

→ Series VHS / VH6

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→ Series VKS / VK6

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LEVEL SWITCHES →



## Level switches

### Principle of operation

Level switches are the easy and reliable solution for monitoring fluid levels. The switches are installed at the side using G $\frac{3}{4}$  or G $\frac{1}{2}$  thread sizes. The time-tested float principle and a potential-free contact as the signalling transmitter guarantee a high level of operational safety.

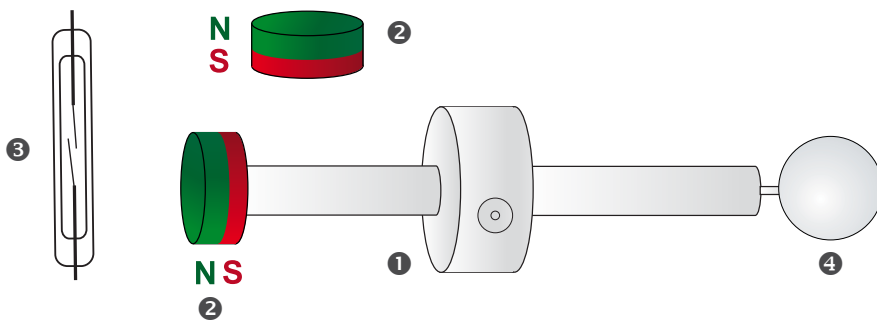
The rising level in the tank forces the float up. Via paddle system, the magnet changes its position relative to the Reed contact and actuates it. The repulsion between the two homopolar magnets supports the buoyancy (Version VK... different). As soon as the level sinks again, the float follows as well and the magnet actuates the Reed contact again.

The factory set switching function

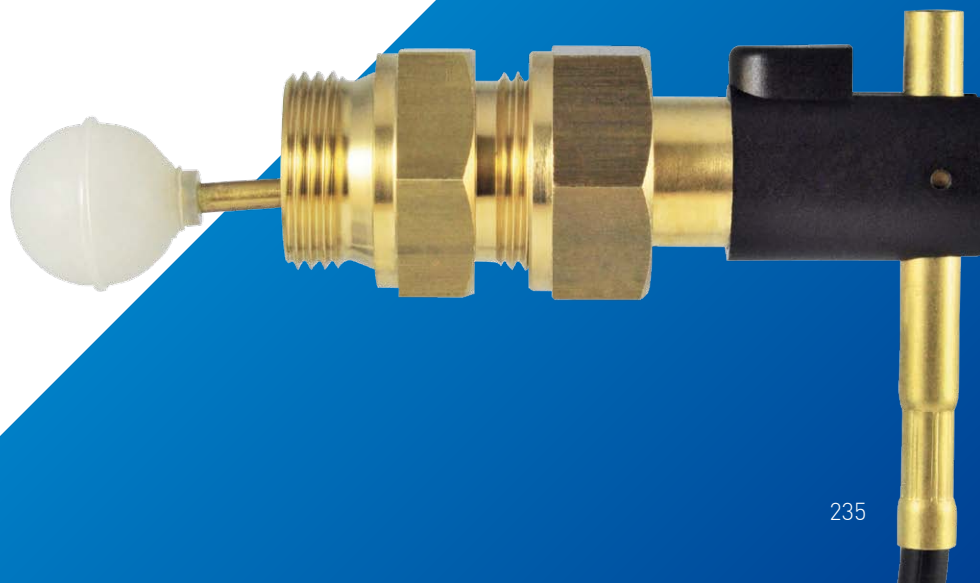
- contact closes with rising level
- contact opens with falling level

can be changed by the customer.

The Reed contact used as signalling transmitter consists of two ferromagnetic contact making tongues positioned in a shielding gas filled glass bulb. As a result, burned contacts are virtually eliminated. This construction enables a durability up to 100 000 000 switching cycles.



