

Software download

<https://github.com/Macrobbase-tech/CNC-Software>

Packing List

6 axis Board included

1 x CNC Board

1 x USB

6 axis Board-Z Tool included

1 x CNC Board

1 x USB

1 x Z Probe

Button Function

s1 is reset,s2 to download firmware.

s1 connects to EN,s2 connects to Boot.

Features

❖ Adopting dual-core ESP32 32bits high-speed processor.

❖ Pre-installed FluidNC firmware,

compatible with CNC3D COMMANDER,Candle,Bcnc software...

❖ Support six stepper drivers. X,Y,Z,A,B,C axis.

❖ Support Homing,software/hardware endstop,Z probe.

❖ Support hotspot,Wifi to control.

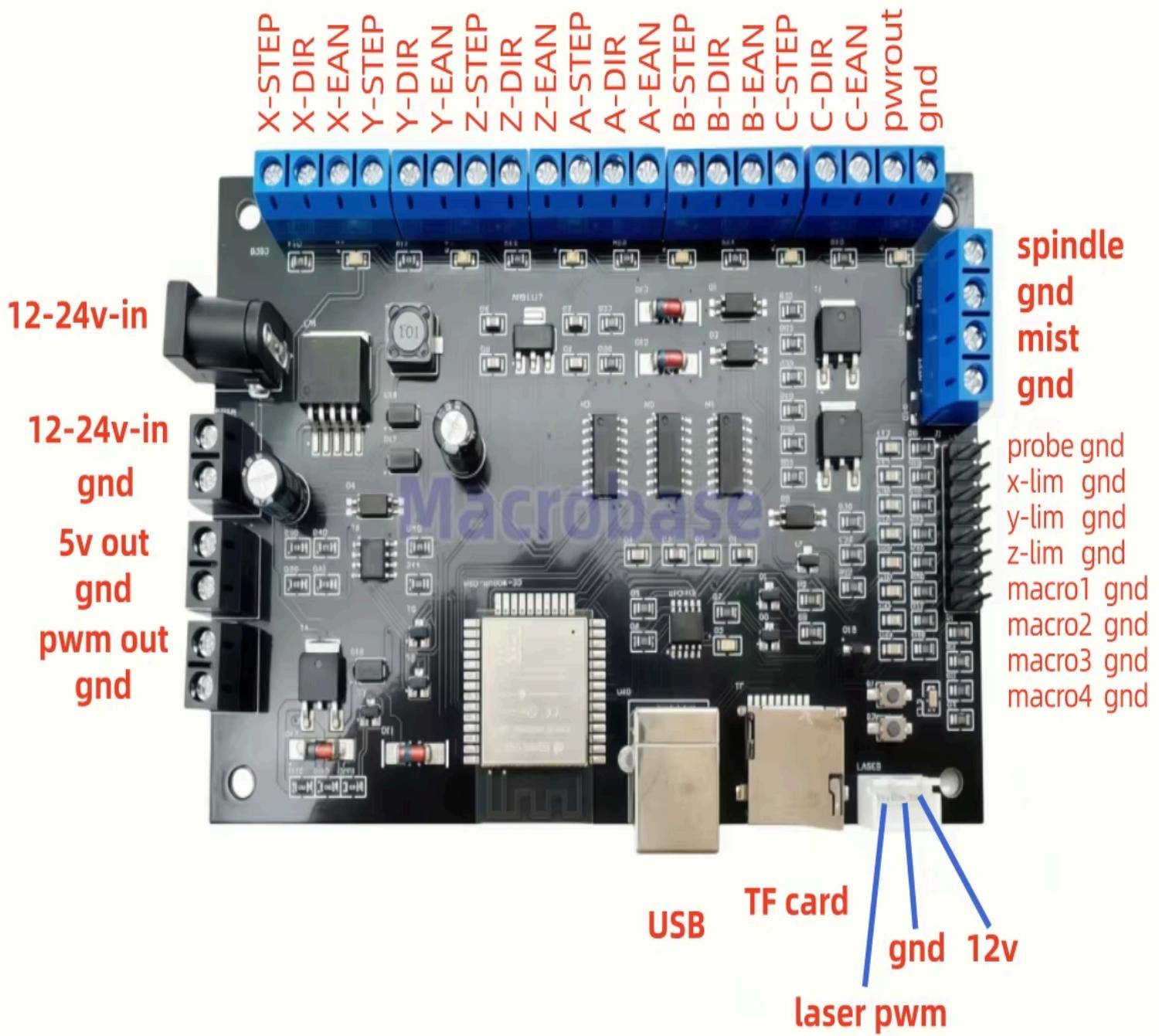
❖ Support 3pin laser. 0-10V PWM output.

❖ Support 12-24V DC

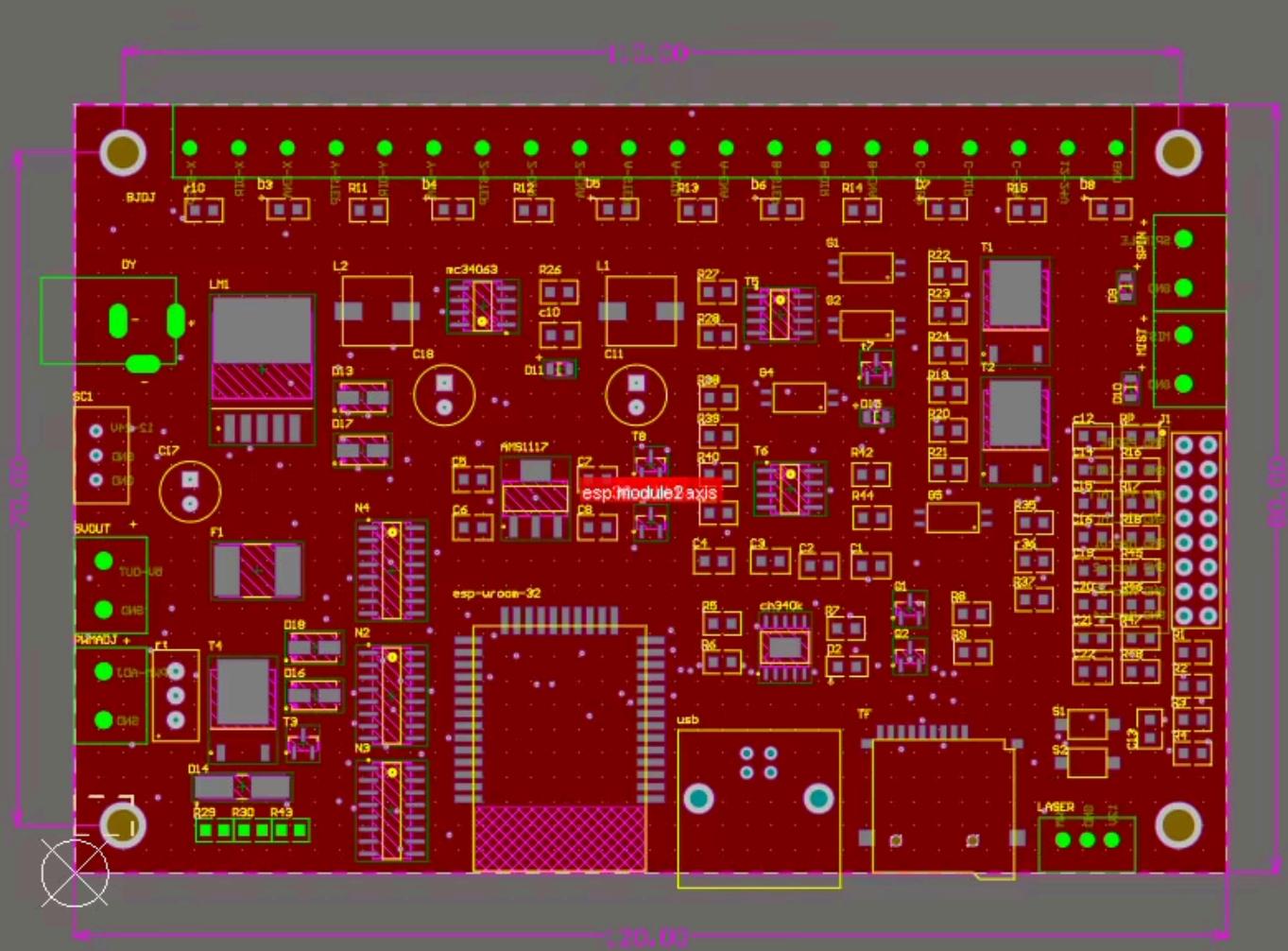
Auto-cut off power when voltage exceeding 30V.

