Use QR code to follow instructions on your phone!

Quick setup guide

1. Set the minimum and maximum spindle speeds using Carbide Motion's MDI. Enter the commands **$31=10000** and **$30=30000** through the MDI interface. This will configure the GRBL controller board to a minimum speed of 10,000 RPM and a maximum speed of 30,000 RPM.

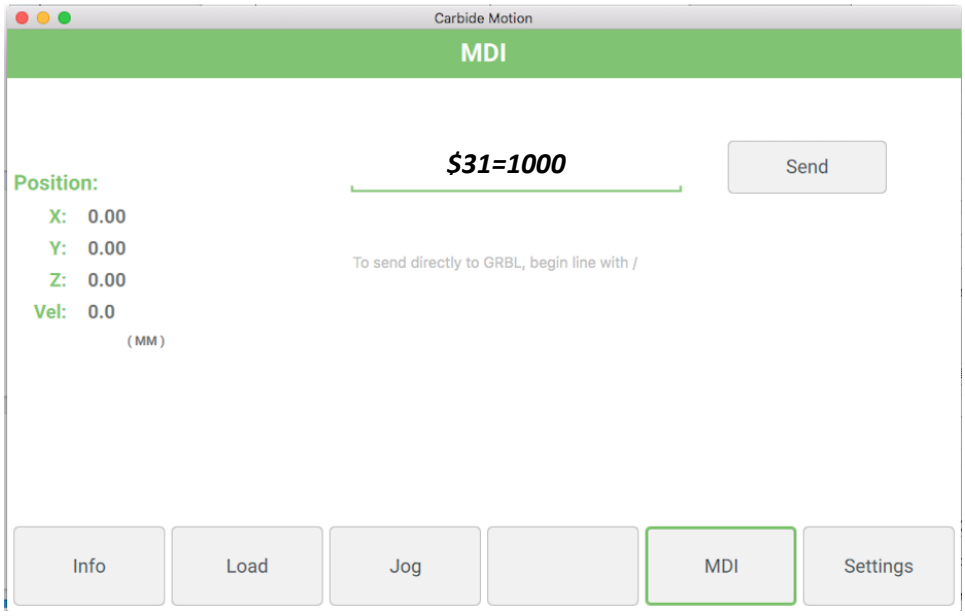
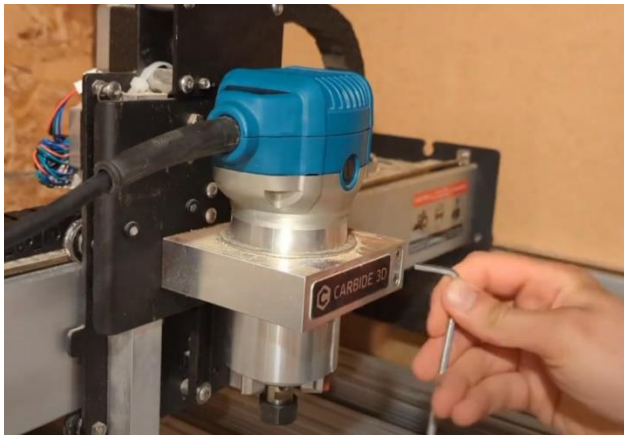


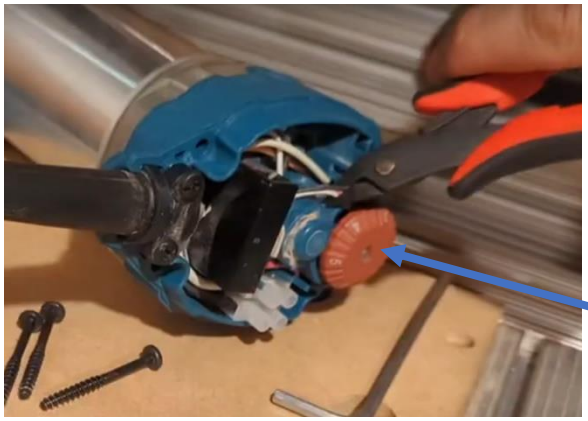
Figure 1 – Carbide motion MDI

2. Remove the Makita router from your machine

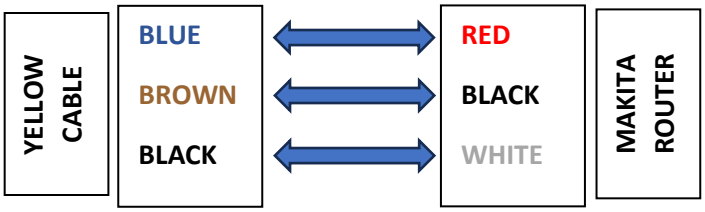


3. Open the top cover

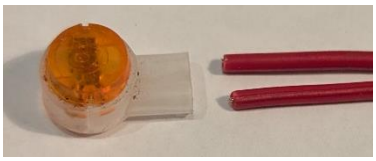
4. Cut the three small wires from the potentiometer. And discard the potentiometer.

