



Mirus™ Tank Level Sensors Description & Engineering Specifications

Description

The Mirus™ Tank Level Sensor is designed to measure the fluid level in polymer tanks, holding clear water, aqueous solutions, or aqueous waste fluids. The sensor produces a dual electric field that reads through the polymer tank wall, and detects fluid presence inside the tank, at the position of the sensor. These sensors are designed to be adhered to the polymer tank wall with high-grade long life 3M™ VHB foam tape adhesive provided with the sensors. The tank wall must be clean, dry and free of oils, lubricants and mold release. The surface flatness and smoothness are very important, both for good adhesion life, and for good sensor operation.

It is important that neither gaps nor air bubbles are present between the sensor adhesive and the tank wall. It is also important that no metallic or other conductive materials are either inside the tank near the sensors or near the outside surface of the sensors. Conductive materials may activate the sensors without fluids being present.

These are two conductor devices, the power supply voltage and the sense current being conducted down these two wires. The fluid level can be detected by measuring the amount of current being supplied to the sensor set, thus detecting the number of sensors activated, indicating the fluid level in the tank. The individual sensors conduct when the fluid level reaches approximately 1/3 of the way up the sensor face.

Operating Specifications

- Sensor power voltage: 5 volts +/- .5 volts DC applied to the sensor leads at all times. Positive voltage applied to the black-with-white-stripe wire unless otherwise directed.
- Sensor quiescent current (non activated set): approx. 20 micro amps per sensor.
- Sensor sink current (activated): approx 2.5 ma. per active sensor.
- Sensor Temperature range (operation): 0 to 125 degrees F.
- Sensor Humidity range: 0 to 95% RH, non-condensing. Sealed housing: ABS Plastic.
- Atmospheric pressure range: No effect up to several atmospheres, assuming tank surface remains flat.
- Reaction time, less than 1/4 ms after fluid level activation.
- Not sensitive to most external build-ups, including salts, mud, dust, dirt, corrosive compounds, and organic material.

Mirus™ Tank Sensors Installation and Troubleshooting Tips Guide

The Mirus™ tank sensors are 5vdc sensor harnesses designed to work on polyethylene, polypro and fiberglass tanks of thicknesses up to 10mm.

Installation Tips

Do I need to prep the tank wall?

Yes. Clean external tank walls with Rubbing Alcohol and allow time to dry. The adhesive is a 3M™ VHB foam tape able to withstand the expansion and contraction of the tanks as they are filled. Please make sure the sensors are fully adhered and allowed to cure for a minimum of 24 hrs. The sensors will not operate properly if there are airgaps between the adhesive and the tank wall.

Which sensor goes on top and bottom etc?

There is no top or bottom sensor. Since the sensor harness works in parallel, the sensors can be mounted any which way on the tank, however you must make sure that the sensors do not reside in the same plane as they will give you an improper reading.

How should I mount the sensors?

The sensors can be mounted in a vertical or “stair step” manner depending on size and shape of tank. The sensors can also be “buted” up against one another on a smaller or shorter tank without causing false activations.

It is suggested that the sensors be mounted towards the edges of the tanks where the “bowing” action from a full tank is less pronounced and overall tank wall stability is better.

Troubleshooting FAQ's

Problem: Panel is reading that there is fluid in the tank, but tanks are empty?

Answers:

- 1) Check to make sure electrical connections are made properly, if polarity is reversed all LED's will be on.
- 2) Make sure there are no conductive objects touching the back of the sensors such as metal objects, wiring, straps etc as these will cause false activations.
- 3) Make sure your tanks are not thicker than 10mm.
- 4) Clean inside of tanks if not previously done.

Problem: Panel has erratic or erroneous reading(s)

Answer: Make sure you are not using a shared ground wire with high current accessories such as refrigerators, water heaters, pumps or other items with high levels of noise.

Problem: How can I test the sensors?

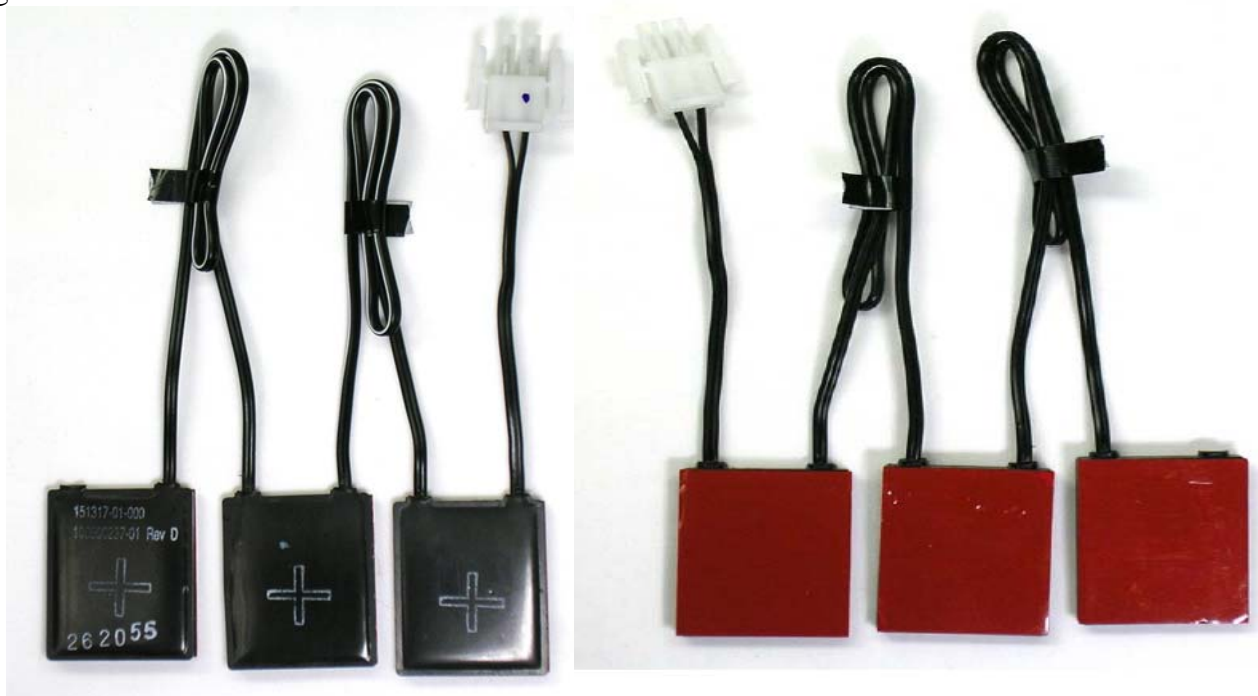
Answer: It is possible to test the sensor with a current meter in addition to placing your fingers on the backside of the sensors to activate them.

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Depending on what Monitor Panel you have please make sure to check that all wiring was done properly. You might have to get the wiring diagrams from your OEM. **TouchSensor is not responsible for incorrect wiring or installation done by the OEM or end user.**

Sensor harnesses come in 3, 4, & up to 10 sensors per harness depending on who manufactured your coach. In addition the connectors can vary as well.

Front and Rear Views of typical
Winnebago sensors



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