Shapeoko and the

Triquetra 3 Axis Touch Plate

The Triquetra Touch Plate will work with the Shapeko3, however your version of Carbide Motion software may not work with 3 axis zeroing. To get around this limitation and enjoy the benefits of 3 axis zeroing may require the use of a different software program to send the zeroing gcode files to your Shapoko3. This will NOT require any modifications to your machine or controller and you will still be able to use it just as before.

Wire Color Code

Please refer to the Shapeoko Touch Plate Wiring Guide on pages 2-16 for the location of the White and Green wire connection points on your controller and use the supplied Red and Black wires in their place.

> **Red wire** from Touch Plate replaces the **White wire** indicated on Controller Board Diagram
>
> **Black wire** From Touch Plate replaces the **Green wire** indicated on Controller Board Diagram
>
> **The Red wire shown in the Controller Board diagram is not used with the Triquetra Touch Plate**

Question: What causes the limitation and need for a different program to zero with?

> **Answer:** Software manufactures such as Carbide Motion and the Inventables Easel program are proprietary and as such the writers of those two software packages have chosen to exclude one key g-code command from those supported by their software. The command G92 which sets your current Work Zero location for the specified axis.

Question: If Carbide Motion will not work, what options do I have?

> **Answer 1:** One popular software alternative that is free and will work with the Shapeoko3 is *Universal G-Code Sender (UGS)*.
>
> **Answer 2:** *PicSender* is another program that will work with 3 axis zeroing. PicSender is an excellent program for sending all of your g-code files to your machine. It will handle g-code files that are extremely large (several million lines of code). These large file sizes are generally found when doing 3D carvings.
>
> PicSender is not freeware. The cost is generally right at $25.00. It is probably the best g-code sending software available and well worth the money. You should download the trial version to insure that it works with you hardware prior to purchase. Please note that 3 axis zeroing via gcode files normally will not work in the trial mode. However if you are able to connect and carve in the trail mode then zeroing will work in the full version.

Touch Probe Assembly Guide

Intro#

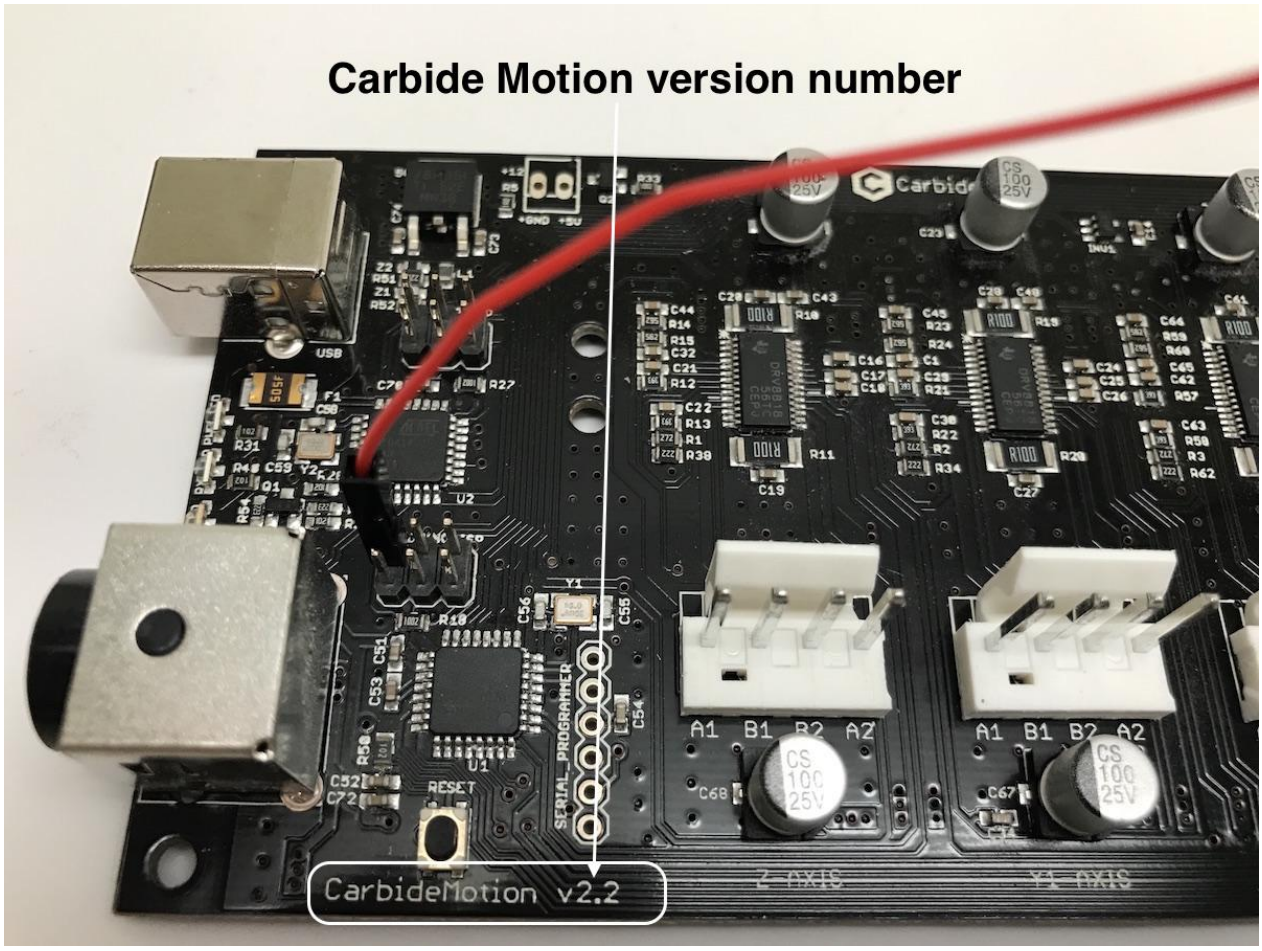
To make installation simple, we have included a small wire adapter that allows connection of the Touch Probe without the need to cut or solder any wires.

The instructions below apply to versions of the Carbide Motion boards shipped with Shapeoko:

```
- 2.1
- 2.2
- 2.3
- 2.4d
- 2.4e
```

