



## Magnetic Level Switches for Liquids



measuring  
•  
monitoring  
•  
analysing

N01-N20



- Switch points: max. 4
- $p_{\max}$ : 100 bar;  $t_{\max}$ : 150 °C
- Connection:  
G 1/8, G 3/8, G 1/2, G1 male,  
special connections
- Material:  
Stainless steel, brass,  
PVC-U, PP, PTFE

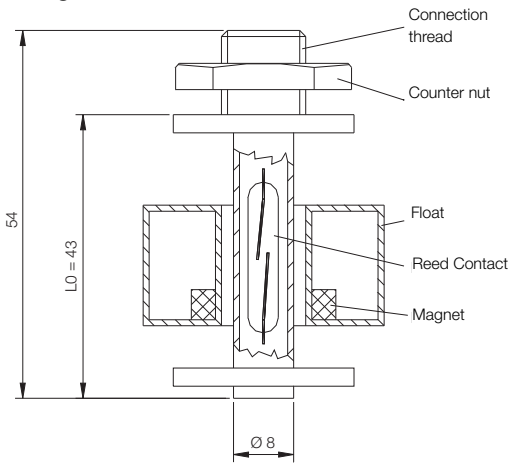


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**Design**



**Description**

Magnetic level switches are used for the monitoring and control of liquid levels in vessels. Magnetic level switches are manufactured to customer specification.

An overview of types available with minimum lengths of measuring tube is set out on the following pages. Please refer to this overview when placing your order. Furthermore any limits can be specified within the limits found in the brochure.

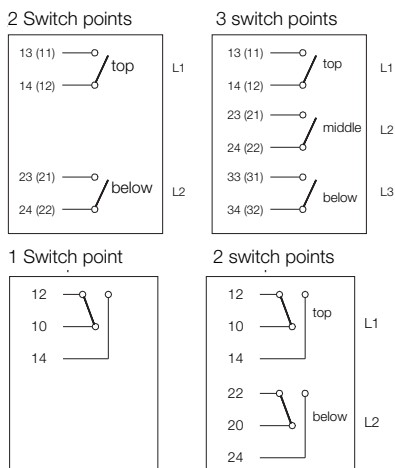
For example:

- Longer measuring tube
- Longer connection cable
- Different cable materials
- Several contacts and different contact operations
- Larger connection screwing with electrical terminal box
- Different materials

**Number code for cable connection**

N/O contact  
or N/C contact

Changeover  
contact



**Method of Operation**

Kobold magnetic float switches are fitted with a hermetically sealed contact which is situated in the tube.

The float sliding on the tube contains a ring magnet whose magnetic field switches the sealed contact in a noncontacting fashion. The sealed contacts are available as N/O, N/C or changeover contacts.

The float sliding up and down on the liquid is the only moving part in the Kobold magnetic float switches.

**Advantages**

- Simple installation
- Long electrical service life due to sealed contacts
- High-degree of operational reliability with air gap between measuring tube and fl
- Installation in top or bottom of vessel
- Several levels can be monitored with one float
- Open/close function or changeover contact available

**Model Codes**

	N07	P	R10	SÖXX	1P
<b>Level switch float no.</b>	_____	_____	_____	_____	_____
<b>Measuring tube material</b> E=st. steel; M=brass; P=PVC; T=PTFE	_____	_____	_____	_____	_____
<b>Process connection</b> R05=G 1/8; R10=G 3/8; R15=G 1/2; R25=G 1; PG7 =Pg7 1.1 ... 9.5 = connection box with thread or flange connection	_____	_____	_____	_____	_____
<b>No. of contacts and function*</b> S=N/O contact, Ö=N/C contact, W=changeover contact; X=no contact	_____	_____	_____	_____	_____
<b>Electr. connection</b> 00=with box 1P=1 m PVC-cable 1S=1 m Silicone-cable 1L=1 m PVC-cable (stock-type)	_____	_____	_____	_____	_____

**\*Please note:**

The contact operation refers to a **rising level**.  
Simply link letters for several contacts.  
The first letter represents the topmost contact, the second letter the second contact from the top, and so on. The position of the contacts, measured from the sealing edge of the connection screwing, must also be specified.

L1 = highest contact (mm) from the top (sealing edge)  
L2 = second contact (mm) from the top (sealing edge)  
and so forth



Float designs

Model	Form	Materials	Float outside-Ø [mm]	Height [mm]	Bore Hole Ø [mm]	Min. Liquid Density [kg/dm³]	Max. temperature	Npminal pressure at 20 °C
N01	Cylinder solid material	NBR	19	22	10	>0,8	80 °C	10 bar
N02	Cylinder hollow	Polypropylene	26	19	10	>0,8	90 °C	3 bar
N03	Cylinder hollow	PVC-U	26	19	10	>0,9	55 °C	3 bar
N04	Cylinder hollow	Stainless steel 1.4571	30	30	9	>0,8	90 °C	15 bar
N05	Cylinder hollow	Polypropylene	42	38	14	>0,7	90 °C	5 bar
N06 <sup>1)</sup>	Cylinder solid material	Polypropylene	40	20	14	>0,9	90 °C	100 bar
N07	Cylinder hollow	PVC-U	42	38	14	>0,9	55 °C	3 bar
N08	Cylinder hollow	Stainless steel 1.4571	42	42	15	>0,8	150 °C	20 bar
N10	Ball hollow	Stainless steel 1.4571	52	52	15	>0,7	150 °C	30 bar
N11	Ball hollow	Stainless steel 1.4571	52	52	15	>0,7	150 °C	3 bar
N12	Cylinder hollow	PTFE	53	75	13	>0,9	150 °C	3 bar
N16	Cylinder hollow	PVC-U	60	60	18	>0,8	55 °C	3 bar
N20	Ball hollow	Stainless steel 1.4571	105	105	23	>0,5	150 °C	15 bar

<sup>1)</sup> One float is required for each switch point.  
For all other floats two contacts can be operated with one float.

