



## Float Switches for Liquids



measuring  
•  
monitoring  
•  
analysing



- Easy to install
- Suited for universal use
- Pressure: max. 15 bar
- Temperature: max. 150 °C
- Material:  
PP, PTFE, stainless steel
- From density 0.5 kg/dm<sup>3</sup>



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**Model:**  
NSM, NSP,  
NAB, NEC,  
NST, NSE

## Application

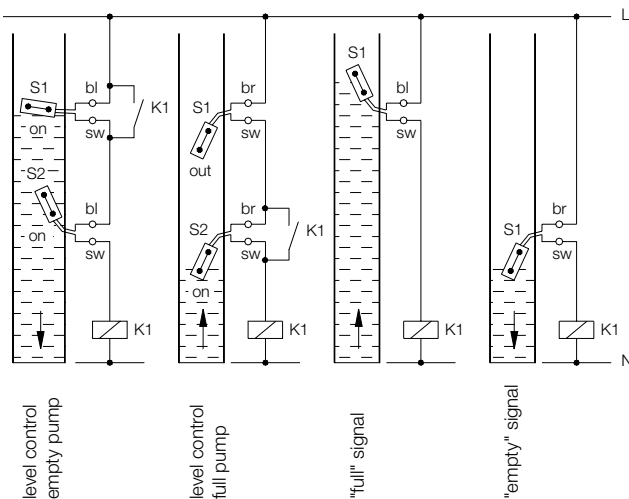
Liquid levels can be easily monitored with the following float switch types.

Level control schemes can be implemented with at least two floats, whereby one operates as minimum contactor, and the other as maximum contactor.

The switches are suited for applications where magnetic level switches are unsuitable due to the danger of the float jamming with dirt particles or deposits.

Depending on the shape of the float and the material used, extremely aggressive, hot, soiled or pasty media can also be monitored with float switches.

## Application examples



## Description

The float comprises a hollow cylinder or a ball with integrated Reed contact or microswitch.

The switch is supplied as a changeover contact; it can be connected as a N/O contact or N/C contact as an option.

The contact switches when the liquid passes above or below the horizontal float position.

The switch point is set either by the side installation at the desired height, clamping at the desired level or when installed from the top weights attached to the cable.

## Type summary

### Model NSM

Reasonably-priced design

Material: polypropylene  
 Contact: microswitch  
 Cable: Neoprene, silicone  
 Max. temperature: 95 °C  
 Max. pressure: 3 bar

### Model NSP

Ball or cylinder shape

Material: polypropylene  
 Contact: microswitch  
 Cable: TPK, silicone, FEP  
 Max. temperature: 85 °C  
 Max. pressure: 2 bar

### Model NAB

Reasonably-priced design

Material: polypropylene  
 Contact: microswitch  
 Cable: Neoprene  
 Max. temperature: 85 °C  
 Max. pressure: 5 bar

### Model NEC

Multichamber, practically unsinkable

Material: polypropylene,  
 option Hypalon coating  
 Contact: microswitch  
 Cable: Hypalon coating  
 Max. temperature: 95 °C  
 Max. pressure: 5.5 bar

### Model NST

For hot, aggressive media

Material: PTFE  
 Contact: Reed contact  
 Cable: PTFE or silicone with PTFE bellows  
 Max. temperature: 150 °C  
 Max. pressure: 1 bar

### Model NSE

For hot, aggressive media

Material: stainless steel 1.4571  
 Contact: Reed contact  
 Cable: silicone with stainless steel armour  
 Max. temperature: 150 °C  
 Max. pressure: 15 bar

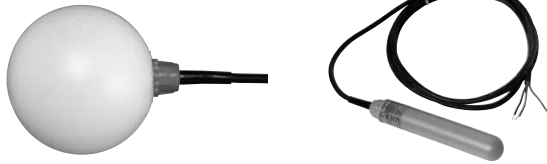
## Contact protection relays

We recommend the use of contact protection relays with our float switches.

