Float Switches MTS...
made of PP, PVDF or Stainless Steel

The measurement of the liquid level is necessary in process containers, storage tanks and galvanising lines, since unwanted variations in these levels (due to evaporation or removal of the liquids) must be corrected. In this respect, a distinction must be made between two general tasks:

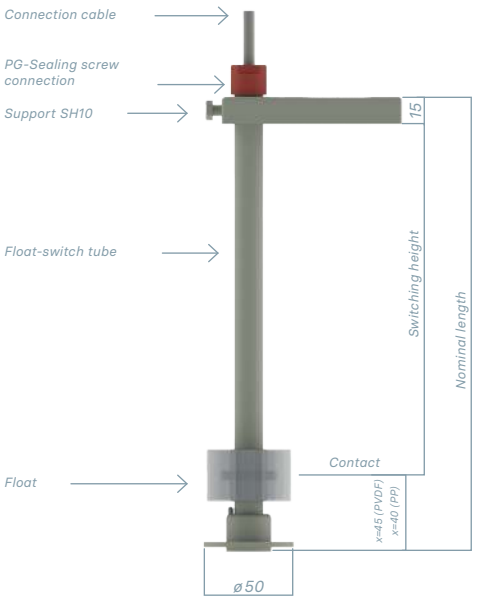
- Controlling of the level to control procedures automatically (such as dosing of liquids).
- Monitoring of the level in order to prevent possible damage (dry-running, heating without sufficient liquid) to the devices (pumps, heaters) installed in the tanks or to prevent an overflow of the process liquid from the tanks.

Float switches in connection with our electronics ETS/ENR offer a simple and economical solution for the controlling and monitoring of liquid levels.

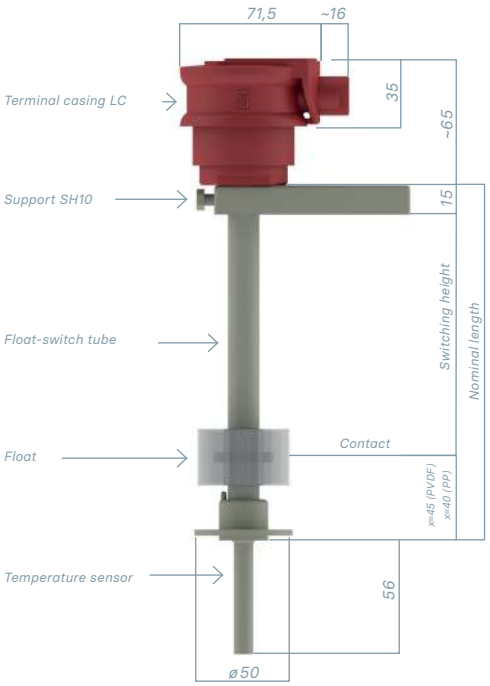
Alternatively, a switching voltage up to 25V AC/DC from a control system (for example from a PLC) can be connected directly to the float switches.

The function of a float switch is based on the moving float and can be guaranteed only in liquids which do not form encrustation. Dirt in the tank (such as chips, adhesive substances) can also block the movement of the float.

In such cases, where a float switch cannot be used, we recommend the use of our level rod-probes, providing the liquid is electrically conductive.



Float switch with one contact, version PG/ plastics



Float switch with one contact and integrated temperature sensor, version LC / plastics

The float switches are available in various versions:

- with one switch contact
- with two switch contacts
- with three switch contacts
- with four switch contacts

All switch contacts are changeover contacts.

As an option, the float switches made of plastic (PP or PVDF) with the terminal casing LC or LC/L with one, two and three switching contacts are also available with integrated temperature sensor (Pt100 in 3-wire-connection).

Function

A magnet inside the moving float actuates a reed contact mounted in a fixed position within the tube of the float switch.

In order to ensure optimal chemical and thermal resistance, the float switches are made of polypropylene (PP), polyvinyliden fluoride (PVDF) and stainless steel (AISI 316Ti). They are available without a terminal casing (version PG) and directly connected cable (length of 1.6 m) or with the terminal casing LC (material PP) or LC/L (material PVDF). The versions with LC terminal casings permit easy connection of the cables.

The stepless height adjustment of the float rod and the easy attachment of the float switch to the container edge is made possible in the plastic version via the holder attached to the float rod.

Further mounting options are available on request (e.g. threaded nipples or flanges).

The holder of stainless steel level switches is welded and has to be specified with the order.

PG version

On float switches without a terminal casing and with a permanently connected cable 1.6 m long (other cable lengths to order), the cable enters the tube of the float switch via a cable gland. Degree of protection IP 64 (splash-proof) according to EN 60529.

