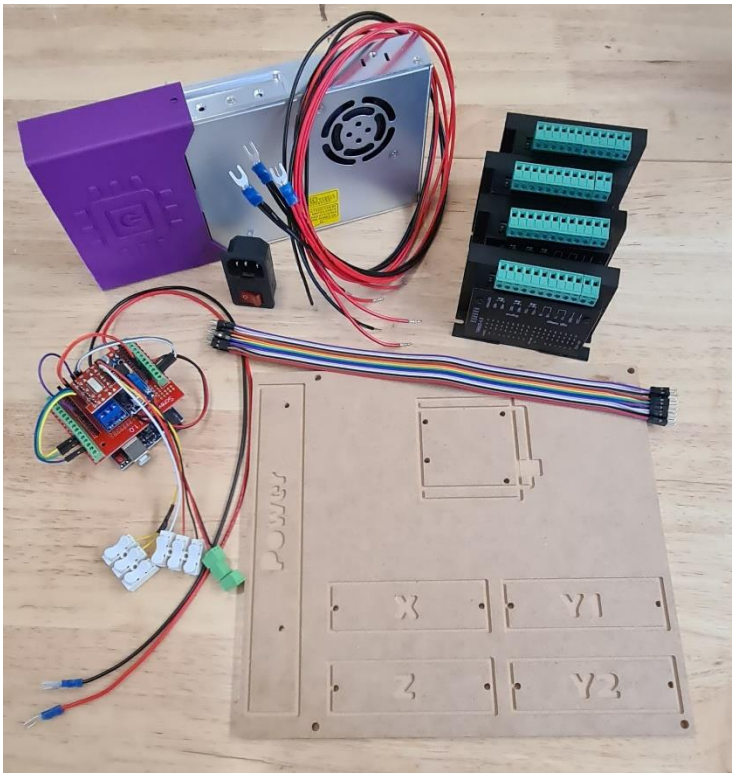
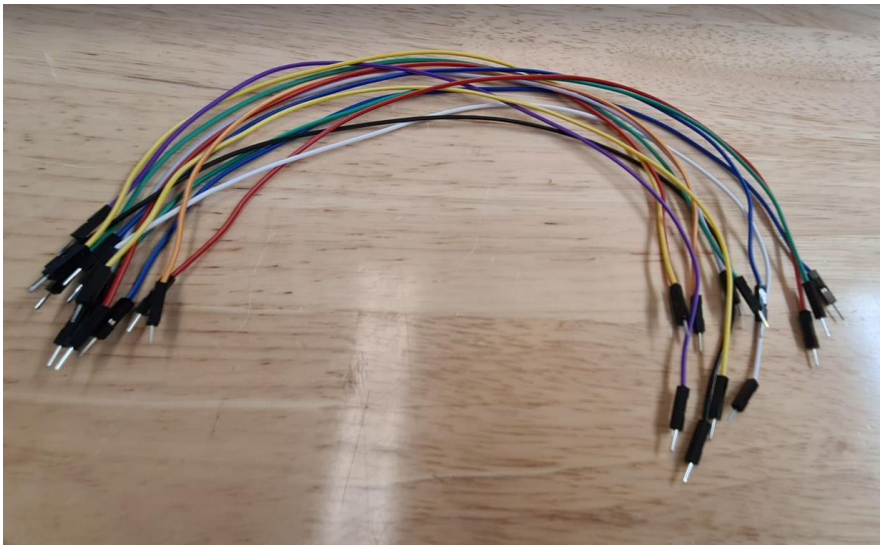
Assembling your SharpCNC electronics Layout board

