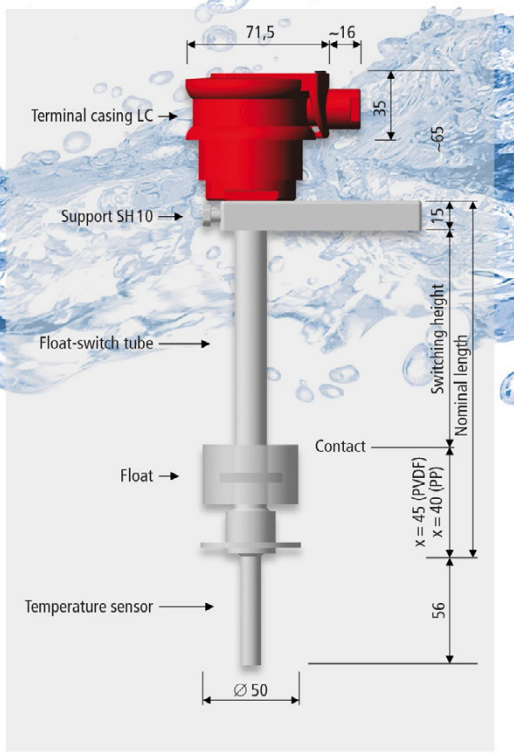
Float Switches MTS... made of PP, PVDF or Stainless Steel



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

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:

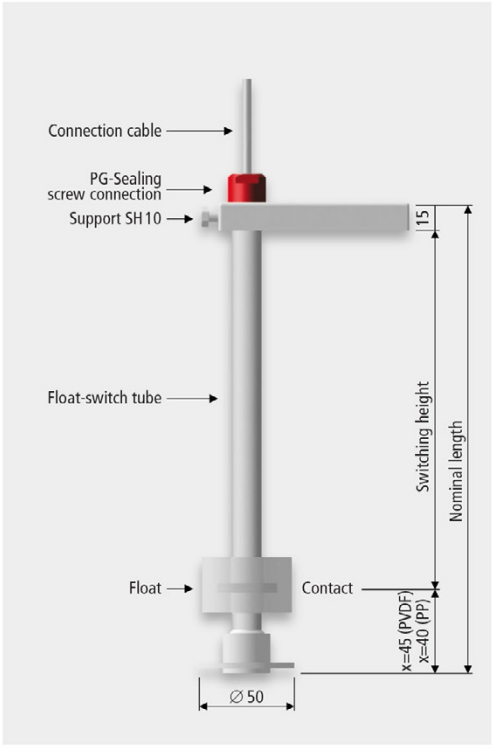
- Controlling of the level to control procedures automatically (such as dosing of liquids).
- Monitoring of the level in order to prevent possible damage (dry-running, heating without sufficient liquid) to the devices (pumps, heaters) installed in the tanks or to prevent an overflow of the process liquid 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 25 V 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

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 (Pt 100 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 316 Ti). 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 adjustable support offers a flexible mounting of height of the level switch at the edge of the tank.

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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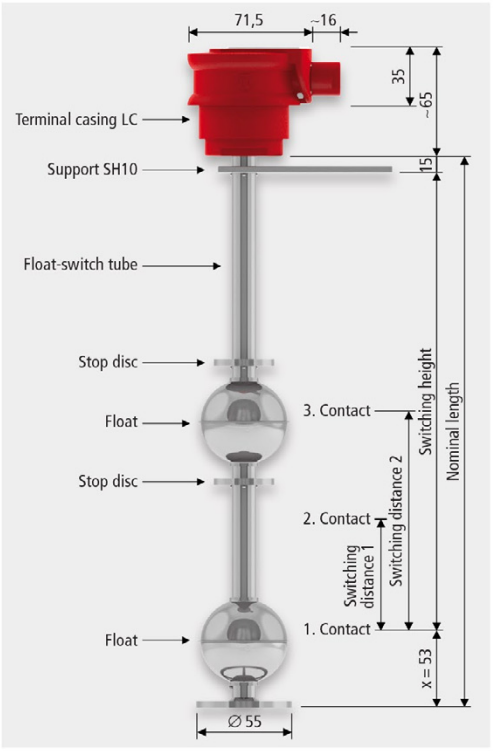
Controlling and Monitoring with Safety and Quality

