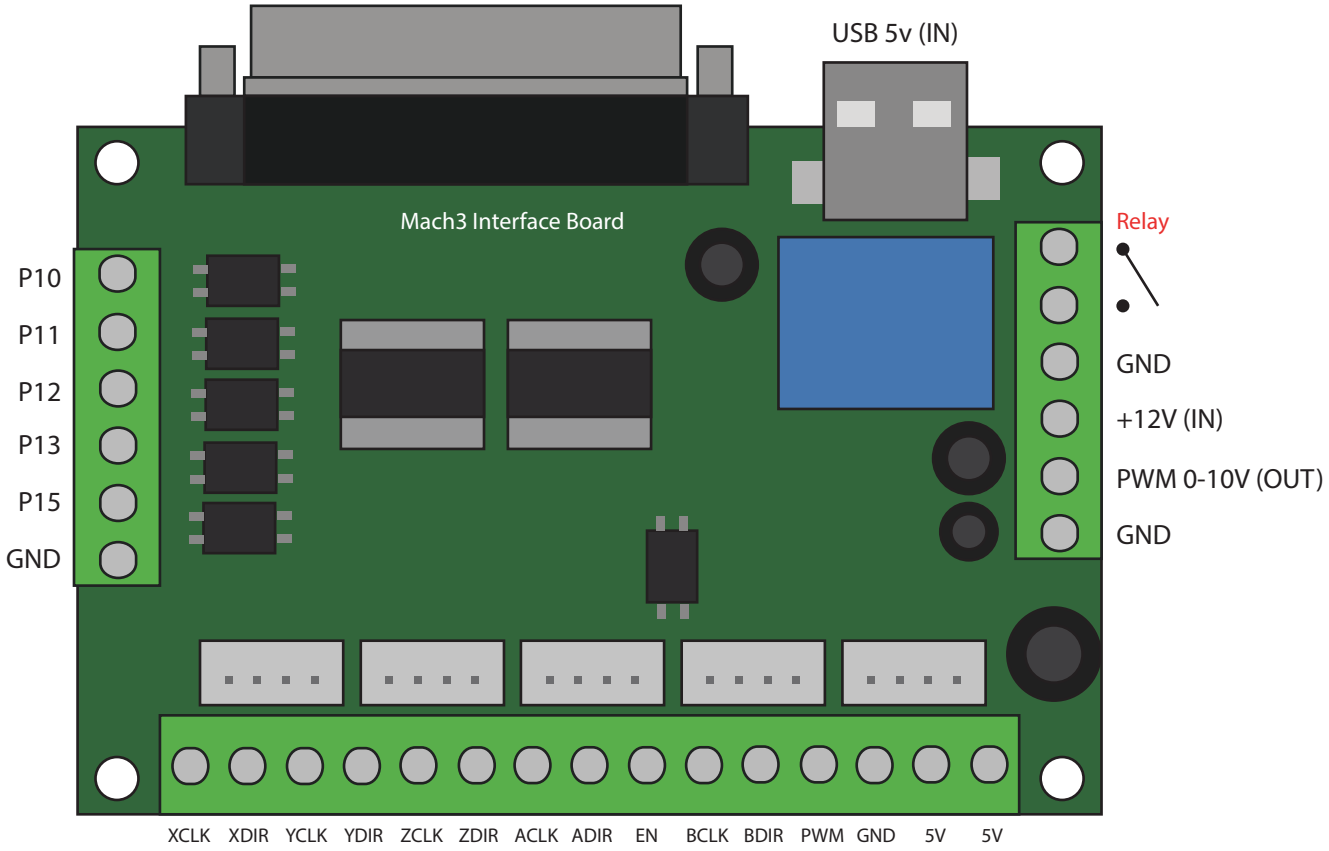
Mach3 Breakout Board w/ Relay & PWM



Mach3 Typical VFD Setup

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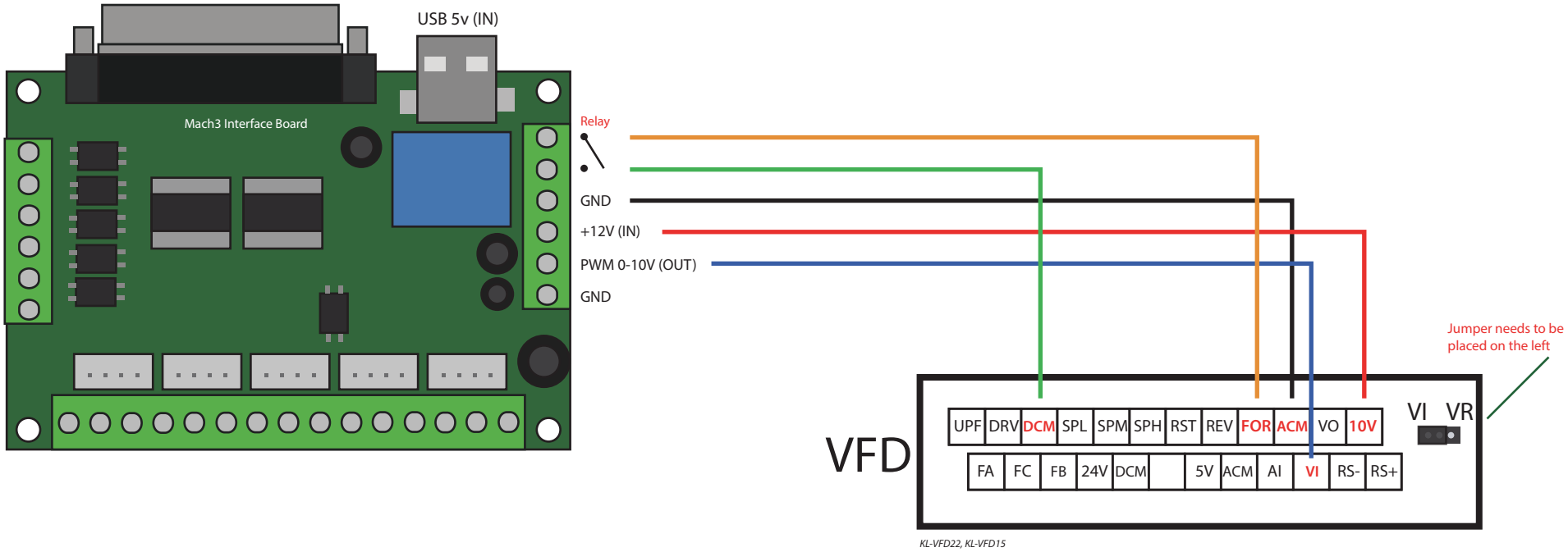

Programming Notes:
PD001 = 1 (Source of operation commands)
PD002 = 1 (Source of operating frequency)

Typical Limit Switch Setup

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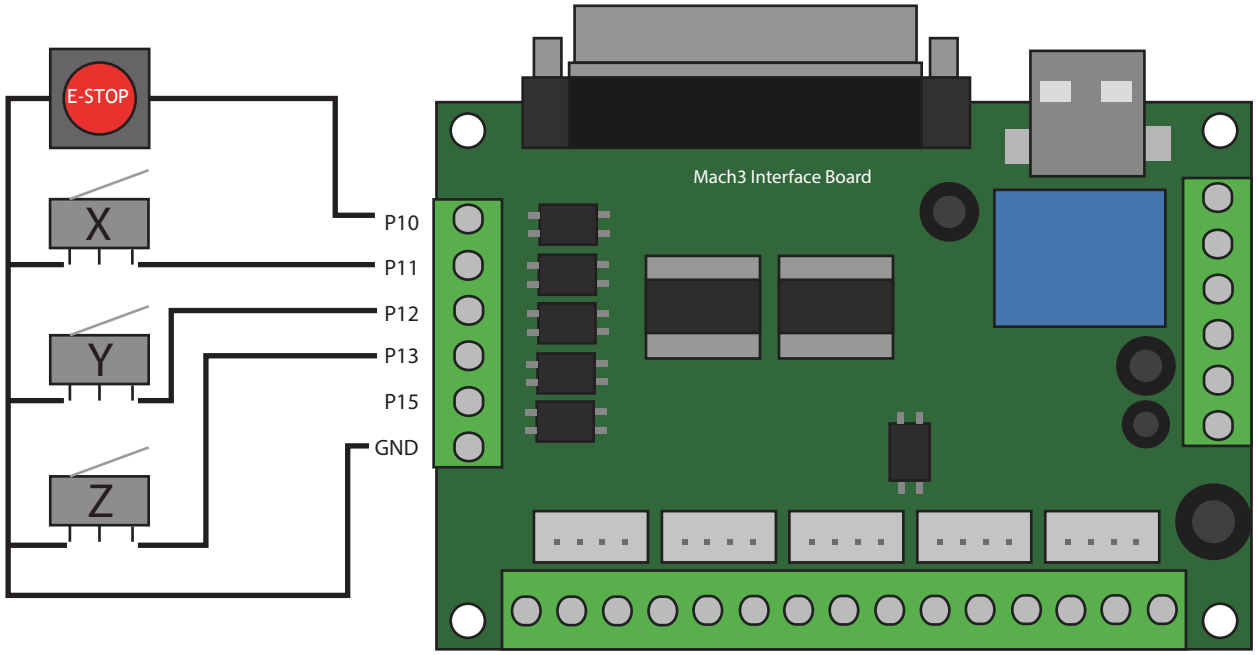

