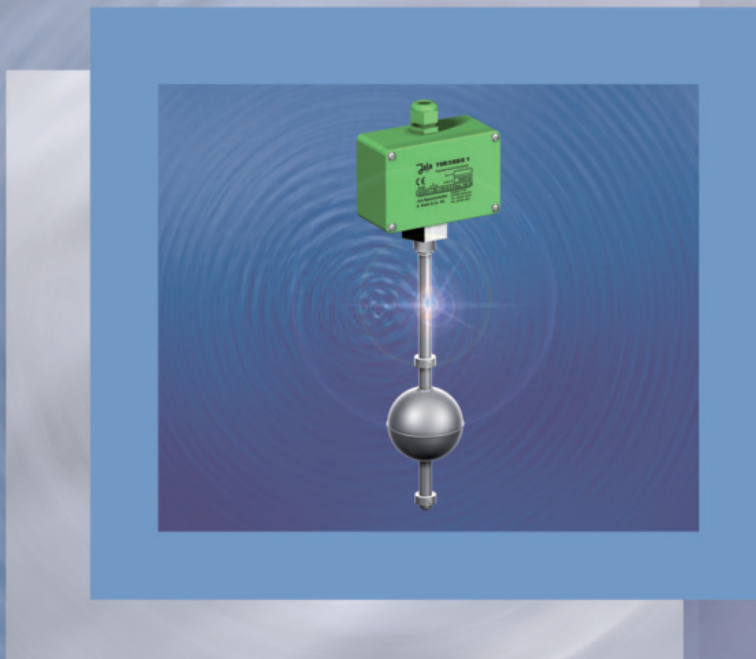




# TSR immersion probes

Controlling devices with  
magnetically operated reed contacts,  
for signalling or regulation  
of liquid levels



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**Jola Spezialschalter GmbH & Co. KG sells  
only business-to-business.**

**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.**



# TSR immersion probes

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Available electrical versions					3-1-4
Application examples and circuit diagrams					3-1-5
Types	Probe tube		Float		
	Material	Ext. Ø	Material	Ext. dimensions	
TSR./ED/P	Stainless steel 316 Ti	12 mm	PP	53 mm Ø x 50 mm	3-1-7
TSR./ED/PK				29 mm Ø x 50 mm	
TSR./ED/E8			Stainless steel 316 Ti	72 mm Ø	3-1-9
TSR./ED/E2				44.5 mm Ø x 52 mm	
TSR./ED/E7				52 mm Ø x 88 mm	
TSR./ED/E5				98 mm Ø	
TSR./EW/E5			20 mm	98 mm Ø	3-1-11
TSR./P/P	PP	14 mm	PP	53 mm Ø x 50 mm	3-1-13
TSR./P/PG		16 mm		89 mm Ø x 60 mm	
TSR./PVDF/D	PVDF	14 mm	PVDF	53 mm Ø x 50 mm	3-1-15
TSR./PVDF/W		16 mm		89 mm Ø x 60 mm	
TSR./TiD/Ti7	Titanium	12 mm	Titanium	44.5 mm Ø x 52 mm	3-1-17
TSR./TiW/Ti4		19 or 20 mm		79 mm Ø x 95 mm	
TSR/0/ED/E6	Stainless steel 316 Ti	12 mm	Stainless steel 316 Ti	44.5 mm Ø x 47.5 mm	3-1-19
DK3 switching bowl					3-1-20
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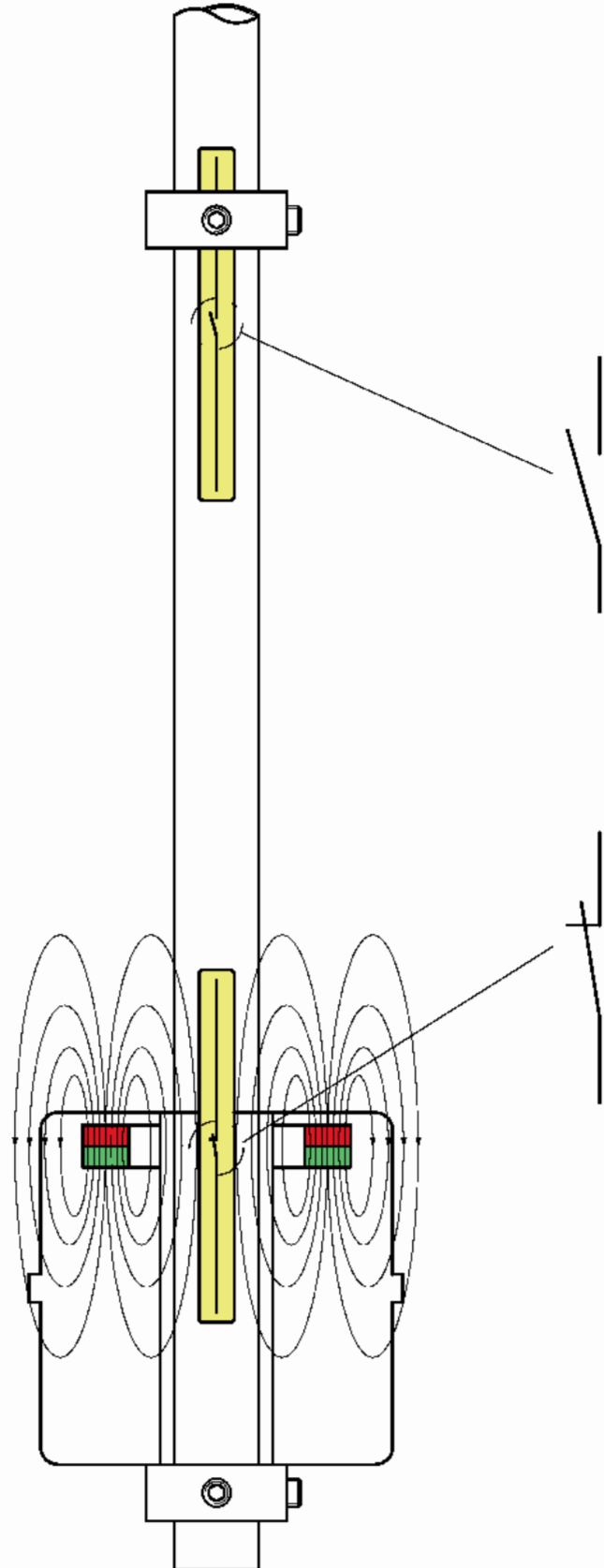
# TSR immersion probes

## Construction and operating principle

The TSR immersion probes have a probe tube with built-in reed contacts. The float is fitted with a permanent magnet and moves freely up and down the probe tube, activating the reed contacts as it rises and falls.

It should be noted that reed contacts do **not** lock but that they switch only for as long as they are influenced by the magnetic field. Once the float passes beyond a contact upwards or downwards, the latter returns to its original position. However, the contacts can be made to hold by using collars to limit the motion of the float.

Example of a TSR with 2 NO contacts



## Explanation of abbreviations

NO contact = normally open contact

NC contact = normally closed contact

OC contact = changeover contact



# TSR immersion probes

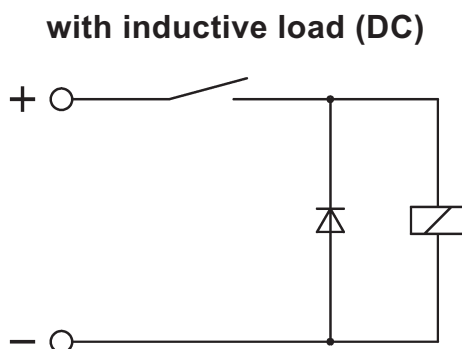
## Available electrical versions

For use outside potentially explosive atmospheres, the customer can choose the version TSR/3/... or TSR/1/... (not suitable for the immersion probe TSR/0/ED/E6, see page 3-1-19).

	TSR/3/...	TSR/1/...
Switching voltage	between AC/DC 24 V and 250 V	between AC/DC 1 V and 42 V
Switching current	between AC 100 mA and 2 A (0.4 A)	between AC 1 mA and 500 mA
Switching capacity	max. 100 VA	max. 20 VA

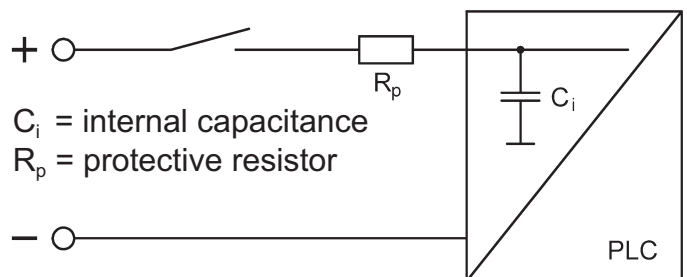
A protective circuit adapted to the electrical installation has to be provided for working with inductive or capacitive loads.

Example:

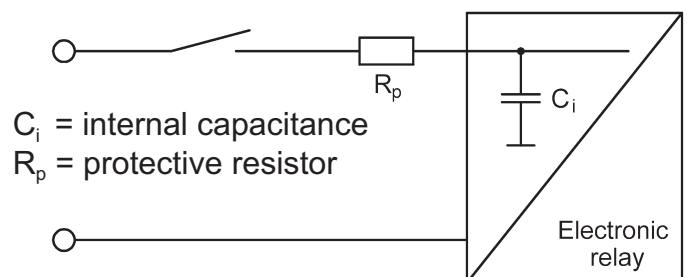


with inductive load (AC)

with capacitive load (DC) (PLC inputs)



with capacitive load (AC) (electronic relay)



### Caution!

If a TSR immersion probe is to be used with a KR protection relay, you must choose the model TSR/1/... .

We recommend this apparatus combination.

## Application examples

- **Automatic emptying of a tank**

The float rises with the liquid to the maximum level and trips the NO contact which in turn sets the pump in operation via the sequential circuit.