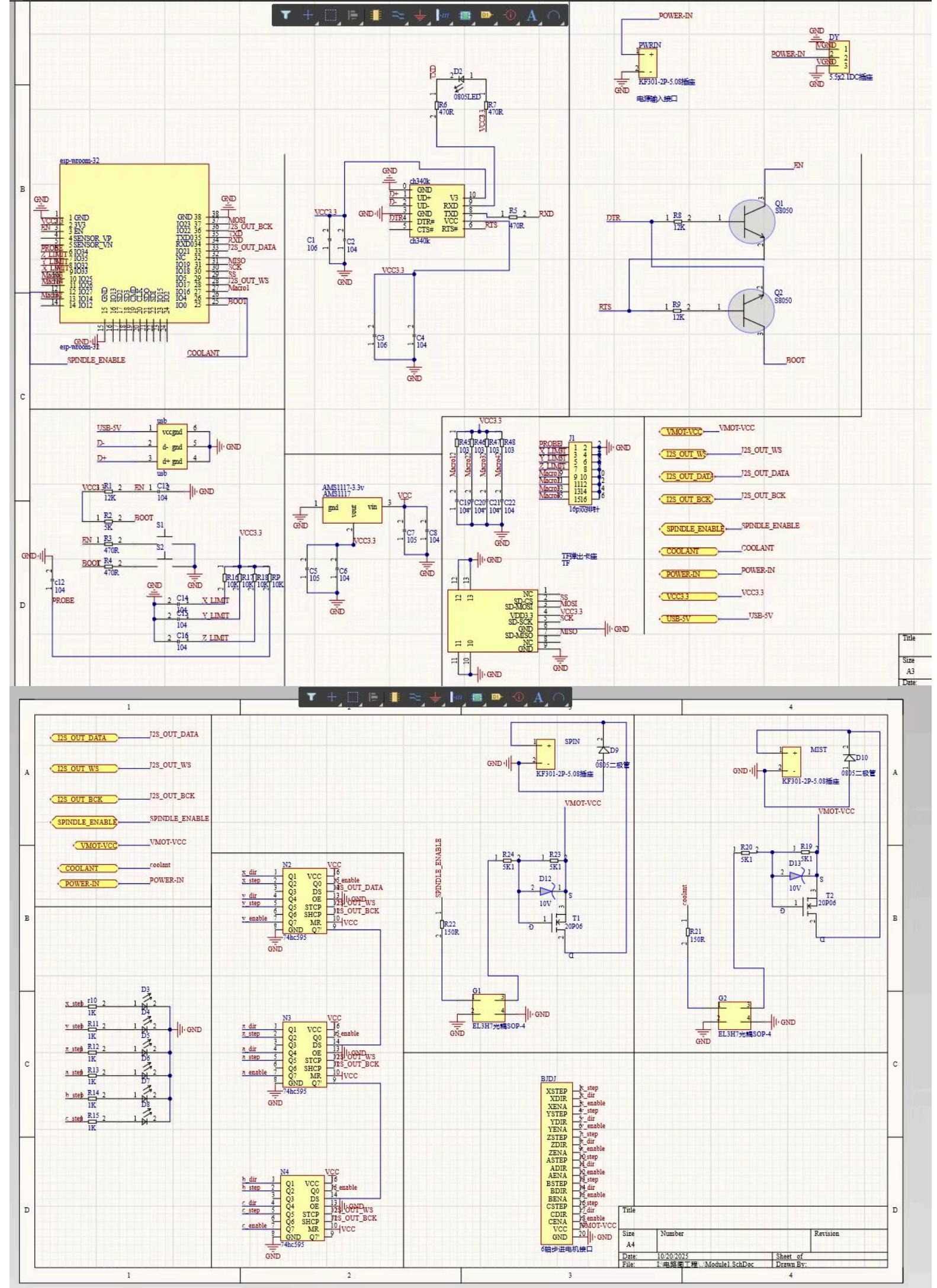
Automatically select external power supply as the main control input power, and prevent reverse power transmission,protect USB port.

