/8“
002 = G 1/2“
003 = G 1“
999 = other

x = 2: Tank joint **2 | 0 0 1**

001 = G 1 1/2“
002 = G 2“
999 = other

x = 3: Flange connection DIN **3 | 0 0 1**

Nominal diameter:

001 = DN50
002 = DN65
003 = DN80
004 = DN100
005 = DN125
999 = other

x = 4: Flange connection ANSI **4 | 0 0 1**

Nominal diameter:

001 = 2“
002 = 2.5“
003 = 3“
004 = 3.5“
005 = 4“
006 = 4.5“
007 = 5“
999 = other

Other specifications:

- Sliding tube length: L = xxxx mm
- Position of 1st switching point: L1 = xxxx mm
- Position of x switching point: Lx = xxxx mm
  (all length specifications are measured from the sealing edge of relevant connection joint)
- Medium
- Medium density
- Operating pressure
- Operating temperature
- Special issues

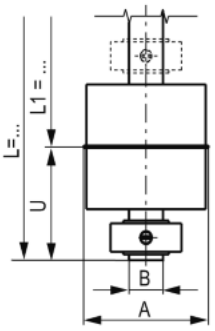
Example: Type: LS-10K. 1. 2. 2002. 1G16. 5. [S].[U]. 0

L = 1000 mm, L1 = 150 mm, L2 = 950 mm,
medium water, density 1 kg/l, pressure 0 bar, temp. +40°C

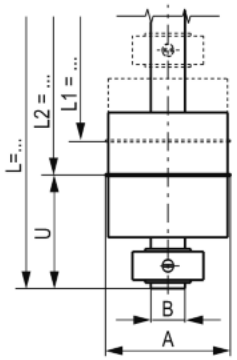
Float switch for vertical mounting with sliding tube (Ø 16 mm) and float (type: 1G16) made of PVC,
process connection: tank joint G 2“ made of PVC,
electrical connection: polyester junction box 80x75x55 mm,
number of contacts: two, (1st contact = NO-contact and 2nd contact = change-over-contact), sliding tube length measured from sealing edge screw joint = 1000 mm,
1. switching point 150 mm from top, NO-contact,
2. switching point 950 mm from top, change-over-contact,
no special issues

Switchpoint dimensions:

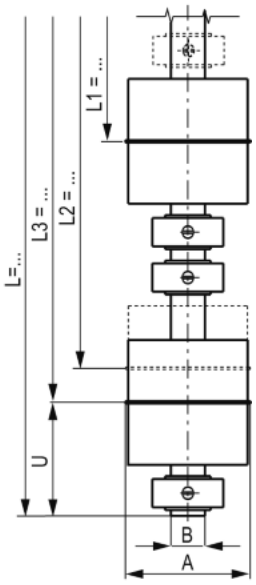
1 contact



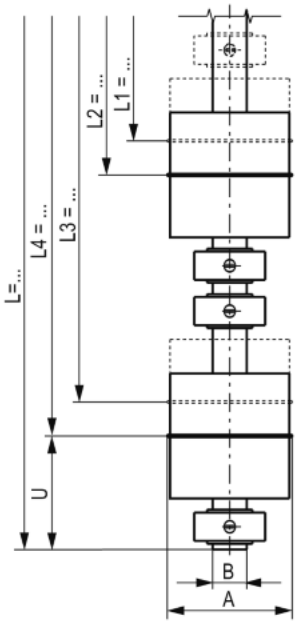
2 contacts



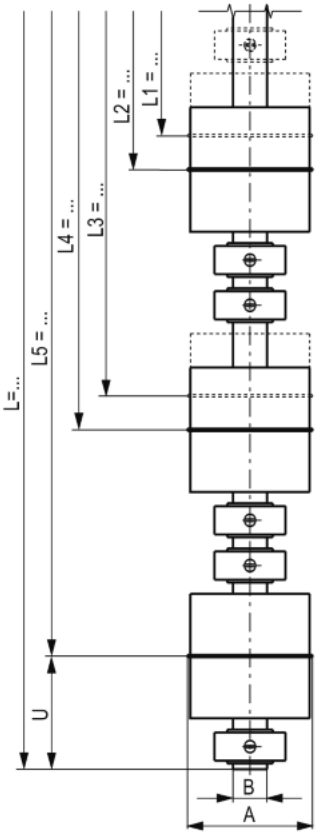
3 contacts



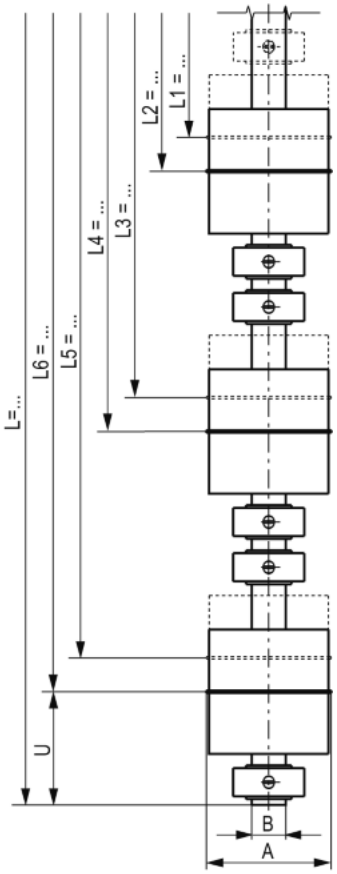
4 contacts



5 contacts



6 contacts



Float type PVC	 PP	 PVDF	A Ø mm	B Ø mm	L1 min. mm	U min. mm	Distance between contacts 2 contacts 1 float mm	Distance between contacts 2 contacts 2 floats mm
1G12	2G12		44	12	50	40	50	80
1G16	2G16	3G16	55	16	70	60	20	100
4G20	5G20	6G20	80	20	80	70	20	120

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