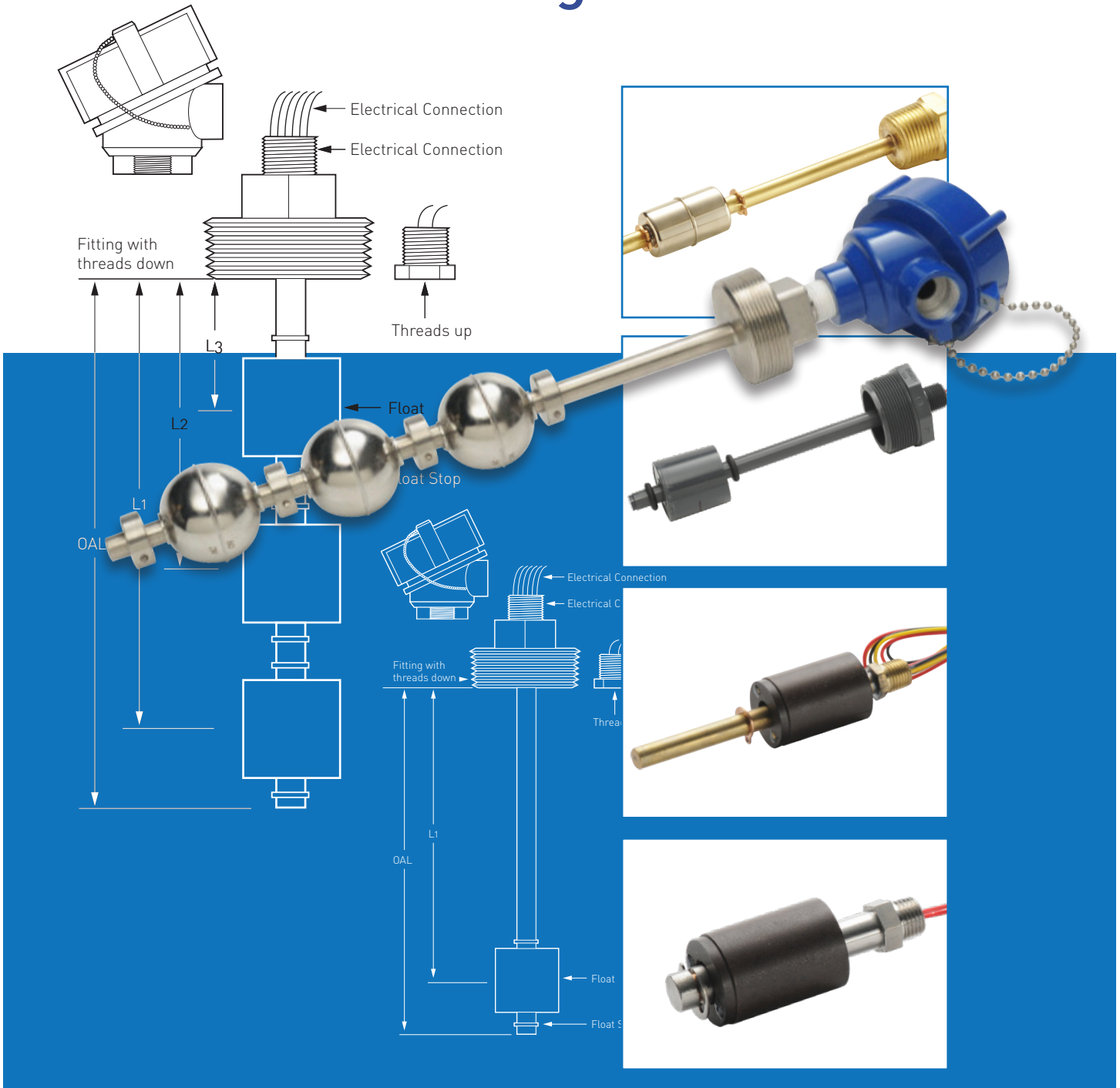


The Ultimate Guide to Float Level Sensors: Trouble Shooting a Float Sensor



Troubleshooting a float style level switch

If your **float level switch** sensor is not operating correctly, follow these steps:

1. Remove the sensor from your tank and disconnect the lead wires from your system
2. Verify the lead wire colors for the float switch that will be tested and connect an ohm meter to the lead wires. Verify the testing meter is set to measure ohms.
3. Move the float so it is positioned away from the sensor's fitting (if there is no fitting, then away for the end of the sensor where the lead wires exit) and observe the ohm meter reading. When the specific float switch is in the closed state, the meter should read 5 ohms or less, when the specific float switch is in the open state, the meter should read above 2 Meg ohms or infinite (Note, be sure the exposed test lead wires are not touching a conductive surface and are not touching a person's hands.)
4. Next move the float so that it is nearest the fitting (or where the lead wires exit the sensor) and observe the ohm meter. The meter should now read opposite of what it read prior to moving the float towards the fitting.
5. Move the float slowly to accurately observe when the meter is changing. Be sure to move the float all the way to the float stop and even rotate the float when it is against the float stop to insure there is not a change (multiple changes between the float stops) in your meter other than the designed float switch point.

If the ohm reading is not correct and/or the sensor is not operating properly, there are numerous potential reasons:

Float is not positioned properly or moving properly

The float stops (clips or collars) may have come loose, may have been moved or may not be in the proper place. To confirm the float and float stops are in the proper position, measure the distance

of the center line of the float when the float is positioned in the center of the float stops. This measurement should be equal to (+/- 1/8") the designed level dimension. When the centerline of the float is at the designed dimension, the top and bottom float stops should be 3/16" away from the top and bottom end of the float. Inspect for debris or build up on the floats that would prevent the float from moving properly. Move each float fully up and down to make sure you get a single on and off switch point and not a "double read."

Shock or damage to the floats or the sensor assembly (bent, dented, etc.)

Sensors need to be handled and installed with care. Check to make sure the shipping container was not damaged. An internal reed switch has a hermitically sealed glass housing that can break or can be "magnetically reset" so that it no longer is activated by the float. Floats have magnets inside that can break or become dislodged from rough handling or significant shock or vibration. If the float sinks, inspect the float for ruptures and check to see if the float is filled with liquid.

Excessive moisture around the wires exiting the sensor or connections

Internal moisture typically results in a switch not fully turning off and possibly an internal short to ground. Inspect the wires exiting the sensor for signs of moisture. Although the lead wires are fully potted where they exit the sensors stem, it is possible for moisture to wick into the sensor between the edge of the lead wire and the epoxy. Note that wire and cable can wick moisture inside the wire insulation into the sensor. The source of liquid usually comes from the area where the insulation is stripped from the wires for connection.

Reed switch failure

Reed switch failure can be a result of high voltage or current (or a short) exceeding the switch's switching capacity. Overpowered reed switches can fail either in the open or closed position. Typically, you will read resistance between 50 ohms to 10K ohms if the reed switch is stuck closed due to being overpowered. Sometimes a slight tap on the stem will cause the reed switch to become unstuck. If this happens, it is an indication that too much power is being applied to the reed switch. Though it may appear the reed switch is now working normally, it is recommended that the sensor is repaired, and new switches are installed as the original switch is damaged and potentially will cause a premature failure. In addition, the circuit must be examined to determine the reason for over powering the switch. If the switch was significantly over powered, it can be destroyed and it remains open.

Float's specific gravity does not match the liquid that is being measured

The floats specific gravity must be less than the applications liquid specific gravity. If the floats specific gravity is greater than the liquids specific gravity, then the float will not float in the liquid and the switch will not change state. To estimate the specific gravity of the float, submerge the float in room temperature water (while the float is on a stem to keep the float upright) and estimate the percentage of the float that is submersed. The percentage is an estimate of the floats specific gravity.

Wire colors do not match the level switch

When connected to one switch, attempt to activate/deactivate all switches to determine which switch is connected to what wire color.