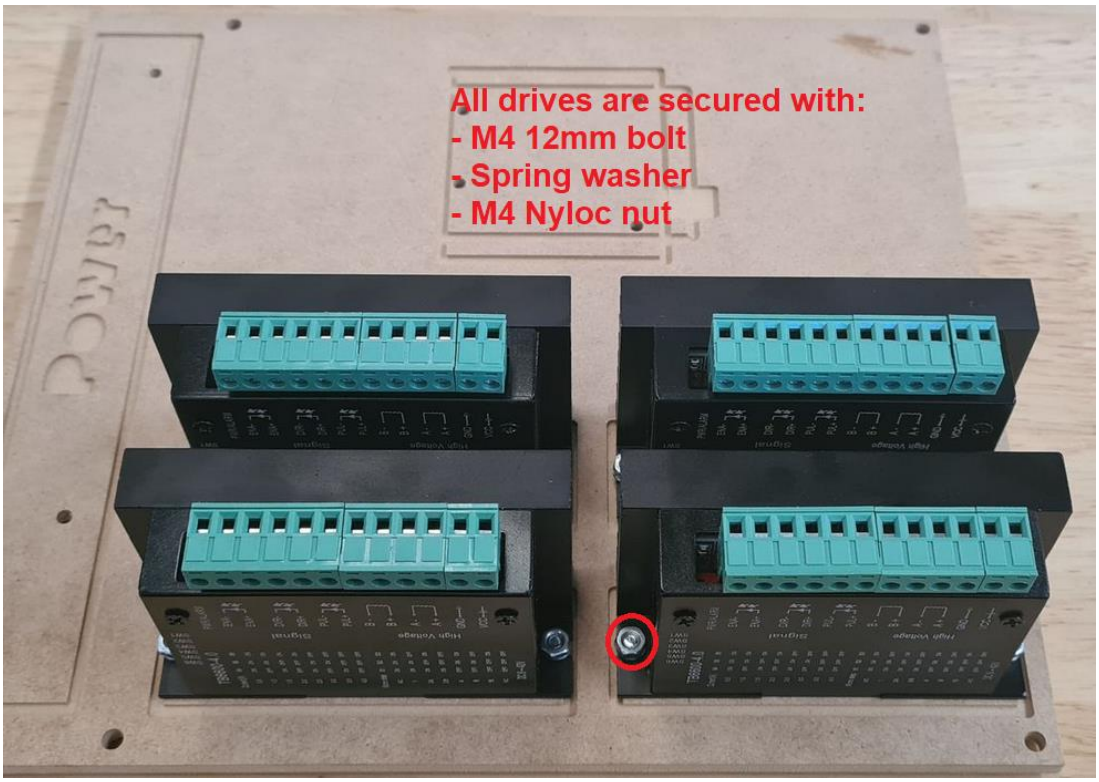
1. Unpack the parts for your layout board.



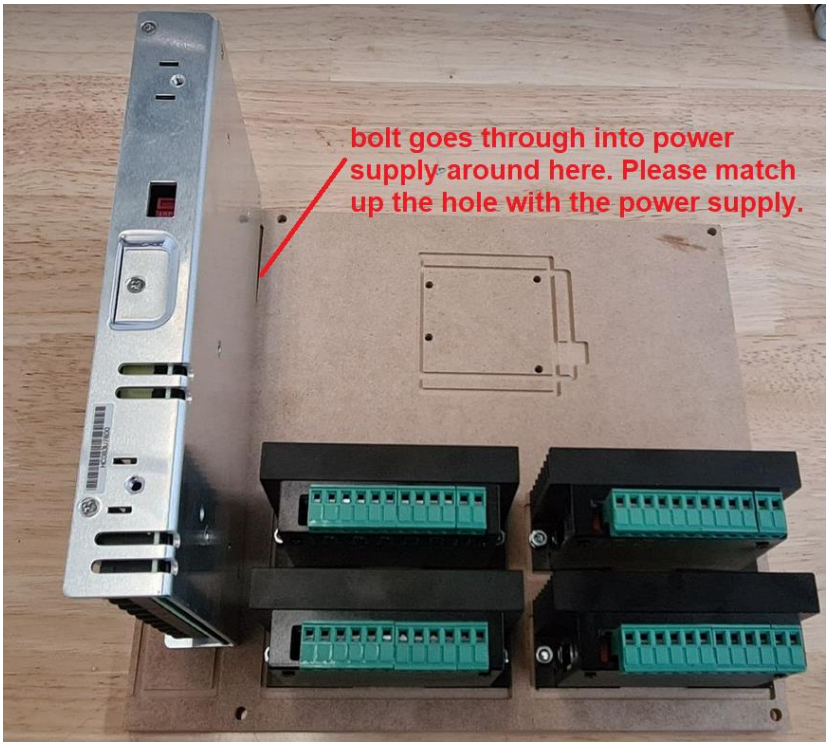
2. Separate all of your ribbon cable wires so they are all individual. We will be using them for wiring the entire kit.



