



## FAQ, Troubleshooting and Support Guide



Please refer to [www.sunnovations.com/ohm/support](http://www.sunnovations.com/ohm/support) for the most up to date frequently asked questions (FAQ) and and support information.

### FAQ - General

1. Why the name Ohm?

*It is a reference to how our proprietary sensor works: it measures the resistance to a small current running through the sensor, and that measurement is translated into the energy readings you see on the Dashboard. The unit of measure for electrical resistance is Ohm!*

2. Is my solar hot water system a fit for Ohm?

*Ohm is designed to work with most solar domestic water heating system types, either as part of a new installation or a retrofit on your existing solar thermal system. Basic system requirements are:*

- ✓ *Functioning domestic solar water heating system (not for use in monitoring solar pool heating or PV).*
- ✓ *Indoor solar storage tank ([here is an example](#)) of 60-120 gallons in capacity.*
- ✓ *High speed internet with home router (cable, wi-fi or otherwise).*

3. How does Ohm work?

*Caution... techno-geek alert! The Ohm sensor calculates the enthalpy in a thermal mass – in this case your water heater – by measuring resistance to a small current running through it. Ohm's software is able to distinguish between different types of energy going into and out of the thermal mass, which are presented as the energy readings you see on the Dashboard. The components communicate with one another via the 6lowpan wireless protocol, enabling the zero-configuration attribute of Ohm.*

4. Will Ohm work on pool heating systems?

*No. It is designed to work in solar domestic water heating systems only.*

5. Will Ohm affect my internet access

6.

*No, although accessing the Dashboard will use up some of your bandwidth like any other application. Ohm uses a different wavelength that any wireless router you may have and so won't interfere with its operation.*

7. Is it OK to have the Ohm sensor in contact with my potable hot water?

*Yes. The components that are in contact with potable hot water are NSF compliant.*

## FAQ - Installation

1. I have a 2 tank solar hot water system design (one solar storage, the other backup heating); will Ohm work?

*Yes! You should have ordered a second Ohm sensor with your kit when purchasing Ohm; if not, contact us and we'll get you one. Just follow the installation directions to install it.*

2. I have an unusual tank design; will Ohm work?

*Please contact us if it is not readily apparent where and how to install your Ohm on your solar tank. Ohm is not designed to work on "low-boy" solar tanks or thermosiphon systems.*

3. Will the sensor affect the operation of my hot water tank

*No, it will not. The Ohm sensor is designed to be installed in a tank's Temperature and Pressure Relief valve port, which is an important safety feature found in nearly every water heater. Properly installed, the sensor will not interfere with the operation of the T&P valve.*

4. Where is the T&P Valve?

*It can typically be found labeled prominently on the side or top of your tank.*

## Troubleshooting

1. The T&P valve is dripping after installation.

- a. While opening up the valve during installation, you may have introduced some debris into the valve's seal. Tanks that have calcification due to hard water (seen as a white build-up inside the tank and T&P valve) are especially susceptible to this. Try opening up the valve slightly by pulling the small metal lever- this will let water run through the valve and help clean out the seal. Do this several times to be sure it is clean. Make sure you have a bucket to catch the water, and be careful - the water let out can be very hot.
- b. T&P valves have a limited lifetime in any water tank, and a leaky valve is a common plumbing problem. If it continues to drip, it is possible that your valve has gone bad and it is time to replace it. They can be found at any hardware store and are relatively inexpensive. Make sure to replace with the same temperature and pressure ratings – typically 210°F and 150 psi.

2. I am trying to remove my T&P valve, but it seems stuck.

- a. All T&P valves must be removable for replacement in case of a valve failure. Be sure you are turning it in the correct direction - counter clockwise. A pipe wrench is the easiest tool to use when removing or installing a T&P valve.

3. I see a drip coming from one of the threaded connections on the Ohm fitting.

- a. To make a water tight connection, make sure you have at least 3 wraps of Teflon tape on each of the male threaded connections (one on Ohm, one on the T&P valve), and it should be tightened very snug with a pipe wrench or large pliers.
- b. One common problem is wrapping the Teflon tape in the wrong direction, which causes it to unravel as the fitting is screwed in. Watch the installation video to verify you are wrapping the Teflon in the correct direction.

4. A temperature sensor reads 32 degrees F.

- a. This is the default temperature reading if the temperature sensors are not connected. Check to make sure the temperature sensors are securely connected in the correct port.

5. My heat exchanger temperature sensors seem swapped.

- a. Make sure your temperature sensors are measuring the correct locations. The “HX In” sensor should be affixed to the heat exchange inlet pipe, which is typically the top heat exchanger port. The “HX Out” sensor should be on the heat exchanger outlet, usually the bottom heat exchanger port. You can verify which is the heat exchanger inlet and outlet by feeling the pipes when the solar system is working - the inlet port will be hot, the outlet port cold.

6. My temperature sensors don't seem to be reading accurately.

- a. Making a good thermal connection between the sensor probe and the pipe is critical. Use the Velcro strap to get a tight and secure connection. Insulate around the outside of the probe - failure to do so will render temperature readings inaccurate.

7. LED Section

a. **Amber:**

- Red; ON indicates Amber has power
- White: On if Amber has connection via the VPN (a secure connection)
- Blue: ON indicates Amber has internet connectivity
- Orange: indicates SD card disk write
- Green: Indicates “heartbeat” of the Amber – i.e. if it is operational.

b. **Emily:**

c. Yellow:

- Solid yellow indicates Ohm sensor(s) working properly
- One blink: Ohm sensor #1 is malfunctioning or not connected
- Two blinks: Ohm sensor #2 is malfunctioning or not connected

d. Red: ON indicates Emily has power

e. Green:

- Solid green indicates all temperature sensors are functioning
- One blink: top tank sensor #1 (integrated Ohm sensor #1) is malfunctioning or not connected.
- Two blinks: HX out sensor is malfunctioning or not connected
- Three blinks: HX in sensor is malfunctioning or not connected
- Four blinks: top tank sensor #2 (integrated Ohm sensor #2) is malfunctioning or not connected.

f. Blue: ON indicates Emily is connected to Amber

8. Removal Procedure of Ohm Sensor.

- a. In case the Ohm sensor needs to be removed, it is best to use a combination of two wrenches or pliers. One wrench is placed on the HEX section protruding on the Ohm sensor fitting and the other wrench is placed on the T&P valve. Turn both at the same time in counter clockwise direction. If the T&P valve is taken out only – it is hard to loosen the Ohm sensor fitting and the fitting can get easily damaged or oveled.



**SUNNOVATIONS**  
a revolution in solar hot water

**Sunnovations Inc.**

1616 Anderson Road

McLean, VA 22102

+1-703.286.0923

ohmsupport@sunnovations.com

www.sunnovations.com/ohm