



# INSTALLATION INSTRUCTIONS AND USER GUIDE FOR YOUR iSERIES TANK MONITOR



## Thank you for your purchase!

Tech-Edge Manufacturing's iSeries Monitor is designed to enhance tank efficiency and quality of life, while granting an easy, hassle free user monitor system.

### **PLEASE READ ALL INSTRUCTION BEFORE USING MONITOR**

Please read all the installation instructions prior to starting. These installation instructions are written to have as universal an application as possible. Most installations are performed easily using simple hand tools. If you encounter any questions or difficulties please contact your place of purchase or your local RV/Marine service center for professional installation. You are also welcome to call our Tech Support line. Whenever the word CAUTION appears in these instructions, the following item needs to be performed EXACTLY as written. Failure to do so can result in injury to yourself or others, damage to your RV or Boat or failure of the Monitor to work properly. NOTE: Any alteration to the Monitor kit will void your warranty.

**\*\*\*SAVE THESE INSTRUCTIONS\*\*\***

### **KIT INCLUDES:**

iSERIES TANK MONITOR · TANK MODA SENSORS (3 in a standard kit) ·  
FUESABLE LINK WITH ½ AMP FUSE · ROLL FOIL TAPE (4½' PER  
TANK) · SOME BUTT CONNECTORS · 4 SCREWS  
CUT OUT TEMPLATE FOR MONITOR WITH MANUAL

### **POSSIBLE TOOLS NEEDED FOR INSTALL:**

DRILL · 1/8" DRILL BIT · TAPE MEASURE ·  
LEVEL · ELECTRICAL TAPE ·  
BOX CUTTER/SCISSORS · VOLTAGE TESTER ·  
HAND/JIG SAW · 18 GAUGE HOOK UP WIRE ·  
WIRE CUTTERS · ADDITIONAL BUTT CONNECTORS ·  
ISOPROPAL ALCOHOL · 3M-SPRAY, OR ANY OTHER  
NON-CONDUCTIVE ADHESIVE ·

**IF YOU NEED MORE EXTERIOR MODA SENSORS OR CUSTOM  
INTERIOR TANK RODS, YOU CAN ORDER THOSE DIRECTLY  
FROM THE MANUFACTURE LISTED ON THE BACK.**

