Features

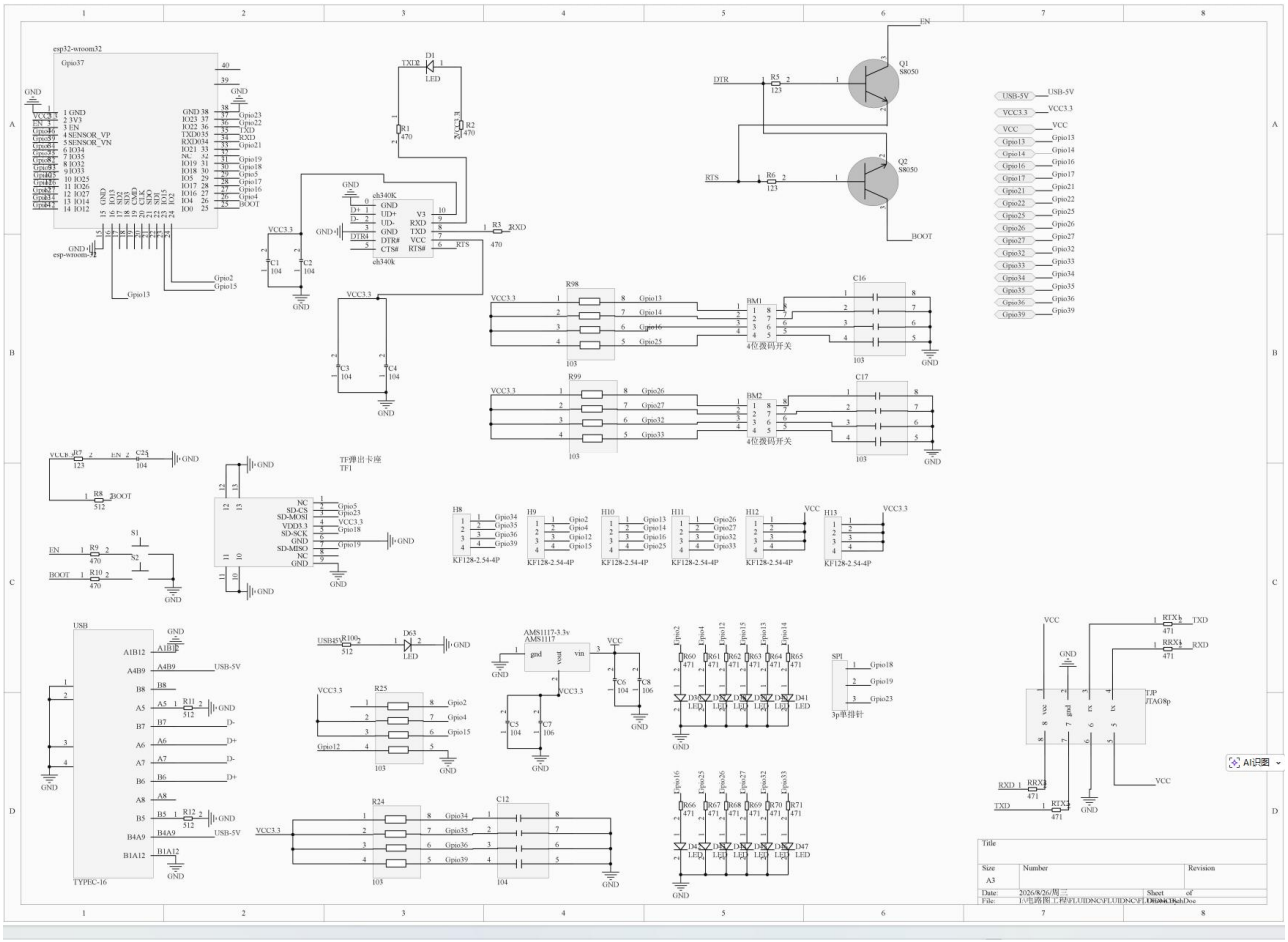
- Adopting dual-core ESP32UE 32bits high-speed processor,max main frequency is 240MHz.