**Connection cable**

PVC: max. 70 °C (standard)

Silicone: max. 150 °C

Please note max.-values of every single model

**Technical Details**

Hysteresis: 3-5 mm  
difference in level

Switch point distance:

- between contact 1 and 2 and contact 3 and 4: > 40 mm  
depending on height of float

- between contact 2 and 3: height of float +15 mm

Non-standard versions available

**Contact protection relays**

Model MSR 10 for single contacts

Model MSR 20 for single contacts

Model MSR 11 for twin contact, catching

**Supplementary devices:**

**1. Contact protection relays**

We recommend the use of contact protection relays in conjunction with sealed contacts.

Contact protection relays have the following advantages:

- No contact overloads arising from sparking and high currents, which can, for example, be caused by self-induced e.m.f.'s when switching solenoid valves.
- Float switches are electrically isolated from the high voltage power supply system.
- Protection for persons who come into contact with liquids according to VDE 0100.

**2. Damping tube for agitated liquids**

Float switches with damping tube for agitated or dirty liquids can be supplied upon request.

**3. Temperature monitoring**

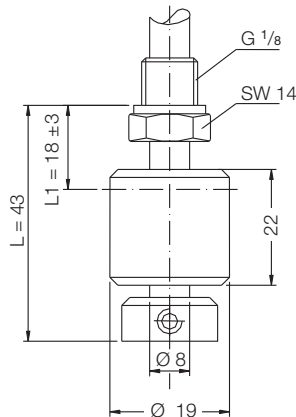
Float switches with integrated temperature switch, fixed switch point between 60 °C and 150 °C upon request.

**Option: Pt 100 available**

**4. Mounting instructions**

Float switches can also be fitted in the bottom of vessels.  
*Important: The contact operation is then reversed.*

### Mini Switches



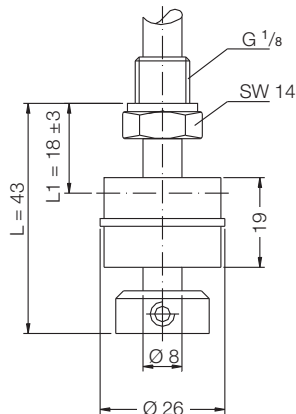
#### Contact operation with rising level:

N/O contact: 230 V<sub>AC/DC</sub> / 0,5 A / 10 VA  
 N/C contact: 100 V<sub>AC/DC</sub> / 0,25 A / 3 VA  
 Changeover contact: 100 V<sub>AC/DC</sub> / 0,25 A / 3 VA  
 Cable length: 1 m NYLHY  
 Installation position: vertical ±30°  
 Protection type: IP 64  
 Max. length of meas. tube: 1500 mm  
 Max. number of contacts: N/O contact/N/C contact max. 3 x off  
 Changeover cont. max. 2 x off,  
 Specifications refer to a medium density of 1,0 kg/dm<sup>3</sup>

Connection heads: see page 10-11  
 Switch point min. distance from end of meas. tube: 30 mm ±3 (for special length)

Model	Materials		Nominal pressure at 20 °C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silikon cable			
N01-P R05 S_____	PVC-U	NBR	3	55	55	1 N/O contact	43	>0,8
N01-P R05 Ö_____	PVC-U	NBR	3	55	55	1 N/C contact	43	>0,8
N01-P R05 W_____	PVC-U	NBR	3	55	55	1 changeover c.	43	>0,8
N01-M R05 S_____	Brass	NBR	10	70	80	1 N/O contact	43	>0,8
N01-M R05 Ö_____	Brass	NBR	10	70	80	1 N/C contact	43	>0,8
N01-M R05 W_____	Brass	NBR	10	70	80	1 changeover c.	43	>0,8
N01-E R05 S_____	1.4571	NBR	10	70	80	1 N/O contact	43	>0,8
N01-E R05 Ö_____	1.4571	NBR	10	70	80	1 N/C contact	43	>0,8
N01-E R05 W_____	1.4571	NBR	10	70	80	1 changeover c.	43	>0,8

### Mini Switches



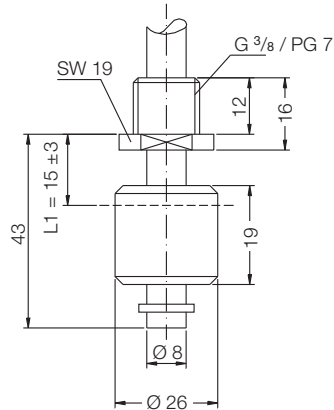
#### Kontaktfunktion bei steigendem Niveau:

N/O contact: 230 V<sub>AC/DC</sub> / 0,5 A / 10 VA  
 N/C contact: 100 V<sub>AC/DC</sub> / 0,25 A / 3 VA  
 Changeover contact: 100 V<sub>AC/DC</sub> / 0,25 A / 3 VA  
 Cable length: 1 m NYLHY  
 Installation position: vertical ±30°  
 Protection type: IP 64  
 Max. length of meas. tube: 1500 mm  
 Max. number of contacts: N/O contact/N/C contact max. 3 x off  
 Changeover cont. max. 2 x off,  
 Specifications refer to a medium density of 1,0 kg/dm<sup>3</sup>

Connection heads: see page 10-11  
 Switch point min. distance from end of meas. tube: 30 mm ±3 (for special length)

Model	Materials		Nominal pressure at 20 °C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silikon cable			
N02-M R05 S_____	Brass	Polypropylene	3	70	90	1 N/O contact	43	>0,8
N02-M R05 Ö_____	Brass	Polypropylene	3	70	90	1 N/C contact	43	>0,8
N02-M R05 W_____	Brass	Polypropylene	3	70	90	1 changeover c.	43	>0,8
N02-E R05 S_____	1.4571	Polypropylene	3	70	90	1 N/O contact	43	>0,8
N02-E R05 Ö_____	1.4571	Polypropylene	3	70	90	1 N/C contact	43	>0,8
N02-E R05 W_____	1.4571	Polypropylene	3	70	90	1 changeover c.	43	>0,8

Mini Switches



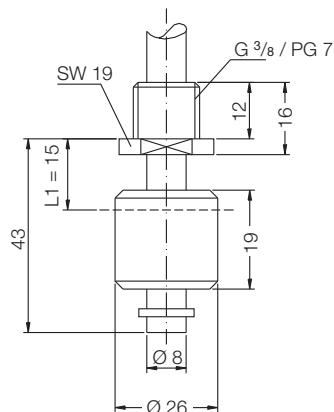
**Contact operation with rising level:**

N/O contact: 230 V<sub>AC/DC</sub> / 0,5 A / 10 VA  
 N/C contact: 100 V<sub>AC/DC</sub> / 0,25 A / 3 VA  
 Changeover contact: 100 V<sub>AC/DC</sub> / 0,25 A / 3 VA  
 Cable length: 1 m LIYY  
 Installation position: vertikal ±30°  
 Protection type: IP 64  
 Thread: R10 = G 3/8 oder PG7  
 Max. length of meas. tube: 1500 mm  
 Max. number of contacts: N/O contact/N/C contact max. 3 x off  
 Changeover cont. max. 2 x off,  
 Specifications refer to a medium density of 1,0 kg/dm<sup>3</sup>

Connection head: see page 10-11  
 Switch point min. distance from end of meas. tube: 30 mm ±3  
 (for special length)

Model	Materials		Nominal pressure at 20°C [bar]	Max. temperature [°C]	Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float					
N03-P PG7 S_____	PVC-U	PVC-U	3	55	1 N/O contact	43	>0,9
N03-P PG7 Ö_____	PVC-U	PVC-U	3	55	1 N/C contact	43	>0,9
N03-P PG7 W_____	PVC-U	PVC-U	3	55	1 changeover c.	43	>0,9
N03-M PG7 S_____	PVC-U	PVC-U	3	55	1 N/O contact	43	>0,9
N03-M PG7 Ö_____	PVC-U	PVC-U	3	55	1 N/C contact	43	>0,9
N03-M PG7 W_____	PVC-U	PVC-U	3	55	1 changeover c.	43	>0,9

Mini Switches



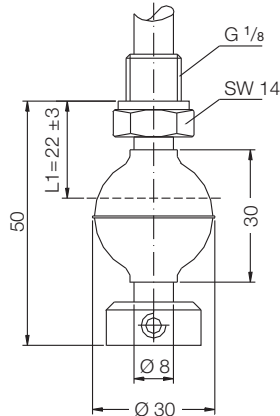
**Contact operation with rising level:**

N/O contact: 230 V<sub>AC</sub> / 0,5 A / 10 VA  
 N/C contact: 100 V<sub>AC</sub> / 0,5 A / 10 VA  
 Changeover contact: 48 V<sub>AC</sub> / 0,25 A / 3 VA  
 Cable length: 1 m LIYY  
 Installation position: vertikal ±30°  
 Thread: R10 = G 3/8 oder PG7  
 Protection type: IP 64  
 Max. length of meas. tube: 43 mm  
 Max. number of contacts: N/O contact/N/C contact max. 3 x off  
 Changeover cont. max. 2 x off,  
 Specifications refer to a medium density of 1,0 kg/dm<sup>3</sup>

Connection head: see page 10-11  
 Switch point min. distance from end of meas. tube: 22 mm

