3T ROBOTICS GROUP
V1.0.0
OPERATION MANUAL
BOB3T-03: Breakout board
Made in Vietnam

1. Functions and Feature

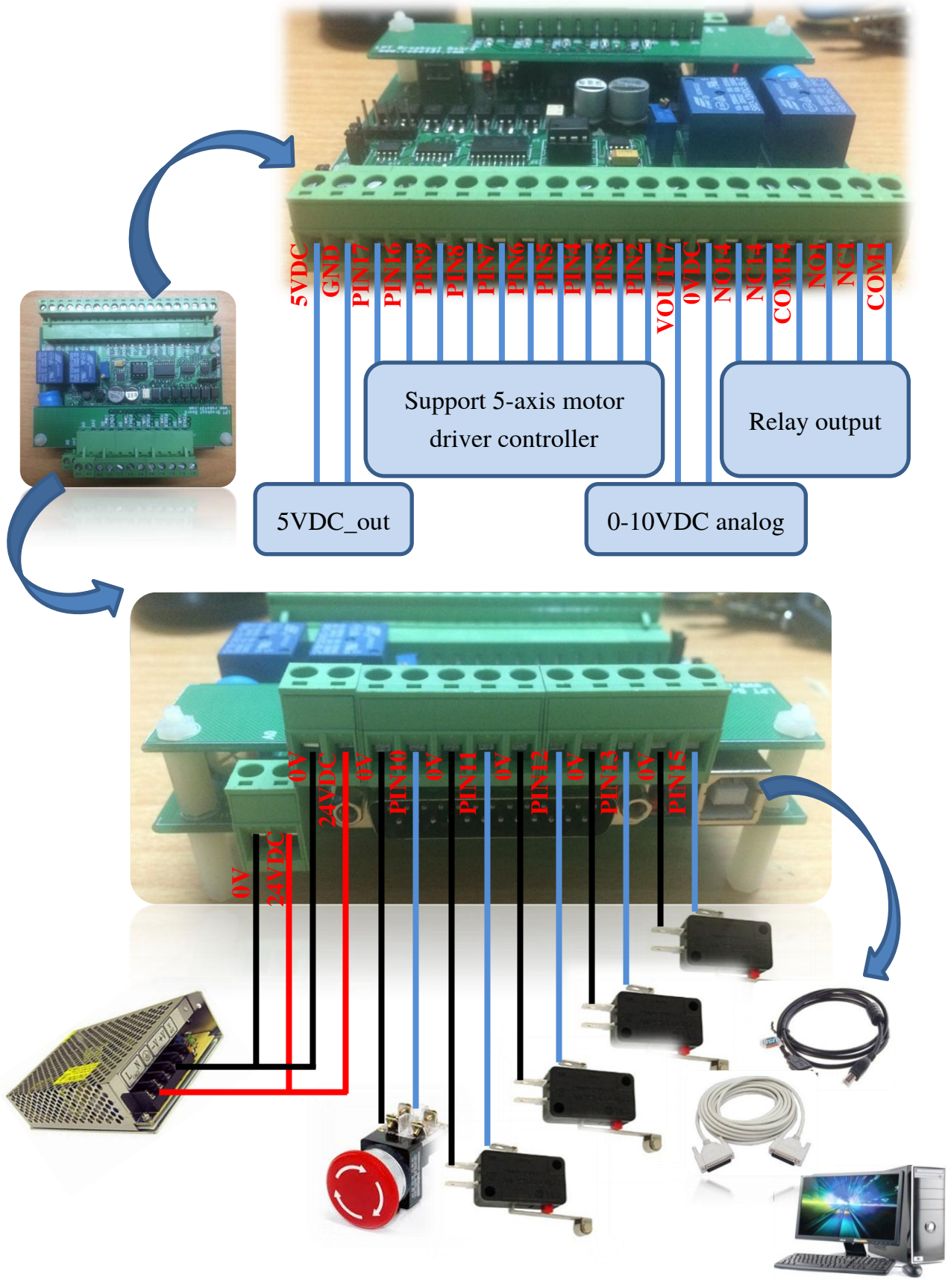
- Upgraded circuit, work more peacefully and steady than the version before;
- USB Power supply and external power supply separate, for protecting your PC;
- Completely support MACH3 and the other softs that use LPT port;
- Maximum support 5-axis motor driver controller;
- Relay output control interface, accessed by the spindle motor or the charge pump;
- 5-axis work LED display, visually display the working condition of the motor driver controller;
- 0-10V photo-coupler separated analog voltage output, can be connected to frequency converter， using to control the spindle speed;
- 2-relays output, can be connected to spindle switch;
- 5-input interface to define the emergency stop, limit, points in the knife, etc;
- All of the LPT port names are printed on board. Easy to be used.

