

4-Axis Stepping Motor Driver (TB6560)

(Model:TB6560T4V1) Rev1.0 6/01/2010



ColdfusionX
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The TB6560T4V1 is a high performance 4 Axis (X,Y,Z) CNC stepping motor controller/driver. It built-in a spindle relay and all input/output are optical isolated from the external circuit that providing 'feedback' free environment. TB6560T4V1 supports Mach2, Mach3, KCam, EMC2. It can be applied to a CNC machine or upgrade an old CNC machine to take advantage of the new technology. It works well for a CO2 laser machine for cutting (software dependable)

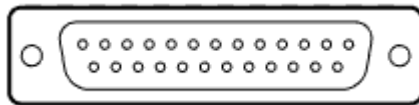
Features:

- * Optical isolation for data In/Out
- * Relay control for spindle (or laser)
- * Four step speed setting
- * High current output 3A in average
- * Big Heat sink support without heat concern.

Specification:

- * In/Out Interface port: Parallel
- * Built in relay control for spindle
- * Support 2/4 phases 4, 6, 8 wires stepping motor
- * High speed optical isolation coupling
- * Built in No. 4 Axis interface for expansion
- * LED indicators for each axis & relay
- * Current: 2.5A r.m.s (3.5A max)
- * Resolution (speed): 1/16, 1/8, 1/2, 1
- * Power: Single DC12 ~ 32V (no separated 5V needed)
- * RC7414 auto half bridge current control
- * Control port: Wheel control interface
- * CAD system support: March2, Mach3, KCam

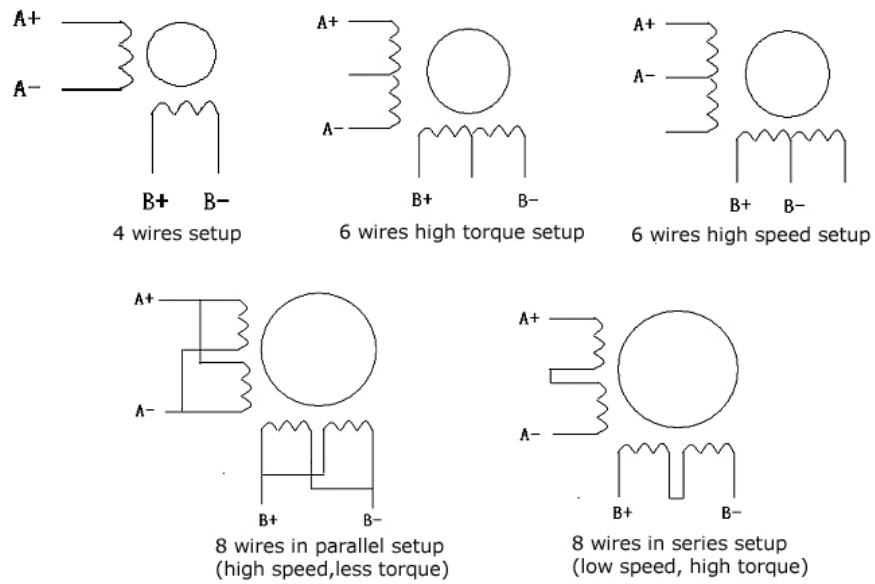
DB 25 Connector Pin layout



PIN1	PIN2	PIN3	PIN4	PIN5	PIN6	PIN7	PIN8	PIN9	PIN10
EN	CKX	CWX	CKY	CWY	CKZ	CWZ	CKA	CWA	DIN1
Enable	X STEP	X DIR	Y STEP	Y DIR	Z STEP	Z DIR	A STEP	A DIR	Limit1
PIN11	PIN12	PIN13	PIN14	PIN15	PIN16	PIN17	PIN18-25		
DIN2	DIN3	DIN4	RLY	N/A	CKB	CWB	GND		
Limit2	Limit3	Limit4	Relay	N/A	B STEP	B DIR	Ground		

Board layout and motor type

2 phases,4 phases stepping motor connection diagram (current 2A max)



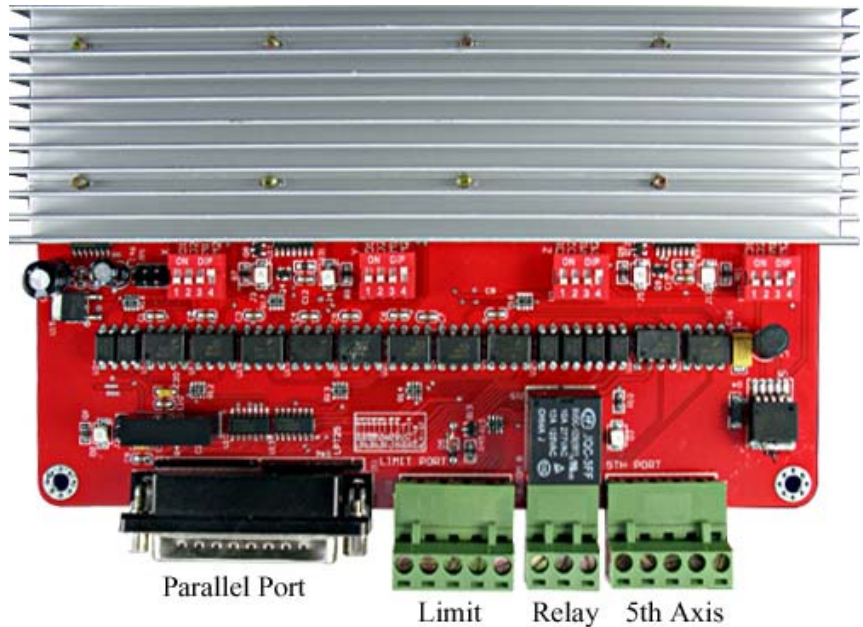
Power Supply

Power for the controller is DC 12~32V. To ensure smooth movement, a 10A power supply should be used. DC24V, 10A or higher is recommended.

