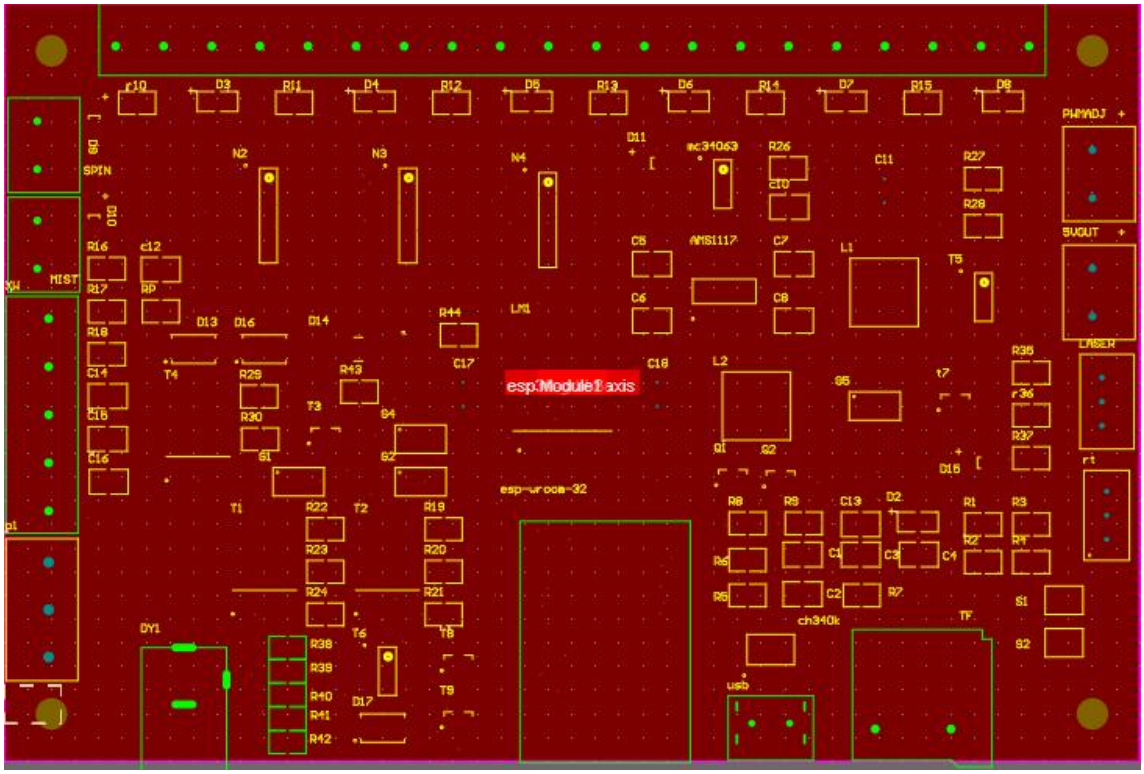
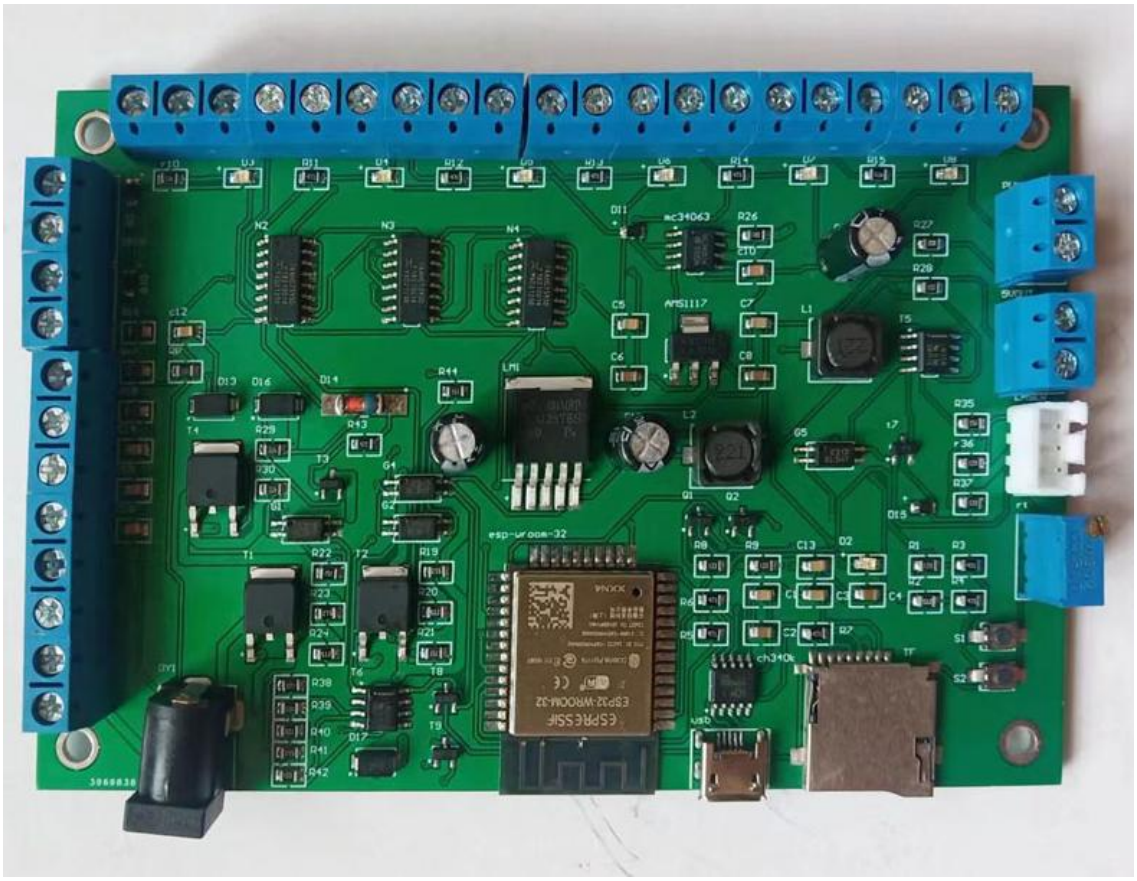
How to buy: http://www.aliexpress.com/item/info/1005004625846519.html

