Ex floating switches and Ex immersion probes

Controlling devices with ball-operated microswitch, for signalling or regulation of liquid levels

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Jola Spezialschalter GmbH & Co. KG sells only business-to-business (B2B).

The units described in this documentation may only be installed, connected, started up, serviced and replaced by suitably qualified personnel!

Subject to deviations from the diagrams and technical data.

The details in this brochure are product specification descriptions and do not constitute assured properties in the legal sense.

Ex floating switches and Ex immersion probes

Ex floating switches and Ex immersion probes

Application area

Ex floating switches or Ex immersion probes are binary contact devices / combinations of binary contact devices used for the control of liquids.

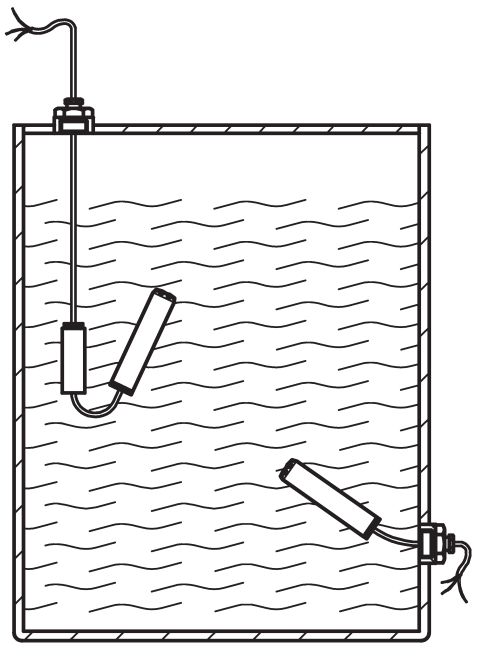
Ex floating switches serve as individual switches for signalling a liquid level at a defined point (e.g. high-level alarm or low-level alarm).

The combination of 2 Ex floating switches or an Ex immersion probe with 2 mounted floating switches serves very often to control a pump (ON-OFF via a suitable external downstream pump controller) or a solenoid valve (OPEN-CLOSE via a suitable external downstream solenoid valve controller).

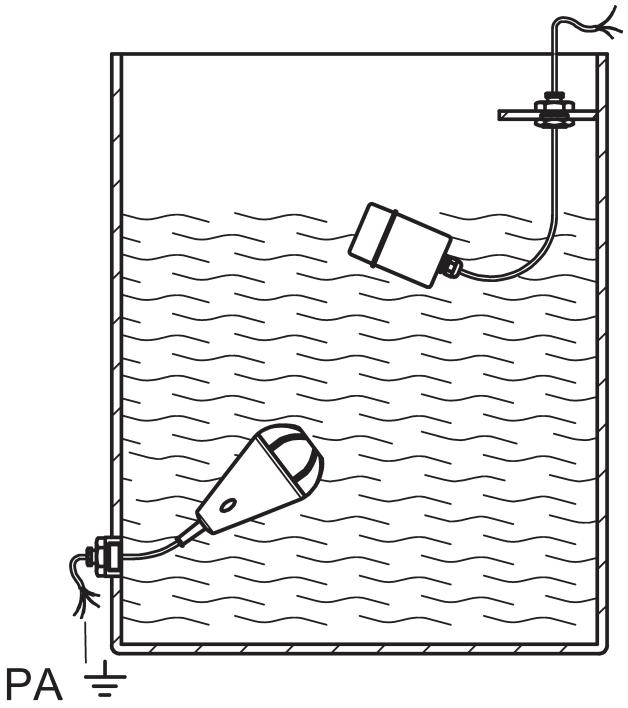
The use of more than 2 Ex floating switches or one Ex immersion probe with more than 2 mounted Ex floating switches allows to perform more complex switching tasks (e.g. over-flow protection, high-level alarm, pump ON, pump OFF, low-level alarm, run-dry protection).

Depending on type, the Ex floating switches are designed for mounting from the side and/ or from above, the Ex immersion probes only for mounting from above.

Application examples

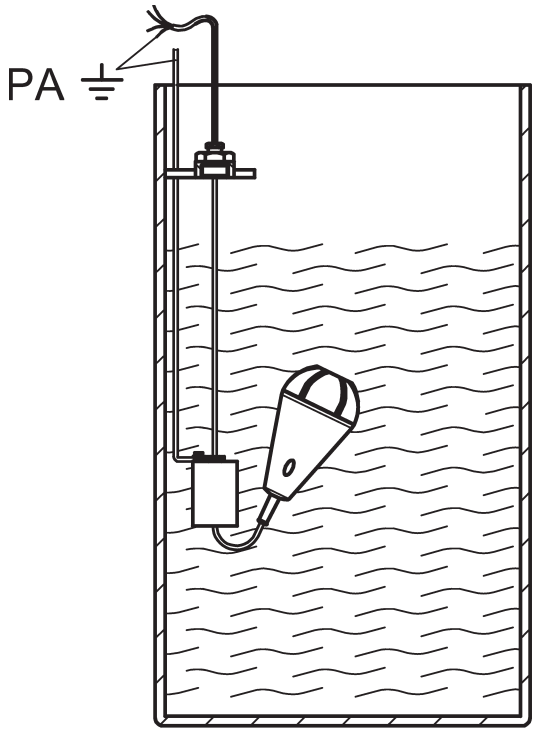


Closed tank
SI/SSP/NL/1/K/… floating switch
with fixing weight
(mounting from the top using a stuffing gland)
and
SI/SSP/NL/1/K/… floating switch
(mounting from the side using a stuffing gland)

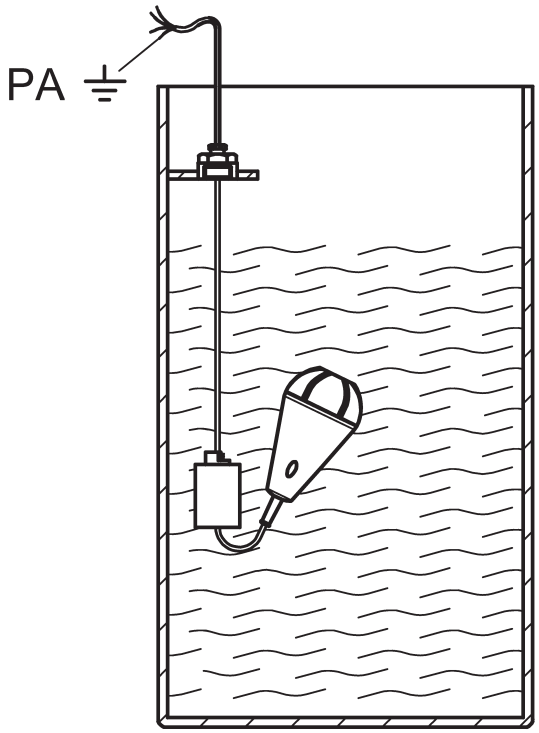


Open tank or shaft
SI/SSX/LF/20/1/K/… floating switch
(mounting from the side using a stuffing gland)
and
SI/FS/NL/1/K/… floating switch
(mounting from the top using a stuffing gland)

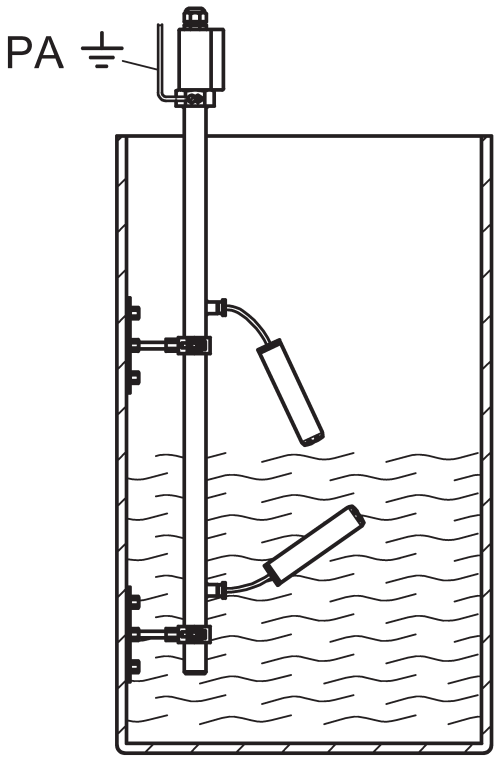
These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).



