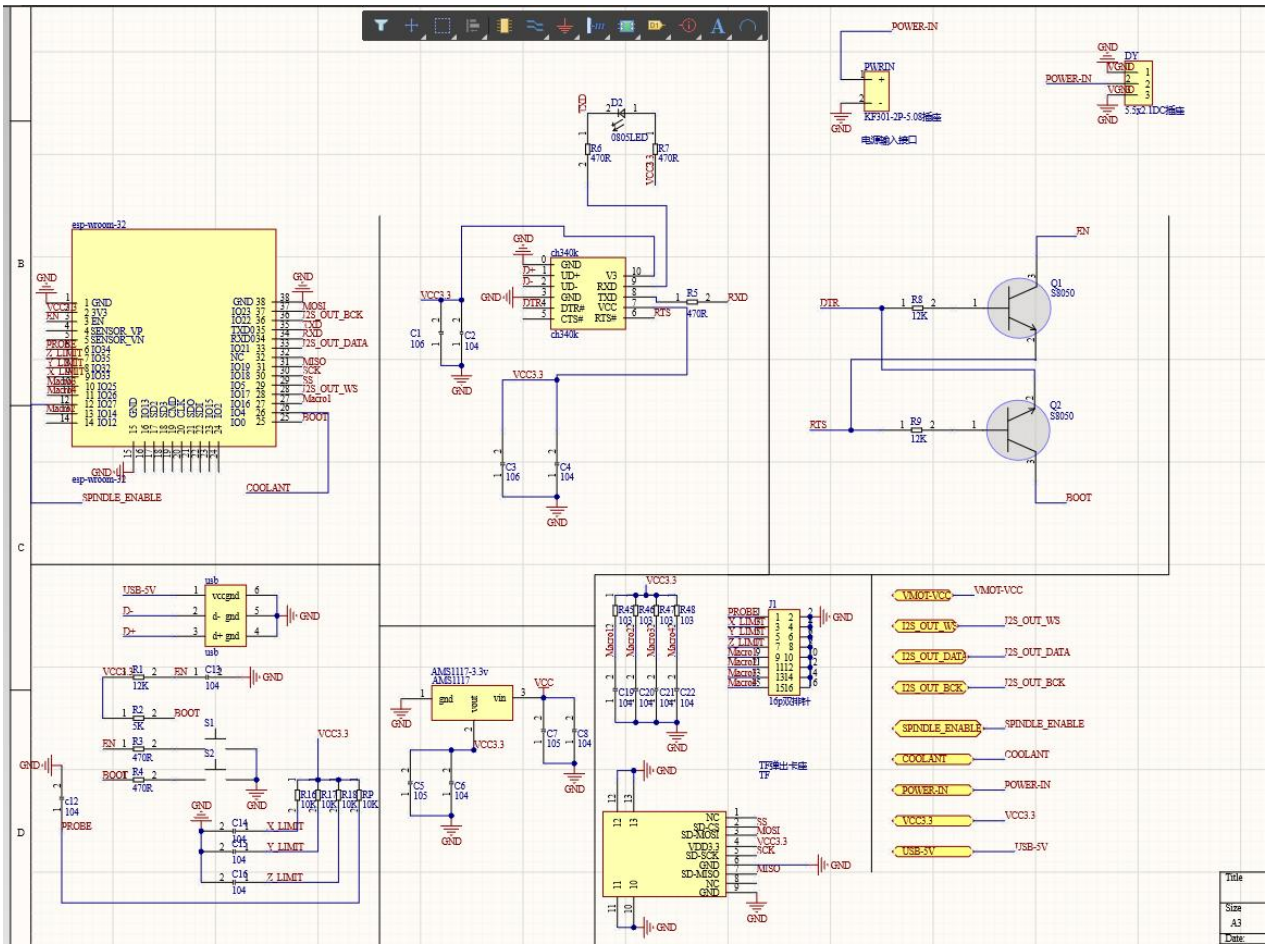
Features

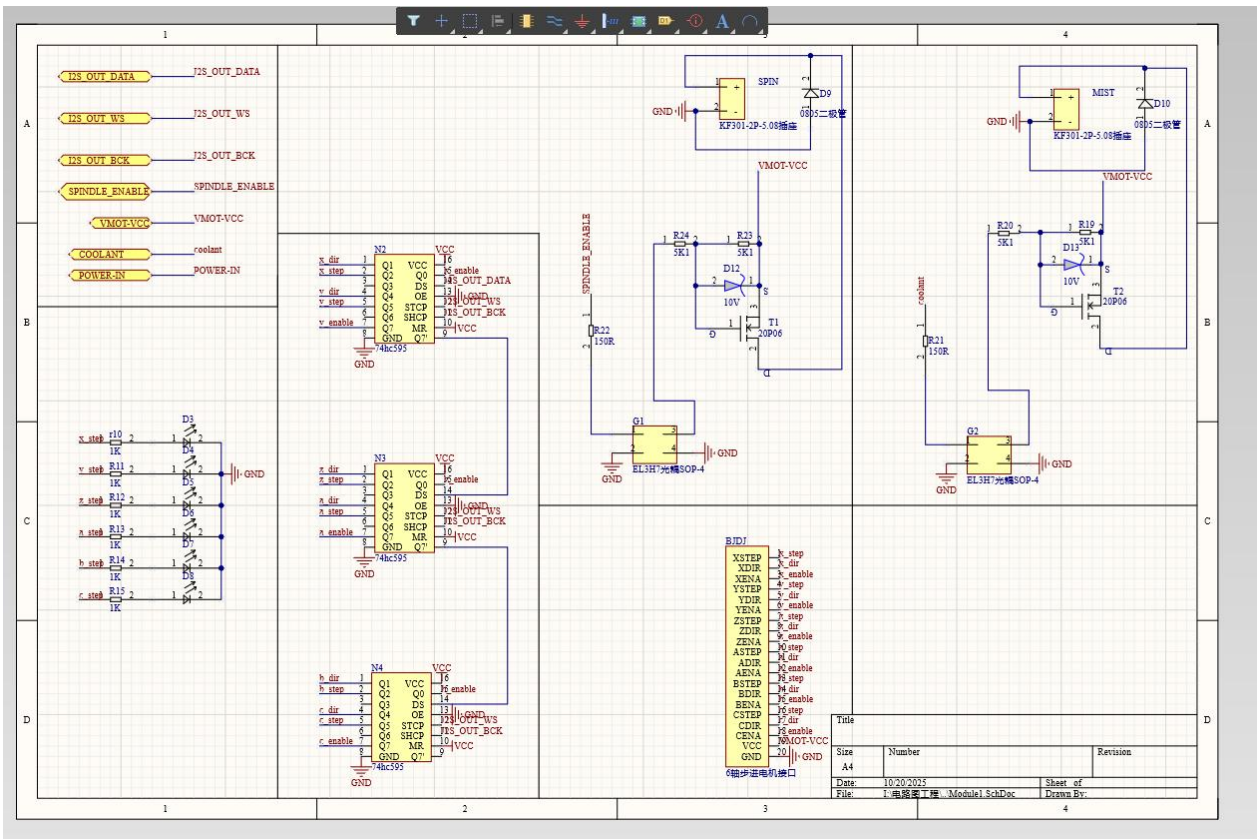
- ❖ Adopting dual-core ESP32 32bits high-speed processor.
- ❖ Pre-installed FluidNC firmware,

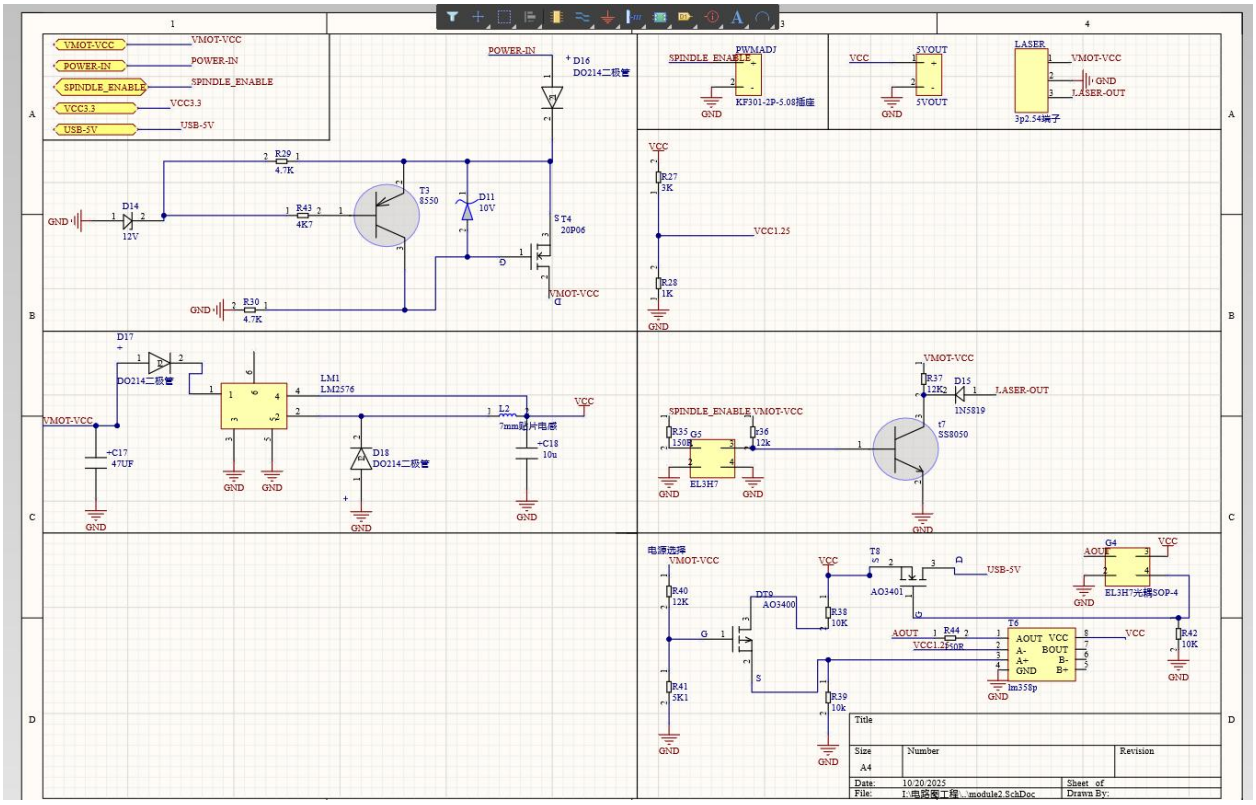
  compatible with CNC3D COMMANDER,Candle,Bcnc software...
- ❖ Support six stepper drivers. X,Y,Z,A,B,C axis.
- ❖ Support Homing,software/hardware endstop,Z probe.
- ❖ Support hotspot,Wifi to control.
- ❖ Support 3pin laser. 0-10V PWM output.
- ❖ Support 12-24V DC

