



- Switch points: max. 4
- Pmax 100 bar
Tmax 180°C
- Connection:
G 3/8 male thread
- Material:
Stainless steel, brass,
PVC, PP, Teflon



KOBOLD offices exist in the following countries:

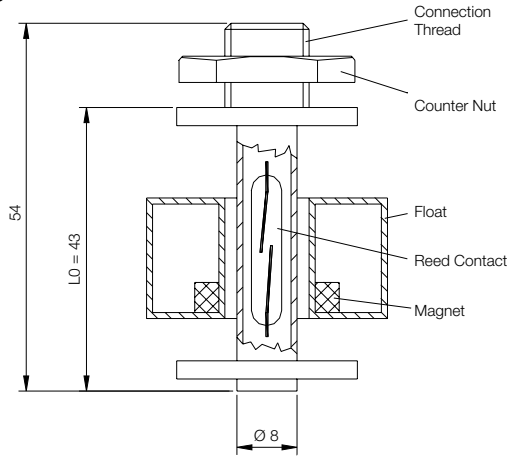
**ARGENTINA, AUSTRIA, BELGIUM, CANADA, CHINA,
FRANCE, GERMANY, GREAT BRITAIN, NETHERLANDS,
POLAND, SINGAPORE, SWITZERLAND, USA, VENEZUELA**

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Model:
N-



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.

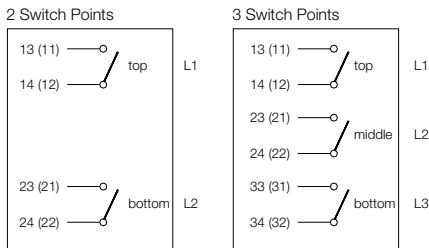
An overview of types available with minimum lengths of measuring tube is set out on the following pages. Please refer to this overview when placing your order. Furthermore any limits can be specified within the limits specified in the brochure.

For example:

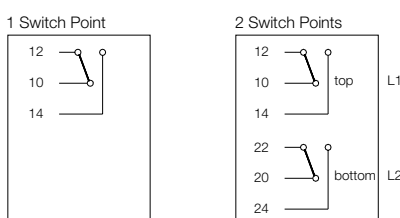
- Longer measuring tube
- Longer connection cable
- Different cable materials
- Several contacts and different contact operations
- Larger connection screwing with electrical terminal box
- Different materials.

Number code for cable connection

N/O contact
or
N/C contact



Changeover
contact



Method of Operation

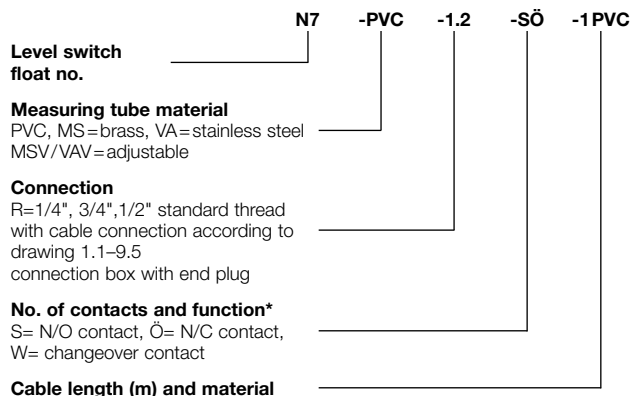
Kobold magnetic float switches are fitted with a hermetically sealed contact which is situated in the tube. The float sliding on the tube contains a ring magnet whose magnetic field switches the sealed contact in a non-contacting fashion. The sealed contacts are available as N/O, N/C or changeover contacts. 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 float
- Installation in top or bottom of vessel
- Several levels can be monitored with one float
- Open/close function or changeover contact available