Typical Axis Setup

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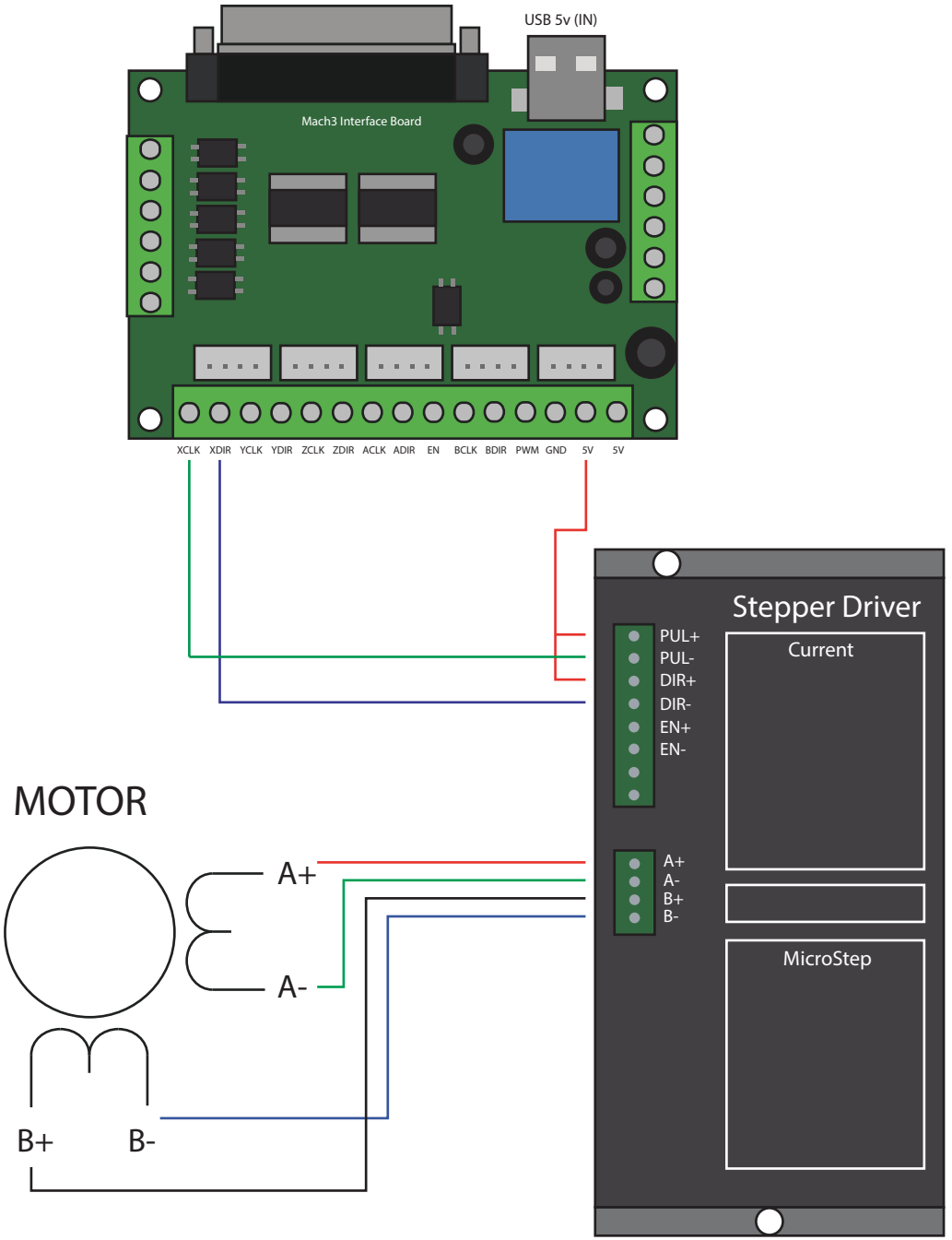


Project Notes

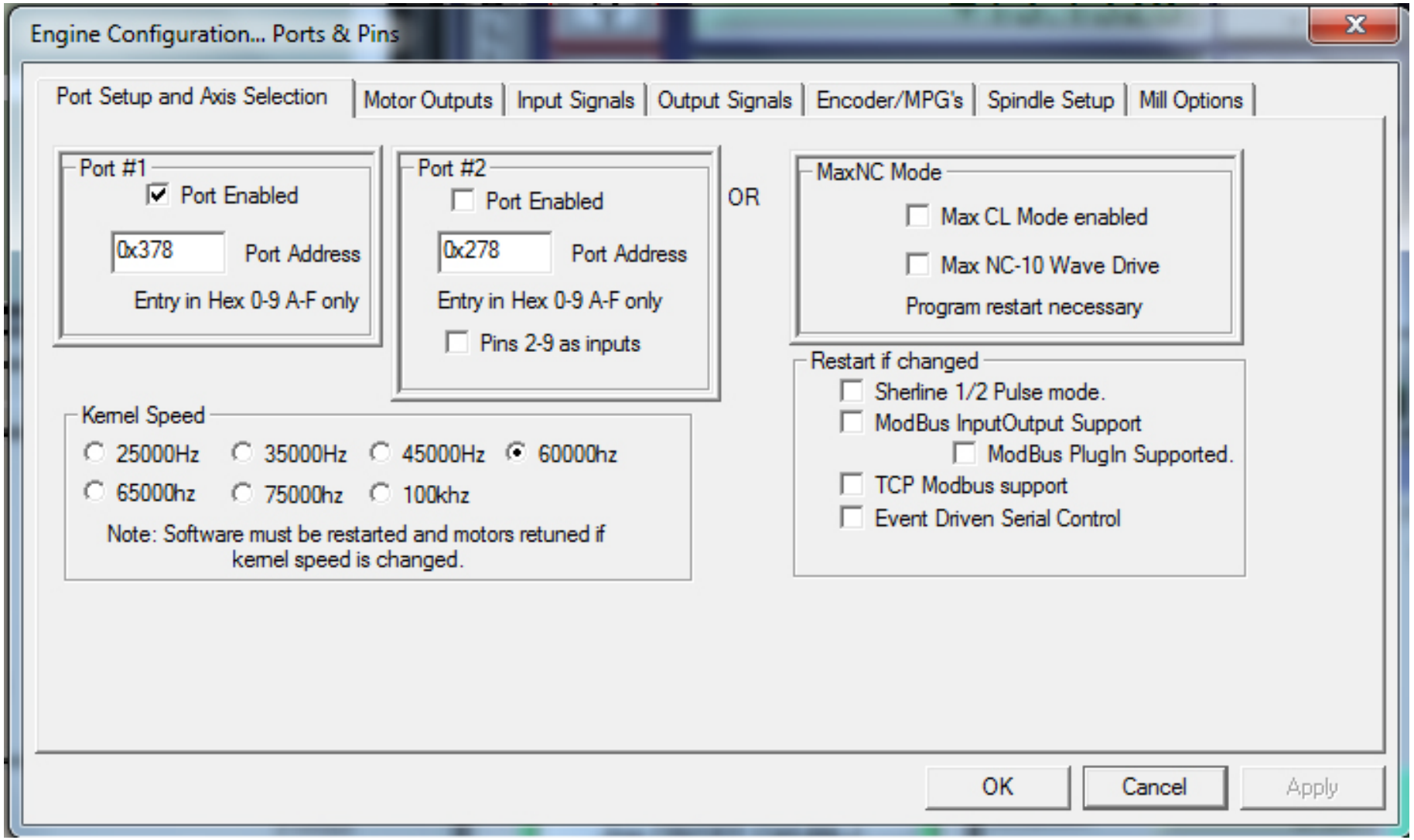
Complete support for Mach3.