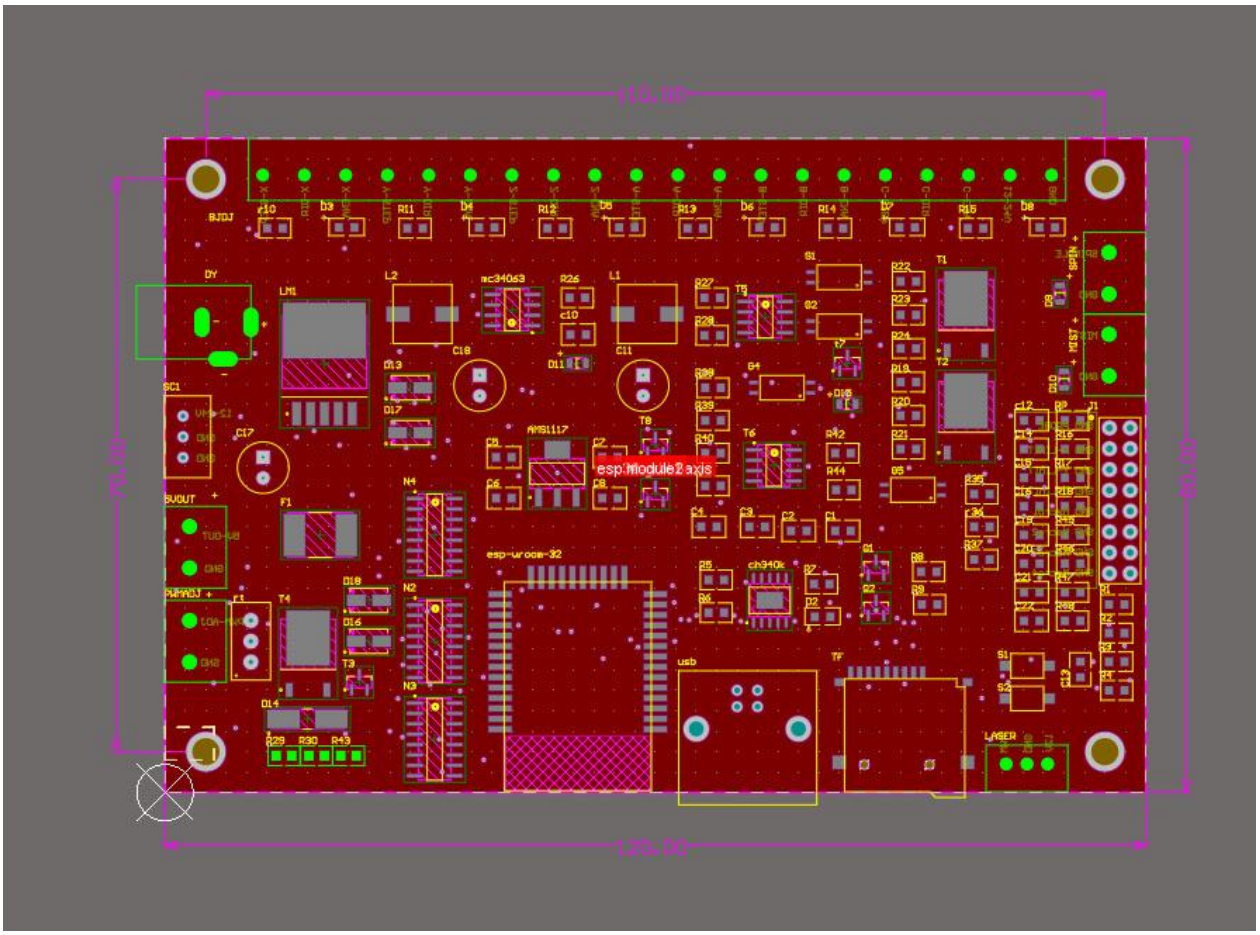
  Auto-cut off power when voltage exceeding 30V.

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

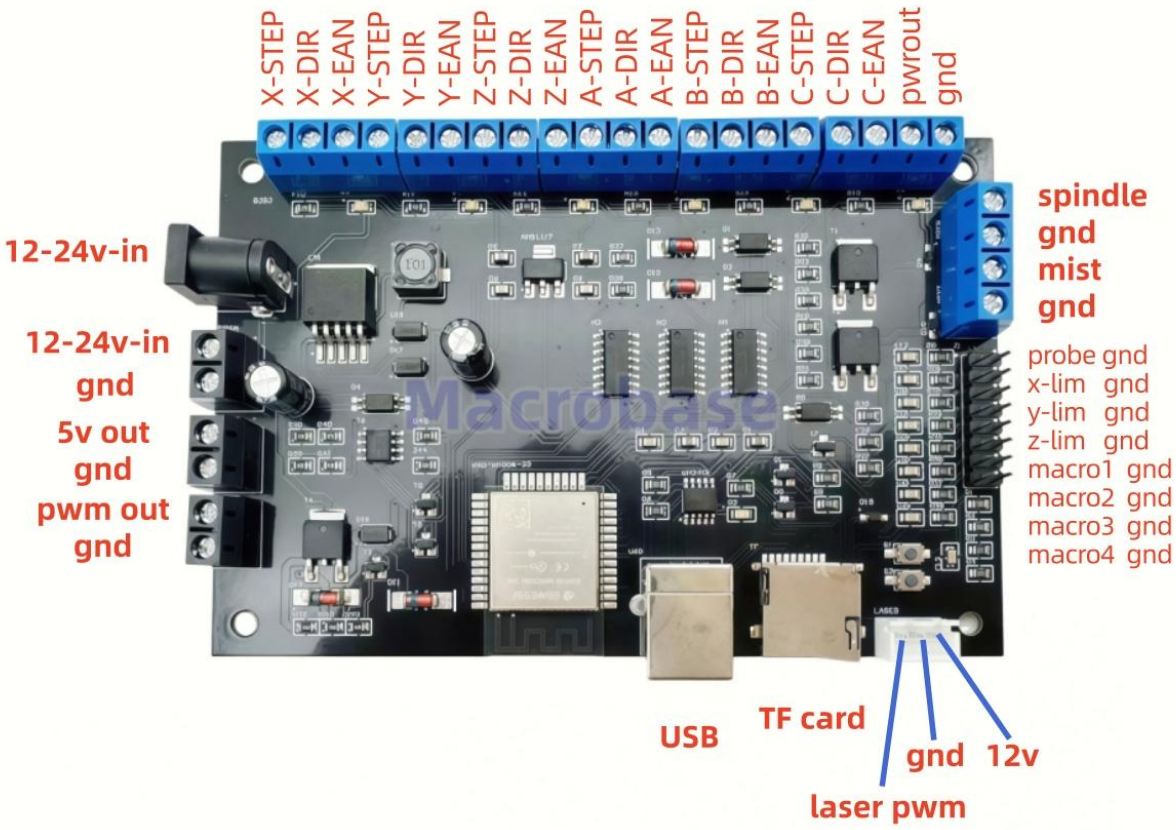

esp-wroom-32
POWER-IN
KF301-2P-5.08插座
电源输入接口
5.5X2.1DC插座
ch340k
0805LED
Q1 S8050
Q2 S8050
SPINDLE_ENABLE
COOLANT
BOOT
USB-5V
AMS1117-3.3v
TF弹出卡座
PROBE
X_LIMIT
Y_LIMIT
Z_LIMIT
I2S_OUT_DATA
I2S_OUT_WS
I2S_OUT_BCK
VMOT-VCC
VCC3.3