Key note:

Enable: pin 1

Relay: pin 17



Home Limit

Note: All Limit Input are Active Low *

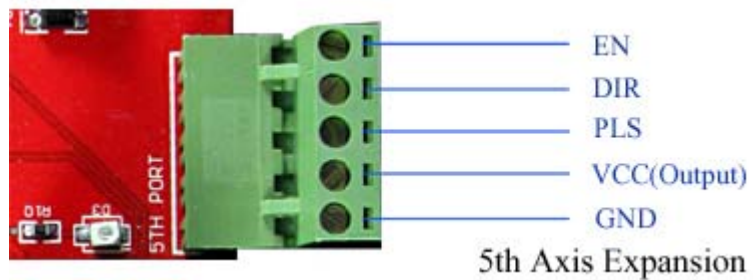
IN1 = Z limit trigger

IN2 = X limit trigger

IN3 = Y limit trigger

IN4 = Z limit trigger

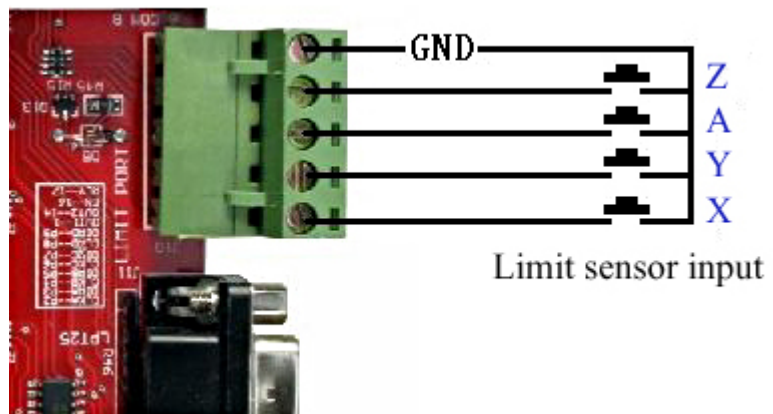
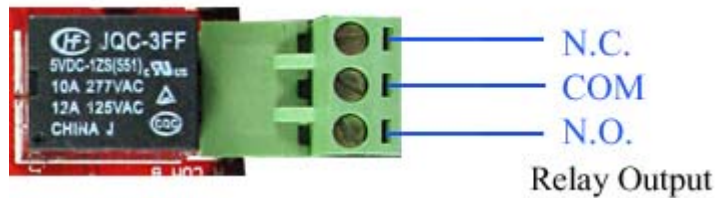
GND= Ground



Relay

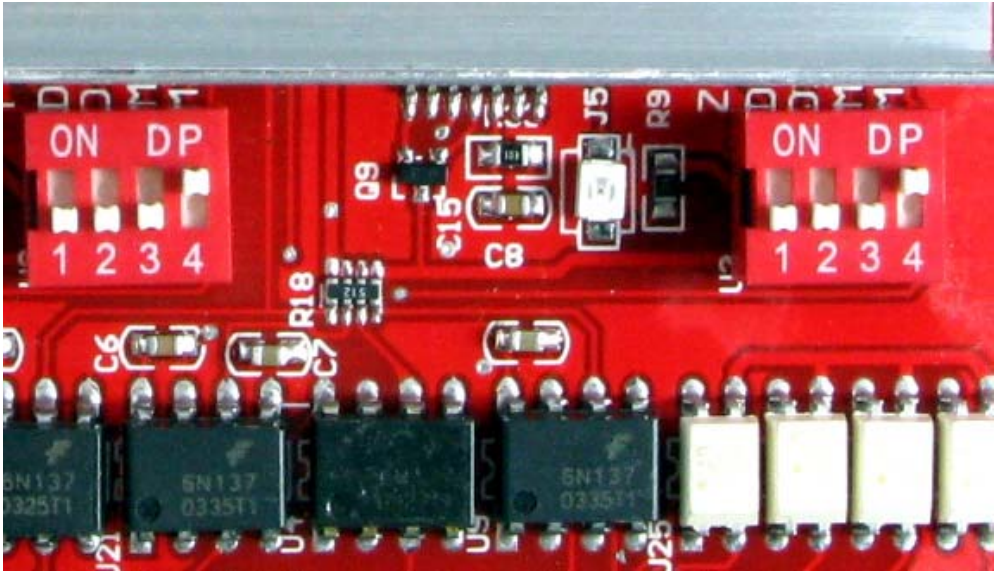
N.O. = Normally Open

N.C. = Normally Closed



Resolution/ Speed Setting for X,Y,Z Stepping Motor

Note: D1=1, D2=2, M1=3, M2=4



Current Attenuation and Resolution

Current attenuation setting is used to adjust overshoot or undershoot level for a motor

