Testing Grounded Solar

Lion Energy Technician Documents

Step 1: Locate Solar

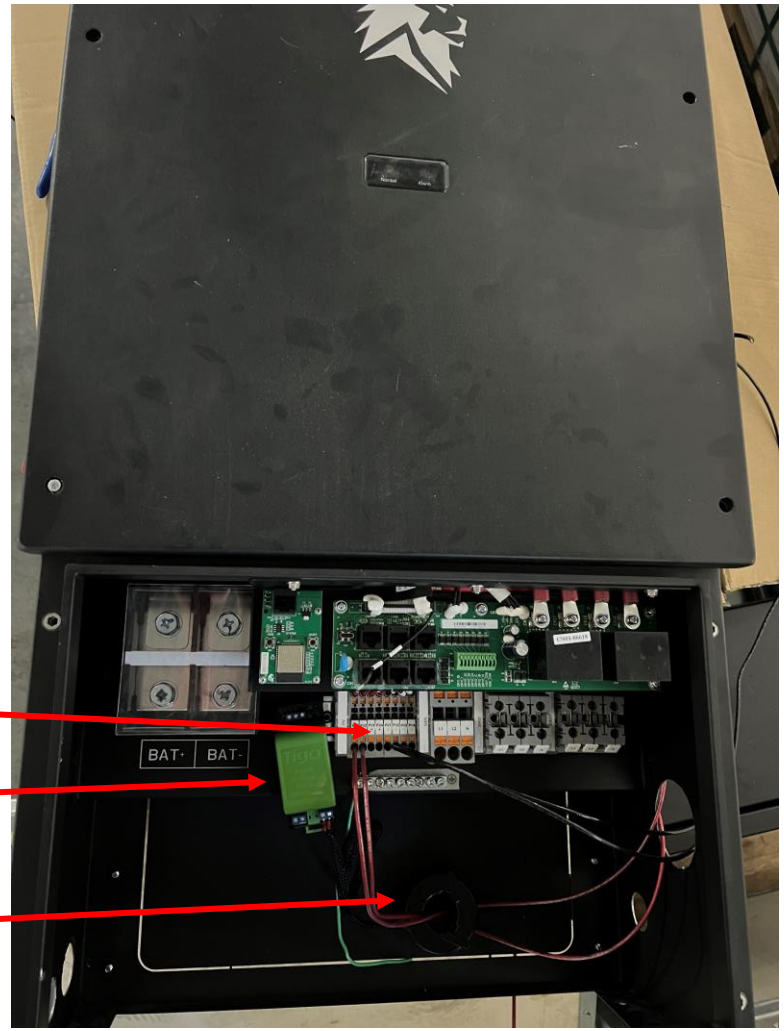
Locate Solar Strings and identify the number of strings of solar and if a TIGO is being utilized.

For this example, we will show the process of testing grounded solar that is utilizing a TIGO rapid shutdown system.

Solar Strings

TIGO Transmitter

TIGO CT



Step 2: Turn of Power Sources

Check that the inverter DC Switch is **TURNED OFF.** This will provide an extra layer of protection incase solar is grounded.

<u>Turn off the grid in-put</u> to the inverter.

At this point, the inverter should be powered ON only by the batteries.

The inverter will still need to be powered on to provide a power source to the TIGO transmitter.

Step 3: Multi-meter Testing

Take your multimeter and turn the meter to test **continuity**

Touch your probes together to ensure your meter is working correctly. You should be able to hear an audible ring- indicating continuity through a circuit.