Model	Materials		Nominal pressure at 20°C [bar]	Max. temperature [°C]	Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float					
N03-P PG7 S___1L	PVC-U	PVC-U	3	55	1 N/O contact	43	>0,9
N03-P PG7 Ö___1L	PVC-U	PVC-U	3	55	1 N/C contact	43	>0,9
N03-P PG7 W___1L	PVC-U	PVC-U	3	55	1 changeover c.	43	>0,9
N03-P PG7 S___1L	PVC-U	PVC-U	3	55	1 N/O contact	43	>0,9
N03-P PG7 Ö___1L	PVC-U	PVC-U	3	55	1 N/C contact	43	>0,9
N03-P PG7 W___1L	PVC-U	PVC-U	3	55	1 changeover c.	43	>0,9

### Mini Switches

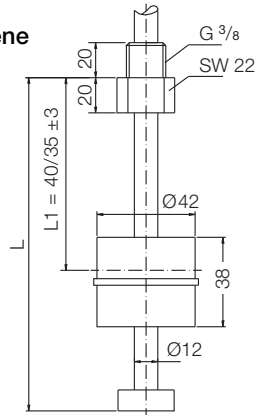


#### Contact operation with rising level:

N/O contact:	230 V <sub>AC/DC</sub> / 0,5 A / 10 VA
N/C contact:	100 V <sub>AC/DC</sub> / 0,25 A / 3 VA
Changeover contact:	100 V <sub>AC/DC</sub> / 0,25 A / 3 VA
Cable length:	1 m NYLHY
Installation position:	vertical ±30°
Protection type:	IP 64
Max. length of meas. tube:	1500 mm
Max. number of contacts:	N/O contact / N/C contact max. 3 x off, Changeover contacts max. 2 x off
	Specifications refer to a medium density of 1,0 kg/dm <sup>3</sup> see page 10-11
Connection heads:	see page 10-11
Switch point min. distance from end of meas. tube:	
(for special length)	35 mm ±3 (N04-E) 30 mm ±3 (N04-M)

Model	Materials		Nominal pressure at 20°C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silicone cable * special design			
N04-M R05 S_____	Brass	1.4571	15	70	90 (130*)	1 N/O contact	50	>0,8
N04-M R05 Ö_____	Brass	1.4571	15	70	90 (130*)	1 N/C contact	50	>0,8
N04-M R05 W_____	Brass	1.4571	15	70	90 (130*)	1 changeover c.	50	>0,8
N04-E R05 S_____	1.4571	1.4571	15	70	90 (130*)	1 N/O contact	50	>0,8
N04-E R05 Ö_____	1.4571	1.4571	15	70	90 (130*)	1 N/C contact	50	>0,8
N04-E R05 W_____	1.4571	1.4571	15	70	90 (130*)	1 changeover c.	50	>0,8

**Cylindrical float  
made of polypropylene  
or PVC**

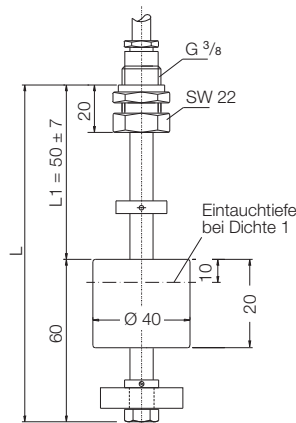


**Contact operation with rising level:**

- N/O contact: 230 V<sub>AC</sub> / 1 A / 60 VA
- N/C contact: 230 V<sub>AC</sub> / 1 A / 60 VA
- Changeover contact: 230 V<sub>AC</sub> / 1 A / 60 VA
- Cable length: 1 m NYLHY
- Installation position: vertical ±30°
- Protection type: IP 65
- Max. length of meas. tube: Brass/st. steel: 6 m  
PVC-U: 5 m
- Max. number of contacts: N/O contact / N/C contact  
max. 4 x off, Changeover  
contacts max. 3 x off  
Specifications refer to a  
medium density of 1,0 kg/dm<sup>3</sup>
- Connection heads: see page 10-11
- Switch point min. distance from end of meas. tube:  
(for special length) 35 mm ±3 (N05)  
40 mm ±3 (N07)

Model	Materials		Nominal pressure at 20 °C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silicone cable			
N05-M R10 S_____	Brass	Polypropylene	5	70	90	1 N/O contact	100	>0,7
N05-M R10 Ö_____	Brass	Polypropylene	5	70	90	1 N/C contact	100	>0,7
N05-M R10 W_____	Brass	Polypropylene	5	70	90	1 changeover c.	100	>0,7
N05-E R10 S_____	1.4571	Polypropylene	5	70	90	1 N/O contact	100	>0,7
N05-E R10 Ö_____	1.4571	Polypropylene	5	70	90	1 N/C contact	100	>0,7
N05-E R10 W_____	1.4571	Polypropylene	5	70	90	1 changeover c.	100	>0,7
N07-P R10 S_____	PVC-U	PVC-U	3	55	55	1 N/O contact	100	>0,9
N07-P R10 Ö_____	PVC-U	PVC-U	3	55	55	1 N/C contact	100	>0,9
N07-P R10 W_____	PVC-U	PVC-U	3	55	55	1 changeover c.	100	>0,9

