# CPR800 Setup Guide

**Congratulations on your purchase of the CNC Router Parts
2.2 kW Plug and Play Spindle / VFD System!**

Step 1

The first step in setting up your Spindle will be to physically connect your VFD to your CPR800 Control Unit with the supplied 14 pin cable:


The 14 pin male-to-male cable should connect to the female 14 pin connectors on both the control box and the VFD as shown below.
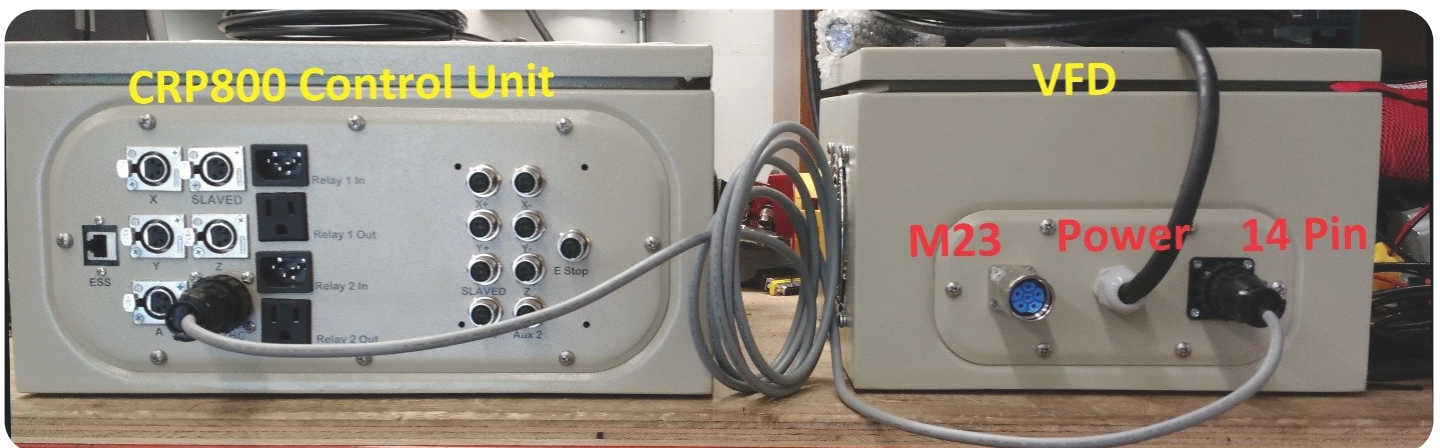
The included M23 cable should be used to connect your VFD to your spindle and the VFD power cable should be plugged into an appropriate L6-30 240 volt outlet.