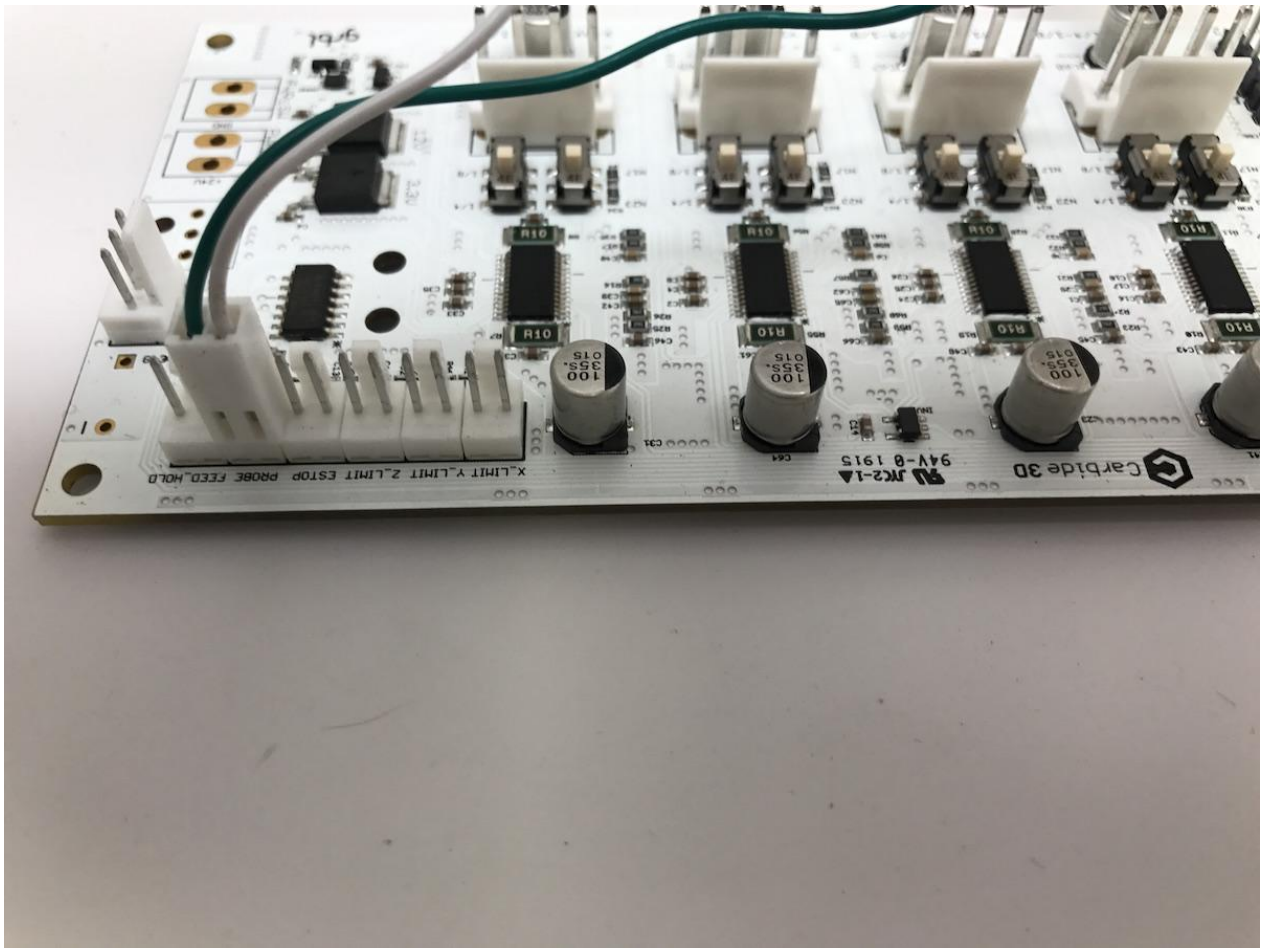
To identify which version of the Carbide Motion board you own, look at the lower left corner of the PCB.

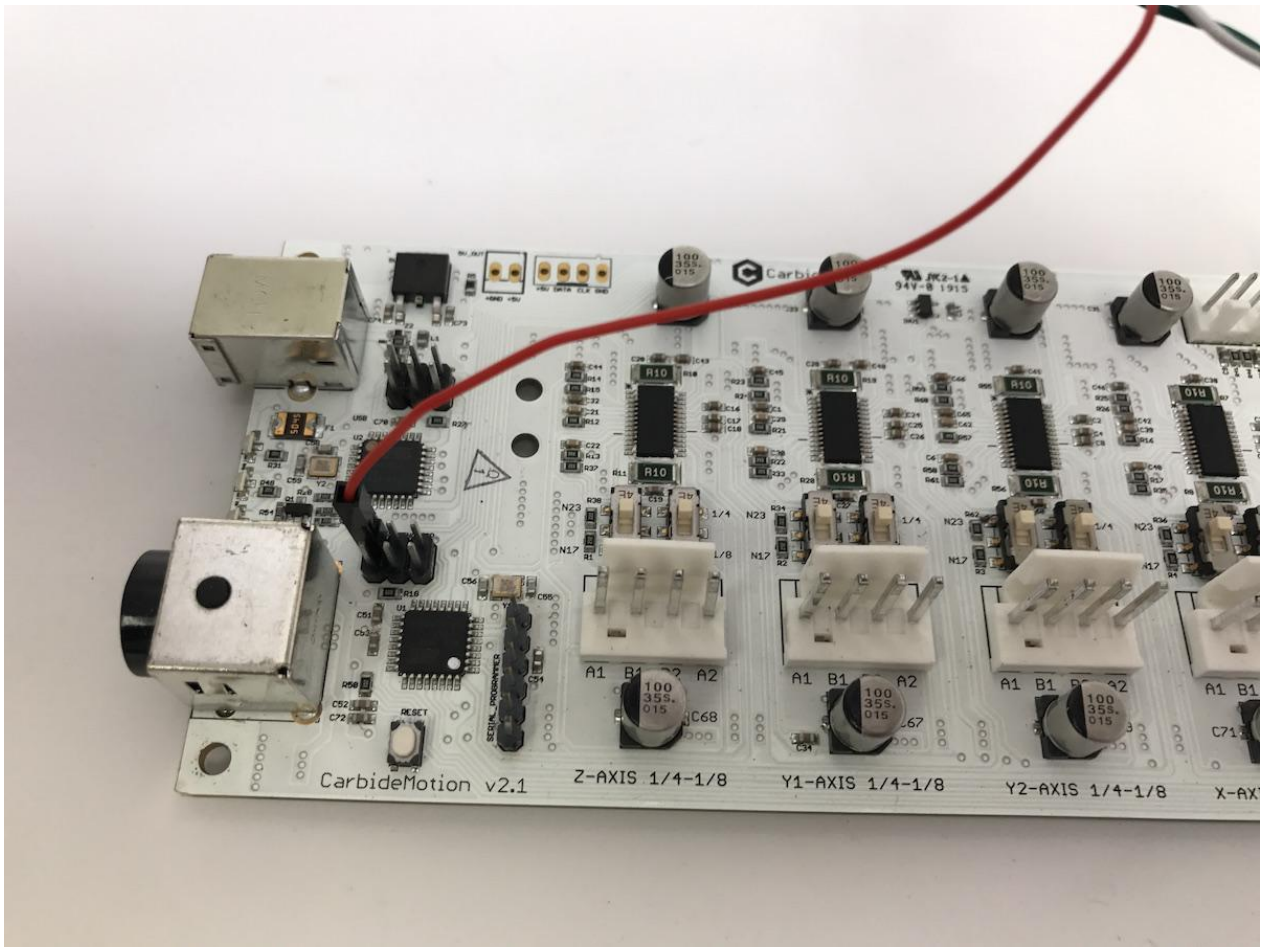
NOTE: It will be necessary to remove the cover/shroud from your controller to identify your model number.