**High-pressure applications**

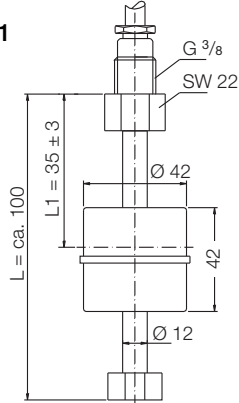


**Contact operation with rising level:**

- N/O contact: 230 V<sub>AC</sub> / 1 A / 60 VA
- N/C contact: 230 V<sub>AC</sub> / 1 A / 60 VA
- Changeover contact: 230 V<sub>AC</sub> / 1 A / 60 VA
- Cable length: 1 m NYLHY
- Installation position: vertical ±0°
- Thread: R10 = G 3/8 or PG7
- Protection type: IP 65
- Max. length of meas. tube: 6 mm
- Max. number of contacts: N/O contact / N/C contact  
max. 4 x off, Changeover  
contacts max. 3 x off  
Specifications refer to a  
medium density of 1,0 kg/dm<sup>3</sup>
- Connection heads: see page 10-11
- Switch point min. distance from end of meas. tube: 50 mm ±7

Model	Materials		Nominal pressure at 20 °C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silicone cable			
N06-M R10 S_____	Brass	Polypropylene	100	70	90	1 N/O contact	100	>0,9
N06-M R10 Ö_____	Brass	Polypropylene	100	70	90	1 N/C contact	100	>0,9
N06-M R10 W_____	Brass	Polypropylene	100	70	90	1 changeover c.	100	>0,9
N06-E R10 S_____	1.4571	Polypropylene	100	70	90	1 N/O contact	100	>0,9
N06-E R10 Ö_____	1.4571	Polypropylene	100	70	90	1 N/C contact	100	>0,9
N06-E R10 W_____	1.4571	Polypropylene	100	70	90	1 changeover c.	100	>0,9

**Cylindrical float in stainless steel 1.4571**



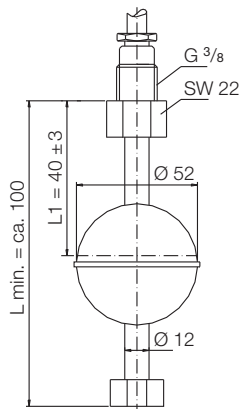
**Contact operation with rising level:**

Material:  
 Measuring tube: brass or stainless steel 1.4571  
 Float: stainless steel 1.4571  
 N/O contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 N/C contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Changeover contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Cable length: 1 m LIYY  
 Installation position: vertical ±30°  
 Protection type: IP 65  
 Max. length of meas. tube: 6 mm  
 Max. number of contacts: N/O contact / N/C contact max. 4 x off, Changeover contacts max. 3 x off  
 Specifications refer to a medium density of 1,0 kg/dm<sup>3</sup>

Connection heads: see page 10-11  
 Switch point min. distance from end of meas. tube: (for special length) 45 mm ±3

Model	Materials		Nominal pressure at 20°C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silicone cable * special design			
N08-M R10 S_____	Brass	1.4571	20	70	90 (150*)	1 N/O contact	100	>0,8
N08-M R10 Ö_____	Brass	1.4571	20	70	90 (150*)	1 N/C contact	100	>0,8
N08-M R10 W_____	Brass	1.4571	20	70	90 (150*)	1 changeover c.	100	>0,8
N08-E R10 S_____	1.4571	1.4571	20	70	90 (150*)	1 N/O contact	100	>0,8
N08-E R10 Ö_____	1.4571	1.4571	20	70	90 (150*)	1 N/C contact	100	>0,8
N08-E R10 W_____	1.4571	1.4571	20	70	90 (150*)	1 changeover c.	100	>0,8

**Ball float in stainless steel 1.4571**



**Contact operation with rising level:**

Material:  
 Measuring tube: brass or stainless steel 1.4571  
 Float: stainless steel 1.4571  
 N/O contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 N/C contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Changeover contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Cable length: 1 m NYLHY  
 Installation position: vertical ±30°  
 Protection type: IP 65  
 Max. length of meas. tube: 6 mm  
 Max. number of contacts: N/O contact / N/C contact max. 4 x off, Changeover contacts max. 3 x off  
 Specifications refer to a medium density of 1,0 kg/dm<sup>3</sup>

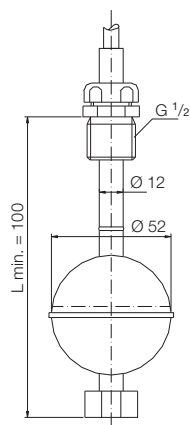
Connection heads: see page 10-11  
 Switch point min. distance from end of meas. tube: (for special length) 50 mm ±3 (N10-E) 45 mm ±3 (N10-M)

Model	Materials		Nominal pressure at 20°C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silicone cable * special design			
N10-M R10 S_____	Brass	1.4571	30	70	90 (150*)	1 N/O contact	100	>0,7
N10-M R10 Ö_____	Brass	1.4571	30	70	90 (150*)	1 N/C contact	100	>0,7
N10-M R10 W_____	Brass	1.4571	30	70	90 (150*)	1 changeover c.	100	>0,7
N10-E R10 S_____	1.4571	1.4571	30	70	90 (150*)	1 N/O contact	100	>0,7
N10-E R10 Ö_____	1.4571	1.4571	30	70	90 (150*)	1 N/C contact	100	>0,7
N10-E R10 W_____	1.4571	1.4571	30	70	90 (150*)	1 changeover c.	100	>0,7



