

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: $\rho \geq 500 \text{ kg/m}^3$
- 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.

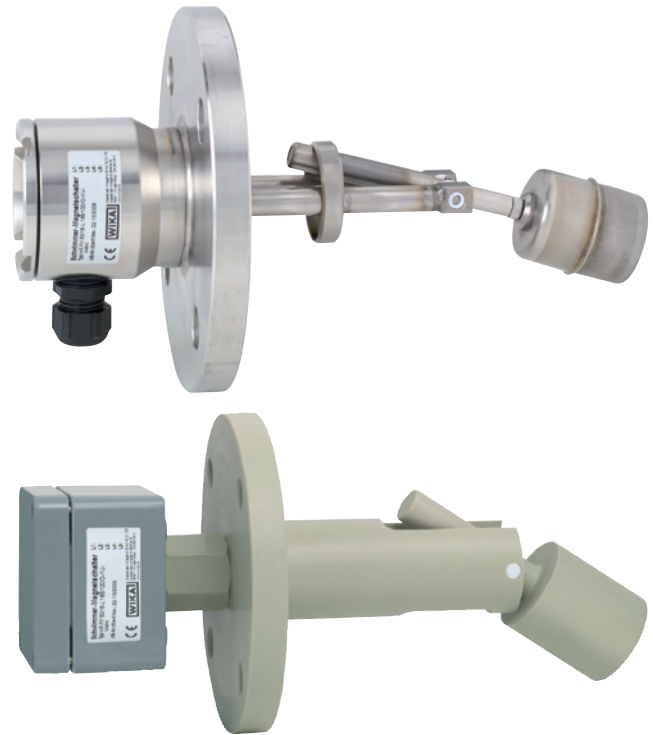


Fig. top: Stainless steel version, model HLS-S

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)	Polypropylene (PP)
HLS-SA HLS-SB	Standard version	x	-
HLS-P	Plastic version	-	x
HLS-SBI (HAG)	Intrinsically safe, Ex i	x	-

Temperature range (process)






- Model HLS-SA, HLS-SB -120 ... +350 °C
- Model HLS-P -10 ... +80 °C
- Model HLS-SBI -50 ... +180 °C

Operating pressure

- Model HLS-SA, HLS-SB 232 bar
- Model HLS-P 6 bar
- Model HLS-SBI 180 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 - 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 ■ Low voltage directive ■ Hazardous areas 	Eurasian Economic Community
	DNV GL <ul style="list-style-type: none"> ■ Ships, shipbuilding (e.g. offshore) ■ Hazardous areas 	International
	ABS Ships, shipbuilding (e.g. offshore)	International