- isolates float switch from high voltages
- interval control for automatic filling or emptying of tanks

Type MSR 10: 1 changeover contact  
 Type MSR 20: 2 changeover contacts  
 Type MSR 11: 1 changeover contact, bi-stable

**Model NSP...: Polypropylene**



- Application: for liquids of all types; for example: soiled water, oil, weak acids or alkalis
- Installation: External, using a R 1 cable gland. The float can be introduced into open vessels from the top. The switch point is set using a weight.
- Float material: polypropylene
- Cable: standard 4 m TPK cable (3 x 0.75 mm<sup>2</sup>, thermoplastic rubber) special version: silicone, FEP cable
- Max. pressure: Model NSP-S: 1 bar model NSP-K: 2 bar
- Max. temperature: 5... 60°C (TPK cable) 5... 85°C (silicone/FEP cable)
- Medium density: model NSP-S: > 0.9 kg/dm<sup>3</sup> model NSP-K: > 0.6 kg/dm<sup>3</sup>
- Contact: changeover contact, connectable as N/C or N/O contact
- Switch capacity: max. 250 V<sub>AC</sub> / 150 V<sub>DC</sub>, 300 VA, 60 W 1 mA...1,5 A, 1 A at cos φ 0.7
- Switch. Hysteresis: approx. 25 mm (TPK), approx. 35 mm (FEP)
- Switch angle: approx. +12° / +3°
- Class of protection: IP 68

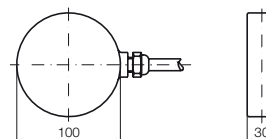
**Model NSM...: Polypropylene**



- Application: reasonably-priced float switch for liquids such as greases, solvents, weak acids and alkalis
- Installation: from the top in open vessels
- Material: float polypropylene cable gland polyamide
- Cable: standard: 2 m neoprene option: silicone
- Max. pressure: 3 bar
- Max. temperature: 60°C neoprene 95°C silicone cable
- Medium density: > 0.6 kg/dm<sup>3</sup>
- Contact: microswitch, function changeover contact
- Switch capacity max. 250 V<sub>AC</sub>, max. 6 A, min. 100 mA
- Class of protection: IP 68
- Hysteresis: min. 140 mm; max. 500 mm

**Dimensions**

NSM



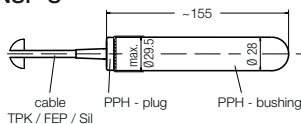
**Order Details** (Example: NSM-02 NEO)

Model	Description
NSM-02 NEO	Standard: 2 m Neoprene cable
NSM-YY SIL	Option: silicone cable

(Please specify cable length in writing.)

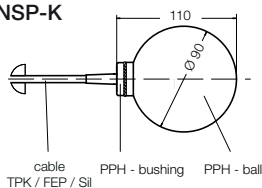
**Dimensions**

NSP-S



Minimum cable length*	
Cable type	Dimension X
TPK	70 mm
SIL	80 mm
FEP	110 mm

NSP-K



**Order Details** (Example: NSP-S W 04TPK)

Model	Design	Contact	Cable
NSP-	S = Stem form K = Ball form	W = changeover contact	04TPK = 4 m TPK cable YYTPK = TPK cable, min. 2 m YYSIL = Silicone cable, min. 2 m YYFEP = FEP cable, min. 2 m

**Order Details** (Example: NSP-weights)

Type	Description
NSP weights	Bading weights
NSP connection 1 PVC	PVC cable gland G 1
NSP connection 2 PVC	PVC cable gland G 2
NSP connection 1 MS	Brass cable gland G 1

\*Minimum cable length from the last fixing point.



**Description**

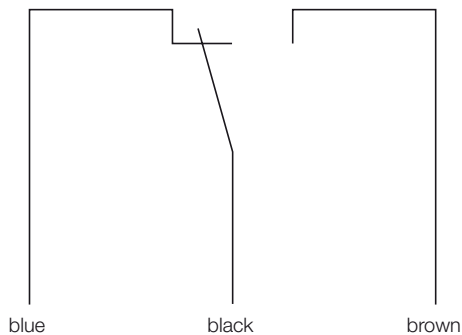
The KOBOLD level switch model NAB is ideally suited for the level monitoring of liquids and for direct pump control by means of a mechanical switch with very high switch capacity 20 (8) A at 250 V<sub>AC</sub>.