Liquid is pumped out. When the minimum level is reached, the NC contact at the bottom is activated, thus interrupting the holding circuit via the sequential circuit and finishing the pump operation.

- **Automatic filling of a tank**

The float falls with the liquid to the minimum level and trips the NO contact which in turn sets the pump in operation via the sequential circuit.

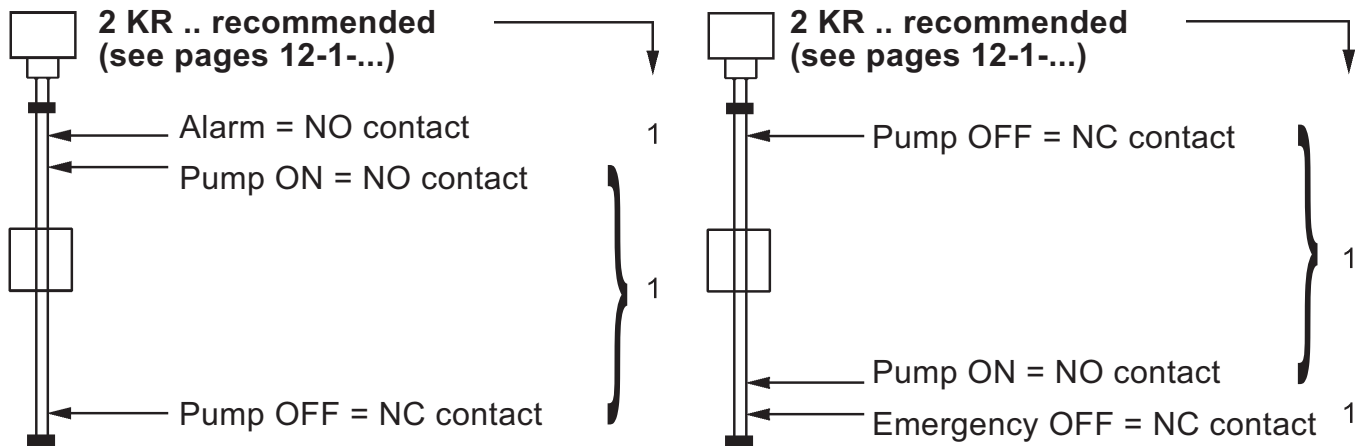
Liquid is then pumped in. When the maximum level is reached, the upper NC contact is activated, thus interrupting the holding circuit via the sequential circuit and finishing the pump operation.

### Examples for standard applications

- **with 1 float and 1 collar fitted above the upper contact**

It is recommended to fit an additional collar above the upper contact. This allows a contact switching after a circuit failure by avoiding that the rising of the liquid brings the float outside the area of influence of the magnet on the contact.

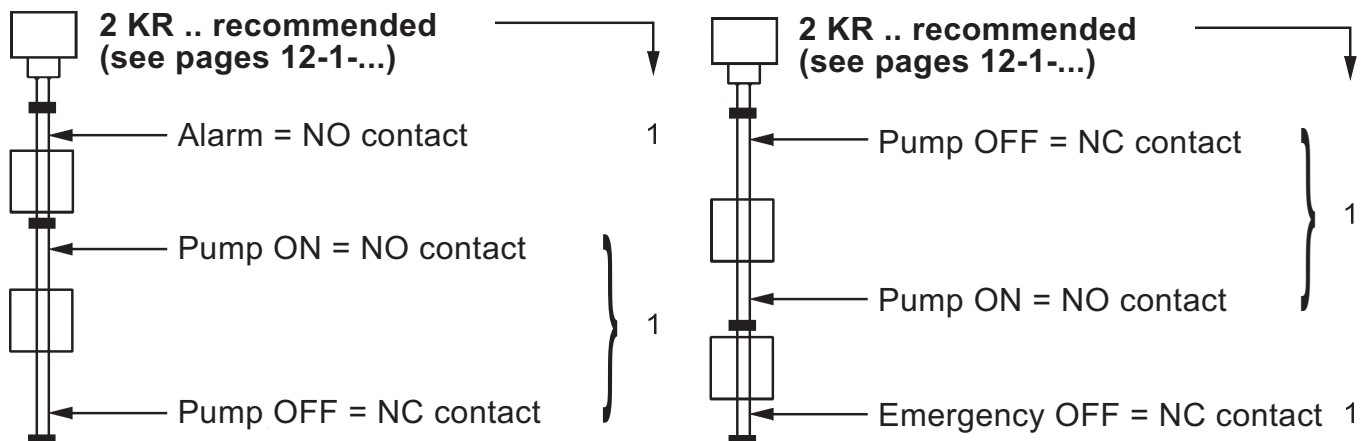
The probe tube should be of such a length that when the float reaches the lower contact, it rests on the holding washer. The recommended distance between the lower contact and the end of probe tube corresponds to the min. distance as specified in the table under the technical data of the individual TSR models.



- **with 2 or more floats and corresponding collars**

In order to make sure that not only the upper contact and lower contact are held after activation, it is possible to use several floats together with the corresponding collars.

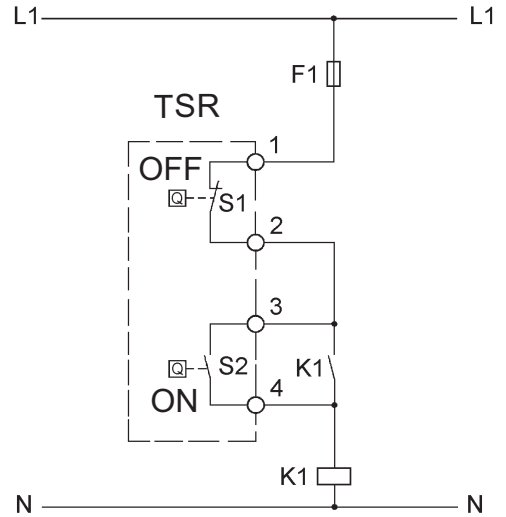
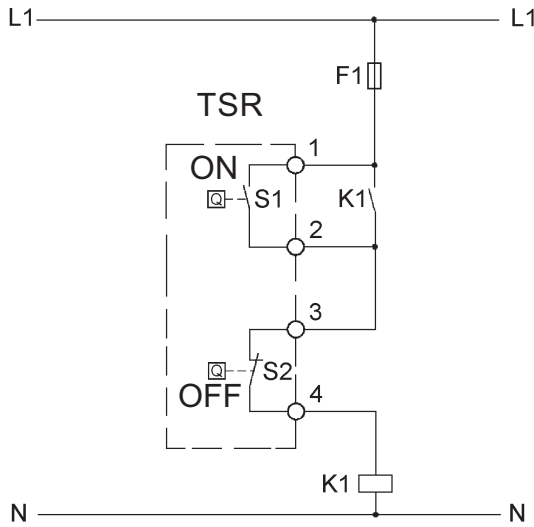
Please respect the min. distances between contacts for these applications.



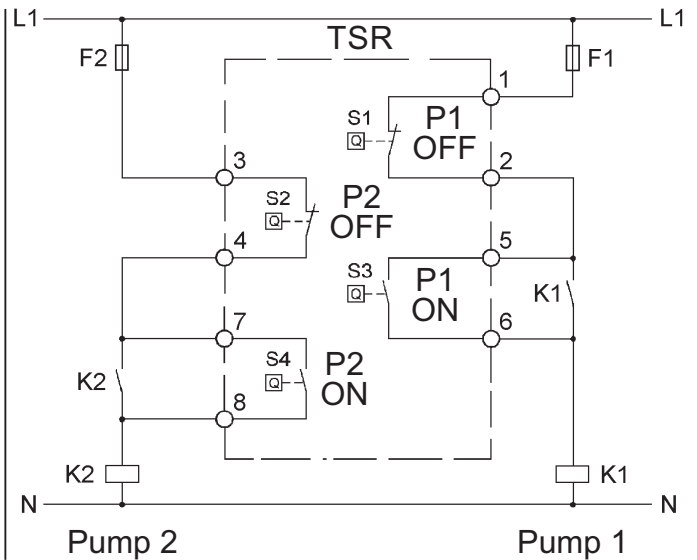
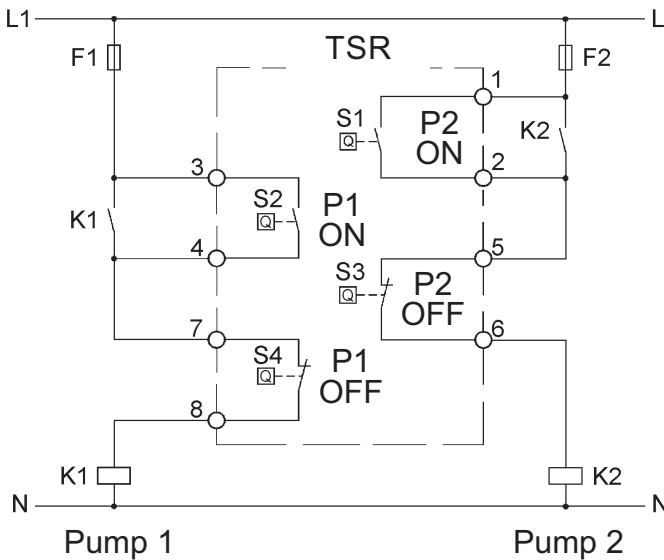
**Basic circuit diagram for emptying**