Parameter name	Acceptable
Input power	USB port to directly get power from PC
Input, output relay power	24VDC
Compatible Motor Driver	Max 5 single axis stepper motor driver controller
Drive type	Pulse + Direction
Maximum current of output relays	150mA/100VDC
Weight	300g
External Dimensions (L * W * H)	95x110x45[mm]

Here are the addresses where you can get help if you encounter problems:

- E-mail: *sales@robot3t.com*
- Website : *www.robot3t.com*

2. Funtion wiring diagram

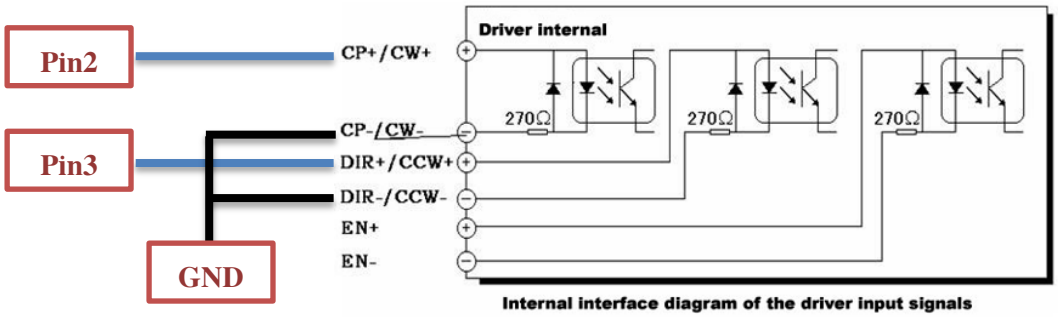


PIN	PULSE/DIR	INPUT (0V)	OUTPUT RELAY	OUTPUT CHARGE PUMP	OUTPUT ANALOG
1			✓	✓	
2	✓				
3	✓				
4	✓				
5	✓				
6	✓				
7	✓				
8	✓				
9	✓				
10		✓			
11		✓			
12		✓			
13		✓			
14			✓		
15		✓			
16	✓				
17	✓				✓

3. How to connect and setup on MACH3

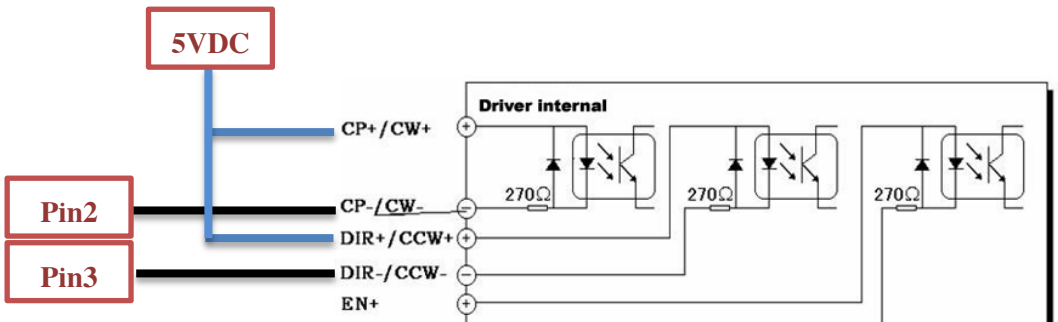
3.1 Output STEP/DIR.

