

## PRODUCT INTEGRATION INSTRUCTIONS

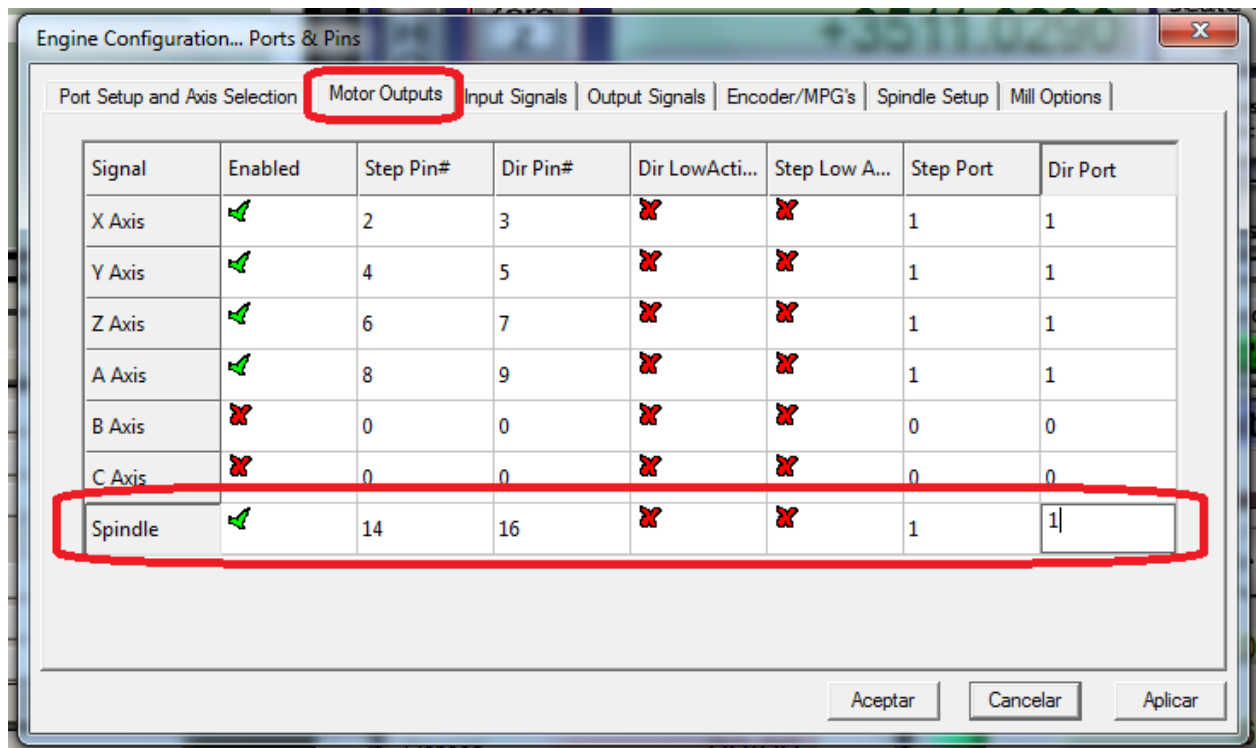
### STEP AND DIRECTION SPINDLE SPEED CONFIGURATION ON INTERNATIONAL MODE

FEBRUARY, 2015

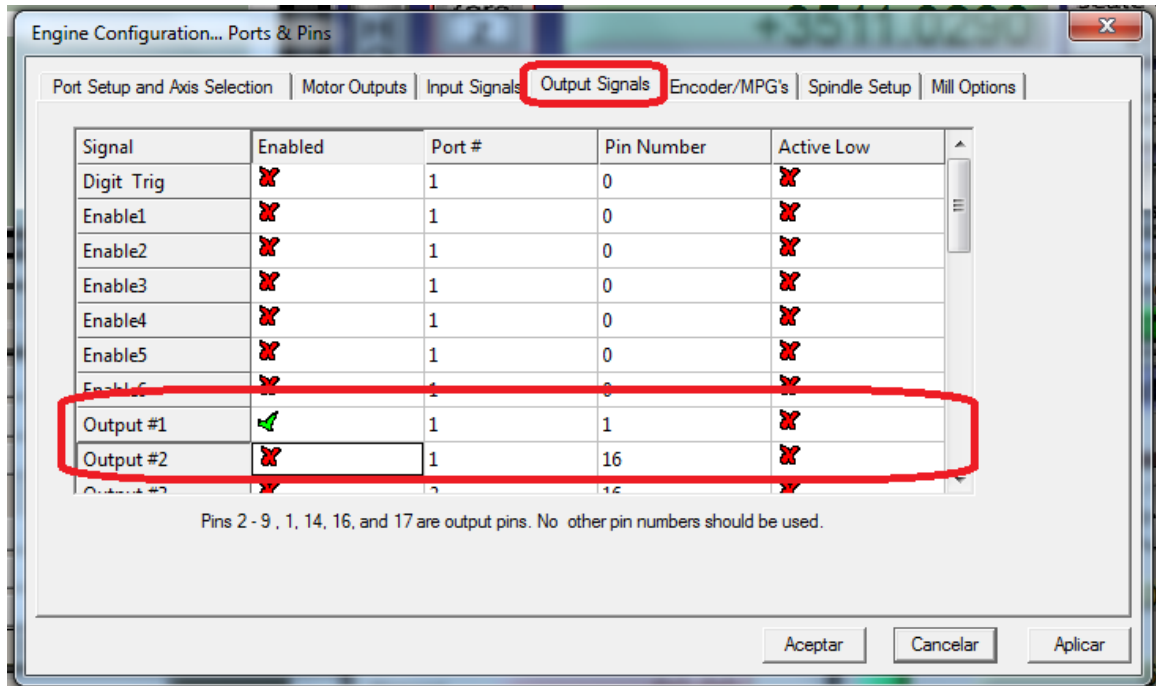
*International mode is when you use one switch for on/off and the another one to control direction (CW/CCW). US Mode uses one switch for On/Off CW and the other one for On/Off CCW.*