**Basic circuit diagram for filling**

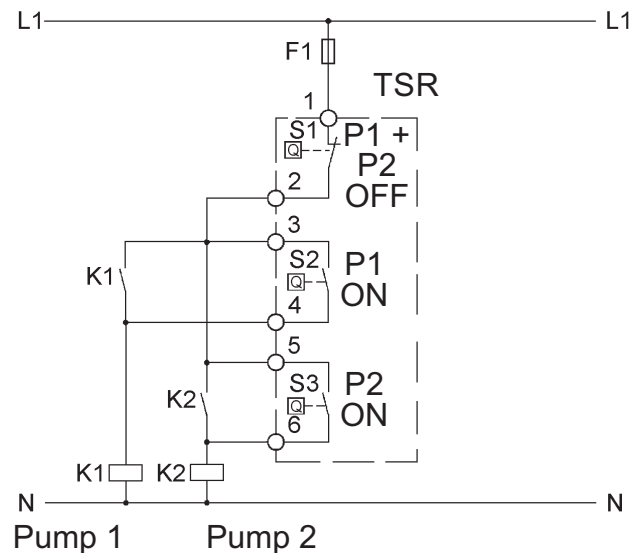
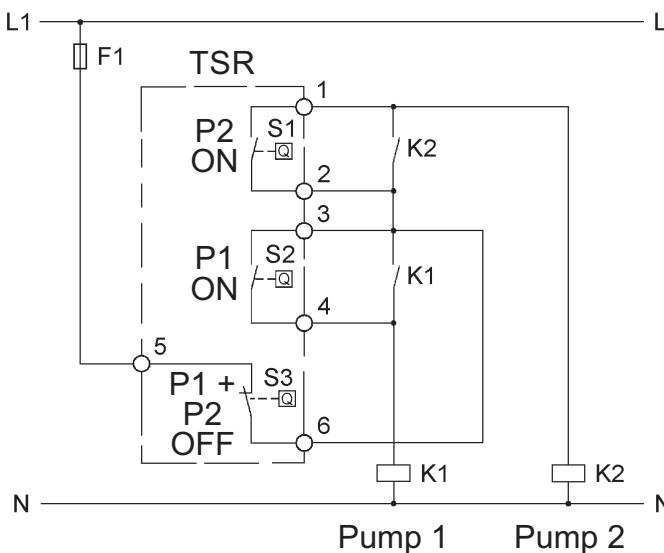
**using a TSR for 1 pump**



**using a TSR for 2 pumps**



**using a TSR for 2 pumps with a common switch-off contact**



The above contact positions correspond to a liquid level situated between the respective switch-on and switch-off points.



# TSR/... immersion probes fitted with

- probe tube made of stainless steel
- float made of PP

	TSR/3/...	TSR/1/...
Switching voltage	between <b>AC/DC 24 V and 250 V</b>	between <b>AC/DC 1 V and 42 V</b>
Switching current	between <b>AC 100 mA and 2 A (0.4 A)</b>	between <b>AC 1 mA and 500 mA</b>
Switching capacity	<b>max. 100 VA</b>	<b>max. 20 VA</b>

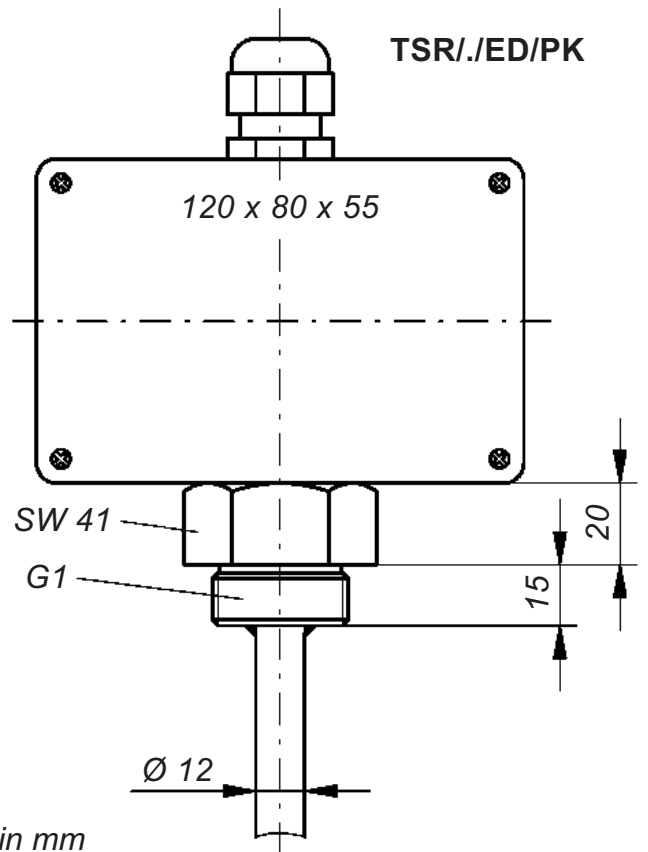
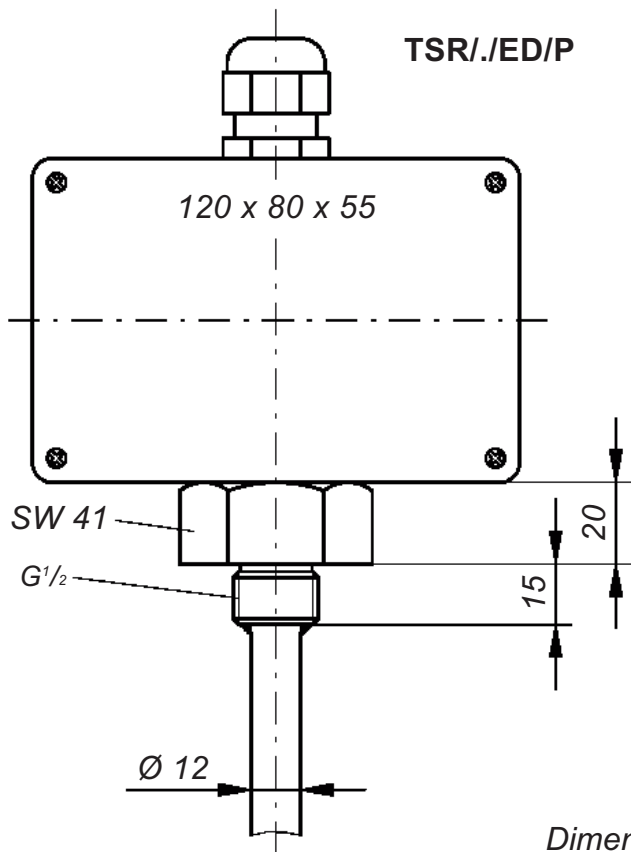
Technical data	TSR/3/ED/P TSR/1/ED/P	TSR/3/ED/PK TSR/1/ED/PK
Probe tube: • material • diameter • length • option	stainless steel 316 Ti <b>12 mm</b> acc. to customer's specification, however max. 3,000 mm angled probe tube for mounting from the side	
Screw-in nipple	G <sup>1/2</sup>	G1 on request: • G <sup>3/4</sup> , G1, G1 <sup>1/2</sup> or G2   • G <sup>1/2</sup> , G <sup>3/4</sup> , G1 <sup>1/2</sup> or G2 • with reducing nipple R1 <sup>1/2</sup> or R2 (conical)
Float	PP 53 mm Ø x 50 mm   29 mm Ø x 50 mm mounting possible through a G/R2 socket   G1 socket for liquids with a density ≥ 0.8 g/cm <sup>3</sup>   ≥ 0.85 g/cm <sup>3</sup>	
Electrical connection	A 307 terminal box made of PP, 120 x 80 x 55 mm, protection class IP65, with max. 12 terminals, on request: • other terminal boxes • connecting cable	
Mounting orientation	vertical	
Temperature range	– 20°C to + 80°C	
Pressure resistance	max. 2 bar at + 20°C, however only for hydraulic pressures and not suitable for pressures in line with the Pressure Equipment Directive 2014/68/EU	
Contacts: • type • max number	reed contacts: NO, NC or OC 4	

Float	Min. distances to be observed based on liquids with a density of 1 g/cm <sup>3</sup>			
	from the nipple sealing surface to the upper contact	between contacts when using		from the lower contact to the end of the probe tube (when float is falling)
		1 float	2 floats	
P	70 mm	80 mm	80 mm	40 mm
PK				50 mm

The above equipment will be manufactured in accordance with your specifications.

For inquiries or orders, please complete the questionnaire on page 3-1-21





Dimensions in mm

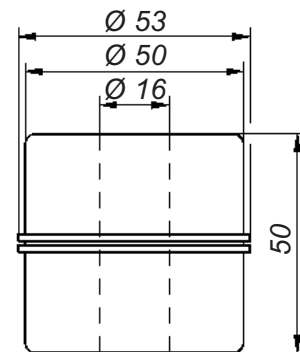


TSR/3/ED/P

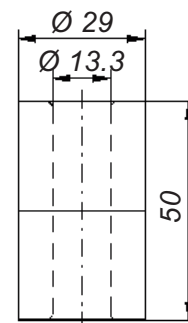


TSR/3/ED/PK

Float for  
TSR./ED/P



Float for  
TSR./ED/PK



**Mounting accessories:**  
square flange made of  
stainless steel 316 Ti, PP or PVDF  
for immersion probes with G1 screw-in nipple,  
counterflange on request