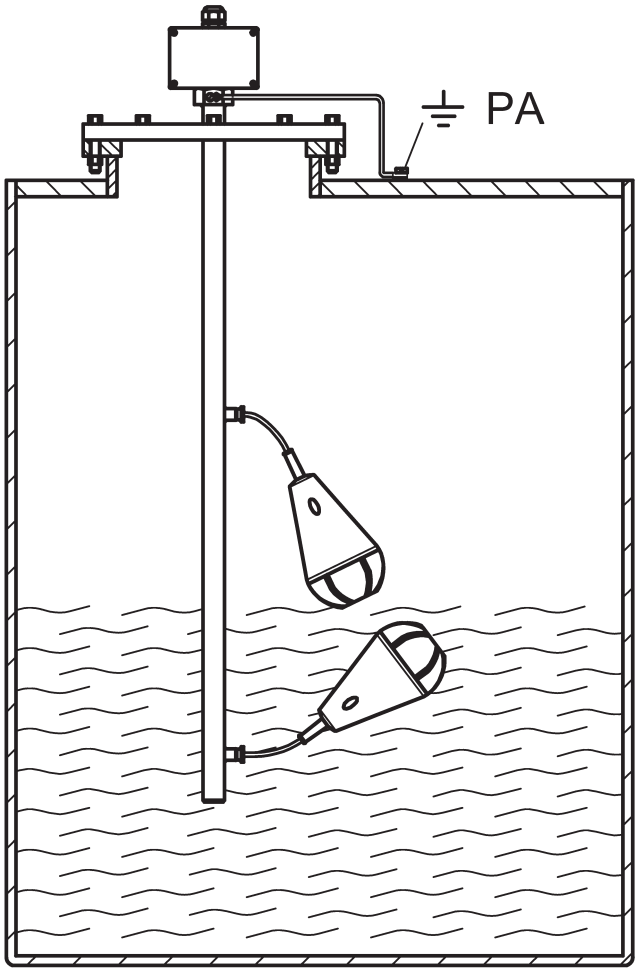
Open tank or shaft
SI/SSX/LF/20/1/K/… floating switch with
FG 55x80/E/Ex stainless steel fixing weight
(mounting from the top using a stuffing gland)



Open tank or shaft
SI/SSX/LF/4/1/K/… floating switch with
FG 55x93/E/KLF/Ex stainless steel fixing weight
(mounting from the top using a stuffing gland)



Open tank or shaft
TS/E28/2 x SI/SSP/NL/1/K/…
immersion probe
(mounting from the top using wall brackets)



Closed tank
TS/E28/2 x SI/SSX/LF/20/1/K/…
immersion probe
(mounting from the top using a flange)

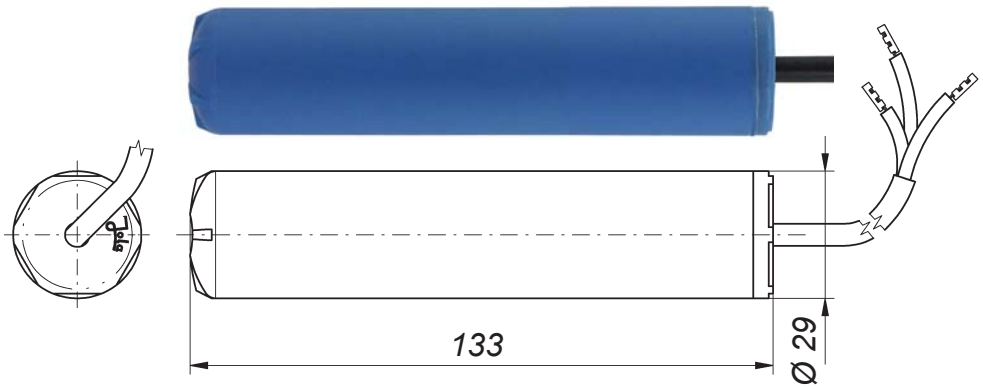
SI/SSP/NL/1/K/.../Variante 0
⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIB T6 Gb floating switches

These floating switches are designed for mounting **from the side** or **from the top**.

To ensure a correct switching the cable must be fixed at the required height using a
- stuffing gland in case of mounting from the side
- fixing weight or mounting tube in case of mounting from the top

Technical data	**SI/SSP/NL/1/K/.../Variante 0 ... = TPK, RN, Sil, PUR or CM**
Application	for use in intrinsically safe circuits in mines susceptible to firedamp or in potentially explosive atmospheres zone 1 or 2 EC type examination certificate INERIS 03ATEX0149
Operating principle	ball-operated microswitch, potential-free changeover contact
Float: • material • seal • protection class	 PP FKM, on request EPDM IP68
Electrical connection	connecting cable, see table below length 1 m, longer on request **When ordering, please always state the desired cable type and cable length.**
Pressure resistance	use only under atmospheric conditions (between 0.8 bar und 1,1 bar)
Optional extras	• stuffing glands made of PP or stainless steel 316Ti • fixing weight FG 28x82/PP/Ex made of PP, for use in the potentially explosive atmospheres zone 1 and 2 with gases of groups IIA and IIB

Connecting cable selection / Possible use depending on the liquid						
Type	**Material or cable designation**	**Number of cores and mm² per conductor**	**Special aspects**	**Colour**	**Required liquid density (g/cm³)**	**Temperature range (in water)**
TPK	TPK	3X0.75	—	black	≥ 0.82	0°C to + 60°C
RN	A05RN-F		—	grey	≥ 1	
Sil	silicone		low mechanical strength	red-brown	≥ 0.82	
PUR	polyurethane		halogen-free	green	≥ 0.92	
CM	cross-linked chlorinated polyethylene		—	black	≥ 1	



Stuffing glands <u>without</u> potential equalisation terminal

Mounting possible only **from the inside** of a tank:
• G½ made of PP

Mounting possible **from the outside** of a tank:
• G1 made of PP

Stuffing glands <u>with</u> potential equalisation terminal

Mounting possible only **from the inside** of a tank:
• G½ made of stainless steel 316Ti

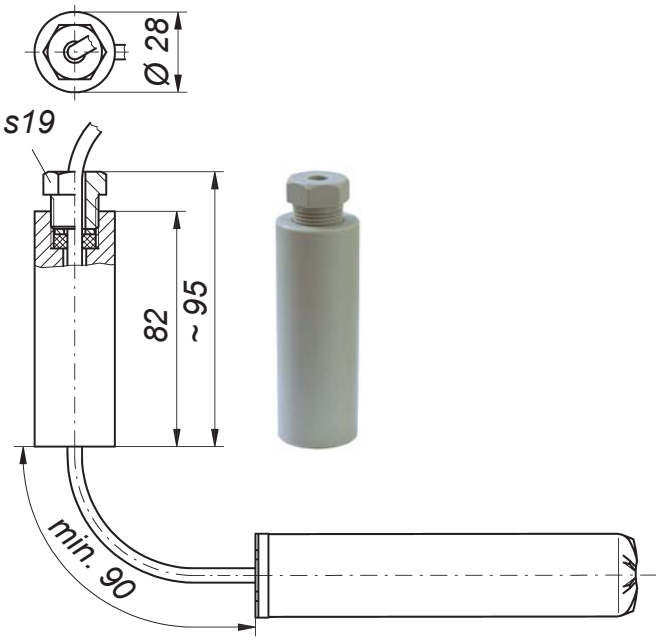
Mounting possible **from the outside** of a tank:
• G1 made of stainless steel 316Ti

Stuffing glands

G1 made of PP

G1 made of stainless steel

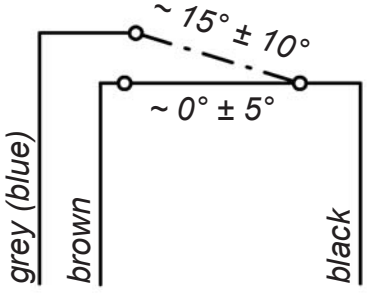
Fixing weight FG 28x82/PP/Ex made of PP

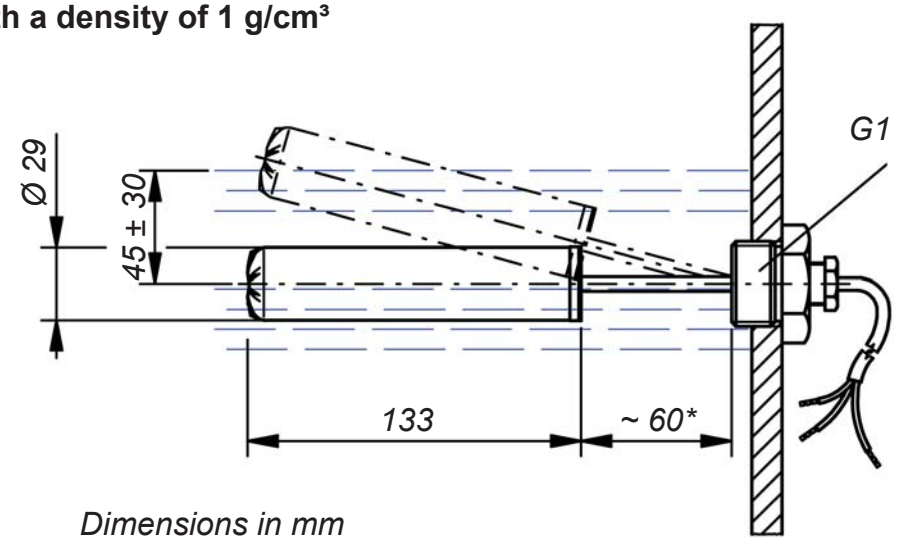


Switching action in liquids with a density of 1 g/cm³

*) ~ 100 mm for the CM cable

Contact switches over at





Dimensions in mm

SI/SPH/NL/1/K/.../Variante 0
⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIB T6 Gb floating switches

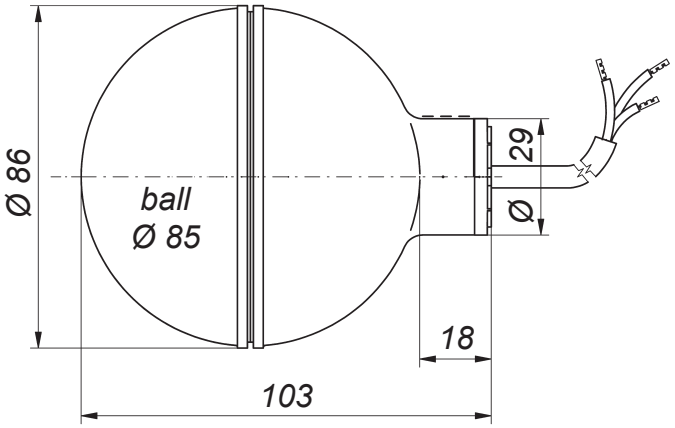
These floating switches are designed for mounting **from the side** or **from the top**.

