SUPER X3 spindle control board operating instructions

Function synopsis:
With the installation of this control panel realizes following functions:

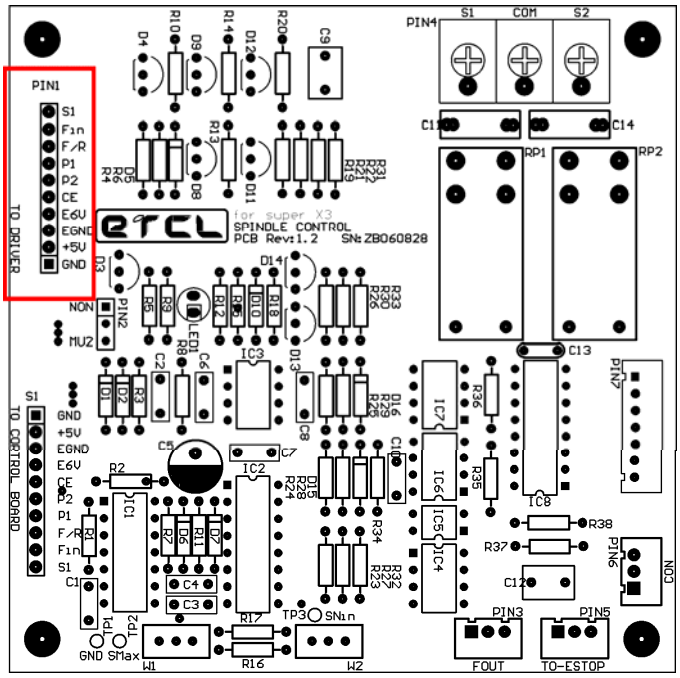
1. Spindle rotational speed by the computer input (MACH Software).
2. Through the change-over switch, CNC control or retain your manual control.
3. May control two groups electric appliances, coolant pump, lights, etc.
4. Through jumps the line to brave, may cause the engine bed kneading board the rotational speed value, demonstrates original two times.
5. Adds and additional safety feature by stopping the spindle during and E-STOP.
6. Panel readout and software readout of spindle RPM.
7. Spindle low and high rpm can be adjusted via pots adjustments.

Connection explanation

The main spindle board connection
Position on the following diagram:

Function and connection:

Receives the original connector to the main display panel. Signal arrangement and original machine pin configuration is the same.

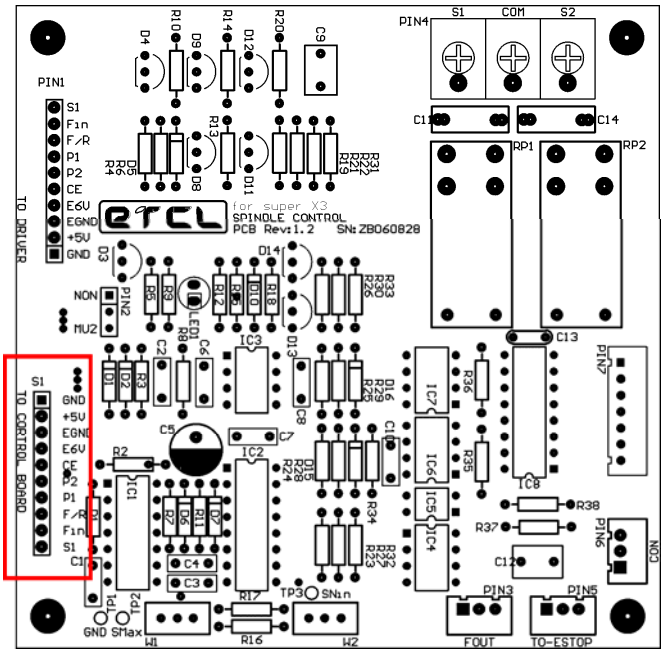


Main control panel connection

Position following chart:

Function and connection:

The plug panel inserts onto this plug receptacle. Signal arrangement and original machine configuration are the same.



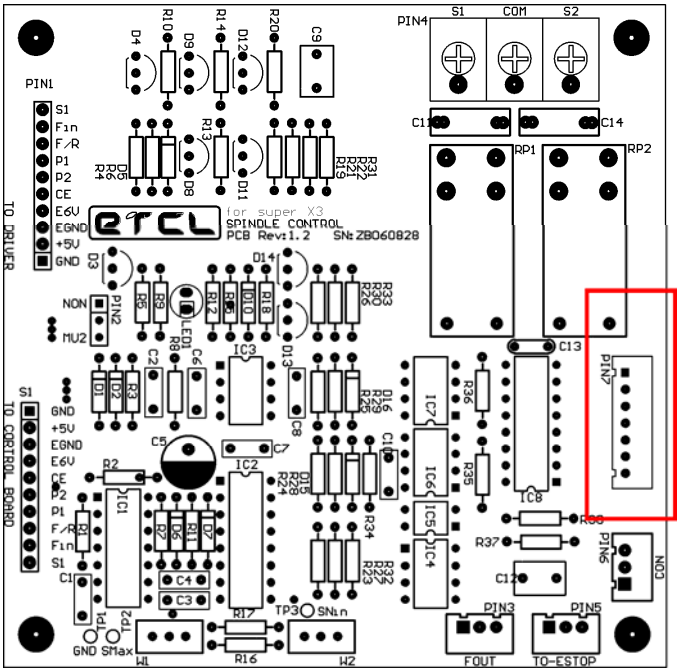
Control signal connection:

Position following chart:

Function and connection:

Control signal input

Through the breakout board it receives four signals for the spindle control. MACH software controls the pulse-duration modulation, The frequency for must be higher than 500hz. Too low of PWM, and the frequency can cause the main spindle rotation to have noise. When PWM duty factor is 0%. When, the main spindle rotational speed is on the control panel potentiometer W2 Establishes rotational speed. When the duty factor is 100%. The main spindle rotational speed is a potentiometer W1 Establishes the rotational speed, establishes the method please to refer to the rotational speed specifically to establish the potentiometer showing.



Electric appliance control connection

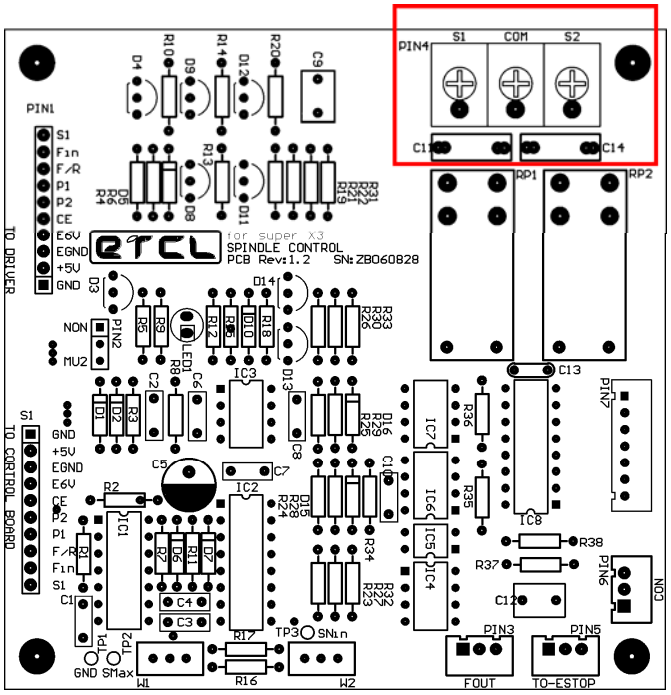
The connection position distributes the chart:

Function and connection:

Two groups of relays, use in controlling exterior electric appliances. coolant pump, lights, etc.

COM = Common Power Input
Relay RP1 COM End = Common
S2 Relay principle is the same.

Current capacity is **5A.**



Rotational speed hypothesis potentiometer

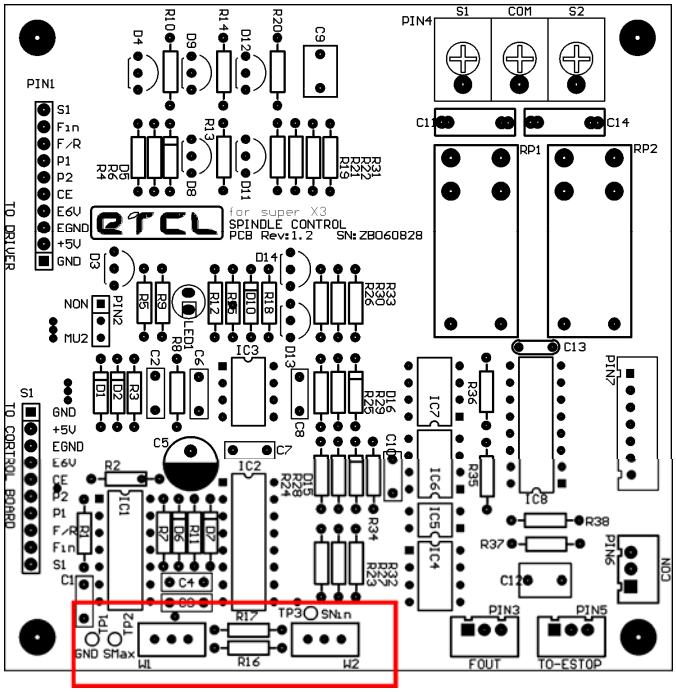
Position following chart:

The function and the adjustment consists of two pots, W1 & W2.

W1 corresponds to the spindle control pulse 100% duty factor. While at rotational speed, you may sample the test point TP2 using TP1（GND). You will be measuring DC voltage. The higher the voltage, the faster the corresponding RPM.

W2 corresponds is the spindle control pulse 0% duty factor. While at rotational speed you may sample the test point TP3 using TP1（GND). You will be measuring DC voltage. The higher the voltage, the faster the corresponding RPM.

Two potentiometers both are the multi-turn type. It may take multi-turns for adjustment.