D1	D2	Attenuation Level	M1	M2	Resolution
DIP #1	DIP #2		DIP #3	DIP #4	
ON	ON	100%	ON	Off	1/16
OFF	ON	50%	OFF	OFF	1/8
ON	OFF	25%	OFF	ON	1/2
OFF	OFF	0%	ON	ON	1

Current Adjustment:

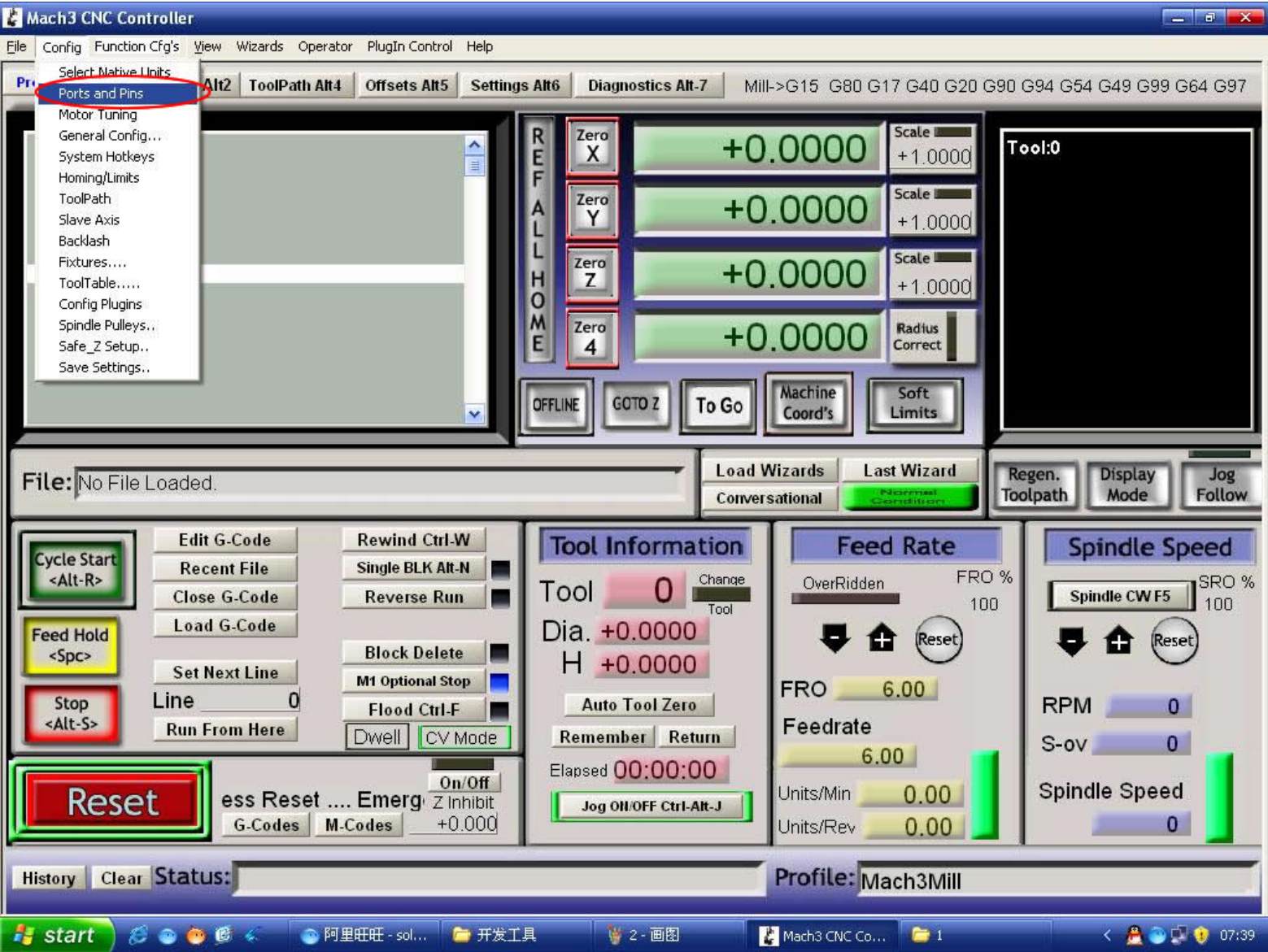
T1	T2	Current
Off	Off	2.5A~3A
On	Off	1.8A~2.25A
On	On	1.25A~ 1.5A
Off	On	0.65A~0.75A