To ensure a correct switching the cable must be fixed at the required height using a
- stuffing gland in case of mounting from the side
- fixing weight or mounting tube in case of mounting from the top

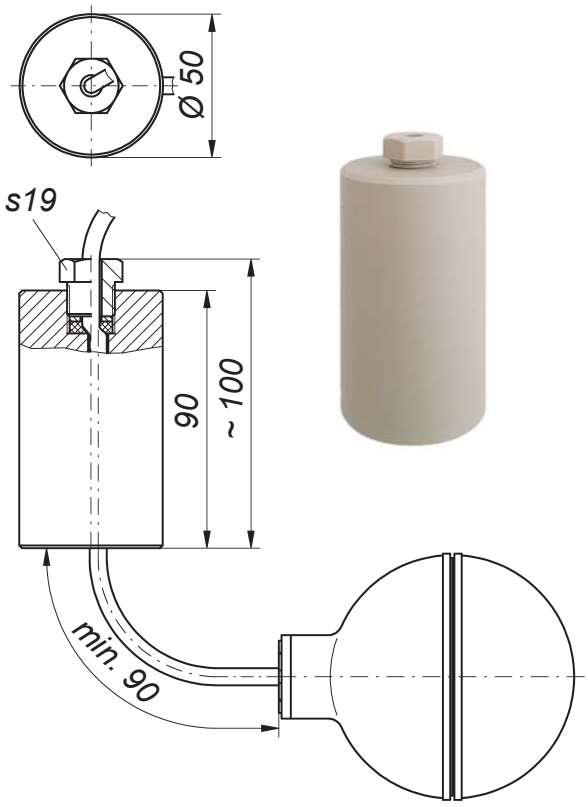
Technical data	**SI/SPH/NL/1/K/.../Variante 0 ... = TPK, RN, Sil, PUR, CM or PTFE**
Application	for use in intrinsically safe circuits in mines susceptible to firedamp or in potentially explosive atmospheres zone 1 or 2 EC type examination certificate INERIS 03ATEX0149
Operating principle	ball-operated microswitch, potential-free changeover contact
Float: • material • seal • protection class	 PP FKM, on request EPDM IP68
Electrical connection	connecting cable, see table below length 1 m, longer on request **When ordering, please always state the desired cable type and cable length.**
Pressure resistance	use only under atmospheric conditions (between 0.8 bar and 1.1 bar)
Optional extras	fixing weight FG 50x90/PP/Ex made of PP, only for use in the potentially explosive atmospheres zone 1 and 2 with gases of group IIA

Connecting cable selection / Possible use depending on the liquid						
Type	**Material or cable designation**	**Number of cores and mm² per conductor**	**Special aspects**	**Colour**	**Required liquid density (g/cm³)**	**Temperature range (in water)**
TPK	TPK	3X0.75	—	black	≥ 0.7	0°C to + 60°C
RN	A05RN-F	3X0.75	—	grey	≥ 0.7	
Sil	silicone	3X0.75	low mechanical strength	red-brown	≥ 0.7	
PUR	polyurethane	3X0.5	halogen-free	green	≥ 0.7	
CM	cross-linked chlorinated polyethylene	3X0.75	—	black	≥ 0.8	
PTFE	PTFE	3X0.75	—	white	≥ 0.8	

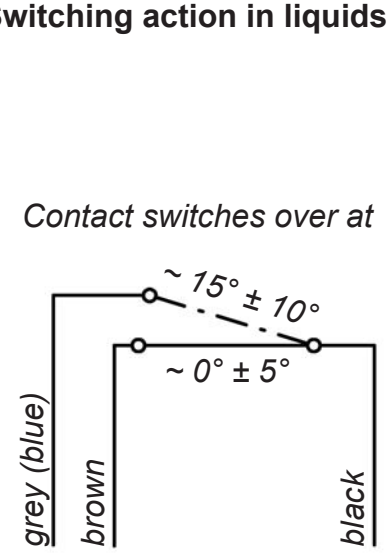
SI/SPH/NL/1/K/...

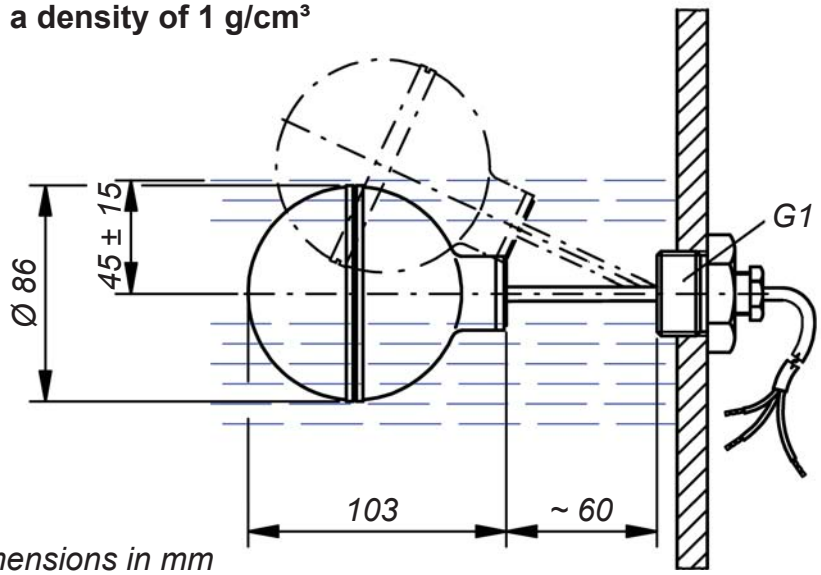


Fixing weight
FG 50x90/PP/Ex
made of PP



Switching action in liquids with a density of 1 g/cm³





Dimensions in mm

SI/SSX/LF/20/1/K/.../Variante 0
⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIC T6 Gb
floating switches

These floating switches are designed for mounting **from the side** or **from the top**.

To ensure a correct switching the cable must be fixed at the required height using a
- stuffing gland in case of mounting from the side
- fixing weight or mounting tube in case of mounting from the top

The floating switch can alternatively be fitted with an internal weight. In this case, an additional fastening at the desired height is not necessary. This weight is dimensioned in such a way that the floating switch tilts around its own axis when the liquid level rises. This tilting action of the floating switch activates the switching process.

Technical data	**SI/SSX/LF/20/1/K/.../Variante 0 ... = TPK, CM or PTFE**
Application	for use in intrinsically safe circuits in mines susceptible to firedamp or in potentially explosive atmospheres zone 1 or 2 EC type examination certificate INERIS 03ATEX0149
Operating principle	ball-operated microswitch, potential-free changeover contact
Float: • material • seal • protection class	 antistatic (conductive) PP FKM, on request EPDM IP68
Electrical connection	connecting cable, see table below length 2 m, longer on request **When ordering, please always state the desired cable type and cable length.**
Pressure resistance	use only under atmospheric conditions (between 0.8 bar and 1.1 bar)
Optional extras	• fixing weight FG 55x80/E/Ex made of stainless steel 316Ti, for use in the potentially explosive atmospheres zone 1 and 2 with gases of groups IIA, IIB and IIC, with potential equalisation terminal • fixing weight FG 71x104/PP/Ex made of PP, only for use in the potentially explosive atmospheres zone 1 and 2 with gases of group IIA, without potential equalisation terminal • internal weight **(additional reference: .../IG/...)**, only for liquids with a specific gravity between 0.95 and 1.05 g/cm³

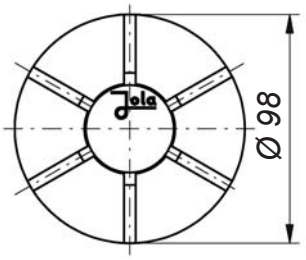
Connecting cable selection / Possible use depending on the liquid						
Type	**Material or cable designation**	**Number of cores and mm² per conductor**	**Special aspects**	**Colour**	**Required liquid density (g/cm³)**	**Temperature range (in water)**
TPK	TPK	4G0.75	—	black	≥ 0.7	0°C to + 60°C
CM	cross-linked chlorinated polyethylene	4G0.75	—	black	≥ 0.8	
PTFE	PTFE	4G0.75	—	white	≥ 0.8	

