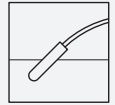




# Float Switch

LFL1-\*K-N-\*\*\*\*\*



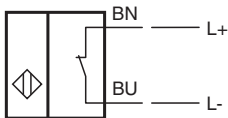
- Switch element: float switch with initiator, **mercury-free**
- Electrical connections in acc. with NAMUR for hazardous area
- Limit value detection for fluids
- Sleeve design: small diameter, mounting through G1 tap hole possible
- Ball design: high buoyancy



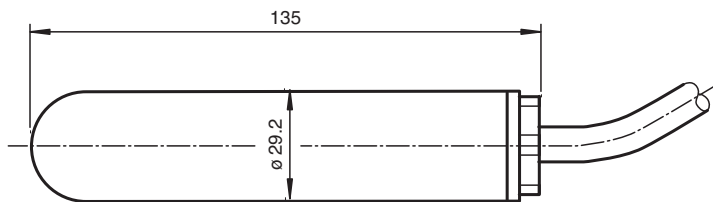
## Function

The initiator (NC contact) is integrated in a PP float and is activated in the event of deviations from the horizontal position. The switching ball in the float, which moves along an axis, activates the switching event in the initiator inductively. The switch output provided by the initiator is a switch signal in accordance with EN 60947-5-6 (NAMUR).

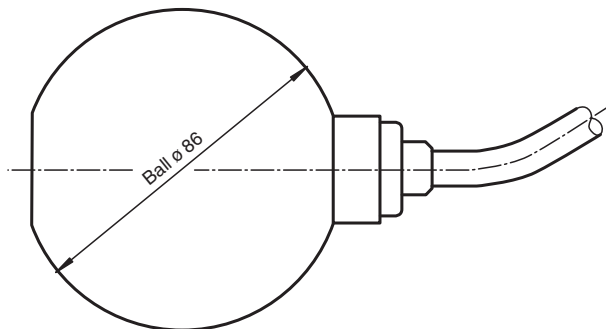
## Application



## Dimensions



Sleeve design LFL1-CK-N



Ball design LFL1-BK-N

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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**PF** PEPPERL+FUCHS

## Technical Data

<b>General specifications</b>		
Construction type	Proximity switch with operation ball	
Series	LFL1-**-N	
<b>Supply</b>		
Rated voltage	U <sub>r</sub>	8.2 V ± 2 V
Current consumption	< 1.0 mA unswitched (de-energized at the bottom), > 2.2 mA switched (floated up at the top)	
Reverse polarity protection	yes	
<b>Output</b>		
Connection	NAMUR acc. to EN 60947-5-6 , 2-wire	
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 60947-5-2:2007+A1:2012	
<b>Conformity</b>		
Degree of protection	IEC 60529:2001	
<b>Function and system design</b>		
Equipment architecture	A measuring system consists of a float switch LFL1-**-N and a transformer isolated barrier, e. g. KFD2-SR2-Ex1.W.	
<b>Operating conditions</b>		
Installation conditions		
Installation instructions	range of application and minimum length between mounting and float: - PVC version: ≥ 50 mm (2 inch), preferred for water - PUR version: ≥ 100 mm (4 inch), preferred for fuels, heating oils, oily fluids - CSM/CM version: ≥ 100 mm (4 inch), preferred for many acids and lyes mounting: - The float switch is mounted either from sideways through a cable gland ≥ G1A into the vessel or - by means of a counter weight or rods (e. g. float switch combination) from the top. The pivot of the cable should always be horizontal.	
Process conditions		
Process pressure (static pressure)	sleeve design: ≤ 3 bar at 20 °C (68 °F) ball design: ≤ 2 bar at 20 °C (68 °F)	
Density	sleeve design: ≥ 0.8 g/cm <sup>3</sup> ball design: ≥ 0.6 g/cm <sup>3</sup>	
<b>Ambient conditions</b>		
Ambient temperature	-20 ... 70 °C (-4 ... 158 °F)	
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)	
Altitude	≤ 2000 m above MSL	
<b>Mechanical specifications</b>		
Degree of protection	IP68	
<b>Data for application in connection with hazardous areas</b>		
EU-type examination certificate	TÜV 99 ATEX 1407	
Marking	⊕ II 2G Ex ia IIB T5 Gb	
Directive conformity		
Directive 2014/34/EU	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
<b>Mechanical construction</b>		
Material	float: PP (Polypropylene) cable: - PVC version: PVC cable, highly flexible (2 x 0.75 mm <sup>2</sup> ) - PUR version: PUR cable, highly flexible (2 x 0.50 mm <sup>2</sup> ) - CSM/CM version: CSM/CM cable (chlorinated polyethylene, (2 x 0.75 mm <sup>2</sup> ))	
Switching point	switch angle, measured against the horizontal: - upper switch point +15° ±5° - lower switch point -15° ±5°	
<b>General information</b>		
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .	
<b>Accessories</b>		