**Common Details:** All specifications refer to a medium density of 1,0 kg/dm<sup>3</sup>

**Adjustable for height**

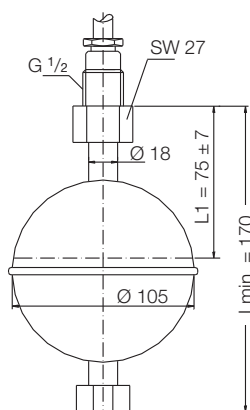


**Contact operation with rising level:**

Material:  
 Measuring tube: brass or stainless steel 1.4571  
 Float: stainless steel 1.4571  
 N/O contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 N/C contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Changeover contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Cable length: 1 m LYLHY  
 Installation position: vertical ±30°  
 Protection type: IP 64  
 Switch point min. distance from end of meas. tube:  
 (for special length) 50 mm ±3 (N11-E)  
 45 mm ±3 (N11-M)

Model	Materials		Nominal pressure at 20°C [bar]	Max. temperature [°C]	Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float					
N11-M R15 S_____	Brass	1.4571	3	70	1 N/O contact	100	>0,7
N11-M R15 Ö_____	Brass	1.4571	3	70	1 N/C contact	100	>0,7
N11-M R15 W_____	Brass	1.4571	3	70	1 changeover c.	100	>0,7
N11-E R15 S_____	1.4571	1.4571	3	70	1 N/O contact	100	>0,7
N11-E R15 Ö_____	1.4571	1.4571	3	70	1 N/C contact	100	>0,7
N11-E R15 W_____	1.4571	1.4571	3	70	1 changeover c.	100	>0,7

**Heavy-duty design**

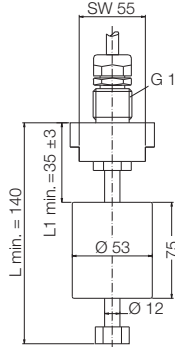


**Contact operation with rising level:**

Material:  
 Measuring tube: stainless steel 1.4571  
 Float: stainless steel 1.4571  
 N/O contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 N/C contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Changeover contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Cable length: 1 m NYLHY  
 Installation position: vertical ±30°  
 Thread: R10 = G 3/8 or PG7  
 Protection type: IP 64  
 Switch point min. distance from end of meas. tube:  
 (for special length) 85 mm ±7

Model	Materials		Nominal pressure at 20°C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silicone cable * special design			
N20-P R15 S_____	1.4571	1.4571	15	70	90 (150*)	1 N/O contact	170	>0,5
N20-P R15 Ö_____	1.4571	1.4571	15	70	90 (150*)	1 N/C contact	170	>0,5
N20-P R15 W_____	1.4571	1.4571	15	70	90 (150*)	1 changeover c.	170	>0,5

### PTFE design



#### Contact operation with rising level:

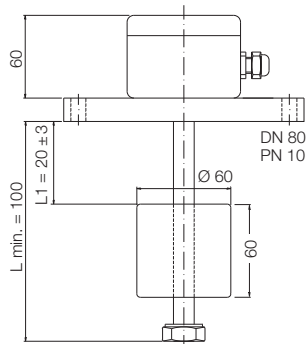
N/O contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 N/C contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Changeover contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Cable length: 1 m NYLHY  
 Installation position: vertical ±30°

*Please note: with 4 contacts min. distance between contact 2 and 3 100 mm*

Protection type: IP 65  
 Switch point min. distance from end of meas. tube: 90 mm ±5  
 (for special length) *also available with connection 6.2*

Model	Materials		Nominal pressure at 20 °C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silicone cable * special design			
N12-T R25 S_____	PTFE	PTFE	3	70	90 (150*)	1 N/O contact	140	>0,9
N12-T R25 Ö_____	PTFE	PTFE	3	70	90 (150*)	1 N/C contact	140	>0,9
N12-T R25 W_____	PTFE	PTFE	3	70	90 (150*)	1 changeover c.	140	>0,9

### PVC flange design



#### Kontaktfunktion bei steigendem Niveau:

N/O contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 N/C contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Changeover contact: 230 V<sub>AC</sub> / 1 A / 60 VA  
 Installation position: vertical ±30°  
 Protection type: IP 65

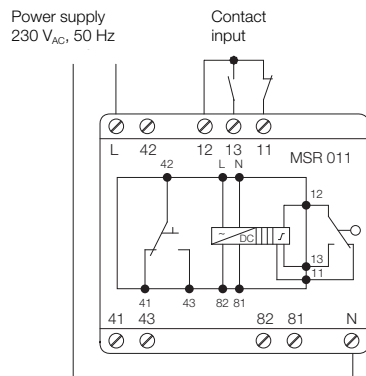
Switch point min. distance from end of meas. tube: 65 mm ±5  
 (for special length)

Model	Materials		Nominal pressure at 20 °C [bar]	Max. temperature [°C]		Contact number and function	Min. length of meas. tube [mm]	Liquid density [kg/dm <sup>3</sup> ]
	Measuring tube	Float		PVC cable	Silicone cable * special design			
N16-P F80 S_____	PVC-U	PVC-U	3	55	55	1 N/O contact	100	>0,8
N16-P F80 Ö_____	PVC-U	PVC-U	3	55	55	1 N/C contact	100	>0,8
N16-P F80 W_____	PVC-U	PVC-U	3	55	55	1 changeover c.	100	>0,8