GRBL 6 Axis Control Board





Features

- Adopt dual-core ESP32 16-bit high-speed processor.
- Support GRBL host software, such as Candle, Bcnc, CNC3D COMMANDER, etc.
- Simultaneously control 6 stepper motor drivers.
- Support homing, software limit, hardware limit, and tool Z-probe setting.
- Support multiple modes such as hotspot, WiFi, Bluetooth function.
- Equipped with protective measures such as anti reverse connection, anti overvoltage, and power selection.(Voltage DC12-24V. When voltage reaches 30V , the power supply will be automatically cut off. It automatically selects the external power supply as the input power supply for control chip, while preventing power backflow and protecting the USB interface.)
- PWM output with adjustable voltage.
- Support 3-wire laser output and compatible with laser engraving machines.

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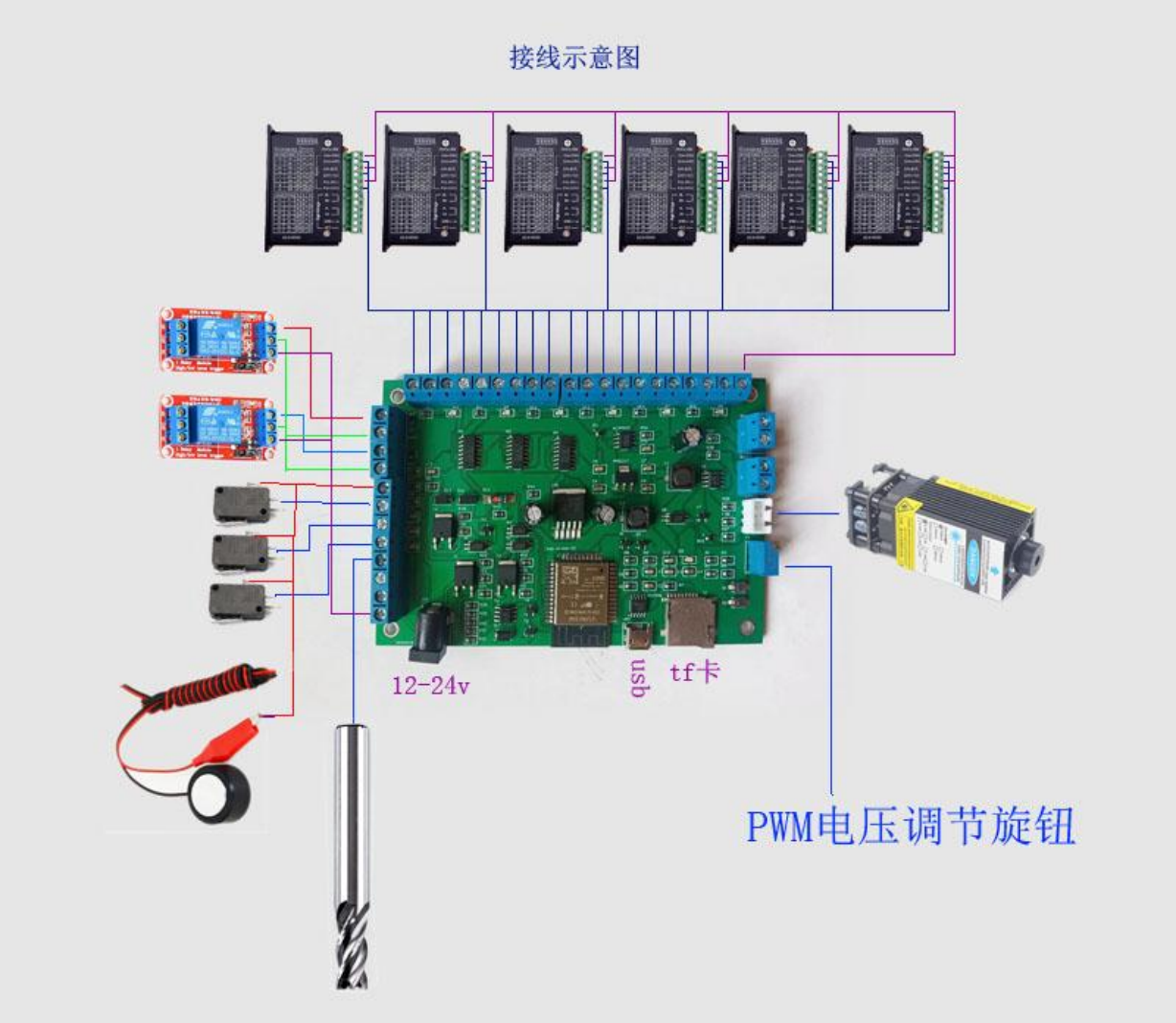
Wiring



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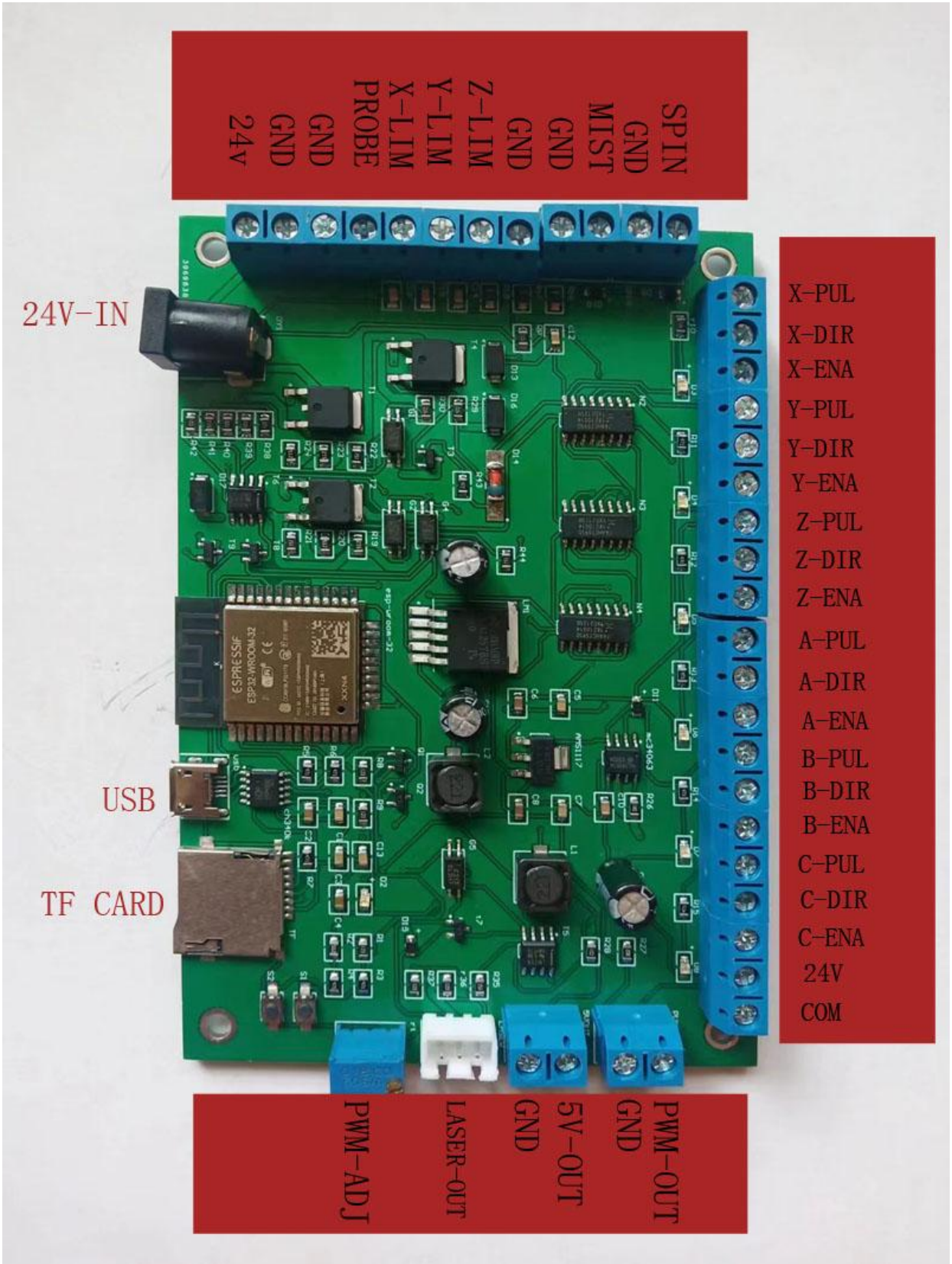