The arrows on the M23 cable ends should align with the panel mount M23 receptacles on both the spindle and the VFD enclosure. If these arrows do not align, the cable will not make a functional connection. (see below).
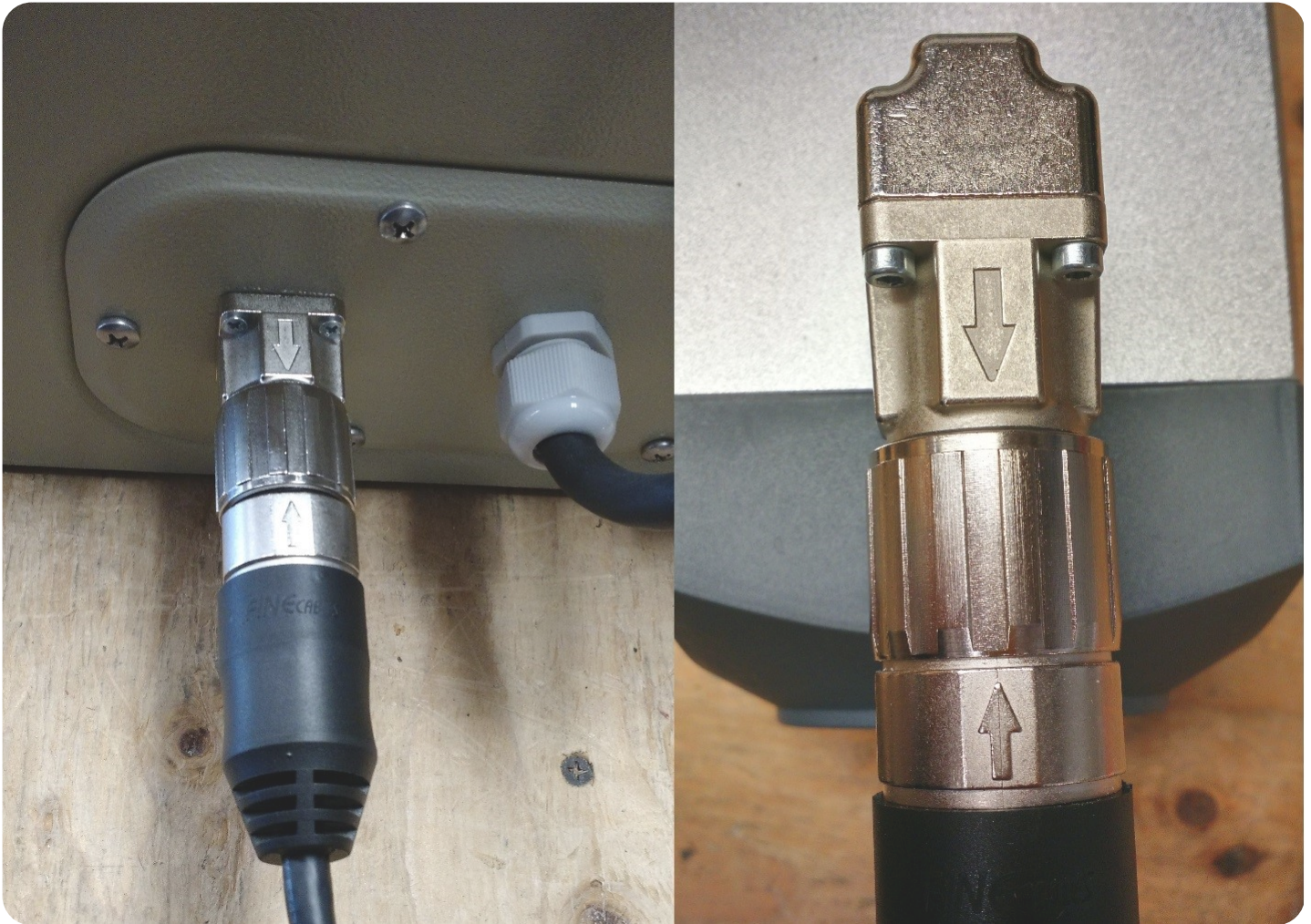
Step 2

Now that all physical connections are complete, you must modify the Mach3 settings on your PC to ensure proper spindle operation.