Pin 2, 3, 4, 5, 6, 7, 8, 9, 16, 17 are used to setup step/dir output.



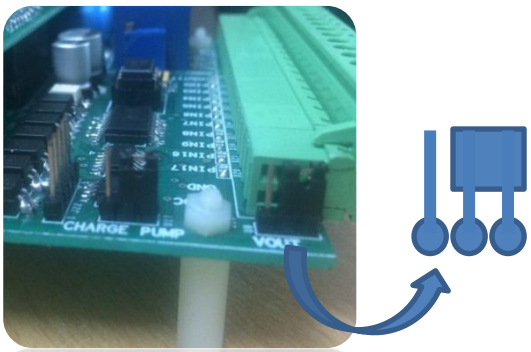
Internal interface diagram of the driver input signals

OR

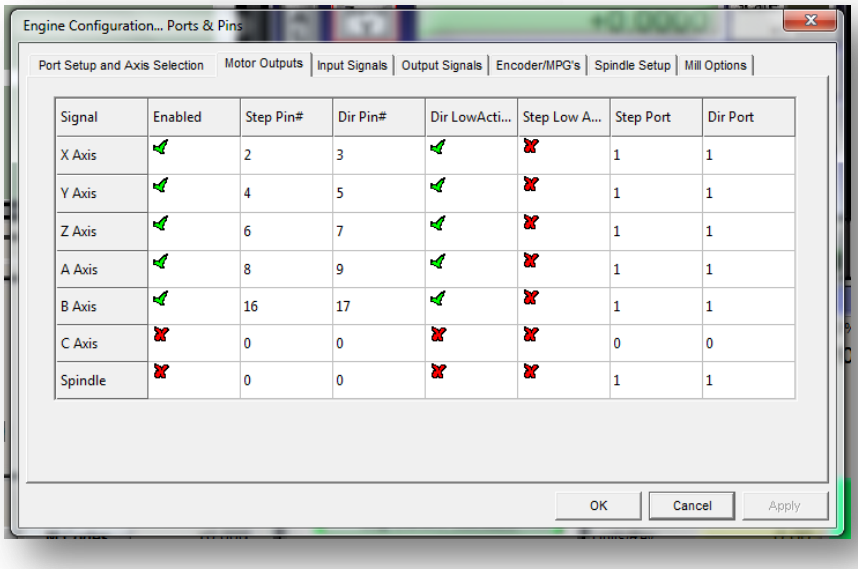


Internal interface diagram of the driver input signals

In case of, pin16&17 are used to set up for 5th axis.



