

Float switch

For the process industry, horizontal installation

Models HLS-S, HLS-P

WIKA data sheet LM 30.02



for further approvals
see page 2

Applications

- Level detection for almost all liquid media
- Pump and level control
- Chemical, petrochemical industry, natural gas, offshore, shipbuilding, machine building, power generating equipment, power plants
- Process water and drinking water treatment

Special features

- Large range of application due to the simple, proven functional principle
- For harsh operating conditions, long service life
- Operating limits:
 - Operating temperature: $T = -120 \dots +350 \text{ }^{\circ}\text{C}$
 - Operating pressure: $P = \text{Vacuum to } 232 \text{ bar}$
 - Limit density: $\rho \geq 600 \text{ kg/m}^3$
- Stainless steel and plastic versions
- Explosion-protected versions

Description

In addition to the various applications for float switches for vertical installation (model FLS), the model HLS horizontal float switches likewise offer innumerable possibilities to monitor and/or switch levels in order to indicate minimum/maximum levels.

The float is attached to a supported, swivelling lever and moves with the level of the medium being measured. By means of a permanent magnet, fixed to the end of the lever, when a preset switch point is reached, a reed contact (inert gas contact) within the contact tube is actuated.

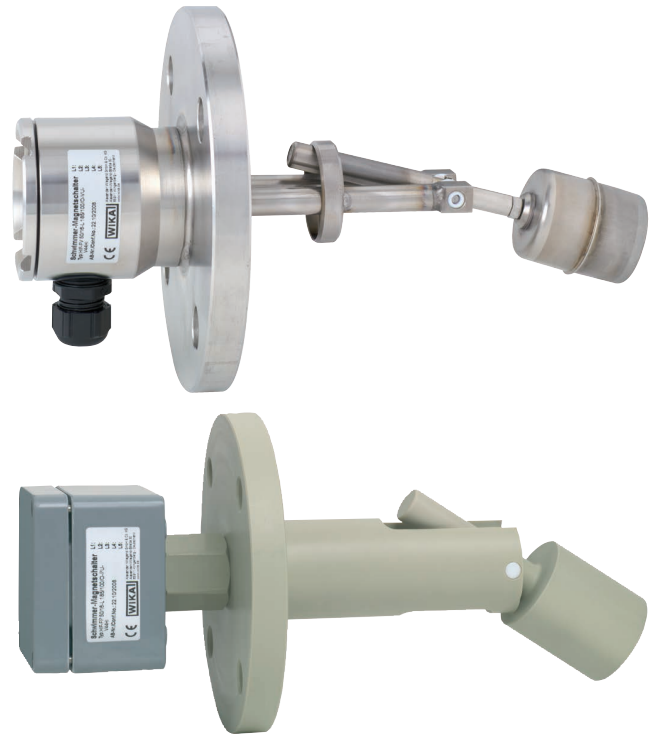


Fig. top: Stainless steel version, model HLS-S

Fig. bottom: Plastic version, model HLS-P

By using a permanent magnet and a reed contact the switching operation is non-contact, free from wear and needs no power supply. The functioning of the float switch is independent of foaming, conductivity, vapours, bubble formation and vibrations.

The signal processing is universal. Direct connection to PLCs, NAMUR connections, signal amplifiers or contact protection relays is possible.

The float switch is simple to mount and maintenance-free, so the costs of mounting, commissioning and operation are low.

Model overview

Model	Description	Materials		
		Stainless steel 1.4571 (316Ti)	Stainless steel 1.4404 (316L)	Polypropylene (PP)
HLS-S	Standard version	x	x	-
HLS-P	Plastic version	-	-	x

Temperature range (process)