For configuring Mach follow these steps:

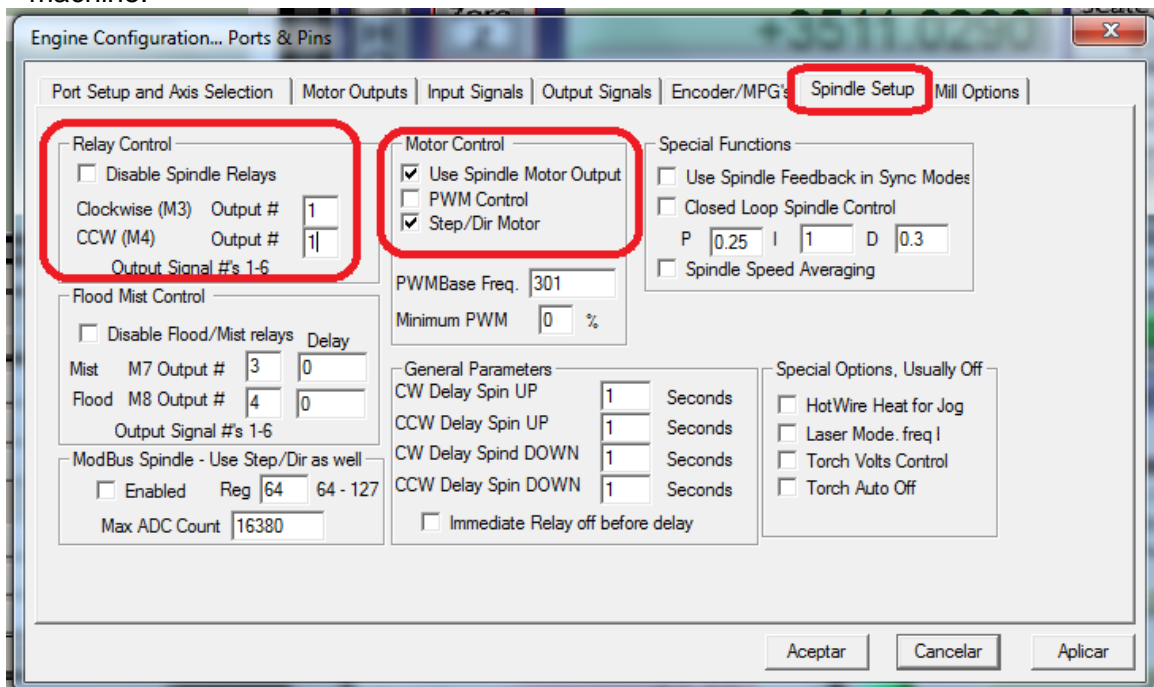
1. Go to Config / Ports & Pins / Motor Outputs. Enable the spindle and select the port and pins you wired for step and direction



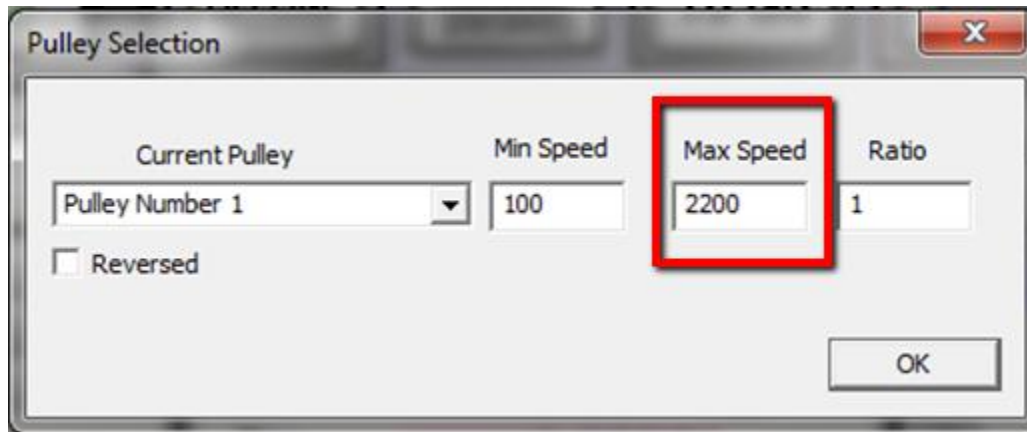
- Go to Config/ Ports & Pins/ Output Signal. Enable the output #1, select port 1 and pin 1