Under "Config" select "Ports and Pins," then select "Motor Outputs"
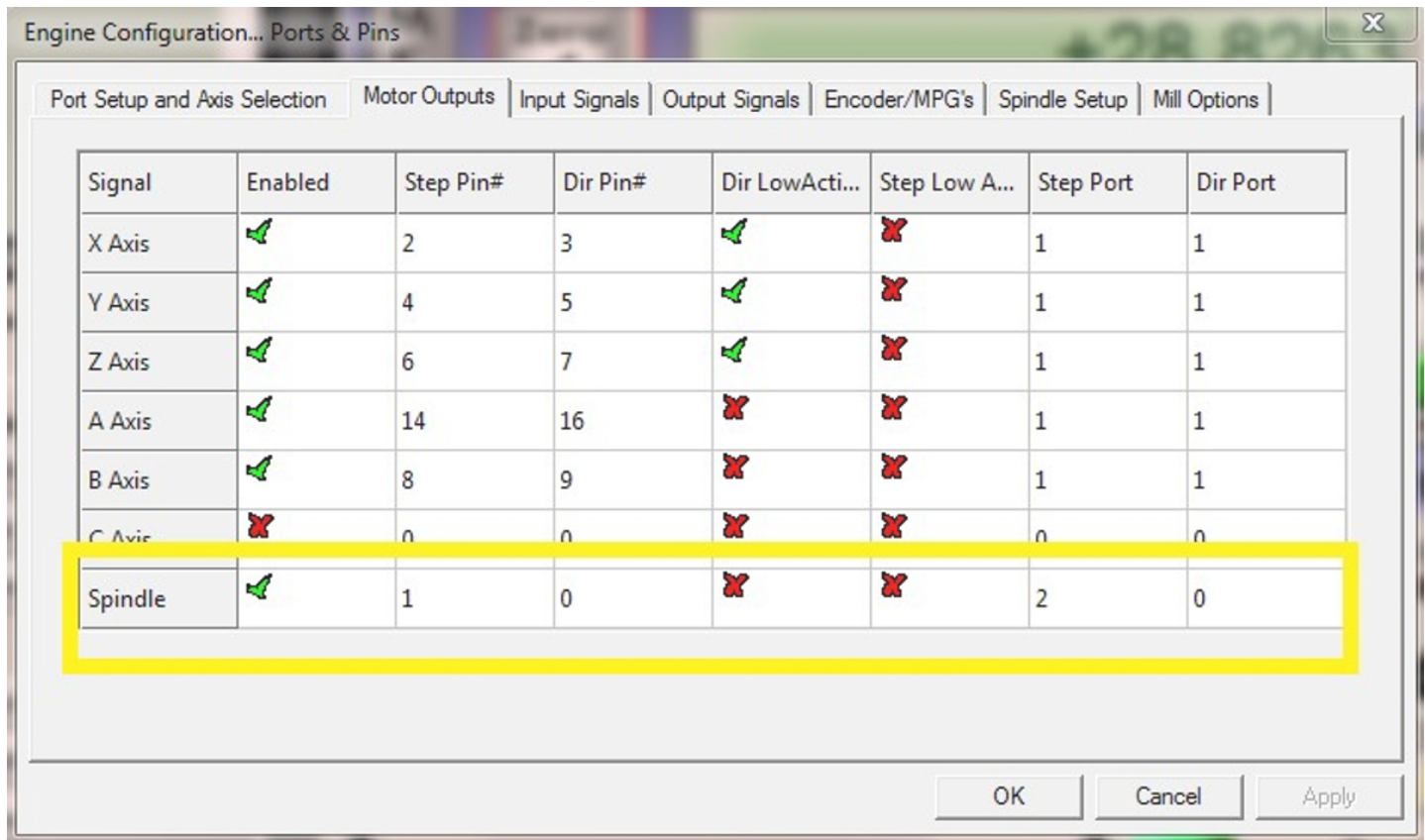
Under the "Motor Outputs" tab, make the following changes to the "Spindle" row:

- Spindle Enabled must show a green check mark (click on the red X to change it to a green check mark)
- Step Pin set to 1
- Dir Low Active must show a red X
- Step Low Active must show a red X
- Step Port set to 2