# TSR/... immersion probes fitted with

- probe tube made of stainless steel
- float made of stainless steel

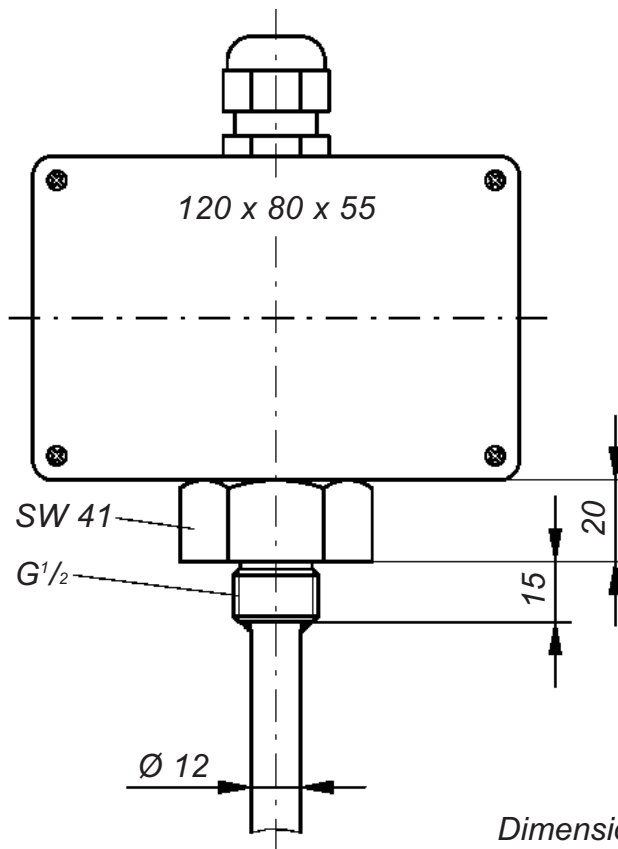
	TSR/3/...	TSR/1/...
Switching voltage	between AC/DC 24 V and 250 V	between AC/DC 1 V and 42 V
Switching current	between AC 100 mA and 2 A (0.4 A)	between AC 1 mA and 500 mA
Switching capacity	max. 100 VA	max. 20 VA

Technical data	TSR/3/ED/E8 TSR/1/ED/E8	TSR/3/ED/E2 TSR/1/ED/E2	TSR/3/ED/E7 TSR/1/ED/E7
Probe tube: • material • diameter • length • option	stainless steel 316 Ti <b>12 mm</b> acc. to customer's specification, however max. 3,000 mm angled probe tube for mounting from the side		
Screw-in nipple	—	G <sup>1/2</sup> , on request: • G <sup>3/4</sup> , G1, G1 <sup>1/2</sup> or G2 • with reducing nipple	R1 <sup>1/2</sup> (conical)   R2 (conical)
Float	72 mm Ø	stainless steel 316 Ti 44.5 mm Ø x 52 mm   52 mm Ø x 88 mm mounting possible through a G/R1 <sup>1/2</sup> socket   G/R2 socket for liquids with a density ≥ 0.7 g/cm <sup>3</sup>   ≥ 0.95 g/cm <sup>3</sup>   ≥ 0.7 g/cm <sup>3</sup>	
Electrical connection	A 307 terminal box made of PP, 120 x 80 x 55 mm, protection class IP65, with max. 12 terminals, on request: • other terminal boxes • connecting cable		
Mounting orientation	vertical		
Temperature range	– 20°C to + 100°C, on request – 20°C to + 130°C		
Pressure resistance	max. 12 bar at + 20°C, however only for hydraulic pressures and not suitable for pressures in line with the Pressure Equipment Directive 2014/68/EU		
Contacts: • type • max number	reed contacts: NO, NC or OC 4		

Float	Min. distances to be observed based on liquids with a density of 1 g/cm <sup>3</sup>			
	from the nipple sealing surface to the upper contact	between contacts when using		from the lower contact to the end of the probe tube (when float is falling)
		1 float	2 floats	
E8	80 mm	80 mm	100 mm	50 mm
E2	70 mm		80 mm	
E7	80 mm		120 mm	65 mm

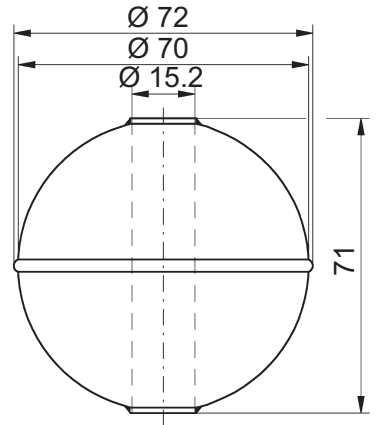
The above equipment will be manufactured in accordance with your specifications.

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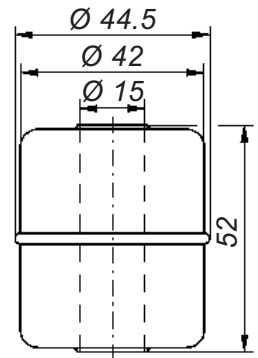


Dimensions in mm

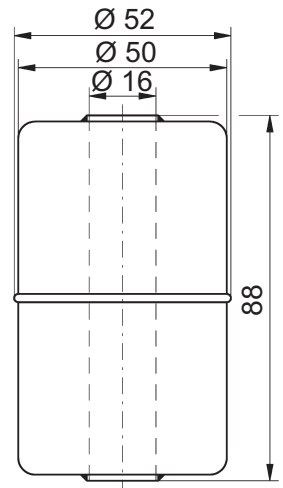
### Float for TSR./ED/E8



### Float for TSR./ED/E2



### Float for TSR./ED/E7



TSR/3/ED/E8

TSR/3/ED/E2

TSR/3/ED/E7

**Mounting accessories:**  
square flange made of stainless steel 316 Ti, PP or PVDF for immersion probes with G1 screw-in nipple, counterflange on request



# TSR/... immersion probes fitted with

- probe tube made of stainless steel
- float made of stainless steel

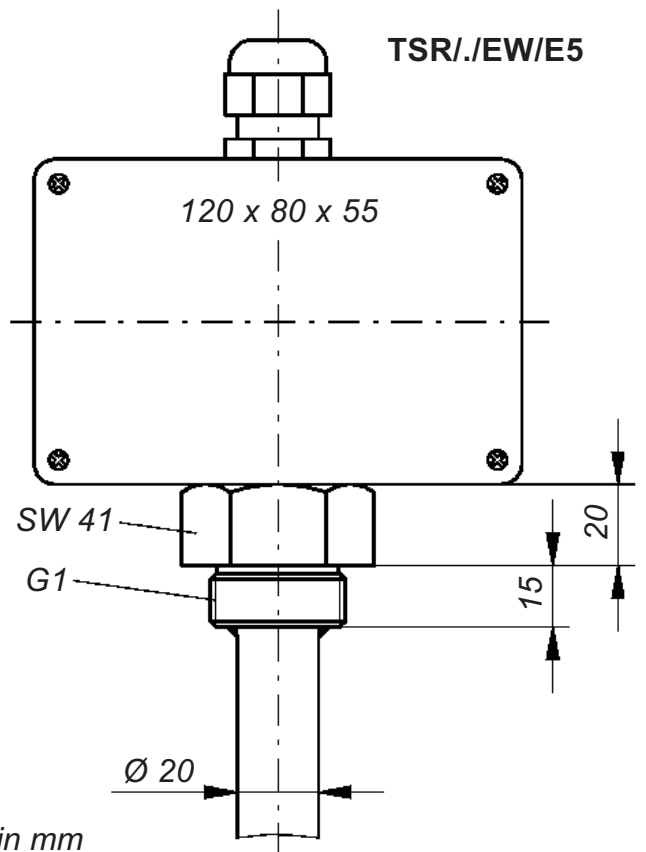
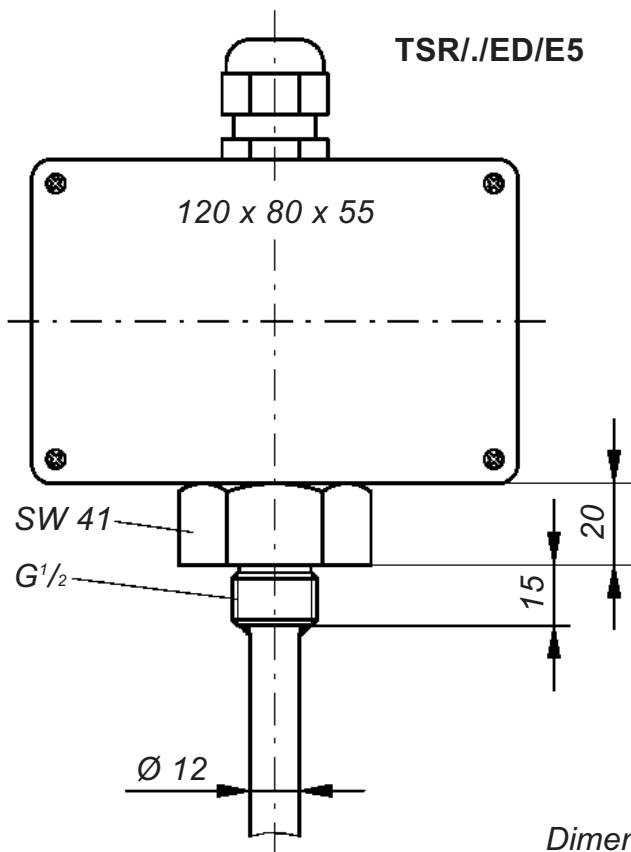
	TSR/3/...	TSR/1/...
Switching voltage	between <b>AC/DC 24 V and 250 V</b>	between <b>AC/DC 1 V and 42 V</b>
Switching current	between <b>AC 100 mA and 2 A (0.4 A)</b>	between <b>AC 1 mA and 500 mA</b>
Switching capacity	<b>max. 100 VA</b>	<b>max. 20 VA</b>

Technical data	TSR/3/ED/E5 TSR/1/ED/E5	TSR/3/EW/E5 TSR/1/EW/E5
Probe tube: <ul style="list-style-type: none"> <li>• material</li> <li>• diameter</li> <li>• length</li> <li>• option</li> </ul>	stainless steel 316 Ti <b>12 mm</b>   <b>20 mm</b> according to customer's specification, however max. 3,000 mm   max. 6,000 mm angled probe tube for mounting from the side	
Screw-in nipple	G <sup>1/2</sup>   G1 on request: • G <sup>3/4</sup> , G1, G1 <sup>1/2</sup> or G2   • G1 <sup>1/2</sup> or G2 • with reducing nipple R1 <sup>1/2</sup> or R2 (conical)	
Float	stainless steel 316 Ti 98 mm Ø   98 mm Ø, heat-resistant version with float E4: 97 mm Ø x 80 mm for liquids with a density ≥ 0.7 g/cm <sup>3</sup>	
Electrical connection	A 307 terminal box made of PP, 120 x 80 x 55 mm, protection class IP65, with max. 12 terminals, on request: • other terminal boxes • connecting cable	
Mounting orientation	vertical	
Temperature range	- 20°C to + 100°C	- 20°C to + 100°C, on request - 20°C to + 130°C
Pressure resistance	max. 12 bar (float E4 max. 3 bar) at + 20°C, however only for hydraulic pressures and not suitable for pressures in line with the Pressure Equipment Directive 2014/68/EU	
Contacts: <ul style="list-style-type: none"> <li>• type</li> <li>• max number</li> </ul>	reed contacts: NO, NC or OC 4   8	

Float	Min. distances to be observed based on liquids with a density of 1 g/cm <sup>3</sup>			
	from the nipple sealing surface to the upper contact	between contacts when using		from the lower contact to the end of the probe tube (when float is falling)
E5 (TSR/./ED/E5)	90 mm	1 float	2 floats	60 mm
E5 (TSR/./EW/E5)		80 mm	125 mm	65 mm

The above equipment will be manufactured in accordance with your specifications.