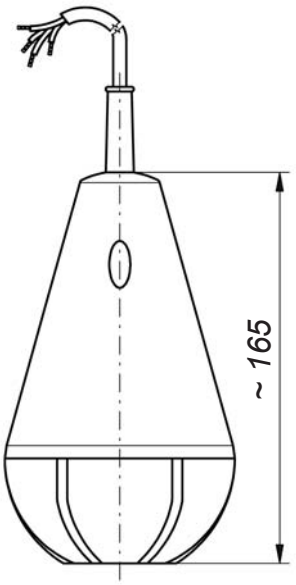
Switching action of a SI/SSX/LF/20/1/K/... with fixing weight (optional)

(idealized representation)

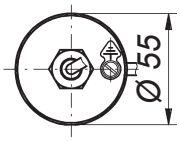
Switching action of a SI/SSX/LF/20/1/K/.../IG/... with internal weight (optional)

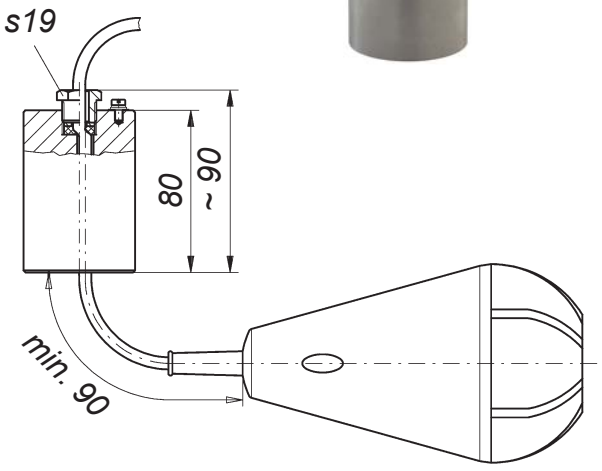
(idealized representation)



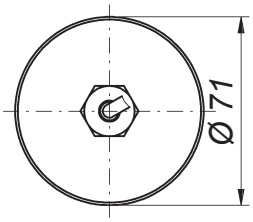


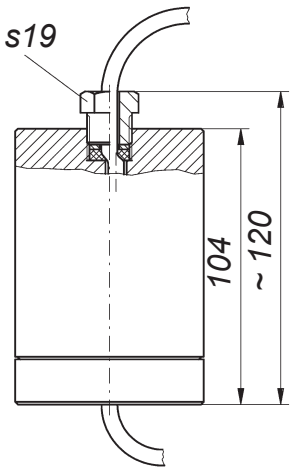
Fixing weight FG 55x80/E/Ex made of stainless steel 316Ti



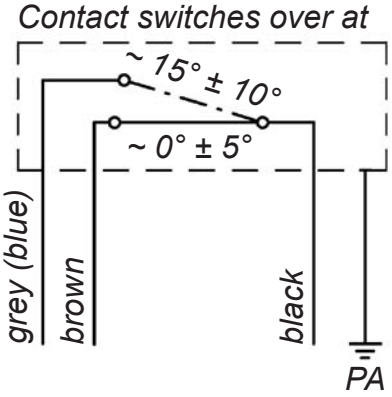


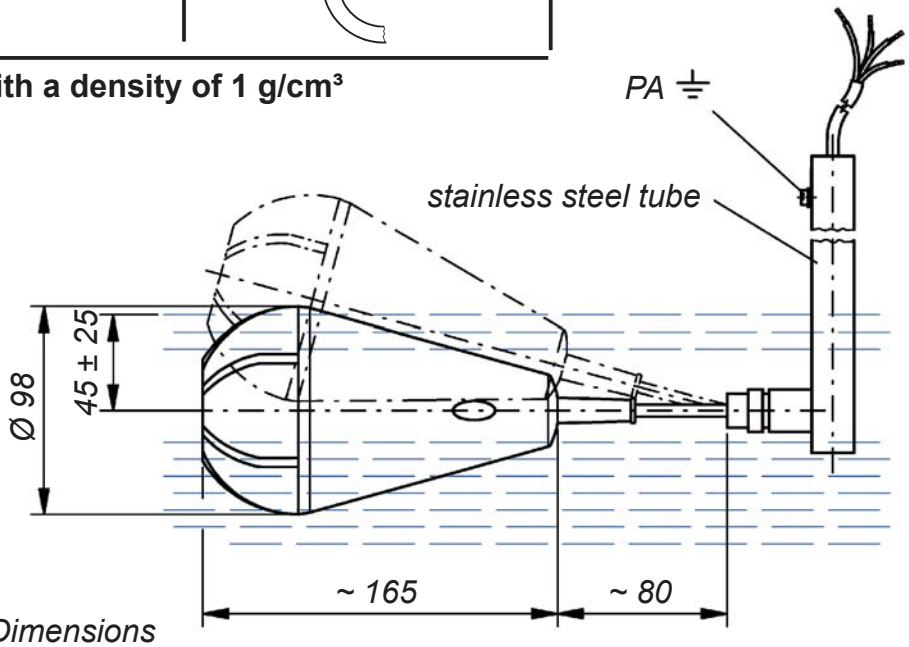
Fixing weight FG 71x104/PP/Ex made of PP





Switching action in liquids with a density of 1 g/cm³





SI/SSX/LF/4/1/K/PURLF/Variante 0
⟨Ex⟩ I M2 / II 1 G Ex ia I Mb / Ex ia IIC T6 Ga floating switches

These floating switches are designed for mounting **from the side** or **from the top**.

To ensure a correct switching the cable must be fixed at the required height using a
- stuffing gland in case of mounting from the side
- fixing weight or mounting tube in case of mounting from the top

The floating switch can alternatively be fitted with an internal weight. In this case, an additional fastening at the desired height is not necessary. This weight is dimensioned in such a way that the floating switch tilts around its own axis when the liquid level rises. This tilting action of the floating switch activates the switching process.

Technical data	**SI/SSX/LF/4/1/K/PURLF/Variante 0**
Application	for use in intrinsically safe circuits in mines susceptible to firedamp or in potentially explosive atmospheres zone 0, 1 or 2 EC type examination certificate INERIS 03ATEX0149
Operating principle	ball-operated microswitch, potential-free changeover contact
Float: • material • seal • protection class	 antistatic (conductive) PP FKM, on request EPDM IP68
Electrical connection	connecting cable, see table below length 2 m, longer on request **When ordering, please always state the desired cable length.**
Pressure resistance	use only under atmospheric conditions (between 0.8 bar and 1.1 bar)
Optional extras	• fixing weight FG 55x93/E/KLF/Ex made of stainless steel 316Ti, for use in the potentially explosive atmospheres zone 0, 1 and 2 with gases of groups IIA, IIB and IIC, without potential equalisation terminal, for liquids with a density ≥ 0.7 g/cm³ • internal weight **(additional reference: .../IG/...)**, only for liquids with a specific gravity between 0.95 and 1.05 g/cm³

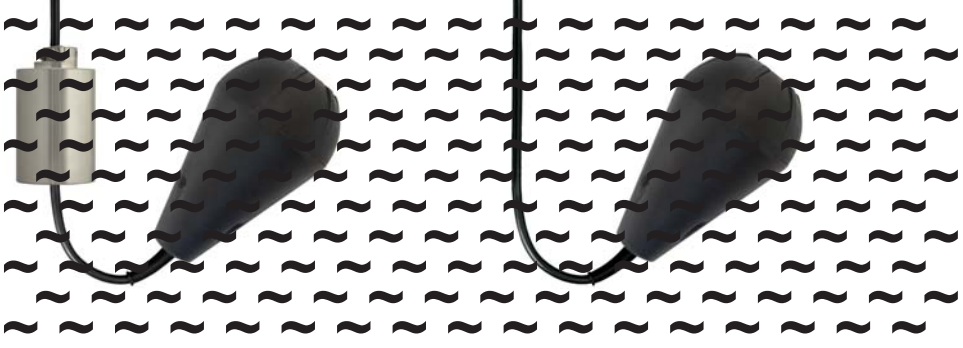
Connecting cable						
Type	**Material or cable designation**	**Number of cores and mm² per conductor**	**Special aspects**	**Colour**	**Required liquid density (g/cm³)**	**Temperature range (in water)**
PURLF	conductive polyurethane	4G0.75	with external conductive PUR sheath, with 3 cores and 3 drain wires which are twisted together for use as potential equalisation cable	black	≥ 0.7	0°C to + 60°C

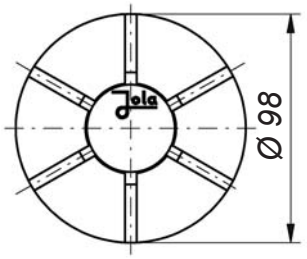
Switching action of a SI/SSX/LF/4/1/K/PURLF/... with fixing weight (optional)

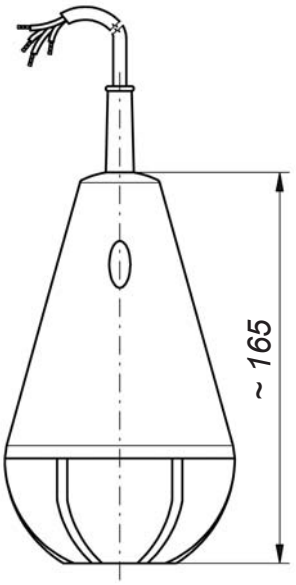
(idealized representation)