How to Use

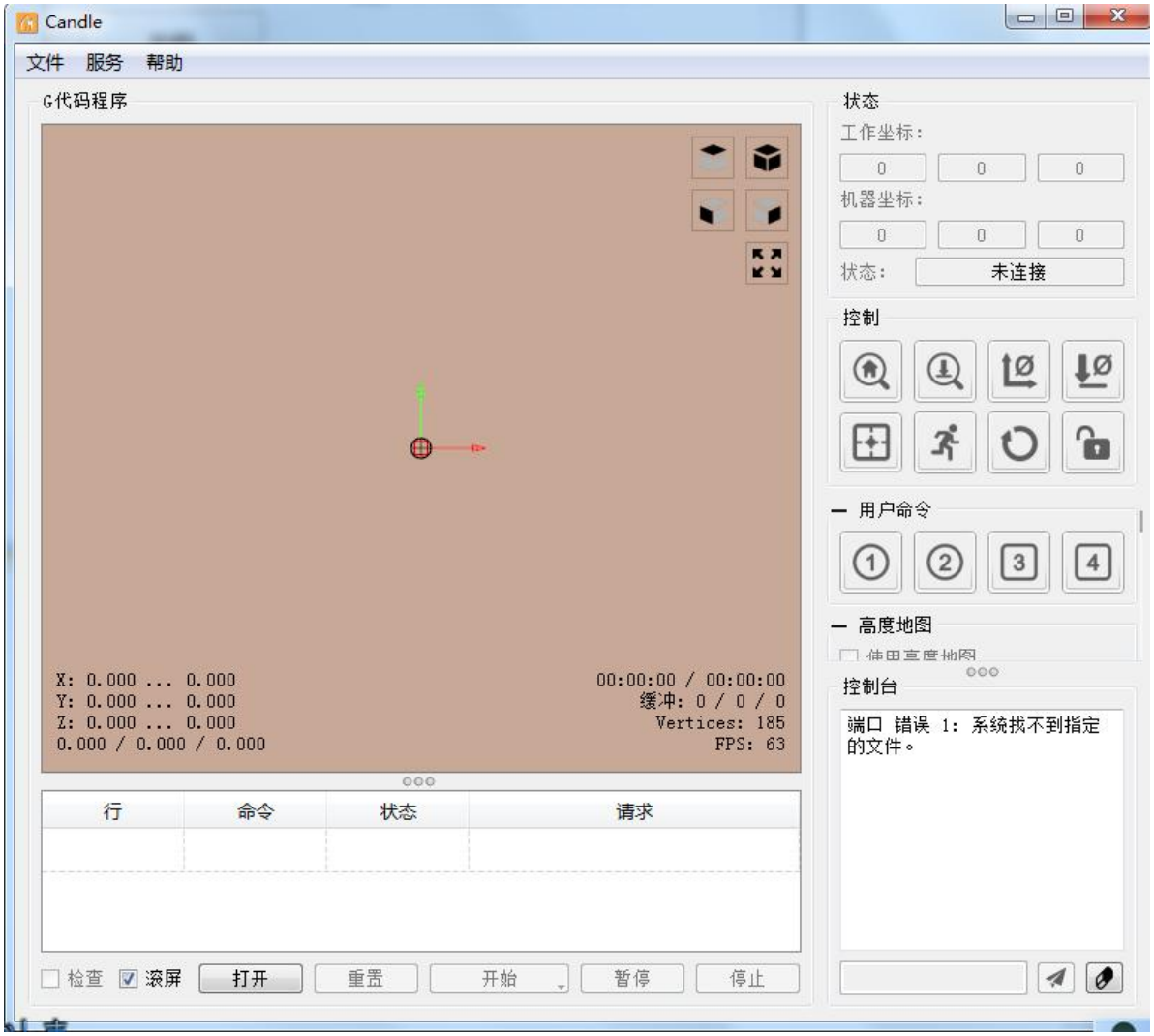
1. Install CH340 USB Driver

Connect USB，CH340K serial port，finish installation.

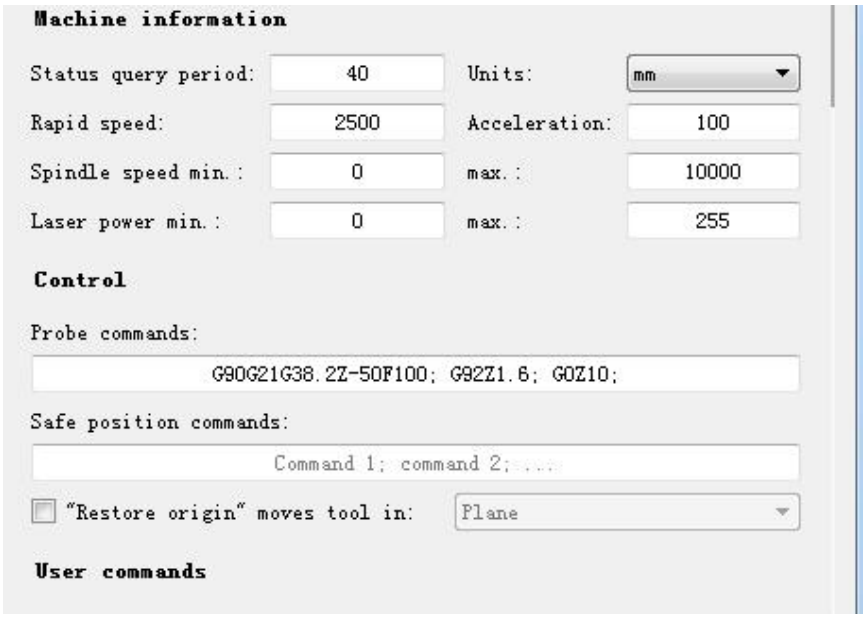
2. Software Host

2.1 Candle and Bcnc

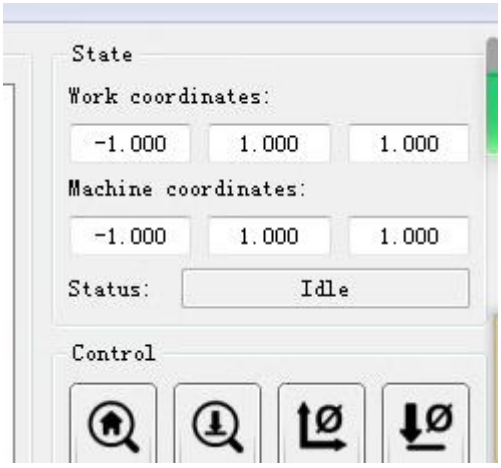
Open Candle.exe



Click Setting and Service



Select COM port and confirm.