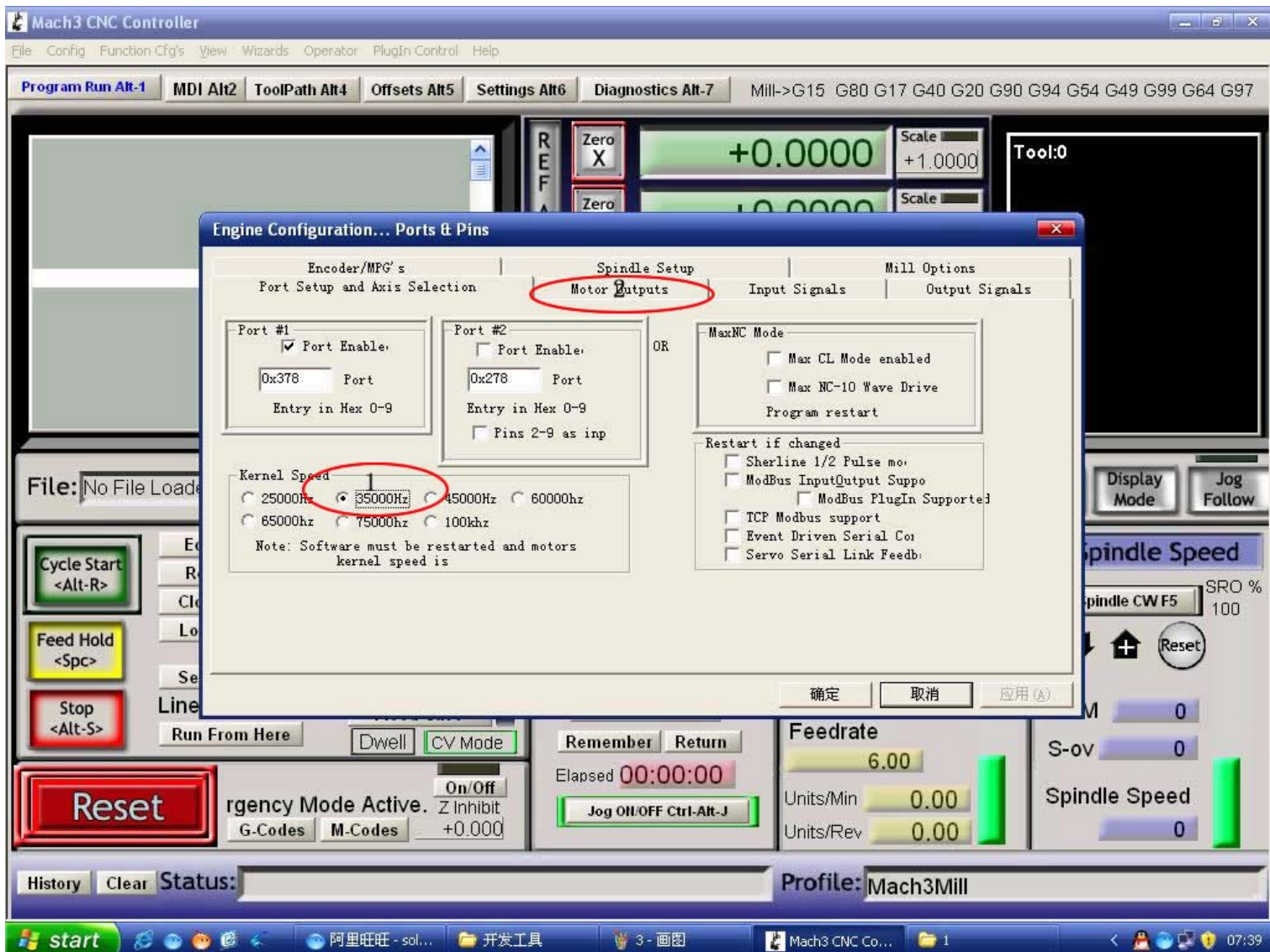
Note: there are three DIP switches, one per axis, dedicated for motor current adjustment.

