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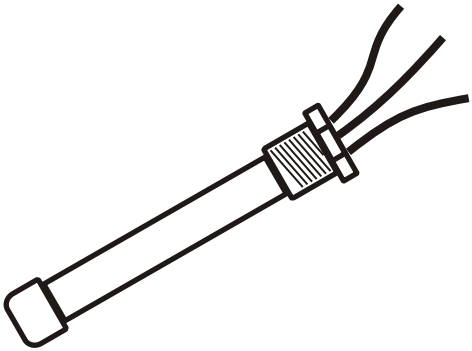
Internal PVC Rod-Style Fluid Level Sensor



Introduction

Note: This sensor is designed for use in metal tanks, wood-cored fiberglass tanks, or any plastic tank whose walls are unsuitable or u accessable for installation of our external foil-based level sensors.

Ever have a float sensor foul and fail in a waste tank? Our PVC rod-style level sensors solve this problem as it is a completely solid-state design with no moving parts to foul.
This sensor installs through a 1" NPT threaded hole in the top of the tank to monitor. If your tank already had a float sensor installed it may be that there is already a suitable hole through which to install this sensor. If this hole has 5 smaller holes surrounding a larger central hole it is likely that this is the standard SAE-5 lug sensor pattern for which we manufacture an adapter plate which will greatly simplify your installation.

Small things can make big differences. A power-on light is just such a small thing that can be incredibly useful when you are installing a system. When our sensors are being read by the monitoring panel, its green light glows telling you that its power is on. This gives you valuable instant feedback that the sensor is hooked up properly.

We have taken considerable time and effort to ensure that you have purchased the best marine tank monitoring system possible. Our Engineering and Sales staff has over five years experience in the Marine Industry and has launched several highly successful marine products. In order to ensure continuing product quality we build all of our products on our state of the art electronics production line and test and inspect each and every sensor several times prior to packaging and shipping to the customer.

Installation Guide

This sensor has been designed to be installed with common tools and materials by both marine professionals and boat owners. The installation process is fairly involved, but can be accomplished as a series of simple steps. We highly recommend you read this manual in its entirety and familiarize yourself with each step prior to beginning the installation. You should also read the owners manual for the display panel you are installing and become familiar with it as it contains important wiring instructions required to completely setup your system. If you have any questions at all about the installation or setup process please contact our technical support staff, they will be happy to answer any questions you have to ensure a successful installation.

Included parts
The internal PVC sensor rod is pictured below:

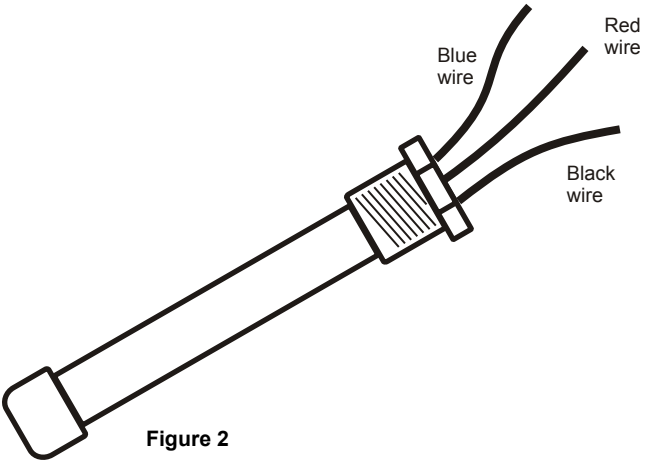


Figure 2

Required Additional Tools and Materials
In addition to the sensor and the contents of the monitoring panel kit, you will need to provide the following tools and materials to install these sensors on your tanks:

1) Tools appropriate to cut and tap the 1" NPT threaded hole into the top of your tank.
2) If your tank already has a SAE-5 lug pattern they we recommend the use of our SAE-5 to 1" NPT adapter plate.
3) a wrench large enough to screw the sensor into the mounting hole.
4) Wire cutter, stripper and terminal crimper for 18 AWG wire (inexpensive combination tools are usually available at most auto parts or hardware stores).
5) Crimpable insulated butt connectors for 18 AWG wire (you will need 3 for each sensor you are intending to install).

You will need additional tools and materials to install the monitoring panel for your system. Refer to the owners manual for your panel for a list of these items.

Panel Installation
The first step in installing the monitoring system is to install the monitoring panel and pull the wires from the panel location each monitored tank. Refer to the owners manual you received with your monitoring panel for installation instructions. This sensor requires wires for power, sensor return, and ground.

Cutting a PVC Liquid Level Sensor to Length
You may have purchased a PVC liquid level sensor unsealed and at a generic length (typically 18", 24", or 36" long). You will need to cut the sensor down to the proper length for your tank height and seal the sensor with the provided PVC cap and an appropriate PVC adhesive (not provided but inexpensive and available at most hardware stores).