Order keys

Type codes



***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

No.	Form	Material	Float outside Ø mm	Height mm	Bore hole Ø mm	Min. liquid density g/cm ³	Max. temperature °C	Nominal pressure at 20°C bar
1	Cylinder solid material	NBR	19	22	10	> 0.65	80	10
1	Cylinder hollow	Polypropylene	26	19	10	> 0.8	110	3
3	Cylinder hollow	Hard PVC	26	19	10	> 0.9	55	3
4	Cylinder hollow	Stainless steel 1.4571	30	30	9	> 0.8	160	15
5	Cylinder hollow	Polypropylene	42	38	14	> 0.7	110	5
6 ¹⁾	Cylinder solid material	Polypropylene	40	25	14	> 0.9	100	100
7	Cylinder hollow	Hard PVC	42	38	14	> 0.9	55	3
8	Cylinder hollow	Stainless steel 1.4571	42	42	15	> 0.7	180	20
10	Cylinder hollow	Stainless steel 1.4571	52	52	15	> 0.6	180	30
12	Cylinder hollow	Teflon PTFE	53	75	13	> 0.9	160	3
16	Cylinder hollow	Hard PVC	60	60	18	> 0.8	55	3
20	Ball hollow	Stainless steel 1.4571	105	105	23	> 0.5	180	15

1) One float is required for each switch point.

For all other floats two contacts can always be operated with one float.

Connection cable

PVC: max. 90°C (standard)
Silicone: max. 180°C

Technical Details

Hysteresis: 3–5 mm difference in level
Switch point distance: > 40 mm (standard)
Non-standard version 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 160°C upon request.

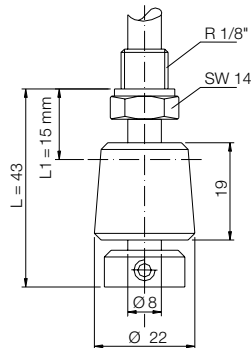
Option: Pt 100 available

4. Mounting instructions

Float switches can also be fitted in the bottom of vessels.

Important: The contact operation is then reversed.

Mini Switches

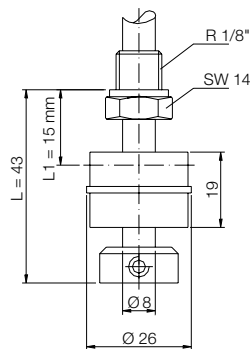


Contact operation with rising level:

N/O contact: 250 V / 0.5 A / 10 VA
 N/C contact: 250 V / 0.5 A / 10 VA
 Changeover contact: 115 V / 0.25 A / 3 VA
 Cable length: 1 m NYLHY
 Installation position: vertical ± 30°C
 Protection: IP 54
 Max. length of measuring tube: 6 m
 Max. number of contacts: N/O contact/N/C cont. max. 3 x off
 Changeover contacts max. 2 x off
 Specifications refer to a medium density of 1.0 g/cm³
 Connection heads: 1.0 to 9.5 (pp. 9–10)
 Min. clearance from end of measuring tube: 30 mm

Model	Materials		Nominal pressure at 20°C bar	Max. temperature °C	Contact number and function	Min. length of measuring tube mm	Liquid density g/cm ³
	Measuring tube	Float					
N-1-PVC-R-S	Hard PVC	NBR	3	55	1 N/O contact	43	> 0.65
N-1-PVC-R-Ö	Hard PVC	NBR	3	55	1 N/C contact	43	> 0.65
N-1-PVC-R-W	Hard PVC	NBR	3	55	1 Changeover c.	43	> 0.65
N-1-MS-R-S	Brass	NBR	10	80	1 N/O contact	43	> 0.65
N-1-MS-R-Ö	Brass	NBR	10	80	1 N/C contact	43	> 0.65
N-1-MS-R-W	Brass	NBR	10	80	1 Changeover c.	43	> 0.65
N-1-VA-R-S	Stainless steel	NBR	10	80	1 N/O contact	43	> 0.65
N-1-VA-R-Ö	Stainless steel	NBR	10	80	1 N/C contact	43	> 0.65
N-1-VA-R-W	Stainless steel	NBR	10	80	1 Changeover c.	43	> 0.65