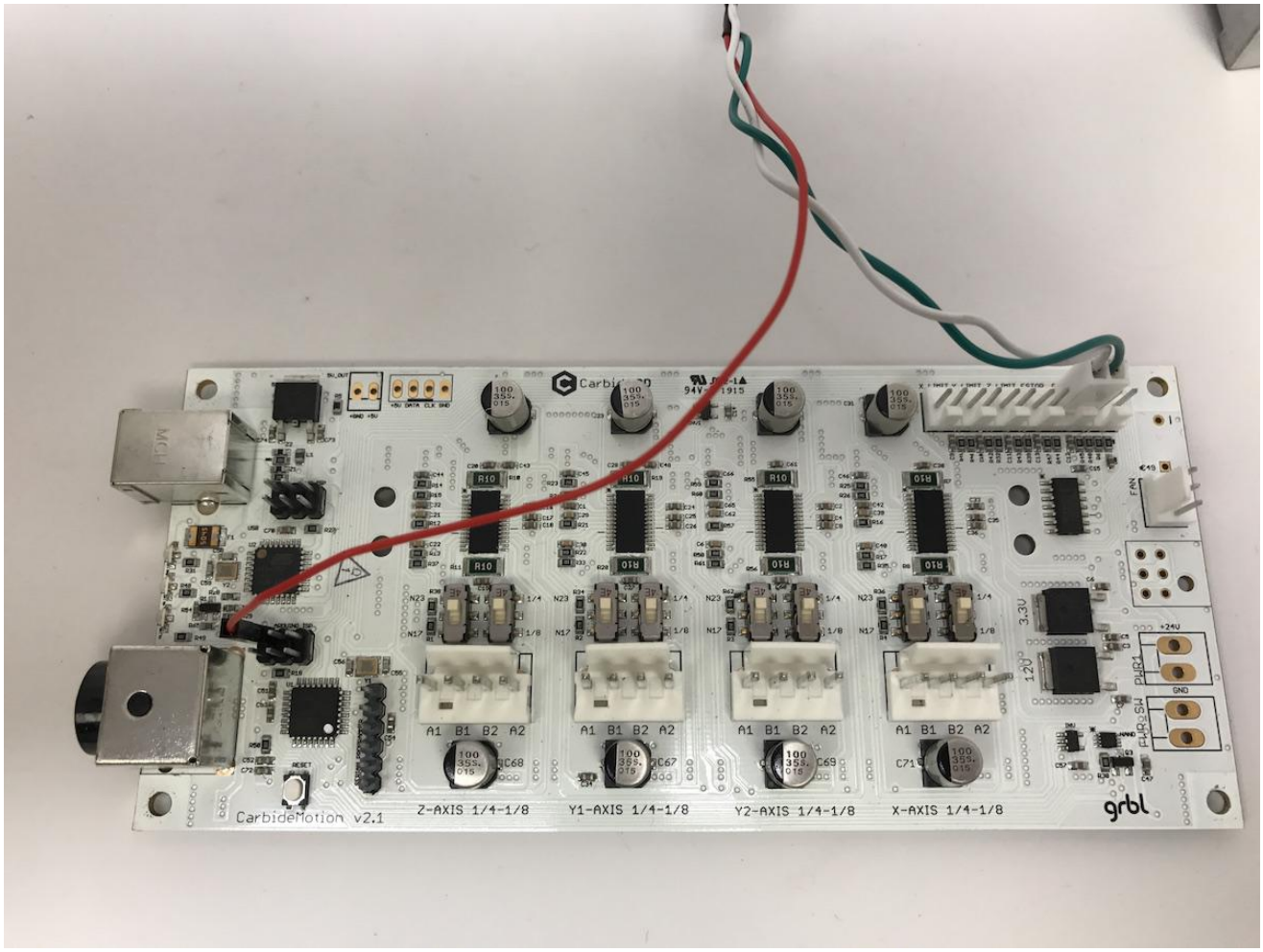
After assembly is complete, see the userguide for instructions on using the probe: Carbide 3D Probe Userguide