Switching action of a SI/SSX/LF/4/1/K/PURLF/IG/... with internal weight (optional)

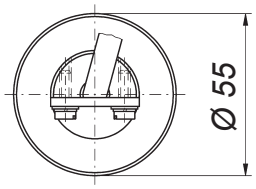
(idealized representation)

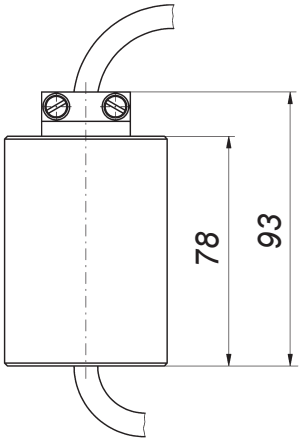






Fixing weight FG 55x93/E/KLF/Ex made of stainless steel 316Ti

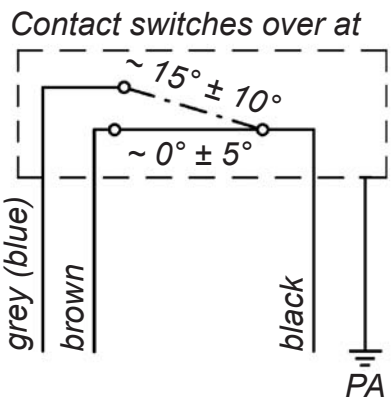


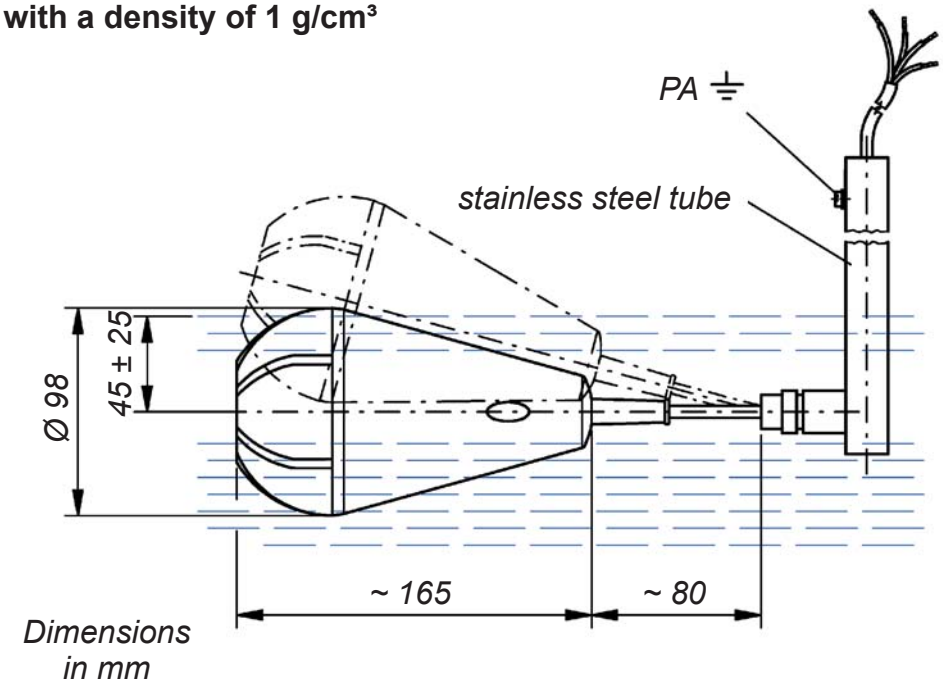


When using the SI/SSX/LF/4/1/K/PURLF/... floating switch fitted with antistatic cable (with external conductive sheath) with a FG 55x93/E/KLF/Ex fixing weight, the antistatic cable is sufficient to discharge the electrostatic charge of the fixing weight.

The fixing element of the FG 55x93/E/KLF/Ex fixing weight which is specially designed to be used with a SI/SSX/LF/4/1/K/PURLF/... floating switch must be set using the two screws in such a way that the fixing weight keeps perfectly its position.

Switching action in liquids with a density of 1 g/cm³





SI/FS/NL/1/K/.../Variante 0
⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIA T6 Gb floating switches

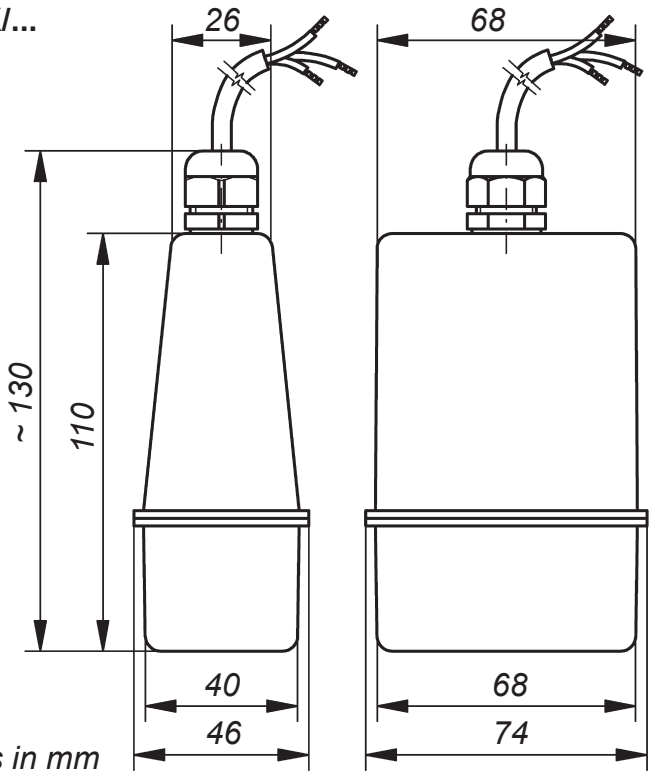
with internal weight to determin the switching point

These floating switches are designed for **mounting from the top**.
They are fitted with an **internal weight to determin the switching point** at the desired height, this renders **additional fastening** unnecessary.
This weight is dimensioned in such a way that the floating switch tilts around its own axis when the liquid level rises and then follows the rising liquid level (see function diagram on page 1-2-14). This tilting action of the float switch activates the switching process.

Technical data	**SI/FS/NL/1/K/.../Variante 0 ... = TPK, RN, Sil, PUR or CM**
Application	for use in intrinsically safe circuits in mines susceptible to firedamp or in potentially explosive atmospheres zone 1 or 2 EC type examination certificate INERIS 03ATEX0149
Operating principle	ball-operated microswitch, potential-free changeover contact
Float: • material • seal • protection class	 PP FKM, on request EPDM IP68
Electrical connection	connecting cable, see table below length 1 m, longer on request **When ordering, please always state the desired cable type and cable length.**
Pressure resistance	use only under atmospheric conditions (between 0.8 bar and 1.1 bar)

Connecting cable selection / Possible use depending on the liquid						
Type	**Material or cable designation**	**Number of cores and mm² per conductor**	**Special aspects**	**Colour**	**Required liquid density (g/cm³)**	**Temperature range (in water)**
TPK	TPK	3X0.75	—	black	between 0.95 and 1.05	0°C to + 60°C
RN	A05RN-F	3X0.75	—	grey		
Sil	silicone	3X0.75	low mechanical strength	red-brown		
PUR	polyurethane	3X0.5	halogen-free	green		
CM	cross-linked chlorinated polyethylene	3X0.75	—	black		