Mini Switches

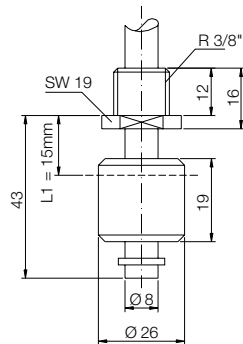


Contact operation with rising level:

N/O contact: 250 V / 0.5 A / 10 VA
 N/C contact: 250 V / 0.5 A / 10 VA
 Changeover contact: 115 V / 0.25 A / 3 VA
 Cable length: 1 m NYLHY
 Installation position: vertical ± 30°C
 Protection: IP 54
 Max. length of measuring tube: 6 m
 Max. number of contacts: N/O contact/N/C cont. max. 3 x off
 Changeover contacts max. 2 x off
 Specifications refer to a medium density of 1.0 g/cm³
 Connection heads: 1.0 to 9.5 (pp. 9–10)
 Min. clearance from end of measuring tube: 30 mm

N-2-MS-R-S	Brass	Polypropylene	3	90	1 N/O contact	43	> 0.8
N-2-MS-R-Ö	Brass	Polypropylene	3	90	1 N/C contact	43	> 0.8
N-2-MS-R-W	Brass	Polypropylene	3	90	1 Changeover c.	43	> 0.8
N-2-VA-R-S	Stainless steel	Polypropylene	3	90	1 N/O contact	43	> 0.8
N-2-VA-R-Ö	Stainless steel	Polypropylene	3	90	1 N/C contact	43	> 0.8
N-2-VA-R-W	Stainless steel	Polypropylene	3	90	1 Changeover c.	43	> 0.8

Mini Switches

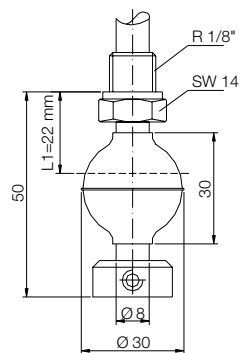


Contact operation with rising level:

N/O contact: 250 V / 0.5 A / 10 VA
 N/C contact: 250 V / 0.5 A / 10 VA
 Changeover contact: 115 V / 0.25 A / 3 VA
 Cable length: 1 m LIYY
 Installation position: vertical ± 30°C
 Protection: IP 54
 thread: R 3/8"
*** Thread: PG7**
 Max. length of measuring tube: 6 m
 Max. number of contacts: N/O contact/N/C cont. max. 3 x off
 Changeover contact max. 2 x off
 Specifications refer to a medium density of 1.0 g/cm³
 Connection heads: 1.0 to 9.5 (pp. 9–10)
 Min. clearance from end of measuring tube: 30 mm

Model	Materials		Nominal pressure at 20°C bar	Max. temperature °C	Contact number and function	Min. length of measuring tube mm	Liquid density g/cm ³
	Measuring tube	Float					
N-3-PVC-G-S*	Hard PVC	Hard PVC	3	55	1 N/O contact	43	> 0.9
N-3-PVC-G-Ö*	Hard PVC	Hard PVC	3	55	1 N/C contact	43	> 0.9
N-3-PVC-G-W*	Hard PVC	Hard PVC	3	55	1 Changeover c.	43	> 0.9
N-3-PVC-R-S	Hard PVC	Hard PVC	3	55	1 N/O contact	43	> 0.9
N-3-PVC-R-Ö	Hard PVC	Hard PVC	3	55	1 N/C contact	43	> 0.9
N-3-PVC-R-W	Hard PVC	Hard PVC	3	55	1 Changeover c.	43	> 0.9

Mini Switches

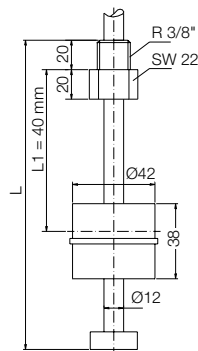


Contact operation with rising level:

N/O contact: 250 V / 0.5 A / 10 VA
 N/C contact: 250 V / 0.5 A / 10 VA
 Changeover contact: 115 V / 0.25 A / 3 VA
 Cable length: 1 m NYLHY
 Installation position: vertical ± 30°C
 Protection: IP 54
 Max. length of measuring tube: 6 m
 Max. number of contacts: N/O contact/N/C cont. max. 3 x off
 Changeover contacts max. 2 x off
 Specifications refer to a medium density of 1.0 g/cm³
 Connection heads: 1.0 to 9.5 (pp. 9–10)
 Min. clearance from end of measuring tube: 30 mm

N-4-MS-R-S	Brass	Stainless steel	15	90	1 N/O contact	50	> 0.8
N-4-MS-R-Ö	Brass	Stainless steel	15	90	1 N/C contact	50	> 0.8
N-4-MS-R-W	Brass	Stainless steel	15	90	1 Changeover c.	50	> 0.8
N-4-VA-R-S	Stainless steel	Stainless steel	15	90	1 N/O contact	50	> 0.8
N-4-VA-R-Ö	Stainless steel	Stainless steel	15	90	1 N/C contact	50	> 0.8
N-4-VA-R-W	Stainless steel	Stainless steel	15	90	1 Changeover c.	50	> 0.8

Cylindrical float made of polypropylene or PVC

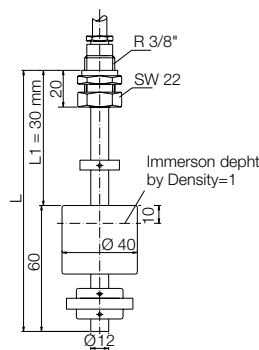


Contact operation with rising level:

N/O contact: 230 V / 1 A / 60 VA
 N/C contact: 230 V / 1 A / 60 VA
 Changeover contact: 230 V / 1 A / 60 VA
 Cable length: 1 m NYLHY
 Installation position: vertical ± 30°C
 Protection: IP 65
 Max. length of measuring tube: 6 m
 Max. number of contacts: N/O contact/N/C cont. max. 4 x off
 Changeover contact max. 3 x off
 Specifications refer to a medium density of 1.0 g/cm³
 Connection heads: 1.0 to 9.5 (pp. 9–10)
 Min. clearance from end of measuring tube: 40 mm

Model	Materials		Nominal pressure at 20°C bar	Max. temperature °C	Contact number and function	Min. length of measuring tube mm	Liquid density g/cm ³
	Measuring tube	Float					
N-5-MS-R-S	Brass	Polypropylene	5	90	1 N/O contact	100	> 0.7
N-5-MS-R-Ö	Brass	Polypropylene	5	90	1 N/C contact	100	> 0.7
N-5-MS-R-W	Brass	Polypropylene	5	90	1 Changeover c.	100	> 0.7
N-5-VA-R-S	Stainless steel	Polypropylene	5	90	1 N/O contact	100	> 0.7
N-5-VA-R-Ö	Stainless steel	Polypropylene	5	90	1 N/C contact	100	> 0.7
N-5-VA-R-W	Stainless steel	Polypropylene	5	90	1 Changeover c.	100	> 0.7
N-7-PVC-R-S	Hard PVC	Hard PVC	3	55	1 N/O contact	100	> 0.9
N-7-PVC-R-Ö	Hard PVC	Hard PVC	3	55	1 N/C contact	100	> 0.9
N-7-PVC-R-W	Hard PVC	Hard PVC	3	55	1 Changeover c.	100	> 0.9

High-pressure applications

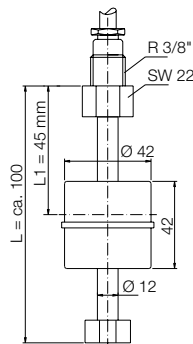


Contact operation with rising level:

N/O contact: 230 V / 1 A / 60 VA
 N/C contact: 230 V / 1 A / 60 VA
 Changeover contact: 230 V / 1 A / 60 VA
 Switch point distance: minimum 100 mm
 Cable length: 1 m NYLHY
 Installation position: vertical ± 0°C
 Protection: IP 65
 Max. length of measuring tube: 6 m
 Max. number of contacts: N/O contact/N/C cont. max. 4 x off
 Changeover contact max. 3 x off
 Specifications refer to a medium density of 1.0 g/cm³
 Connection heads: 1.0 to 9.5 (pp. 9–10)
 Min. clearance from end of measuring tube: 40 mm

N-6-MS-R-S	Brass	Polypropylen	100	90	1 N/O contact	100	> 0.9
N-6-MS-R-Ö	Brass	Polypropylen	100	90	1 N/C contact	100	> 0.9
N-6-MS-R-W	Brass	Polypropylen	100	90	1 Changeover c.	100	> 0.9
N-6-VA-R-S	Stainless steel	Polypropylen	100	90	1 N/O contact	100	> 0.9
N-6-VA-R-Ö	Stainless steel	Polypropylen	100	90	1 N/C contact	100	> 0.9
N-6-VA-R-W	Stainless steel	Polypropylen	100	90	1 Changeover c.	100	> 0.9

Cylindrical float in stainless steel

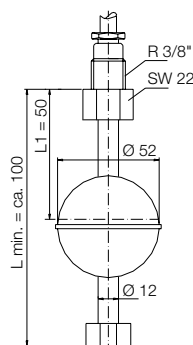


Contact operation with rising level:

N/O contact: 230 V / 1 A / 60 VA
 N/C contact: 230 V / 1 A / 60 VA
 Changeover contact: 230 V / 1 A / 60 VA
 Cable length: 1 m LIYY
 Installation position: vertical ± 30°C
 Protection: IP 65
 Max. length of measuring tube: 6 m
 Max. number of contacts: N/O contact/N/C cont. max. 4 x off
 Changeover contact max. 3 x off
 Specifications refer to a medium density of 1.0 g/cm³
 Connection heads: 1.0 to 9.5 (pp. 9–10)
 Min. clearance from end of measuring tube: 40 mm

Model	Materials		Nominal pressure at 20°C bar	Max. temperature °C	Contact number and function	Min. length of measuring tube mm	Liquid density g/cm ³
	Measuring tube	Float					
N-8-MS-R-S	Brass	Stainless steel	20	90	1 N/O contact	100	> 0.7
N-8-MS-R-Ö	Brass	Stainless steel	20	90	1 N/C contact	100	> 0.7
N-8-MS-R-W	Brass	Stainless steel	20	90	1 Changeover c.	100	> 0.7
N-8-VA-R-S	Stainless steel	Stainless steel	20	90	1 N/O contact	100	> 0.7
N-8-VA-R-Ö	Stainless steel	Stainless steel	20	90	1 N/C contact	100	> 0.7
N-8-VA-R-W	Stainless steel	Stainless steel	20	90	1 Changeover c.	100	> 0.7

Ball float in stainless steel



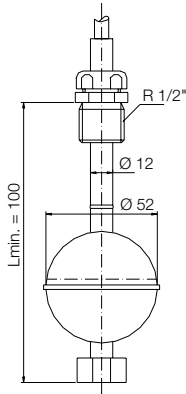
Contact operation with rising level:

N/O contact: 230 V / 1 A / 60 VA
 N/C contact: 230 V / 1 A / 60 VA
 Changeover contact: 230 V / 1 A / 60 VA
 Cable length: 1 m NYLHY
 Installation position: vertical ± 30°C
 Protection: IP 65
 Max. length of measuring tube: 6 m
 Max. number of contacts: N/O contact/N/C cont. max. 4 x off
 Changeover contact max. 3 x off
 Specifications refer to a medium density of 1.0 g/cm³
 Connection heads: 1.0 to 9.5 (pp. 9–10)
 Min. clearance from end of measuring tube: 40 mm