- Model HLS-S -120 ... +350 °C
- Model HLS-P -10 ... +80 °C

Operating pressure

- Model HLS-S 232 bar
- Model HLS-P 6 bar

Approvals

■ Model HLS-S

Logo	Description	Country
 	EU declaration of conformity <ul style="list-style-type: none"> ■ Low voltage directive ■ RoHS directive ■ ATEX directive (option) Hazardous areas (no. IBEU03ATEX1038 X) - Ex i Zone 1 mounting to zone 0 gas II 1/2G Ex ia IIC T6-T2 Ga/Gb Zone 21 dust II 2D Ex ia IIIC T80 °C Db	European Union
	EAC <ul style="list-style-type: none"> ■ EMC directive and low voltage directive No. RU Д-DE.A301.B.00820 ■ Hazardous areas No. RU C-DE.AB72.B.02373 	Eurasian Economic Community
	DNV GL <ul style="list-style-type: none"> ■ Ships, shipbuilding (e.g. offshore) No. TAA00000M3 ■ Hazardous areas No. TAA00000M3 	International
	ABS <ul style="list-style-type: none"> ■ Ships, shipbuilding (e.g. offshore) No. 16-HG1591051-PDA 	International

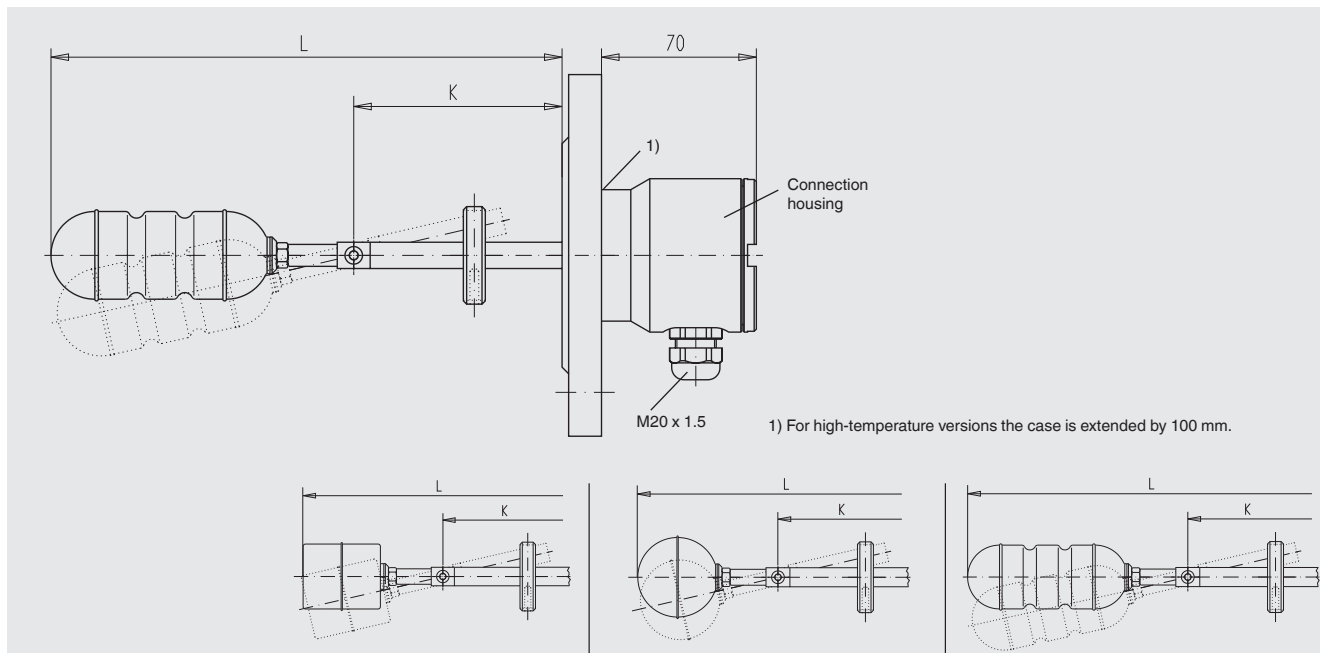
■ Model HLS-P

Logo	Description	Country
	EU declaration of conformity <ul style="list-style-type: none"> ■ Low voltage directive ■ RoHS directive 	European Union
	EAC <ul style="list-style-type: none"> ■ EMC directive and low voltage directive No. RU Д-DE.A301.B.00820 	Eurasian Economic Community