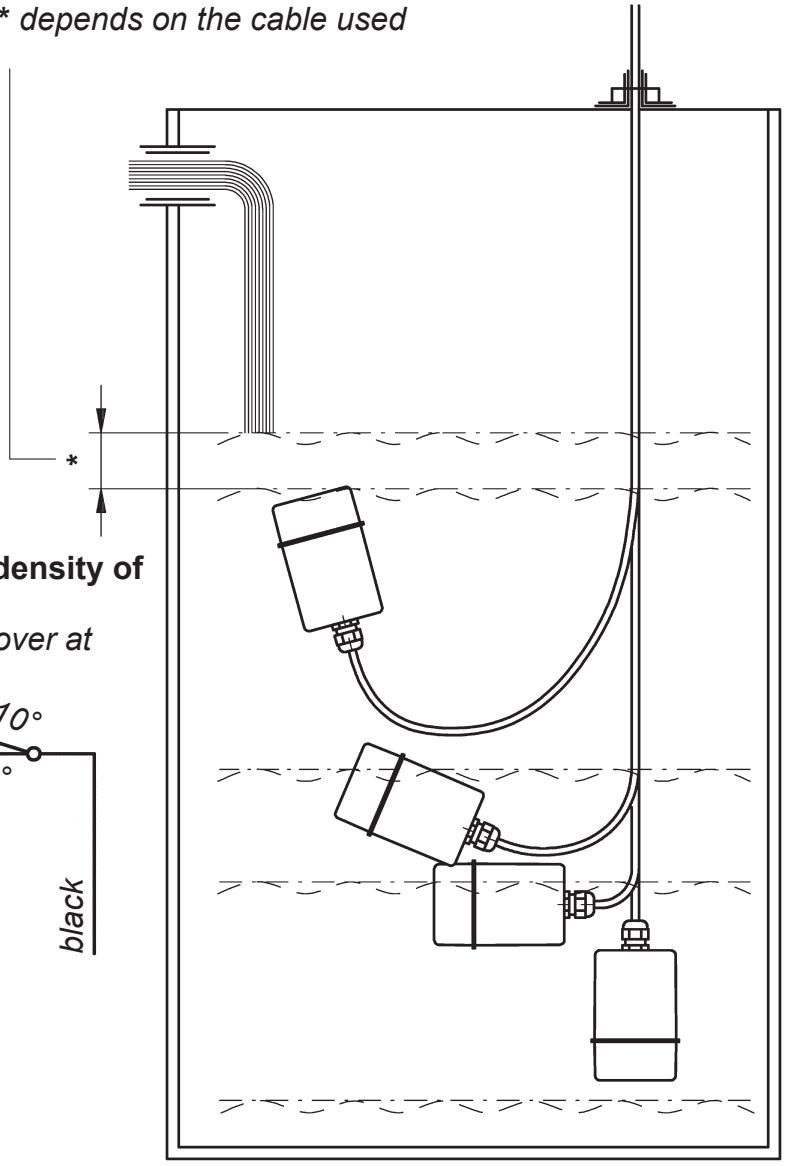
SI/FS/NL/1/K/...



Dimensions in mm

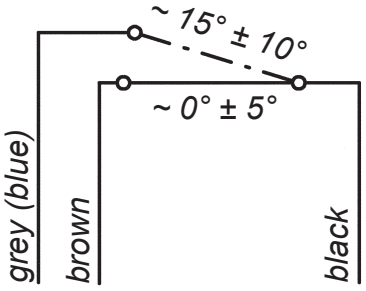
Function diagram of the SI/FS/NL/1/K/... floating switch

(idealisierte Darstellung)



Switching action in liquids with a density of 1 g/cm³

Contact switches over at



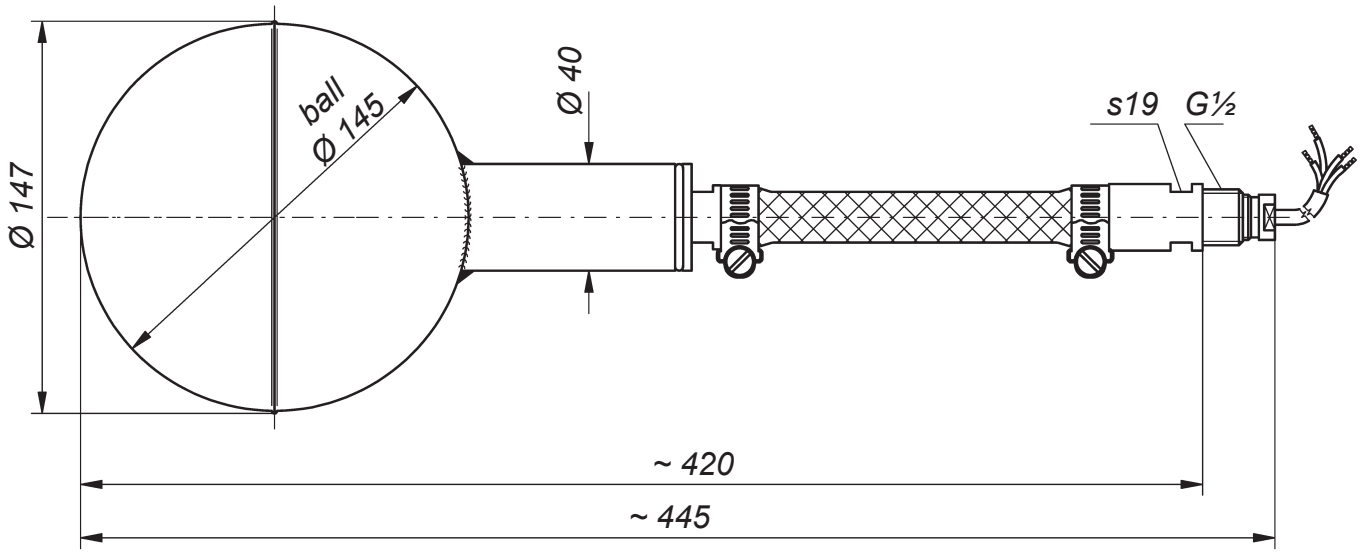
SI/SSR/1/K/RN/Variante 0
⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIC T6 Gb floating switch

This floating switch is designed for mounting **from the side** or **from the top**.

To ensure correct switching the G½ screw-in nipple must be screwed and tightened in a horizontal G½ sleeve of a tank or a mounting tube.

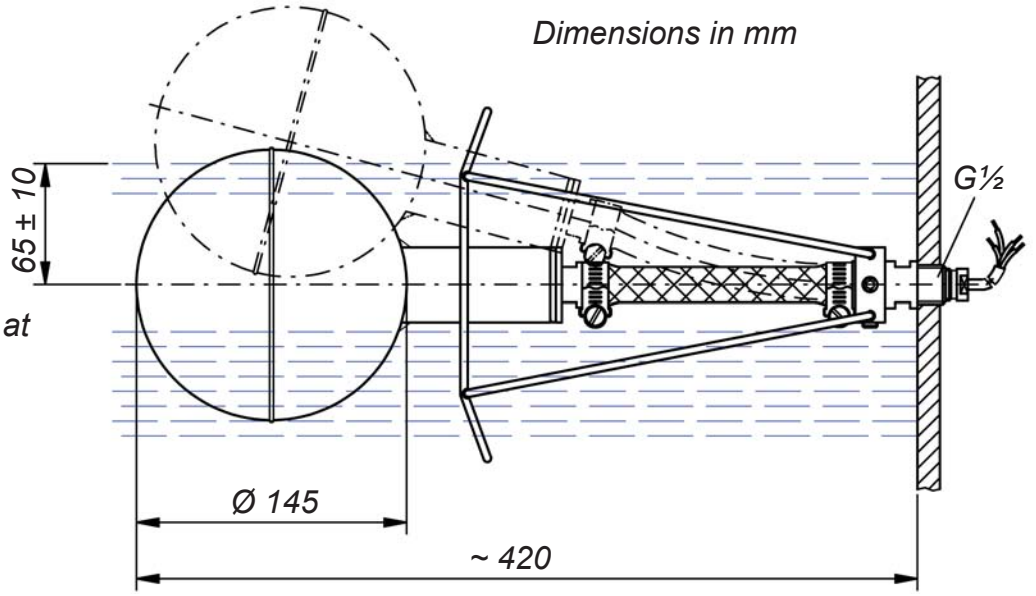
Technical data	**SI/SSR/1/K/RN/Variante 0**
Application	for use in intrinsically safe circuits in mines susceptible to firedamp or in potentially explosive atmospheres zone 1 or 2 EC type examination certificate INERIS 03ATEX0149
Operating principle	ball-operated microswitch, potential-free changeover contact
Float: • material • seal • protection class	 stainless steel 316Ti PTFE in installed condition inside the tank: IP68, on the stuffing gland screw fitting outside the tank: IP54
Electrical connection	connecting cable, see table below **The connecting cable is routed through a protective bellows to which a G½ screw-in nipple is fastened.** Length 2 m measured from the screw-in nipple, longer on request. **When ordering, please always state the desired cable length.**
Pressure resistance	use only under atmospheric conditions (between 0.8 bar and 1.1 bar)
Optional extras	**recommended:** **stainless steel 316 Ti stirrup to limit the movement of the float**

Connecting cable						
Type	**Material or cable designation**	**Number of cores and mm² per conductor**	**Special aspects**	**Colour**	**Required liquid density (g/cm³)**	**Temperature range (in water)**
RN	A05RN-F	4G0.75	—	black	≥ 0.7	0°C to + 60°C

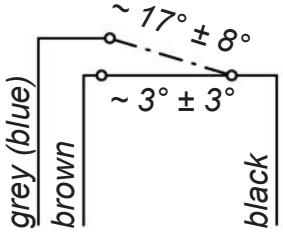


Switching action in liquids with a density of 1 g/cm³
Diagram of a SI/SSR/1/K/... with stainless steel stirrup (optional)