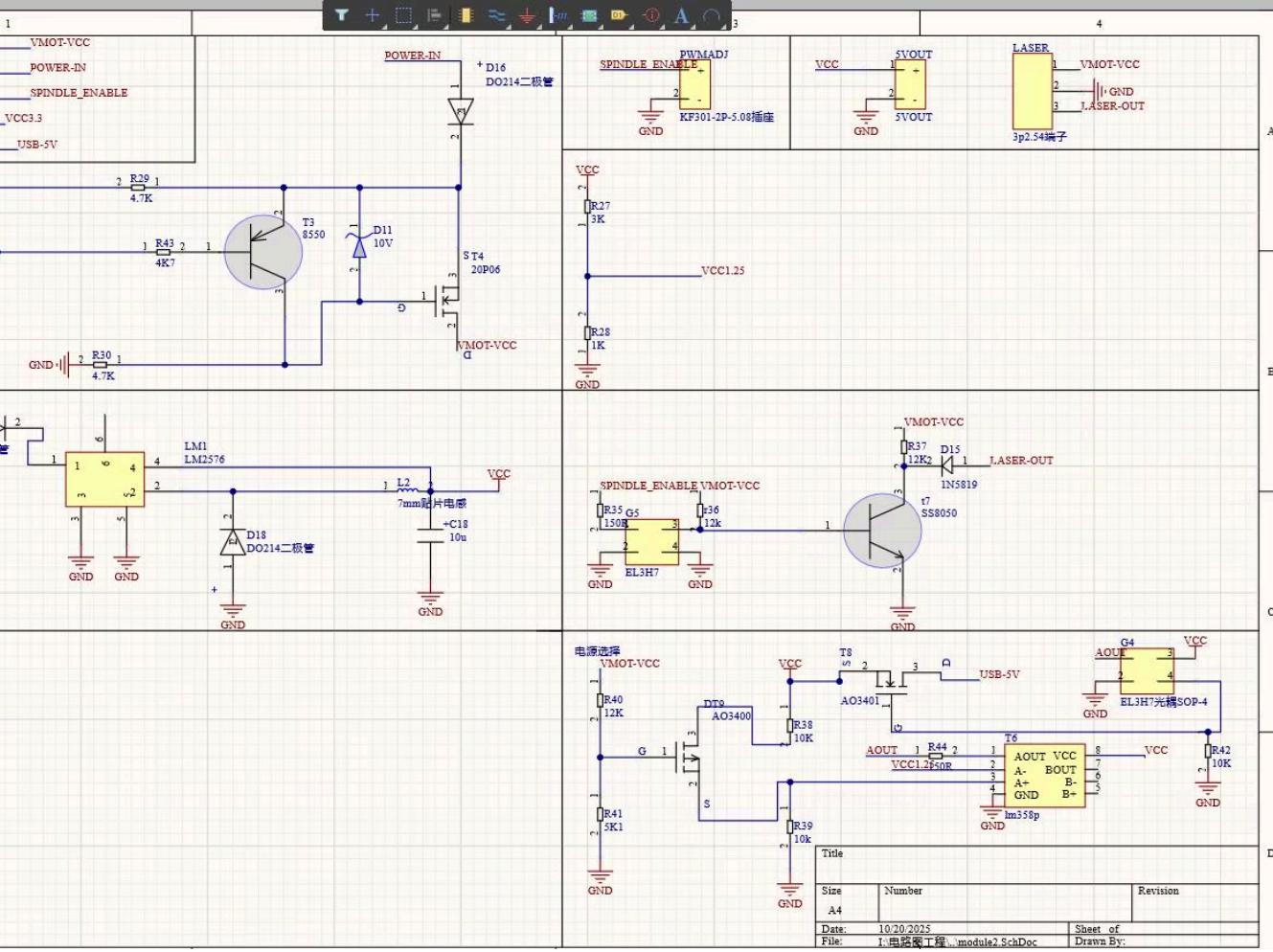
Wiring

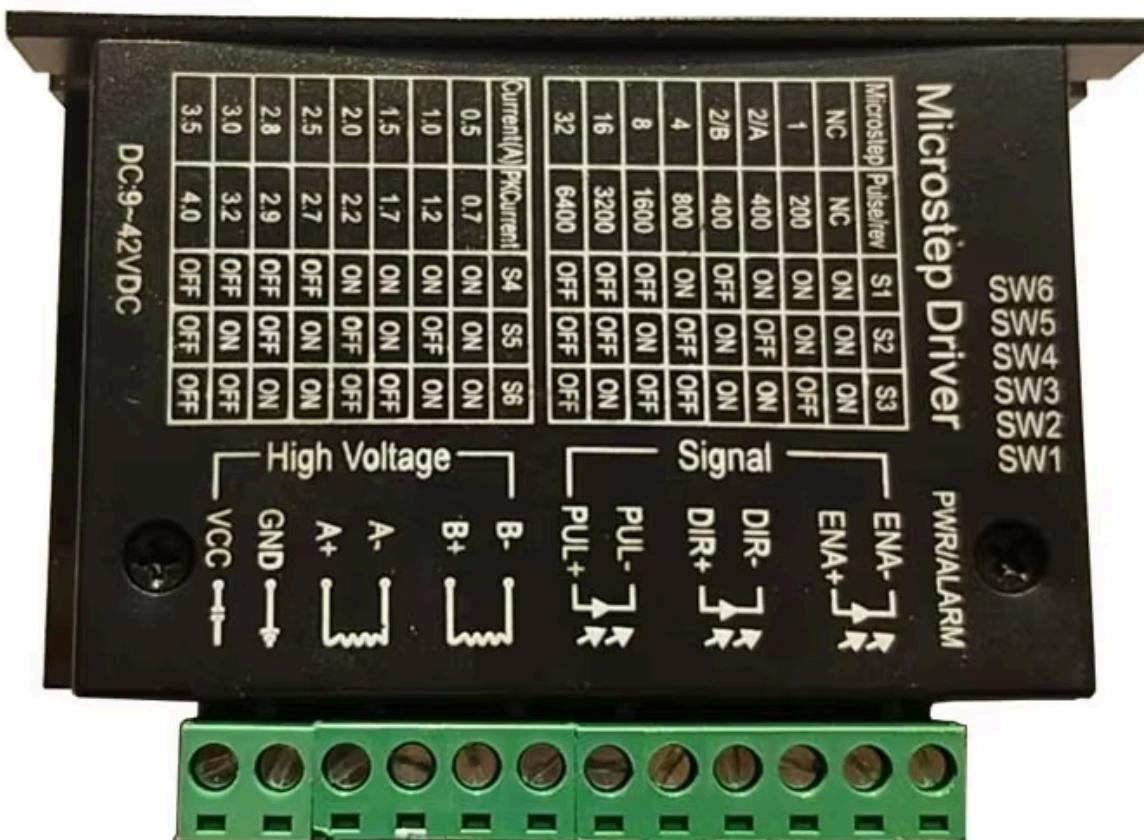


PROBE	Z-probe
X-LIM	X limit, Always on
Y-LIM	Y limit, Always on
Z-LIM	Z limit, Always on
GND	XYZ axis com, probe
PWM-OUT	PWM output
GND	PWM ground
PWM-ADJ	PWM adjustable
GND	All drivers PUL-, EAN-, DIR-
X-STEP	X-PUL+
X-EAN	X-ENA+
X-DIR	X-DIR+