- Pre-installed FluidNC firmware,

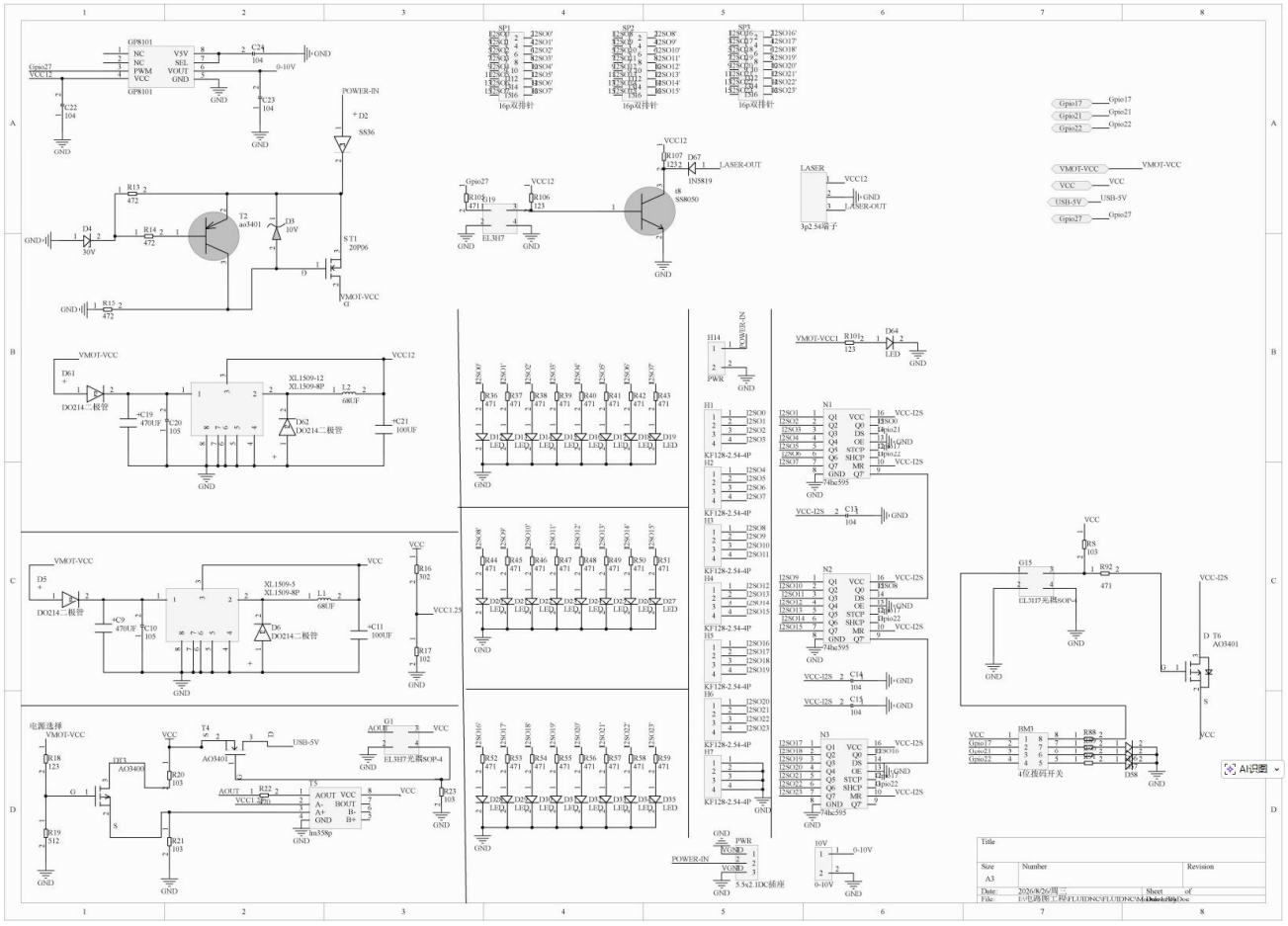
  compatible with CNC3D COMMANDER,Candle,Bcnc,

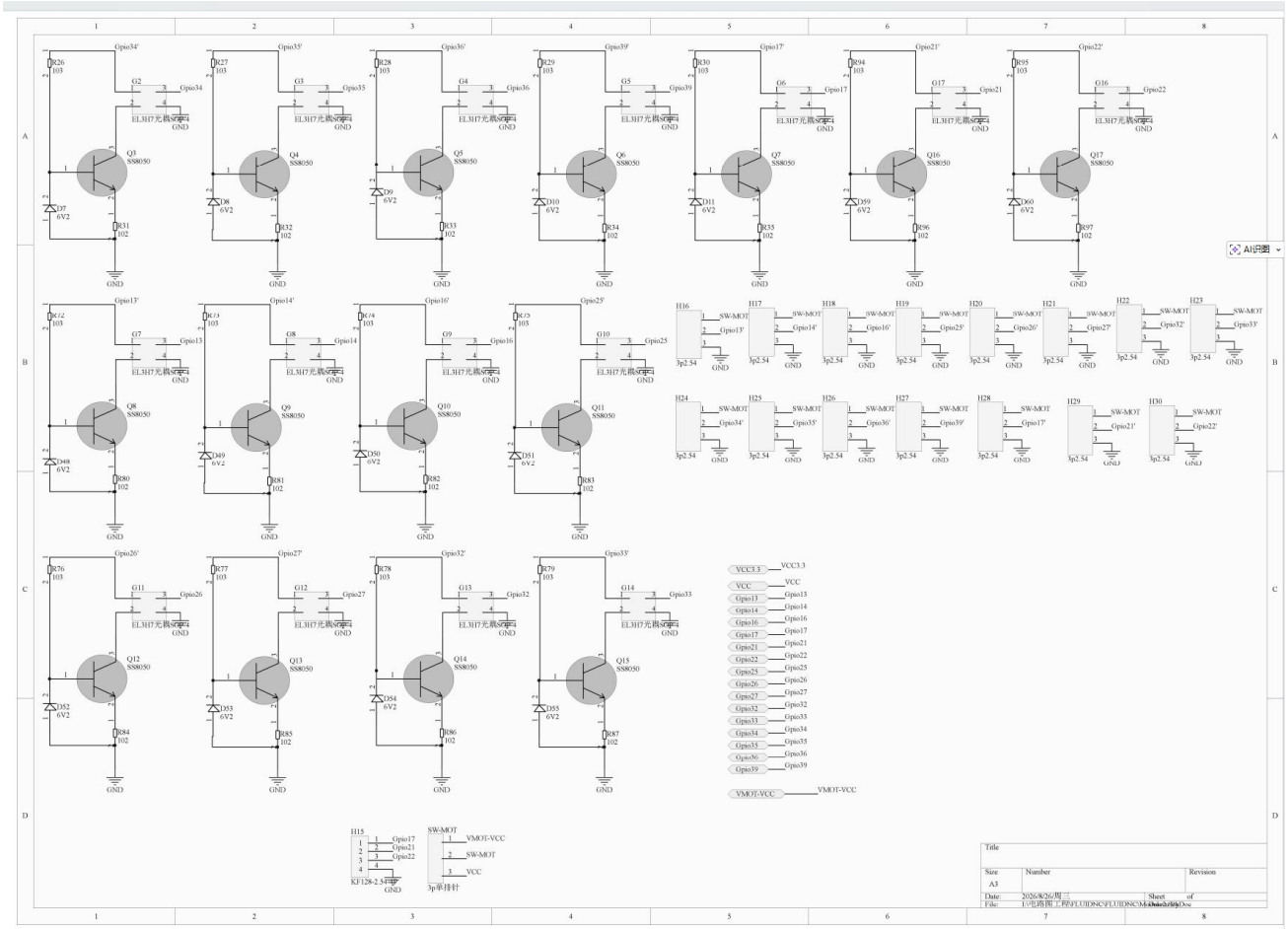
  GRBLPlotter software...
- Support six stepper drivers. X,Y,Z,A,B,C axis.