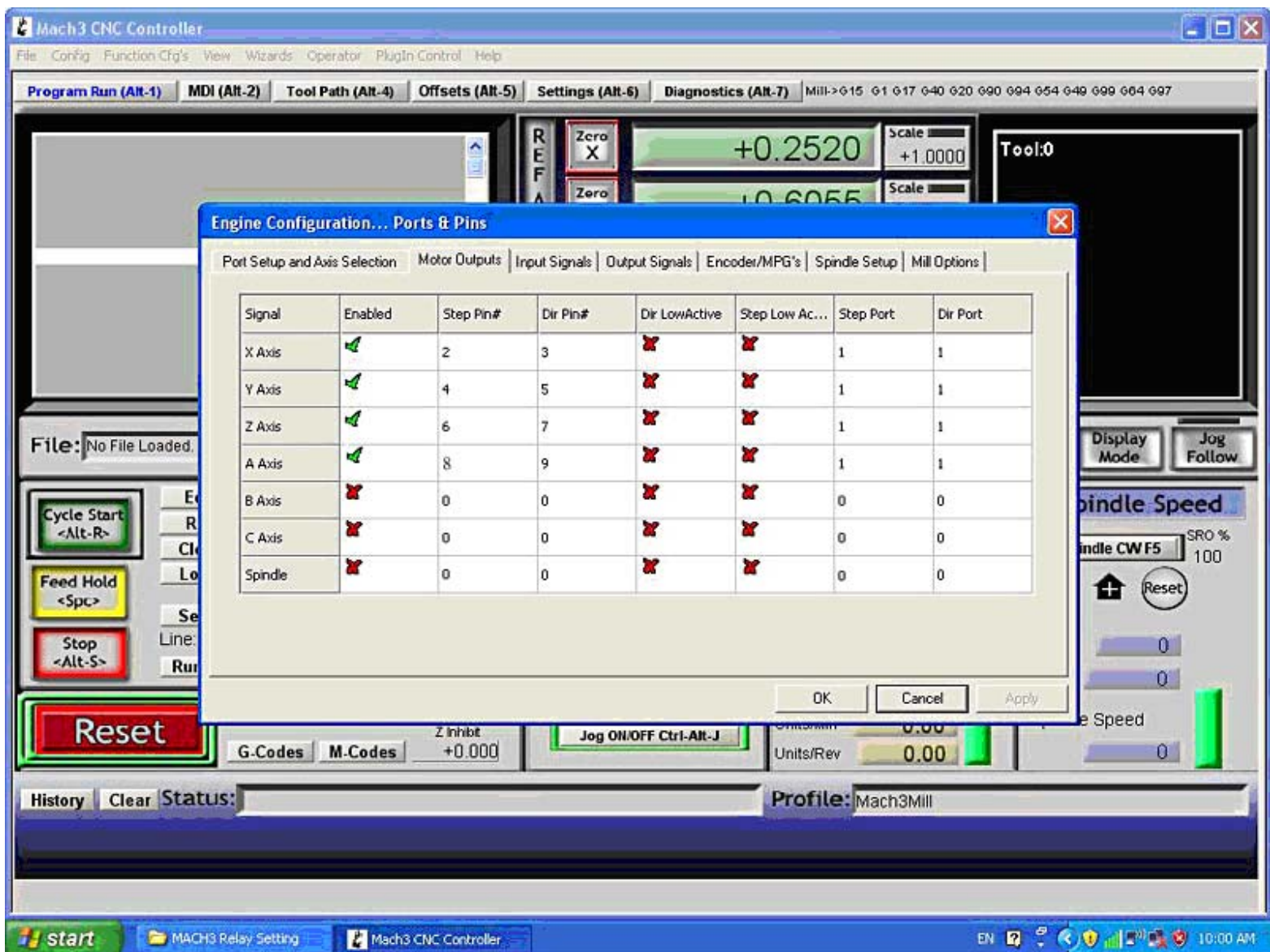


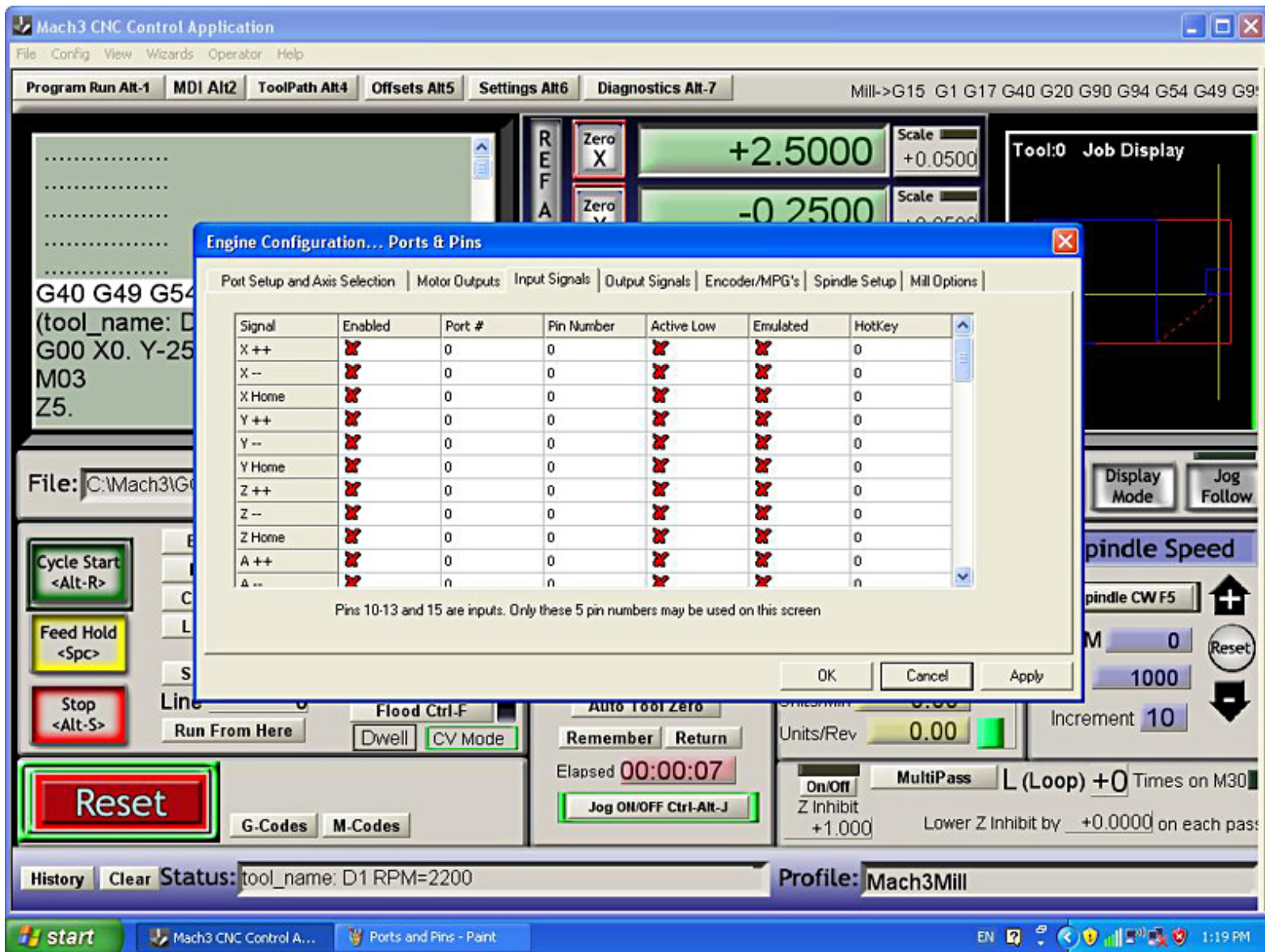
Basic MACH3 Setup

Note: some parameters