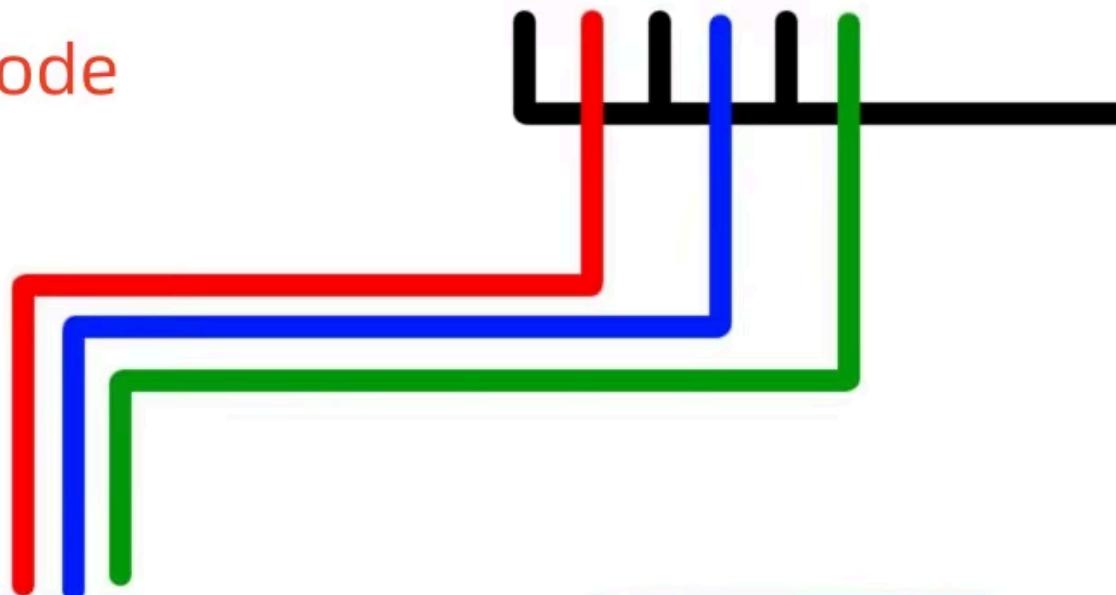








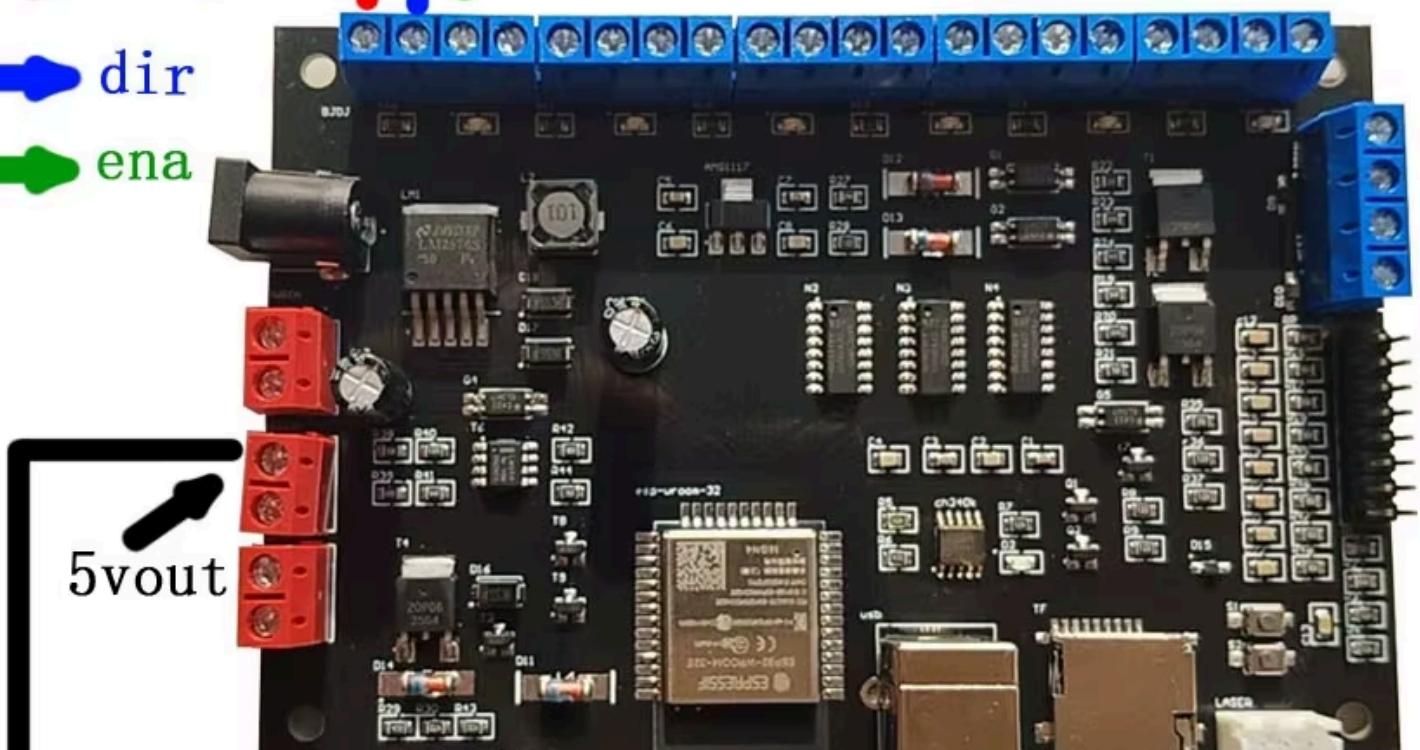
Common anode



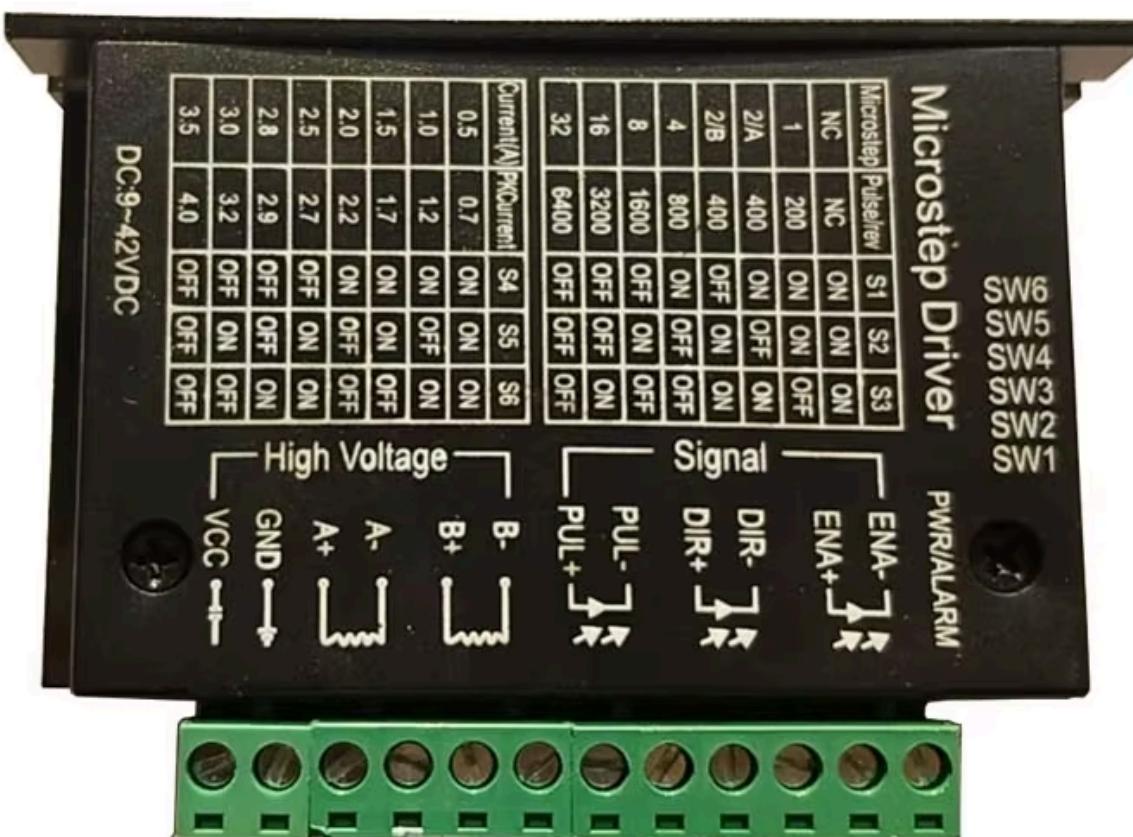
step

dir

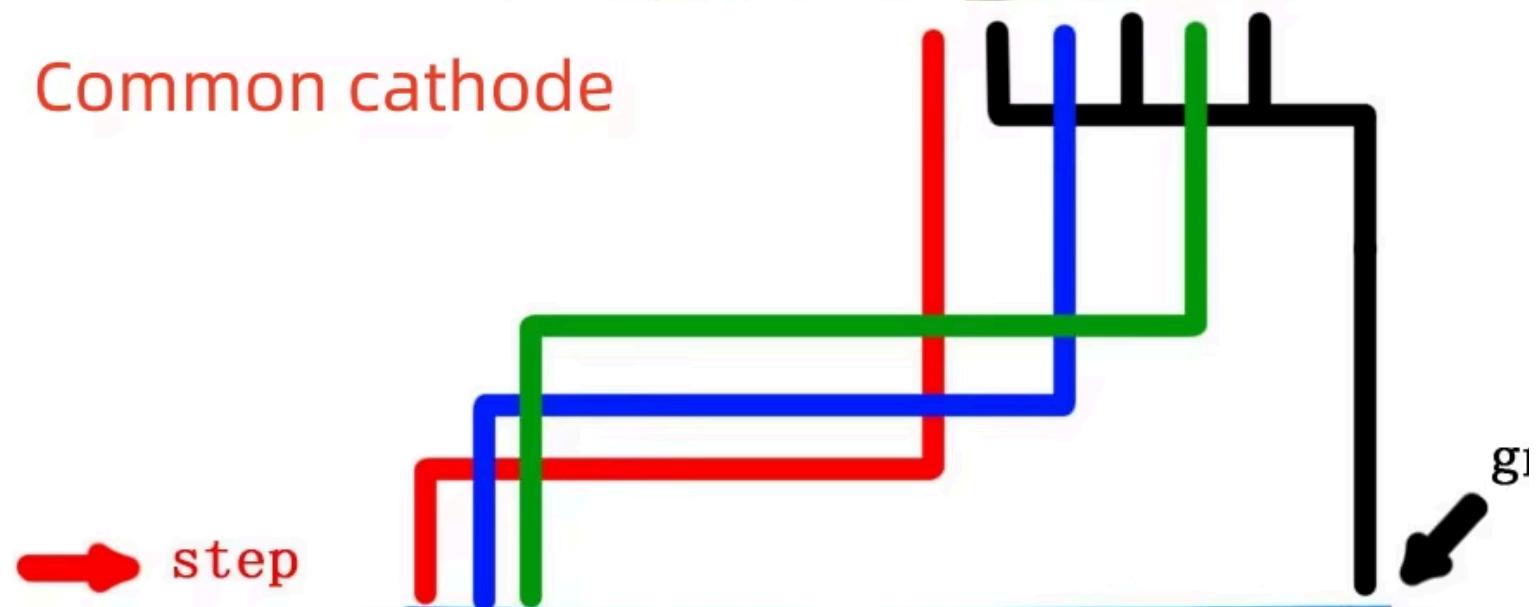
ena







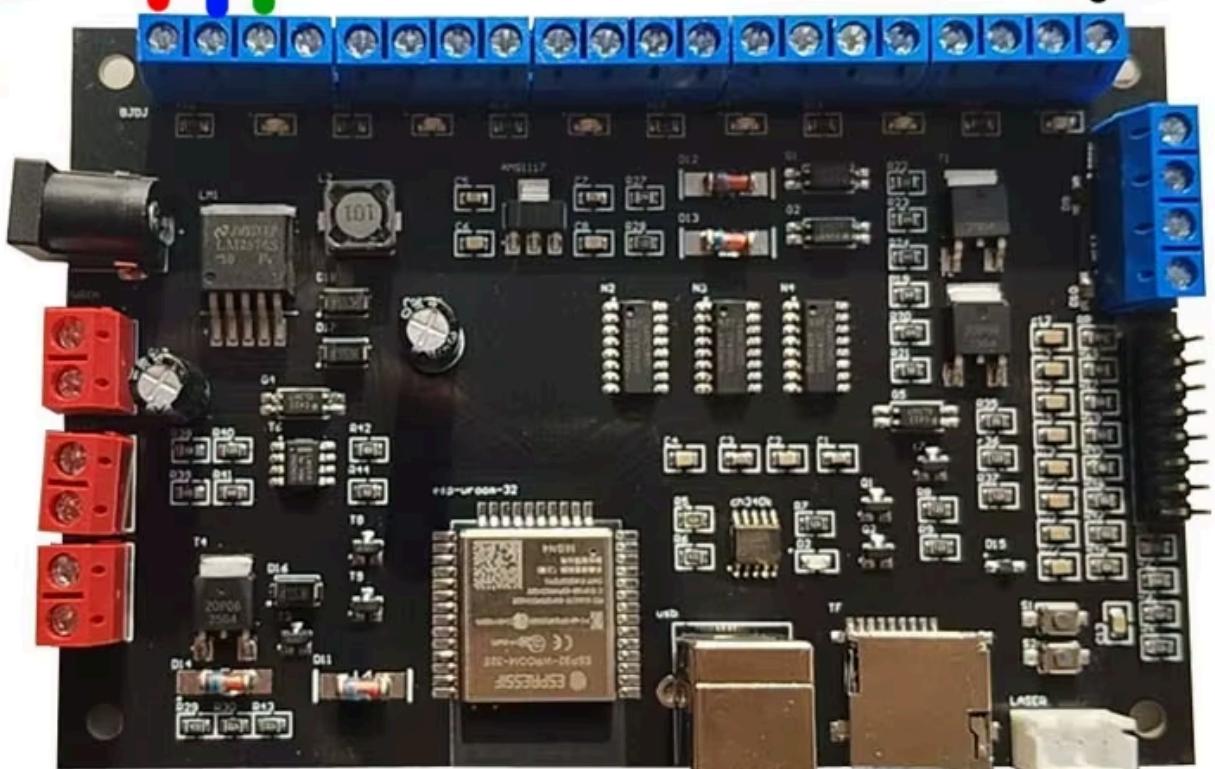