- ① Paddle system
- ② Magnet
- ③ Reed contact
- ④ Float



## Electrical connection

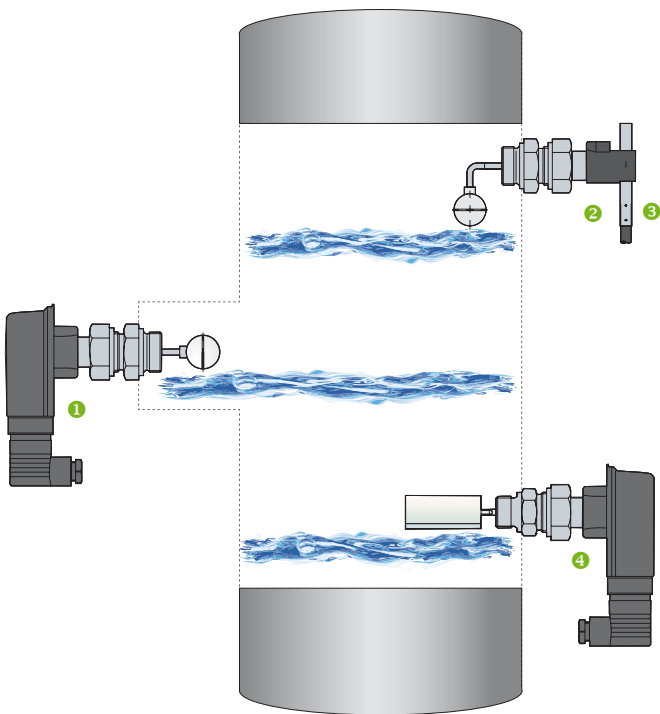


## Electrical connections

- Plug connector DIN EN 175301-803-A incl. cable socket (1)
- Plug connector DIN EN 175301-803-A incl. cable socket, with two LEDs for optical level and power indication for switching voltages 24 V...230 V AC/DC (2)
- 4-pin plug connector M12 x 1 acc. IEC 947-5-2 (3)
- Connection cable 1.5 m (4)

## Applications

- Run dry protection for pumps (minimum alert)
- Spill protection (maximum alert)
- Leakage monitoring
- Screwed-connection oil level monitoring gauge, e.g. at compressors
- For water (VH, VK) and oil applications (VH)



- ① Assembly in the dome
- ② Maximum-level monitoring with contaminated media
- ③ Plugless version for minimum space requirements
- ④ Minimum level monitoring

# Level switches

## Series VHS / VHS



Technical data	
<b>Switching function</b>	Contact → opens with falling level → closes with rising level reversing possible
<b>Activation point, related to middle axis (water, 20 °C)</b>	-4...0 mm (elbow version different)
<b>Hysteresis</b>	Approx. 1...4 mm (elbow version different)
<b>Pressure rating</b>	PN 25
<b>Minimum medium density</b>	
<b>PVDF-float</b>	0.78 kg/dm <sup>3</sup>
<b>Stainless steel cylinder float</b>	0.83 kg/dm <sup>3</sup>
<b>Temperature ranges</b>	
<b>Medium</b>	-10...110 °C
<b>Ambient</b>	
→ VHS	-25...80 °C
→ VH6	-25...100 °C
→ VH6...X	-25...80 °C

### Approvals



### Advantages

- Lateral installation by male thread G $\frac{3}{4}$  or G $\frac{1}{2}$
- Easy alignment due to union nut
- Brass or stainless steel
- Various connectors or 1.5 m jacket cable