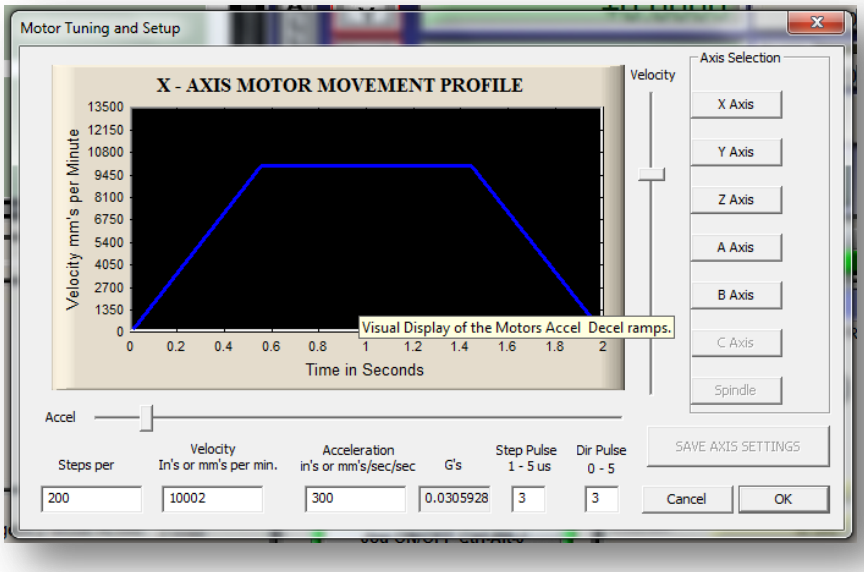
Setup “Ports & pins” on MACH3



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	✓	16	17	✓	✗	1	1
C Axis	✗	0	0	✗	✗	0	0
Spindle	✗	0	0	✗	✗	1	1

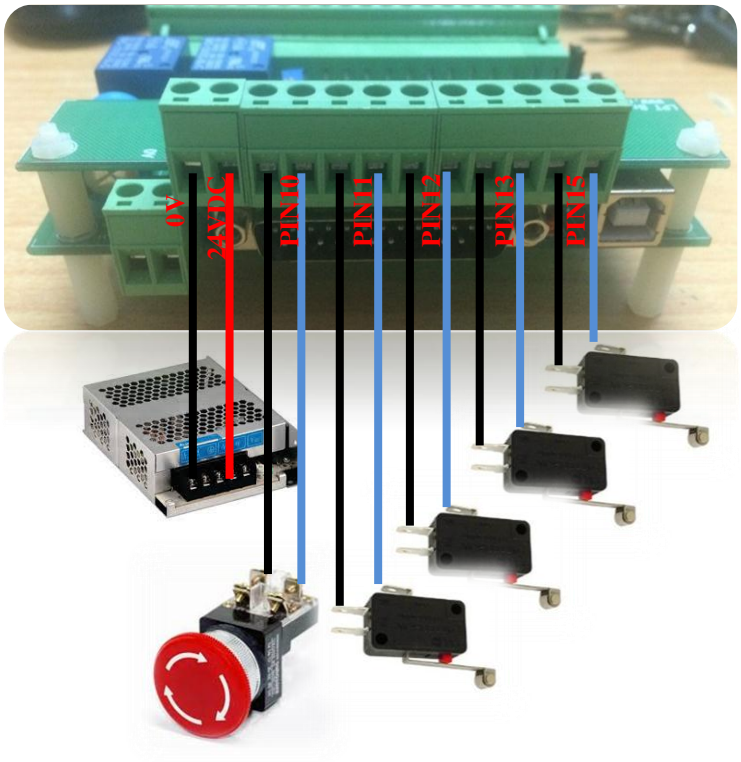
Note: The motor turning direction is relevant to its connection, if the direction is not right, you can adjust“ Dir LowActive” as on the diagram.

“Motor turning” set as below, then click the “save and setting” button. “Steps per” means how many steps it need for moving 1 MM. The setting of Y, Z, A, B axis is similar to X, and have to save the settings after all.