Now navigate to the "Output Signals" tab (Under "Config" select "ports and pins," then select "Output Signals").
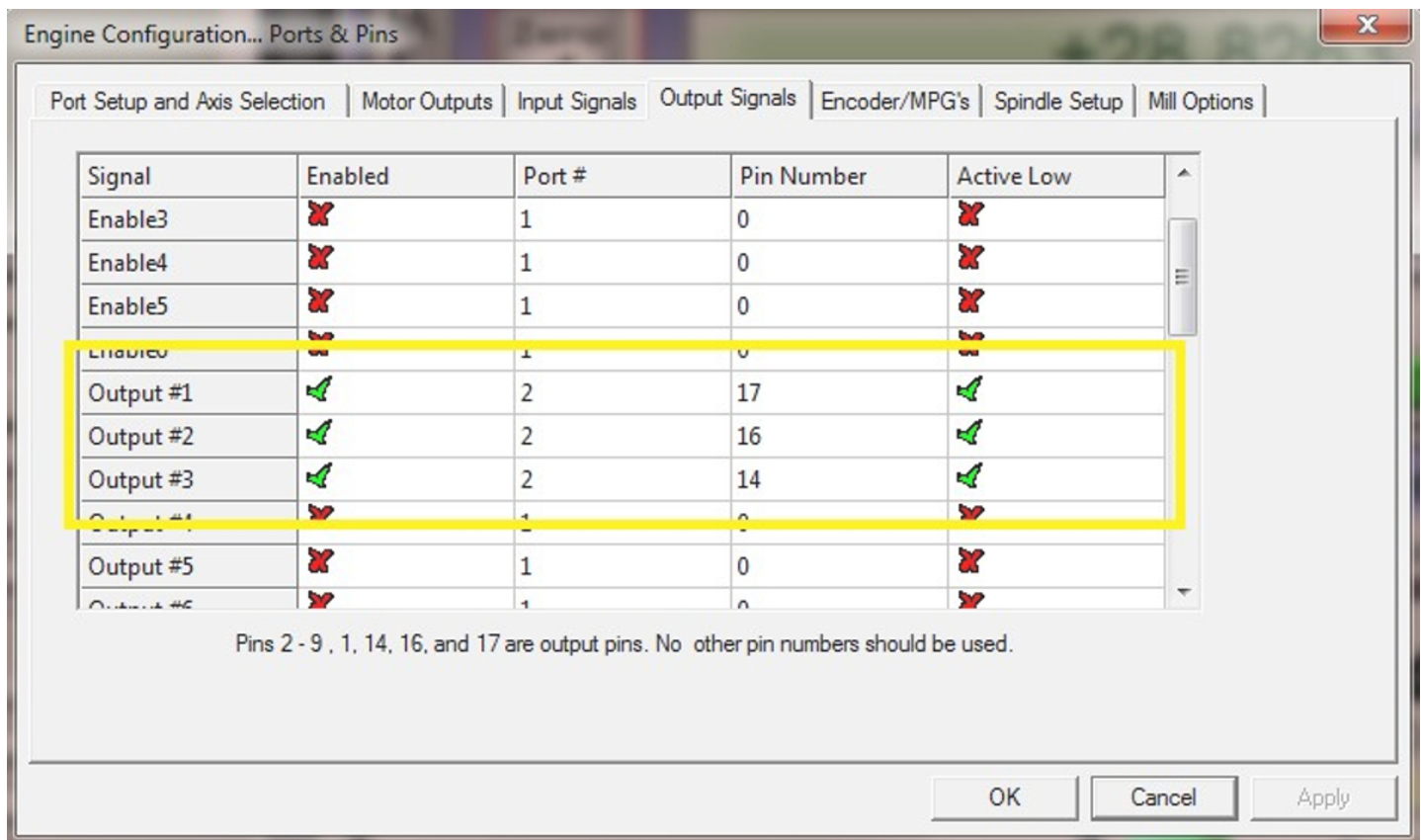
Under the "Output Signals" tab make the following changes:

- In the Output #1 Row
  - Enable must show a green check
  - Port must be set to 2
  - Pin Number must be set to 17
  - Active Low must show a green check

- In the Output #2 Row
  - Enable must show a green check
  - Port must be set to 2
  - Pin Number must be set to 16
  - Active Low must show a green check

- In the Output #3 Row
  - Enable must show a green check
  - Port must be set to 2
  - Pin Number must be set to 14
 - Active Low must show a green check