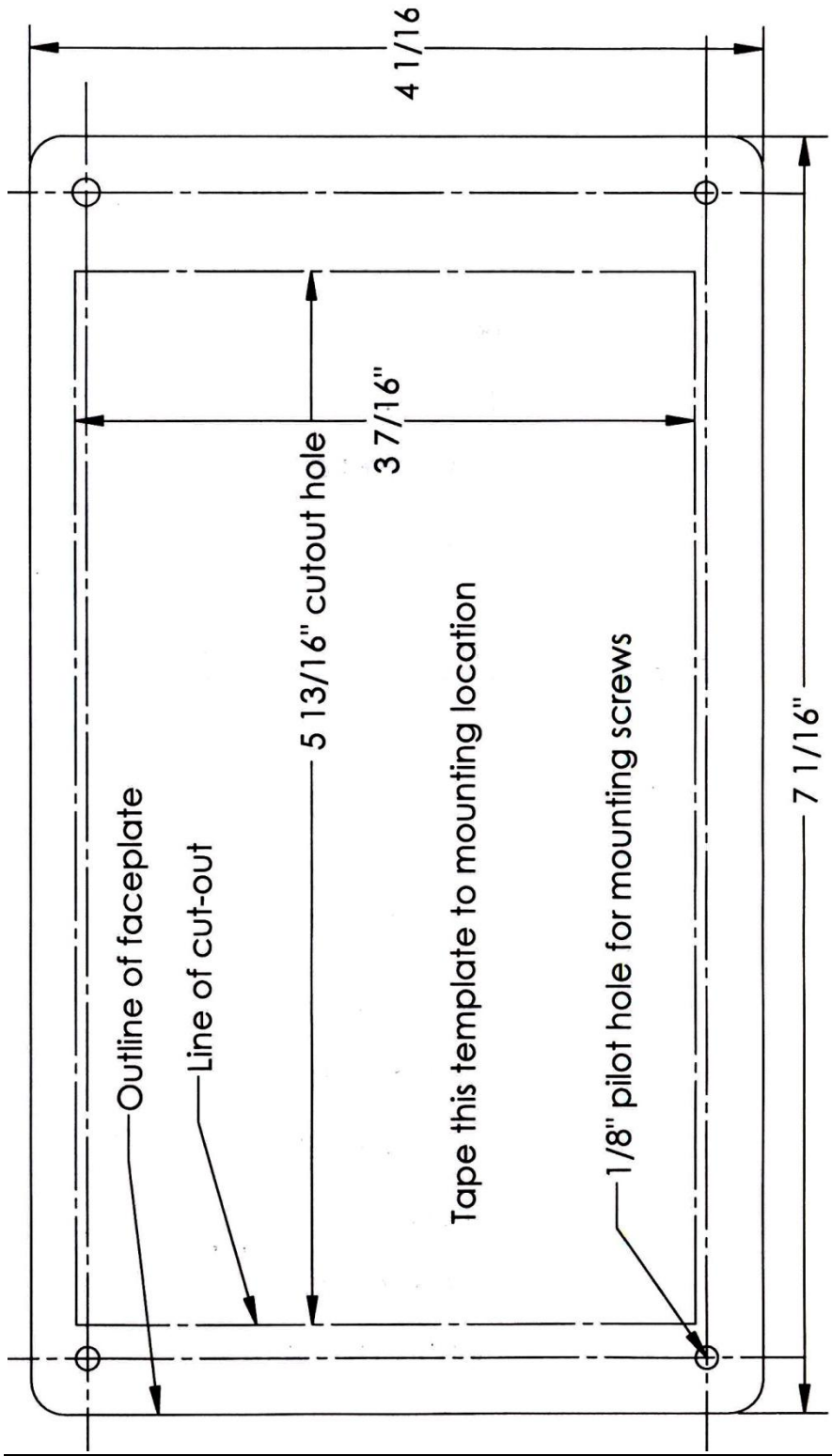
## **STEP ONE:**

### **Location and installation of Monitor Panel:**

#### **CAUTION: READ CAREFULLY**

Choose a panel location that is convenient to see and reach, and that does not interfere with drawers, cabinets, existing wiring, etc. In choosing a location you must also give major consideration to the fact the WIRES must be routed from the panel to the holding tanks as well as to your power source. MAKE CERTAIN the proposed wiring routes are not blocked by wall stringers or other structural supports.

REFER TO **Cut Out Template on Page 2** If you would like to keep your manual intact, make a 100% copy of the cut out template and use that. Using the cut-out guide, mark holes on the corners of the area to be cut out as well as the screw placements. Cut the panel opening as indicated. The panel will attach to the wall with 4 screws at the corners. **DO NOT** attach the panel to the wall until all other installation, calibration and testing has been completed.



## **STEP TWO**

### **INSTALL SENSORS ONTO THE TANK(S):**

NOTE: This section covers the installation of our external sensor modules called MODA sensors. If you have our custom made internal rod sensors (PVC or aluminum) for metal tanks or tanks that are not accessible to the side wall, installation will be different but wiring will be the same.

An external sensor is comprised of two parts: THE FOIL TAPE and the MODA SENSOR MODULE. Refer to **Figure #2** and repeat the following steps for each tank.