### Accessories

#### MSR 11 for Pump control

#### Wiring diagram



#### Magnetic level switch

L1: upper contact, N/O contact with rising level

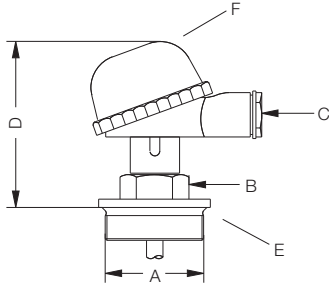
L2: lower contact, N/C contact with rising level

#### Relay output

Empty pump: terminal 42-43

Full pump: terminal 42-41

Type 1

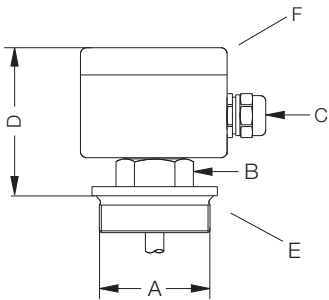


PA screwed cap housing

Dimensions and materials

A-Thread	G1	G1½	G2
B-Width across flats	27AF	30AF	36AF
C-Electr. connection	PG16	PG16	PG16
D-Overall height	110	110	114
F-Housing	PA	PA	PA
<b>E-Screwed fitting</b>	<b>PP</b>	<b>PP</b>	<b>PP</b>
<b>Code</b>	<b>1.0*</b>	<b>1.1</b>	<b>1.2</b>
<b>t<sub>max</sub></b>	<b>90 °C</b>	<b>90 °C</b>	<b>90 °C</b>

Type 2/3/4/6

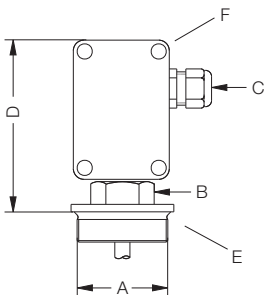


Aluminium adapter box

Dimensions and materials

A-Thread	G1	G1½	G2
B-Width across flats	27AF	30AF	36AF
C-Electr. connection	M16	M16	M16
D-Overall height	76	77	79
F-Housing	ALU	ALU	ALU
<b>E-Screwed fitting</b>	<b>MS</b>	<b>MS</b>	<b>MS</b>
<b>Code</b>	<b>2.0*</b>	<b>2.1</b>	<b>2.2</b>
<b>E-Screwed fitting</b>	<b>VA</b>	<b>VA</b>	<b>VA</b>
<b>Code</b>	<b>4.0*</b>	<b>4.1</b>	<b>4.2</b>
<b>E-Screwed fitting</b>	<b>PTFE</b>	<b>PTFE</b>	<b>PTFE</b>
<b>Code</b>	<b>6.0*</b>	<b>6.1</b>	<b>6.2</b>
<b>t<sub>max</sub></b>	<b>90 (140) °C</b>	<b>90 (140) °C</b>	<b>90 (140) °C</b>

Type 5

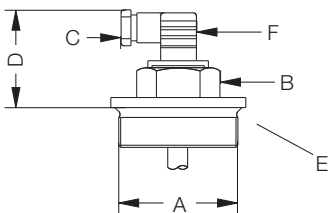


PS (polystyrene) terminal box

Dimensions and materials

A-Thread	G1	G1½	G2
B-Width across flats	27AF	30AF	36AF
C-Electr. connection	PG16	PG16	PG16
D-Overall height	111	111	111
F-Housing	PS	PS	PS
<b>E-Screwed fitting</b>	<b>PVC</b>	<b>PVC</b>	<b>PVC</b>
<b>Code</b>	<b>5.0*</b>	<b>5.1</b>	<b>5.2</b>
<b>t<sub>max</sub></b>	<b>55 °C</b>	<b>55 °C</b>	<b>55 °C</b>

Type 7



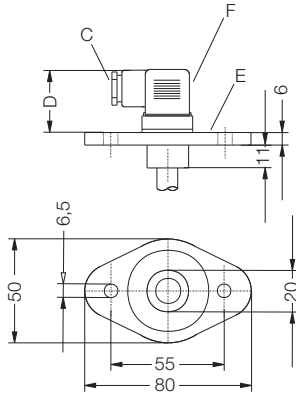
Connector with connecting box

Dimensions and materials

A-Thread	G1	G1½	G2
B-Width across flats	27AF	30AF	36AF
C-Electr. connection	PP	PP	PP
D-Overall height 3-pole	70	70	73
D-Overall height 6-pole	46	46	49
F-Housing	PA	PA	PS
<b>C-Screwed fitting</b>	<b>3-pole/PG9</b>	<b>3-pole/PG9</b>	<b>3-pole/PG9</b>
<b>Code</b>	<b>7.0*</b>	<b>7.1</b>	<b>7.2</b>
<b>C-Screwed fitting</b>	<b>6-pole/PG7</b>	<b>6-pole/PG7</b>	<b>6-pole/PG7</b>
<b>Code</b>	<b>7.A*</b>	<b>7.B</b>	<b>7.C</b>
<b>t<sub>max</sub></b>	<b>90 °C</b>	<b>90 °C</b>	<b>90 °C</b>