Common cathode

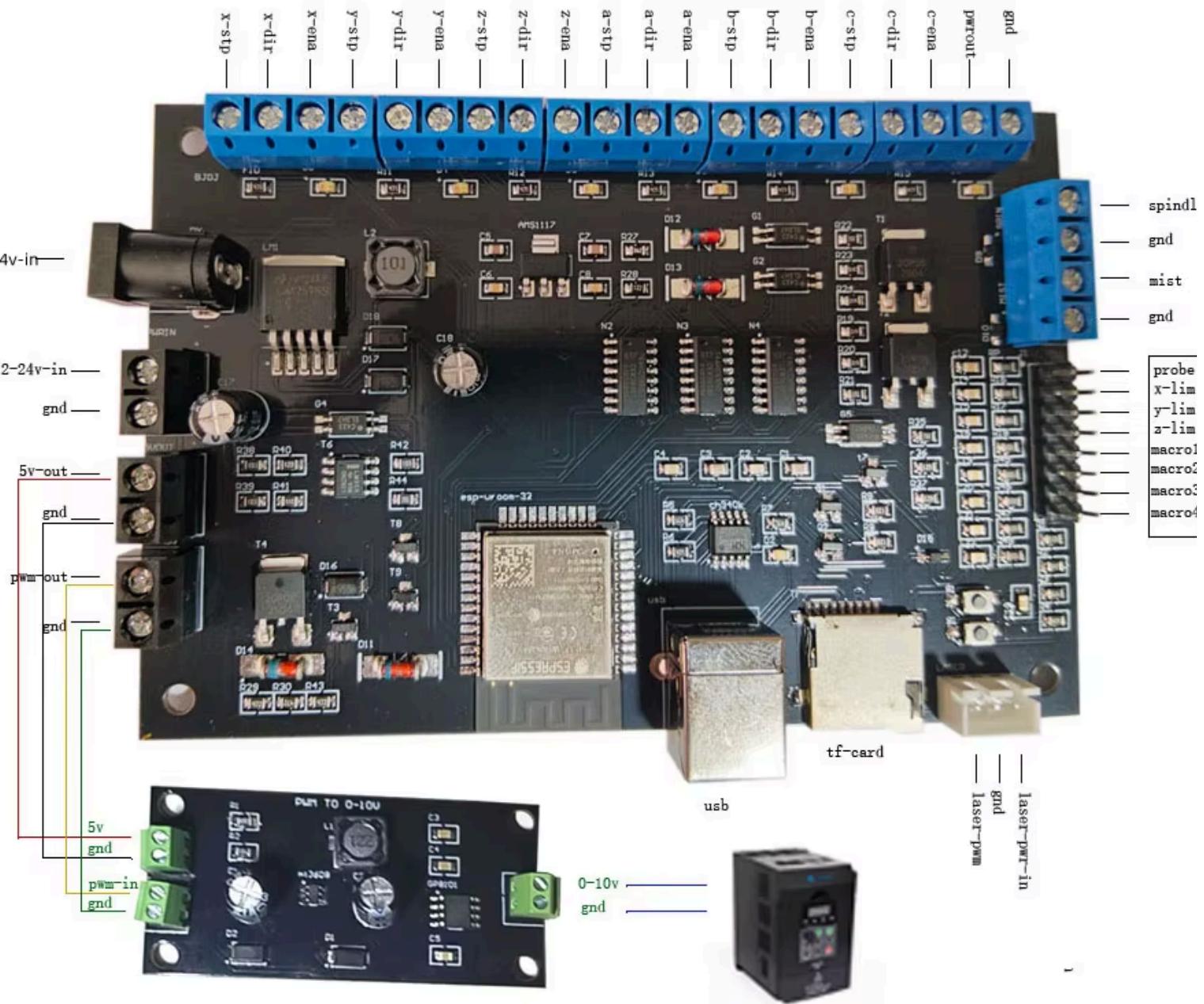


↑ step

↑ dir

↑ ena

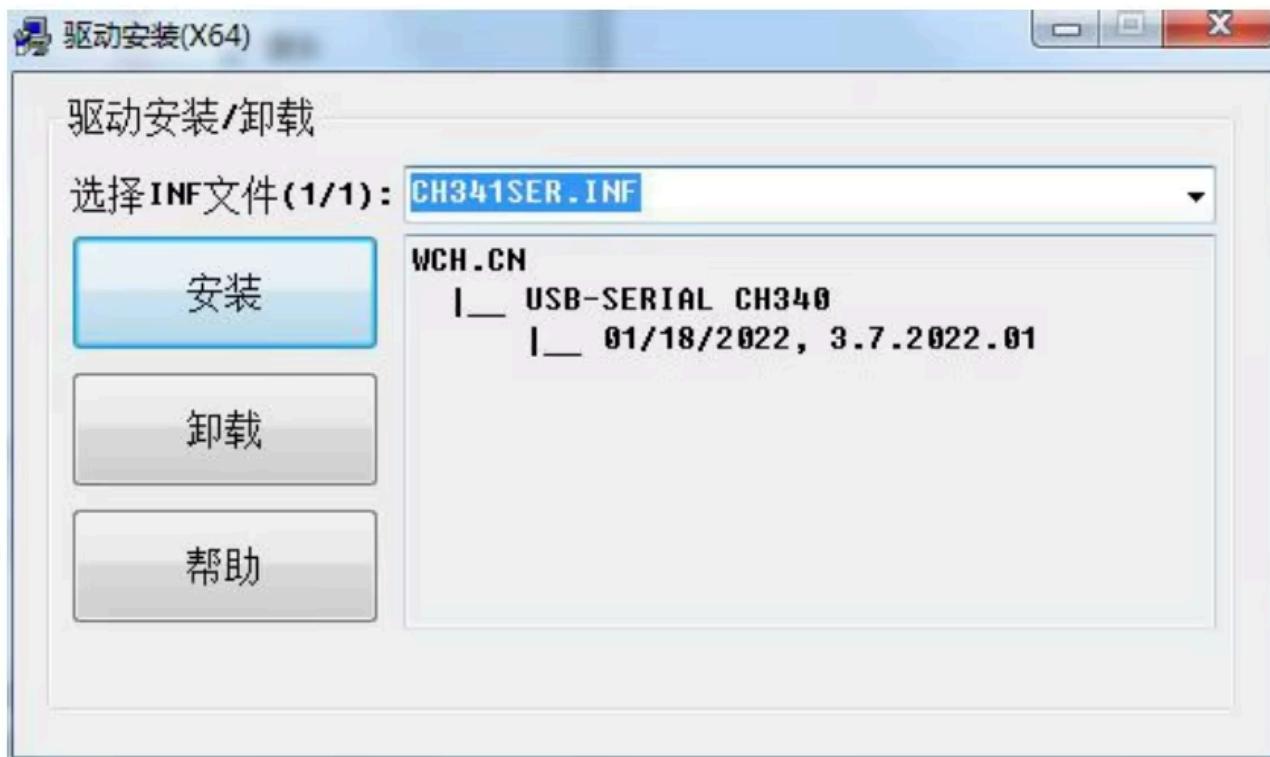




How to Use

1. Install CH340 USB Driver

Connect USB, CH340K serial port, finish installation.