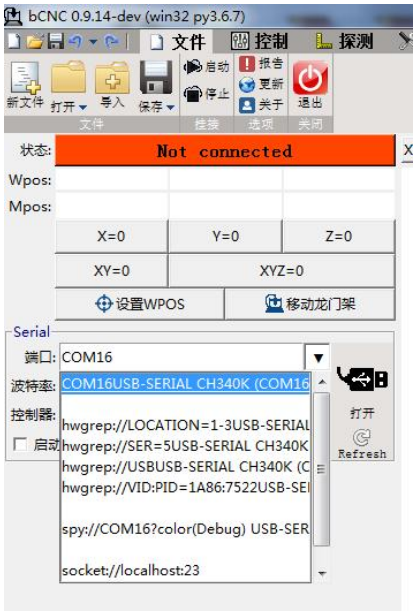
The status shows idle, and the control board indicator light flashes, indicating that the control board is successfully connected.

2.2 BCNC

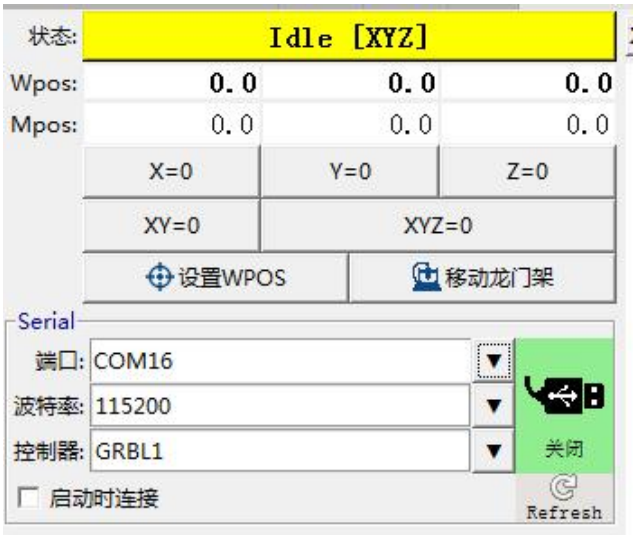
Connect control board by USB，and open bCNC.exe

Select CAM and Select language.

Enable 6 Axis Displays,then restart software.



Click file and select COM. Control board successfully get connected when turns to yellow.



3. Setting

Open Candle,enable parameters.

Grbl参数配置说明
$0=10 (steppulse, usec) 步进脉冲时间，建议10us
$1=25(step idle delay, msec) 步进电机除能延迟时间
$2=0 (stepport invert mask:00000000) 步进电机驱动端口有效位掩码
$3=6 (dirport invert mask:00000110) 步进电机驱动方向位掩码
$4=0 (stepenable invert, bool) 步进电机使能取反有效位设置
$5=0(limit pins invert, bool) 限位IO口取反有效位设置
$6=0(probe pin invert, bool) 探针IO口取反有效位设置
$10=3(status report mask:00000011) 状态报告掩码
$11=0.020(junction deviation, mm) 节点偏差
$12=0.002(arc tolerance, mm) 圆弧公差
$13=0(report inches, bool) 位置坐标的单位设置
$20=0(soft limits, bool) 软限位开关
$21=0(hard limits, bool) 硬限位开关
$22=0(homing cycle, bool) 归位使能位
$23=1(homing dir invert mask:00000001) 归位方向位掩码
$24=50.000(homing feed, mm/min) 归位进给速率
$25=635.000(homing seek, mm/min) 归位快速速率
$26=250(homing debounce, msec) 归位边界反弹时间
$27=1.000(homing pull-off, mm) 归位点坐标离限位器触发点的距离
$100=314.961(x, step/mm) x轴速度转化参数 步/毫米
$101=314.961(y, step/mm) y轴速度转化参数 步/毫米
$102=314.961(z, step/mm) z轴速度转化参数 步/毫米
$110=635.000(x max rate, mm/min) x轴最大速率 毫米/分钟
$111=635.000(y max rate, mm/min) y轴最大速率 毫米/分钟
$112=635.000(z max rate, mm/min) z轴最大速率 毫米/分钟
$120=50.000(x accel, mm/sec^2) x轴加速度 毫米/(s*s)
$121=50.000(y accel, mm/sec^2) y轴加速度 毫米/(s*s)
$122=50.000(z accel, mm/sec^2) z轴加速度 毫米/(s*s)
$130=225.000(x max travel, mm) x轴最大行程
$131=125.000(y max travel, mm) y轴最大行程
$132=170.000(z max travel, mm) z轴最大行程

Parameter Description

Motor direction code

X + Y + Z + 0

X- Y + Z + 1

X + Y- Z + 2

X- Y- Z + 3

X + Y + Z- 4

X- Y + Z- 5

X + Y- Z- 6

X- Y- Z- 7

Defult $23=0，upper right, Z-axis is upward.

