

## How our exterior Moda tank sensors work:

The Exterior Moda sensor is a capacitance type, continuous level detector, used to measure the liquid contents of non-metallic fresh water and holding tanks. This sensor uses two metallic strips consisting of aluminum foil tape that are stuck to the outside vertical surface of the tank wall. These two pads are mounted approximately two inches apart (sometimes further depending on tank set-up) and extend from the empty water line (or bottom of the tank) to the full water line (or top of the tank). Each of the two pads should have at least 15 square inches of area and usually not more than 50 square inches of area.

In between the two pads is mounted the electronic Moda module which does the sensing. The tape mounting this cube sensor to the tank is just for stability purposes. It is connected to each of the two aluminum foil strips with two 2" square copper foil pads. The purpose of the copper pads is simply to allow a reliable solder connection to be made to the wires as soldering to aluminum is not a stable connection and will corrode quickly.

The two aluminum strips on the tank walls effectively form the plates of a capacitor. An electronic signal is transmitted across the pads and as the fluid level rises in the tank, the electronic signal increases. This signal is converted to a DC voltage and is sent to the monitor panel where the panel translates that into a level of fluid based on the initial calibration settings recorded at set-up.

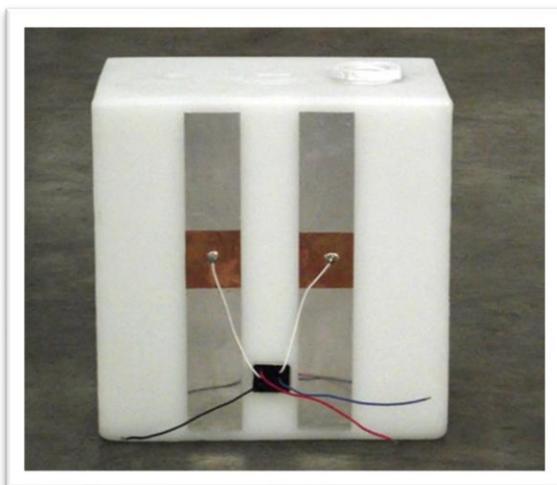
The panel (varies a bit depending on which panel you are using) will send approximately 10-12 volts down to the red wire on the sensor. That voltage will go from one tape, through the tank, to the other tape and then returns to the panel from the blue wire at the sensor. The returning voltage will be at a variable level depending on the fluid in the tank. This is somewhere between 0-5 Volts with full usually being somewhere around 3 volts.

The PVC Rod sensor works in the same way but we have built a "false" wall with the PVC rod as the strips cannot send voltage correctly through metal surfaces. The strips and electronic circuit board are put down into the rod which can then be used in metal tanks or tanks that are not accessible on the outside.

The Diesel Sensor Rod is a bit different in that it has an aluminum inner rod and outer rod that measure that voltage variance.

This technology was patented in the early 80s by Larson Electronics. The company has changed hands a few times but the technology is still performing excellent as it should with updated panels and more features. Some panels will give you readouts using  $\frac{1}{4}$  tank increments with LED's. Some panels will give you percentage readouts on LCD screens with many other self-monitoring features.

If you have any questions regarding this process, you are welcome to call in and we can help you with those.



Tech-Edge Manufacturing LLC  
4296 Osage St.  
Sweet Home, OR 97386  
[www.tankedge.com](http://www.tankedge.com)  
(541) 610-0401