CNC3d Commander

CNC3D Commander | Not connected

COM COM10 | USB Refresh Connect

My Tools Create Settings About Help CNC3D

Run job Data Log Macros Offsets Profiles Measurements Axes Peripherals Arcs Operation Connections/ESP32

Machine Job

X	0.000	0.000
Y	0.000	0.000
Z	0.000	0.000

F - R - G - S OFF O - B -

Home Machine Go to Zero (XY) Set Job Zero Job

My Buttons Probing Coolant Flood Coolant Mist

Y+ Z+ X- X+ Y- Z- 10 mm 5 mm 1000 mm/m 100 mm/m

EMERGENCY STOP Unlock Hold Keyboard Gamepad

Run a G-code job Customer

1. Load a G-code file from your PC (Not recommended on IP/Wifi)

Load Job Setup / Info View Job Run Job

2. Run a job stored on the SD card storage of your Nighthawk CNC / ESP32 Controller *

Filename Size Refresh Upload Job Delete Job View SD Job Setup / Info Run SD Job From Line: 1

Click the 'Refresh' button to load SD card files

Ready to run a job... 0%

Immediate Overrides Spindle Control Manual Command

Feed Rate: -10% -1% 100% +1% +10% Reset ON: M3 S: 700

Spindle: -10% -1% 100% +1% +10% Reset ON OFF Send

CNC3D Commander | Not connected

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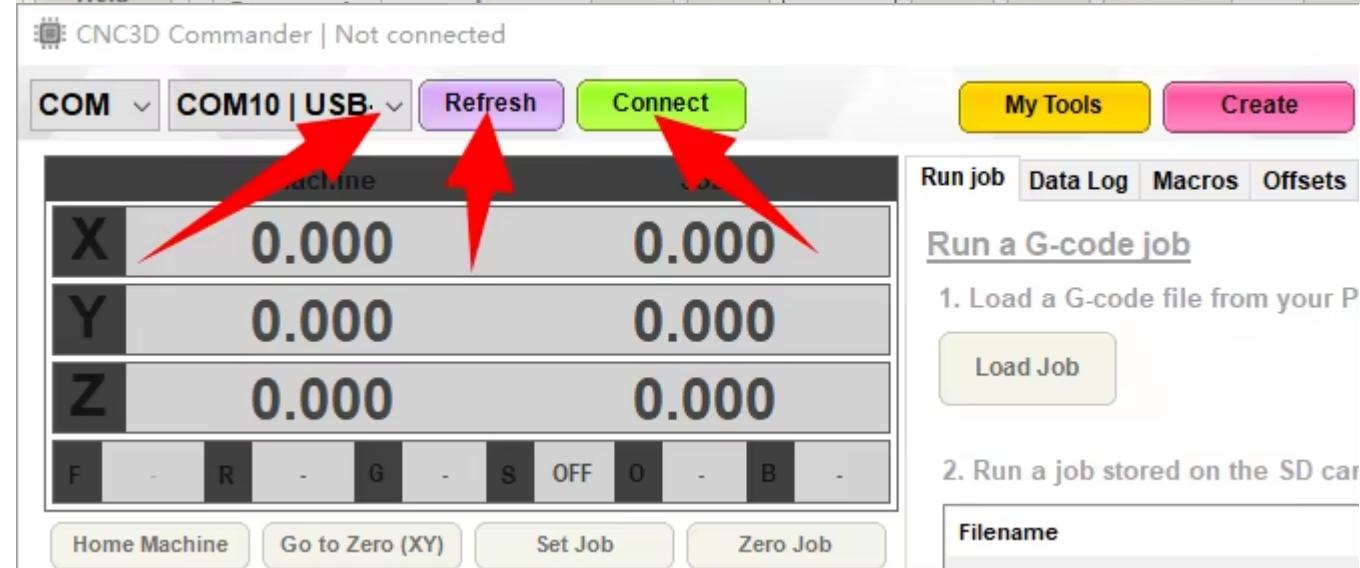
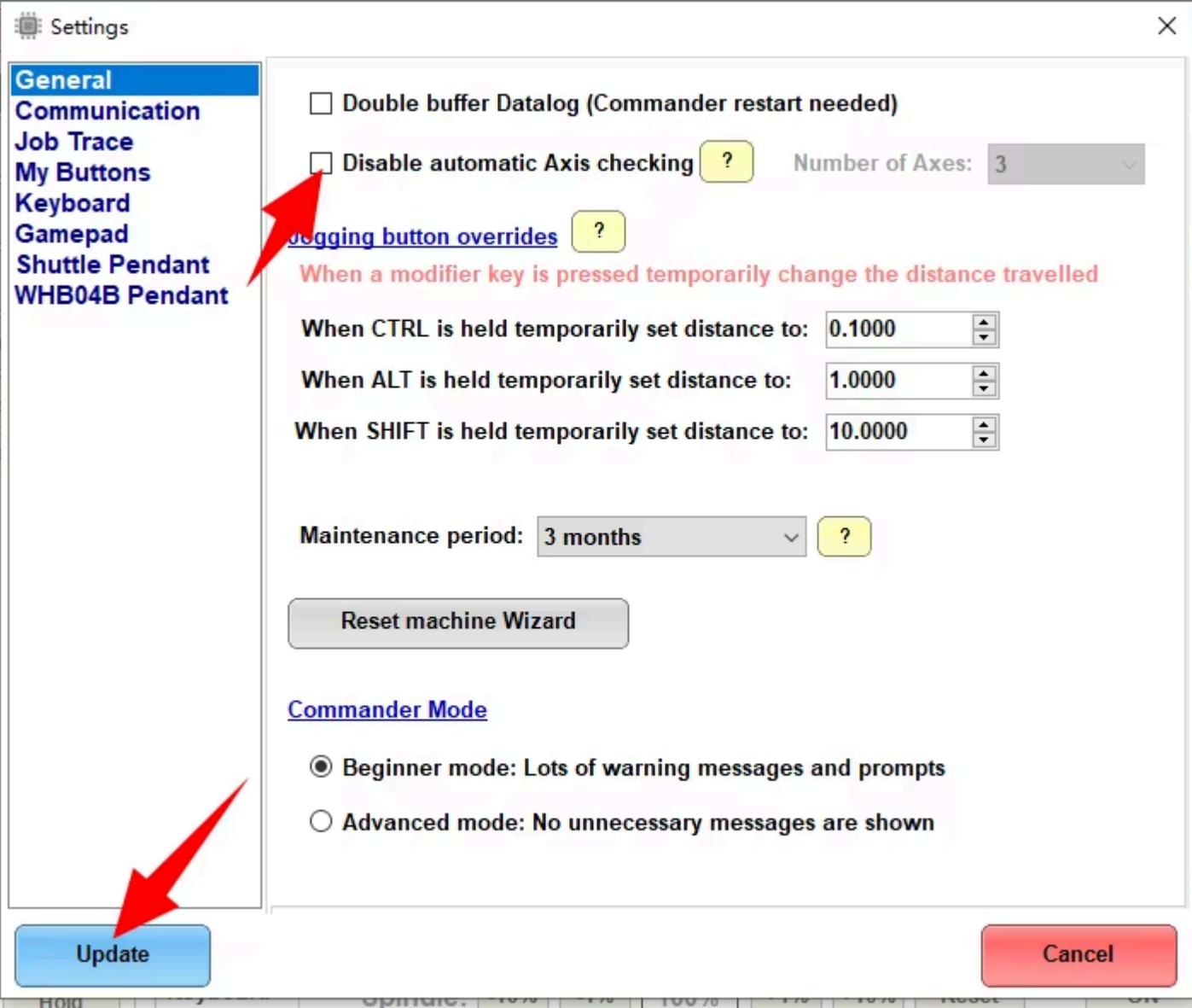
Ready to run a job... 0%

Immediate Overrides Spindle Control Manual Command

Feed Rate: -10% -1% 100% +1% +10% Reset ON: M3 S: 700

Spindle: -10% -1% 100% +1% +10% Reset ON OFF Send

A red arrow points to the 'Measurements' tab in the top navigation bar.