3. Bolt on your drivers in their respective slot as shown on the layout board. Ensure the bolt goes from the bottom up.



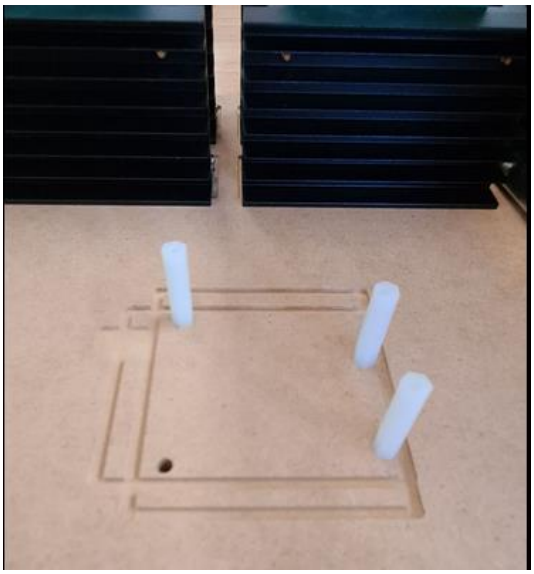
4. Let's attach the rear of the power supply to the board. Ensure to use the 3mm spacer between the layout board and the power supply fasten it together with an M4 12mm bolt. As before, ensure the bolt comes in from the bottom.

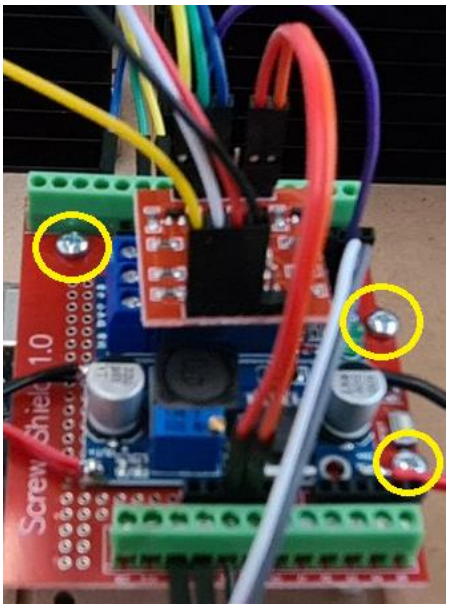


With spacer between board and Power supply:



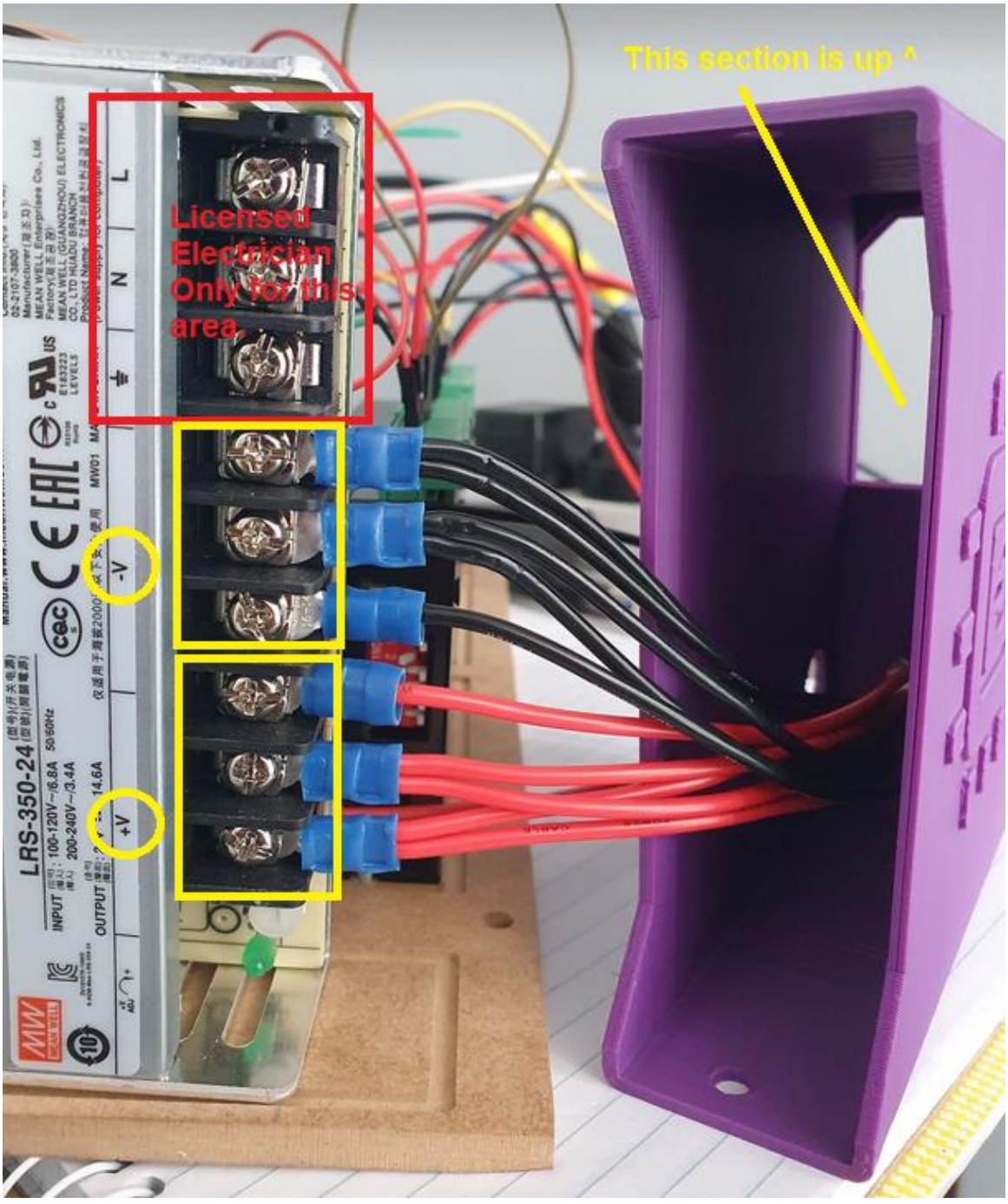
5. Attach your CNC3D control stack, using the M3 bolts and 25mm standoffs provided, carefully secure the 25mm stand offs into the 3 holes shown in the photo below from the bottom using M3 16mm bolts. After these are secure place the control stack on top and use the other M3 16mm bolts to fasten the board onto the stand offs by running them the bolts through the top board and down through the bottom board. Please ensure the board is oriented the same as the engraving on the layout board with the USB facing the same side.