LC version

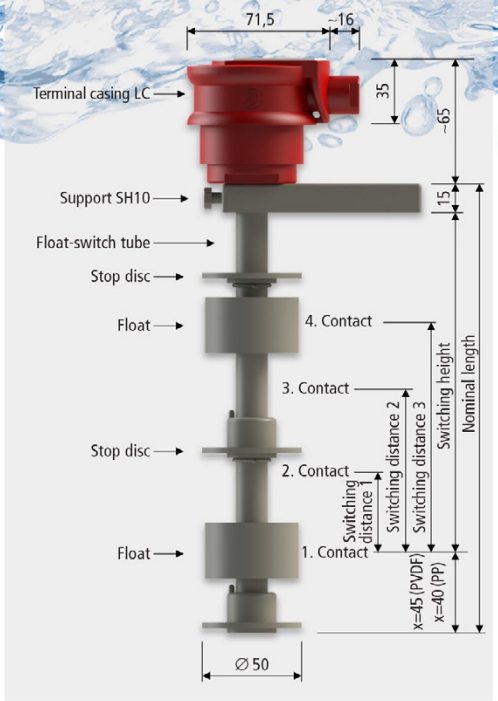
The small terminal casing LC made of PP or LC/L made of PVDF permits cable connection and has the degree of protection IP 65 (jet-waterproof) in accordance with EN 60529. If the level switch is exposed to high temperatures (liquid temperature >80°C) or in contact with strong oxidizing chemicals (e.g. chrome electrolytes or HNO3) 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.



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



Float switch with 4 contacts, LC version/plastics

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.

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	0,25 A	0,25 A	0,25 A	0,25 A	0,25 A	0,25 A	0,25 A	0,25 A
Switching voltage	25 V AC/DC	25 V AC/DC	25 V AC/DC	25 V AC/DC	25 V AC/DC	25 V AC/DC	25 V AC/DC	25 V AC/DC
Switching power	5 VA/5 W	5 VA/5 W	5 VA/5 W	5 VA/5 W	5 VA/5 W	5 VA/5 W	5 VA/5 W	5 VA/5 W
Switching delay	none	none	none	none	none	none	none	none
Switching hysteresis	5 mm	5 mm	5 mm	5 mm	5 mm	5 mm	5 mm	5 mm
Min. distance between contact 1 and 2	-	20 mm	20 mm	20 mm	-	20 mm	20 mm	20 mm
Min. distance between contact 1 and 3	-	-	95 mm	95 mm	-	-	100 mm	100 mm
Min. distance between contact 1 and 4	-	-	-	120 mm	-	-	-	120 mm
Min. nominal length	100 mm	125 mm	200 mm	230 mm	125 mm	160 mm	220 mm	260 mm
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	1980 mm	1980 mm	1980 mm	1980 mm	1980 mm	1980 mm	1980 mm	1980 mm
	Maximum operating temperature PP = 90°C / PVDF = 100°C				Maximum operating temperature stainless steel = 100°C			

Selection Table for Control and Monitoring Electronics

* only in combination with LC or LC/L version
** only in combination with integrated temperature probe

	MTSu/MTSt	MTS2u/MTS2t	MTS3u/MTS3t	MTS4u
Monitoring Devices				
Level monitor	ETS 100	ETS 200	ETS 410	ETS 410
Temperature limiter	ETB 200**	ETB 200**	ETB 200**	-
Control Devices				
Level controller	-	ENR 300	ENR 300	ENR 300
Temperature controller	MTR 1000**	MTR 1000**	MTR 1000**	-

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