CNC3D Commander | Connected. GRBL 3.0

COM
COM74 | USB
Refresh
Disconnect

My Tools
Create
Settings
About
Help

Machine	Job
X	0.000
Y	0.000
Z	0.000
A	0.000
B	0.000
C	0.000
F	0
R	0
G	-
S	OFF
O	-
B	-

Home Machine
Go to Zero (XY)
Set Job
Zero Job

My Buttons
Probing
Coolant Flood
Coolant Mist

Y+ Z+ B+
X- X+ A- A+ C- C+
Y- Z- B-

5 mm 5 mm 0.01 mm
1000 mm/m 1000 mm/m 100 mm/m

Emergency Stop
Idle Unlock Hold
Keyboard Gamepad

Immediate Overrides
Spindle Control
Manual Command

Feed Rate: -10% -1% 100% +1% +10% Reset
ON: M3 S: 500 Send

Spindle: -10% -1% 100% +1% +10% Reset
ON OFF

Run job Data Log Macros Offsets Profiles Measurements Axes Peripherals Arcs Operation Connections/ESP32

Run a G-code job
Customer

1. Load a G-code file from your PC (Not recommended on IP/Wifi)
Setup / Info
View Job
Run Job

Load Job
Setup / Info
View Job
Run Job

Filename
Size
Refresh

Upload Job
Delete Job
View SD Job

Setup / Info
Run SD Job

Click here to purchase or learn more about our Nighthawk CNC controllers

Click the 'Refresh' button to load SD card files

Waiting for job... 0%

From Line: 1

Help links

Get help and support, check out troubleshooting tools or find user manuals for CNC3D Machines.

[Close](#)

Troubleshooting tools [User guides](#) [Diagnostics](#) [Getting Support](#)

[Raw data window](#)

A handy tool for viewing all data being trafficked between Commander and your controller.
Warning: Do not stream jobs with raw data window open!

[Set \\$10=3](#)

Try this if you can't see your read out numbers changing or buffer isn't showing.

[View COM error log](#)

Provides a list of errors received on USB and Bluetooth ports.

[CNC3D ESP32 FW Tool](#)

Can be used for uploading custom or recovery Firmware to ESP32 based GRBL controllers like the Nighthawk or xPROV5.
Warning: Please choose the right firmware file to match your controller or results may be catastrophic!

[Reset Commander version](#)

This will tell the Commander that the next time it launches to always pull the latest update files from our secure server.
This is handy for fixing issues with Commander crashing or advising of missing files. It will NOT reset any of Commanders settings or any controller settings.

Solutions to common machine or controller problems can be found here: <https://www.cnc3d.com.au/forum/support-faqs>

Get help and support, check out troubleshooting tools or find user manuals for CNC3D Machines.

Close

Troubleshooting tools User guides Diagnostics Getting Support

Raw data window

A handy tool for viewing all data being trafficked between Commander and your controller.
Warning: Do not stream jobs with raw data window open!

Set \$10=3

Try this if you can't see your read out numbers changing or buffer isn't showing.

View COM error log

Provides a list of errors received on USB and Bluetooth ports.

Raw Datalog

- □ X

⋮ Options ⋮ Clear Note: "<< = sending to chip" and ">> = receiving from chip" | Send: ⋮ Send ⋮ Copy all to Clipboard

Enter below

\$sta/ssid=Your wifi account

\$sta/password=Your wifi password

\$bye

Raw Datalog

- □ X

⋮ Options ⋮ Clear Note: "<< = sending to chip" and ">> = receiving from chip" | Send: ⋮ Send ⋮ Copy all to Clipboard

<< \$sta/ssid=haibin-kt
>> ok

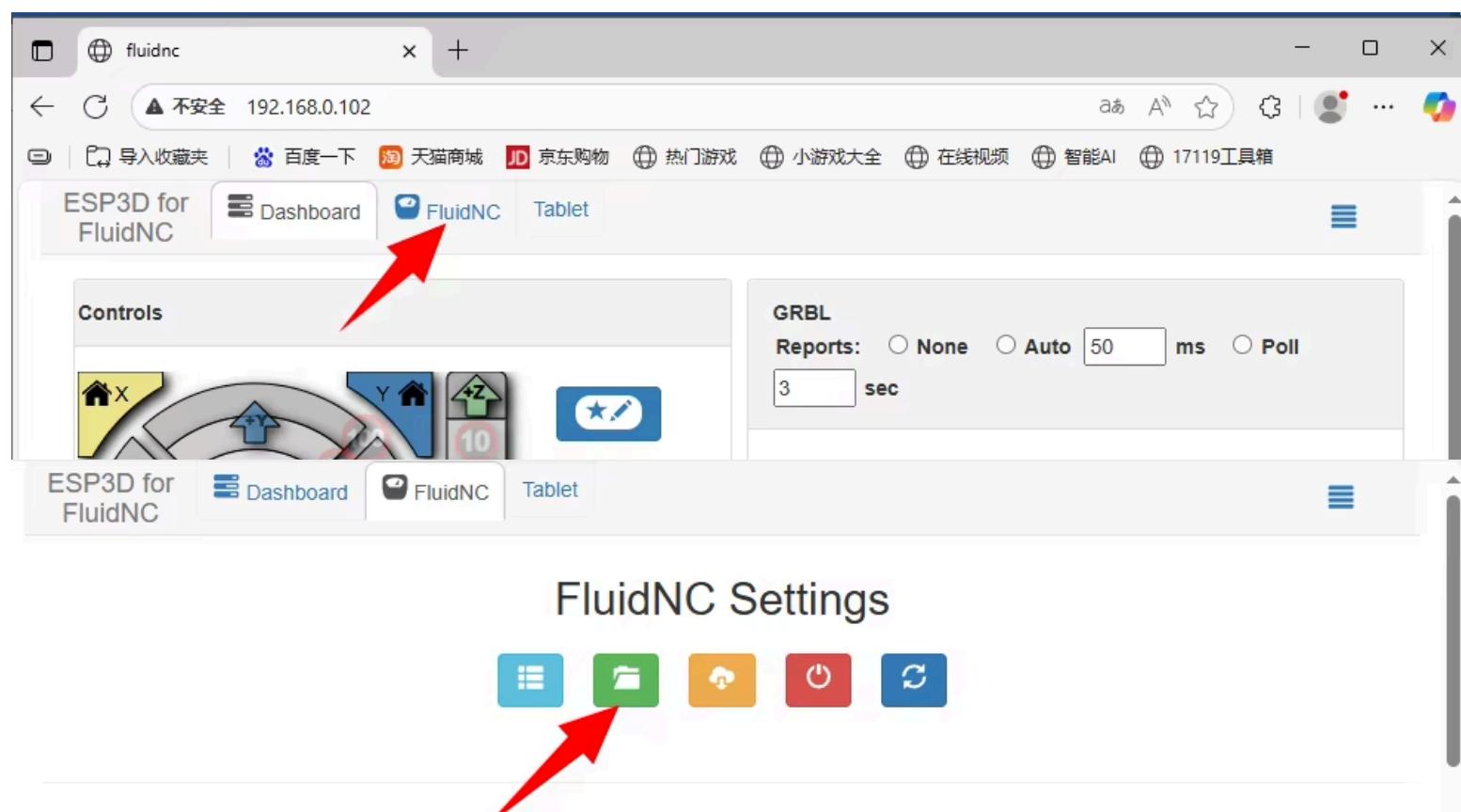
Get Wifi ip

Raw Datalog

Options | Clear Note: "<< = sending to chip" and ">> = receiving from chip" | Send: \$bye | Send | Copy all to Clipboard

```
>> [MSG:INFO: feed_hold_pin gpio.36]
>> [MSG:INFO: Kinematic system: Cartesian]
>> [MSG:INFO: PWM Spindle Ena:gpio.12 Out:gpio.27 Dir:NO_PIN Freq:5000Hz Period:8191]
>> [MSG:INFO: Using spindle PWM]
>> [MSG:INFO: Flood coolant I2S0.24]
>> [MSG:INFO: Mist coolant gpio.4]
>> [MSG:INFO: Probe Pin: gpio.34:low]
>> [MSG:INFO: Connecting to STA SSID:haibin-kt]
>> [MSG:INFO: Connecting .]
>> [MSG:INFO: Connecting ..]
>> [MSG:INFO: Connecting ...]
>> [MSG:INFO: Connected - IP is 192.168.0.102] →
>> [MSG:INFO: WiFi on]
>> [MSG:INFO: Start mDNS with hostname:http://fluidnc.local/]
>> [MSG:INFO: SSDP Started]
>> [MSG:INFO: HTTP started on port 80]
>> [MSG:INFO: Telnet started on port 23]
>> Grbl 3.0 [FluidNC v3.0.x (noGit) (wifi) '$' for help]
```

Open browser and enter above IP address to access control card.