N-10-MS-R-S	Brass	Stainless steel	30	90	1 N/O contact	100	> 0.6
N-10-MS-R-Ö	Brass	Stainless steel	30	90	1 N/C contact	100	> 0.6
N-10-MS-R-W	Brass	Stainless steel	30	90	1 Changeover c.	100	> 0.6
N-10-VA-R-S	Stainless steel	Stainless steel	30	90	1 N/O contact	100	> 0.6
N-10-VA-R-Ö	Stainless steel	Stainless steel	30	90	1 N/C contact	100	> 0.6
N-10-VA-R-W	Stainless steel	Stainless steel	30	90	1 Changeover c.	100	> 0.6

Common technical details All specifications refer to a medium density of 1.0 g/cm³.

Adjustable for height



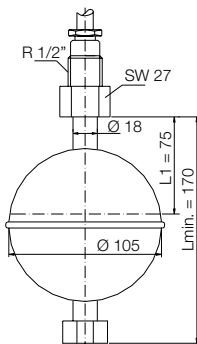
Contact operation with rising level:

N/O contact: 230 V / 1 A / 60 VA
 N/C contact: 230 V / 1 A / 60 VA
 Changeover contact: 230 V / 1 A / 60 VA
 Cable length: 1 m NYLHY

Installation position: vertical ± 30°C
 Protection: IP 65
 Switch point minimum clearance from end of measuring tube: 40 mm

Model	Materials		Nominal pressure at T= 20°C bar	Max. temperature °C	Number of contacts and function	Min. length of measuring tube mm	Liquid density g/cm ³
	Measuring tube	Float					
N-10-MSV-R-S	Brass	St. steel	5	90	1 N/O con.	100	> 0.6
N-10-MSV-R-Ö	Brass	St. steel	5	90	1 N/C con.	100	> 0.6
N-10-MSV-R-W	Brass	St. steel	5	90	1 change. c.	100	> 0.6
N-10-VAV-R-S	St. steel	St. steel	5	90	1 N/O con.	100	> 0.6
N-10-VAV-R-Ö	St. steel	St. steel	5	90	1 N/C con.	100	> 0.6
N-10-VAV-R-W	St. steel	St. steel	5	90	1 change. c.	100	> 0.6

Heavy-duty design



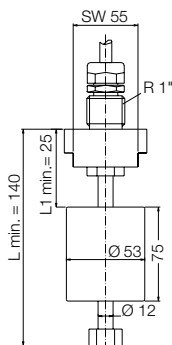
Contact operation with rising level:

N/O contact: 230 V / 1 A / 60 VA
 N/C contact: 230 V / 1 A / 60 VA
 Changeover contact: 230 V / 1 A / 60 VA
 Cable length: 1 m NYLHY

Installation position: vertical ± 30°C
 Protection: IP 65
 Switch point minimum clearance from end of measuring tube: 85 mm

Model	Materials		Nominal pressure at T= 20°C bar	Max. temperature °C	Number of contacts and function	Min. length of measuring tube mm	Liquid density g/cm ³
	Measuring tube	Float					
N-20-VA-R-S	St. steel	St. steel	15	90	1 N/O con.	170	> 0.5
N-20-VA-R-Ö	St. steel	St. steel	15	90	1 N/C con.	170	> 0.5
N-20-VA-R-W	St. steel	St. steel	15	90	1 change. c.	170	> 0.5

Teflon design



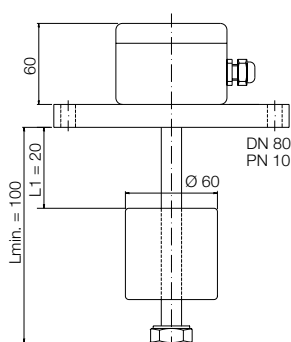
Contact operation with rising level:

N/O contact: 230 V / 1 A / 60 VA
 N/C contact: 230 V / 1 A / 60 VA
 Changeover contact: 230 V / 1 A / 60 VA
 Installation position: vertical ± 30°C

Protection: IP 65
 Switch point minimum clearance from end of measuring tube: 90 mm
also available with connection 6.2

Model	Materials		Nominal pressure at T= 20°C bar	Max. temperature °C	Number of contacts and function	Min. length of measuring tube mm	Liquid density g/cm ³
	Measuring tube	Float					
N-12-PTFE-R-S	PTFE	PTFE	3	90	1 N/O con.	140	> 0.9
N-12-PTFE-R-Ö	PTFE	PTFE	3	90	1 N/C con.	140	> 0.9
N-12-PTFE-R-W	PTFE	PTFE	3	90	1 change. c.	140	> 0.9

PVC flange design



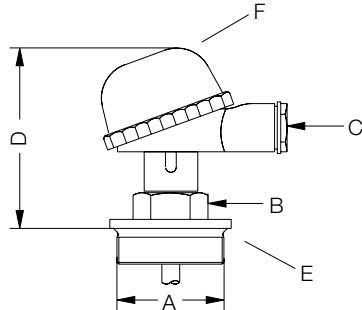
Contact operation with rising level:

N/O contact: 230 V / 1 A / 60 VA
 N/C contact: 230 V / 1 A / 60 VA
 Changeover contact: 230 V / 1 A / 60 VA
 Installation position: vertical ± 30°C

Protection: IP 65
 Switch point minimum clearance from end of measuring tube: 70 mm

Model	Materials		Nominal pressure at T= 20°C bar	Max. temperature °C	Number of contacts and function	Min. length of measuring tube mm	Liquid density g/cm ³
	Measuring tube	Float					
N-16-PVC-F-S	Hard PVC	Hard PVC	3	55	1 N/O con.	100	> 0.8
N-16-PVC-F-Ö	Hard PVC	Hard PVC	3	55	1 N/C con.	100	> 0.8
N-16-PVC-F-W	Hard PVC	Hard PVC	3	55	1 change. c.	100	> 0.8

Type 1

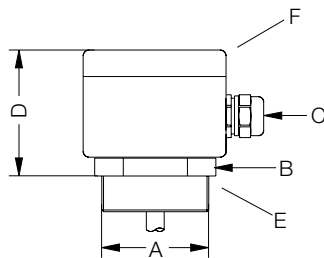


PA screwed cap housing

Dimensions and materials

A Thread	G 1	G 1 1/2	G 2
B Width across flats	SW27	SW30	SW36
C Screwed fitting	PG16	PG16	PG16
D Overall height	110	110	114
F Housing	PA	PA	PA
Screwed fitting	PP	PP	PP
Order number	1.0	1.1	1.2

Type 2/3/4/6

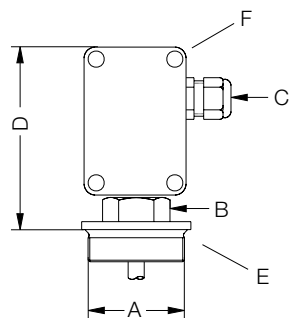


Aluminium adapter box

Dimensions and materials

A Thread	G 1	G 1 1/2	G 2
B Width across flats	SW27	SW30	SW36
C Screwed fitting	PG9	PG9	PG9
D Overall height	76	77	79
F Housing	ALU	ALU	ALU
Screwed fitting	MS	MS	MS
Order number	2.0	2.1	2.2
Screwed fitting	St37	St37	St37
Order number	3.0	3.1	3.2
Screwed fitting	VA	VA	VA
Order number	4.0	4.1	4.2
Screwed fitting	PTFE	PTFE	PTFE
Order number	6.0	6.1	6.2