are in default setting without affecting the output

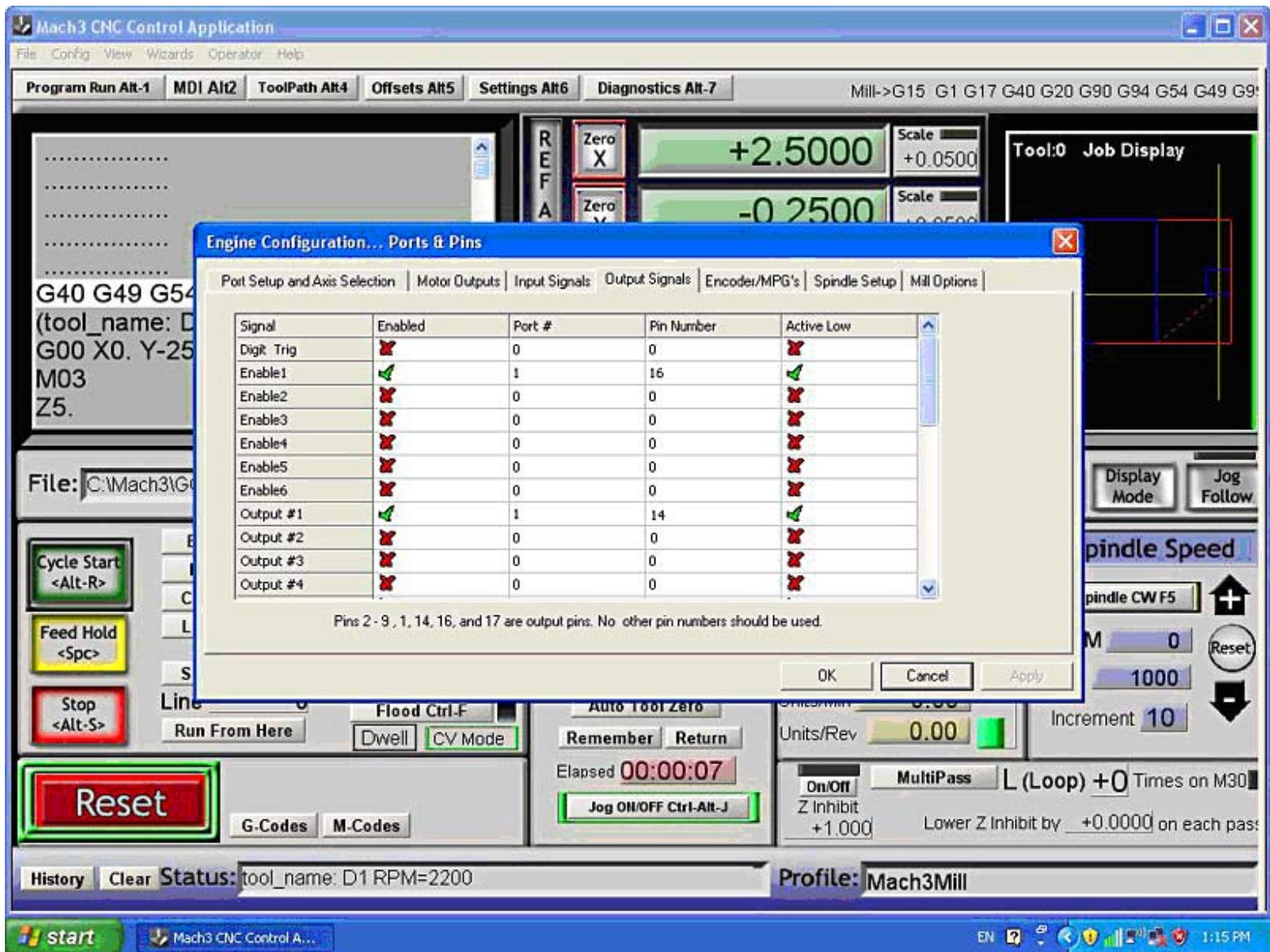