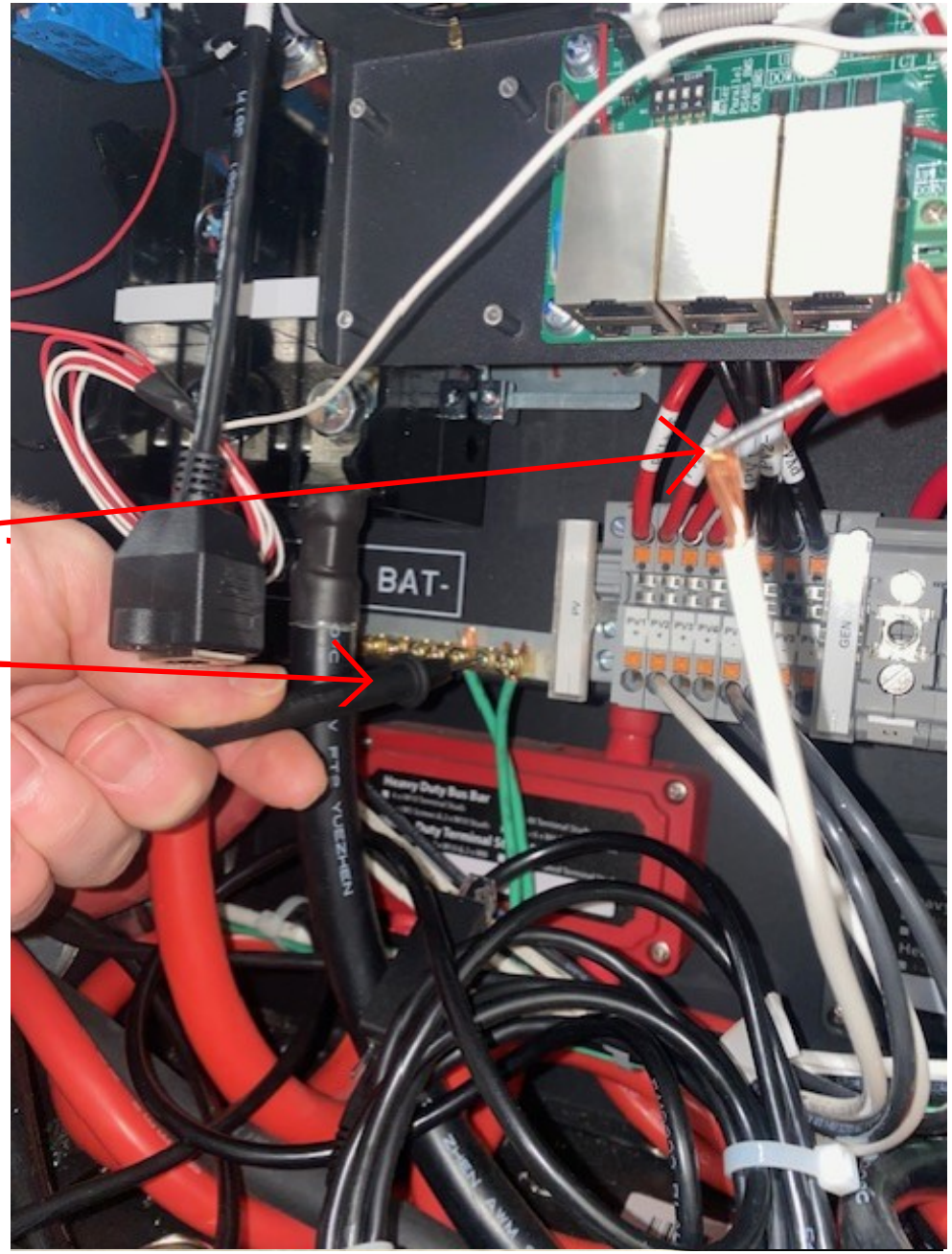
Step 4: Testing Positive Strings

With your multimeter selected to test continuity, take your first positive string of solar located in (PV1+) and remove it from the port. (Warning-This will be live)
Place your red probe on the positive wire and place your black probe on the grounding bus bar.

You should **NOT** see continuity.

Once you have confirmed there is NO continuity between PV1 and ground, you can place the wire back in the PV1+ port.

Repeat this step with the remaining strings of positive solar.