Now navigate to the "Spindle Setup" Tab (Under "Config" select "ports and pins," then select "Spindle Setup").
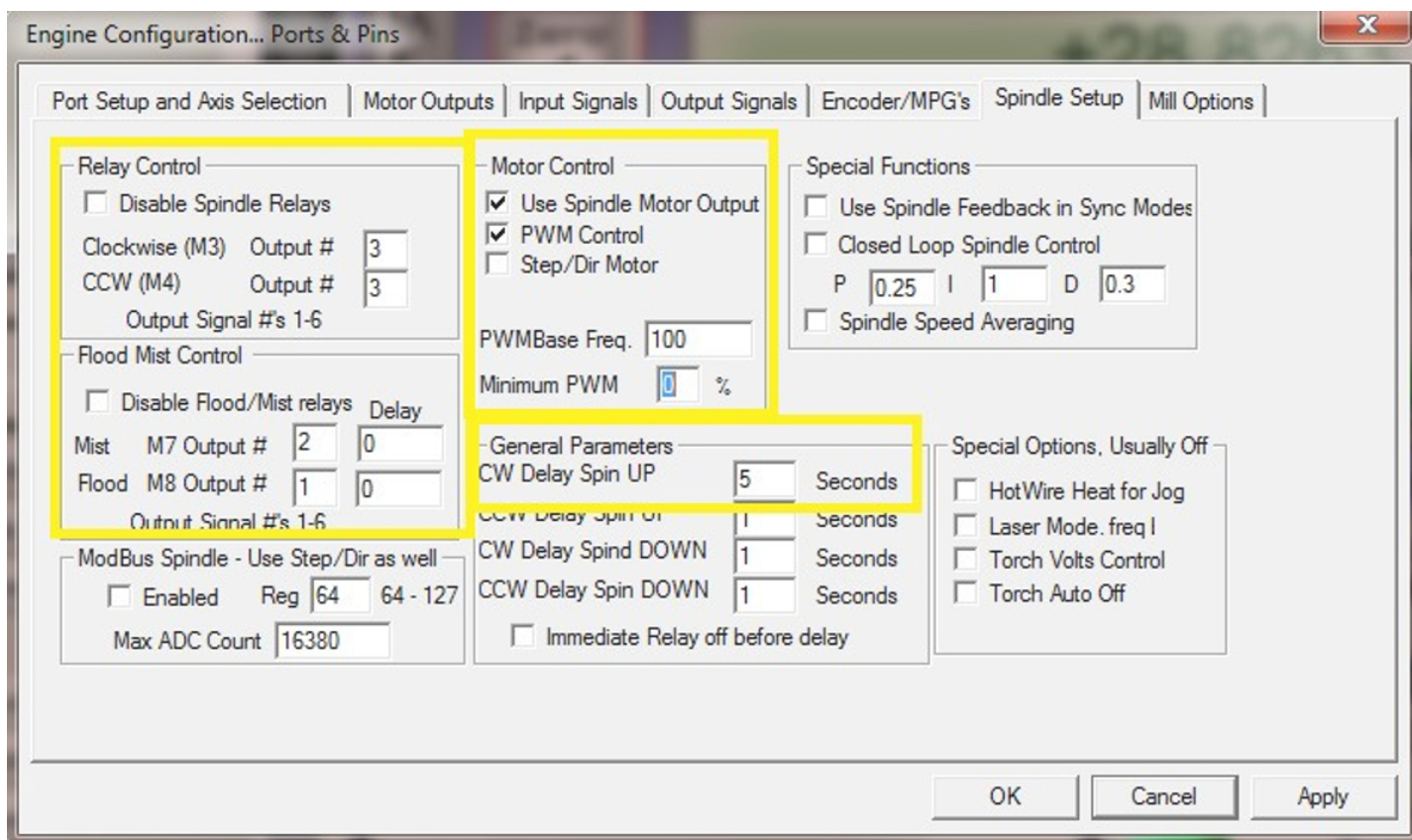
Under the "Spindle Setup" tab make the following changes:

- In the Relay Control
    - Clockwise M3 - Output # must be 3
    - CCW M4 - Output # must be 3
- In Flood Mist Control
    - Mist M7 - Output # must be 2
    - Flood M8 - Output # must be 1
- In Motor Control
    - Use Spindle Motor Output must be checked
    - PWM Control must be checked
    - PWM Base Freq. must be 100
    - **Minimum PWM % MUST BE 0**
- In General Parameters
    - CW Delay Spin UP should be 5 seconds (or greater if you prefer a longer delay)