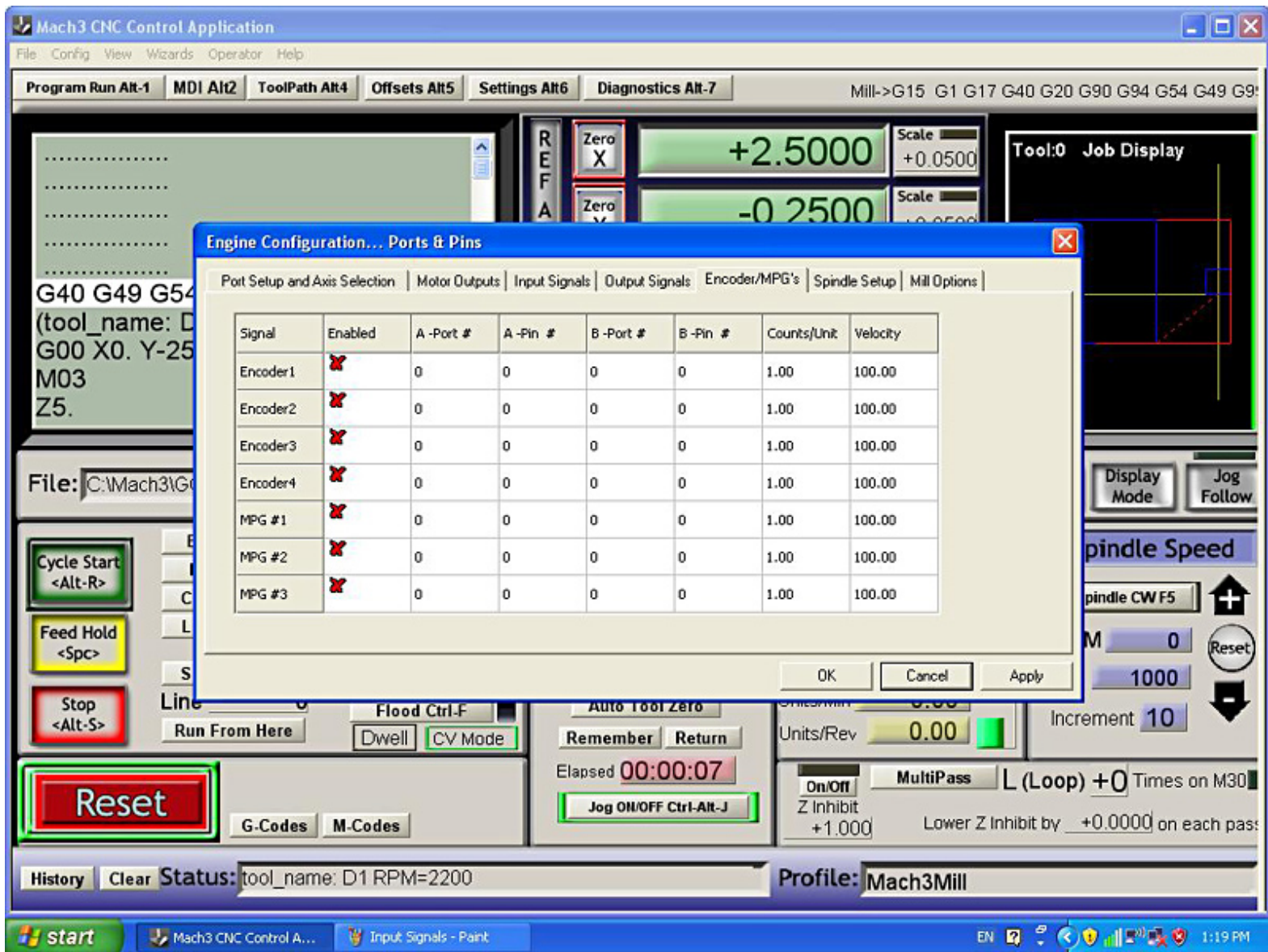




Mach3 provide a function for 'Input 'signal auto detection. It's good for home switch testing.