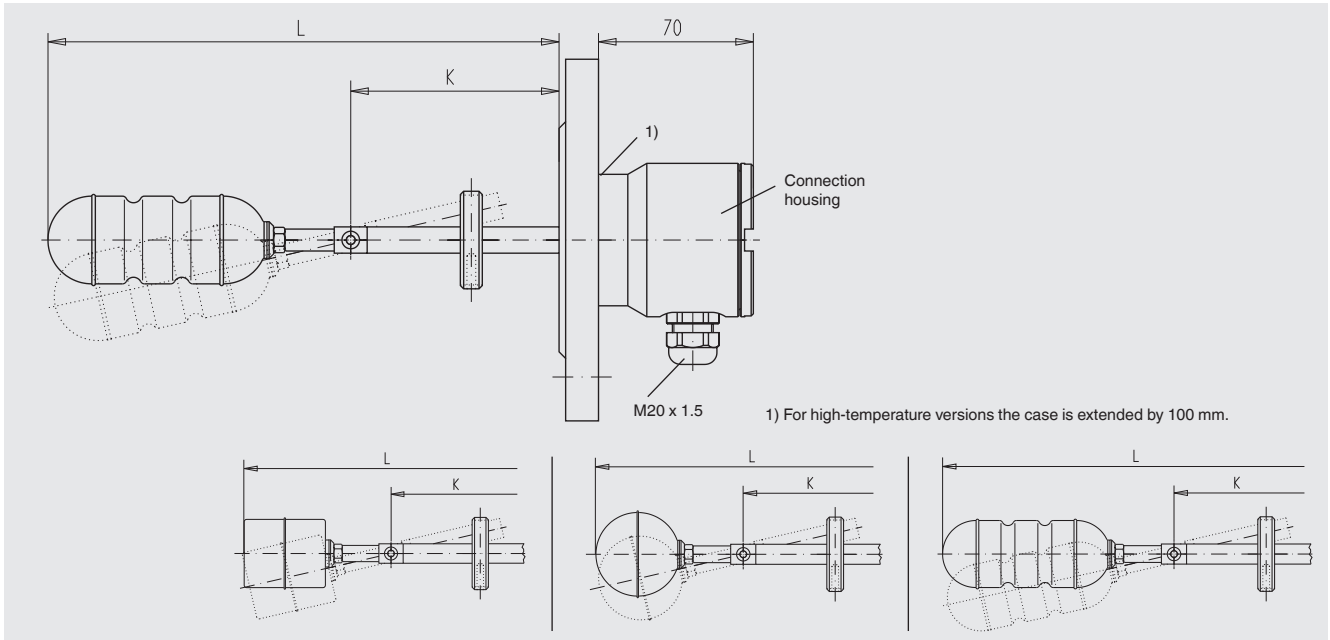
■ Model HLS-P

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 ■ Low voltage directive 	Eurasian Economic Community

Approvals and certificates, see website

Standard version with connection housing, models HLS-SA, HLS-SB

Process connection, contact tube and float from stainless steel 1.4571

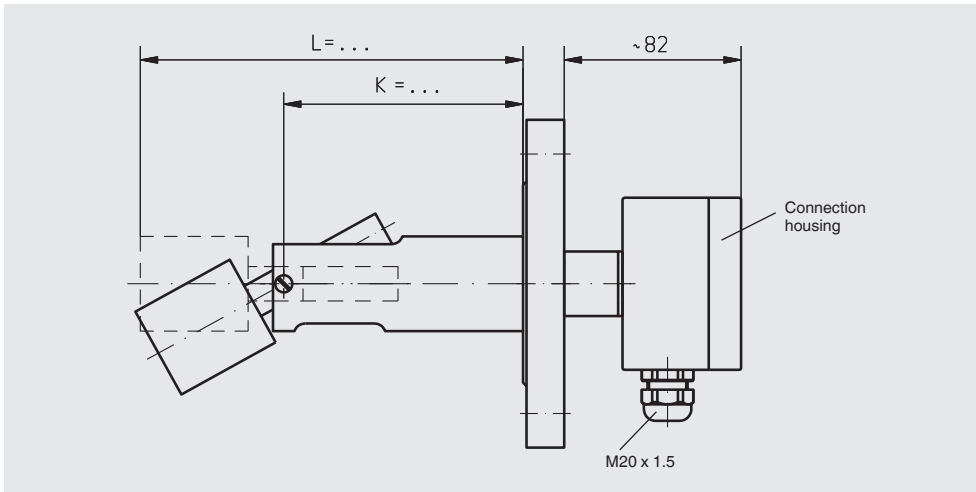


	Model V44HI	Models T52HI, T52HI/Gr. 5	Model ZVSS43/100HI
Electrical connection	Connection housing, stainless steel 1.4571		
Process connection	Mounting flange - DIN DN 50 ... DN 100, PN 6 ... PN 400 - DIN EN 1092-1 DN 50 ... DN 100, PN 6 ... PN 400 - ANSI 2" ... 4", class 150 ... 600 - Square flange 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		500 kg/m ³
Temperature range			
Standard version	-50 ... +180 °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: Operation only at safety extra-low voltage, e.g. contact protection relay or external grounding		
Mounting position	Horizontal		
Ingress protection	IP66/IP68 per IEC/EN 60529		