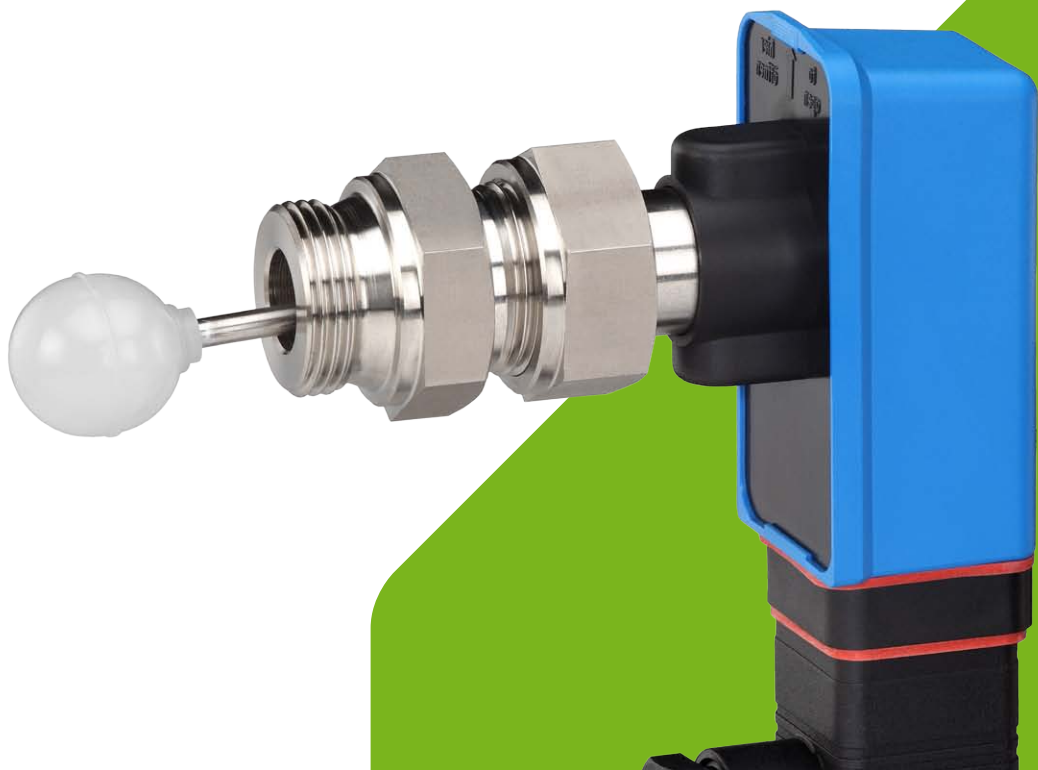
### Electrical data

<b>Electrical connection</b> → VHS	Plug connector DIN EN 175301-803-A incl. cable socket
→ VH6	1.5 m PVC jacket cable
<b>Max. switching current</b>	1 A
<b>Max. switching voltage</b>	230 VAC, 48 VDC
<b>Max. rating</b>	26 VA, 20 W
<b>Degree of protection EN 60529</b>	IP65
<b>Protection class EN 60730-1</b>	Class II

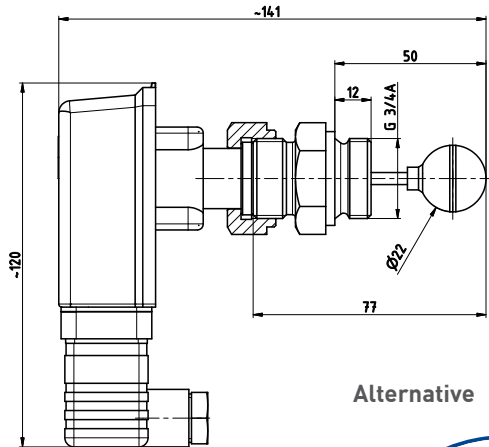
Options	
For type	See order code
VHS	<ul style="list-style-type: none"> <li>→ Plug connector DIN EN 175301-803-A incl. cable socket with 2 LEDs for switching voltages 24 V...230 V AC / DC <math>\pm 20\%</math>, ambient temperature -20...70 °C</li> <li>→ or 4-pin sensor plug M12 x 1</li> </ul>
	<ul style="list-style-type: none"> <li>→ For use in potentially explosive atmospheres (Version VH...X)</li> </ul>



*Versions for use in potentially explosive atmospheres VH...X level switches are intended for use in potentially explosive atmospheres with an ignition energy of  $> 60 \mu\text{J}$ . These level switches have been ignition hazard assessed according to DIN EN 60079-11 and have no potential ignition sources. They are therefore not subject to the Directive 94/9/EC.*