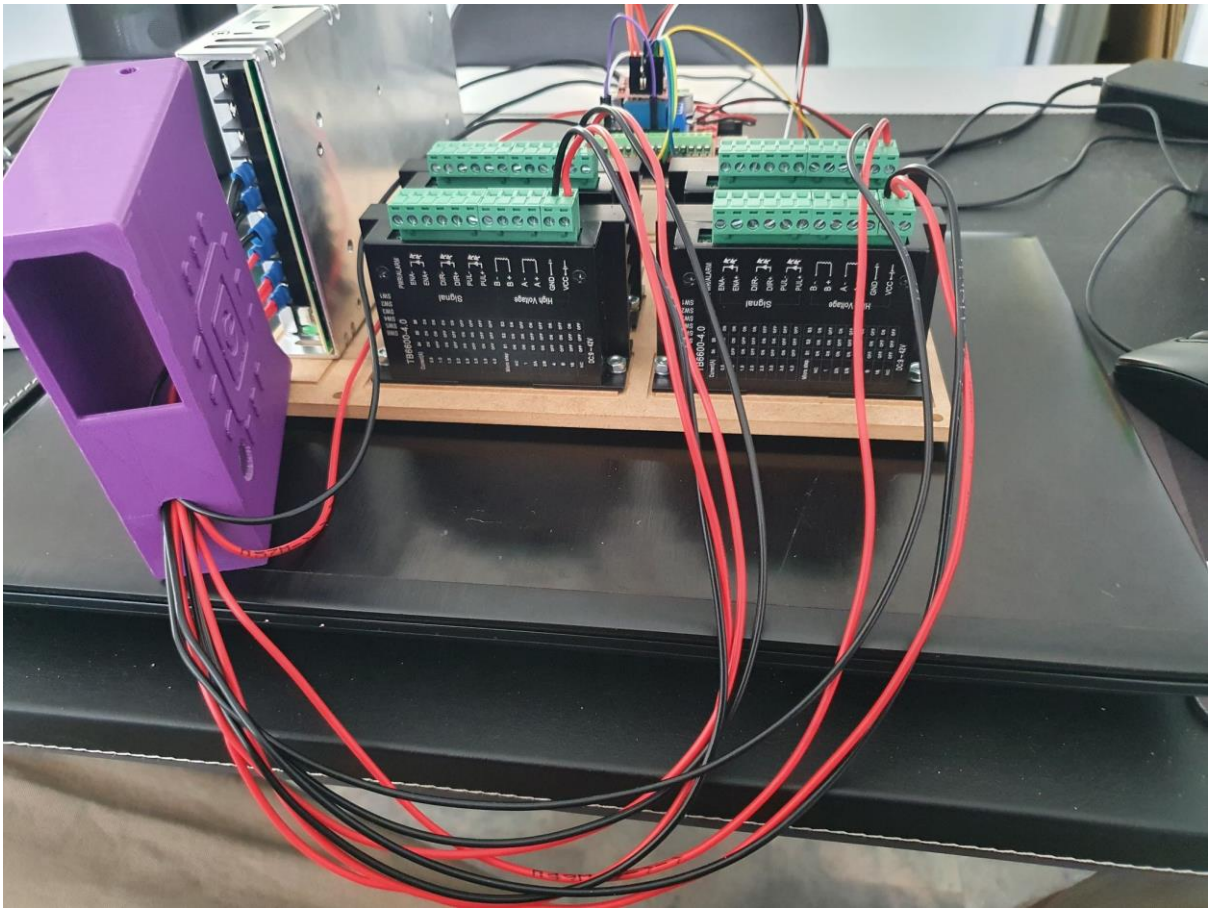




6. This completes most of the hardware assembly, now it's time to get on to the wiring. Grab the plastic power supply cover and feed the fork connector end of the red and black wires through the small hole on the front of the cover. Do this also for the red and black fork connector wires on the main control board itself also. Proceed to screw the **RED** wires into the **+V** screw terminals on the power supply. Repeat the process for the **BLACK** wires that go to **-V.** With the other soldered ends connect a red wire to the **VCC** on each stepper driver and connect the black wires to the **GND** ports on each driver.