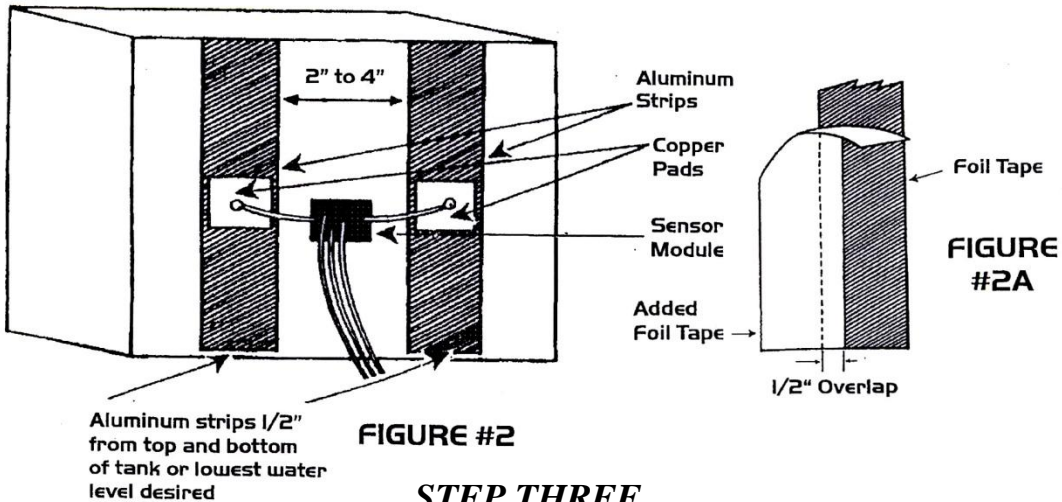
- A. Measure and cut to length two strips of foil tape. Each strip will run as close to the ends of the tank as possible while still being able to maintain adhesion. If a tank has rough or rounded corners, you may need to bring it in 1/2". NOTE: Each strip of foil tape should be between 15 and 40 square inches (multiply the length times the width) it may be necessary to trim away or add to the tape width to stay within these parameters.
- B. Prepare the tank area where the foil tape is to be placed by rubbing down the area with common isopropyl alcohol. Remove the paper backing from the foil tape strips and place them on to the tank in the designated areas. Smooth out any trapped air bubbles. Follow the dimensions on **Figure #2** below.
- C. If your tank is less than 8" tall or has very thick walls, then you will need to add additional tape and/or bring the tape closer together. If you are adding additional tape width, see **Figure #2 A** below. Foil can be added over the copper pad without a problem as long as it is pressed completely down.

**IMPORTANT:** The foil tape strips must be an inch or more away from large metal objects such as framework, metal siding, stored items, etc...

Remove the paper backing from the copper pads and from the module. Place a copper pad onto each of the two foil tape strips, then stick sensor to tank. The copper pads can be trimmed if they exceed the width of the foil tape, they can also be placed anywhere UP or DOWN the length of the tape.

- D. When you have installed the entire system, calibrated and tested it; then, apply a thin coating of 3M-spray (ie. Formula 77 or 90), or any non-conductive adhesive over the top surface area of the exposed tape to help ensure long term adhesion (optional).

**IMPORTANT: PROVIDE ADEQUATE VENTILATION WHEN APPLYING THE ADHESIVE, PARTICULARLY IF WORKING IN A CONFINED AREA.**



### **STEP THREE**

**RUN WIRING :** “CAUTION” If you use staples or nails to secure wiring, make sure you **do not** penetrate the wire at all. Also route wires so they do not interfere with storage areas and away from potential sources of heat (oven, exhaust pipes, etc.). Due to the vast range of application possibilities it is not practical for us to include hookup wire in the kit. It is however, commonly available and inexpensive. You must use at least 18 gauge stranded wire for the power runs and between 22 and 18 Awg for the data runs. Make certain you have enough to perform all connections.

You will be using your hookup wire to make connections to a 12 volt D.C. power source and for connecting the panel to the tank(s). After studying the wiring installation procedures you can cut your hookup wire to required lengths, then strip the insulation on all wire ends approximately 1/4" and use the supplied butt connectors or wire nuts to join wires.

- A. Take time to study the wiring diagram and the “Hookup Guide”. The first connections are made to wires 3 and 4 which are routed to your first tank. Each wire on the pigtail connector has either a red or blue stripe. This designates which wire on the sensor it will hook up to.
- B. Repeat this step with the other tanks.
- C. All the black wires from the sensors need to be grounded very well (together or separate) or run back to the black wire on the panel.
- D. **CAUTION** - When you have hooked up all the tanks, you can then hook up the wire 1 (red) on the pigtail connector to one terminal on the back of the power switch (either one) on the panel, the fuse assembly will attach to the other terminal and then run to the 12 volt DC Positive (Make sure the fuse is in the assembly and looks good prior to

hooking up). Wire 2 (black) should then be run to the 12 volt DC Negative. **Do not hook these up wrong or the panel and/or sensors will be severely damaged!**

E. If possible, avoid wiring to a converter power source or to wires that power fluorescent lights. This could result in electrical “noise” which may affect accurate panel readings.