$23=1　upper left

$23=2　bottom right

$23=3　bottom left

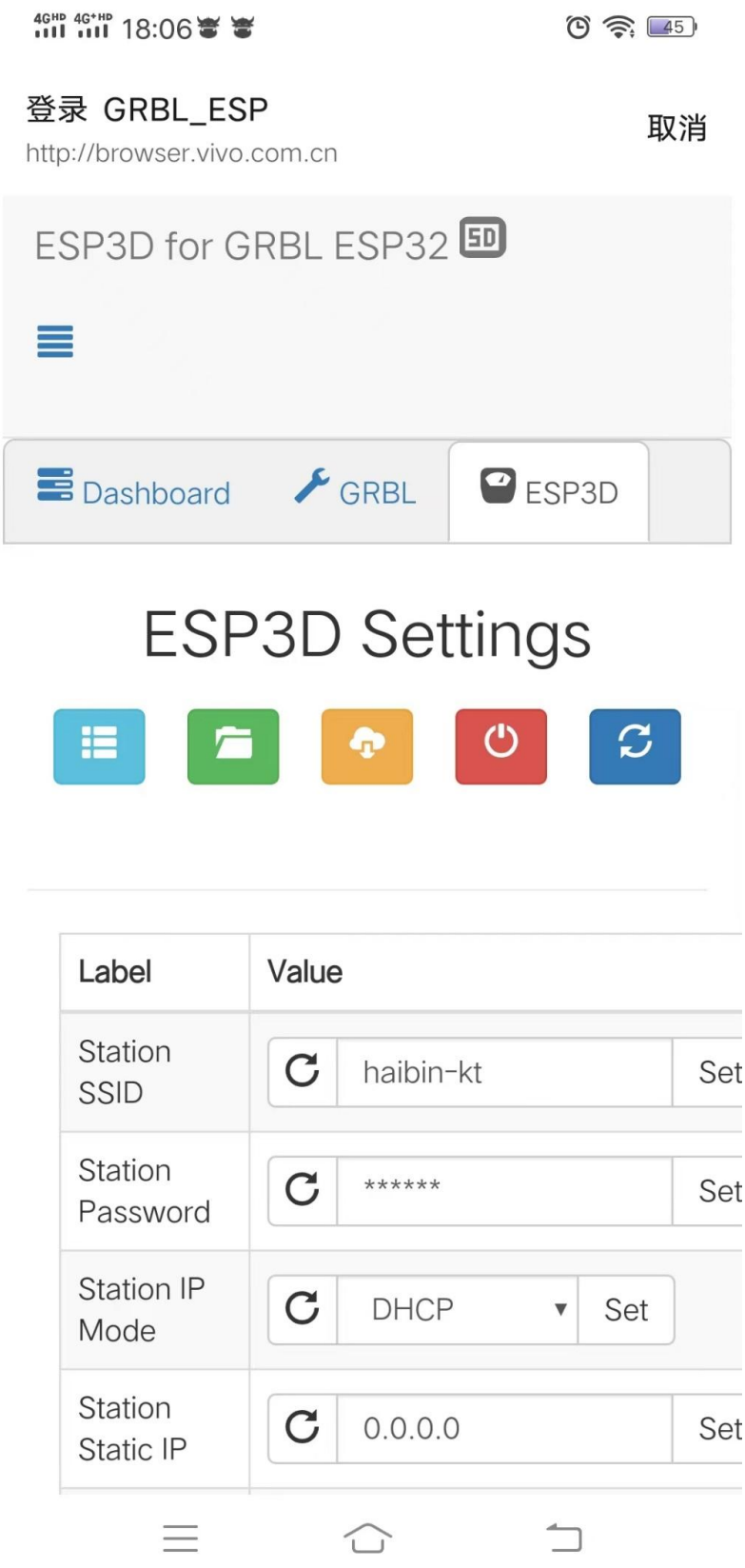
$23=4　Z-axis negative direction return

Wi-Fi

There will be a hotpot when control board power on.