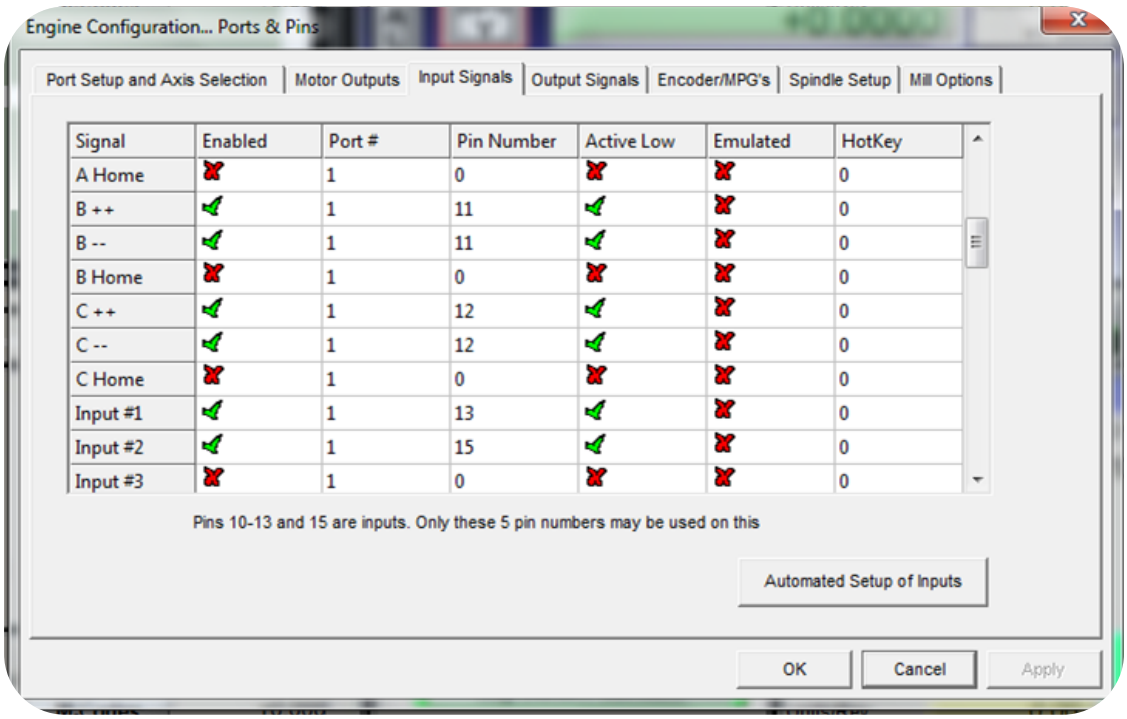


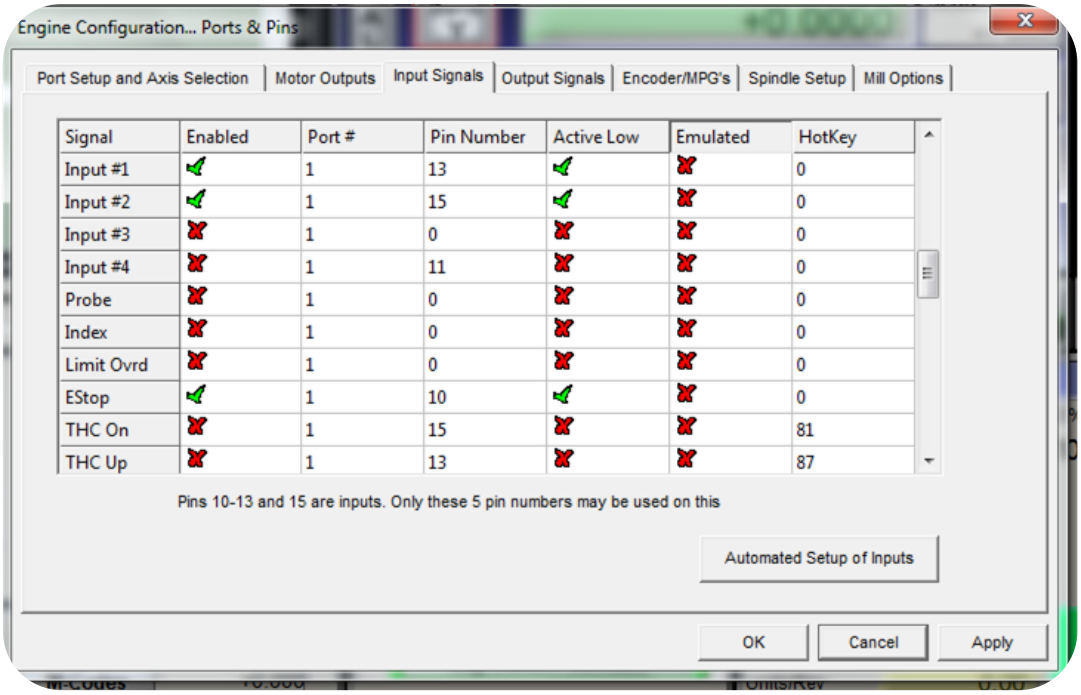
3.2 *Inputs signal (active LOW_0V)*

5 isolated inputs on Pin 10, 11, 12, 13, 15.