Dimensions in mm



Contact switches over at

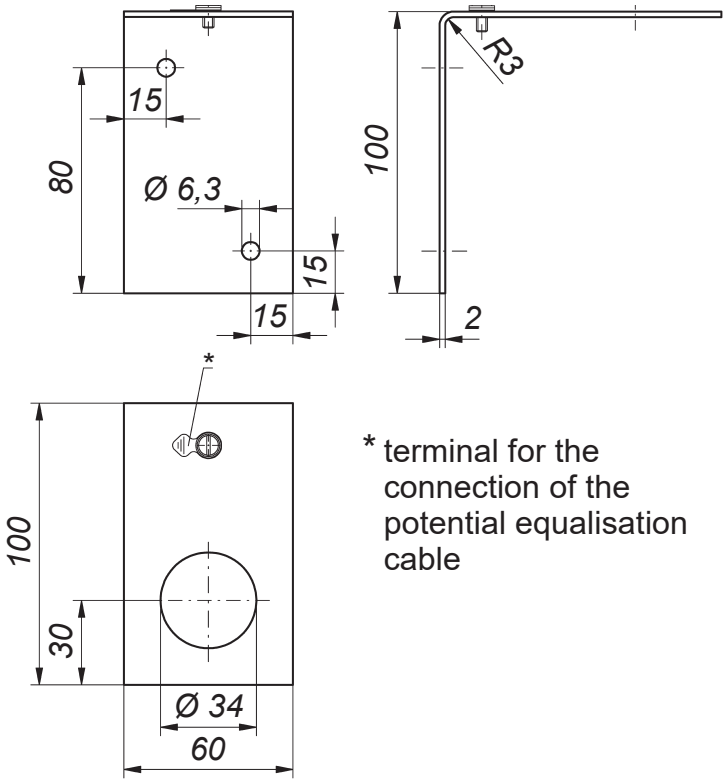


Further mounting accessories

MW 100x100x60/G1/B/Ex stainless st. 316Ti mounting bracket

with hole

For G1 stuffing gland or
screw-in nipple
(fixing of the G1 stuffing gland or
screw-in nipple via a G1 counternut)

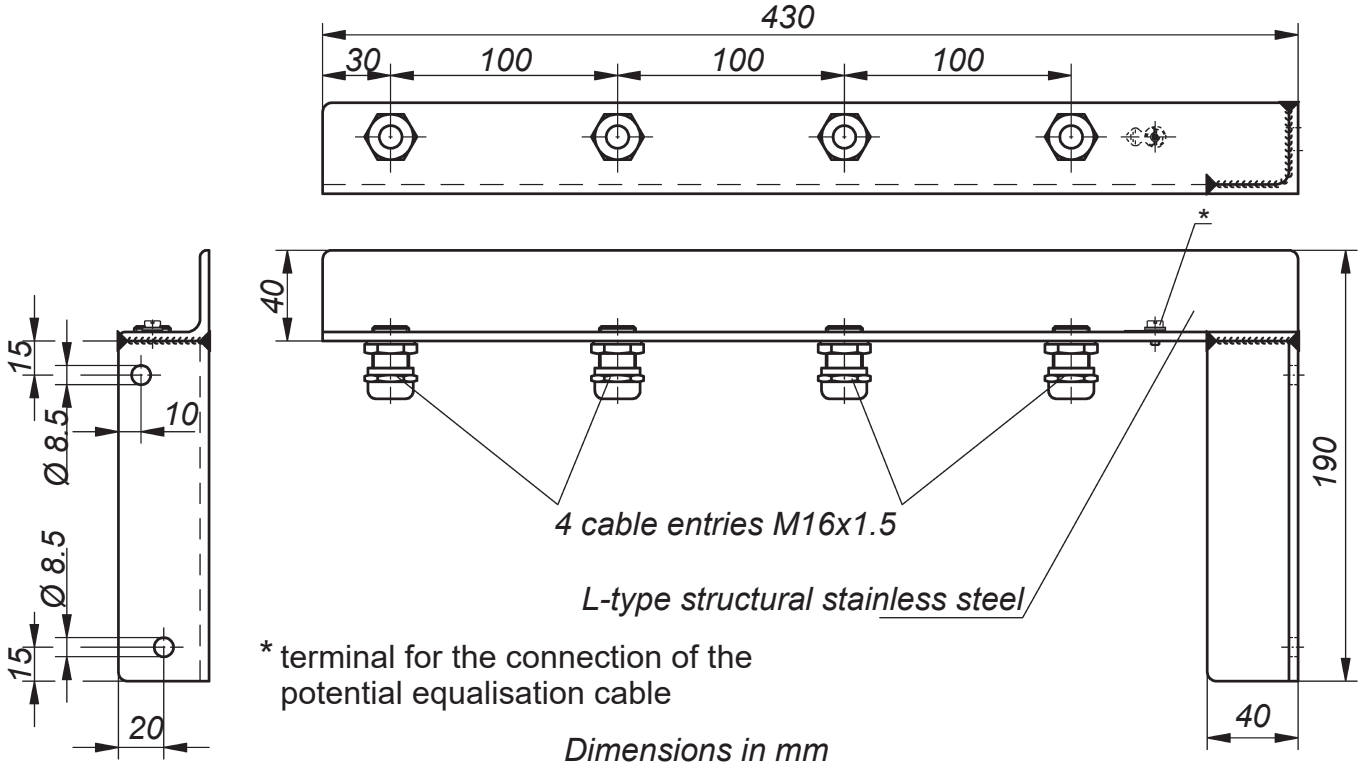


* terminal for the connection of the potential equalisation cable

Further mounting brackets for 1 single Ex floating switch see brochure "Mounting brackets for Ex apparatus"

MW 190x430x40/4xM16-Ms/Ex stainless st. 316Ti mounting bracket

with 4 cable entries made of nickel-plated brass (on request made of PP or stainless steel) suitable for 4 Ex floating switches



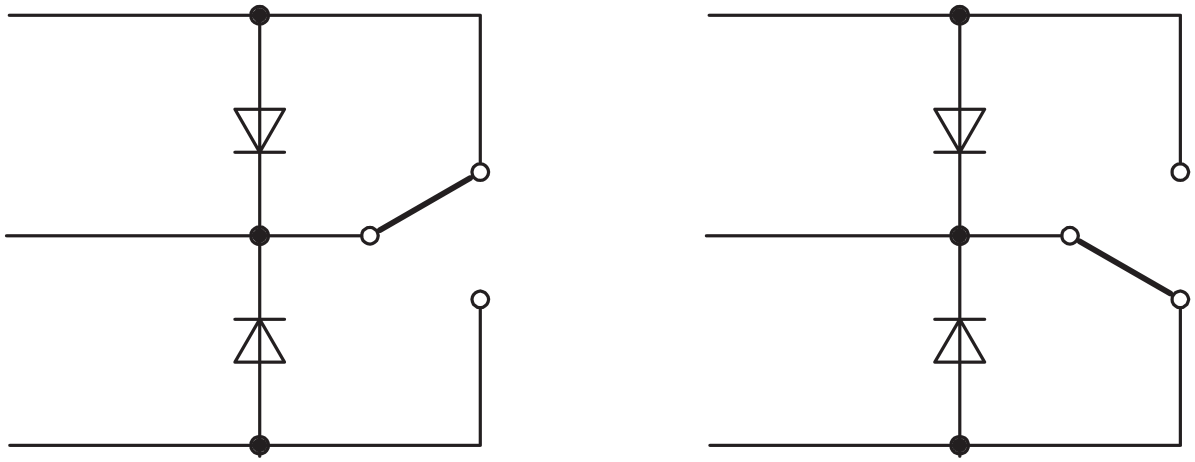
* terminal for the connection of the potential equalisation cable

Dimensions in mm

Application example:
MW 190x430x40/4xM16-Ms/Ex mounting bracket with 4 cable entries made of nickel-plated brass, with 4 SI/SSX/LF/4/1/K/PURLF/Variante 0/IG floating switches (with internal fixing weight)

Option: Incorporation of electronic components at the microswitch

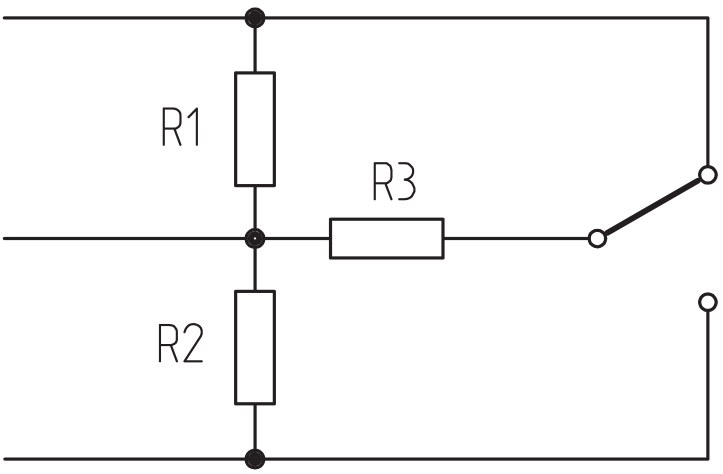
Variante 1:
Two diodes of the type 1N4004 or equivalent



Variante 2:
Three resistors

Standard versions:
R 1 ≥ 2 kΩ and ≥ ¼ W
R 2 ≥ 2 kΩ and ≥ ¼ W
R 3 ≥ 330 Ω and ≥ 1 W

NAMUR version:
R 1 = 15 kΩ and ≥ ¼ W
R 2 = 15 kΩ and ≥ ¼ W
R 3 = 1.2 kΩ and ≥ 1 W



• TS/E../. x SI/SSP/NL/1/K/.../Variante 0
⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIB T6 Gb
• TS/E../. x SI/SSX/LF/20/1/K/.../Variante 0
⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIC T6 Gb
• TS/E../. x SI/SSR/1/K/RN/Variante 0
⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIC T6 Gb
immersion probes