I2S_OUT_DATA
I2S_OUT_WS
I2S_OUT_BCK
SPINDLE_ENABLE
VMOT-VCC
COOLANT
POWER-IN
SPIN
MIST
KF301-2P-5.08插座
0805二极管
74hc595
EL3H7光耦SOP-4
6轴步进电机接口
Title
Size A4
Number
Revision
Date: 10/20/2025
Sheet of
File: I:\电路图工程\...\Module1.SchDoc
Drawn By:


VMOT-VCC
POWER-IN
SPINDLE_ENABLE
VCC3.3
USB-5V
D16
DO214二极管
R29
4.7K
R43
4K7
T3
8550
D11
10V
D14
12V
ST4
20P06
R30
4.7K
GND
PWMADJ
KF301-2P-5.08插座
5VOUT
LASER
3p2.54端子
LASER-OUT
VCC
R27
3K
VCC1.25
R28
1K
D17
DO214二极管
LM1
LM2576
L2
7mm贴片电感
C17
47UF
C18
10u
D18
DO214二极管
R37
12K2
D15
1N5819
t7
SS8050
R35
150R
G5
EL3H7
r36
12k
电源选择
R40
12K
DT9
AO3400
R38
10K
T8
AO3401
USB-5V
G4
EL3H7光耦SOP-4
R44
VCC1.25
T6
lm358p
R42
10K
R41
5K1
R39
10k
Title
Size
A4
Number
Revision
Date: 10/20/2025
File: I:\电路图工程\...\module2.SchDoc
Sheet of
Drawn By:

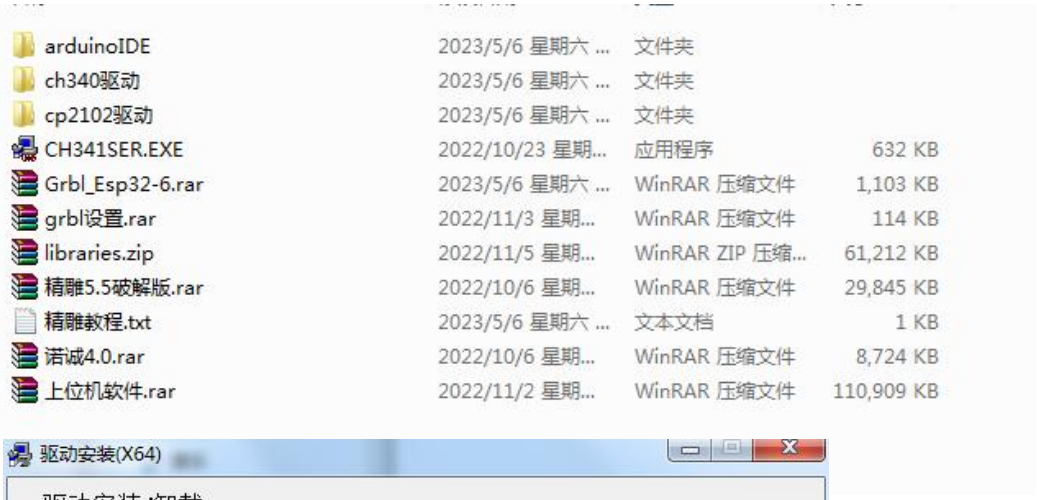

esp.module2.axis
esp-wroom-32
usb
LASER

Wiring

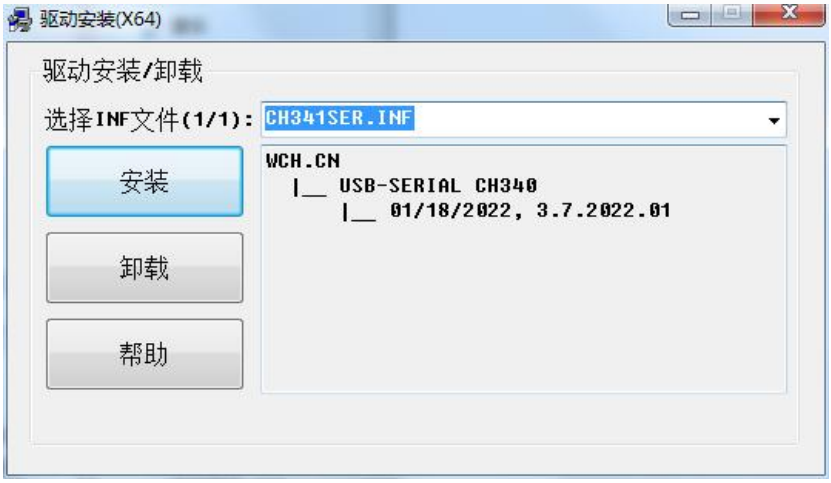


PROBE	Z-probe
X-LIM	X limit,Always on
Y-LIM	Y limit,Always on
Z-LIM	Z limit,Always on
GND	XYZ axis com,probe
PWM-OUT	PWM output
GND	PWM ground
PWM-ADJ	PWM adjustable
GND	All drivers PUL-,EAN-,DIR-
X-STEP	X-PUL+
X-EAN	X-ENA+
X-DIR	X-DIR+

Install ch340 USB Driver



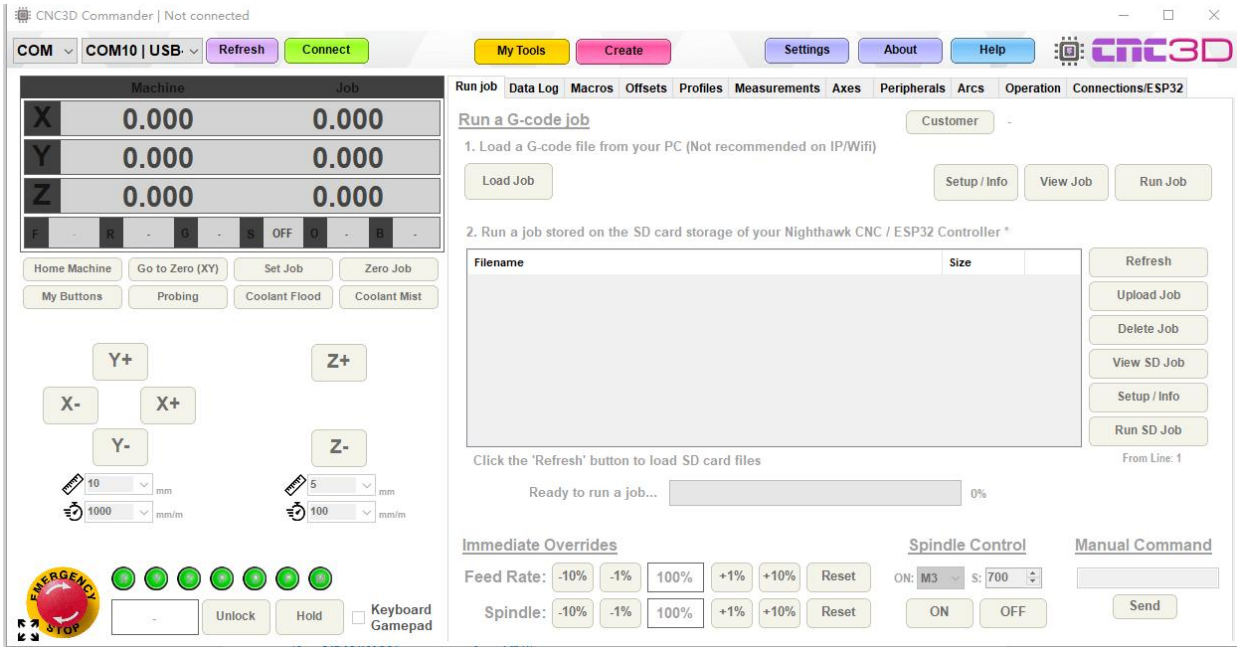
arduinoIDE	2023/5/6 星期六 ...	文件夹	
ch340驱动	2023/5/6 星期六 ...	文件夹	
cp2102驱动	2023/5/6 星期六 ...	文件夹	
CH341SER.EXE	2022/10/23 星期...	应用程序	632 KB
Grbl_Esp32-6.rar	2023/5/6 星期六 ...	WinRAR 压缩文件	1,103 KB
grbl设置.rar	2022/11/3 星期...	WinRAR 压缩文件	114 KB
libraries.zip	2022/11/5 星期...	WinRAR ZIP 压缩...	61,212 KB
精雕5.5破解版.rar	2022/10/6 星期...	WinRAR 压缩文件	29,845 KB
精雕教程.txt	2023/5/6 星期六 ...	文本文档	1 KB
诺诚4.0.rar	2022/10/6 星期...	WinRAR 压缩文件	8,724 KB
上位机软件.rar	2022/11/2 星期...	WinRAR 压缩文件	110,909 KB