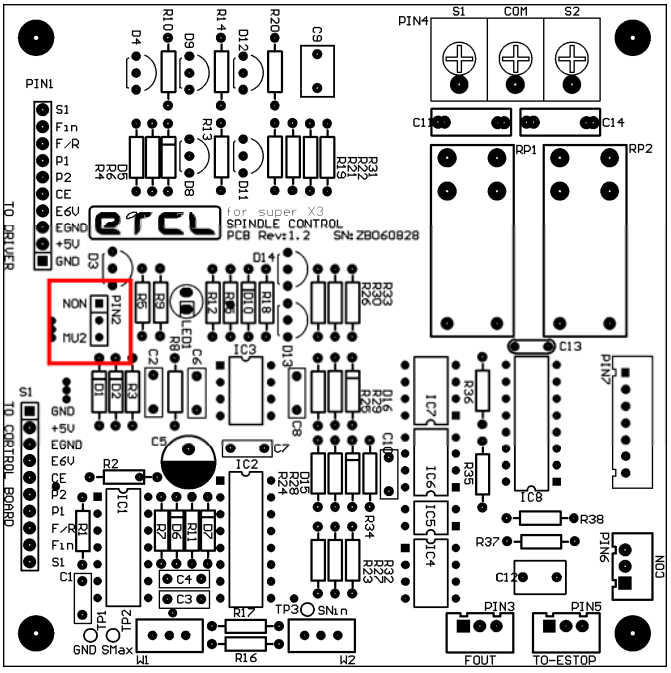


Rotational speed display jumper

Position following chart:

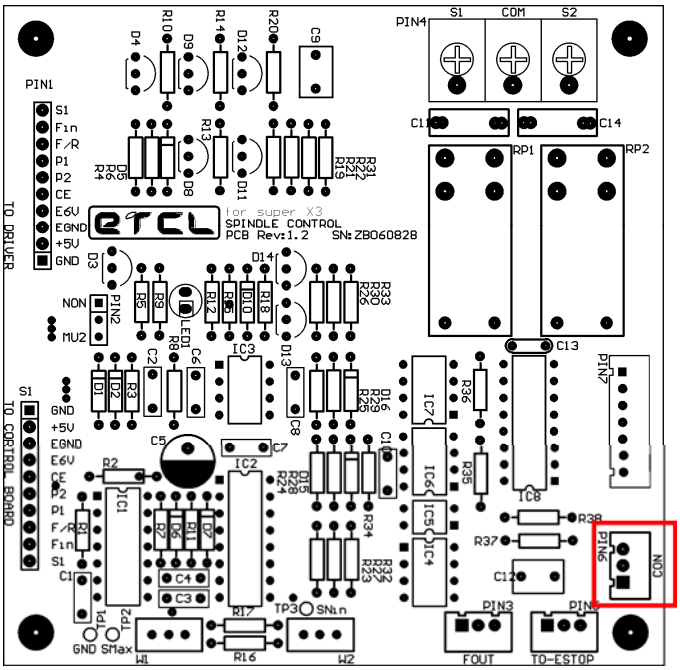
Function and operating instructions:

After adding a high speed spindle gear, in order to display the correct RPM on your head display you will need to change a jumper. For stock speed gears NON will have to be jumpered. For high speed gears, MU2 will be covered.



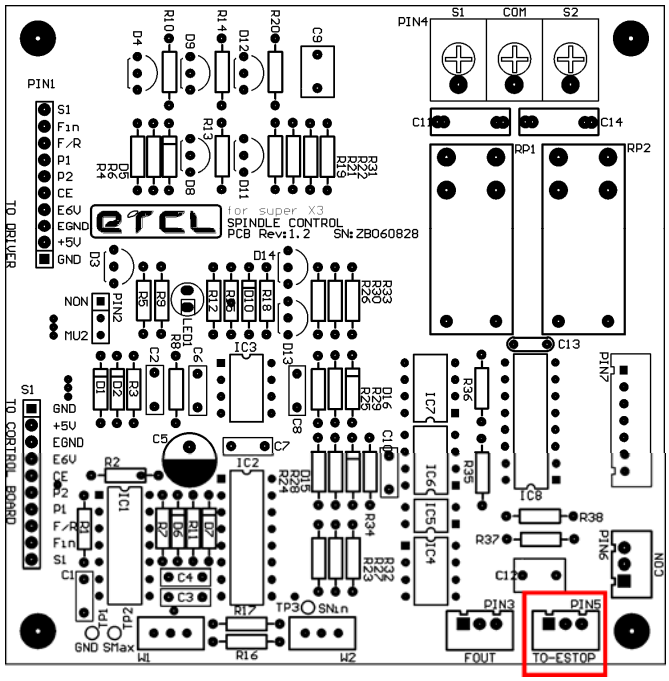
Function and connection:

This port is used for switching control between the front panel and your controller software. Open is panel control. When pin 1 & 2 are closed spindle is under control of your controller.



Function and connection:

This connection needs to be connected to your breakout board. This is your E-Stop function feedback for MACH.



Function and connection:

This connection outputs spindle RPM pulse signal. This may be reported back to your controller software to confirm actual RPM.

Feature has not been implemented yet.