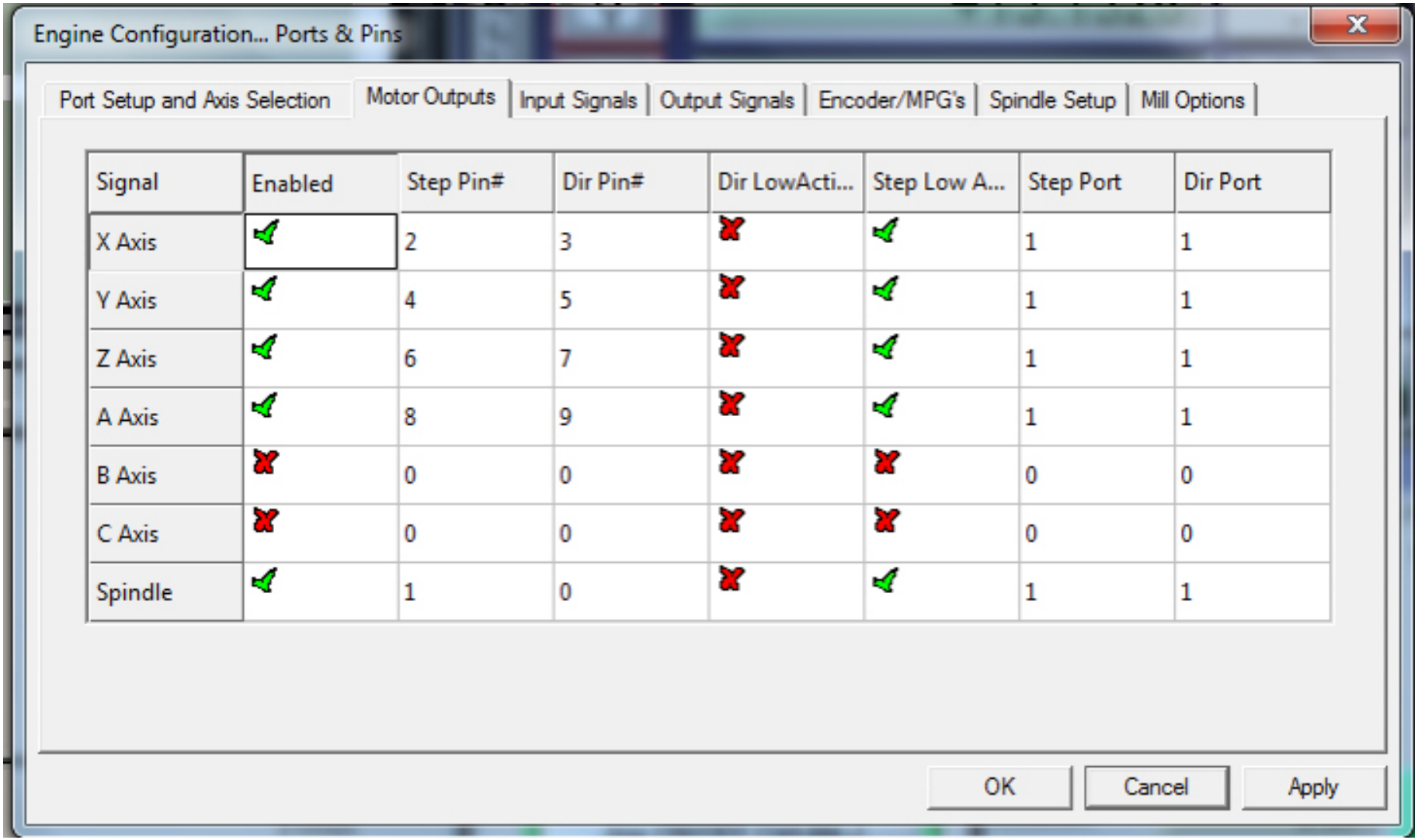
Can power the board using either the USB port or an external 5v.