Download config file and open.

FluidNC Local Filesystem



Upload files

No file chosen



Type Name

Size



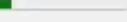
config.yaml



index.html.gz

116668



Total: 875.31 KB | Used: 120.60 KB  13%

Close



```

board: 6 Pack
name: 6 Pack StepStick XYZABC
stepping:
  engine: I2S_STREAM
  idle_ms: 250
  pulse_us: 4
  dir_delay_us: 6
  disable_delay_us: 0
+
axes:
  shared_stripper_disable_pin: NO_PIN
  x:
    steps_per_mm: 800.000
    max_rate_mm_per_min: 5000.000
    acceleration_mm_per_sec2: 100.000
    max_travel_mm: 300.000
    soft_limits: false
    homing:
      cycle: 1
      positive_direction: false
      mpos_mm: 0.000
      feed_mm_per_min: 100.000
      seek_mm_per_min: 200.000
      settle_ms: 500
      seek_scaler: 1.100
      feed_scaler: 1.100
+
motor0:
  limit_neg_pin: NO_PIN

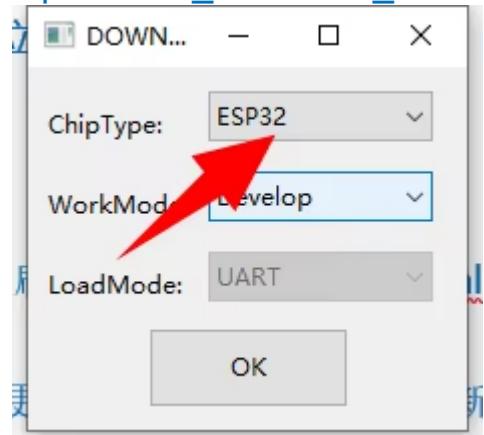
```

Firmware Update

This board pre-installed FluidNC firmware, also uploaded yaml and index files.

Latest FluidNC: <https://github.com/bdring/FluidNC>

Open flash_download_tool3.9 software.



Upload file

First line

[grbl_controller_esp32.ino.bin](#)

2th

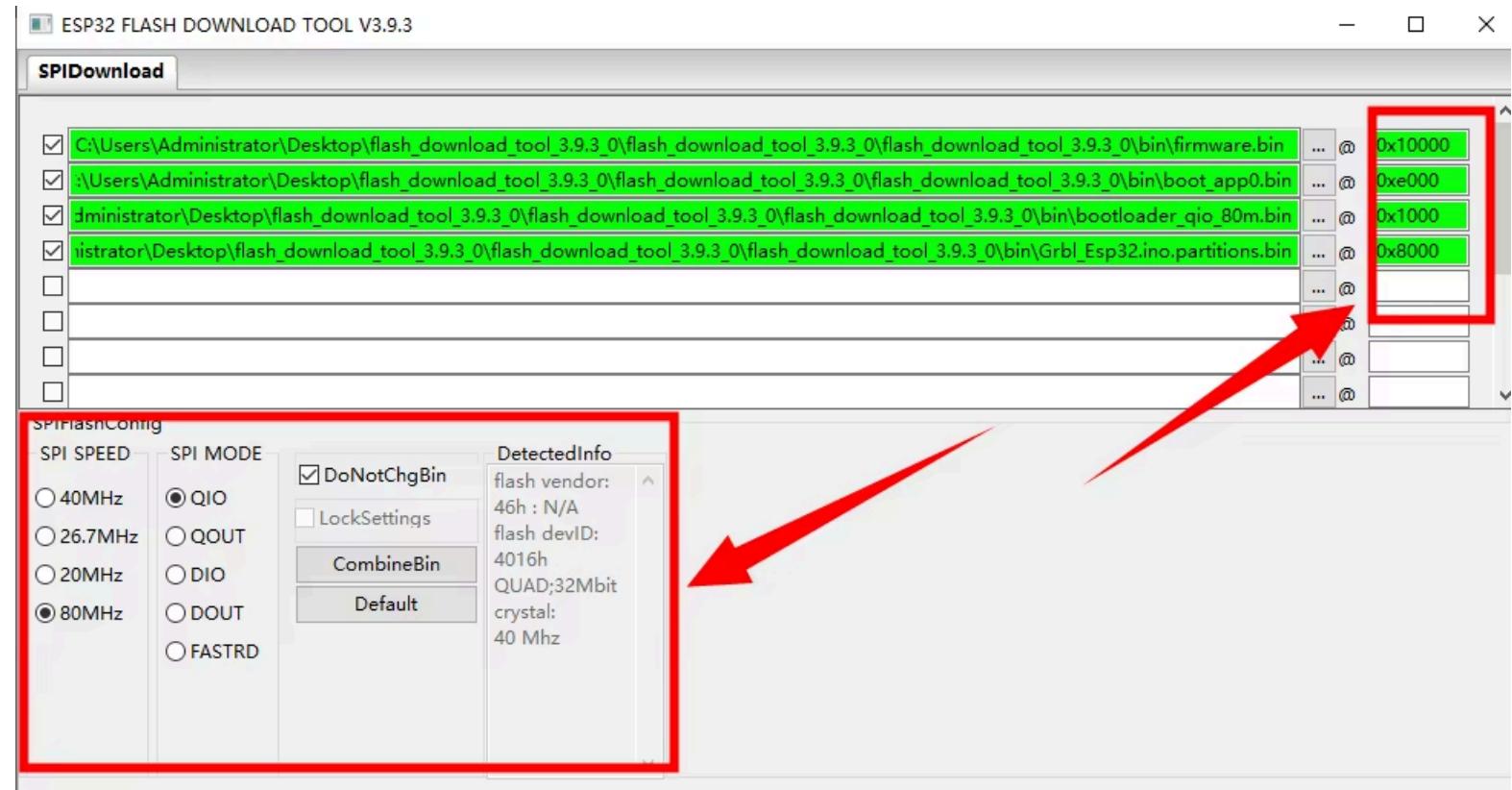
boot_app0.bin

3th

bootloader_qio_80m.bin

4th

Grbl_Esp32.ino.partitions.bin



Select COM,then Erase previous files.



After successfully download,configure wifi as previous tell.

Also,need to upload Yaml and Index file when finish wifi configuration.

COM COM10 | USB Refresh

Disconnect

Machine	Job
X 0.000	0.000
Y 0.000	0.000
Z 0.000	0.000

F 0 R 0 G - S OFF O - B -

Home Machine Go to Zero (XY) Set Job Zero Job

My Buttons Probing Coolant Flood Coolant Mist

Y+

Z+

X-

X+

Y-

Z-

10 mm

1000 mm/m

5 mm

100 mm/m



X Y Z P O F M

Alarm

Unlock

Hold

Keyboard Gamepad

Unlock and upload config.yaml and index file.

← ⌂ ▲ 不安全 192.168.0.102

导入收藏夹 百度一下 天猫商城 JD 京东购物 热门游戏 小游戏大

Firmware

Interface

Help

Flash Filesystem

选择文件

未选择文件

Upload

Refresh



/

Type Name Size Time

Status: Ok | Total space: 875.31 KB | Used space: 1 B | Occupation:

名称

修改日期

类型

大小

config.yaml	2024/11/6/周三 9:29	YAML 文件	6 KB
index.html	2024/11/6/周三 9:29	WinRAR 压缩文件	114 KB

Go to ESP3D interface

[Go to ESP3D interface](#)

Flash Filesystem

[选择文件](#)

未选择文件

[Upload](#)[Refresh](#)

/

Type	Name	Size	Time
------	------	------	------

	config.yaml	5203	
	index.html.gz	116668	

Status: Ok | Total space: 875.31 KB | Used space: 120.35 KB | Occupation: 13%

192.168.0.102

[Re-start CNC3d commander, will see 6 axis.](#)[Firmware flash complete.](#)[More refer to](#)<http://wiki.fluidnc.com/en/config/overview>

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