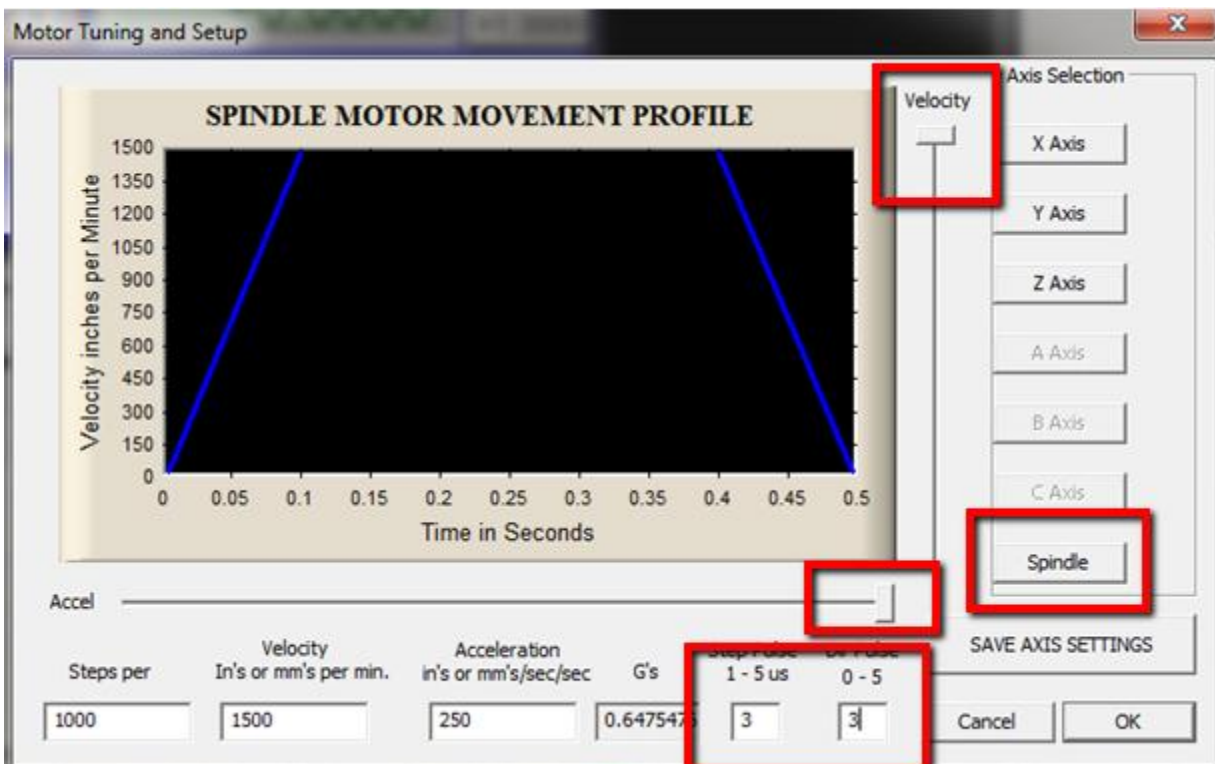
- Go to Config / Ports&Pins / Spindle Setup. In the motor control box, check Use Spindle Motor Output and Step /Dir Motor. Under Pulley Ratios set the pulley ratios of the machine.



- Go to Config / Spindle Pulleys. Under Pulley Ratios set the pulley ratios of the machine



- Go to Config / Motor Tuning / Spindle. Set the Velocity and Acceleration to the maximum and use a pulse length of 3.



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Troubleshooting Tips:

- Before wiring the speed controller, make sure that you are getting 0 to 10VDC, proportional to the commanded speed relative to the max speed you set for the pulley.
- Use a multimeter to verify that the pin carrying the pulse stream has a voltage of around 2 volts when commanding to move at full speed. This will tell you that Mach3 is sending a valid pulse stream.
- Check that you do not have a pin conflict, that you are not using the pin carrying the pulse stream for anything else.
- If using the Smooth Stepper, make sure to configure the plugin for controlling the spindle using step and direction.

**Disclaimer:**

Use caution. CNC machines can be dangerous machines. Neither DUNCAN USA, LLC nor Arturo Duncan are liable for any accidents resulting from the improper use of these devices. This product is not a fail-safe device and it should not be used in life support systems or in other devices where its failure or possible erratic operation could cause property damage, bodily injury or loss of life.