WLD Troubleshooting

If you've made your Water Leak Detector and it isn't working as expected, here are some tips.

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1. How do I know if my Water Leak Detector is armed and running?

The green light should be on solid and the small LED on the Photon should be “breathing cyan”. Also, the D7 LED on the Photon should go on and off at about 4 second intervals. The little red LED on each water level sensor should be on.

2. My WLD is powered up but the red LED on my water level sensors is not on. What’s wrong?

First, check the connections from the water leak sensor to the RJ11 connector board, then from the corresponding RJ11 connector board in the WLD enclosure to the WLD main printed circuit board. Make sure that you are using 4-wire (2 line) telephone cables between the sensor boards and the electronics enclosure. 2-wire (1 line) telephone cables *will not work*.

If these are correct, you may be using “instrument” (“straight”) cables instead of telephone (“reverse”) cables. In order to check this out, remove the cable from the RJ11 connectors and stretch it out flat. Note the locking tabs on the connectors at both ends of the cable. If they are both up or both down, you have the telephone style cable. If one tab is up and the other tab is down, you have an instrument style cable.

If you have an instrument style cable, no problem. You can use this cable, but you need to reverse the connections of the sensor to the RJ11 connector board:

Instrument (“straight”) cable:

S → pin 2
\+ → pin 3
\- → pin 4

By way of comparison, the sensor to RJ11 connector board wiring for a telephone (“reverse”) cable is:

S → pin 5
\+ → pin 4
\- → pin 3

3. What do I do if my Water Leak Detector is not up and running properly?

First, remove and restore power. That usually gets it running again. After re-applying power, note the multicolor LED on the Photon module. It should start blinking green after a few seconds, then transition to a fast green blinking after several seconds, and end up "breathing cyan". If the Photon is breathing cyan, the green LED on the backlit pushbutton switch on the WLD front panel should light solid and the blue "D7" LED on the photon should turn on and off approximately every 4 seconds. If all of this is happening, the WLD is up and running correctly.

If you get no lights anywhere within about 3 seconds of applying power, you have a problem with the power connection or a short circuit on the power. Check that the power is not shorted to ground on the WLD printed circuit board and that the "wall wart" power supply and the USB cable are good. The WLD printed circuit board has an "expansion" connector where you can check the +5 and +3.3 volt power supplies against ground with a voltmeter to insure that the electronics are powered correctly.

If you have power and lights but the Photon multicolor LED does not follow the sequence above and does not get to "breathing cyan", then you have some problems either with your Photon module or with connecting to the Internet over WiFi. Consult the Particle on-line documention (https://docs.particle.io/guide/getting-started/modes/photon/) to troubleshoot.

If your Photon is breathing cyan but the green LED on the pushbutton does not light up and the "D7" LED on the Photon does not turn on and off at 4 second intervals, then the Photon has not completed its setup operations correctly. Usually, this is because it cannot communicate with the DHT11 temperature/humidity module. Check the connection of the DHT11 to the main printed circuit board - check that the DHT11 is oriented properly and that the connections to the board are good.

4. How do I test my Water Leak Detector to know if it is running properly?

If the green LED on the pushbutton is lit solidly and if the red LEDs on each water level sensor are lit, then your WLD is armed and ready. The front panel "servo meter" should read out the temperature or humidity, depending upon the position of the toggle switch. The App on your smartphone should show temperature and humidity readings and no alarm. You can also use the Particle Console to test that you can read data from your WLD hardware, set low and high

temperature alarm limits into your WLD hardware, send a test alarm and observe alarm publications to the Particle cloud. See: "WLD_Installation_and_User_Manual", section 7, in the *Documentation* folder in this repository for more information.

There are two ways to test that water leak sensors are working. You can use whichever of these methods that is convenient:

(1) Unplug one of the water level sensor cables from its connector at the enclosure. An alarm condition should result. Plug the cable back in and the alarm condition should clear. Repeat this test with the other cable.

(2) Drop a small amount of water on one of the water level sensors. The alarm should go off and the alarm condition should persist until the sensor is dried off. Repeat this test with the other sensor.

5. My Water Leak Detector is not working properly and I have tried all of your suggestions to get it working. How can I get support to help me isolate and fix problems?

This is a do-it-yourself project and we are not a commercial entity. Therefore, we cannot make a blanket offer of support. However, if you e-mail us at: TeamPProjects@gmail.com we will try and help you out. Please be advised, however, that any help that we offer will be on an "as-available" and "best effort" basis. We cannot offer you any guarantees or warranties of any sort.