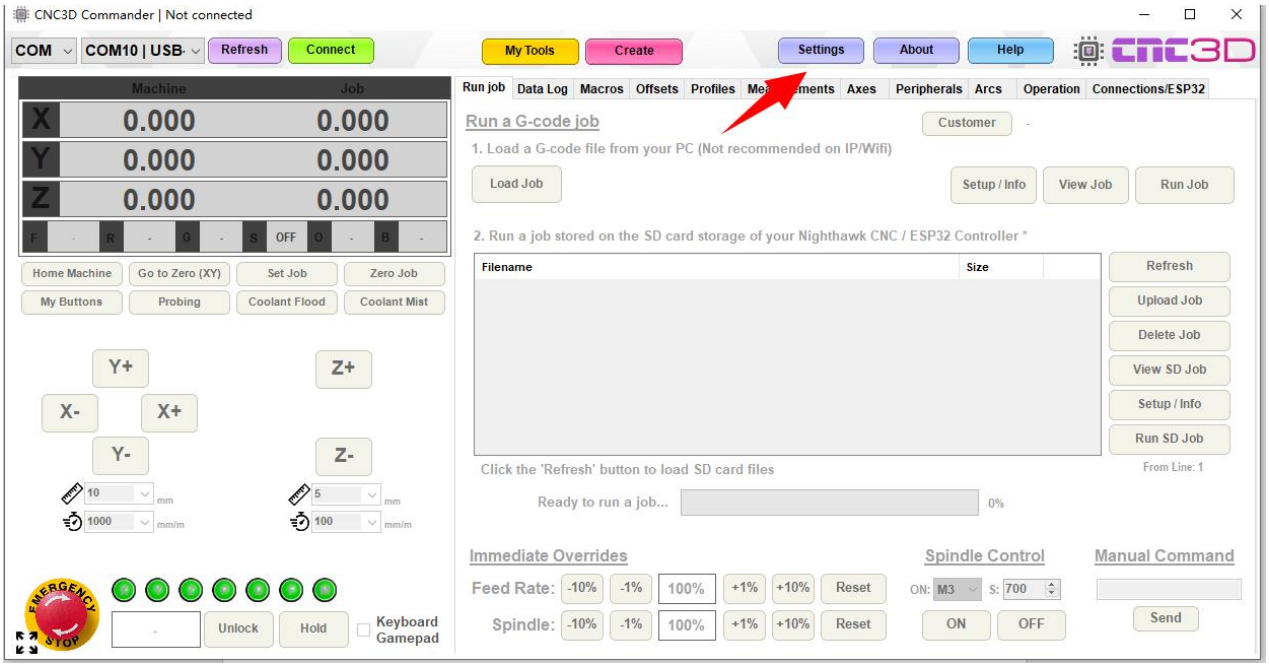


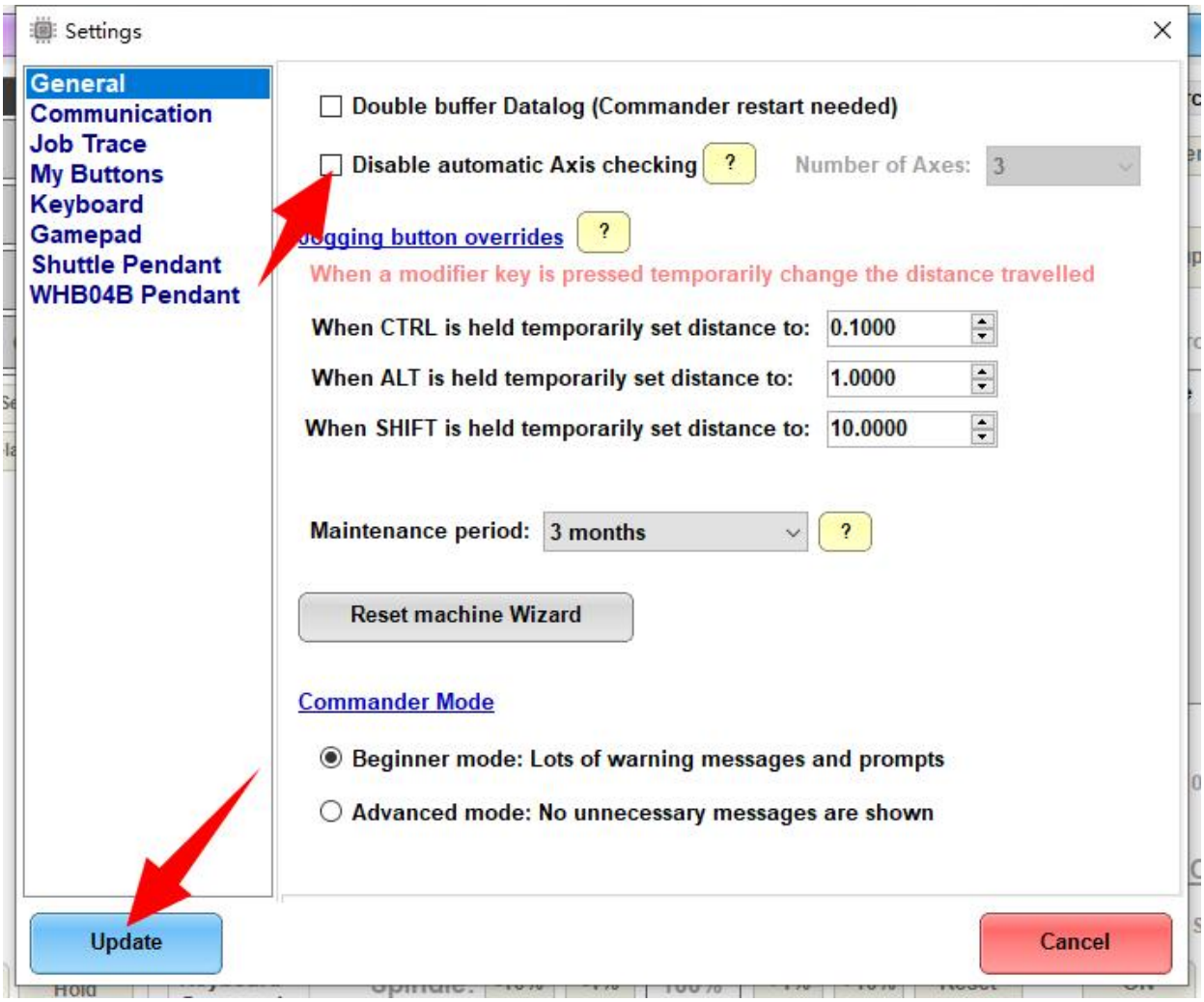
See CH340K,successfully install.