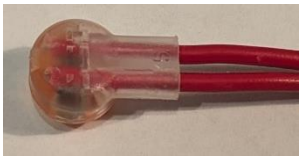


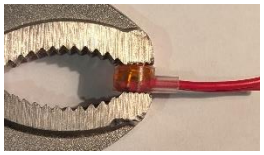
5. Connect the yellow cable to the router wires using the three button connectors.

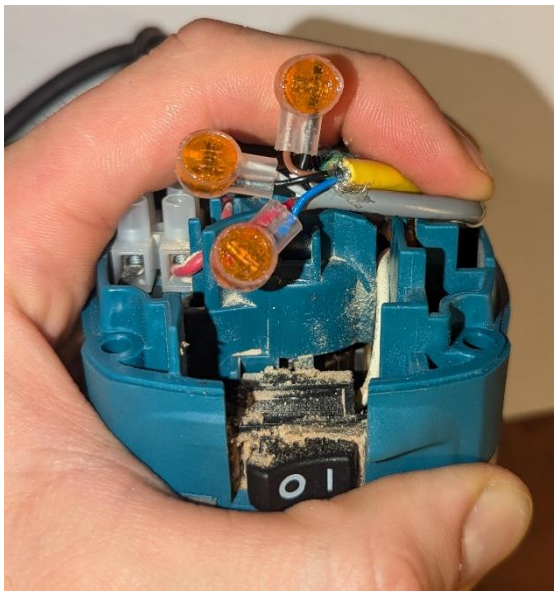


Simply push the to wires inside the button connector and squeeze with adjustable pliers until it is flat with the transparent part of the button connector. Make sure the wires are fully pushed in before you press the button connector. (Alternatively, soldering is another great option)







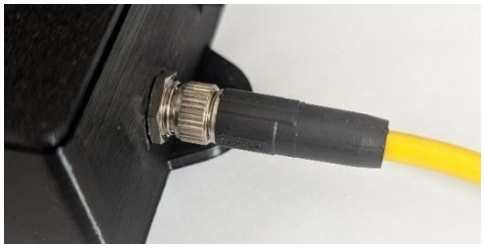


Note : no main power cable manipulation is necessary.

6. Close the router top cover with the yellow cable going thru the opening left by the potentiometer.

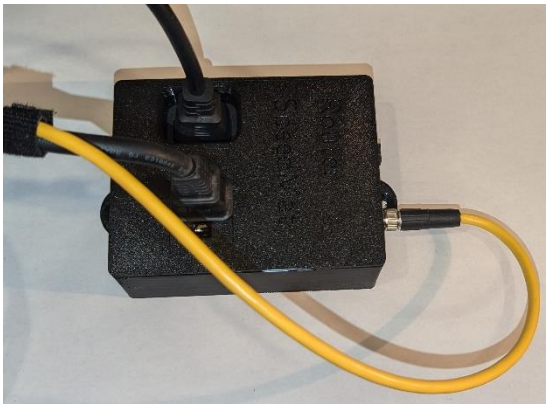
7. Use zip ties or electric tape to fasten the yellow wire to the Makita power cord.

8. Connect the yellow cable to the main box



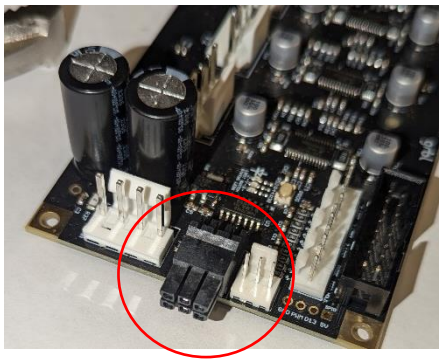
9. Connect power cord to main box and into an outlet