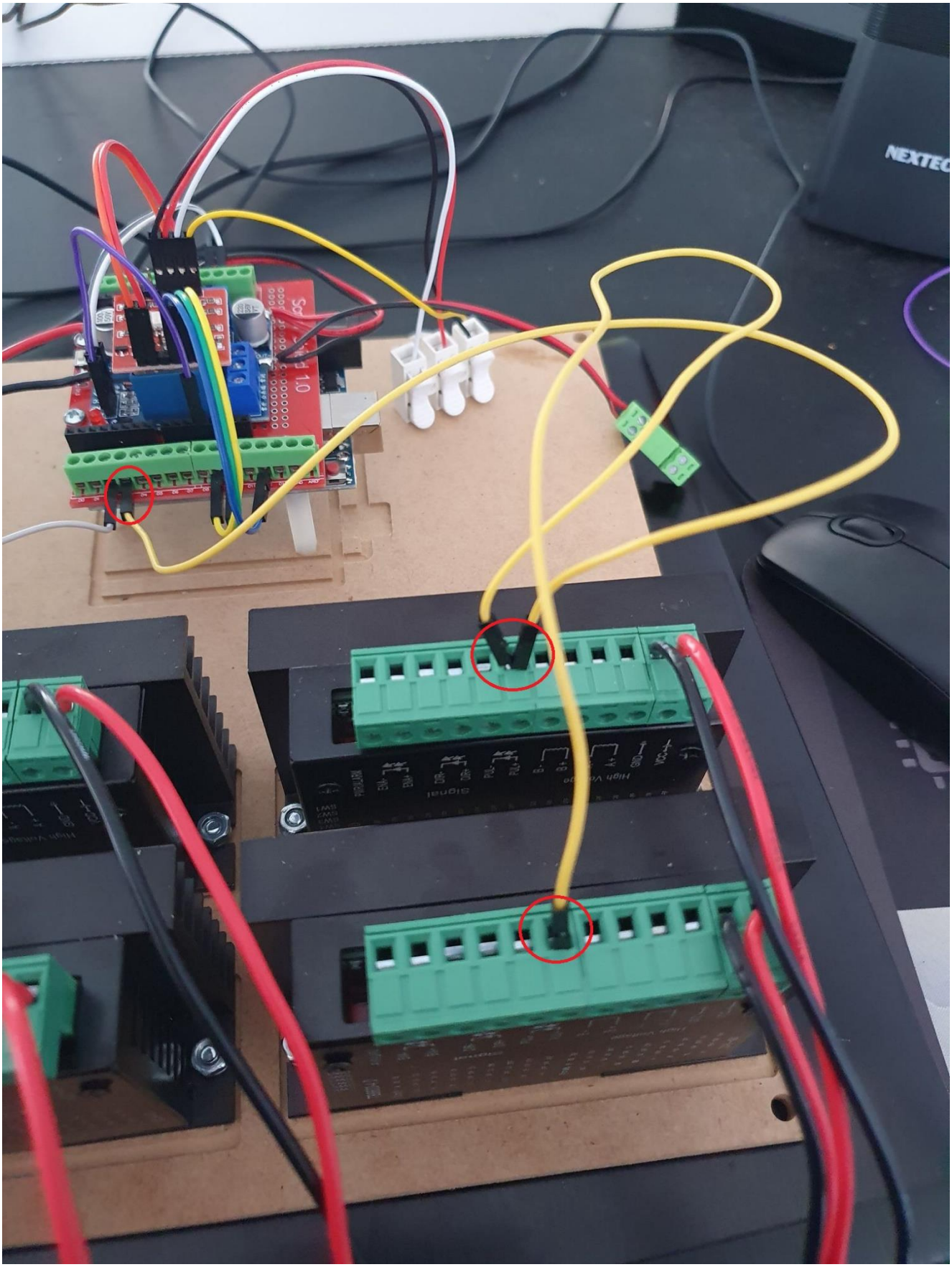
Legally in Australia, it is OK for you to do any DC wiring yourself as long as it is safe to do so. I.E: Save the licensed electricians required work for after the DC wiring is done.