For inquiries or orders, please complete the questionnaire on page 3-1-21



Dimensions in mm

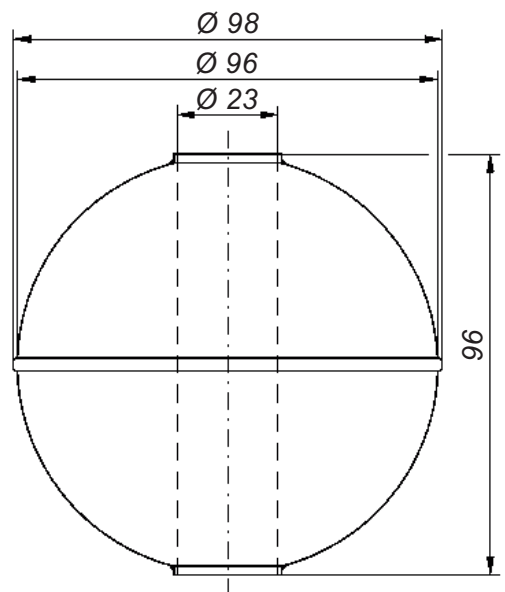


**TSR/3/ED/E5**



**TSR/3/EW/E5**

**Float for  
TSR/.ED/E5  
and  
TSR/.EW/E5**





# TSR/... immersion probes fitted with

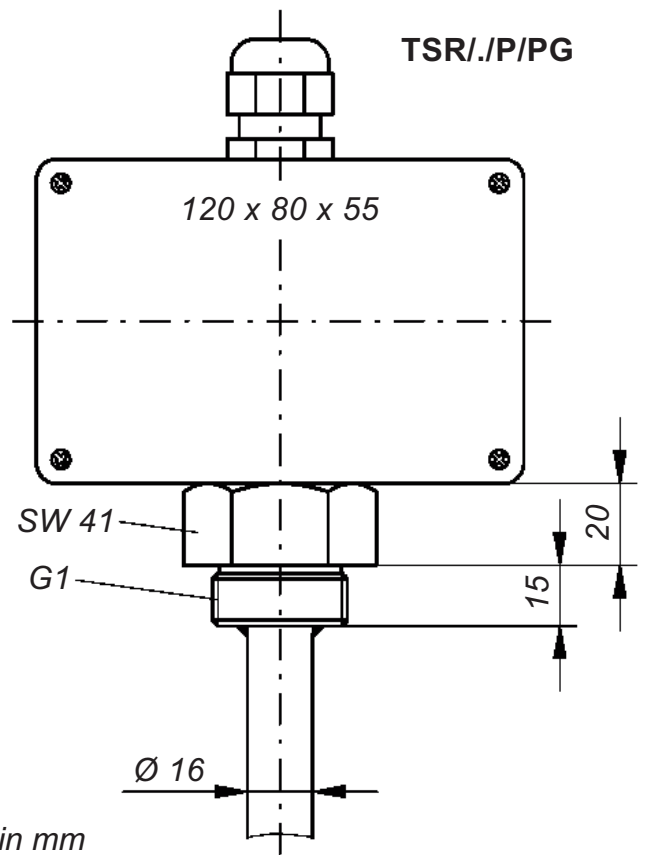
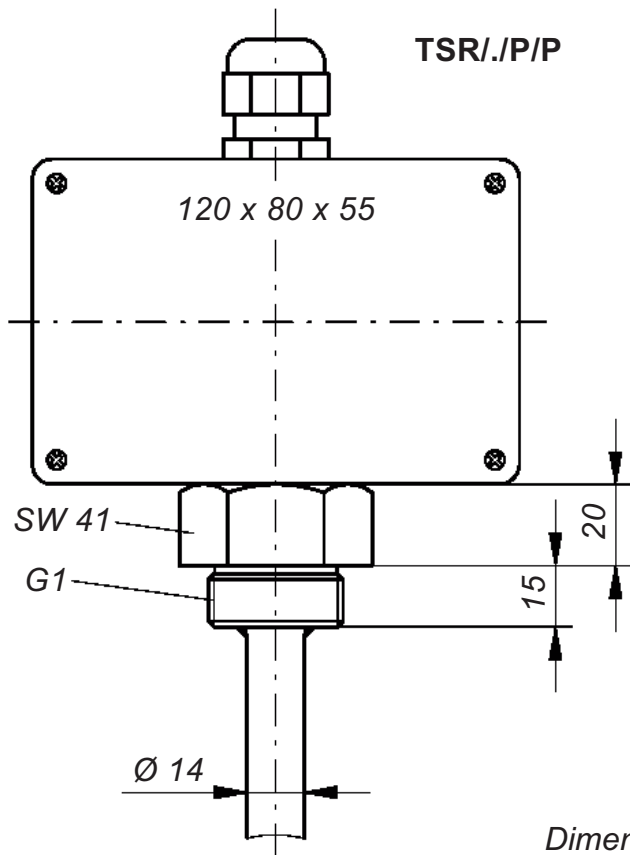
- probe tube made of PP
- float made of PP

	TSR/3/...	TSR/1/...
<b>Switching voltage</b>	between <b>AC/DC 24 V and 250 V</b>	between <b>AC/DC 1 V and 42 V</b>
<b>Switching current</b>	between <b>AC 100 mA and 2 A (0.4 A)</b>	between <b>AC 1 mA and 500 mA</b>
<b>Switching capacity</b>	<b>max. 100 VA</b>	<b>max. 20 VA</b>
<b>Technical data</b>	<b>TSR/3/P/P</b> <b>TSR/1/P/P</b>	<b>TSR/3/P/PG</b> <b>TSR/1/P/PG</b>
Probe tube: <ul style="list-style-type: none"> <li>• material</li> <li>• <b>diameter</b></li> <li>• length</li> </ul>	PP <b>14 mm</b> according to customer's specification, however max. 1,000 mm taking into account the max. temperature in the tank and possible liquid turbulences	PP <b>16 mm</b> max. 2,000 mm metal inner tube to strengthen the probe tube made of PP
• option	—	
Screw-in nipple	G1, on request G2	
Float	53 mm Ø x 50 mm, mounting possible through a G2 socket for liquids with a density $\geq 0.8 \text{ g/cm}^3$	89 mm Ø x 60 mm
Electrical connection	A 307 terminal box made of PP, 120 x 80 x 55 mm, protection class IP65, with max. 12 terminals, on request: <ul style="list-style-type: none"> <li>• other terminal boxes</li> <li>• connecting cable</li> </ul>	
Mounting orientation	vertical	
Temperature range acc. to the probe tube length: <ul style="list-style-type: none"> <li>• max. 2,000 mm</li> <li>• max. 1,500 mm</li> <li>• max. 1,000 mm</li> <li>• max. 750 mm</li> <li>• max. 500 mm</li> <li>• max. 400 mm</li> </ul>	— — 0°C to + 50°C 0°C to + 60°C 0°C to + 75°C 0°C to + 80°C	0°C to + 35°C 0°C to + 40°C
Pressure resistance	max. 2 bar at + 20°C, however only for hydraulic pressures and not suitable for pressures in line with the Pressure Equipment Directive 2014/68/EU	
Contacts: <ul style="list-style-type: none"> <li>• type</li> <li>• max. n° without inner tube</li> <li>• max. n° with inner tube</li> </ul>	reed contacts: NO, NC or OC 4 —	5 3

Float	Min. distances to be observed based on liquids with a density of 1 g/cm <sup>3</sup>			
	from the nipple sealing surface to the upper contact	between contacts when using		from the lower contact to the end of the probe tube (when float is falling)
		1 float	2 floats	
P	70 mm	80 mm	80 mm	60 mm
PG	80 mm		90 mm	65 mm

**The above equipment will be manufactured in accordance with your specifications.**

**For inquiries or orders, please complete the questionnaire on page 3-1-21**



Dimensions in mm

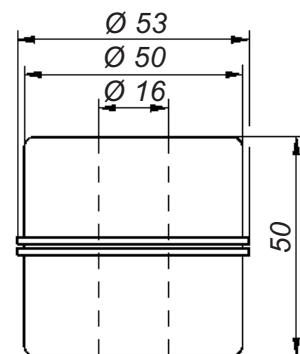


TSR/3/P/P

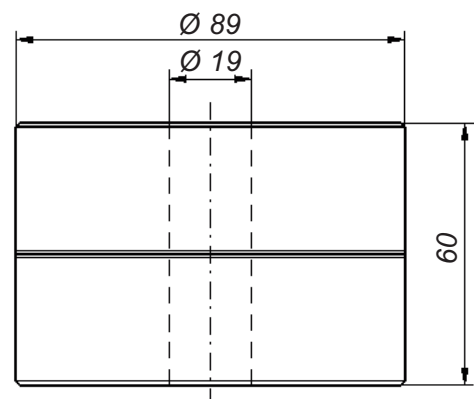


TSR/3/P/PG

Float for  
TSR./P/P



Float for  
TSR./P/PG



**Mounting accessories:**  
square flange made of  
PP for immersion probes with  
G1 screw-in nipple,  
counterflange on request