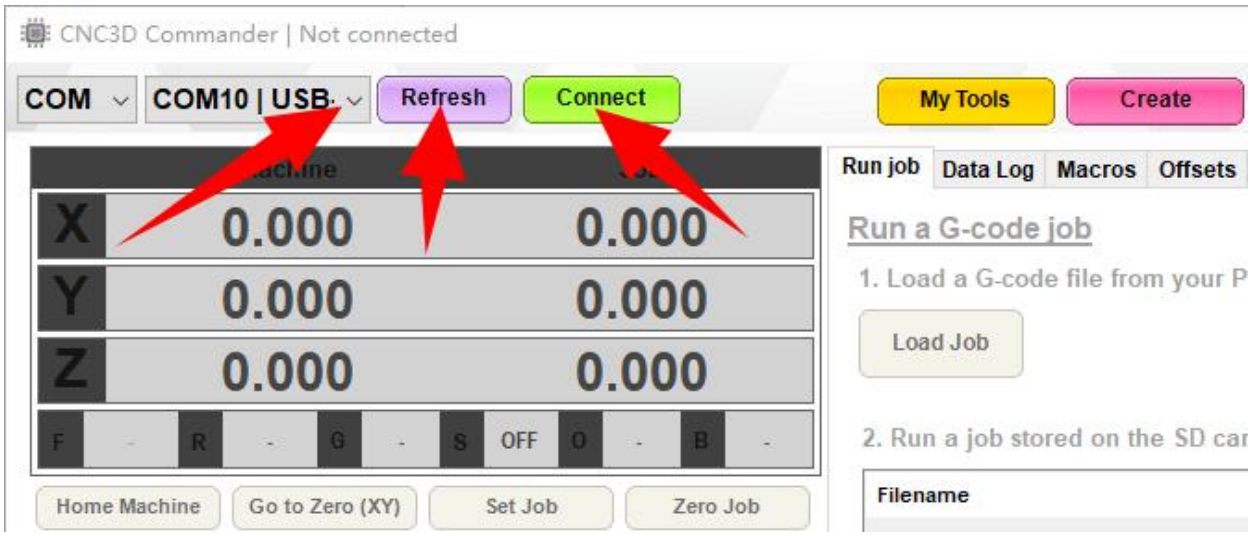
Software

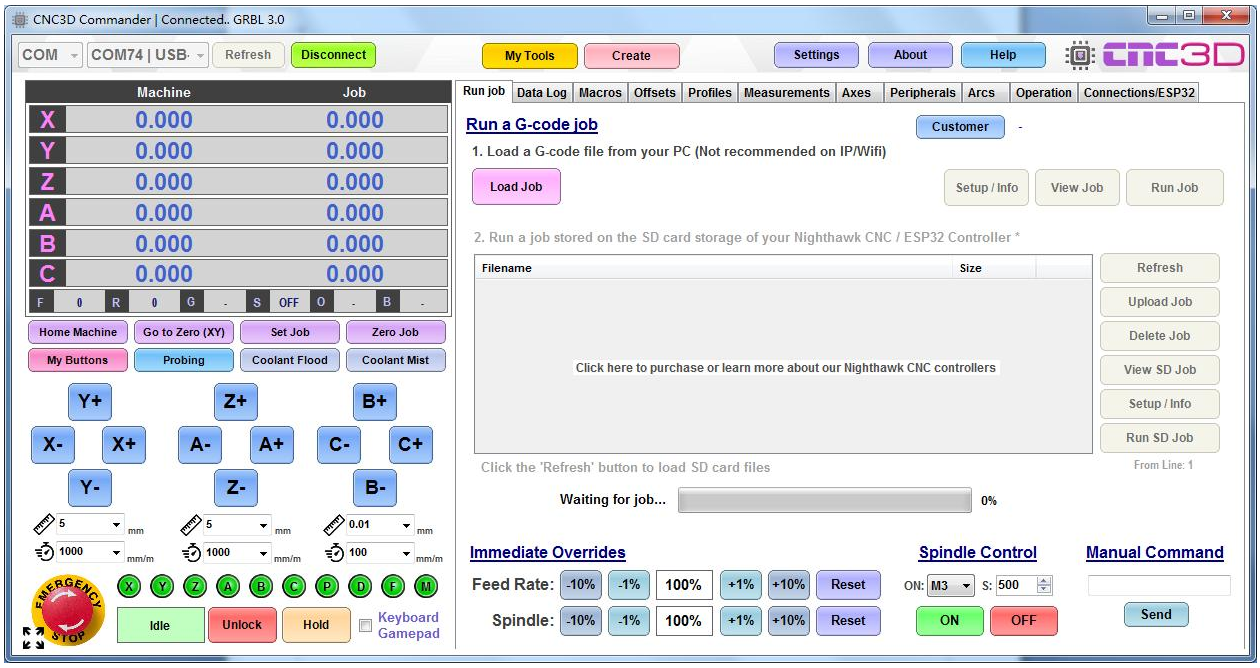
CNC3d Commander

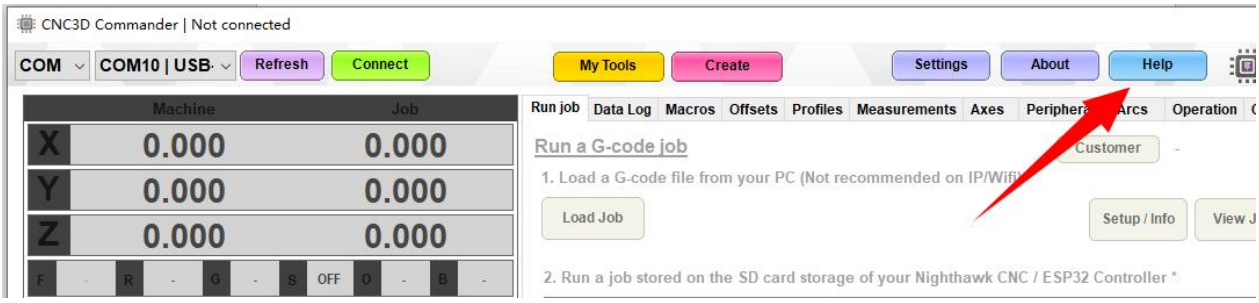





Settings
General
Communication
Job Trace
My Buttons
Keyboard
Gamepad
Shuttle Pendant
WHB04B Pendant
Double buffer Datalog (Commander restart needed)
Disable automatic Axis checking
?
Number of Axes: 3
Jogging button overrides
?
When a modifier key is pressed temporarily change the distance travelled
When CTRL is held temporarily set distance to: 0.1000
When ALT is held temporarily set distance to: 1.0000
When SHIFT is held temporarily set distance to: 10.0000
Maintenance period: 3 months
?
Reset machine Wizard
Commander Mode
Beginner mode: Lots of warning messages and prompts
Advanced mode: No unnecessary messages are shown
Update
Cancel


CNC3D Commander | Not connected
COM
COM10 | USB
Refresh
Connect
My Tools
Create
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
Run job
Data Log
Macros
Offsets
Run a G-code job
1. Load a G-code file from your P
Load Job
2. Run a job stored on the SD car
Filename


CNC3D Commander | Connected.. GRBL 3.0
COM
COM74 | USB
Refresh
Disconnect
My Tools
Create
Settings
About
Help
Machine
Job
X 0.000 0.000
Y 0.000 0.000
Z 0.000 0.000
A 0.000 0.000
B 0.000 0.000
