

Oregon Scientific THWR800 water temperature sensor.

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## Introduction

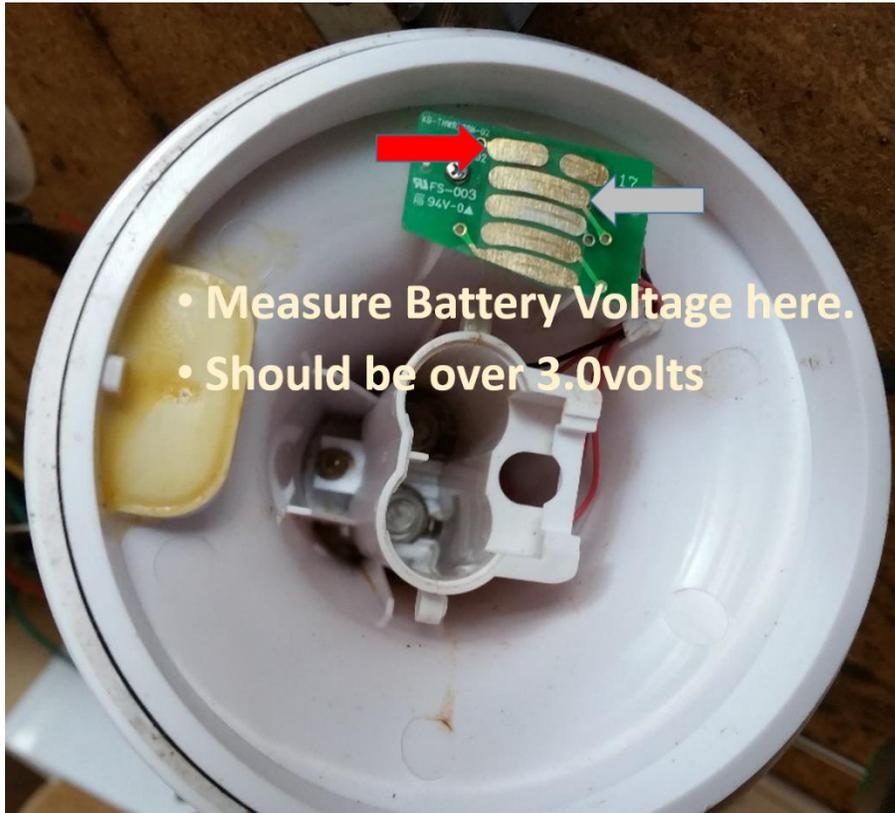
I thought these would be good to have to monitor my pool and spa temperature. Especially in the spring when I use some unusual solar heating techniques to warm the pool.

So I purchase the THWR800 and the WMR100CA to monitor my pool on 3/24/2010. I used the Virtual Weather Station Software to read and display the data and push plots to my web page. The first pool sensor THWR800 started having issues 6/14/2010 less than 3 months later. This should have been a clue as to the required work just to keep the sensors working.

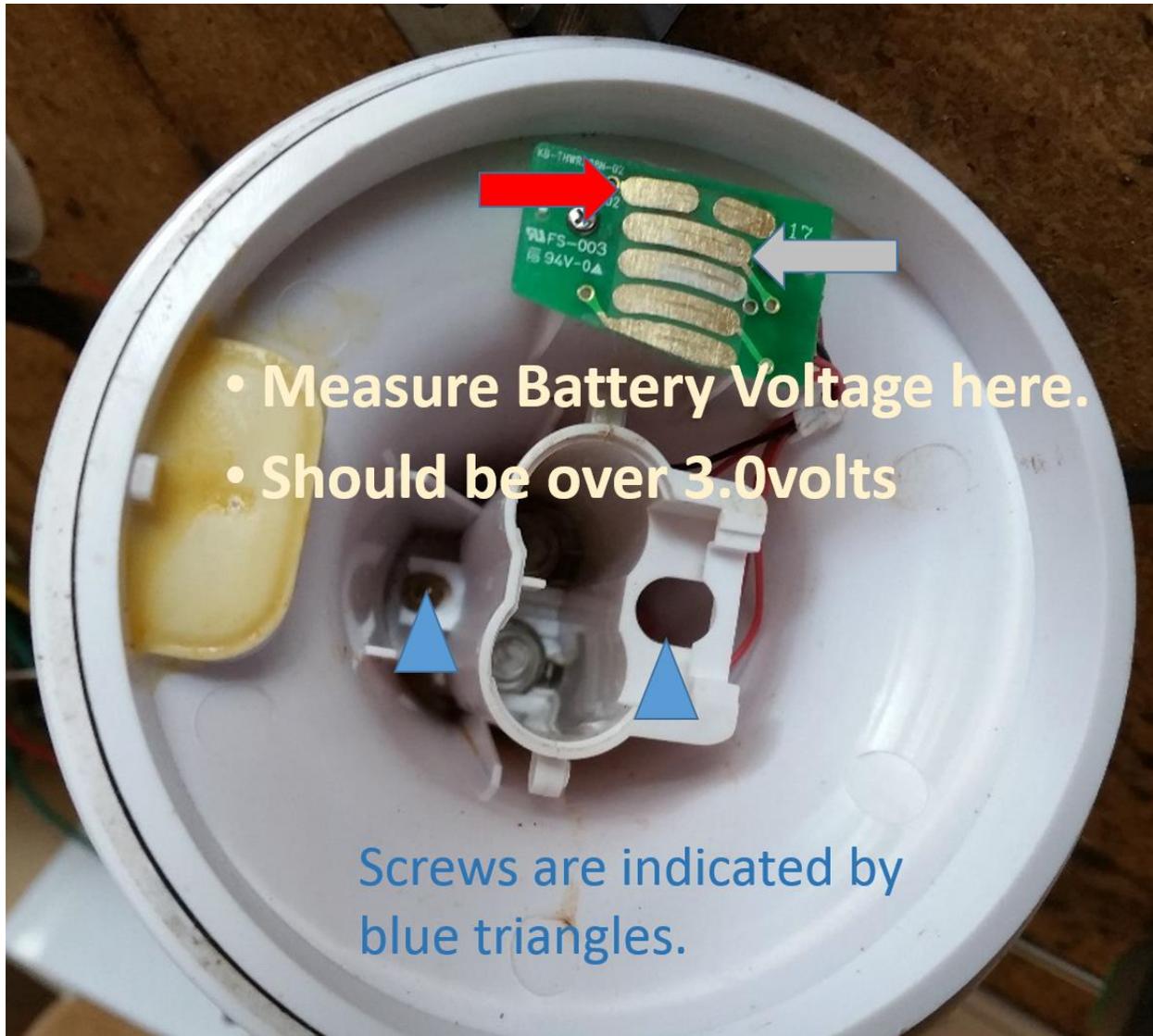
Below are the tips and tricks I use to repair the sensors.