# TSR/... immersion probes fitted with

- probe tube made of PVDF
- float made of PVDF

	TSR/3/...	TSR/1/...
Switching voltage	between <b>AC/DC 24 V and 250 V</b>	between <b>AC/DC 1 V and 42 V</b>
Switching current	between <b>AC 100 mA and 2 A (0.4 A)</b>	between <b>AC 1 mA and 500 mA</b>
Switching capacity	<b>max. 100 VA</b>	<b>max. 20 VA</b>

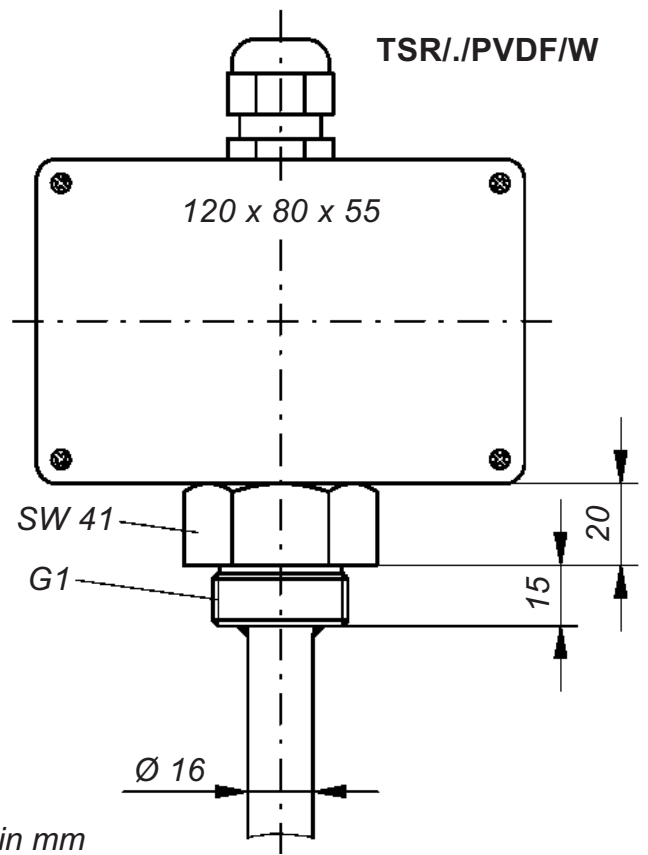
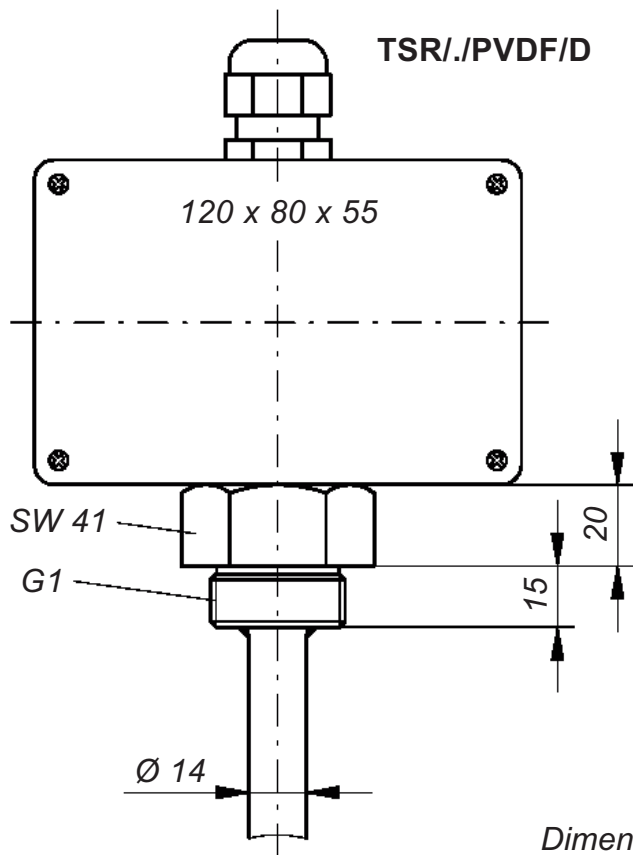
Technical data	TSR/3/PVDF/D TSR/1/PVDF/D	TSR/3/PVDF/W TSR/1/PVDF/W
Probe tube: <ul style="list-style-type: none"> <li>• material</li> <li>• <b>diameter</b></li> <li>• length</li> </ul>	PVDF <b>14 mm</b> according to customer's specification, however max. 1,000 mm taking into account the max. temperature in the tank and possible liquid turbulences	PVDF <b>16 mm</b> according to customer's specification, however max. 2,000 mm taking into account the max. temperature in the tank and possible liquid turbulences
<ul style="list-style-type: none"> <li>• option</li> </ul>	—	metal inner tube to strengthen the probe tube made of PP
Screw-in nipple	G1, on request G2	
Float	PVDF 53 mm Ø x 50 mm, mounting possible through a G2 socket for liquids with a density $\geq 1 \text{ g/cm}^3$	89 mm Ø x 60 mm
Electrical connection	A 307 terminal box made of PP, 120 x 80 x 55 mm, protection class IP65, with max. 12 terminals, on request: <ul style="list-style-type: none"> <li>• other terminal boxes</li> <li>• connecting cable</li> </ul>	
Mounting orientation	vertical	
Temperature range acc. to the probe tube length:	—	0°C to + 40°C
<ul style="list-style-type: none"> <li>• max. 2,000 mm</li> <li>• max. 1,500 mm</li> <li>• max. 1,000 mm</li> <li>• max. 750 mm</li> <li>• max. 500 mm</li> </ul>	—	0°C to + 45°C
Pressure resistance	max. 2 bar at + 20°C, however only for hydraulic pressures and not suitable for pressures in line with the Pressure Equipment Directive 2014/68/EU	
Contacts:	reed contacts: NO, NC or OC	
<ul style="list-style-type: none"> <li>• type</li> <li>• max. n° without inner tube</li> <li>• max. n° with inner tube</li> </ul>	4	5
	—	3

Float	Min. distances to be observed based on liquids with a density of 1 g/cm <sup>3</sup>			
	from the nipple sealing surface to the upper contact	between contacts when using		from the lower contact to the end of the probe tube (when float is falling)
		1 float	2 floats	
D	80 mm	80 mm	80 mm	70 mm
W			95 mm	60 mm

**The above equipment will be manufactured in accordance with your specifications.**

**For inquiries or orders, please complete the questionnaire on page 3-1-21**





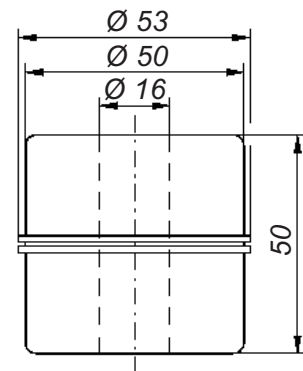
Dimensions in mm



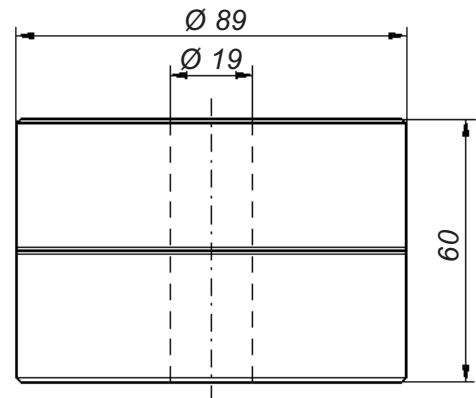
TSR/3/PVDF/D

TSR/3/PVDF/W

**Float for  
TSR./PVDF/D**



**Float for  
TSR./PVDF/W**



**Mounting accessories:**  
square flange made of  
PVDF for immersion probes with  
G1 screw-in nipple,  
counterflange on request