C 0.000 0.000
Home Machine
Go to Zero (XY)
Set Job
Zero Job
My Buttons
Probing
Coolant Flood
Coolant Mist
Y+
X-
X+
Y-
Z+
A-
A+
Z-
B+
C-
C+
B-
Idle
Unlock
Hold
Keyboard
Gamepad
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)
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
Click here to purchase or learn more about our Nighthawk CNC controllers
Refresh
Upload Job
Delete Job
View SD Job
Setup / Info
Run SD Job
Click the 'Refresh' button to load SD card files
From Line: 1
Waiting for job...
0%
Immediate Overrides
Feed Rate:
Spindle:
-10%
-1%
100%
+1%
+10%
Reset
Spindle Control
ON: M3
S: 500
ON
OFF
Manual Command
Send


CNC3D Commander | Not connected
COM
COM10 | USB
Refresh
Connect
My Tools
Create
Settings
About
Help
Machine
Job
X 0.000 0.000
Y 0.000 0.000
Z 0.000 0.000
Run job
Data Log
Macros
Offsets
Profiles
Measurements
Axes
Arcs
Operation
Run a G-code job
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1. Load a G-code file from your PC (Not recommended on IP/Wifi)
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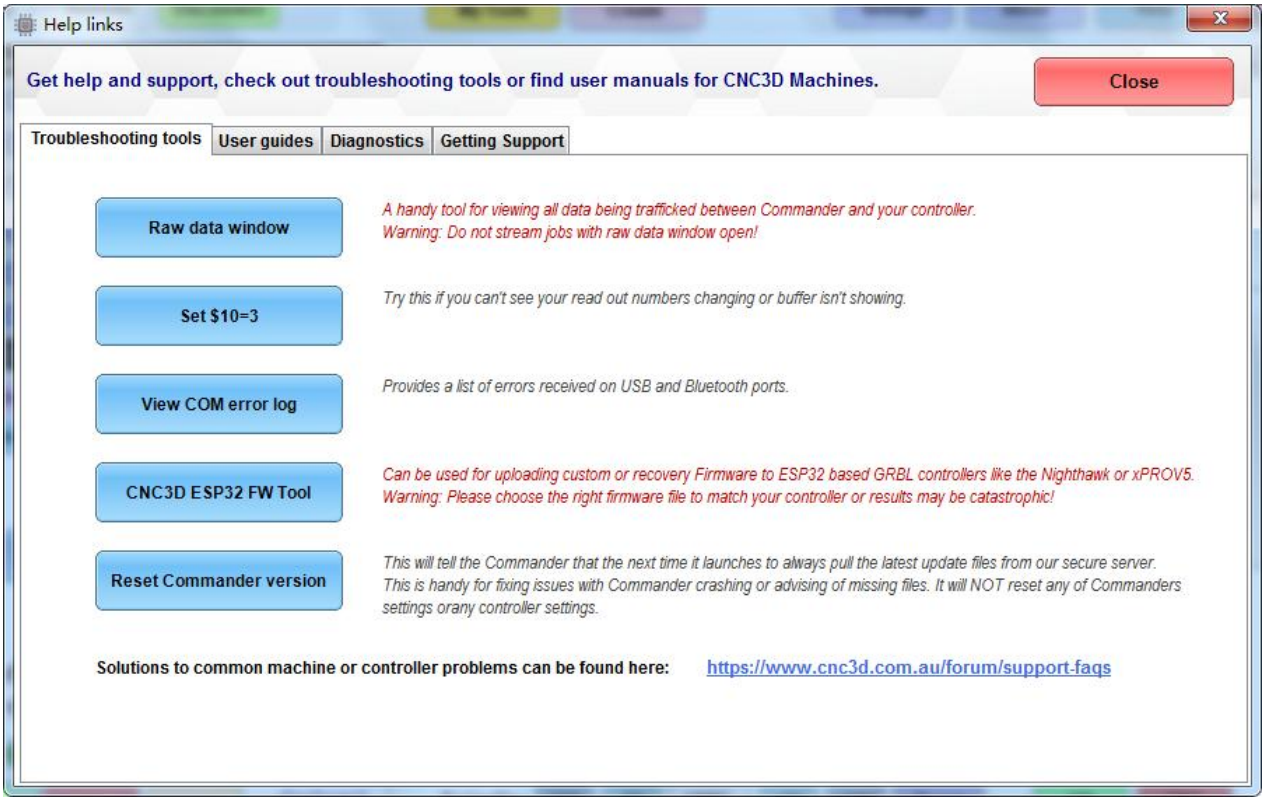
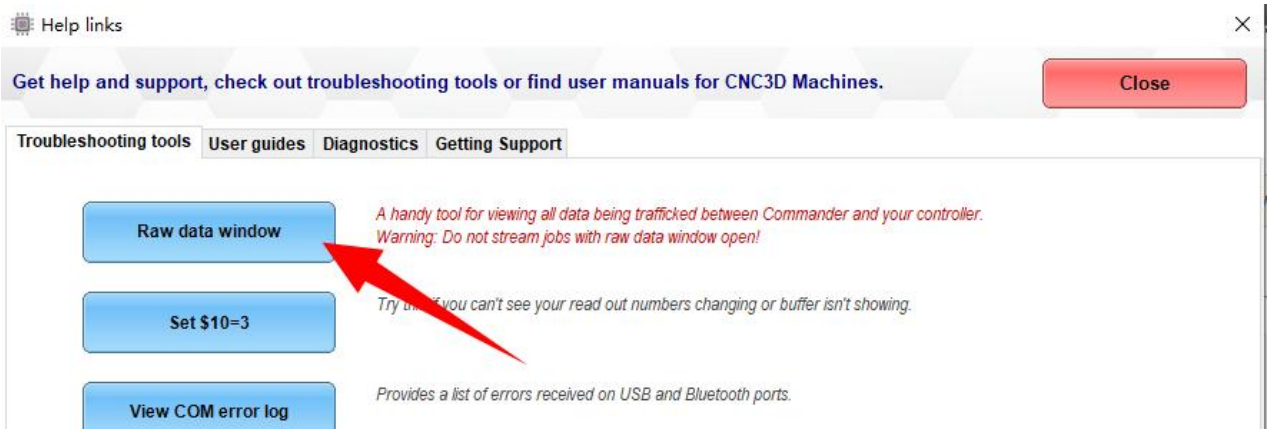
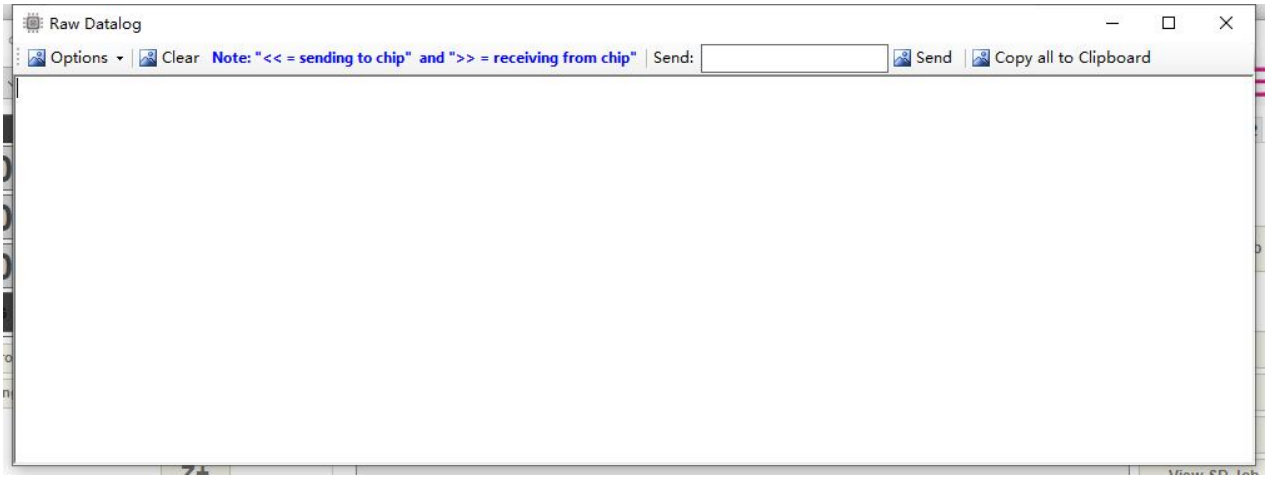
Setup / Info
2. Run a job stored on the SD card storage of your Nighthawk CNC / ESP32 Controller *


