

The Y axis DRO should count up and tool should move away from you (table moving towards you when standing in front of the machine) when pressing the up arrow key.

The Z axis is jogged with PageUp and PageDown buttons. The DRO should count up and the tool should move up when pressing the PageUp button.

So, that was the most fundamental parts of setting up the Mach3 CNC control application. In the following sections we will go thru how to set up the charge pump, spindle, coolant, home switches and the software over travel limit.

The charge pump function.

When booting up the computer the output pins of the parallel port may be in an unknown state. If for example we have our spindle motor wired thru a relay that is activated when there's 5V present on pin 8 of the port the spindle may start at any time while Mach3 is not in control and this is a very dangerous condition. To prevent this we can use the charge pump function in Mach3 along with a bit of hardware. We will not discuss building the hardware part here but schematics are available from ArtSofts web site. (www.machsupport.com)

To setup the charge pump function in Mach3 we, once again, open the *Ports and Pins* in the *Config* menu and then select the *Output Signals* tab.

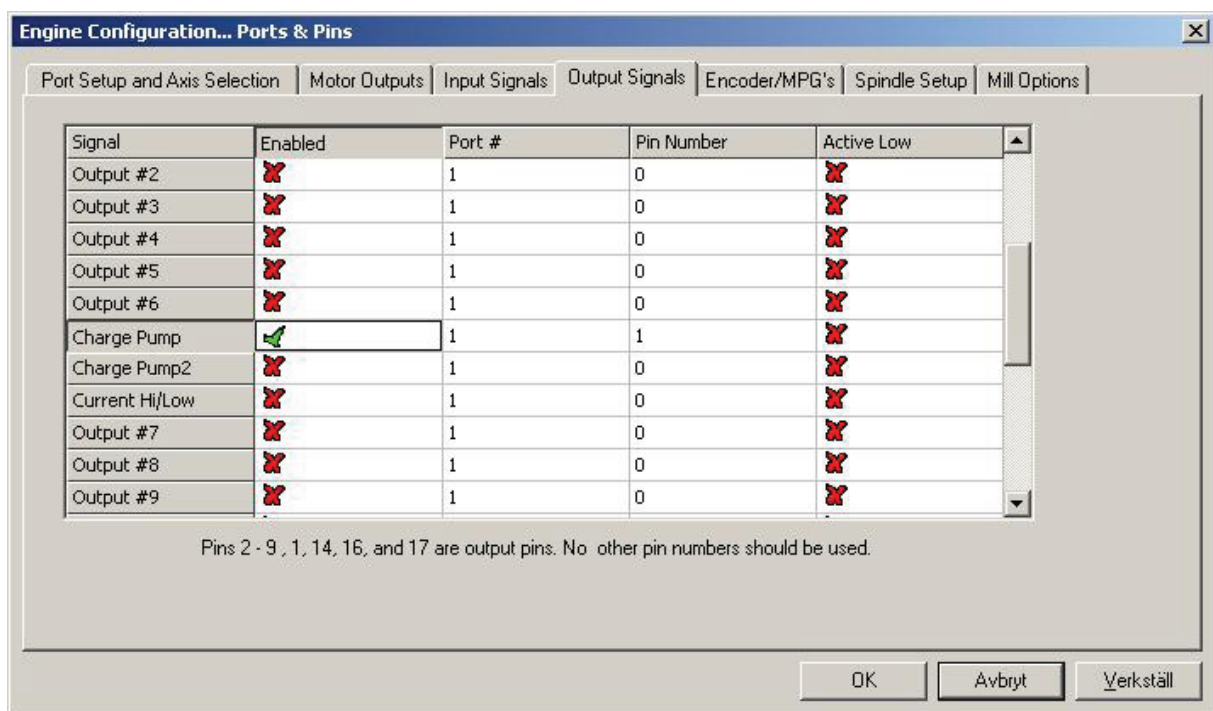


Figure 9: The Output Signals.

About halfway down there's a signal called *Charge Pump*. Put a 1 in the *Port #* and the *Pin #* to which the circuit is connected, in this example pin #1. Then make sure the function is enabled (a green checkmark in the Enabled column). Check that no other output signals are enabled. Now, when ever Mach3 is running AND is not in E-stop mode there will be 12.5kHz square wave on pin 1 of the parallel port. If you want the charge pump to run all the time Mach3 is running, even in E-stop mode go to the *Config* Menu and select *General Config* and enable the *Charge Pump on in E-stop* option.