Versions in titanium, Hastelloy or other materials on request

Plastic version, model HLS-P

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

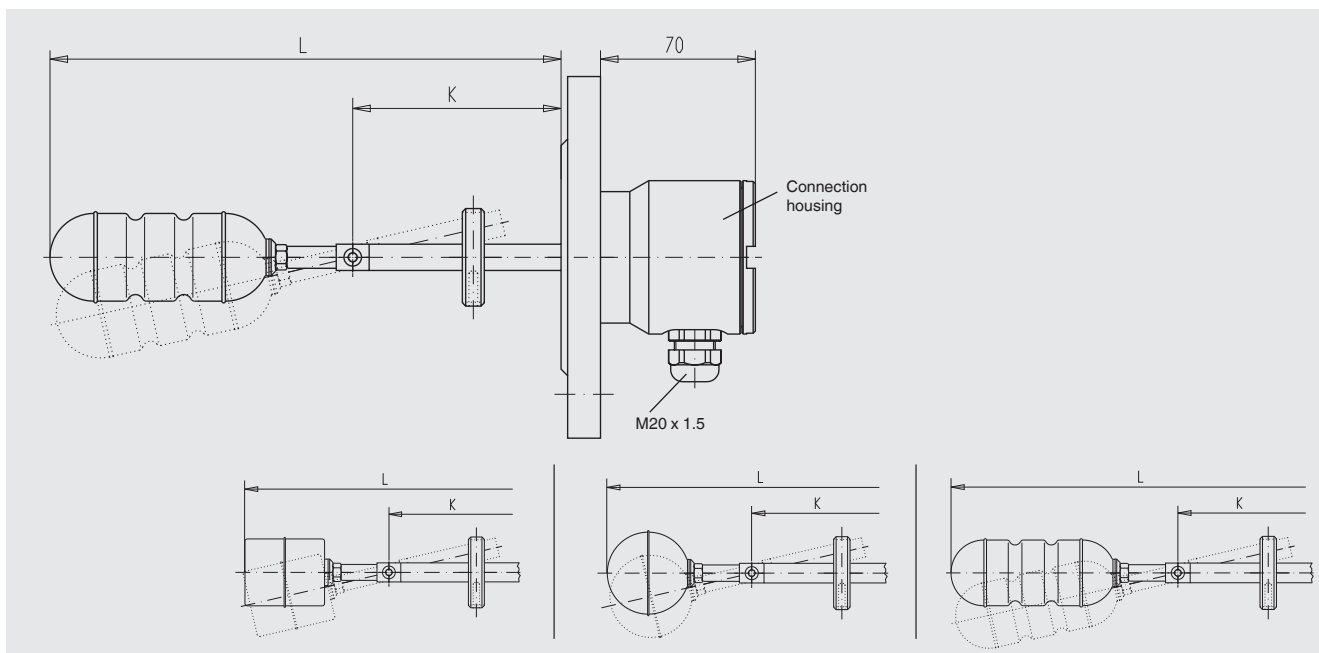


	Model PP44HI
Electrical connection	Connection housing, polyester
Process connection	Mounting flange - DIN DN 50 ... DN 100, PN 16, form A - ANSI 2" ... 4", class 150 FF
Insertion length L	176 mm
Contact tube length K	111 mm
Float	
Material	Polypropylene
Diameter	44 mm
Length	52 mm
Max. operating pressure	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!
Switching power	Attention: versions without protective conductor connection: Operation only at safety extra-low voltage, e.g. contact protection relay or external grounding
Mounting position	Horizontal
Ingress protection	IP65 per IEC/EN 60529

Intrinsically safe (Ex i), model HLS-SBI (HAG)

II 1/2G Ex ia IIC T6-T2 Ga/Gb or II 2D Ex ia IIIC T80 °C Db

Process connection, contact tube and float from stainless steel 1.4571



	Model V44HI	Models T52HI, T52HI/Gr. 5	Model ZVSS43/100HI		
Electrical connection	Connection housing, stainless steel 1.4571				
Process connection	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		500 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	≤ 80 °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				
Ingress protection	IP66/IP68 per IEC/EN 60529				

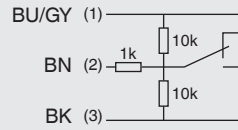
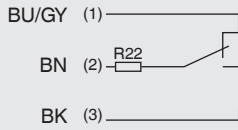
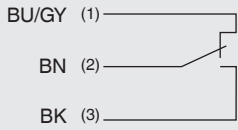
Electrical connections

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



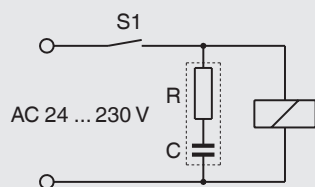
RC element

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

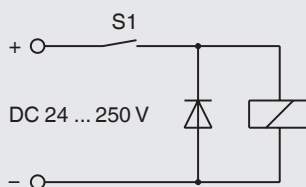
Inductive load

AC voltage

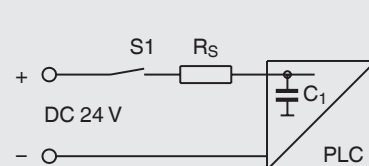


Inductive load

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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