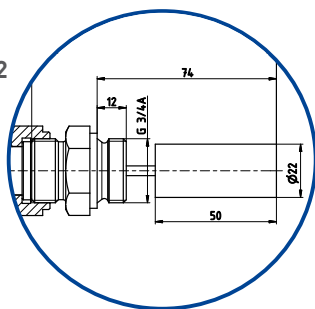


VHS00

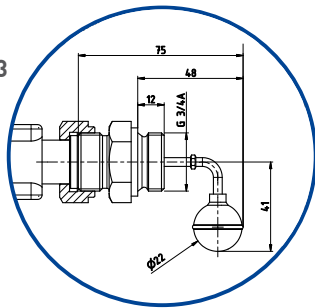


Alternative

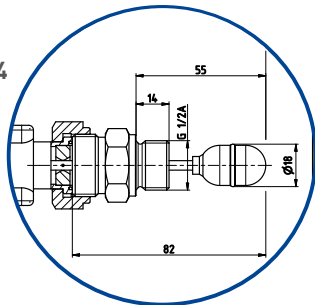
VHS02



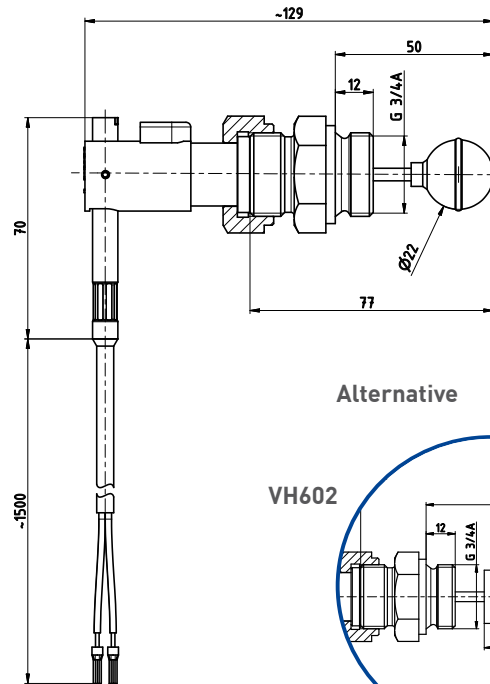
VHS03



VHS04

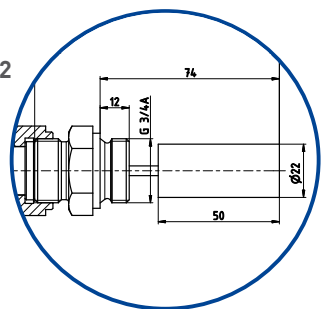


VH600

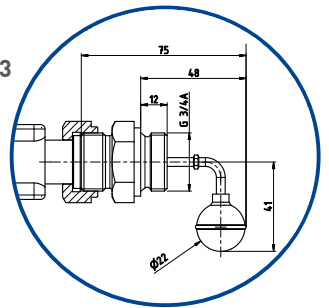


Alternative

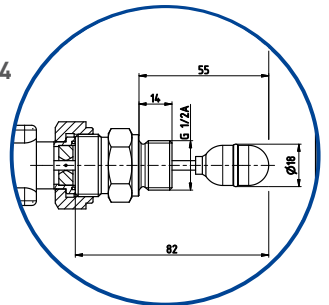
VH602



VH603



VH604





**Materials in contact with fluid**

	Brass version	Stainless steel version
<b>Body, Paddle</b>	Brass CW614N	Stainless steel 1.4571
<b>Process connection</b>	Brass CW614N	Stainless steel 1.4571
<b>Bushings</b> → Standard → Type VH...X	PVDF Stainless steel 1.4571	
<b>Axis</b>	Stainless steel 1.4571	
<b>Magnet</b>	Hard ferrite	
<b>Float</b> → Ball float → Cylinder float	PVDF, Brass 2.0401 Stainless steel 1.4571	PVDF, Stainless steel A4 Stainless steel 1.4571
<b>Sealing</b>	NBR	

Order code	Example →	VH60	0M0	11	1	1	R3	1	( )*
<b>Type</b>									
<b>VHS</b>									
Plug connector incl. cable socket (standard)	VHS0				7				
Plug connector incl. cable socket with LED (option)	VHS0				9				
4-pin plug connector M12 x 1 (option)	VHS0				8				
<b>VH6</b>									
Connection cable (standard)	VH60				1				
Connection cable blue (only for VH6 with Ex option)	VH60				3				
<b>Type of float</b>									
Ball float PVDF		0M0					R3		
Cylinder float stainless steel		2M0					R3		
Ball float PVDF - elbow float bar		3M0					R3		
Cylinder float PVDF - G½		4M0					R2		
<b>Material</b>									
Brass				11		1		1	
Stainless steel				31		3		3	
<b>Version</b>									
Standard									( )*
For use in potentially explosive atmospheres (option)									X


\* No character

\*\* Only available with connection cable blue or with plug connector incl. cable socket (standard)

# Level switches

## Series VKS / VK6



Technical data	
<b>Switching function</b>	Contact → opens with falling level → closes with rising level reversing possible
<b>Activation point, related to middle axis (water, 20 °C)</b>	-4...0 mm
<b>Hysteresis</b>	Approx. 1...4 mm
<b>Pressure rating</b>	PN 10
<b>Minimum medium density</b>	0.78 kg / dm <sup>3</sup>
Temperature ranges	
<b>Medium</b>	-10...100 °C
<b>Ambient</b>	
→ VKS	-25...80 °C
→ VK6	-25...70 °C
Approvals	
	

### Advantages

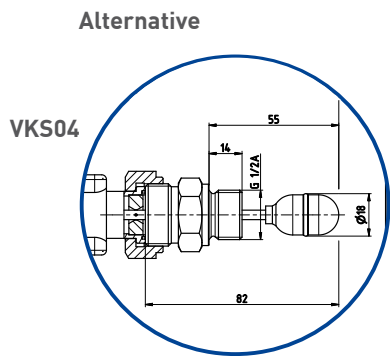
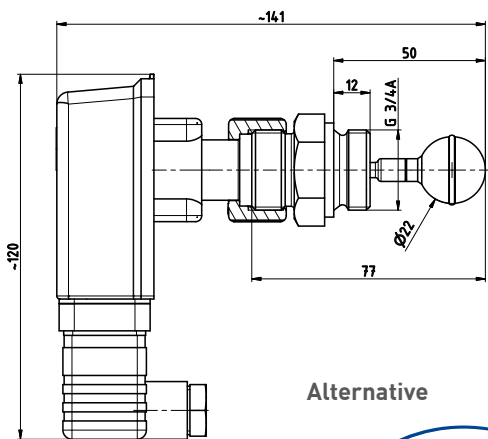
- Level switches made of glass fibre reinforced plastic
- Stainless steel male threaded adapters
- Easy alignment due to union nut