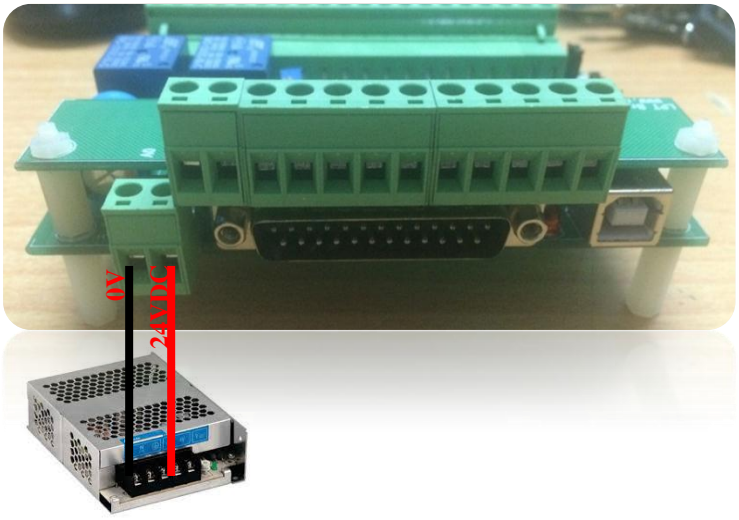
Input signals set as below → "Apply" button.