# TSR/... immersion probes fitted with

- probe tube made of titanium
- float made of titanium

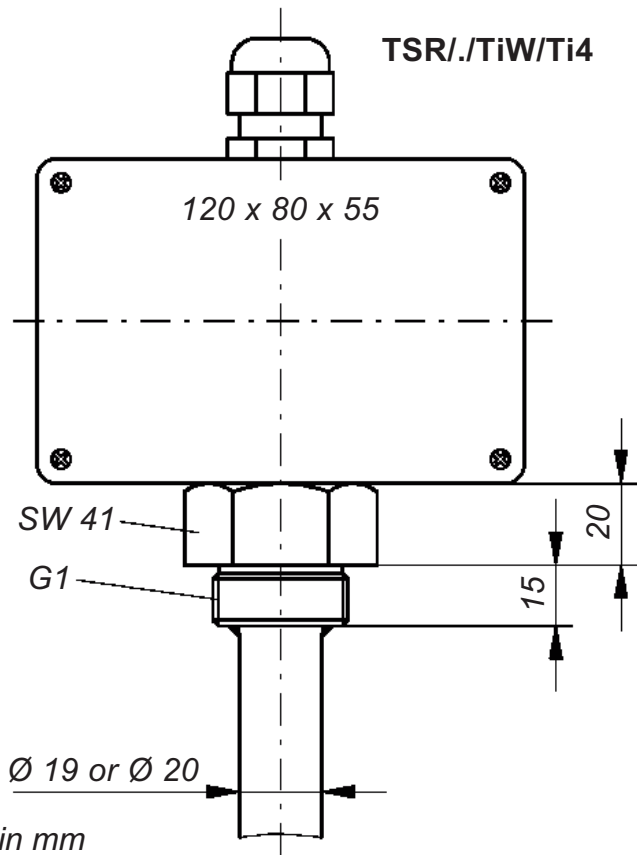
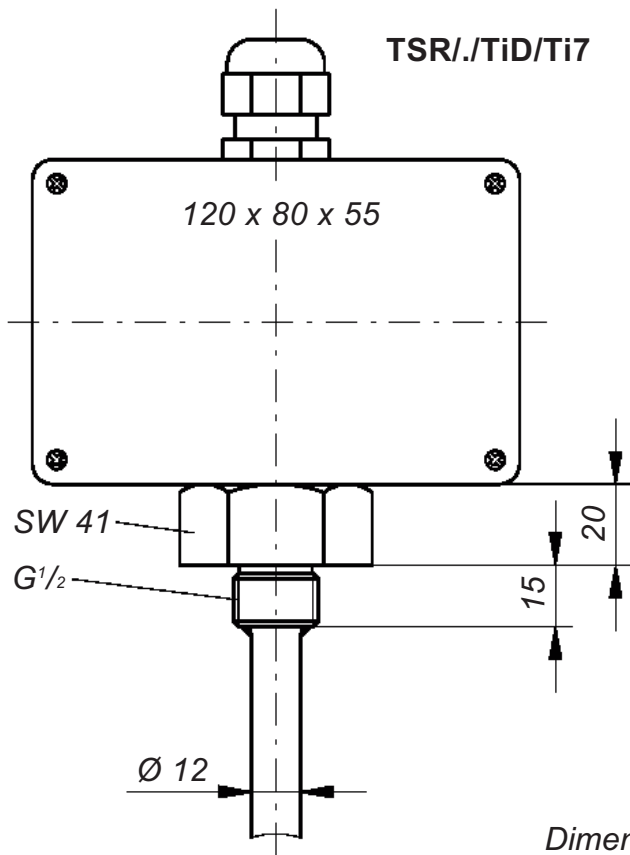
	TSR/3/...	TSR/1/...
Switching voltage	between <b>AC/DC 24 V and 250 V</b>	between <b>AC/DC 1 V and 42 V</b>
Switching current	between <b>AC 100 mA and 2 A (0.4 A)</b>	between <b>AC 1 mA and 500 mA</b>
Switching capacity	<b>max. 100 VA</b>	<b>max. 20 VA</b>

Technical data	TSR/3/TiD/Ti7 TSR/1/TiD/Ti7	TSR/3/TiW/Ti4 TSR/1/TiW/Ti4
Probe tube: • material • diameter • length • option	titanium <b>12 mm</b> according to customer's specification, however max. 3,000 mm angled probe tube for mounting from the side	titanium <b>19 or 20 mm</b> max. 6,000 mm
Screw-in nipple	G <sup>1</sup> / <sub>2</sub>	G1
Float	titanium, 44.5 mm Ø x 52 mm ≥ 0.95 g/cm <sup>3</sup>	79 mm Ø x 95 mm for liquids with a density ≥ 0.7 g/cm <sup>3</sup>
Electrical connection	A 307 terminal box made of PP, 120 x 80 x 55 mm, protection class IP65, to max. 12 Klemmen, on request: • other terminal boxes • connecting cable	
Mounting orientation	vertical	
Temperature range	- 20°C to + 100°C	
Pressure resistance	max. 10 bar at + 20°C,   max. 7 bar at + 20°C, however only for hydraulic pressures and not suitable for pressures in line with the Pressure Equipment Directive 2014/68/EU	
Contacts: • type • max number	reed contacts: NO, NC or OC 4   8	

Float	Min. distances to be observed based on liquids with a density of 1 g/cm <sup>3</sup>			
	from the nipple sealing surface to the upper contact	between contacts when using		from the lower contact to the end of the probe tube (when float is falling)
		1 float	2 floats	
Ti7	70 mm	80 mm	85 mm	50 mm
Ti4	90 mm		125 mm	60 mm

The above equipment will be manufactured in accordance with your specifications.

For inquiries or orders, please complete the questionnaire on page 3-1-21



Dimensions in mm

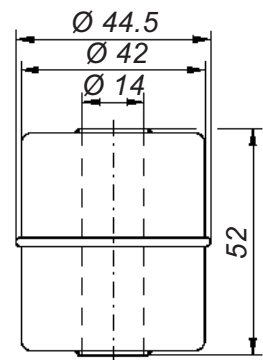


TSR./TiD/Ti7

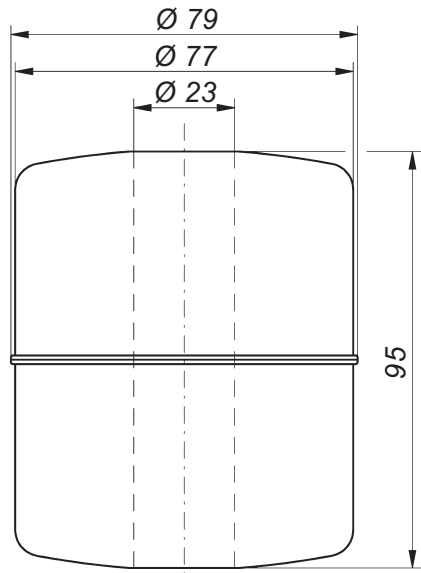


TSR./TiW/Ti4

Float for TSR./TiD/Ti7



Float for TSR./TiW/Ti4



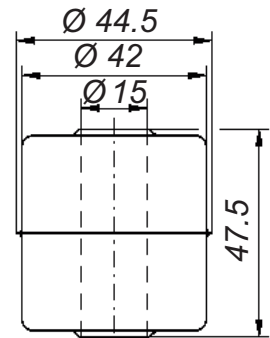


# TSR/0/ED/E6 immersion probe with

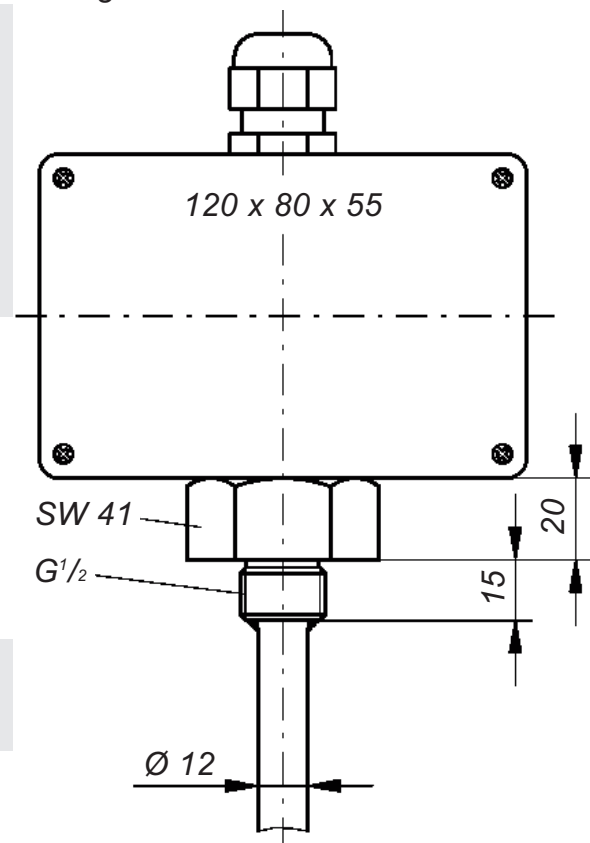
- probe tube made of stainless steel
  - float made of stainless steel
- with mini-contacts for small contact distances and/or a higher number of contacts

Technical data	TSR/0/ED/E6
Switching voltage	between AC/DC 1 V and 42 V
Switching current	between AC 1 mA and 100 mA
Switching capacity	max. 2 VA
Probe tube: • material • diameter • length • option	stainless steel 316 Ti <b>12 mm</b> acc. to customer's specification, however max. 3,000 mm angled probe tube for mounting from the side
Screw-in nipple	G $\frac{1}{2}$ , on request: • G $\frac{3}{4}$ , G1, G1 $\frac{1}{2}$ or G2 • with reducing nipple R1 $\frac{1}{2}$ or R2 (conical)
Float	stainless steel 316 Ti, $\varnothing$ 44.5 mm x 47.5 mm, mounting possible through a G/R1 $\frac{1}{2}$ socket, for liquids with a density $\geq 0.95$ g/cm $^3$
Electrical connection	A 307 terminal box made of PP, 120 x 80 x 55 mm, protection class IP65, with max. 12 terminals, on request: • other terminal boxes • connecting cable
Mounting orientation	vertical
Temperature range	- 20°C to + 100°C
Pressure resistance	max. 12 bar at + 20°C, however only for hydraulic pressures and not suitable for pressures in line with the Pressure Equipment Directive 2014/68/EU
Contacts: • type • max number	reed contacts: NO, NC or OC 6

Float for TSR/0/ED/E6



Dimensions in mm



Float	Min. distances to be observed based on liquids with a density of 1 g/cm $^3$			
	from the nipple sealing surface to the upper contact	between contacts when using		from the lower contact to the end of the probe tube (when float is falling)
		1 float	2 floats	
E6	50 mm	20 mm	80 mm	45 mm

The above equipment will be manufactured in accordance with your specifications.