\* for N01, N02, N03 and N04

Type 7.3

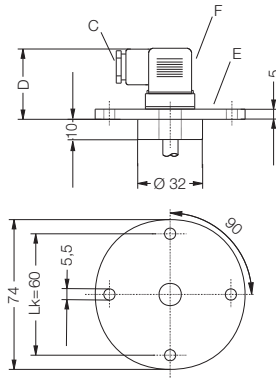


Oval flange polypropylene

Dimensions and materials

Plug	3-pole with	6-pole with
C-Electr. connection	PG9	PG7
D-Overall height	47	30
F-Housing	PA	PA
<b>E-flange</b>	<b>PP</b>	<b>PP</b>
<b>Code</b>	<b>7.3</b>	<b>7.D</b>
<b>t<sub>max</sub></b>	<b>90°C</b>	<b>90°C</b>

Type 7.4...7.6

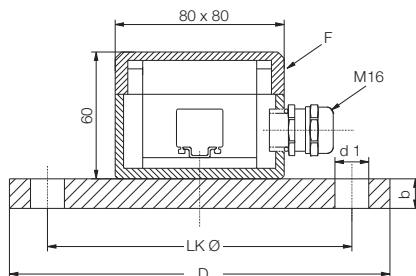


Round flange

Dimensions and materials

Plug	3-pole with	6-pole with
C-Electr. connection	PG9	PG7
D-Overall height	47	30
F-Housing	PA	PA
<b>E-flange</b>	<b>MS</b>	<b>MS</b>
<b>Code</b>	<b>7.4</b>	<b>7.E</b>
<b>t<sub>max</sub></b>	<b>90°C</b>	<b>90°C</b>
<b>E-flange</b>	<b>VA</b>	<b>VA</b>
<b>Code</b>	<b>7.5</b>	<b>7.F</b>
<b>E-flange</b>	<b>PVC</b>	<b>PVC</b>
<b>Code</b>	<b>7.6</b>	<b>7.G</b>
<b>t<sub>max</sub></b>	<b>55°C</b>	<b>55°C</b>

Type 8/9



Flange form B acc. to DIN 2527

Dimensions and materials

Nominal width	50	65	80	100	125
D	165	185	200	220	250
b	18	18	20	20	22
LK Ø	125	145	160	180	210
Thread	M16	M16	M16	M16	M16
Number d1	4	4	8	8	8
F-Housing	Alu	Alu	Alu	Alu	Alu
<b>E-flange</b>	<b>Steel</b>	<b>Steel</b>	<b>Steel</b>	<b>Steel</b>	<b>Steel</b>
<b>Code</b>	<b>8.1</b>	<b>8.2</b>	<b>8.3</b>	<b>8.4</b>	<b>8.5</b>
<b>E-flange</b>	<b>VA</b>	<b>VA</b>	<b>VA</b>	<b>VA</b>	<b>VA</b>
	<b>1.4571</b>	<b>1.4571</b>	<b>1.4571</b>	<b>1.4571</b>	<b>1.4571</b>
<b>Code</b>	<b>9.1</b>	<b>9.2</b>	<b>9.3</b>	<b>9.4</b>	<b>9.5</b>
<b>t<sub>max</sub></b>	<b>90 (150)°C</b>				

Float switches for OEM applications\*

	Model	Material	Operating temperature	Density	Switching values	Switching capacity	Pressure	Cable	Connection
	<b>N30-AM16SXXX00</b>	Poly-propylene	-20...+80°C	> 0.70	max. 240 V <sub>AC</sub> or 200 V <sub>DC</sub> , 0.5 A	max. 50 W	4 bar	0.3 m PVC	M16x2
	<b>N31-AR05SXXX00</b>	Poly-propylene	max. +80°C	> 0.70	max. 300 V <sub>AC/DC</sub> , 0.5 A	max. 50 VA	air pressure	0.3 m PVC	G $\frac{1}{8}$
	<b>N32-BR05SXXX00</b>	stainless steel	-20...+120°C	> 0.75	max. 300 V <sub>AC/DC</sub> , 0.5 A	max. 50 VA	20 bar	0.35 m	G $\frac{1}{8}$
	<b>N33-BR10SXXX00</b>	stainless steel	max. +200°C	> 0.53	max. 300 V <sub>AC/DC</sub> , 0.5 A	max. 50 VA	10 bar	0.35 m	G $\frac{3}{8}$
	<b>N34-BR05SXXX00</b>	stainless steel	max. +120°C	> 0.55	max. 300 V <sub>AC/DC</sub> , 0.5 A	max. 50 VA	max. 40 bar	0.35 m	G $\frac{1}{8}$
	<b>N35-CR05SXXX00</b>	PVDF	-20...+80°C	> 0.85	max. 240 V <sub>AC</sub> or 200 V <sub>DC</sub> , 0.5 A	max. 50 VA	max. 4 bar	0.3 m PVC	G $\frac{1}{8}$

\* Minimum order amount for OEM-float switches: 50 pieces