Approvals and certificates, see website

Float switch with connection housing, standard version, models HLS-SA, HLS-SB

Process connection, contact tube and float from stainless steel 1.4571



	Float model V44HI	Float model T52HI and model T52HI/Gr. 5	Float model ZVSS43/100HI
Electrical connection	Connection housing, stainless steel 1.4571		
Process connection	<ul style="list-style-type: none"> ■ Mounting flange - DIN DN 50 ... DN 100, PN 6 ... PN 400 - DIN EN 1092-1 DN 50 ... DN 100, PN 6 ... PN 400 - ANSI 2" ... 4", class 150 ... 600 - Square flange DN 80 and DN 92 others on request 		
Insertion length L	190 ... 990 mm	190 ... 990 mm	240 ... 990 mm
Contact tube length K	100 ... 900 mm	100 ... 900 mm	100 ... 850 mm
Float			
■ Material	Stainless steel 1.4571	Model T52HI: Titanium 3.7035, grade 2 Model T52HI/Gr. 5: Titanium 3.7165, grade 5	Stainless steel 1.4571
■ Diameter	44 mm	52 mm	43 mm
■ Length	52 mm	52 mm	100 mm
Max. operating pressure	6 bar	Model T52HI: 100 bar Model T52HI/Gr. 5: 232 bar	20 bar
Min. density	600 kg/m ³		
Temperature range			
■ Standard version	-50 ... +250 °C		
■ High-temperature version HT	-50 ... +250 °C		
■ High-temperature version HHT	-50 ... +350 °C		
■ Low-temperature version	-120 ... +250 °C		
Switching function	Alternatively normally open (NO), normally closed (NC) or change-over (SPDT) - on rising or falling level		
Switching power	AC ≤ 230 V; 40 VA; 1 A DC ≤ 230 V; 20 W; 0.5 A Please observe contact protection measures! Attention - versions without protective conductor connection: Attention: Operation only at safety extra-low voltage, e.g. contact protection relay or external grounding		
Mounting position	Horizontal ±30°		
Ingress protection	IP67 per IEC/EN 60529		

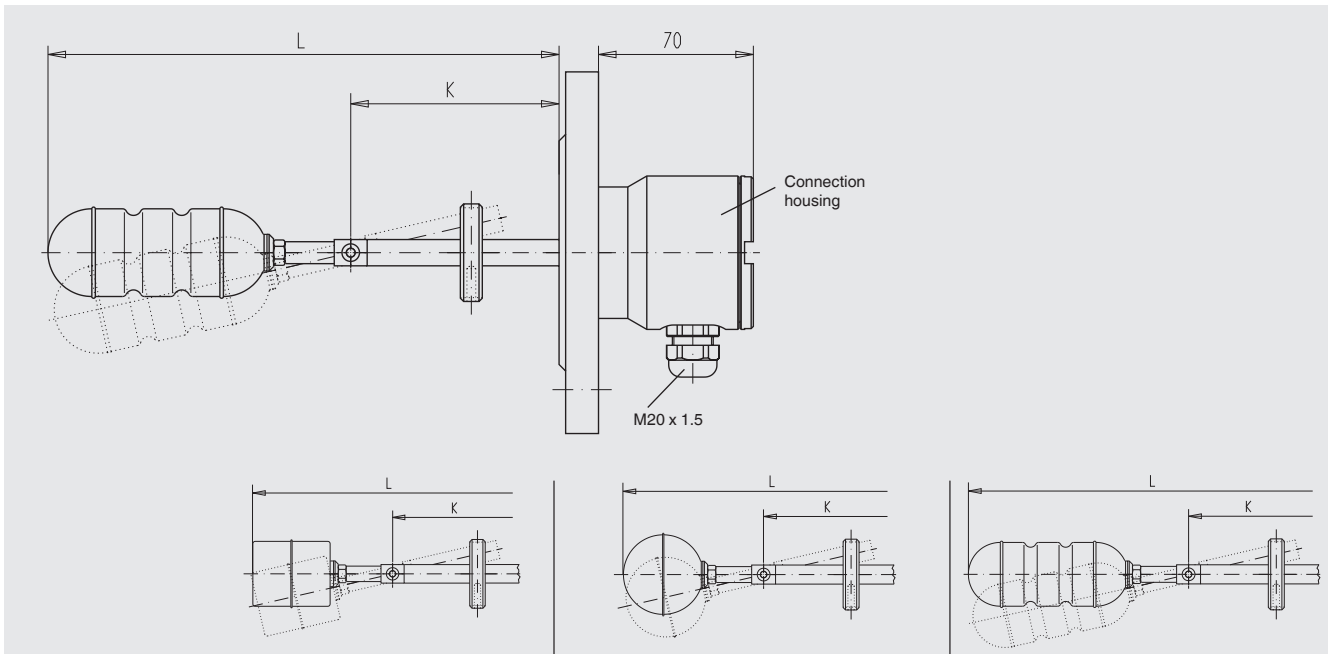
Versions in titanium, Hastelloy or other materials on request