For inquiries or orders, please complete the questionnaire on page 3-1-21



# DK 3 switching bowl for TSR immersion probes

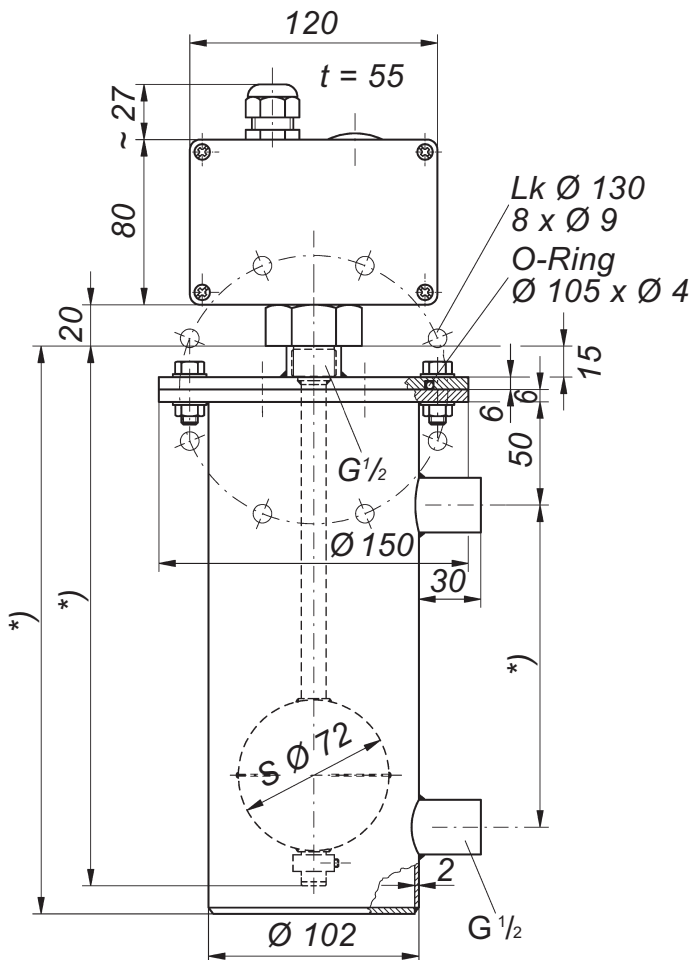
For lateral mounting on tanks or pipelines, suitable for TSR immersion probes.

The use of a switching bowl is necessary wherever heavy turbulences would impede or prevent the operation of an immersion probe inside a tank or where these units cannot be installed for reasons of space.

Technical data	DK 3
Switching bowl: <ul style="list-style-type: none"> <li>• material</li> <li>• diameter</li> <li>• height</li> </ul>	stainless steel 316 Ti, other materials on request 102 mm according to customer's specification
Socket or flange	size according to customer's specification
Distance between sockets or flanges	according to customer's specification

## DK3, standard type

Upper switching point at least 110 mm below the nipple sealing surface

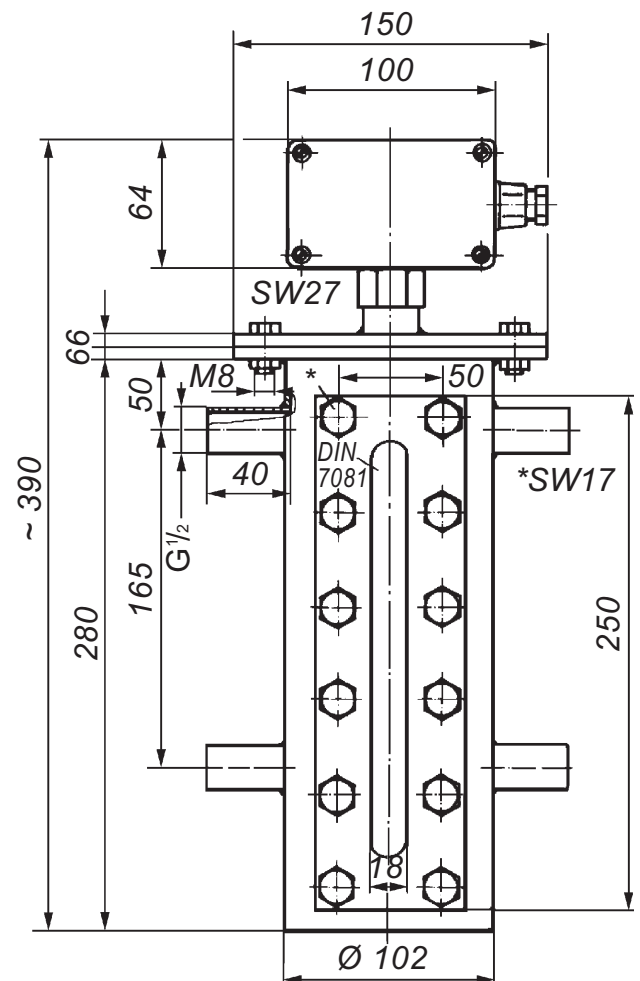


Lk = holes circle  
t = depth

\*) = according to customer's specification

Other dimensions on request

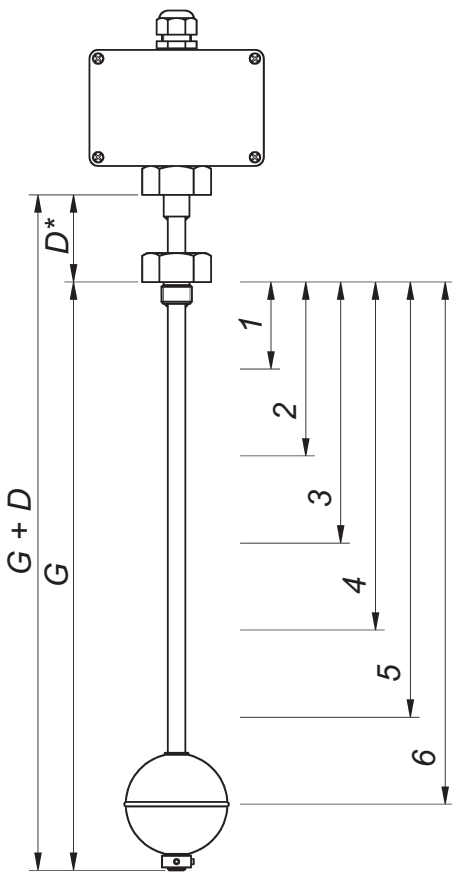
## DK 3, special design with gauge glass and 4 sockets



Dimensions in mm

**For inquiries or orders, please complete the following questionnaire**

Tank dimensions and installation conditions (attach sketch if necessary)			
Type of liquid			
Density		Temperature	
Hydraulic pressure, not suitable for pressure in line with the Pressure Equipment Directive 2014/68/UE			



<b>Desired type</b>	<b>TSR/</b>	
<b>Desired probe tube length (dimension G)</b>		
Please mark desired floats and collars on the probe tube. * = 20 mm, option: other value (to be inscribed in the drawing)		
<b>Desired options</b>		
<b>Desired version (please tick off)</b>		
	<input type="radio"/> <b>TSR/3/...</b>	<input type="radio"/> <b>TSR/1/...</b>
Switching voltage	AC/DC 24 V to 250 V	AC/DC 1 V to 42 V
Switching current	AC 100 mA to 2 A (0.4 A)	AC 1 mA to 500 mA
Switching capacity	max. 100 VA	max. 20 VA

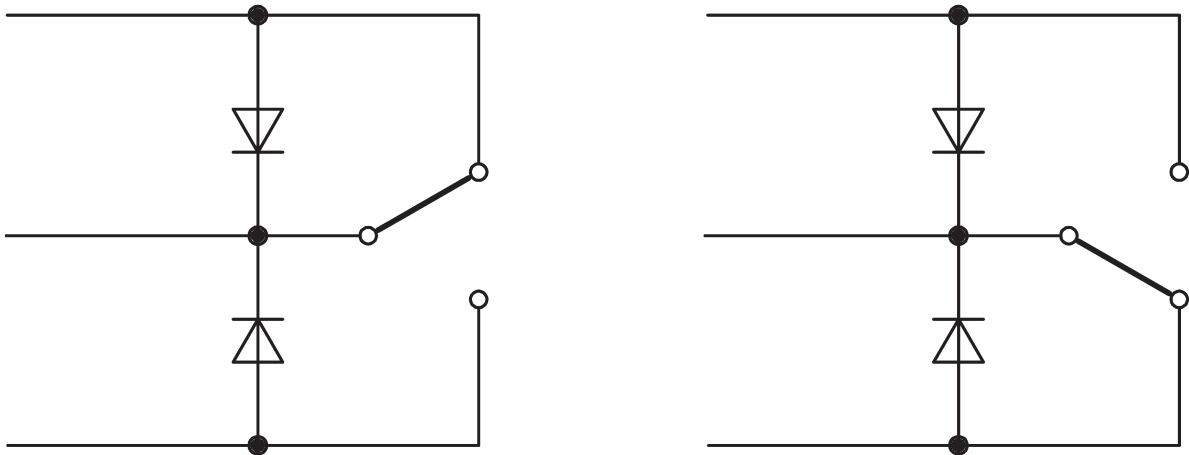
	Contact type (NO, NC or OC)	Distance from the sealing surface of the screw-in nipple, in mm	Switching function (e.g. high alarm, pump ON, pump OFF, run-dry or overflow protection)	Float working direction: rising ↑ or falling ↓
1				
2				
3				
4				
5				
6				

**Immersion probes will be manufactured according to customer's specifications. It is therefore not possible to return these special designs.**

# Options for safety applications for immersion probes TSR/1/....: incorporation of electronic components for a reed contact for cable break and short-circuit monitoring

## Option 1: with diodes for half-wave monitoring

Two (2) diodes of the type 1N4004 or equivalent



## Option 2: with resistors for NAMUR monitoring

Two (2) metal film resistors or carbon film resistors R 1, R 2,  
each greater than or equal to 2 k $\Omega$ ,  
each P greater than or equal to 1/4 W

and

one (1) metal film resistor or carbon film resistor R 3  
greater than or equal to 330  $\Omega$ ,  
P greater than or equal to 1 W