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

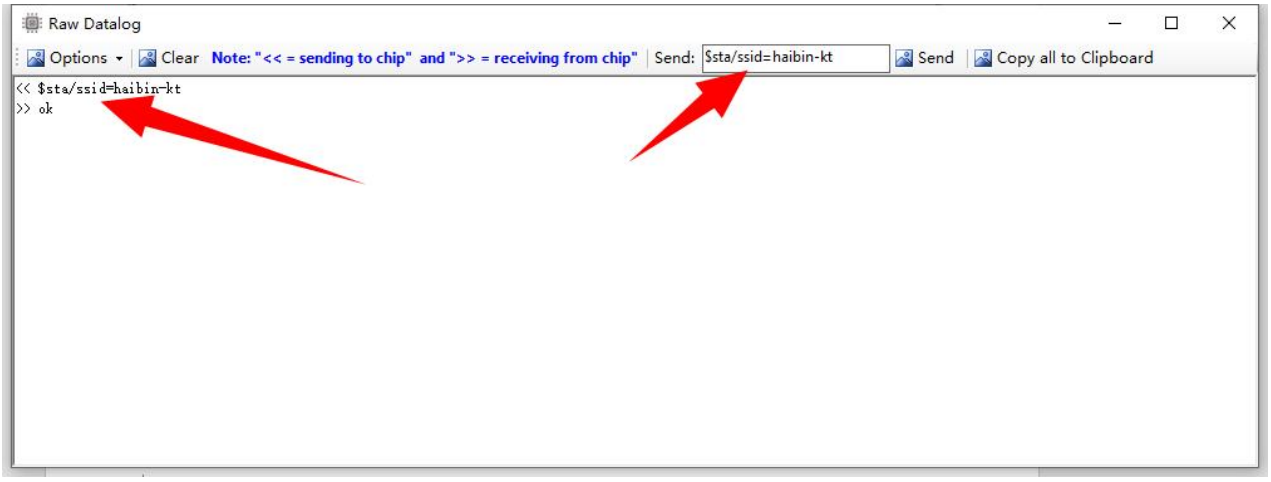


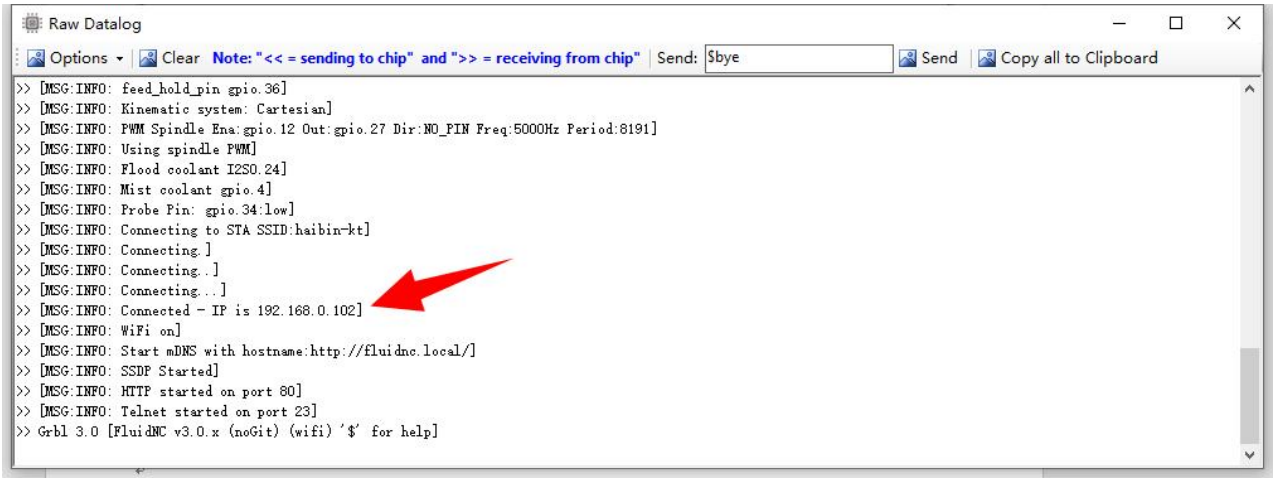


$sta/ssid=Your wifi account

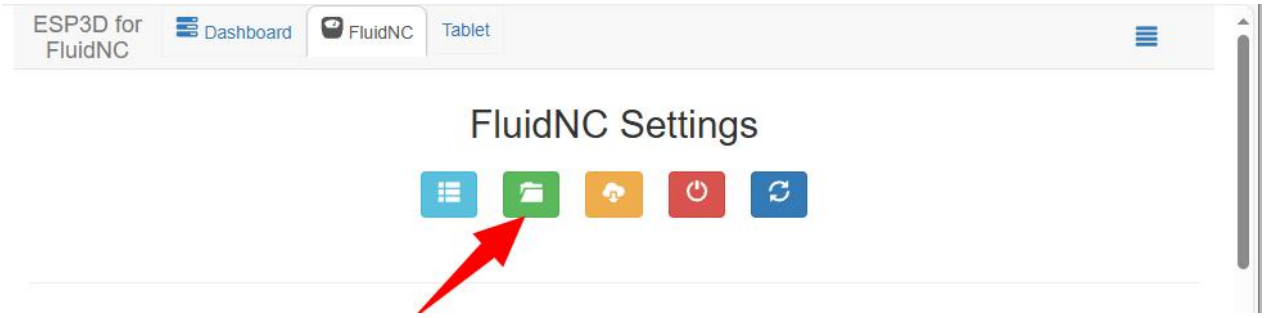
$sta/password=Your wifi password

$bye

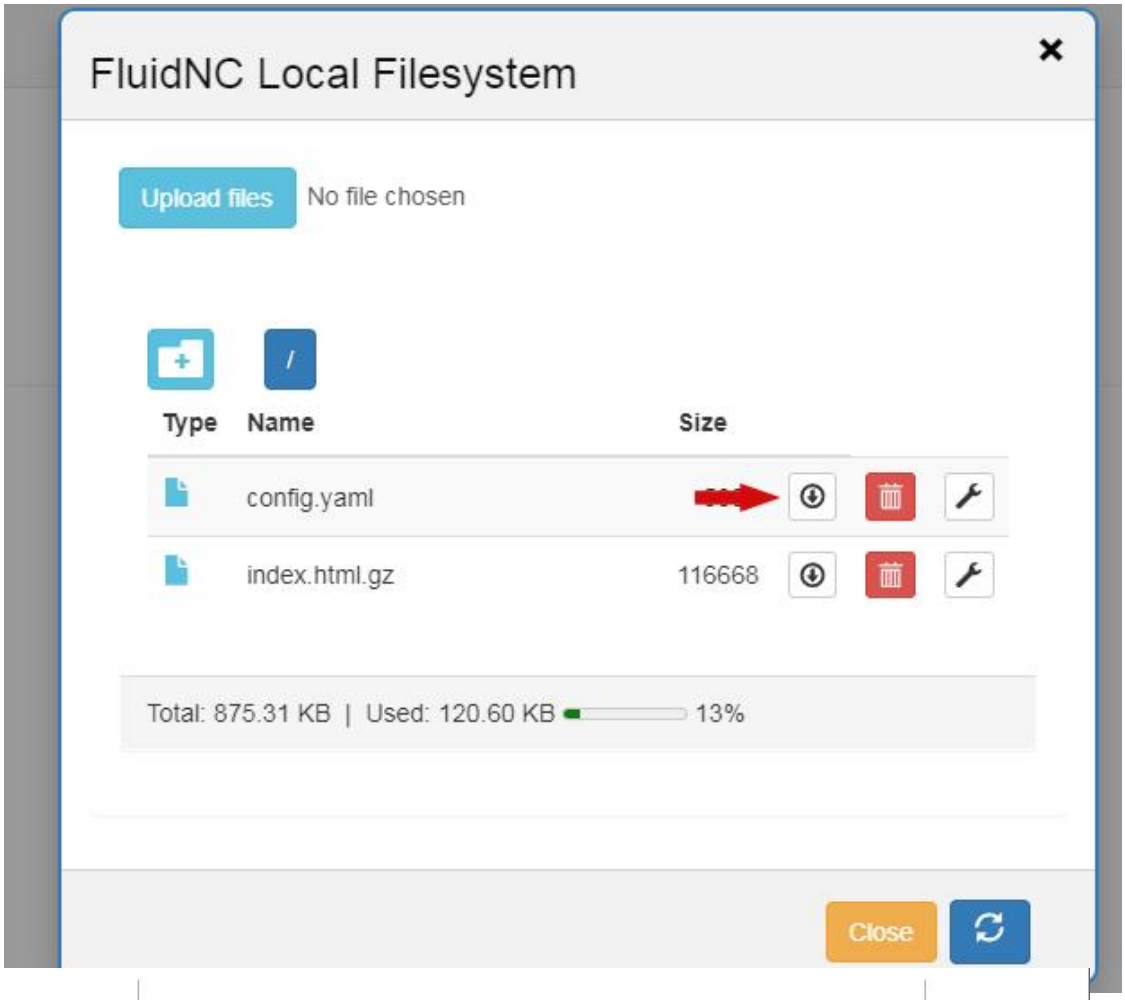




Open browser and enter above IP address to access the control card.



Download config file and open.