Version 2.1#

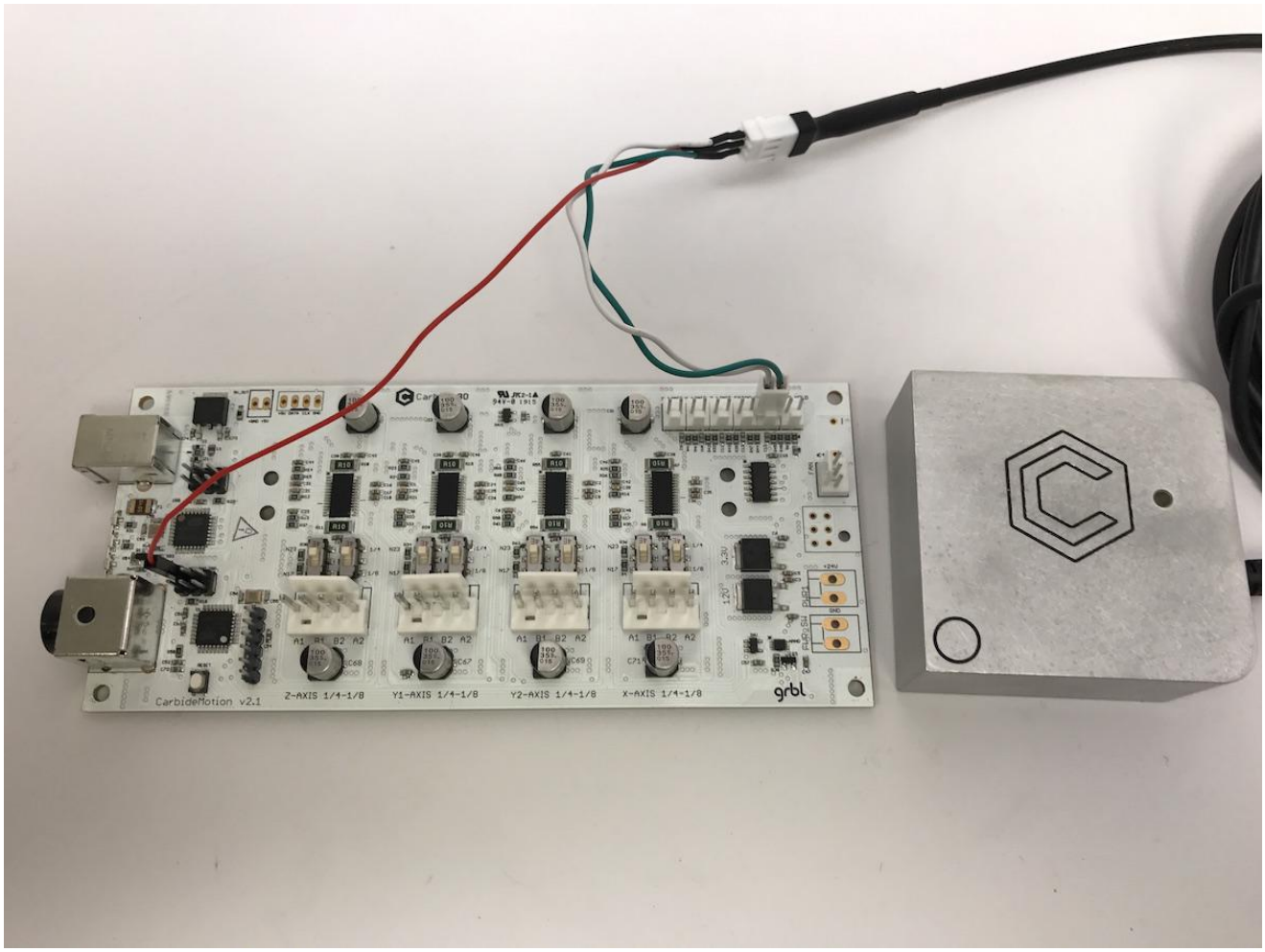

X_LIMIT Y_LIMIT Z_LIMIT ESTOP PROBE FEED_HOLD
Carbide 3D
94V-0 1915



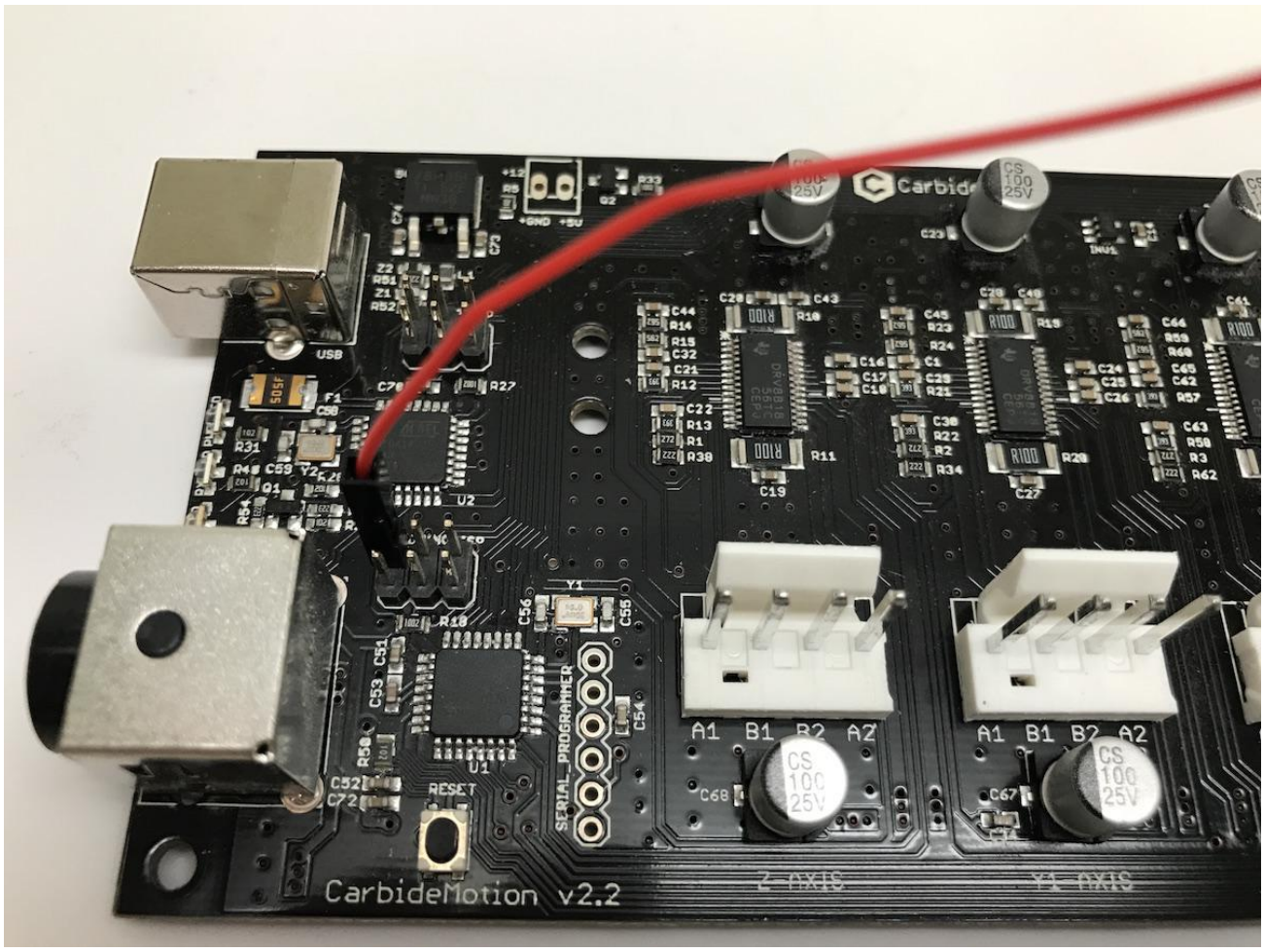
- Connect the female connector (green and white wires) to the probe pins as in the below picture.
- Connect the red wire (+5V) to the upper left pin on the AVR programming header as in the picture below.
  Once both wires are plugged in, your board should look like this.

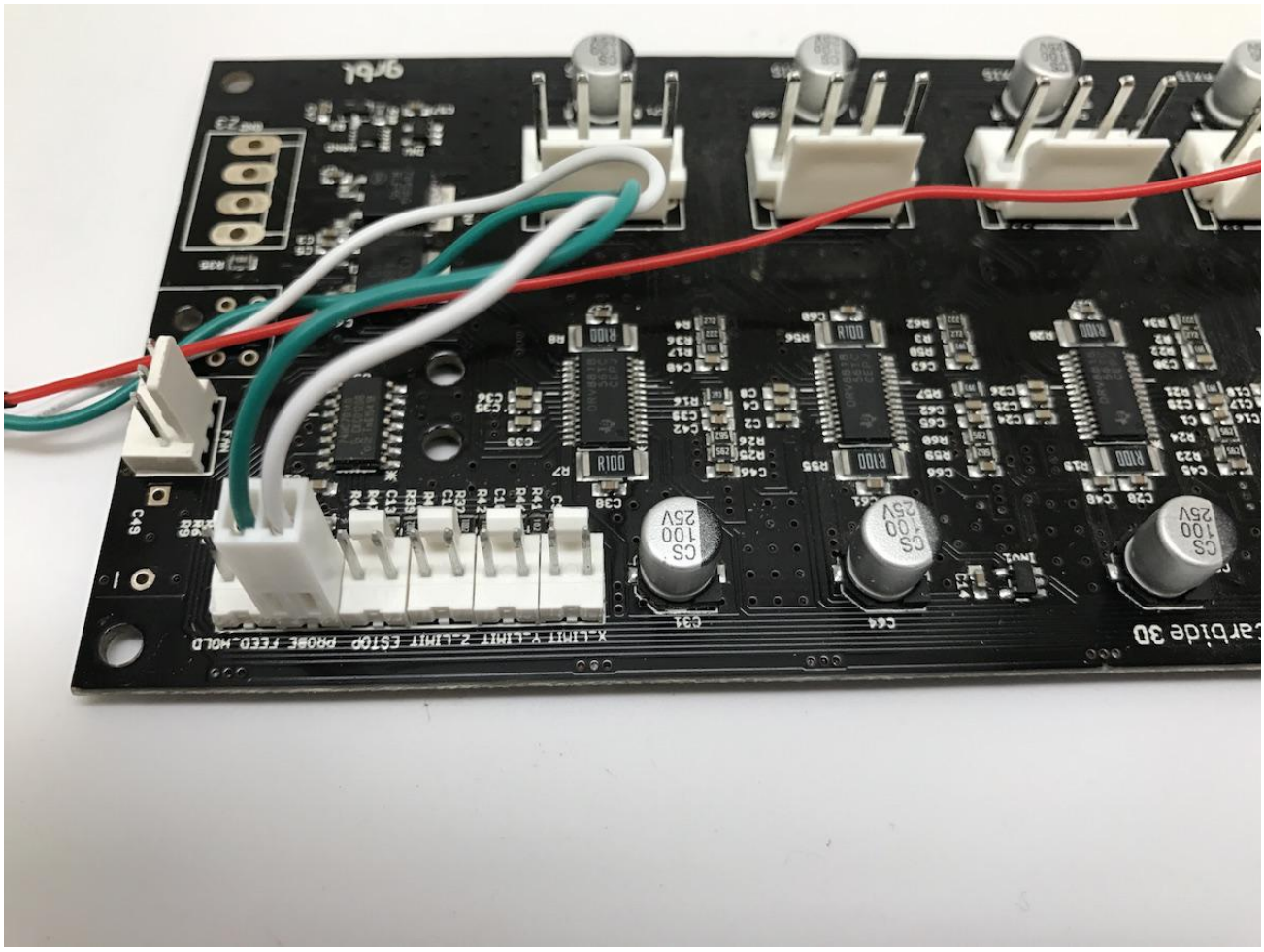


You can now connect the probe to the 3-pin male header on the adapter cable.