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Controlling and Monitoring with Safety and Quality

LC version

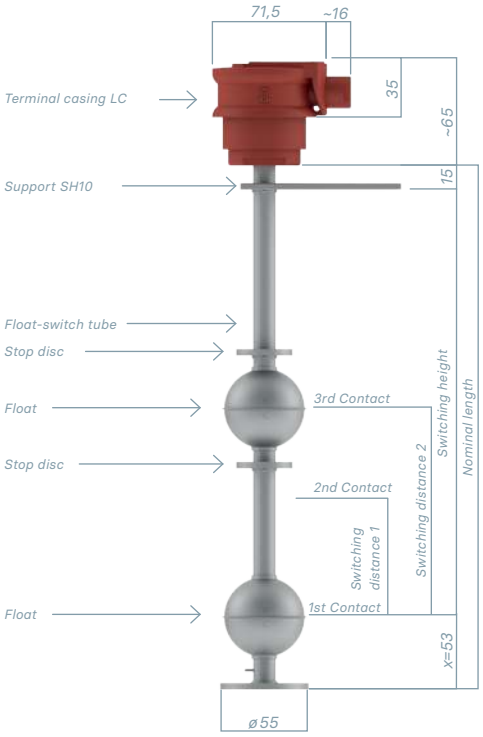
The small terminal casing LC made of PP or LC/L made of PVDF permits cable connection and has the degree of protection IP65 (jet-waterproof) in accordance with EN60529. If the level switch is exposed to high temperatures (liquid temperature >80°C) or in contact with strong oxidizing chemicals (e.g. chrome electrolytes or HNO_3) the PVDF terminal casing LC/L should be used.

Line connection

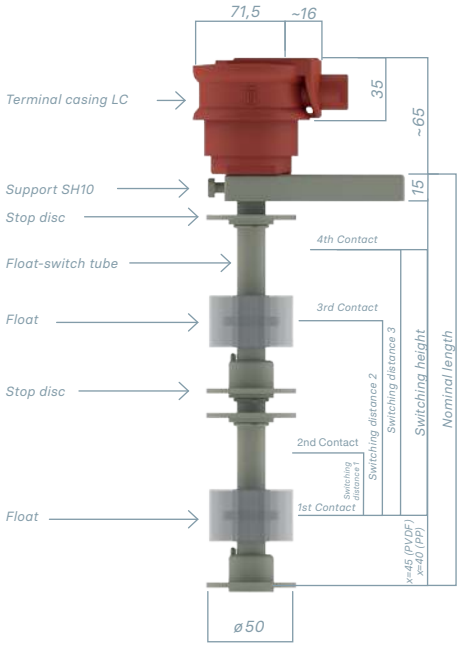
The terminal block for connecting the cable is accessible with the mounting wrench after unscrewing the cover.

Switching points

The switching points are set in the factory and cannot be changed. For this reason, you must precisely specify the first switching point and the distances from this to any further contacts when ordering the float switches.



Float switch made of stainless steel with 3 contacts, LC version



Float switch with 4 contacts, LC version / plastics

Technical Data

	MTSu/MTSt	MTS2u/MTS2t	MTS3u/MTS3t	MTS4u	MTSu	MTS2u	MTS3u	MTS4u
Material	PP /PVDF	PP /PVDF	PP /PVDF	PP /PVDF	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Number of contacts	1 Changeover	2 Changeover	3 Changeover	4 Changeover	1 Changeover	2 Changeover	3 Changeover	4 Changeover
Integrated temp. sensor	opt. Pt100*	opt. Pt100*	opt. Pt100*	no	no	no	no	no
Switching current	0,25A	0,25A	0,25A	0,25A	0,25A	0,25A	0,25A	0,25A
Switching voltage	25V AC/ DC	25V AC/ DC	25V AC/ DC	25V AC/ DC	25V AC/ DC	25V AC/ DC	25V AC/ DC	25V AC/ DC
Switching power	5VA / 5W	5VA / 5W	5VA / 5W	5VA / 5W	5VA / 5W	5VA / 5W	5VA / 5W	5VA / 5W
Switching delay	none	none	none	none	none	none	none	none
Switching hysteresis	5mm	5mm	5mm	5mm	5mm	5mm	5mm	5mm
Min. distance between contact 1 and 2	-	20mm	20mm	20mm	-	20mm	20mm	20mm
Min. distance between contact 1 and 3	-	-	95mm	95mm	-	-	100mm	100mm
Min. distance between contact 1 and 4	-	-	-	120mm	-	-	-	120mm
Min. nominal length LC, LC/L	100mm	125mm	200mm	230mm	125mm	160mm	220mm	260mm
Min. nominal length PG	120mm	145mm	220mm	250mm	145mm	180mm	240mm	280mm
Versions	PG, LC, LC/L	PG, LC, LC/L	PG, LC, LC/L	PG, LC, LC/L	PG, LC, LC/L	PG, LC, LC/L	PG, LC, LC/L	PG, LC, LC/L
Max. nominal length	3000mm	3000mm	3000mm	3000mm	3000mm	3000mm	3000mm	3000mm
	Maximum operating temperature PP=90°C/ PVDF=100°C				Maximum operating temperature stainless steel=100°C			

Selection Table for Control and Monitoring Electronics

Monitoring Devices	MTSu/MTSt	MTS2u/MTS2t	MTS3u/MTS3t	MTS4u
Levelmonitor	ETS 100	ETS 200	ETS 410	ETS 410
Temperature limiter	ETB 200**	ETB 200**	ETB 200**	-

Control Devices	MTSu/MTSt	MTS2u/MTS2t	MTS3u/MTS3t	MTS4u
Level controller	-	ENR300	ENR300	ENR300
Temperature controller	MTR1000**	MTR1000**	MTR1000**	-

* only in combination with LC or LC/L version

**only in combination with integrated temperature probe

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