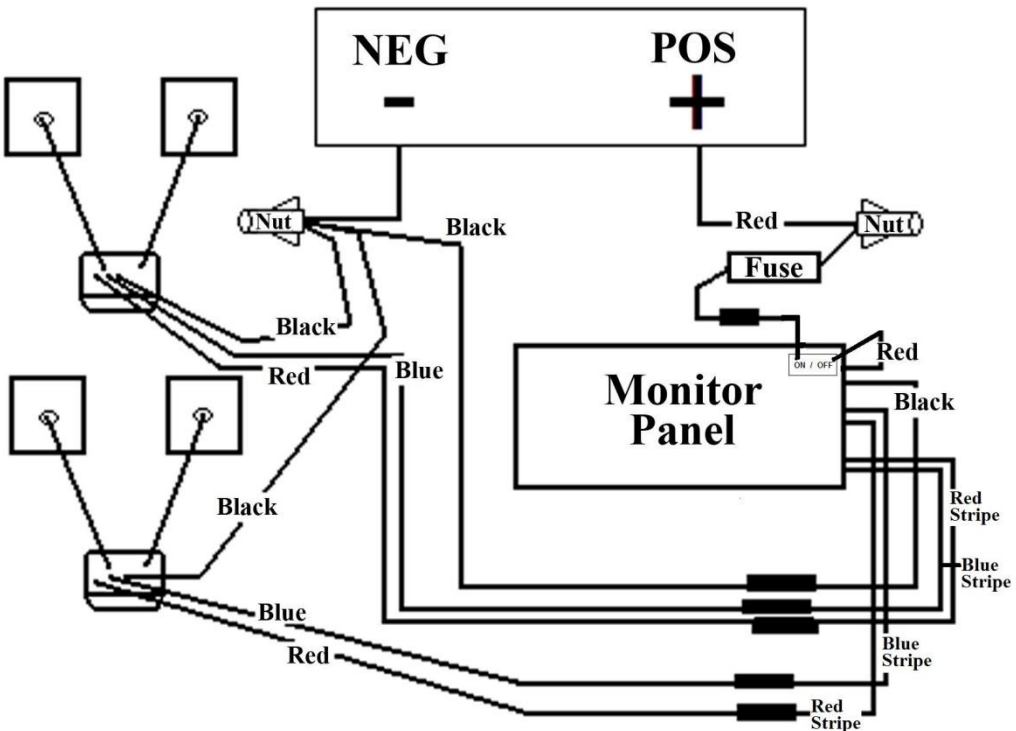
Note: **Tanks 1-4** are designed to drive and receive data from **MODA SENSORS OR OUR CUSTOM BUILT SENSOR RODS**. **Tanks 5-8** are designed for **LPG or 90 ohm** sending unit for fuel tanks, pre-equipped on your tank.

\*\*If you purchased the modified iSeries that drives 8 modas and no LPG, then hook up the last 4 tanks the same as the first 4. You can also send this unit in to be modified if you purchased it as a retail unit and would rather have 8 standard tanks. Call for pricing.

**PIGTAIL COLOR CODE AND HOOK-UP GUIDE / INITIAL CALIB. #'S**

DESCRIPTION	WIRE	COLOR /STRIPE	MODA COLOR /CALIB.	EMPTY	FULL
TANK EIGHT	18	PINK/RED	RED		
	17	PINK/BLUE	BLUE		
TANK SEVEN	16	BROWN/RED	RED		
	15	BROWN/BLUE	BLUE		
TANK SIX	14	GREY/RED	RED		
	13	GREY/BLUE	BLUE		
TANK FIVE	12	GREEN/RED	RED		
	11	GREEN/BLUE	BLUE		
TANK FOUR	10	WHITE/RED	RED		
	9	WHITE/BLUE	BLUE		
TANK THREE	8	PURPLE/RED	RED		
	7	PURPLE/BLUE	BLUE		
TANK TWO	6	ORANGE/RED	RED		
	5	ORANGE/BLUE	BLUE		
TANK ONE	4	YELLOW/RED	RED		
	3	YELLOW/BLUE	BLUE		
GROUND -	2	BLACK	<b>BLACK</b>		
POWER 12VDC+	1	RED	NONE		

**12V DC Power**



**Black wires from Sensors can also be linked together and grounded**

After the wiring is complete, if you have exposed wires coming from the extra wires not used on the pigtail, cut the small exposed portion off or wrap them in electrical tape. You do not want these wires touching even though they are not in use. You will want to leave the main portion of the wires intact in case you will need to add more tanks at a later time.

## **STEP FOUR**

### **CONFIGURE AND CALIBRATE TANKS:**

To get into configuration mode, after turning the unit on, press and hold both the “▲” Up Arrow and the “Menu” button at the same time. You can now press the “▲” or “▼” arrows to scroll between the next screens.