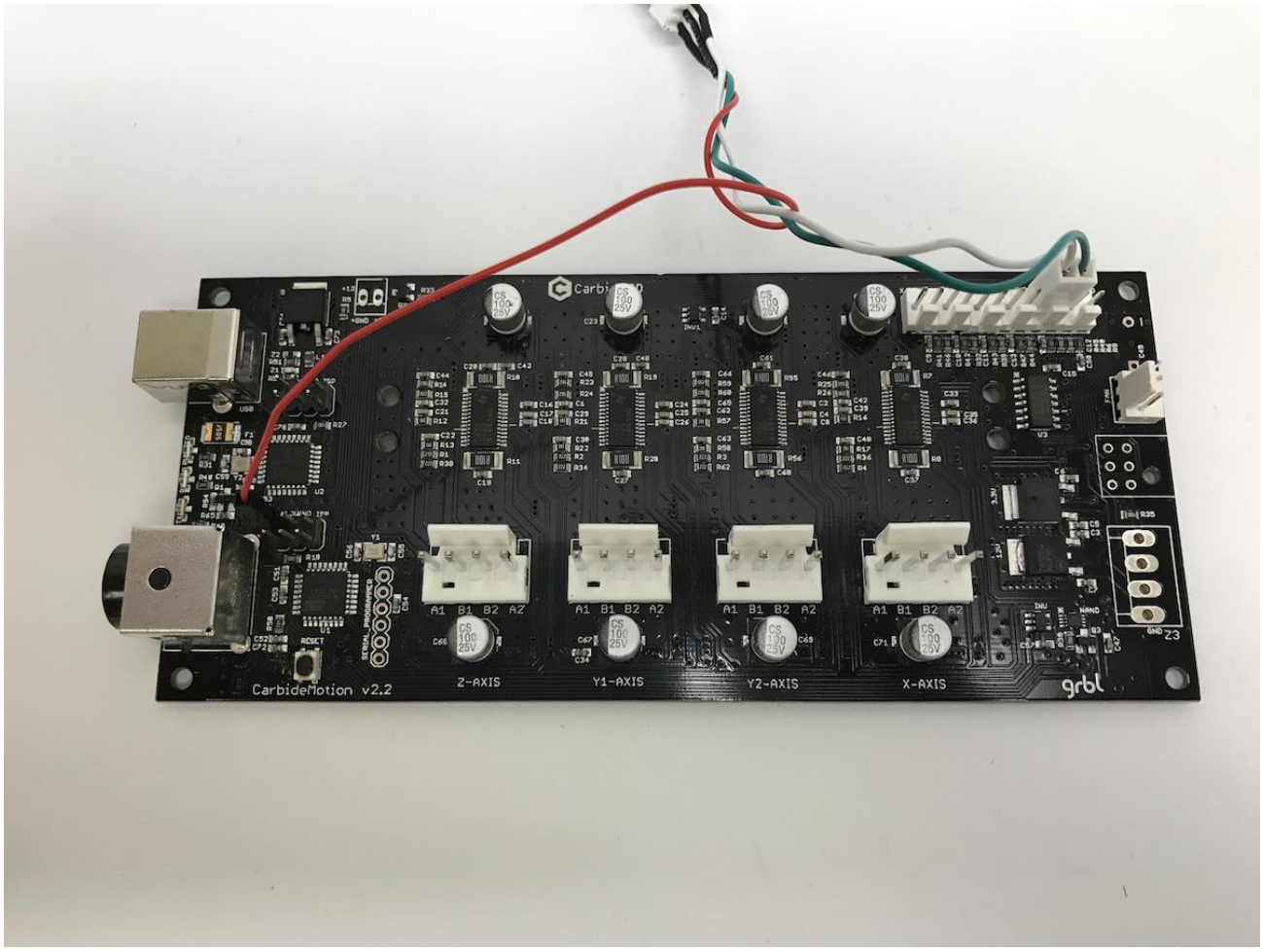

CarbideMotion v2.1
Z-AXIS 1/4-1/8
Y1-AXIS 1/4-1/8
Y2-AXIS 1/4-1/8
X-AXIS 1/4-1/8
grbl

Version 2.2#

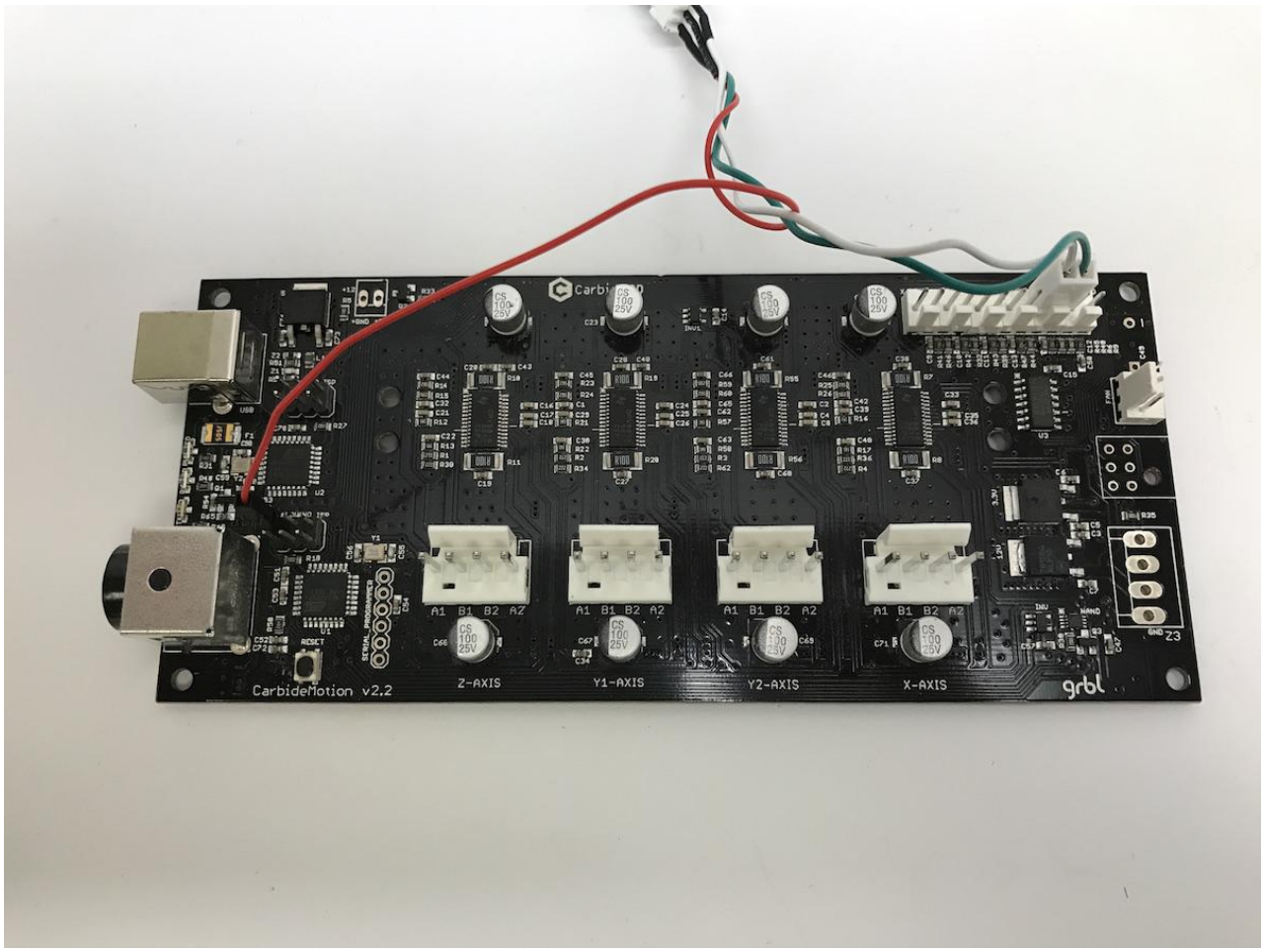

USB
RESET
SERIAL_PROGRAMMER
A1 B1 B2 A2
A1 B1 B2 A2
CarbideMotion v2.2
Z AXIS
Y1 AXIS