All Input signals are opto-isolated, which prevents highvoltages from affecting the rest of the breakout board.

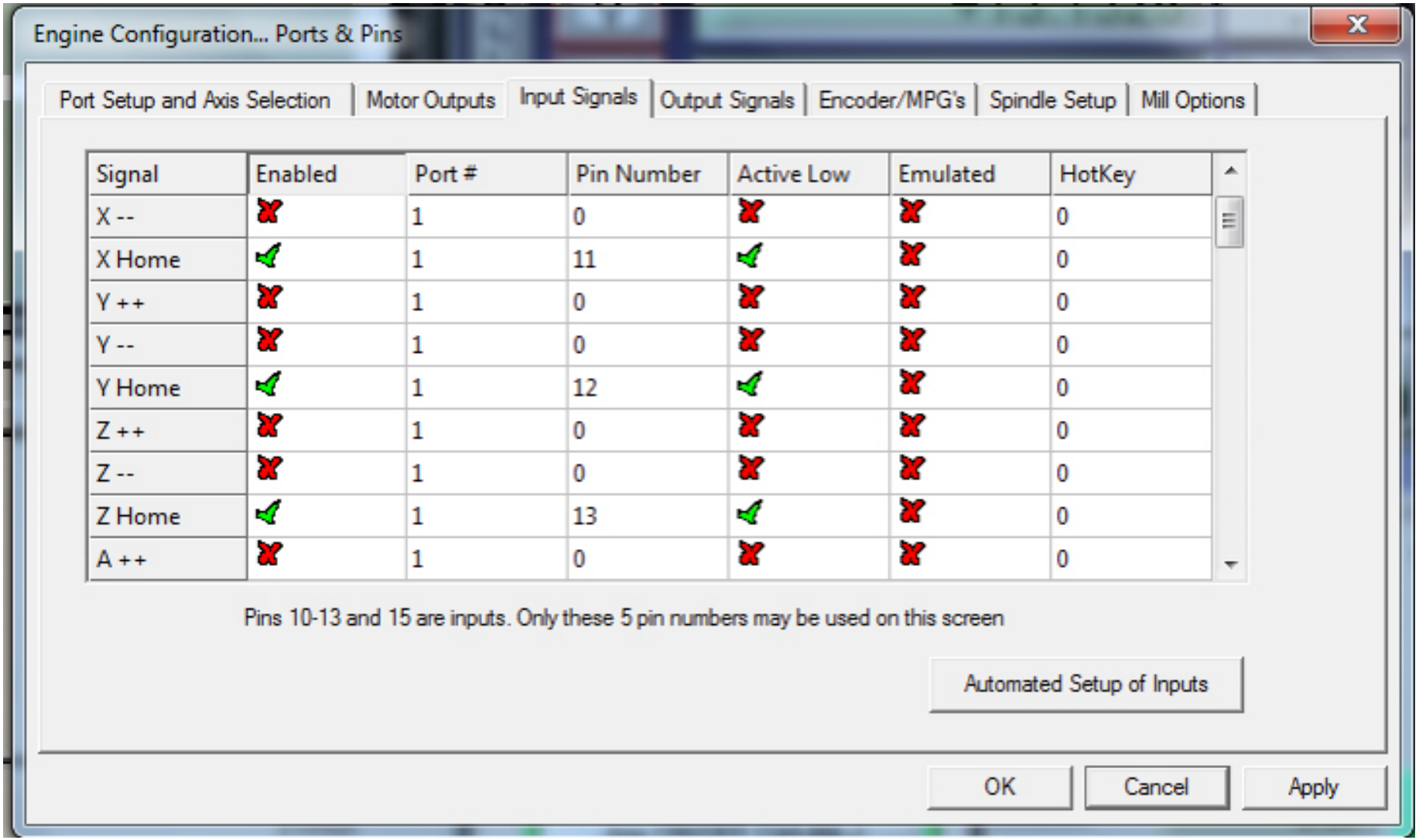
P1 (Pin 1) can be used to output the PWM signal and control the spindle speed. The input is opto-isolated.