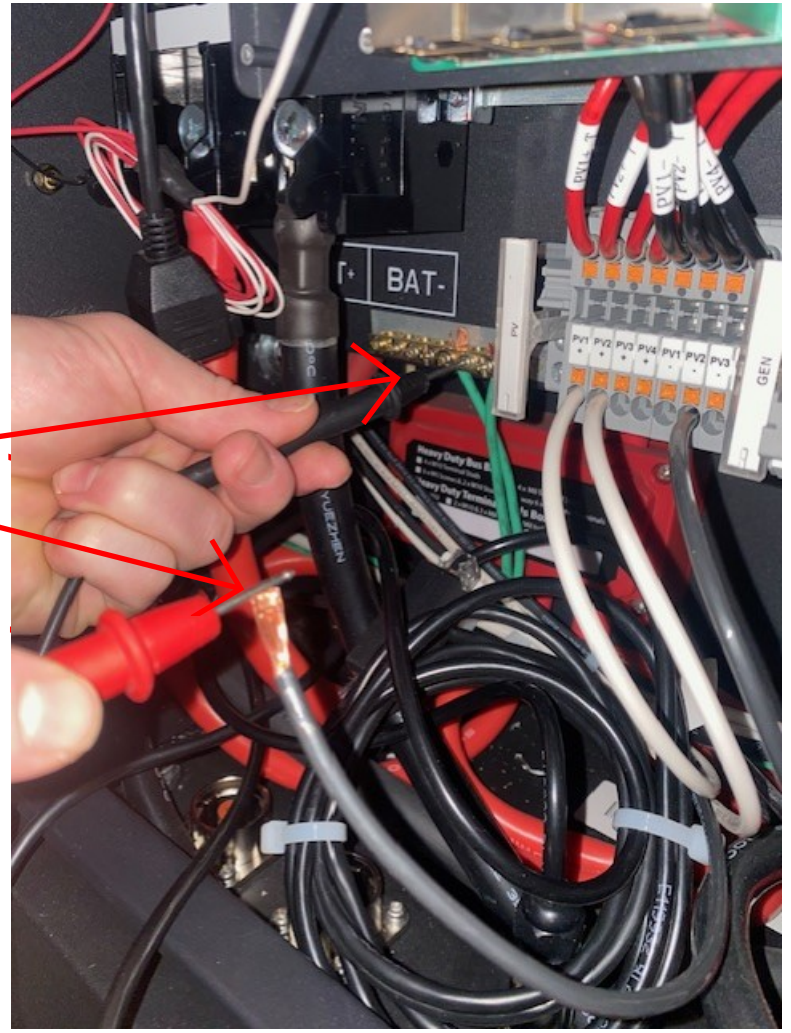
Step 5: Testing Negative Strings

With your multimeter selected to test continuity, take your first negative string of solar located in (PV1-) and remove it from the port. (Warning-This will be live) Place your red probe on the negative wire and place your black probe on the grounding bus bar.

You should **NOT** see continuity.

Once you have confirmed there is NO continuity between your wire and ground, you can place the wire back in the PV1- port.

Repeat this step with the remaining strings of negative solar.



Step 6: Checking reversed polarity

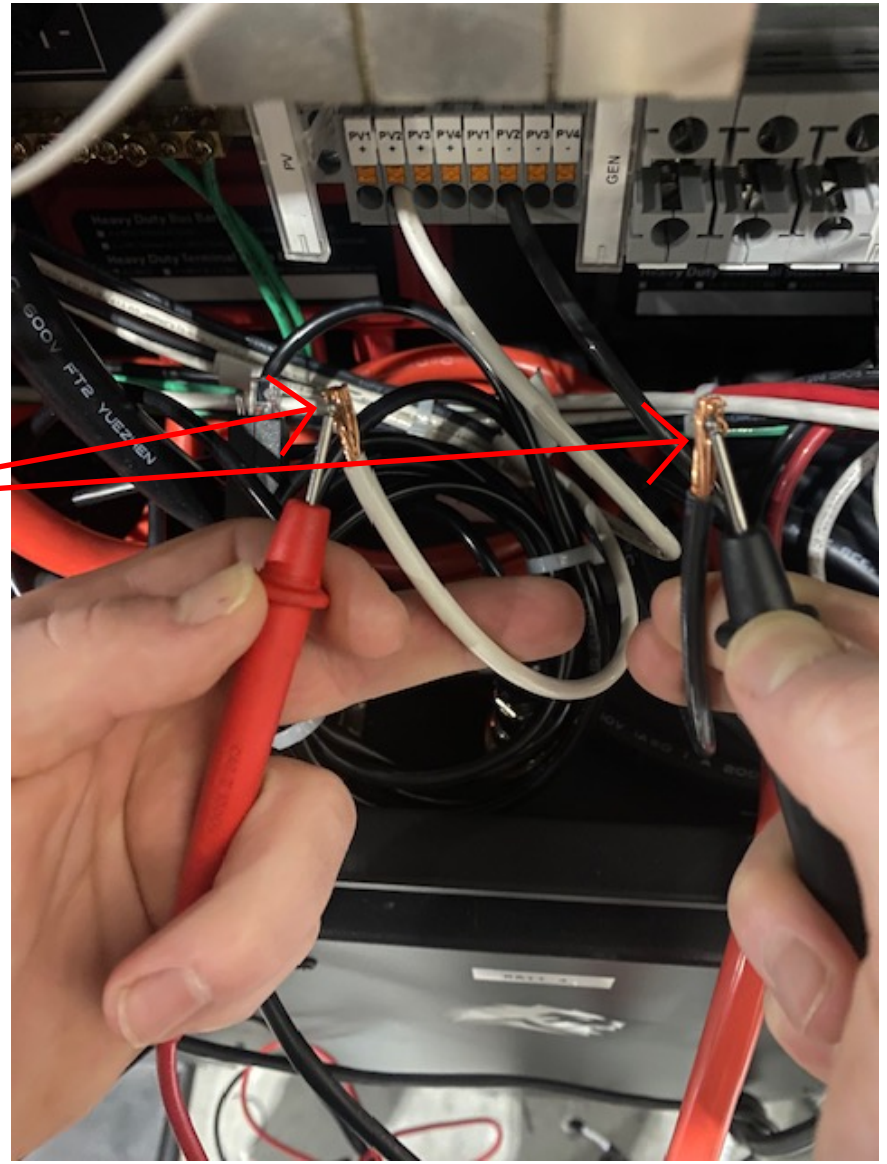
After you have checked grounded solar (All positives and negatives) you can now check if any of the strings have reversed polarity.