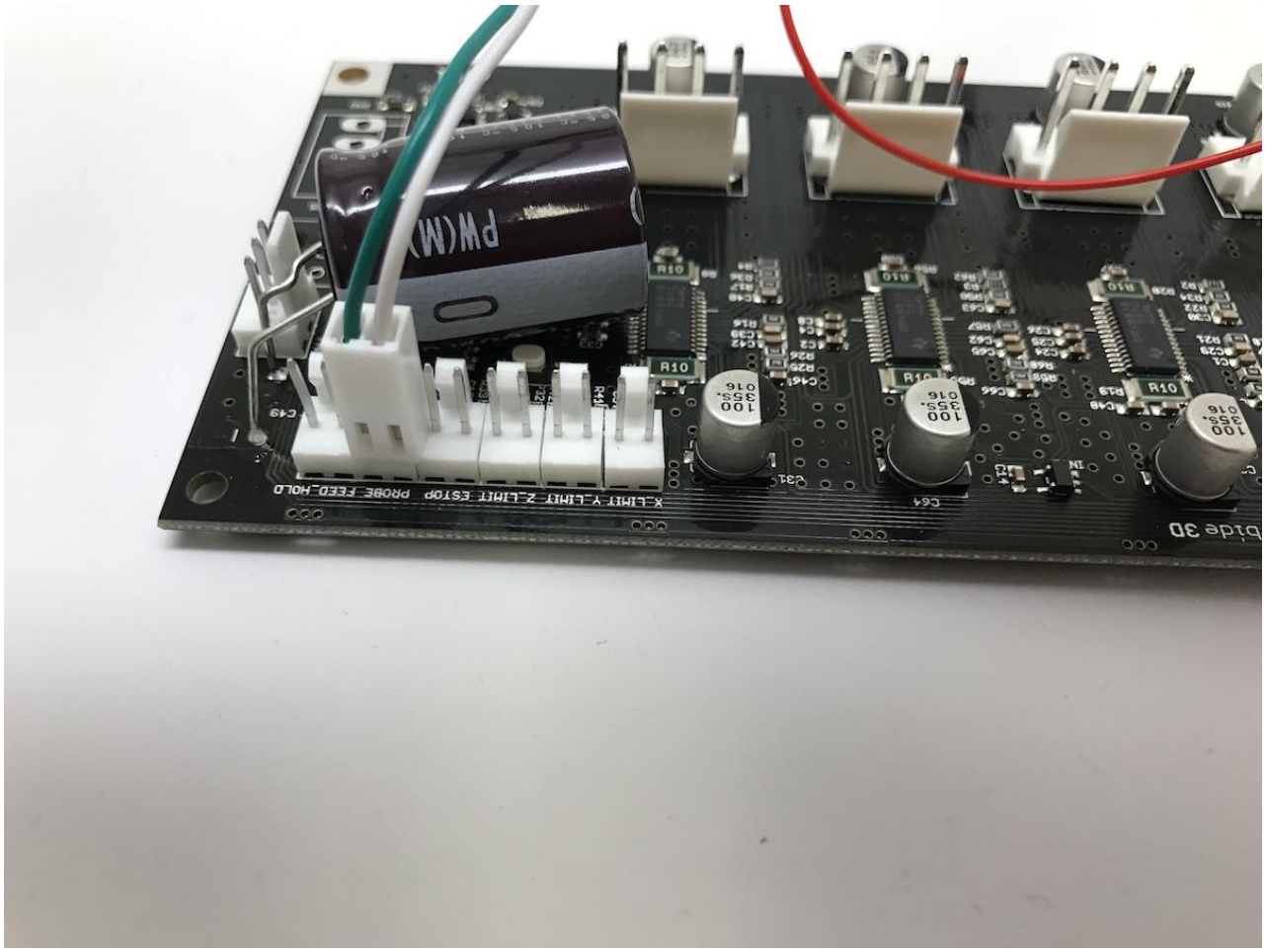
- Connect the female connector (green and white wires) to the probe pins as in the below picture.
- Connect the red wire (+5V) to the upper left pin on the AVR programming header as in the picture below.
  Once both wires are plugged in, your board should look like this.

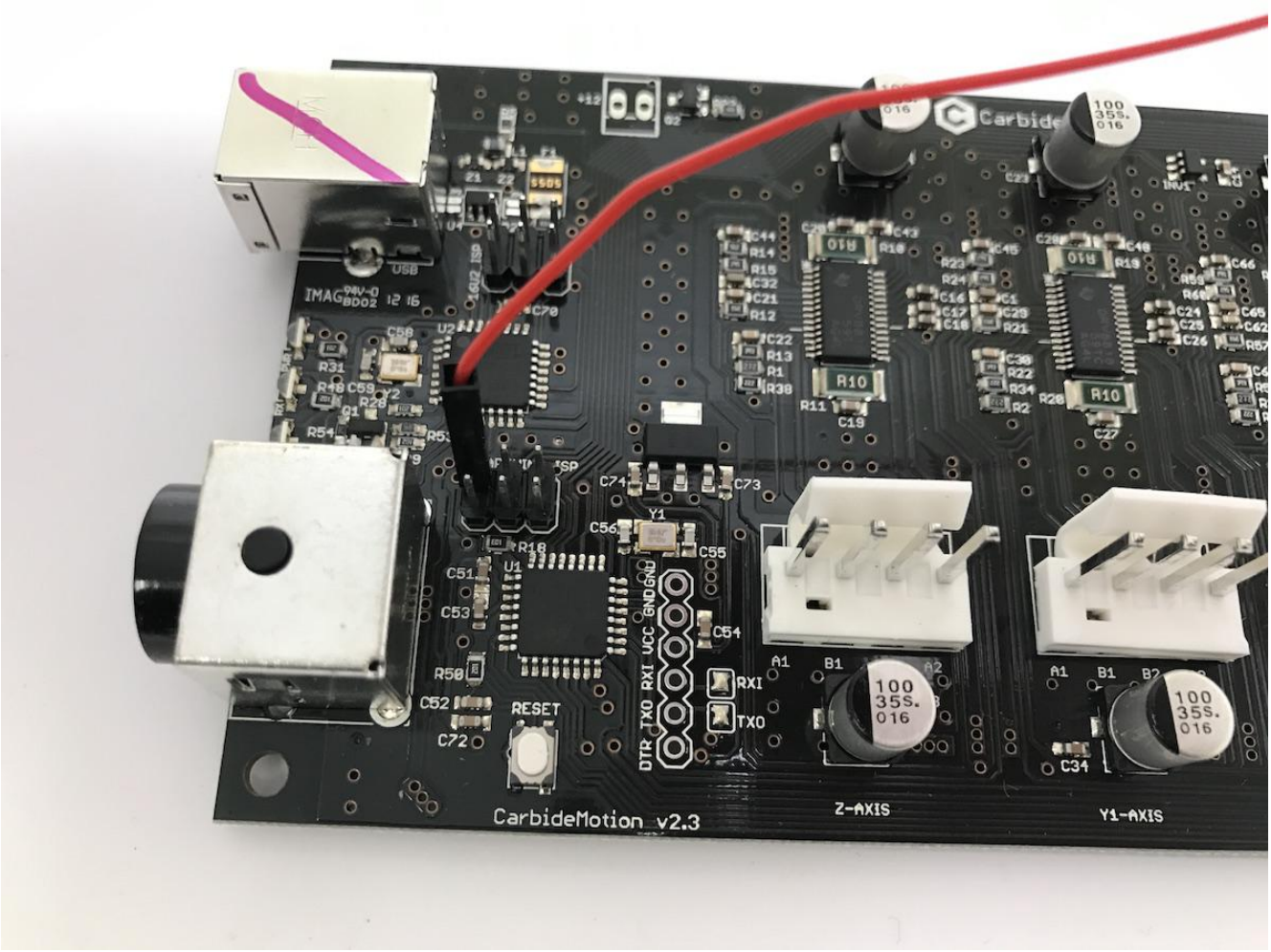


You can now connect the probe to the 3-pin male header on the adapter cable.