Name: GRBL_ESP

Password: 12345678



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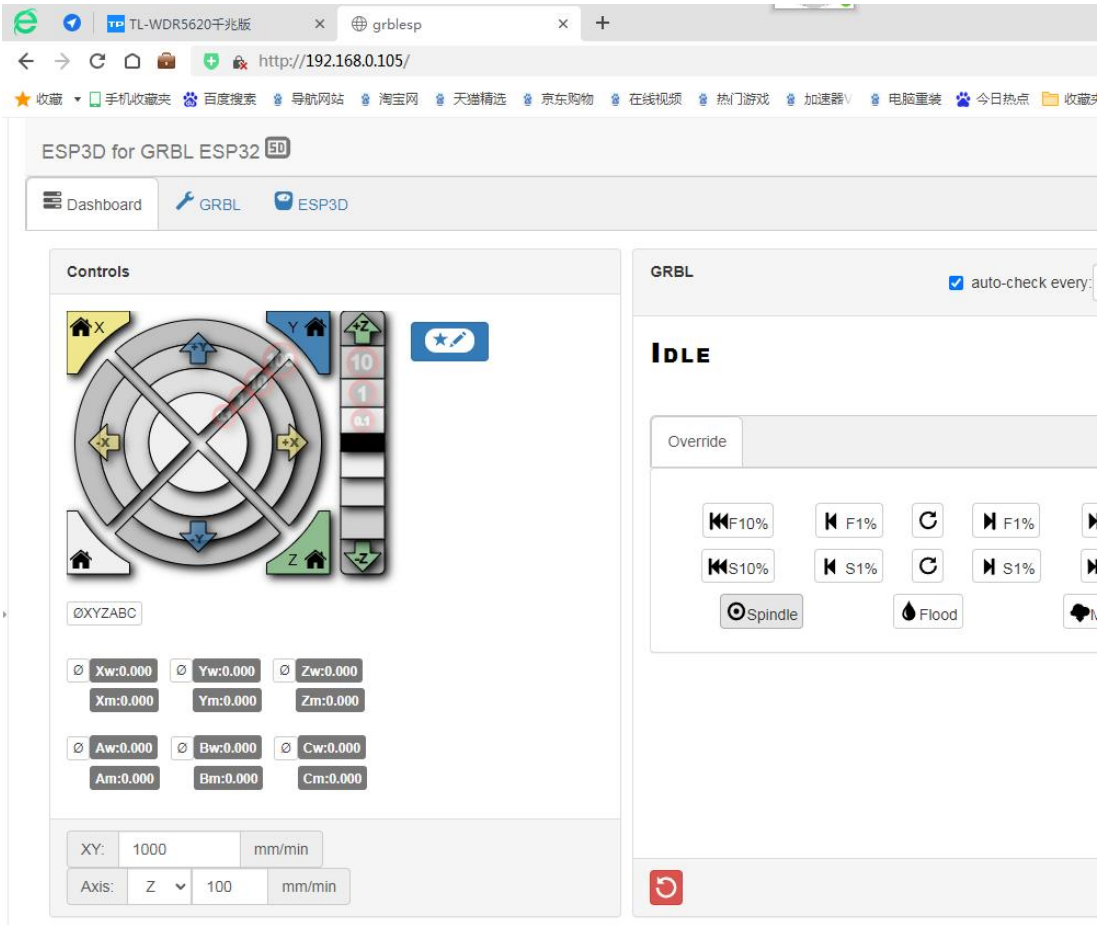
Open the router and find control board IP.



Bluetooth

Use $Radio/mode=BT change radio mode to Bluetooth mode. ESP32 uses the same hardware for WiFi and Bluetooth, so only one is available at a time.

A reboot is required to change to radio mode. Restart ESP32 will turn on Bluetooth with that name. Or press reset button or send command, $System/Control=Restart.

When enable BT mode, $Radio/mode=STA or $Radio/mode=AP can switch back to WiFi from Bluetooth console,then restart.

Install grbl-controller.apk

Open Bluetooth and match ESP32_BT.

Open grbl-controllerand control on phone.