The NAB comprises a stable plastic housing made of polypropylene (PP) with neoprene cable of optional 3 or 10 m of length.

**Application**

- Level control of liquids
- Empty monitoring
- Feed monitoring
- Direct pump control
- Low-cost version for OEM applications

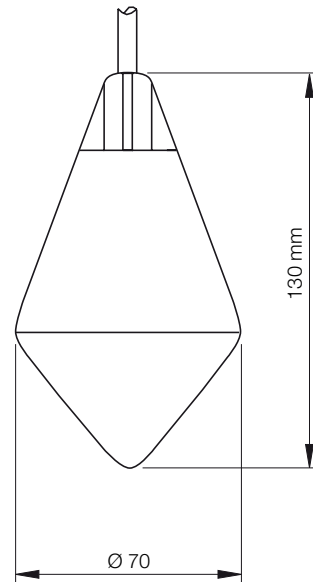
**Electr. connection**



**Technical Details**

Float material:	Polypropylene (PP)
Cable material:	Neoprene
Length of cable:	3 and 10 m
Max. temperature:	85 °C
Max. pressure:	5 bar
Medium density:	0.5 ... 1.15 kg/dm <sup>3</sup>
Contact:	Microswitch, changeover contact
Switch capacity:	20 A at resistive load 8 A at inductive load
Power supply:	250 V <sub>AC</sub> ; 50 / 60 Hz
Weight:	approx. 1200 g for 10 m cable
Actuating angle:	110° (55° from the horizontal plane in both directions)
Class of protection:	IP 68 (cable ends may not be immersed under water at any time)
Optional	Ballast weight: Loaded resin, 175 g

**Dimensions**



**Order Details** (Example: NAB-W03)

Model	Description
NAB-W03	Changeover contact, 3 m cable
NAB-W10	Changeover contact, 10 m cable
NAB-Beschwer	Ballast weight

### Description

The KOBOLD level switches of model NEC have been developed for level monitoring of liquids and for direct pump control for all industrial applications.

The float is supplied with a mechanical microswitch with very large switching capacity.

The NEC comprises a stable plastic housing made of polypropylene with a total of five cavities sealed back-to-back. The instruments are thus practically unsinkable even when physically damaged.

The level switches are available in following basic designs:

- NEC-930: polypropylene float, with mechanical contact, 5 m Hypalon cable
- NEC-HY930: float hypalon coated for aggressive media, with mechanical contact, 5 m Hypalon cable
- NEC-930 N10: polypropylene float, with mechanical contact, 10 m Hypalon cable

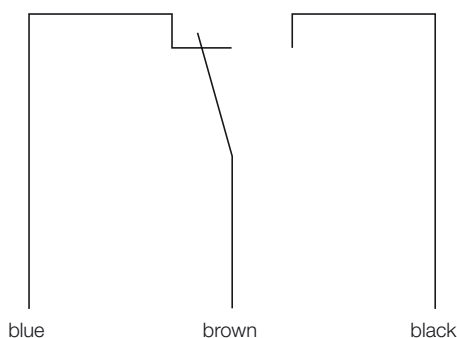


### Technical Details

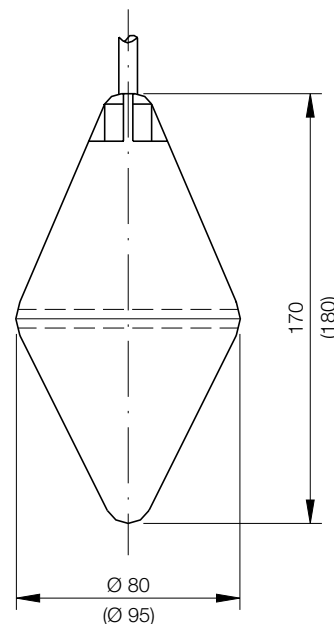
Float:	Double cone
Float material (standard type):	PP (Polypropylene)
Float material (HY type):	PP with Hypalon-coating
Cable:	3 x 1 mm <sup>2</sup> , Hypalon
Contact:	microswitch, changeover contact 250 V <sub>AC</sub> , 16 A resistive load, 6 A inductive load
Actuating angle:	± 15° from the horizontal
Medium density:	NEC: 0.7 - 1.05 kg/dm <sup>3</sup> NEC-HY: 0.7 - 1.4 kg/dm <sup>3</sup>
Max. pressure:	5.5 bar
Max. temperature:	65°C (standard) 95°C (HY type)
Class of protection:	IP 68 (cable ends may not be immersed under water at any time)

All level switches of model NEC are supplied complete with ballast weight.