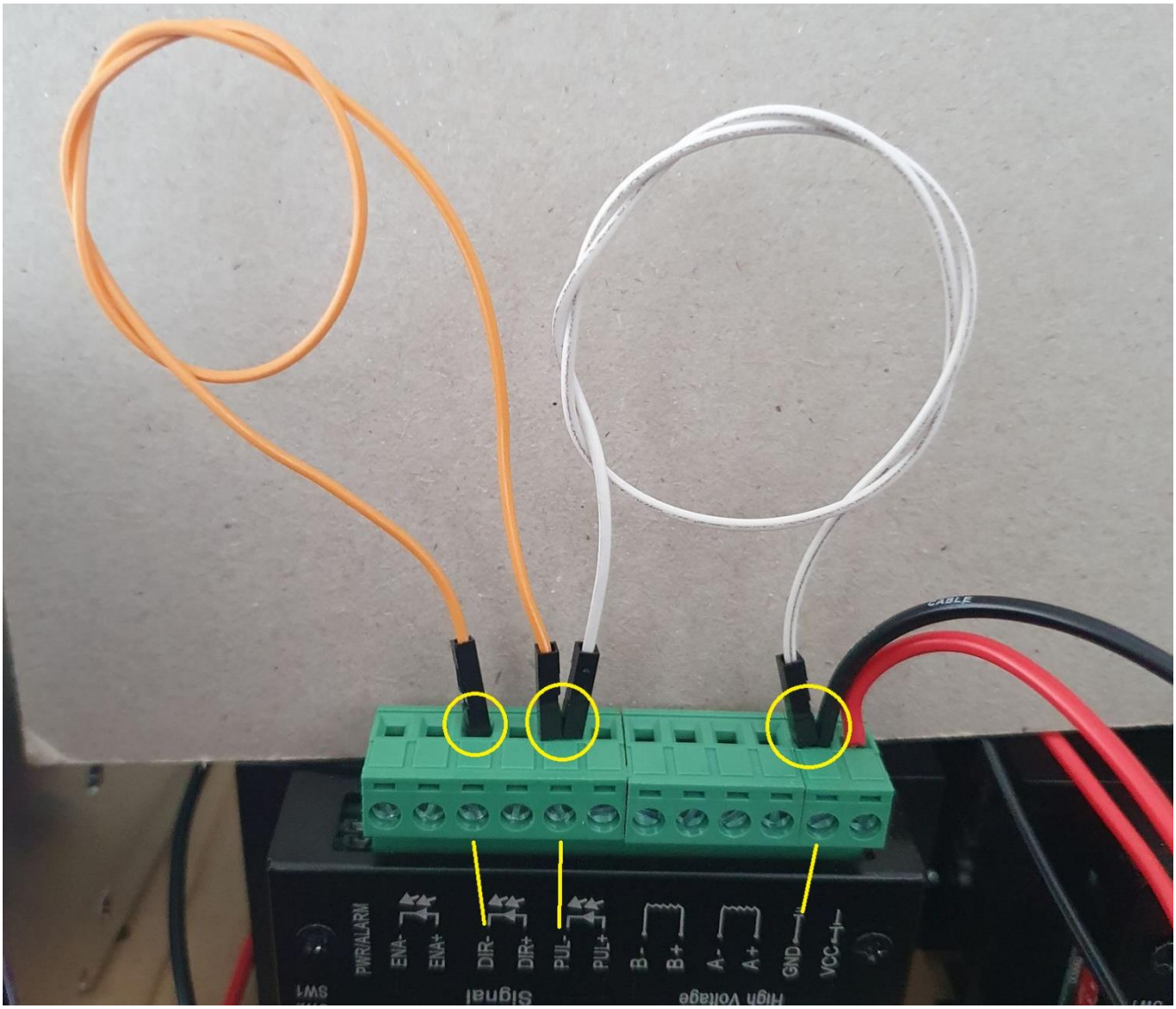


7. Now we can start to connect up our controller to the stepper drivers. Let's focus just on the X axis ones first. Please have your wiring diagram open for this! We are going to take one of our multicoloured wires we stripped earlier and screw it into **D2** as labelled on the controller board. The other end will screw into **PUL+** on the X axis driver. Use a flathead screw driver for this. Ensure you give the wires a tug on both ends once done just to make sure they are nice and secure. Repeat this process for the rest of the wires as per the wiring diagram provided in the same folder as this document.

   NOTE: When connecting **D3** both **Y1** and **Y2** driver together you can loop from the controller to **Y1** and then add another cable next to the **PUL+** on the **Y1** driver and feed it to the **Y2 PUL+** pin. Once again, give them a good tug on all 3 ends to ensure they are secured. See example below with a yellow wire plugged into **D3** and then looping to **Y1 PUL+** then looping to **Y2 PUL+**:


NEXTEC

8. The next step now is to terminate all of the **PUL-** and **DIR-** lines on each driver to ground. The easiest way to do this is to loop one of the multicoloured wires from the **DIR-** to the **PUL-** and then then loop from there to the **GND** on the driver. Please the photo below, we have the removed the other wires to make it easier to see.



9. You are now ready to attach your stepper wires coming from the motors to your driver exactly as shown in the diagram. Remember to check your colours are right as per the “PLEASE READ” document and the actual wiring diagram!

10. Our final step now is to connect up your limit switches to your white terminal blocks. The easiest way to do this is to attach all the red wires to one connection and all of the black wires to the other one. You can also choose to connect the power wire for your laser now too as it plugs in to the green connector. We’ve included an image of the general electronics layout at the bottom of these instructions.