First measure your tank height. Your sensor length should be about an inch or so shorter than the height of the tank. Make sure to take into account the height of the sensor mounting flange installed in the top of the tank when calculating sensor length. Next mark the cutoff location on the PVC sensor tube and cut it to length. When cutting the tube it is important that you do not dislodge the pair of copper sensor foils running up the inside of the PVC sensor tube. It is helpful if you cut the tubing such that you will cutthrough both sensor foils at the same time as pictured in Figure 2 below.

Inspect the sensor foils once you have cut the sensor tube. If you have disturbed either of the foils,

re-adhere them to the inside of the PVC tube with your finger tip (avoid putting anything into the tube which might tear the copper foils).

Now it is time glue the PVC cap over the cut end of the sensor. First apply some adhesive to the inside of the sensor tube to help ensure good adhesion of the copper foils at the freshly cut end (thereby preventing the foils from becoming loose in the future). Next apply some adhesive to the inside of the cap and to the outside of thesensor tube then quickly press the sensor tube all the way into the cap.

Once the adhesive is dry, the sensor is complete and is ready to install into a 1” NPT hole in the top of yourtank.

Note: Only use an adhesive specifically for PVC pipefittings--the use of a different adhesive may lead to leaking of tank contents into the interior of the sensor and could cause the sensor to fail. Also, please read and follow all instructions and precautions for PVC adhesive you have selected.

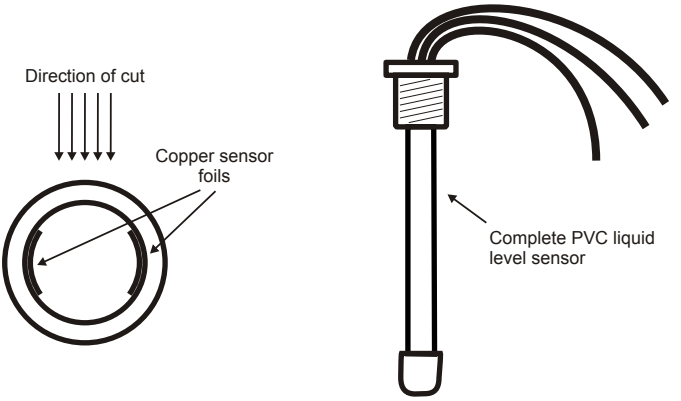


Figure 2

Mounting The Sensor

If you are replacing a float sensor check to see if it was mounted through a large hole surrounded by 5 smaller threaded holes. If it is then we strongly recommend the use of our SAE-5 to 1” NPT adapter. To mount the sensor through this adapter, first remove the old sensor making sure to save the gasket between it and the tank and the five screws. If the gasket is unsalvageable you could create a seal between the adapter and tank using some RTV silicone sealant available at most hardware stores. Note: the screw holes in both the adapter and gasket will only fit onto the tank one way. If all5 holes do not line up with the holes in the tank, rotate the adapter and gasket until they do. Once all the holes are properly aligned, secure the adapter plate in place with the original 5 screws previously removed.

Next, insert the sensor rod through the large threaded opening in the adapter plate and screw securely in place with the wrench. If your tank has a threaded opening which is too large for our sensor (i.e. a 1 1/2” NPT threaded hole) you will need to purchase a threaded adapter from a plumbing or hardware store to reduce this opening to the 1” NPT head on our sensor. Screw our sensor into this adapter then screw the entire assembly into the threaded opening in your tank. If there is an SAE-5 opening or threaded hole in the top of your tank you will need to create a 1” NPT threaded hole through-which to mount the sensor. If you lack the skill to do this properly, we encourage you to contact a professional who can mount the sensor without damaging your tank. However you mount the sensor, try to keep it a couple of inches away from the sides of the tank, this can negatively affect sensor accuracy.

Installation: Sensor Wiring
Complete the sensor wiring with the crimpable butt connectors as described in the owners manual for your monitoring panel.

Final Installation
Follow the above installation procedure for all sensor rods in your system. It would be helpful to leave all the sensors exposed until you are finished testing your system. Once everything is working well, you can replace any panels or covers for each tank.

Limited Warranty

SCAD Technologies LLC (SCAD) warrants to the original purchaser that this product is free of defects in materials or workmanship for a period of one year from the product's date of purchase. Should this product prove defective by reason of improper workmanship and/or materials within the warranty period, SCAD shall, at its sole option, repair or replace the product.

1. TO OBTAIN WARRANTY SERVICE, Consumer must deliver the product prepaid, together with a detailed description of the problem, to: SCAD Technologies LLC, 2595 Viceroy Dr, Winston Salem, NC 27104. When requesting warranty service, purchaser must present a sales slip or other document which establishes proof of purchase. THE RETURN OF THE PRODUCT REGISTRATION FORM IS NOT A CONDITION PRECEDENT OF WARRANTY COVERAGE. However, please complete and return the Product Registration Form so that SCAD can contact you should a question of safety arise.
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