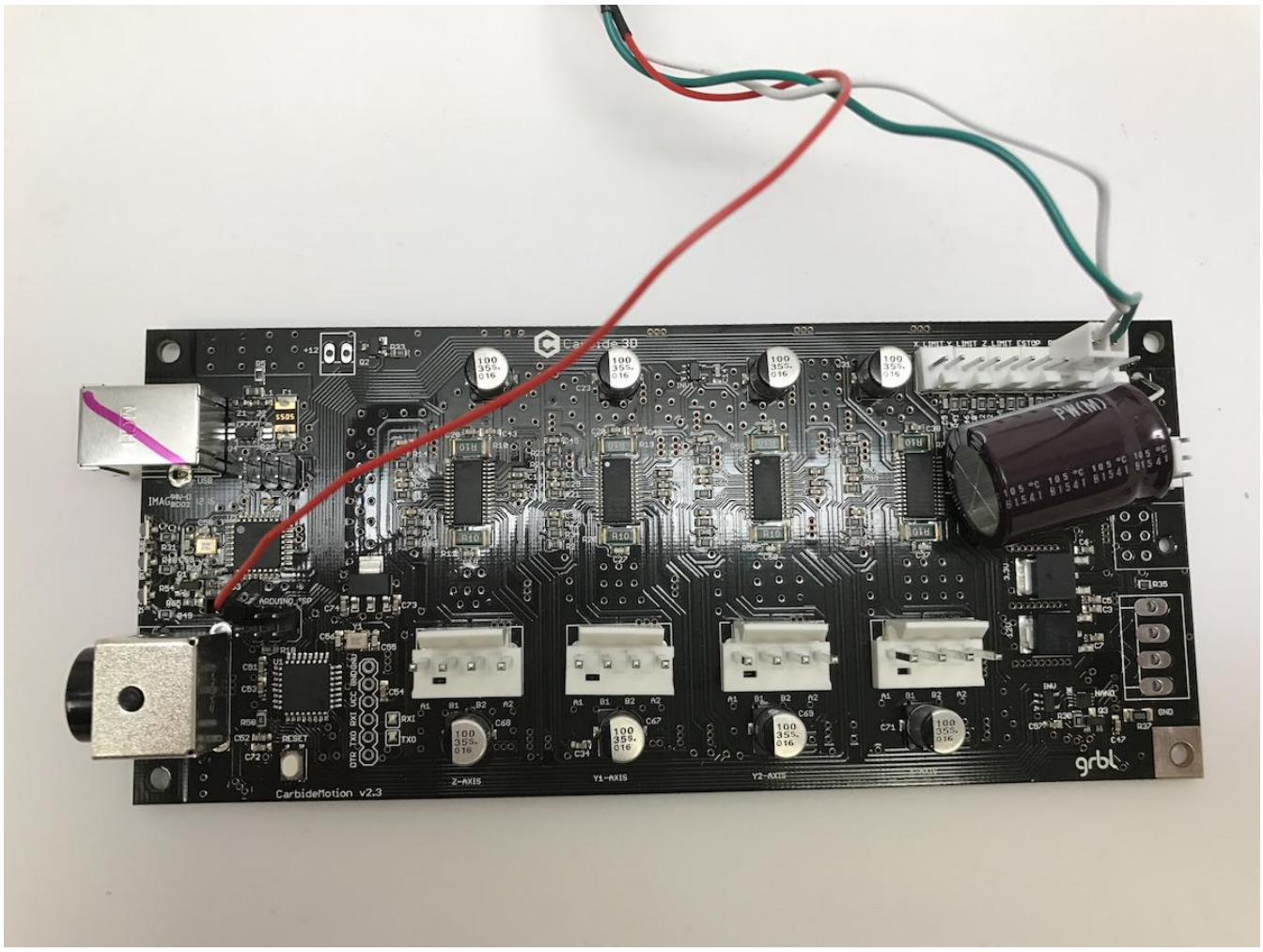


Version 2.3#

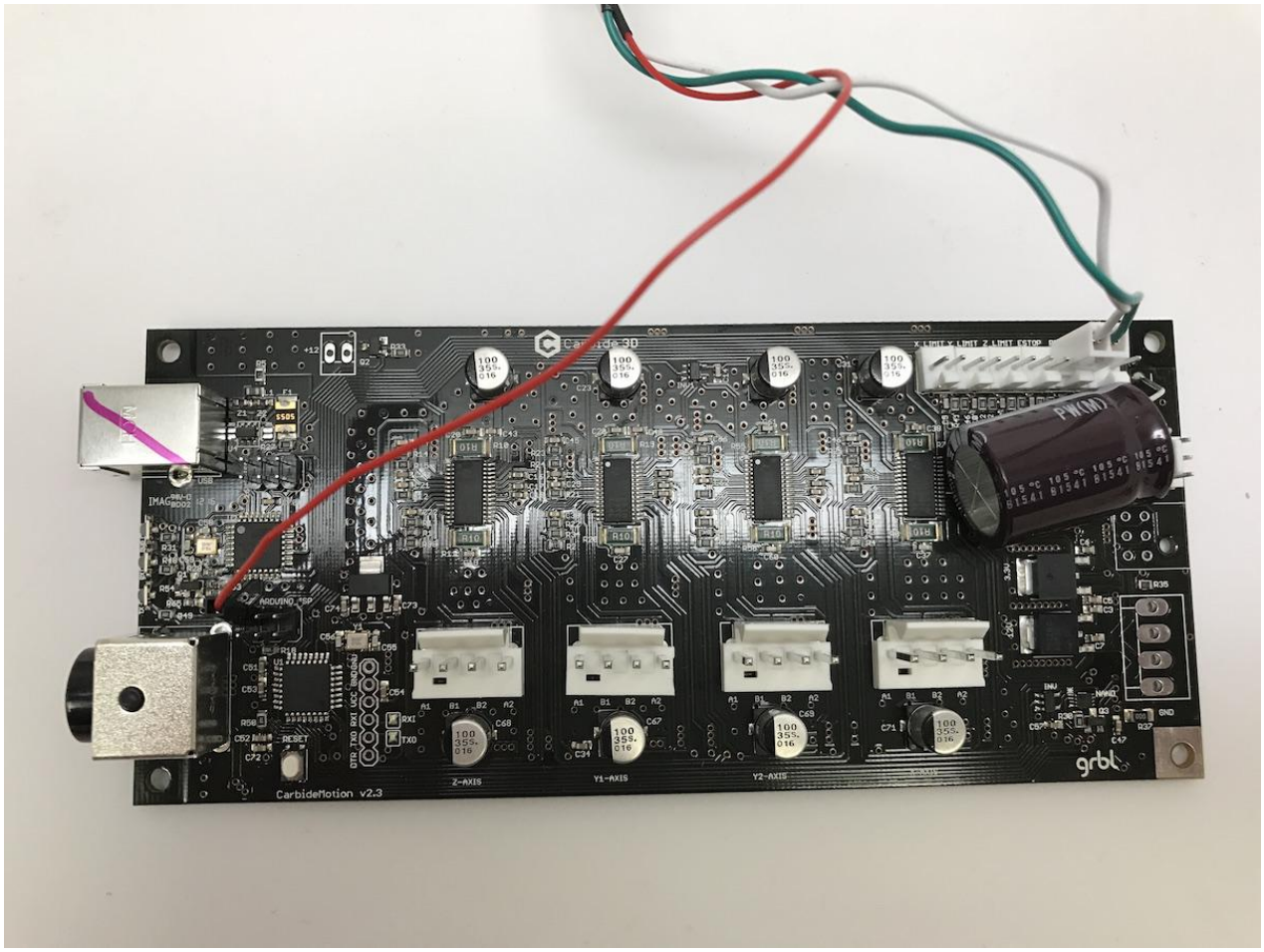

X_LIMIT Y_LIMIT Z_LIMIT ESTOP PROBE FEED_HOLD



- Connect the female connector (green and white wires) to the probe pins as in the below picture.
- Connect the red wire (+5V) to the upper left pin on the AVR programming header as in the picture below.
  Once both wires are plugged in, your board should look like this.