### Electr. connection



### Dimensions



### Order Details (Example: NEC-930)

Model	Float material / cable
NEC-	930 = PP / 5 m Hypalon cable 930N10 = PP / 10 m Hypalon cable HY930 = PP hypalon coated / 5 m Hypalon cable

**Model NST...: PTFE**



Application: for hot, extremely aggressive or dirty liquids

Installation: From inside with G 1/2 connection (model NST-B only) or from outside with G 2 connection

Float material: PTFE

Bellows: PTFE (model NST-B only)

Cable: Model NST-A: 2 m FEP cable  
Model NST-B: 2 m silicone or FEP cable

Max. pressure: 1 bar

Max. temperature: 150 °C

Medium density: > 0.79 kg/dm<sup>3</sup>

Contact: Reed contact, connectable as N/O or N/C

Switch capacity: 4...250 V<sub>AC/DC</sub>, 1 mA...1 A, 60 VA

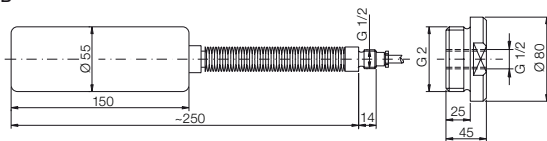
Switch. Hysteresis: approx. 100 mm

Switch angle: +20° / -20°

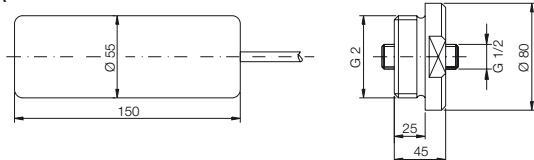
Class of protection: IP 68

**Dimensions**

NST-B



NST-A



**Order Details** (Example: NST-AW 02 FEP)

Model	Description
NST-	AW 02 FEP = standard-design, 2 m FEP cable BW 02 FEP = PTFE bellows, 2 m FEP cable BW 02 SIL = PTFE bellows, 2 m SIL cable
NST-connect. R50A	PTFE cable gland, G 2, for standard design
NST-connect. R50B	PTFE cable gland, G 2, for bellows

**Model NSE...: Stainless steel**



Application: for very aggressive, pasty or hot liquids

Installation: from inside with R 1/2 connection or from outside with flange

Material: Float: stainless steel 1.4571  
Armour: stainless steel 1.4404  
Wire mesh: stainless steel 1.4301  
Screwed fitting: st. steel 1.4571

Cable: 2 m silicone cable, 270 mm of which with st. steel armour, 1.4541

Max. pressure: NSE-D: 6 bar  
NSE-K: 15 bar

Max. temperature: 150 °C

Medium density: > 0.8 kg/dm<sup>3</sup>

Contact: Reed contact change-over, connectable as N/O or N/C

Switch capacity: 4...250 V<sub>AC/DC</sub>; 1 mA...1 A, 60 VA

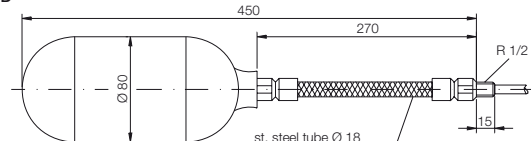
Switch. Hysteresis: approx. 100 mm

Switch angle: +20° / -20°

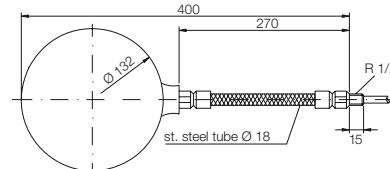
Class of protection: IP 68

**Dimensions**

NSE-D



NSE-K



**Order Details** (Example: NSE-DW 02 SIL)

Model	Description
NSE-DW 02 SIL	Cylindrical float, 2 m silicone cable
NSE-KW 02 SIL	Ball float, 2 m silicone cable