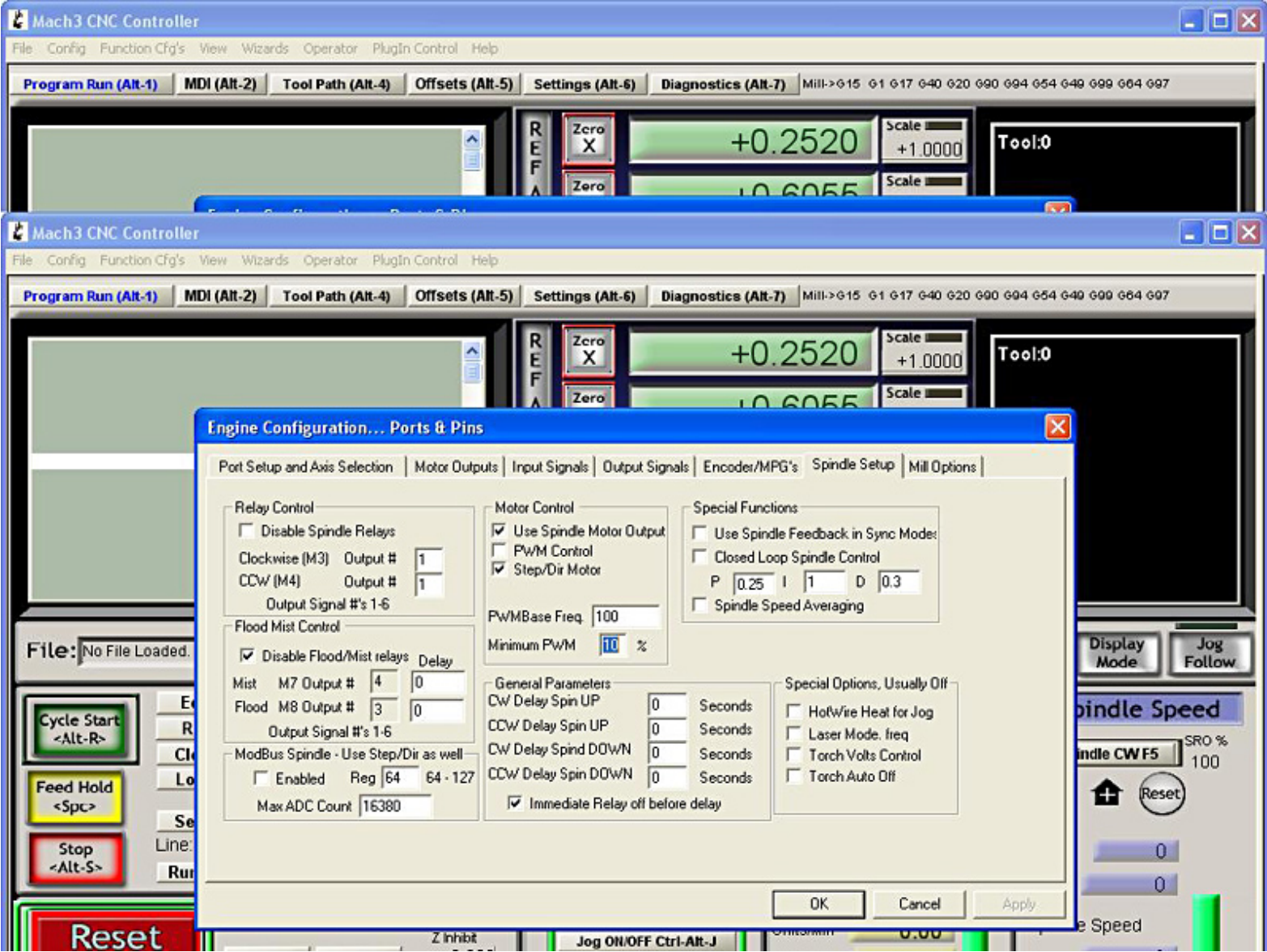


By default, relay (#14) is set to Output #1. Note, relay control pin could be #17 in some board!

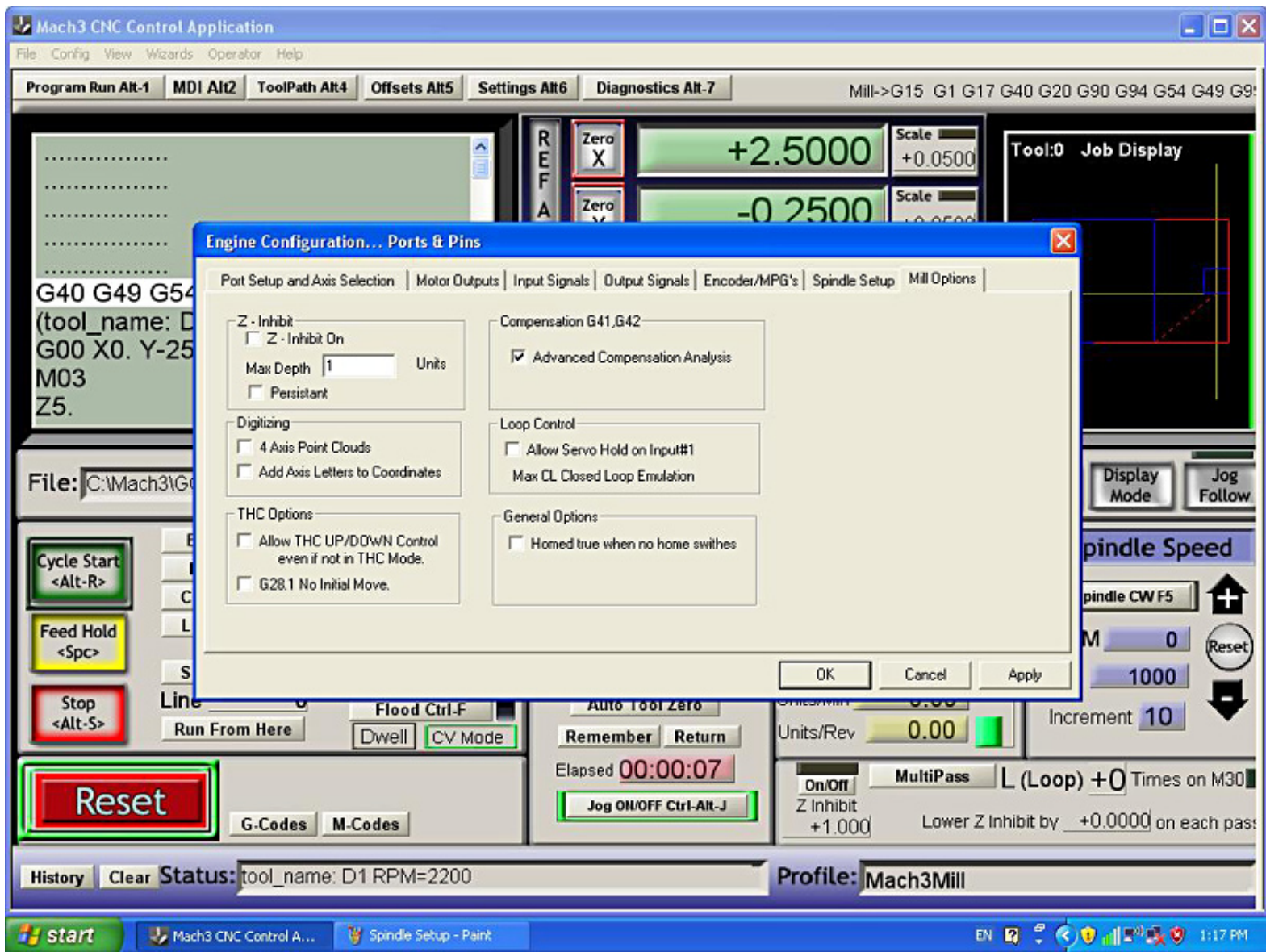


March3 default setting.

March3 default setting.



Note: this is a default setting. Relay by default is pin14. Relay can be controlled by Output #1 or Output #2. On some board, the relay control pin could be #17



March3 default setting.

Please go to Mach3 website <http://www.machsupport.com/> to get more update information. We don't support Mach3 or other 3rd software.

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