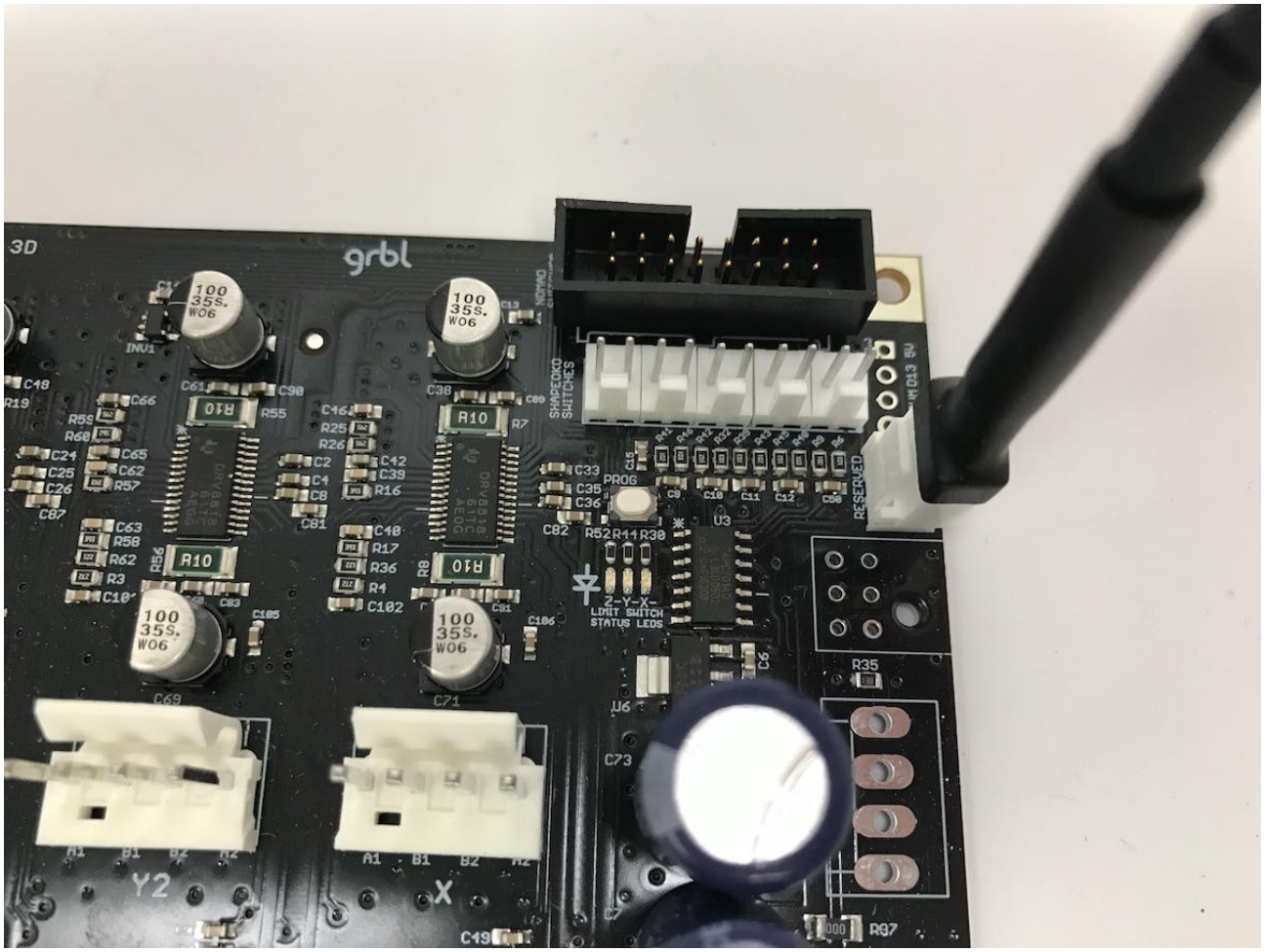
You can now connect the probe to the 3-pin male header on the adapter cable.

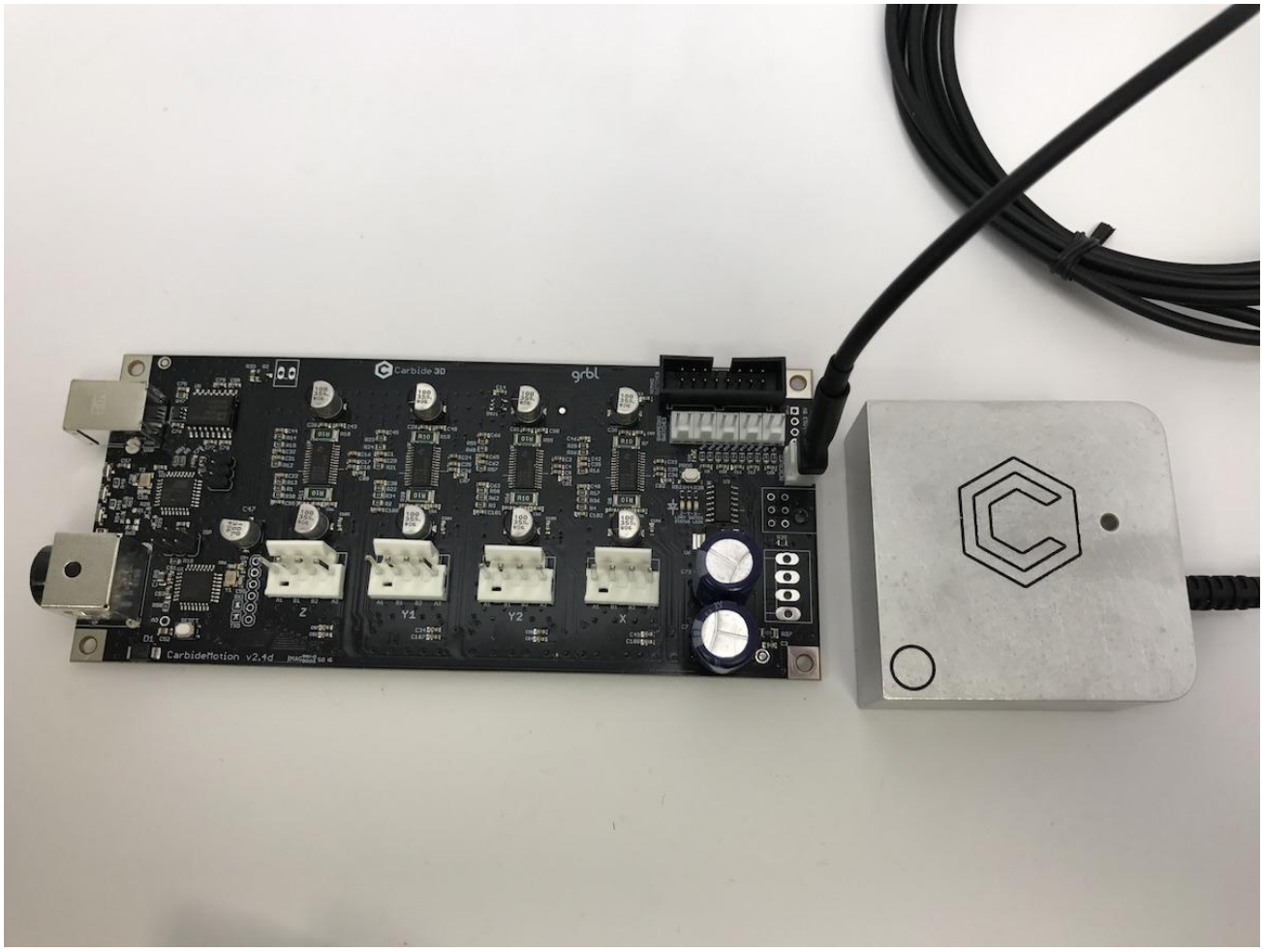


Version 2.4d/e#

Beginning with version 2.4d, the boards have with a purpose-built connector that we can use for the probe, labeled “RESERVED”.

###Connect the Touch Probe to the RESERVED header as in the below pictures.


3D
grbl
100
35S.
WO6
R10
SHAPEOKO
SWITCHES
RESERVED
Z-Y-X-
LIMIT SWITCH
STATUS LEDS
Y2
X



If your 2.4d/e board is missing the RESERVED header, connect the Touch Probe using the adapter cable and follow the directions for connecting version 2.3