11. At this point an electrician should be engaged to wire up the IEC panel mount connector to your Power supply. It would be a good time to get them to wire up your optional VFD and Spindle if you have it.

    Some key points for your licensed electrician (Please pass these on):

    - When wiring the VFD and Spindle ensure it spins clockwise, if it is not, change 2 of the output phases (on the VFD end, might be easiest) around until it does.

    - DO NOT Alter any VFD settings! they are factory preset for best performance and longevity.

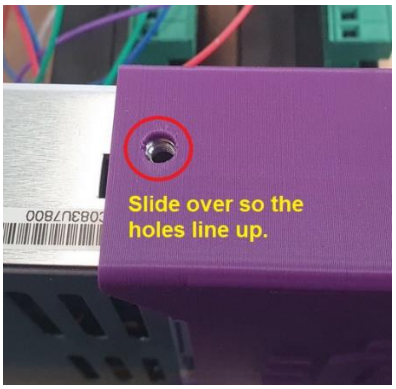
    - It is good practice to ground the shielding on the spindle cable to the VFD earth end, not both ends.

    - The 4th pin on the spindle is NOT an earth, please refer to spindle wiring diagram supplied for suggested mounting options.

    - Installing the E-Stop is left to your better judgment and experience to install. Ideally, consider the power being cut to both VFD and Power supply to prevent any injuries.

    - If possible, can you please kindly complete the rest of the steps below to safely finalize the installation of the electronics for the user.

12. The next step once the electrician has completed their work is to secure the power supply cover and the front half of the power supply. To do this, slide the power supply cover over the power supply and use an M4 8mm bolt, M4 washer and M4 spring washer to screw the cover on. Then use one of the M4 12mm bolts to run from under the mounting board through the power supply to secure the other end.






This should conclude your assembly.

Helpful Tip: If you have a multimeter it may be worthwhile checking you have continuity on all pins. The easiest way to test the connections is to probe on the respective screw on each green connector.

If you need any further help or support, reach out to our friendly support team on Facebook or Phone on 07 5522 0619

General wiring diagram