Technical data	**TS/E../. x**		
	SI/SSP/NL/1/K/.../ Variante 0 ⟨Ex⟩ I M2 / II 2 G Ex ia I Mb / Ex ia IIB T6 Gb	**SI/SSX/LF/20/1/K/.../ Ex ia IIC T6 Gb**	**SI/SSR/1/K/RN/**
Application	for use in intrinsically safe circuits in mines susceptible to firedamp or in potentially explosive atmospheres zone 1 or 2 EC type examination certificate INERIS 03ATEX0149		
Probe tube: • material • diameter • length	stainless steel 316Ti see table on page 1-2-21 on request, **however max. 6,000 mm**		
Screw-in nipple	without		
	for the type TS/**E20**/. x SI/SSP/NL/1/K/...: G2 on request	—	—
Flange	**on request, made of stainless steel 316Ti**		
Electrical connection	• terminal box, see table on page 1-2-21, made of glass fibre and graphite reinforced polyester, protection class IP65, A 301: 110 x 75 x 55 mm, A 120: 160 x 75 x 55 mm, A 113a: 160 x 160 x 90 mm • with connecting cable on request		
Mounting orientation	vertical		
Temperature range	0°C to + 60°C		
Pressure resistance	use only under atmospheric conditions (between 0.8 bar and 1.1 bar)		
Ex floating switches	**SI/SSP/NL/1/K/•••/ Variante 0 ...**	**SI/SSX/LF/20/1/K/•••/ Variante 0 ...**	**SI/SSR/1/K/RN/ Variante 0 ...**
	••• = to be specified see page		
	1-2-5	**1-2-9**	—

The above equipment will be manufactured in accordance with customer's specifications.

For enquiries or orders, please complete the questionnaire on page 1-2-23 or 1-2-24.

Model overview					
Type designation	**No of Ex floating switches**	**Ex floating switches**	**Probe tube diameter**	**Terminal box**	**Appli-cation example see page 1-2-22**
TS/E20/. x SI/SSP/NL/1/K/.../ Variante 0 Ⓔx I M2 / II 2 G Ex ia I Mb / Ex ia IIB T6 Gb		SI/SSP/ NL/1/K/•••/ Variante 0 Ⓔx I M2 / II 2 G Ex ia I Mb/ Ex ia IIB T6 Gb	20 mm		1
TS/E20/1 x SI/SSP/...	1			A 301	
TS/E20/2 x SI/SSP/...	2			A 301	
TS/E20/3 x SI/SSP/...	3			A 120	
TS/E28/. x SI/SSP/NL/1/K/.../ Variante 0 Ⓔx I M2 / II 2 G Ex ia I Mb / Ex ia IIB T6 Gb			28 mm		as 1, but with tube 28 mm Ø instead of 20 mm Ø
TS/E28/1 x SI/SSP/...	1			A 301	
TS/E28/2 x SI/SSP/...	2			A 301	
TS/E28/3 x SI/SSP/...	3			A 120	
TS/E28/4 x SI/SSP/...	4			A 120	
TS/E28/5 x SI/SSP/...	5			A 113a	
TS/E28/6 x SI/SSP/...	6			A 113a	
TS/E../. x SI/SSX/ LF/20/1/K/.../ Variante 0 Ⓔx I M2 / II 2 G Ex ia I Mb / Ex ia IIC T6 Gb		SI/SSX/ LF/20/1/K/•••/ Variante 0 Ⓔx I M2 / II 2 G Ex ia I Mb/ Ex ia IIC T6 Gb			2
TS/E28/1 x SI/SSX/...	1		28 mm	A 301	
TS/E28/2 x SI/SSX/...	2		28 mm	A 301	
TS/E34/3 x SI/SSX/...	3		34 mm	A 120	
TS/E34/4 x SI/SSX/...	4		34 mm	A 120	
TS/E34/5 x SI/SSX/...	5		34 mm	A 113a	
TS/E34/6 x SI/SSX/...	6		34 mm	A 113a	
TS/E../. x SI/SSR/1/K/RN/ Variante 0 Ⓔx I M2 / II 2 G Ex ia I Mb / Ex ia IIC T6 Gb		SI/SSR/ 1/K/RN/ Variante 0 Ⓔx I M2 / II 2 G Ex ia I Mb/ Ex ia IIC T6 Gb, each with stirrup			3
TS/E28/1 x SI/SSR/...	1		28 mm	A 301	
TS/E28/2 x SI/SSR/...	2		28 mm	A 301	
TS/E34/3 x SI/SSR/...	3		34 mm	A 120	
TS/E34/4 x SI/SSR/...	4		34 mm	A 120	
TS/E34/5 x SI/SSR/...	5		34 mm	A 113a	
TS/E34/6 x SI/SSR/...	6		34 mm	A 113a	
••• = please state exact type designation when ordering					

Design examples

1

TS/E20/3 x SI/SSP/NL/1/K/...
with G2 screw-in nipple (optional) and with A 120 terminal box

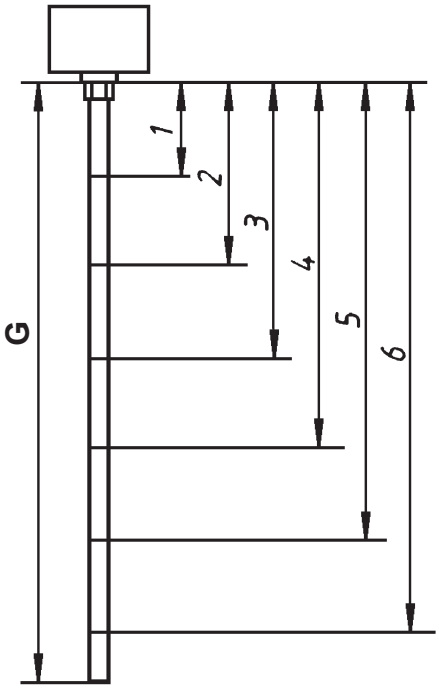
2

TS/E34/4 x SI/SSX/LF/20/1/K/...
with mounting flange (optional) and with A 113 a terminal box instead of A 120 (optional)

3

TS/E28/2 x SI/SSR/1/K/...
with A 301 terminal box

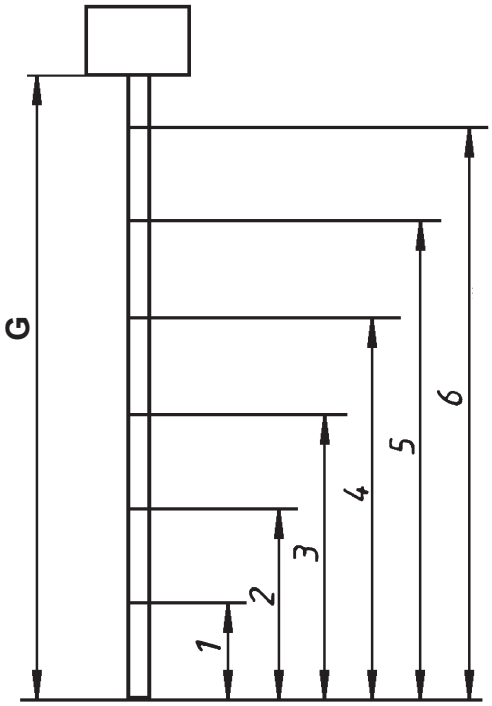
Questionnaire for enquiries and orders for immersion probes <u>with</u> screw-in nipple or flange	
Tank dimensions and installation conditions (sketch if applicable)	
Type of liquid	
Density	
Viscosity	
Temperature	
Desired type	TS/...



When planning the design of the immersion probes, please consider that **when the liquid level rises**, the contact of the Ex floating switches is not activated when the floating switches reach the horizontal position, but is activated as depicted in the diagrams of the various Ex floating switches on page 1-2-5 and on the following pages.
When the liquid level sinks, the contact of the Ex floating switches is activated **approximately at their horizontal position**.

	Desired Ex floating switch type	Distance from sealing surface of screw-in nipple or flange in mm	Switching function (e.g. high alarm, pump ON, pump OFF, dry-run or overflow protection)	Working direction of the floating switch: rising = ↑ falling = ↓
1				
2				
3				
4				
5				
6				
Desired options:				

Questionnaire for enquiries and orders for immersion probes <u>without</u> screw-in nipple or flange	
Tank dimensions and installation conditions (sketch if applicable)	
Type of liquid	
Density	
Viscosity	
Temperature	
Desired type	TS/...



When planning the design of the immersion probes, please consider that **when the liquid level rises**, the contact of the Ex floating switches is not activated when the floating switches reach the horizontal position, but is activated as depicted in the diagrams of the various Ex floating switches on page 1-2-5 and on the following pages. **When the liquid level sinks**, the contact of the Ex floating switches is activated **approximately at their horizontal position**.

	Desired Ex floating switch type	Distance from end of probe tube in mm	Switching function (e.g. high alarm, pump ON, pump OFF, dry-run or overflow protection)	Working direction of the floating switch: rising = ↑ falling = ↓
1				
2				
3				
4				
5				
6				
Desired options:				