**STEP 1 – ENABLE TANKS** – To enable or disable each tank, press “OK” at the “**ENABLE TANKS**” screen. The numbers on the top row are for each tank corresponding to how you wired them, the “Y” and “N” under each tank denotes whether that tank is enabled or not. Press “Menu” to change the tank selection. If you would like to enable a tank, press the “▲” Up Arrow when you are at that tank selection. If you would like to disable it, press the “▼” Down Arrow. Press “OK” when you are done with this screen.

**STEP 2 – NAME YOUR TANKS** – Press “OK” at the “**NAME TANKS**” screen to name your tanks. “TANK 1 NAME” will come up and press “OK”. There are two words to select for each tank. Pressing the “▲” or “▼” will run you through the available names of the tanks and pressing the “OK” button will toggle between the 1<sup>st</sup> and 2<sup>nd</sup> word. After you have selected the name of that tank, press the “Menu” button to back out. You can then repeat the process for the other tanks by scrolling through the other tanks with the “▲” or “▼” arrow buttons and pressing “OK” to select the tank. When you are done naming all the tanks, press the “Menu” button to return to the Configuration menu.

**STEP 3 – CALIBRATE YOUR TANKS** – Press “OK” at the “**CALIBRATE TANKS**” screen to calibrate your tanks. You can calibrate either empty or full first but you need to have the tank at the level you want calibrated (i.e. empty for empty or full for full). The first screen that comes up is the first enabled tank. To scroll between tanks, press the “OK” button. On each tank, there are three numbers. The 1<sup>st</sup> number is the empty calibration number, the 2<sup>nd</sup> (middle) is the Raw or Live reading and the 3<sup>rd</sup> is the Full calibration number. If you are calibrating the empty reading, at this screen, you will push the “▼” Down arrow. If you are calibrating full, press the “▲” Up Arrow. It will ask you if you are sure. Press “OK” for Yes and “Menu” for No. The raw number should then match the level you just calibrated (i.e. left number for empty or right number for full). When you are filling your tank, you should be able to see the raw number increase. Space is provided on page 4 to note your initial calibration settings for future tech support needs.

Ideally you want a minimum difference of a 50 count between the Low calibration and the High Calibration number. This is not absolutely necessary but the higher the difference, the better the accuracy. You also want to try and keep your full number under 250. If the count between your empty and full calibration readings is quite a bit less than 50, you can add foil to the inside of your original foil strips. This will bring the strips closer together and should increase your count. Do only one side at a time and check your count. Make sure you overlap the foil and it stays pretty consistent the whole height of the tank. It is OK to cover some of the copper tape. If you have a very short tank (ie. 6” or so) or a very thick tank you might have to add a second strip of foil overlapping the first one on the outside of each strip. When you are done calibrating your tanks, press the “Menu” button to return to the Configuration menu.

**STEP 4 – CONFIGURE YOUR ALARMS** – Press “OK” at the “**TANK ALARMS**” screen to configure your alarms. The first screen will be your first enabled tank. Press the “▲” or “▼” arrows to select the percentage you would like to be alarmed at. (i.e. You want the Fresh Tank to alarm you when it reaches 15%, push the “▼” until you reach 15). Press the “OK” button when you have selected your percentage. You can now toggle the alarm on or off (“Y” or “N”) by pushing the “▼” down arrow. You can toggle between being alarmed at Empty (“L” for Low) or Full (“H” for High) levels by pushing the “▲”. (i.e. “L” for Fresh or Fuel tanks and “H” for Grey or Black tanks). Pressing “OK” when you have configured the alarm for that tank will bring you to the next enabled tank. After all tank alarms are configured, pressing “OK” will bring you to “**ENABLE BATTERY ALARM**” Press the “▲” to enable the battery alarm or the “▼” to disable it.

**STEP 5 – CONFIGURE TANK SCANNING FREQUENCY** – After you configure your alarms and press “▲” or “▼” to enable or disable your battery alarm, you will automatically be brought to the next configuration screen “**TANK SCAN FREQ.**”. Press “OK” here to set your scanning frequency. Press the “▲” or “▼” arrows to change the amount of time between automatic scans of the tank levels. If you select “0 Min.”, no automatic scans will be done and tanks will only be checked during manual tank checks. Press “OK” when desired time is selected.