Type 5

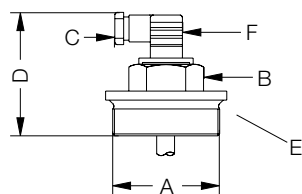


ABS terminal box

Dimensions and materials

A Thread	G 1	G 1 1/2	G 2
B Width across flats	SW27	SW30	SW36
C Screwed fitting	PG16	PG16	PG16
D Overall height	111	111	111
F Housing	ABS	ABS	ABS
Screwed fitting	PVC	PVC	PVC
Order number	5.0	5.1	5.2

Type 7

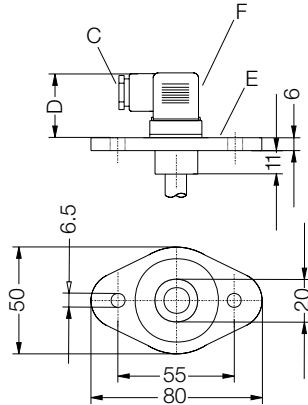


Connector with connecting box

Dimensions and materials

A Thread	G 1	G 1 1/2	G 2
B Width across flats	SW27	SW30	SW36
C Screwed fitting	PG9	PG9	PG9
D Overall height	43	45	50
F Housing	ABS	ABS	ABS
Screwed fitting	PVC	PVC	PVC
Order number	7.0/3	7.1/3	7.2/3
Screwed fitting	PG7	PG7	PG7
Order number	7.0/6	7.1/6	7.2/6

Type 7.3

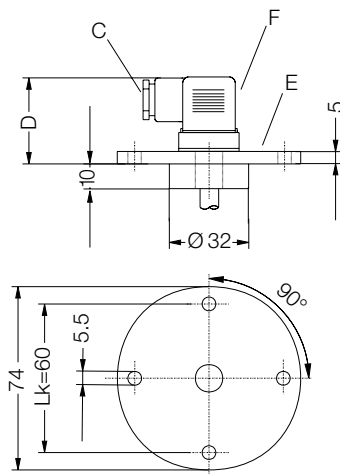


Oval flange polypropylene

Dimensions and materials

Connector	3-pin with	6-pin with
Screwed fitting	PG9	PG7
Overall height	47	30
F Housing	PA	PA
Flange	PP	PP
Order number	7.3/3	7.3/6

Type 7.4 ... 7.6

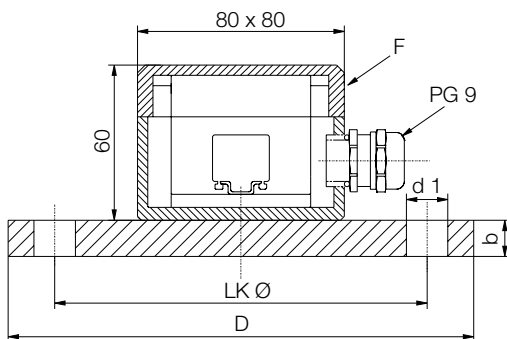


Round flange

Dimensions and materials

Connector	3-pin with	6-pin with
Screwed fitting	PG9	PG7
Overall height	47	30
F Housing	PA	PA
Flange	MS	MS
Order number	7.4/3	7.4/6
Flange	VA	VA
Order number	7.5/3	7.5/6
Flange	PVC	PVC
Order number	7.6/3	7.6/6

Type 8/9



Flange form B according to DIN 2527

Dimensions and materials

Nominal size	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 of d1	4	4	8	8	8
F Housing	Alu	Alu	Alu	Alu	Alu
Flange	Steel	Steel	Steel	Steel	Steel
Order number	8.1	8.2	8.3	8.4	8.5
Flange	VA	VA	VA	VA	VA
	1.4571	1.4571	1.4571	1.4571	1.4571
Order number	9.1	9.2	9.3	9.4	9.5