10. Plug the router's power chord into main box

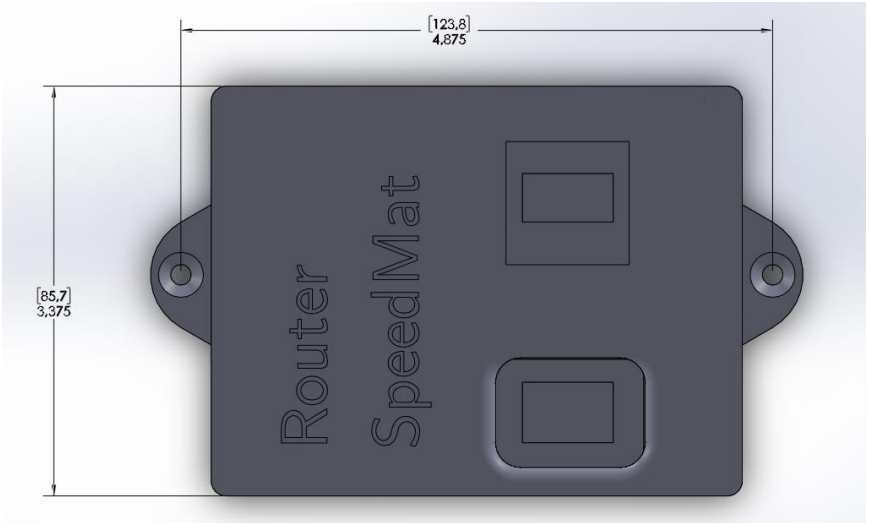


11. Connect the micro fit cable to the Shapeoko controller board and to main box.

Note : If you do not have the micro fit connector you will need to buy one and solder it in place. It is a Molex 6pin micro fit connector the part number is 447640603 or 447640601.



12. Fasten the box on a stable surface near the Shapeoko controller box.

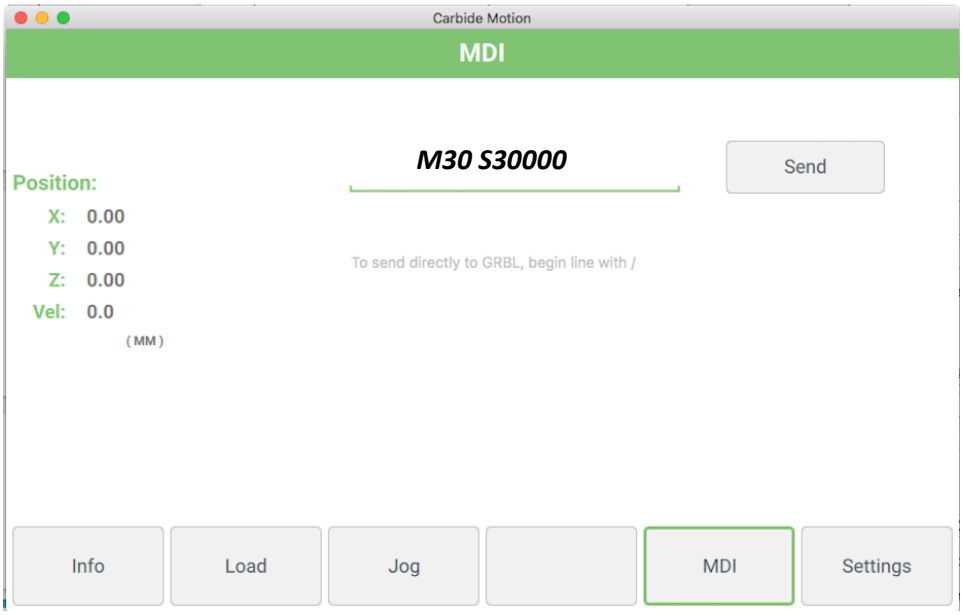


13. You are now ready to turn on your router (toggle switch)

Note : from now on you can always leave it on since power is controlled by main box.

Spindle speed fine adjustment

1. Send command ***M3 S30000*** thru MDI.



2. Download a Spectrum analyser app from measuring the rpm. Suggested apps:

Figure 3 – Spectroid for Android

Figure 2 - Audio Spectrum Analyzer for IOS

3. Measure spindle speed with phone and spectrum analyzer app.

4. Open main box (using a coin can make it easier). Locate speed adjustment

5. Use small flat screwdriver to turn the speed ajustment clockwise until frequency is 500 Hz. If there is no apparent peak, put a small tape on the spindle to increase noise. Going over 500 Hz is not suggested as it may damage the router.

$$Hz * 60 = rpm \rightarrow 500\ Hz * 60 = 30\ 000\ rpm$$

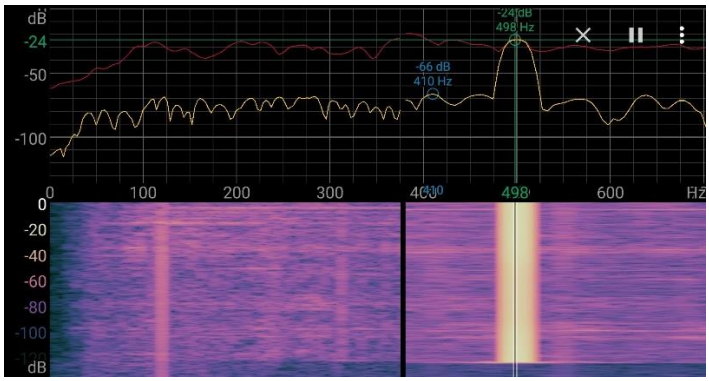


Figure 4 - Frequency Spectrum

Note : If you want to have more information on how to measure rpm with frequency analyser see Matthias Wandel's video on Youtube. https://www.youtube.com/watch?v=xutm6oMTBw8 Matthias Wandel measuring rpm with a spectrum analyzer mobile app.