## Battery Repairs

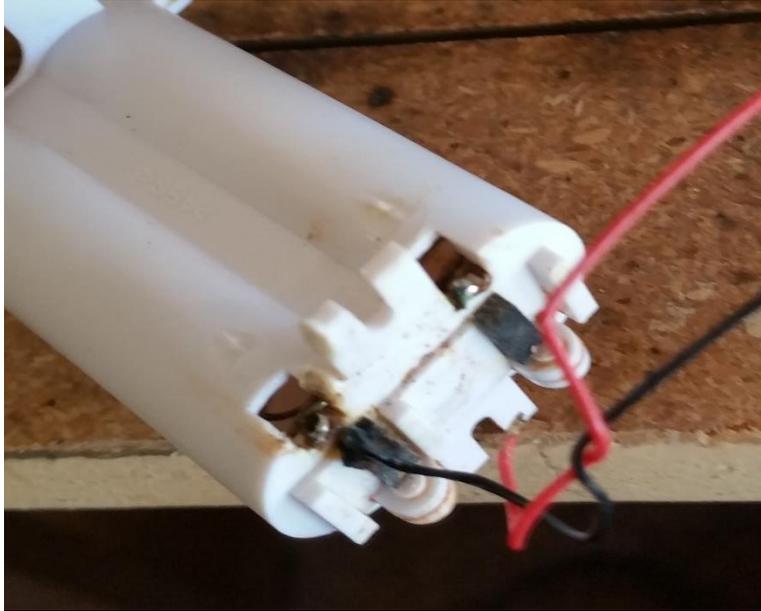
The most common problem the battery voltage not getting to the electronics. Check with the batteries installed.



If the battery voltage is low or non-existent; remove the battery holder with two screws.



The most common problem I have found is broken or corroded leads to the battery holder.



So you can try to re-solder the leads but the wires used are so tiny it can be difficult. I replaced the leads with 22 awg stranded wire. Stranded is required because the pads on the circuit board are very small

and it is easy to pull them off the board. Stranded wire will help with the pulling. Try to clean the “Battery Springs” so they make good contact and clean the upper battery cover also.



If you measure 3 volts you can try the sensor again. Notice I used the via holes to probe.

Try to glue or tape the wires back into place against the side to help with pulling.

## Diode Repair

Corrosion is a reoccurring problem with the wiring inside the THWR800 temperature sensor. On the last repair I noticed some corrosion on the diode. Upon further inspection the diode lead was corroded through. I did not know how



significant that part was so I replaced the diode from a non-working temp sensor.

The diode is through hole mounted in the bottom board. So I used some solder wick to remove all the old solder and gently pull out the diode. This can be a little tricky because one of the through holes is under the upper board.

## Thermal Sensor Extension

Because I keep fighting corrosion issues, I decided to make a change for the spa sensor. My intent was to extend the thermal sensor approximately 3ft. Place just the sensor in the spa water. The transmitter would be outside the spa in a dry location. Additionally I thought this might provide better RF connectivity.



I checked the Resistance

of the thermistor used to sense temperature.

I found 3/8 inch heatshrink tubing. The sensor is glued into the base of the unit. I pried

the sensor out of the base of the unit and sanded it down round and smooth. I really broke off the base of the unit with



the sensor glued inside. There are 3 steel blocks in the base for ballast which I removed. I extended the leads with 22 awg stranded wire and fished it through the heatshrink tube.

The final unit looks like this. I sealed up the bottom with waterproof caulking. I know it does not have the same functionality of the original unit. I am tired of performing significant repairs on these units every 3 months. Hopefully this will halt the corrosion.



I am beginning to look into alternatives to these units. Way too much work to keep them running.