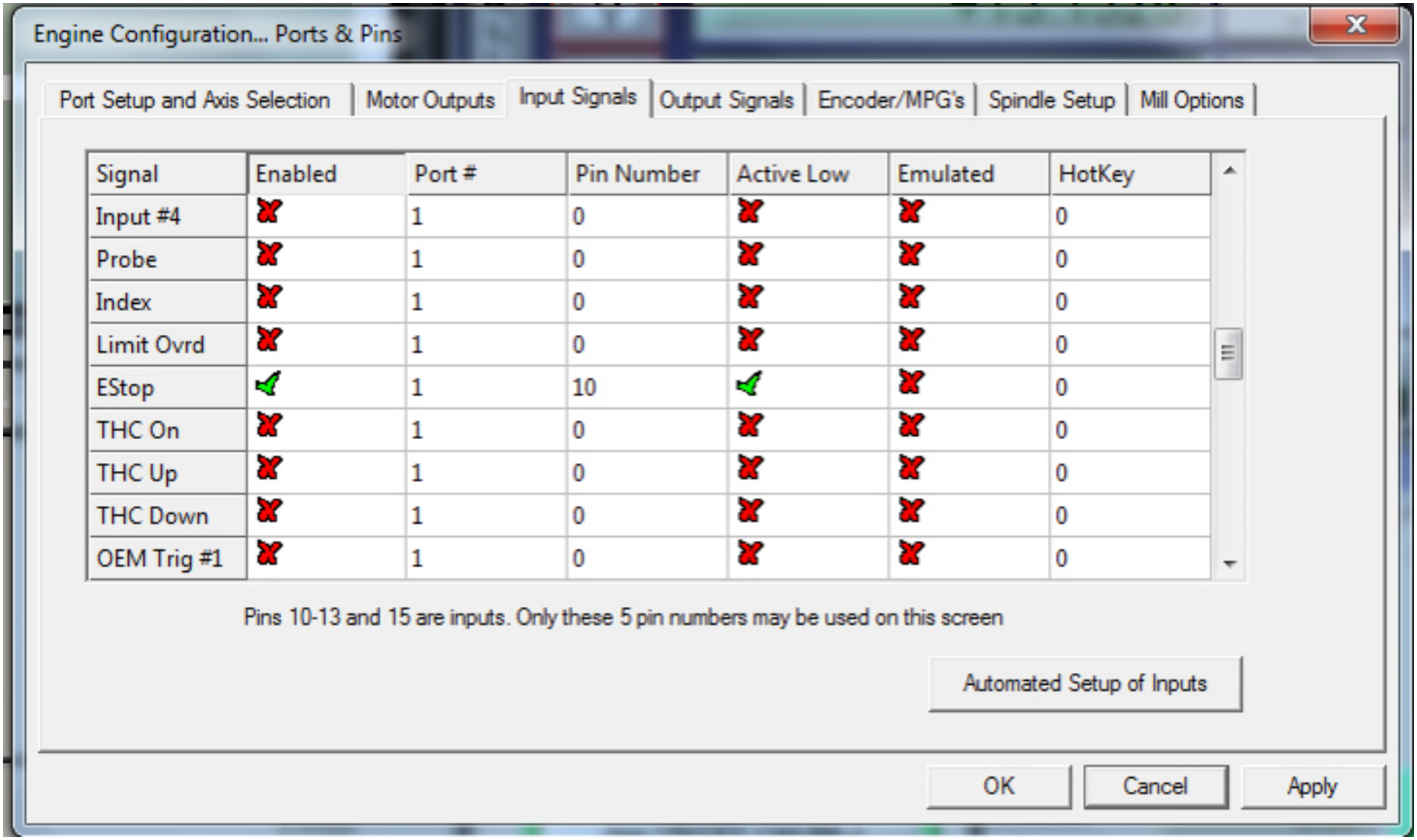
All LPT port names and pin numbers are printed on board and can be easily read.