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**PEPPERL+FUCHS**

## Technical Data

Designation	<ul style="list-style-type: none"> <li>- LFL-Z231, counter nut, G1A, PVC</li> <li>- LFL-Z32, counter weight, grey cast iron with plastic coating (Polycarbonate)</li> <li>- LFL-Z33, counter weight, grey cast iron with ECTFE coating (Halar)</li> <li>- LFL-Z131, gland screw connection G1A, PVC</li> <li>- LFL-Z132, gland screw connection G1A, brass</li> <li>- LFL-Z161, gland screw connection G2A, PVC</li> <li>- LFL-Z431, gland screw connection 1 NPT, PVC</li> <li>- LFL-Z461, gland screw connection 2 NPT, PVC</li> </ul>
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## Safety Information

Users should take appropriate precautions when using accessories in explosion-hazardous areas. The counter weights LFL-Z32 and LFL-Z33 must not be used in explosion-hazardous area.

## Type Code

This overview does not mark options which are mutually exclusive.

L	F	L	1	-	(1)	K	-	N	-	(2)	(3)
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<b>LFL</b>	<b>Device</b>
LFL	Float switch

<b>1</b>	<b>Switching element</b>
1	Switching contact with switching ball

<b>(1)</b>	<b>Float</b>
B	Ball
C	Sleeve

<b>K</b>	<b>Float material</b>
K	Plastic PP

<b>N</b>	<b>Electrical output</b>
N	NAMUR acc. to DIN EN 60947-5-6

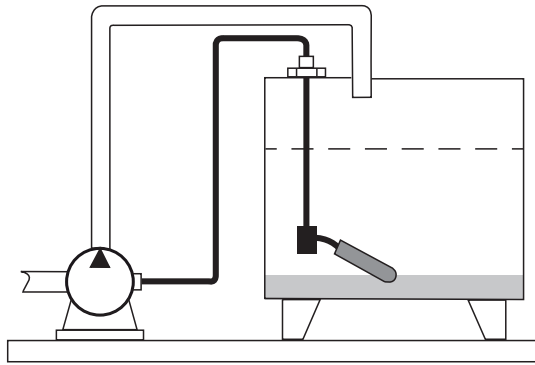
<b>(2)</b>	<b>Cable material</b>
CSM	CSM/CM
PUR	PUR
PVC	PVC

<b>(3)</b>	<b>Cable length</b>
03	3 m
05	5 m
06	6 m
10	10 m

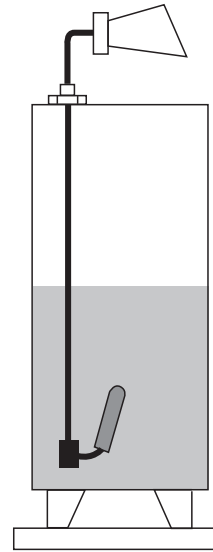
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**Application**

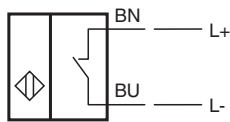
Level control via pump



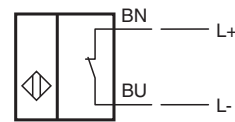
Level message via switching signal



Minimum fail safe mode connection



Maximum fail safe mode connection



**Mounting**

Mount the float switch in the following way:

- Insert the float switch into the tank through a tapped hole G1A.
- Screw the float switch with the gland screw connection G1A.
- If it is installed from above, use the counter weight LFL-Z32 or LFL-Z33 for mounting.



*The fulcrum of the cable should always be horizontal.*

*The cable length between the fixture and the floating body is dependent on the cable type.*

*When using the counter weight, place an extra strain relief (e. g. a knot in the cable) behind the gland screw connection – on the outside of the tank.*

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