Electrical data	
<b>Electrical connection</b>	
→ VKS	Plug connector DIN EN 175301-803-A incl. cable socket
→ VK6	1.5 m PVC jacket cable
<b>Max. switching current</b>	1 A
<b>Max. switching voltage</b>	230 VAC, 48 VDC
<b>Max. rating</b>	26 VA, 20 W
<b>Degree of protection EN 60529</b>	IP65
<b>Protection class EN 60730-1</b>	Class II

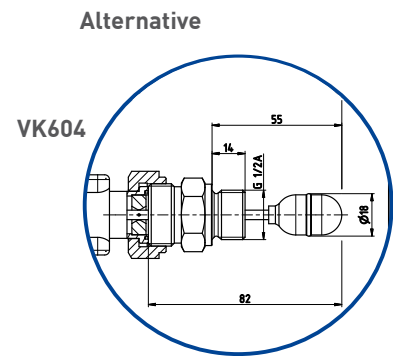
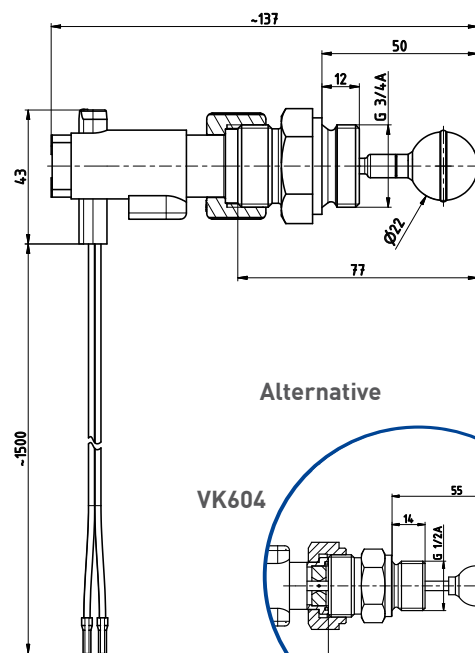
**Options**

For type	See order code
VKS	<p>→ Plug connector DIN EN 175301-803-A incl. cable socket with 2 LEDs for switching voltages 24 V...230 V AC / DC ±20 %, ambient temperature -20...70 °C</p> <p>→ or 4-pin sensor plug M12 x 1</p>

**VKS00**



**VK600**



Materials in contact with fluid	
<b>Body, Paddle</b>	PPE+PS Noryl™ 30 % glass fibre reinforced / EPDM
<b>Process connection</b>	Stainless steel 1.4571
<b>Bushings</b>	PPE+PS Noryl™ 30 % glass fibre reinforced
<b>Axis</b>	Stainless steel 1.4571
<b>Magnet</b>	Hard ferrite
<b>Float</b>	PVDF, Stainless steel A4
<b>Sealing</b>	NBR

Order code	Example → VK60	0M0P1	1	PR33
<b>Level switches</b>				
<b>VKS</b>				
Plug connector incl. cable socket (standard)	VKS0		7	
Plug connector incl. cable socket with LED (option)	VKS0		9	
4-pin plug connector M12 x 1 (option)	VKS0		8	
<b>VK6</b>				
Connection cable (standard)	VK60		1	
<b>Float, process connection</b>				
Ball float PVDF, G <sup>3</sup> / <sub>4</sub>		0M0P1		PR33
Cylinder float PVDF, G <sup>1</sup> / <sub>2</sub>		4M0P1		PR23

Accessories	Länge	Bestellcode	
Connection cable with 4-pin cable socket M12 x 1, angle type moulded lead, sheathing material PUR, shielded, (T <sub>max</sub> = 80 °C) - UL-approval	3 m	XVT2053	
	5 m	XVT2009	
	10 m	XVT2070	
4-pin cable socket M12 x 1 angle type, unassembled		VT1331	
<b>Cable socket with two LEDs</b> Switching voltage 24...230 V AC/DC ±20 % Ambient temperature -20...70 °C for retrofit / replacement of cable socket without LED		XVH958	