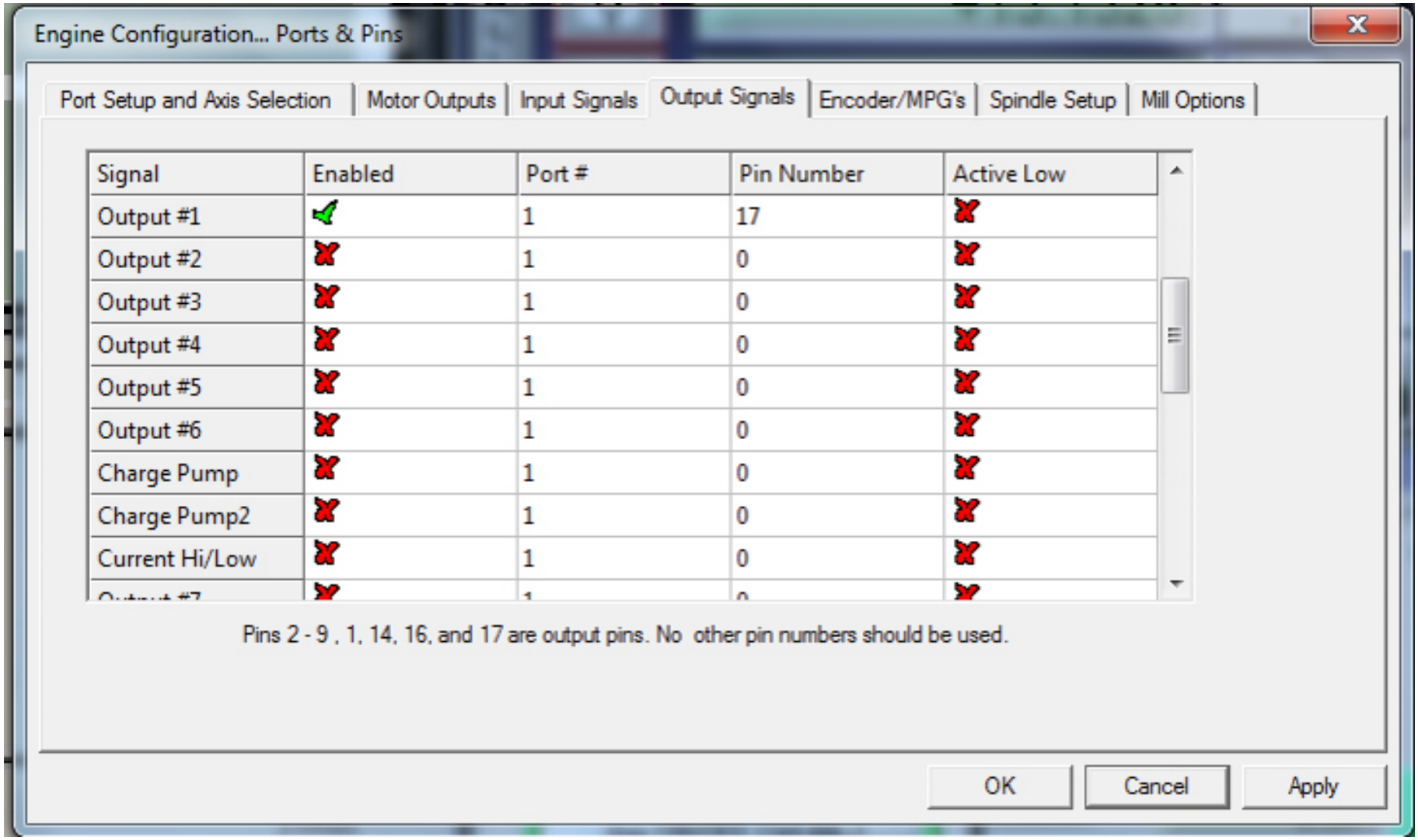

Engine Configuration... Ports & Pins
Port Setup and Axis Selection
Motor Outputs
Input Signals
Output Signals
Encoder/MPG's
Spindle Setup
Mill Options
Port #1
Port Enabled
0x378
Port Address
Entry in Hex 0-9 A-F only
Port #2
Port Enabled
0x278
Port Address
Entry in Hex 0-9 A-F only
Pins 2-9 as inputs
OR
MaxNC Mode
Max CL Mode enabled
Max NC-10 Wave Drive
Program restart necessary
Restart if changed
Sherline 1/2 Pulse mode.
ModBus InputOutput Support
ModBus PlugIn Supported.
TCP Modbus support
Event Driven Serial Control
Kernel Speed
25000Hz
35000Hz
45000Hz
60000hz
65000hz
75000hz
100khz
Note: Software must be restarted and motors retuned if kernel speed is changed.
OK
Cancel
Apply