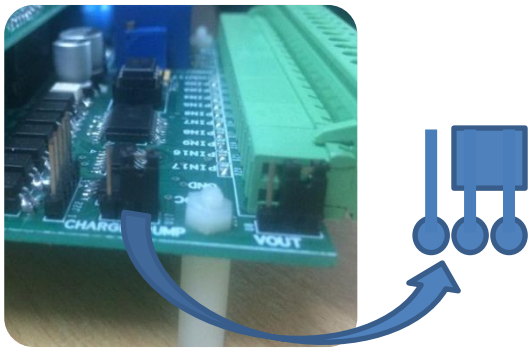


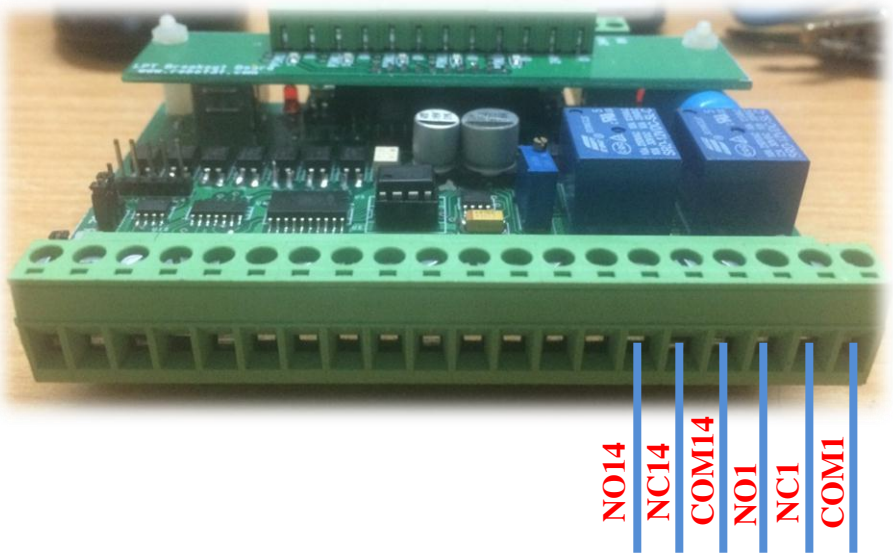
3.3 Outputs relay signal

Connect DC24V output signal

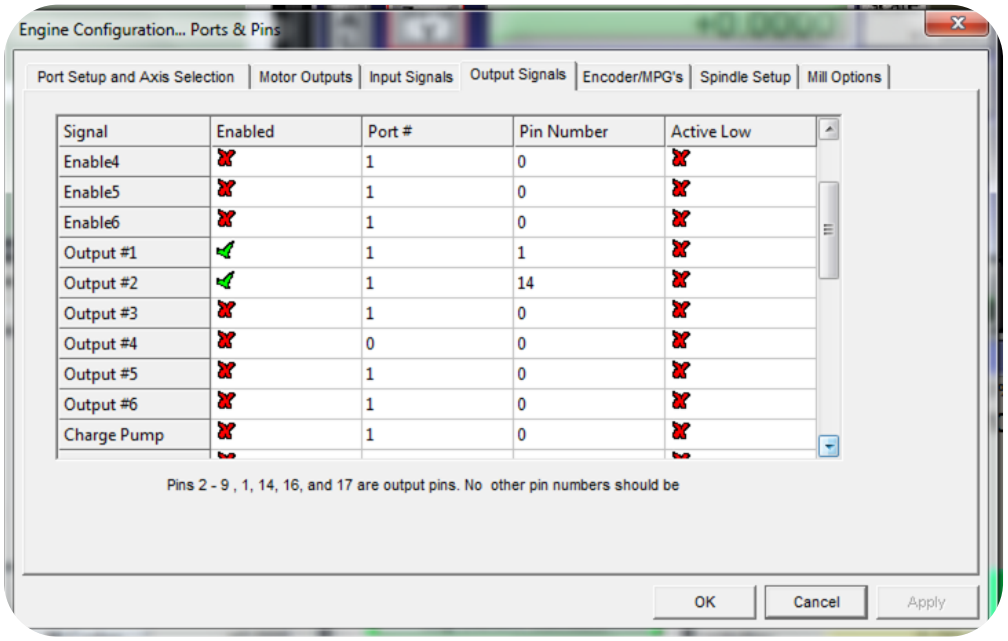


Set jumper to used relay output pin 1.