Remove your positive wire from PV1+ along with your negative wire from PV1-

Place your red probe on your red wire and black probe on your black wire. You should have continuity between both wires. ***(If no continuity, please review the next page)***

Now, switch your multi-meter to test DC V. Measure the voltage between the + and -
If the measurement is negative, your wiring is reversed. Correct the wiring and place both wires back into the correct ports (PV1+ and PV1-). **Ensure that all positive wires are run through the TIGO CT, and that the TIGO is powered on. This will allow you to measure working voltage.**

Follow these steps with the remaining strings of solar.

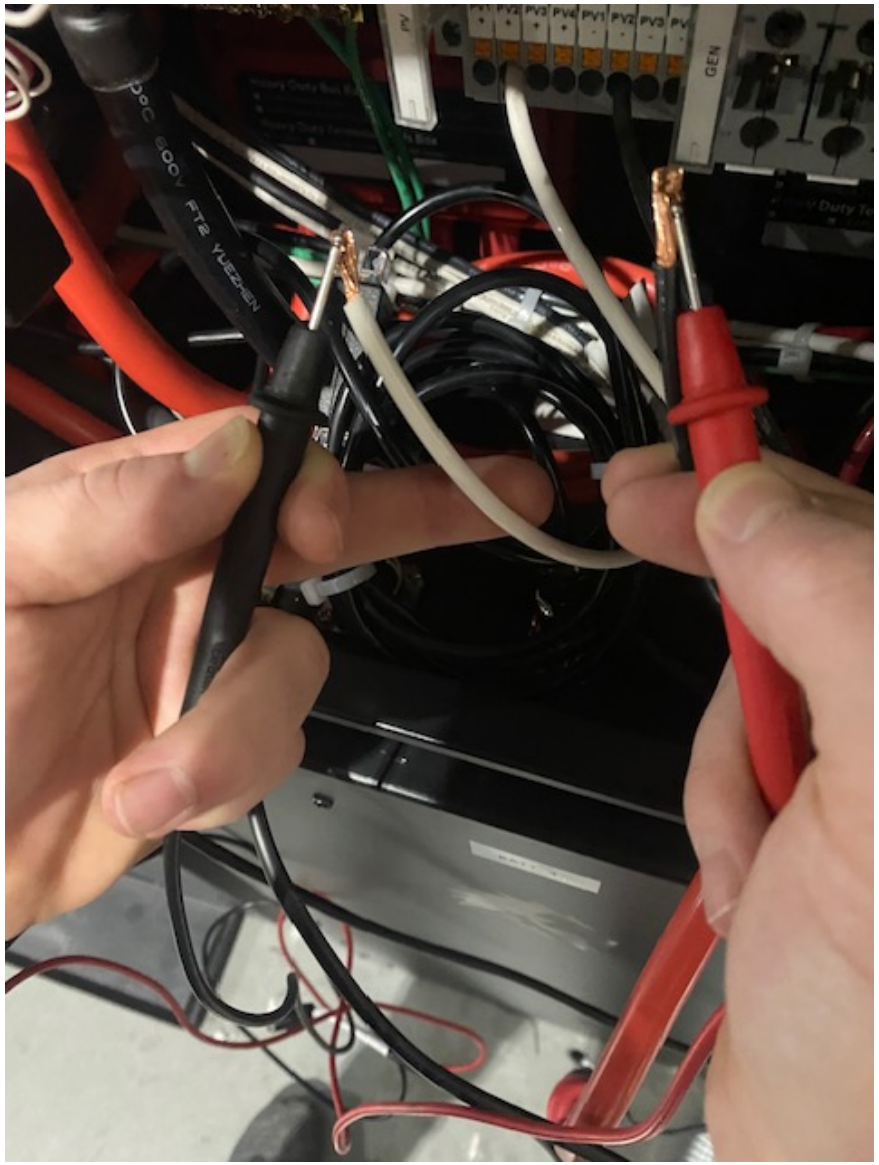


Checking Reversed Polarity Cont.

If you measure continuity between a + and – on a string of solar and there is no continuity, there is a chance that your strings of solar have been mixed up.

Example: No continuity between PV1+ and PV1-

To trouble shoot, place PV1- back in its associated port. Remove PV2- wire and test continuity. Continue this process until you find continuity between a PV- string.



Turning on the Solar

After you have tested for grounded solar **and** reversed polarity on each string of solar, you can now turn the DC switch to the ON position. This is located on the left side of the inverter. (NOTE: Grid still needs to be turned off at this point.) Wait 30 seconds and assess if the solar is charging the battery(s).
Watch the inverter to see if it throws a fault. If after waiting 30 seconds and the battery(s) are charging and no faults, you can now turn the grid on.