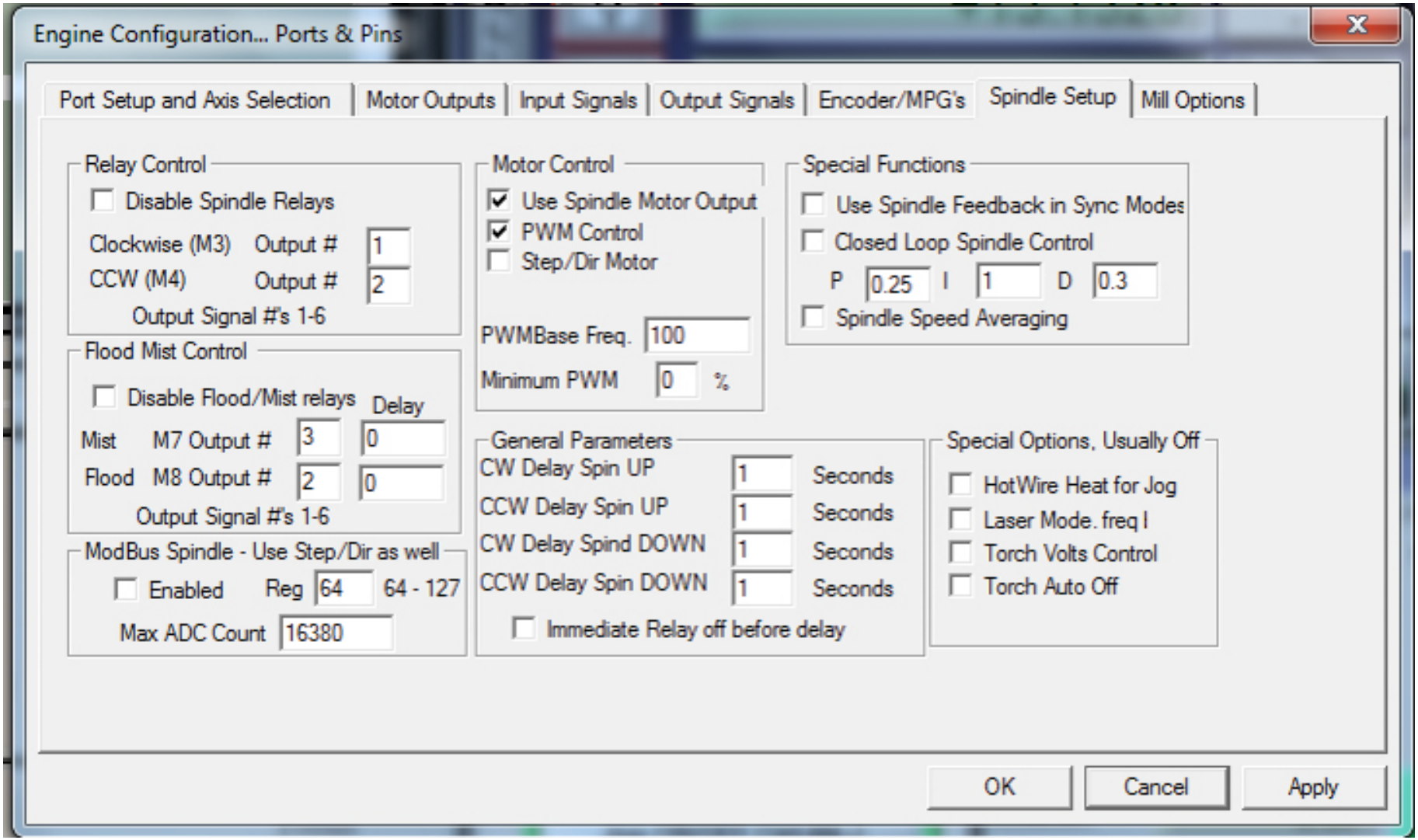


Signal	Enabled	Step Pin#	Dir Pin#	Dir LowActi...	Step Low A...	Step Port	Dir Port
X Axis	✓	2	3	✗	✓	1	1
Y Axis	✓	4	5	✗	✓	1	1
Z Axis	✓	6	7	✗	✓	1	1
A Axis	✓	8	9	✗	✓	1	1
B Axis	✗	0	0	✗	✗	0	0
C Axis	✗	0	0	✗	✗	0	0
Spindle	✓	1	0	✗	✓	1	1


Engine Configuration... Ports & Pins
Port Setup and Axis Selection
Motor Outputs
Input Signals
Output Signals
Encoder/MPG's
Spindle Setup
Mill Options
Signal
Enabled
Port #
Pin Number
Active Low
Emulated
HotKey
X --
X Home
Y ++
Y --
Y Home
Z ++
Z --
Z Home
A ++
Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be used on this screen
Automated Setup of Inputs
OK
Cancel
Apply


Engine Configuration... Ports & Pins
Port Setup and Axis Selection
Motor Outputs
Input Signals
Output Signals
Encoder/MPG's
Spindle Setup
Mill Options
Signal
Enabled
Port #
Pin Number
Active Low
Emulated
HotKey
Input #4 1 0 0
Probe 1 0 0
Index 1 0 0
Limit Ovrd 1 0 0
EStop 1 10 0
THC On 1 0 0
THC Up 1 0 0
THC Down 1 0 0
OEM Trig #1 1 0 0
Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be used on this screen
Automated Setup of Inputs
OK
Cancel
Apply


Engine Configuration... Ports & Pins
Port Setup and Axis Selection
Motor Outputs
Input Signals
Output Signals
Encoder/MPG's
Spindle Setup
Mill Options
Signal
Enabled
Port #
Pin Number
Active Low
Output #1
1
17
Output #2
1
0
Output #3
1
0
Output #4
1
0
Output #5
1
0
Output #6
1
0
Charge Pump
1
0
Charge Pump2
1
0
Current Hi/Low
1
0
Pins 2 - 9 , 1, 14, 16, and 17 are output pins. No other pin numbers should be used.
OK
Cancel
Apply


Engine Configuration... Ports & Pins
Port Setup and Axis Selection
Motor Outputs
Input Signals
Output Signals
Encoder/MPG's
Spindle Setup
Mill Options
Relay Control
Disable Spindle Relays
Clockwise (M3) Output # 1
CCW (M4) Output # 2
Output Signal #'s 1-6
Flood Mist Control
Disable Flood/Mist relays
Delay
Mist M7 Output # 3 0
Flood M8 Output # 2 0
Output Signal #'s 1-6
ModBus Spindle - Use Step/Dir as well
Enabled
Reg 64 64 - 127
Max ADC Count 16380
Motor Control
Use Spindle Motor Output
PWM Control
Step/Dir Motor
PWMBase Freq. 100
Minimum PWM 0 %
General Parameters
CW Delay Spin UP 1 Seconds
CCW Delay Spin UP 1 Seconds
CW Delay Spind DOWN 1 Seconds
CCW Delay Spin DOWN 1 Seconds
Immediate Relay off before delay
Special Functions
Use Spindle Feedback in Sync Modes
Closed Loop Spindle Control
P 0.25 I 1 D 0.3
Spindle Speed Averaging
Special Options, Usually Off
HotWire Heat for Jog
Laser Mode. freq I
Torch Volts Control
Torch Auto Off
OK
Cancel
Apply

Project Notes

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