**STEP 6 – SELECT BRIGHTNESS OF BACKLIGHT** – Press “OK” at “**SCREEN BRIGHTNESS**” to change the brightness of your LCD screen. Press the “▲” or “▼” arrows and then press “OK” when done.

**STEP 7 – SELECT VOLTAGE FOR BATTERY ALARM** – Press “OK” at the “**BATTERY ALARM**” screen to set the voltage level your battery alarm will sound at. Press the “▲” or “▼” arrows until desired voltage is reached then press “OK” when set.

**NOTE 8 – SOFTWARE VERSION** – This screen will tell you what version of software you are using. In our continuous efforts to be the best product on the market, free software upgrades are available for the life of your tank monitor panel.

Press the “▲” or “▼” arrows to change more configurations or the “Menu” button to exit configuration mode.

## USING THE SYSTEM

After the system is all wired and configured, you can screw in your panel and enjoy the most accurate tank monitoring system on the market.

The screen for your monitor will be off unless it is doing an automatic scan or you are manually scanning the levels of your tanks. To check the levels of the tank, press the “▲” or “▼” arrows to scroll through each tank. You can also do a full scan if you press both the “▲” and “▼” arrows at the same time. If during an automatic scan or manual scan a tank reads out of bounds (empty or full), the alarm will sound.

**SILENCE ALARMS** – To temporarily silence an alarm when it goes off, press the “OK” button. This will silence it until the next automatic scan. To silence the alarms completely, you will need to press the “Menu” and the “OK” buttons at the same time. This will bring you to “AUDIBLE ALARMS” screen. Pressing the “▼” arrow will silence all alarms. When you are scrolling through your tanks, it will state “Alarms Silenced”. To turn the alarms back on at this screen, press the “▲” arrow. It will then state “Alarms Enabled”. To check if your battery alarm is enabled, it will state “E” or “D” for enabled or disabled on the battery screen.

## TROUBLE SHOOTING GUIDE

Factors affecting the accuracy of readings and calibration:

The unit should be calibrated with the vehicle as close to level as possible. If you are installing it on a boat, it should be at the level it will be at in the water. Depending on where the sensor strips are located on the tank, the readings may be somewhat sensitive to the pitch of the vehicle (due to the fluid sloshing either against or away from the sensor elements mounted to the tank wall). Keep this in mind when interpreting what otherwise might be a malfunctioning sensor or display.

Some tanks, particularly those mounted below the decks in boats, may be impossible to completely drain or may refill with a small amount of fluid after pumping out (due to fluid left in the drain plumbing, which may drain back into the tank). If you calibrated empty on such a tank when it was completely dry (as in a factory installation) it may read that there is some fluid in the tank even when pumped empty. If this is the case, simply recalibrate the empty point after pumping out and allowing to “SETTLE” to an actual “EMPTY” level. See Step 3 on page 5.

## PROBLEMS & REMEDIES

<b>Problem</b>	<b>Possible Causes</b>	<b>Test/Remedy</b>
Tank always reads full, empty or never changes regardless of level of fluid in the tank.	<ul style="list-style-type: none"> <li>-Improperly Calibrated Tank</li> <li>-Damaged wiring between display, sensor module and/or power source.</li> <li>-Damaged or improperly installed sensor foil</li> <li>-Damaged sensor module</li> <li>-Electrical shock to the system via outside source or incorrect wiring, frying sensors and/or panel</li> </ul>	<ul style="list-style-type: none"> <li>-Recalibrate tank for empty and full and recheck</li> <li>-Visually check all of the wire between the sensor, display panel and power source. Check that all wires are attached properly and that there is no damage. Repair any problem and recheck</li> </ul>
Tank always reads full	See above or: Wire ground has been lost	See above or check all ground wiring to make sure securely attached.
Tanks have inaccurate readings	<ul style="list-style-type: none"> <li>-See above or:</li> <li>-You may have too much or too little aluminum tape on your tank.</li> </ul>	See above or add or remove tape, recalibrate and check again. To remove tape, use a razor blade and run it from top to bottom. Use a ruler to keep a straight line.

**If you are not able to diagnose and fix your problem, please check our web site for more troubleshooting information and videos. If that does not help you, please feel free to contact our tech-support.**



4296 Osage St.  
Sweet Home · OR · 97386  
(541) 610-0401 · (541) 367-3116 Fax

[www.TankEdge.com](http://www.TankEdge.com)