Float switch, explosion-protected version Ex i, intrinsically safe Model HLS-SBI (HAG)



II 1G/2GD EEx ia IIC T6-T2 IP6X T80 °C (Nr. IBExU03ATEX1038 X)

Process connection, contact tube and float from stainless steel 1.4571

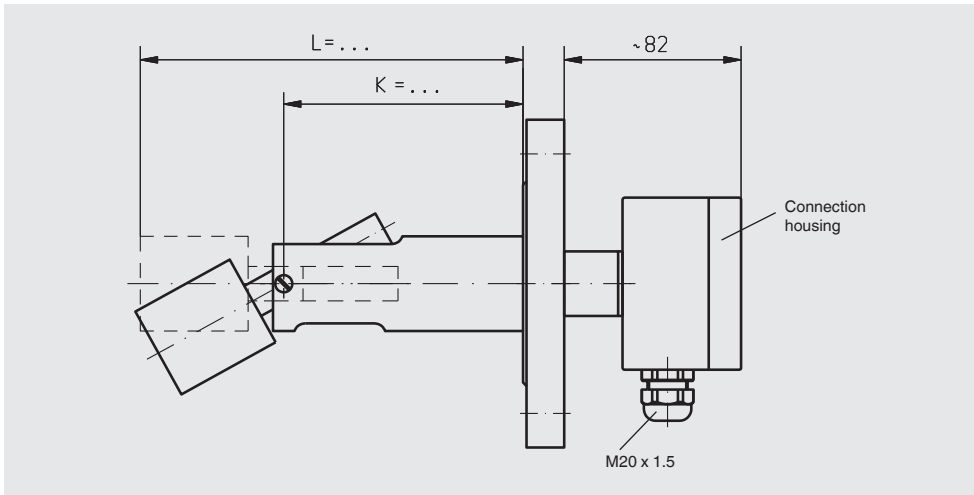


	Float model V44HI	Float model T52HI and model T52HI/Gr. 5	Float model ZVSS43/100HI		
Electrical connection	Connection housing, stainless steel 1.4571				
Process connection	<ul style="list-style-type: none"> ■ Mounting flange - DIN DN 50 ... DN 100, PN 6 ... PN 160 - DIN EN 1092-1 DN 50 ... DN 100, PN 6 ... PN 160 - ANSI 2" ... 4", class 150 ... 900 - Square flange DN 80 and DN 92 others on request 				
Insertion length L	190 ... 990 mm	190 ... 990 mm	240 ... 990 mm		
Contact tube length K	100 ... 900 mm	100 ... 900 mm	100 ... 850 mm		
Float					
■ Material	Stainless steel 1.4571	Model T52HI: Titanium 3.7035, grade 2 Model T52HI/Gr. 5: Titanium 3.7165, grade 5	Stainless steel 1.4571		
■ Diameter	44 mm	52 mm	43 mm		
■ Length	52 mm	52 mm	100 mm		
Max. operating pressure	6 bar	Model T52HI: 100 bar Model T52HI/Gr. 5: 180 bar	20 bar		
Min. density	600 kg/m ³				
Temperature range	-50 ... +180 °C depending on the temperature class				
Temperature class	T2	T3	T4	T5	T6
■ Process temperature	≤ 180 °C	≤ 160 °C	≤ 108 °C	≤ 80 °C	≤ 65 °C
■ Ambient temperature	≤ 60 °C	≤ 80 °C	≤ 80 °C	≤ 80 °C	≤ 60 °C
Switching function	1 x change-over (SPDT)				
Switching power	Only for connection to a certified intrinsically safe circuit with $U_{max} = 36 V$, $I_{max} = 100 mA$				
Mounting position	Horizontal ±30°				
Ingress protection	IP67 per IEC/EN 60529				