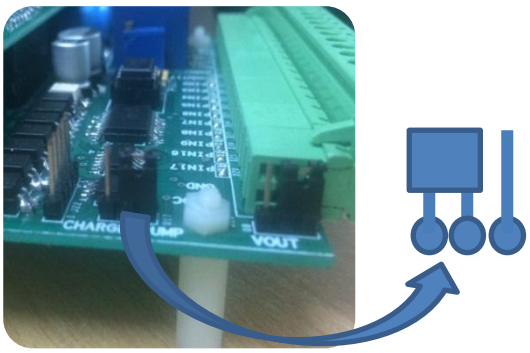


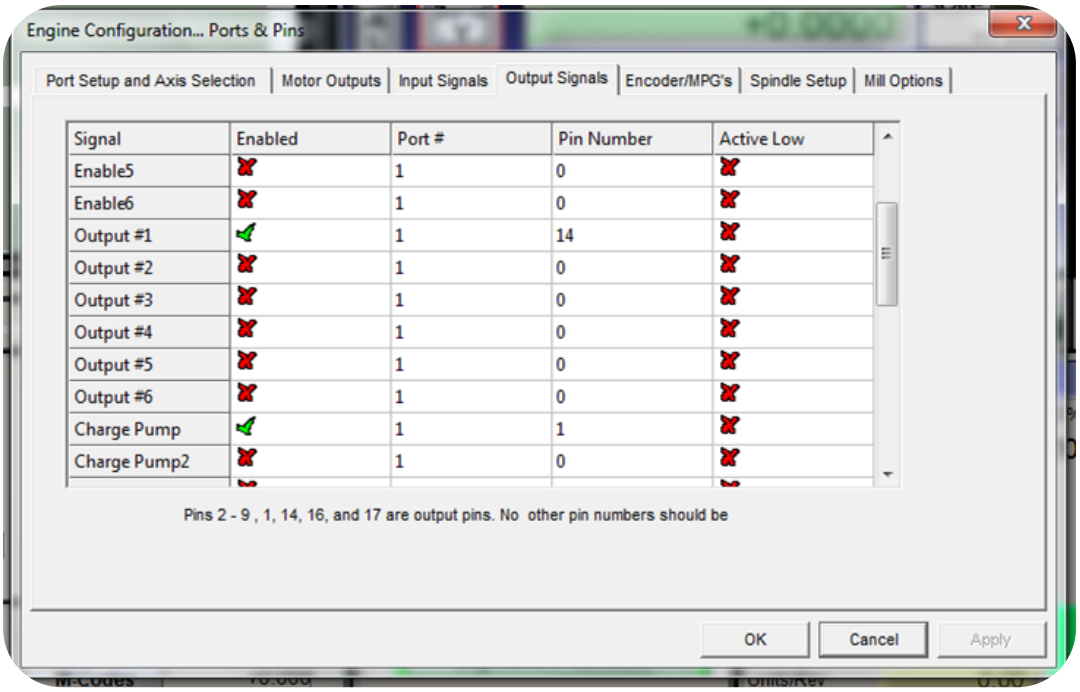
Setup outputs signal on MACH3 below:



3.4 Charge pump output

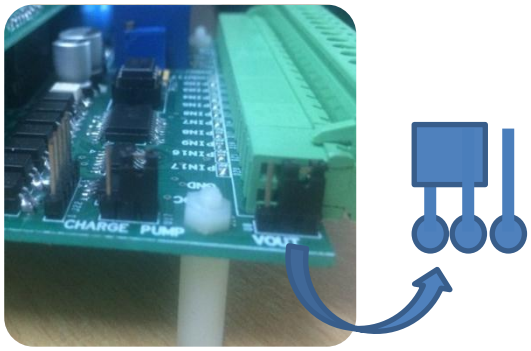
When user click “Reset” button, charge pump output is activated. Set jumper to used charge pump output pin 1.



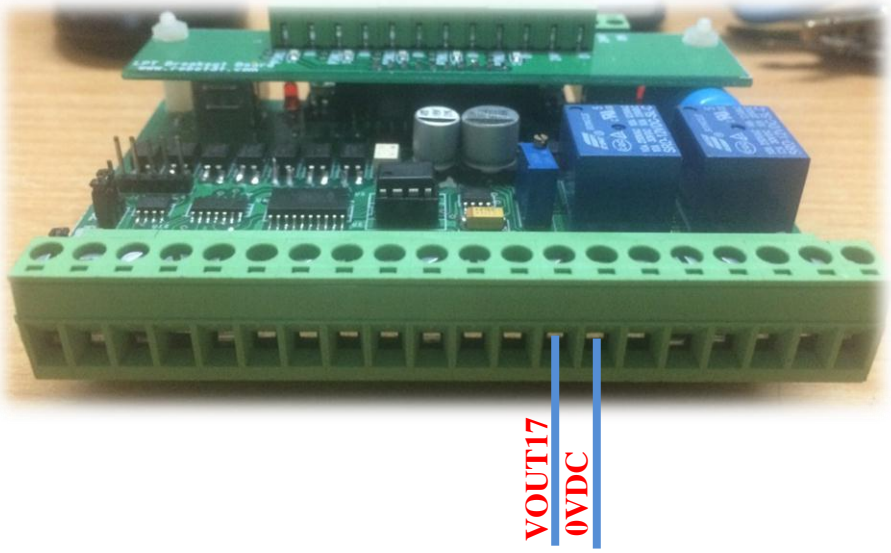


3.5 Analog 0-10VDC output

Set jumper to used analog 0-10V output.



Connect 24VDC output and VOUT pin 17.



Configure on MACH3