

# Installation and Operating Instructions for Float Switches with Temperature Sensor MTSt

WG 44/12.09/

Original operating manual E-MBA 366b

The float switch MTSt measures the temperature of a liquid with its integrated Pt 100 (DIN EN 60751) temperature sensor and the liquid level with a float. The switching point is fixed as shown in the drawing below.

**The float switches are only designed for commercial and industrial use.**

**Do not use them in inflammable or explosive fluids.**

In order to ensure correct operation, reliability and a long operating lifetime, the following must be observed.

## 1. Electrical Safety

**The switches may be connected only by a trained and qualified electrician!**

The liquid level can be controlled with the aid of the float switch with an electronic controller.

### Types MTSt.../LC-...

The mounting wrench SL (accessory) is used for opening and closing the terminal casing LC. Take care that the pull-relief, the pressure screw and the cover are tightened securely. Tighten the terminal casing cover until the cover makes a positive connection with the cable gland. This ensures optimum sealing of the casing.

### Types MTSt.../BC-...

The terminal housing BC is opened by unscrewing the cover with the mounting wrench SB (accessory). When closing the cover, take care that the cable pull-relief and the cover are tightened securely. Tighten the terminal casing cover until the cover makes a positive connection with the cable gland. This ensures optimum sealing of the casing.

## 2. Ambient Conditions

Intended use: level control of liquids with a density of at least 0.7 g/cm<sup>3</sup>.

The float must be able to move freely along its rod when immersed in the liquid.

The material of the float switch must withstand the expected temperatures and be unaffected by the chemicals in the liquid. It may be used with certain restrictions in liquids with a strong tendency to form encrustations or to precipitate crystalline deposits. The float switch is not suitable for use in viscous liquids. The terminal housing (made of PP), the cable gland and the cable may not come into direct contact with the liquid or with hot steam.

## 3. Principle of Operation

When the float reaches the lower end stop, the changeover contact is actuated.

On Type MTSt.../LC-..., the switching height can be adjusted with the aid of the screw on the holder.

The temperature sensor is located below the stop flange, in a plastic tube with a length of 56 mm.

## 4. Operation and Maintenance

Float switches with temperature sensors are safety devices and must therefore be inspected regularly by the user to ensure that they are functioning correctly. This inspection must include ensuring that the desired effect (such as preventing the heater from running with no liquid in the tank and protection against excessive temperatures) is achieved.

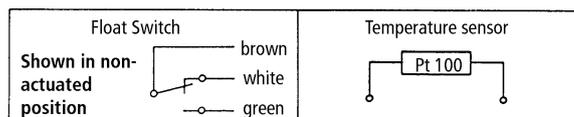
Note that strong magnetic fields (induction) may interfere with the correct operation of the switch.

Encrustation or deposits of crystals on the float switch must be removed regularly.

Care must be taken that the float can move freely at all times.

## 5. Connection Diagrams

A cable with three or four wires may be used for the connection from the double terminal of the Pt 100 sensor to the temperature controller. In order to avoid electromagnetic interference, we recommend the use of a screened cable.



Switching capacity: see the technical data in Section 8.

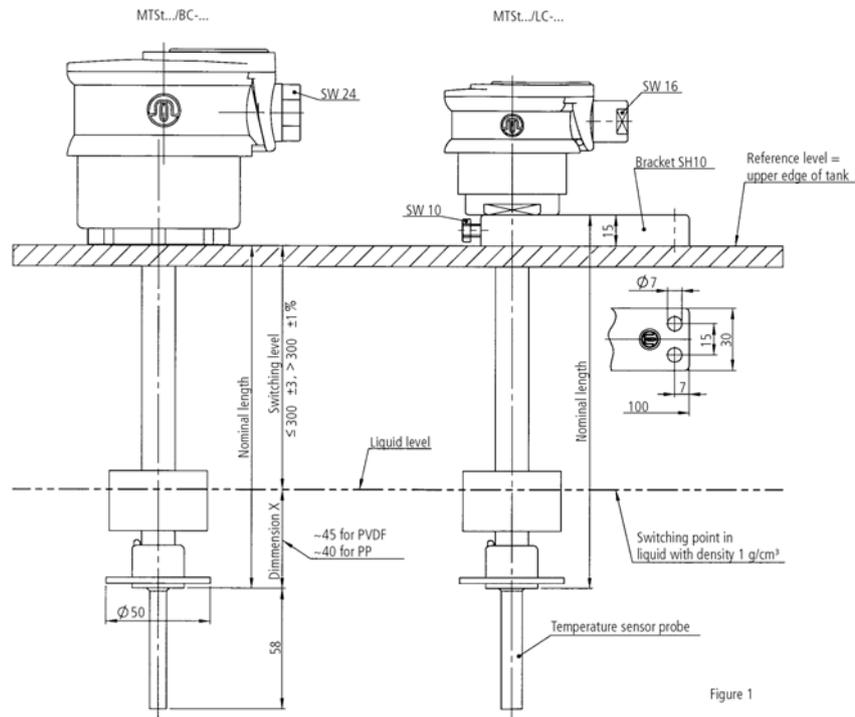
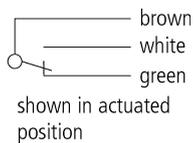
For connection to a temperature controller with Pt 100 input

## 6. Installation Conditions

The float switch must be installed in a vertical position. It must be mounted such that the float can move freely at all times. The tube containing the temperature sensor must be fully immersed in the liquid (up to the stop flange of the float) at all times.

## 7. Switching Status

see figure 1



## 8. Technical Data

Type	MTSt .../LC-... MTSt .../BC-...
Rated voltage (reed contact of float switch)	max. 250 V~ (AC) / 0.13 A
Switched current (reed contact of float switch)	max. 1 A / 30 V
Switched power (reed contact of float switch)	max. 30 W
Switching delay	none
Switching hysteresis	5 mm
Contact	1 changeover
Temperature sensor	Pt 100 (DIN EN 60751), 2-wire connection
Measuring range	-20 to 100 °C
Degree of protection	water-jet proof IP 65
Maximum operating temperature for PP (polypropylene)	code F / 90 °C
Maximum operating temperature for PVDF (polyvinylidene fluoride)	code L / 100 °C

**Non-compliance with these instructions, disassembly of the switch or other manipulations will invalidate the warranty.**

If you wish to make a claim under the warranty or required repairs, return the **cleaned** and **neutralized** float switch to the manufacturer postage paid with details of the defect.

These installation instructions form an integral part of the device and must be kept available throughout the service life of the device.

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