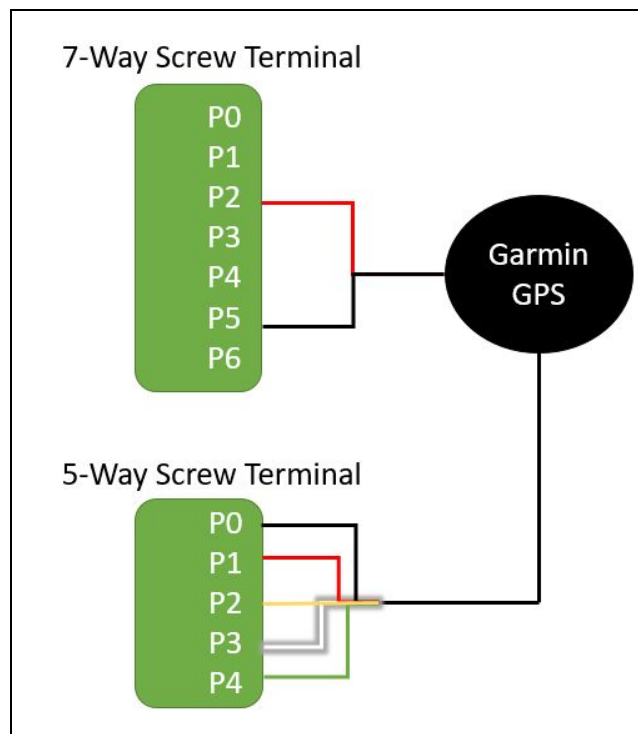
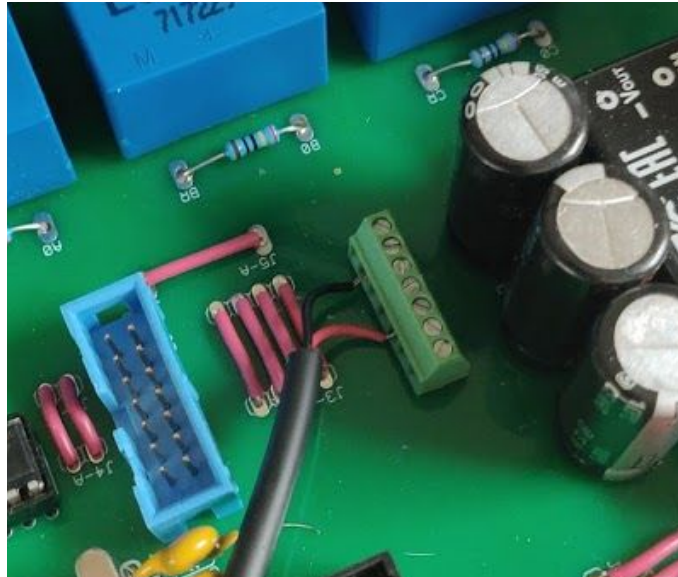


The Garmin GPS

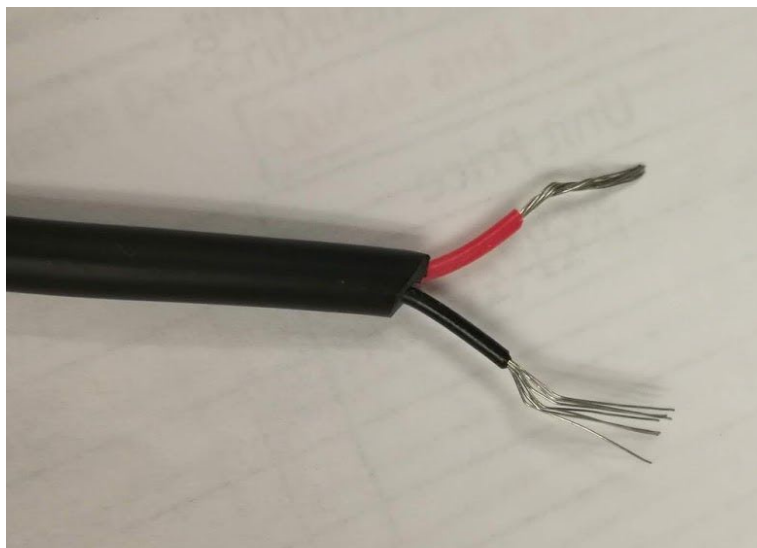
Note: Whenever you use the GPS, you must make sure to place the GPS in a direct view of the sky. A lot of frustration has come from not placing the GPS in the correct spot. In my case, the GPS had to be taped on to a window to get the best signal. If you are having trouble getting a strong enough GPS signal, consider downloading a GPS testing app for Android or iPhone to try and find the best GPS signal for your workspace. You must also be sure to give the GPS enough time to find the signal, which can take anywhere between 5 and 10 minutes.