Now navigate to "ESS Config" (Under "Plugin Control" select "ESS-XXXXX Config")
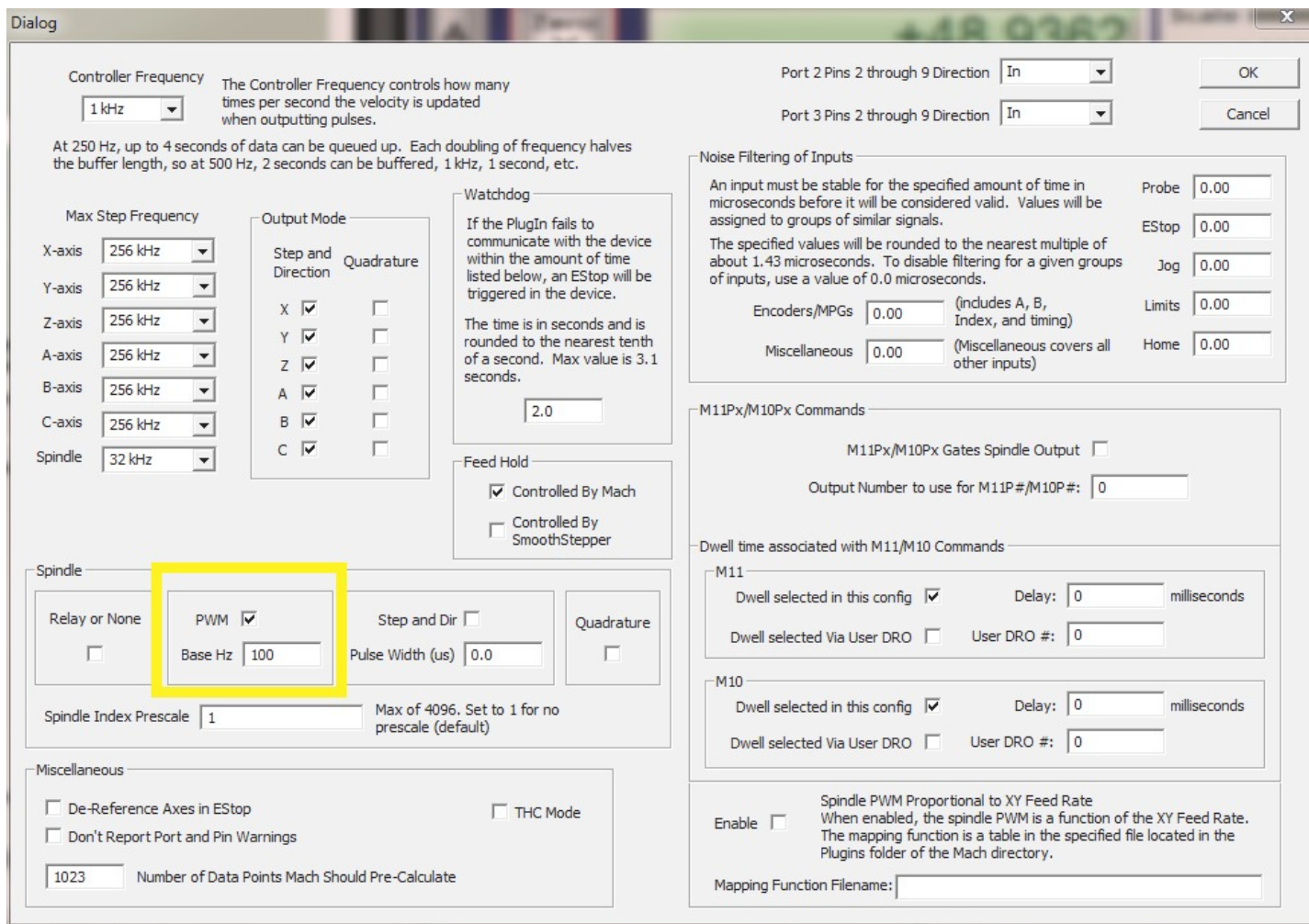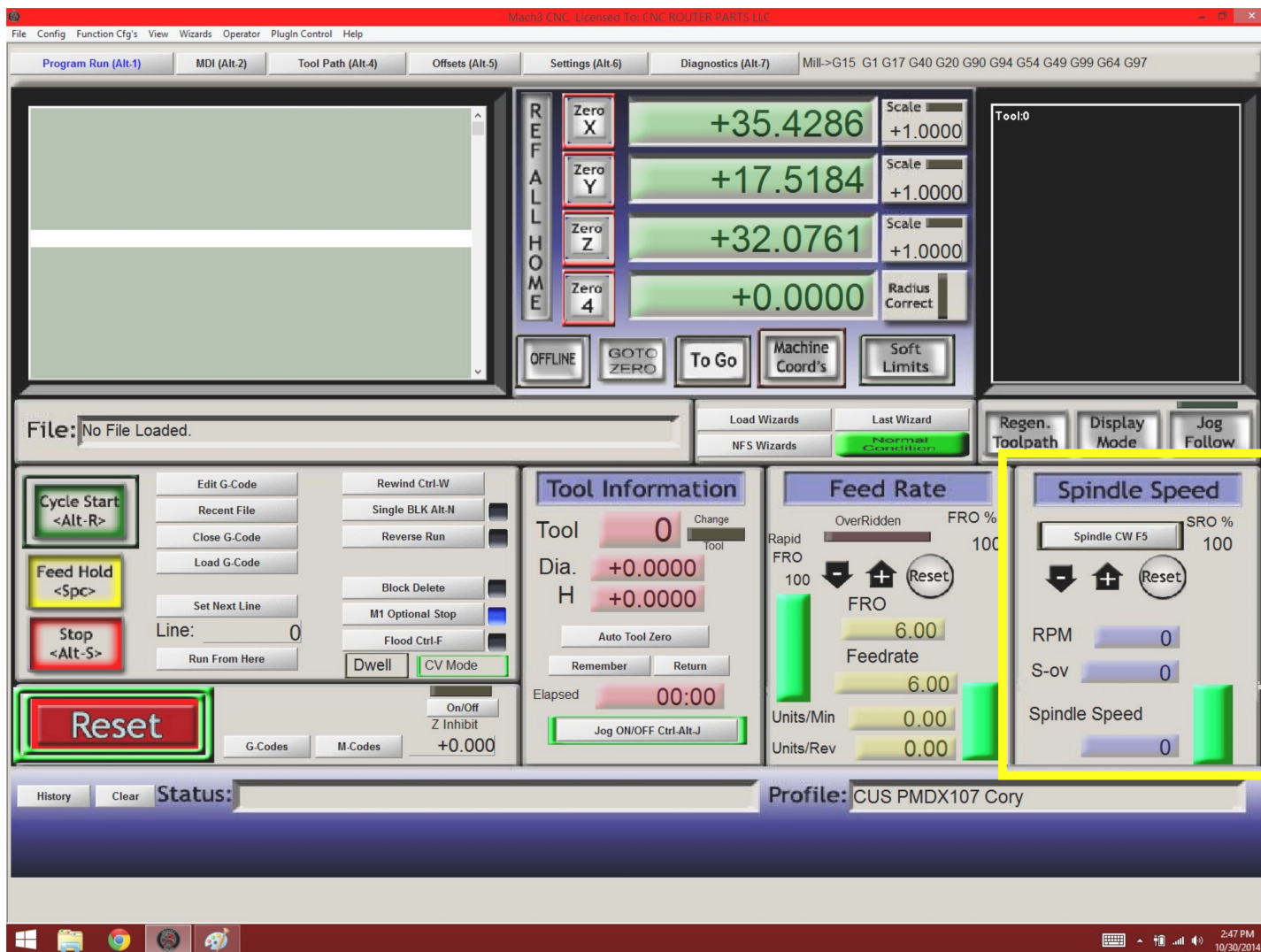

Under "ESS Config" make the following changes:

- Under "Spindle" ensure the PWM box is checked
- Base Hz must be 100

With the above changes complete, you are now ready to run your new Spindle with Mach3!

Please read the below guidelines for operation of your spindle.

When using your spindle, enter a speed between 8000 and 24000 into the "**Spindle Speed**" box. If you enter a value too low, it will bump to 7980, too high and it will bump to 24000. If you accidentally enter a value too low or high, hit reset twice to clear the "Status."

Once you have input a valid **Spindle Speed (not rpm or S-OV)**, Click the "Spindle CW F5" button to turn the spindle on and run it at that speed.

Check that you can adjust speed while the spindle is on by entering various speeds between 8000 and 24000 into "Spindle Speed."

If the spindle responds to these speed commands your VFD and Spindle package is ready for use!

If you experience any trouble while following this guide, please feel free to **Contact Us**.