Float switch, plastic version

Model HLS-P

Process connection, contact tube and float from polypropylene (PP)



	Float model PP44HI
Electrical connection	Connection housing, polypropylene or polyester
Process connection	<ul style="list-style-type: none"> ■ Mounting flange - DIN DN 50 ... DN 100, PN 16, form A - ANSI 2" ... 4", class 150 FF
Insertion length L	176 mm
Contact tube length K	111 mm
Float	
■ Material	Polypropylene
■ Diameter	44 mm
■ Length	52 mm
Max. operating pressure	4 bar
Min. density	750 kg/m ³
Temperature range	-10 ... +80 °C
Switching function	Alternatively normally open (NO), normally closed (NC) or change-over (SPDT) - on rising level
Switching power	AC ≤ 230 V; 40 VA; 1 A DC ≤ 230 V; 20 W; 0.5 A Please observe contact protection measures!
	Attention - versions without protective conductor connection: Attention: Operation only at safety extra-low voltage, e.g. contact protection relay or external grounding
Mounting position	Horizontal ±30°
Ingress protection	IP65 per IEC/EN 60529

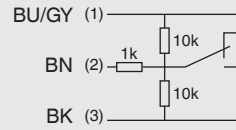
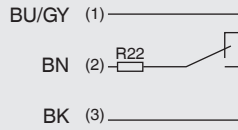
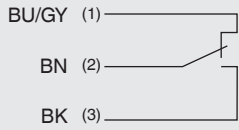
Electrical connections

Reed contact

1 switch point

1 switch point
Wiring for operation
with a PLC

1 switch point
NAMUR circuit per
DIN EN 60947-5-6



Contact protection measures

The reed contacts should be protected against any voltage or current spikes that might occur.

Depending on the different load types different protective circuits are used.



Model KFD2-ER-1.6



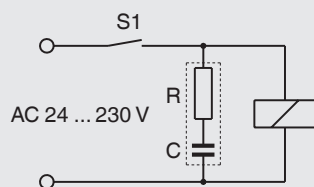
RC element

Contact protection relay	Contacts	Input	Power supply	Approval number	Order no.
KFD2-ER-1.6	1 x change-over AC 250 V, 2 A	2 x contacts	DC 20 ... 30 V	-	123806
KFD2-SR2-Ex2.W	2 x change-over AC 253 V, 2 A	2 x contacts	DC 20 ... 30 V	II 1GD Ex ia IIC PTB 02 ATEX 2073	124344
KFA6-ER-1.6	1 x change-over AC 250 V, 2 A	2 x contacts	AC 230 V	-	124341
KFA6-SR2-Ex2.W	2 x change-over AC 253 V, 2 A	2 x contacts	AC 230 V	II 1GD Ex ia IIC PTB 02 ATEX 2073	123794

RC element	Capacitance	Resistance	Voltage	Order no.
B3/110	0.33 μ F	470 Ω	AC 110 V	126529
B3/230	0.33 μ F	820 Ω	AC 230 V	126530

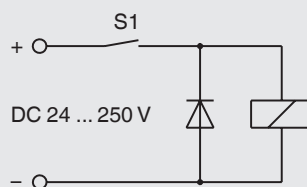
Inductive load

AC voltage

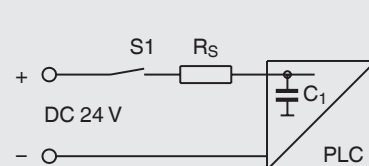


Inductive load

DC voltage



Capacitive load



Ordering information

To order the described product the order number (if available) is sufficient.

Alternatively:

Model / Version / Electrical connection / Process connection / Contact tube (insertion length L, contact tube length K) / Options

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