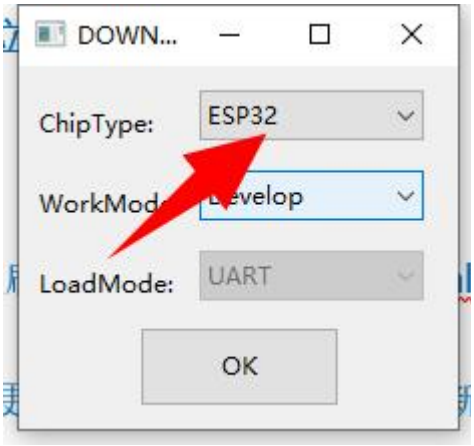

```
board: 6 Pack
name: 6 Pack StepStick XYZABC
stepping:
  engine: I2S_STREAM
  idle_ms: 250
  pulse_us: 4
  dir_delay_us: 6
  disable_delay_us: 0

axes:
  shared_stepper_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

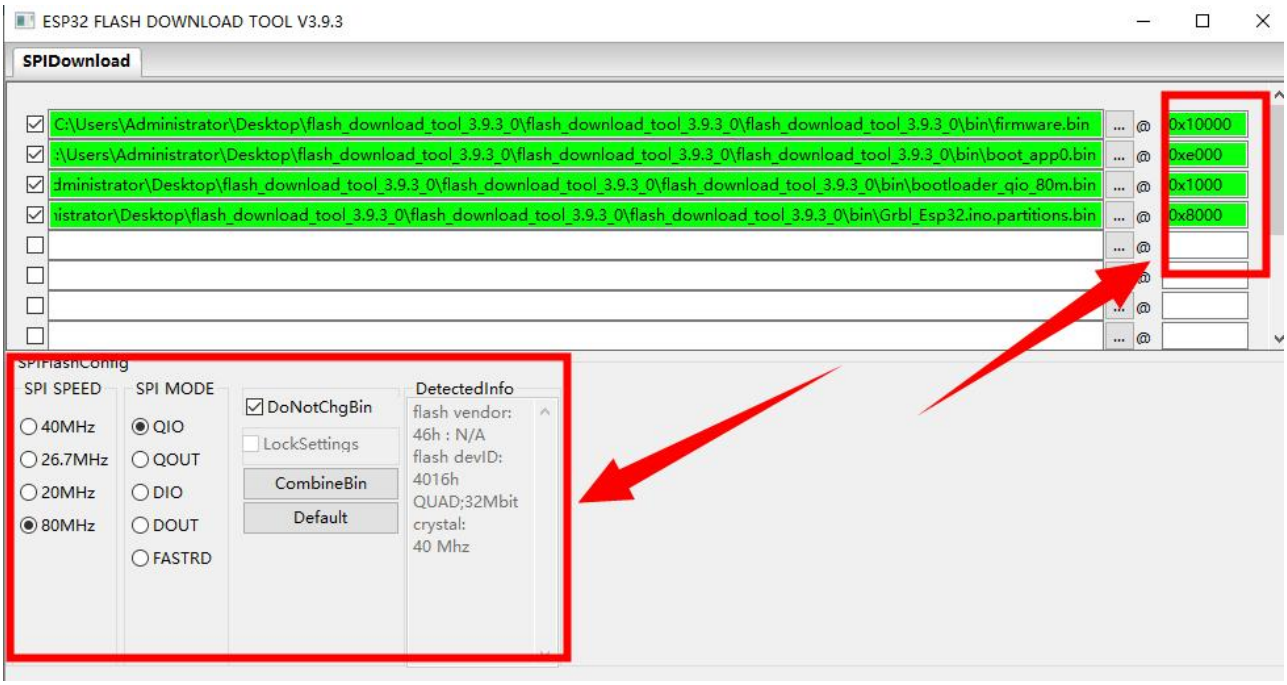
boot_app0.bin

3th

bootloader_qio_80m.bin

4th

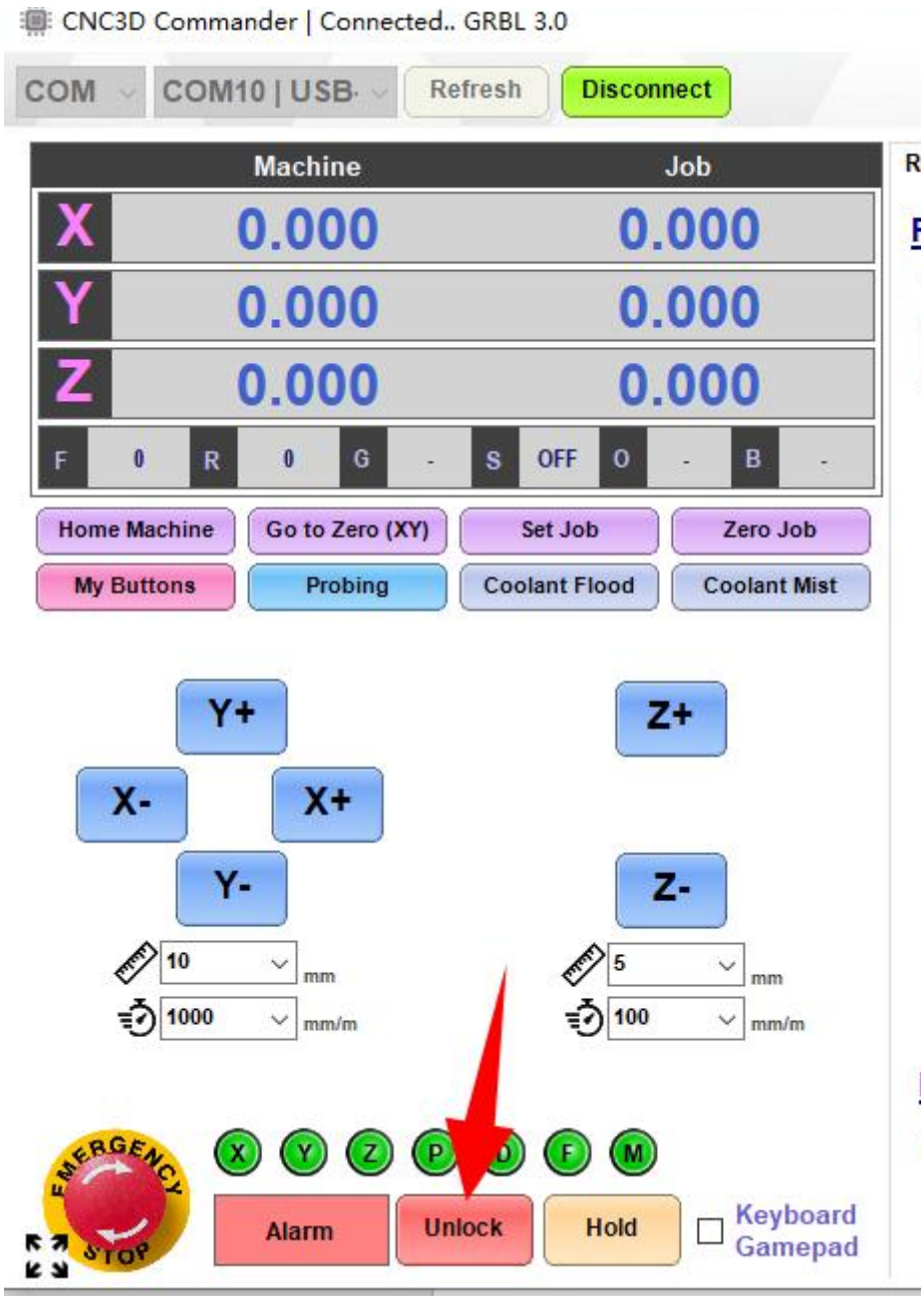
Grbl_Esp32.ino.partitions.bin



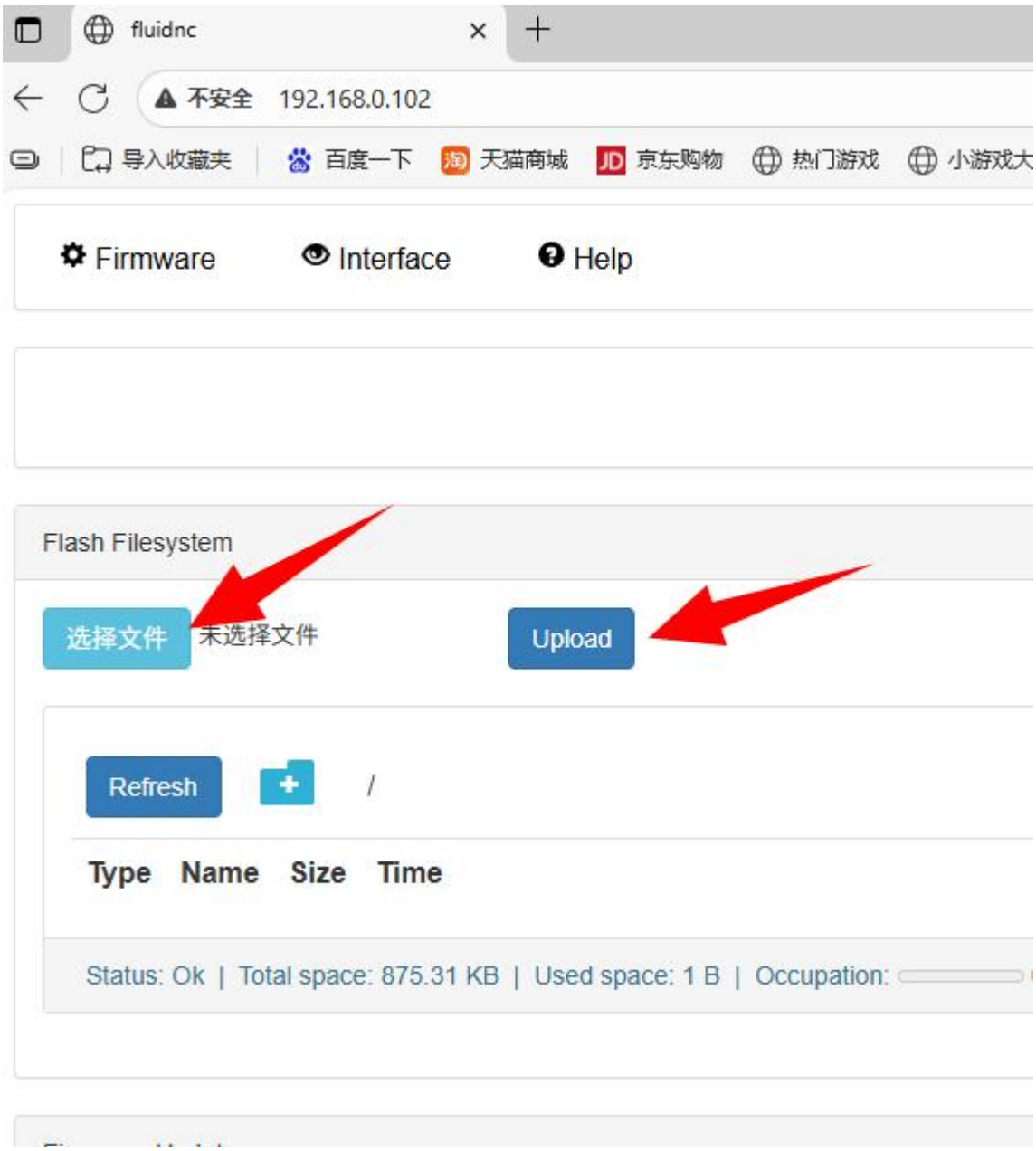
Select COM,then Erase previous files.

After successfully download,configure wifi as previous tell.

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

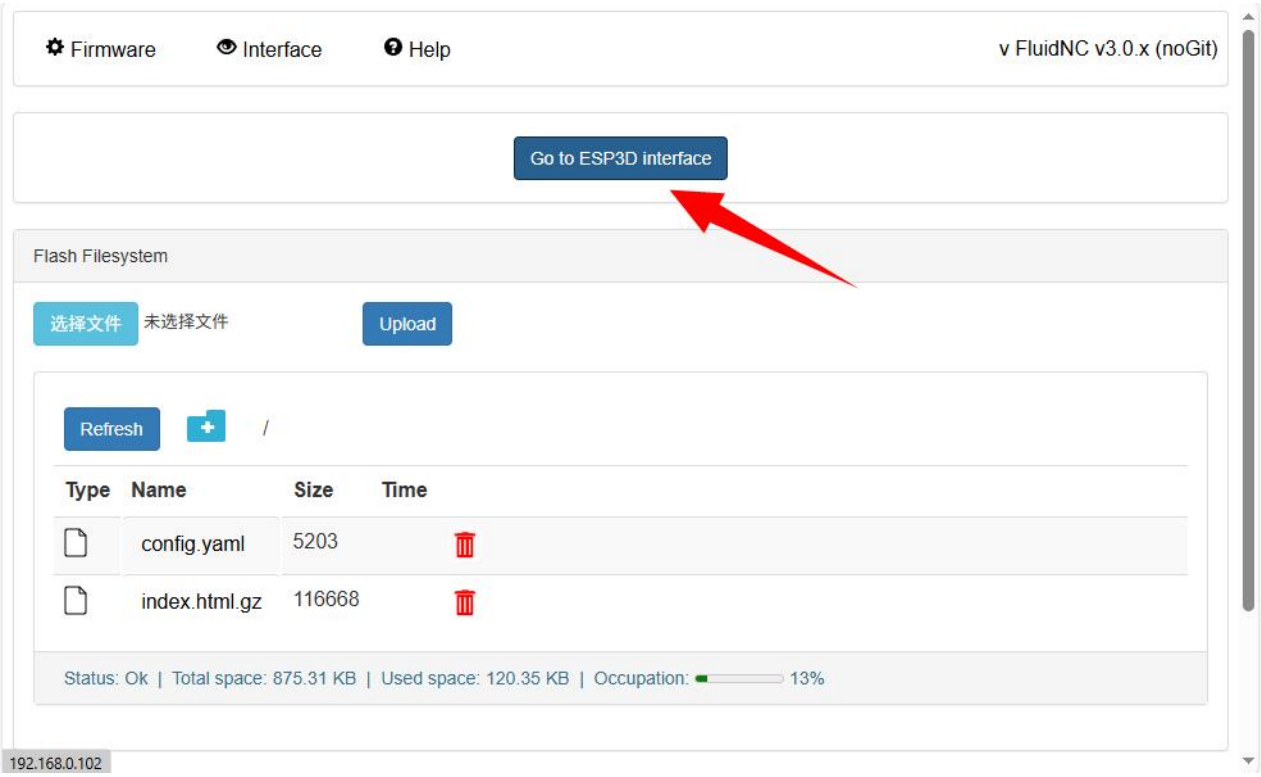


Unlock and upload config.yaml and index file.


fluidnc
不安全 192.168.0.102
导入收藏夹
百度一下
天猫商城
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.



Re-start CNC3d commander,will see 6 axis.

Firmware flash complete.

More refer to

http://wiki.fluidnc.com/en/config/overview