Before anything starts make sure that you have ordered the Garmin GPS 18x PC, not the USB or LVC. Once your GPS arrives, you will need wire cutters and strippers to set it up. Begin by cutting off the 12V car charger. Once cut, you will need to cut more of the outside insulator to get the power and ground wires free. This took some time and you must be careful to not cut the power and ground wires. I found that cutting at an angle was the easiest method to cut away the outside insulator. Strip and tin the power and ground wires. If you are unfamiliar with tinning wires, refer to the document Power Supplies Example for more information. To power the GPS, plug the wires into the ports shown below.

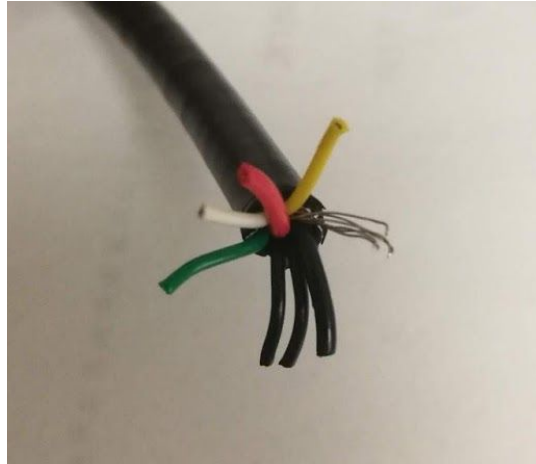




When first turning on the GPS, make sure it is placed right next to a window, or in a position to physically “see” the sky. As indicated by the manual, it may take several minutes to start up. Wait approximately 10 minutes, and open the VI 35 NEW GPS Interrupt RS232 Read and Windows Device Manager. In the Device Manager, expand the Ports (COM & LPT) to find what the GPS COM is. Once you know the COM, in the VI, set the Comm Port to that COM value. Run the VI. A GPS Time Code should be returned. Below is an example of how the power supply cables should be cut and stripped.



To set up the GPS to communicate with the board, you will need to start by cutting off the 9-pin connection (*). Once the 9-pin connection you will find 8 wires, as shown below.



The wires data transfer are as follows. The information comes from the document OpenPMU - PCB Connections (USB-6009-OEM)-V1. Note, that the document OpenPMU - Enclosure Assembly - V1.1 states that the GPS antenna cable has a blue and orange wire. These cables must be from an old version of the Garmin 18x GPS, or a different GPS product all together.

- Red: Vcc 5V
- Yellow: 1 Pulse per second
- Green: RS232 in
- White: RS232 out
- Bare: A shield.
- Black (3): These are the ground wires.

Strip and tin each wire. Connect the wires to the terminal as shown to the right. Disregard connecting the bare wire. You will need to connect all three ground wires into the one terminal, which can be difficult to do. It is suggested to use a pair of tweezers if the wires are too difficult to manipulate with your hands.

(*) You can, if you want, directly connect the nine pin connector to your computer via a USB cable. When doing this, OpenPMU software will not work, but you can use the program Hyper Access to test to make sure you are receiving the correct signal. The GPS time codes that are outputted directly from the Garmin are not the same as those used in OpenPMU. The time code is modified by the PIC18F2525, which is why directly plugging the Garmin into your computer does not work.