- Support Homing,software/hardware endstop,Z probe,macro...
- Support hotspot,Wifi to control.
- 12V 3pin laser signal output.
- Standard PWM and 0-10V analog voltage output.
- Support DC 24V

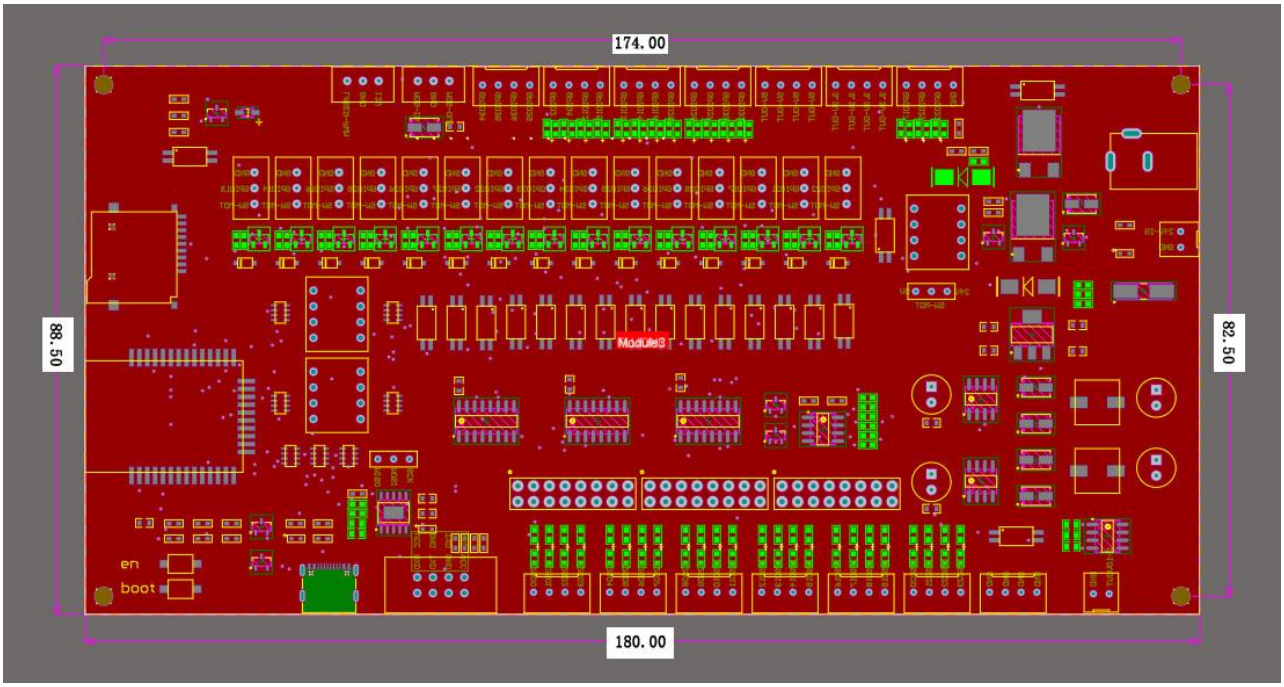
  Auto-cut off power when voltage exceeding 30V.

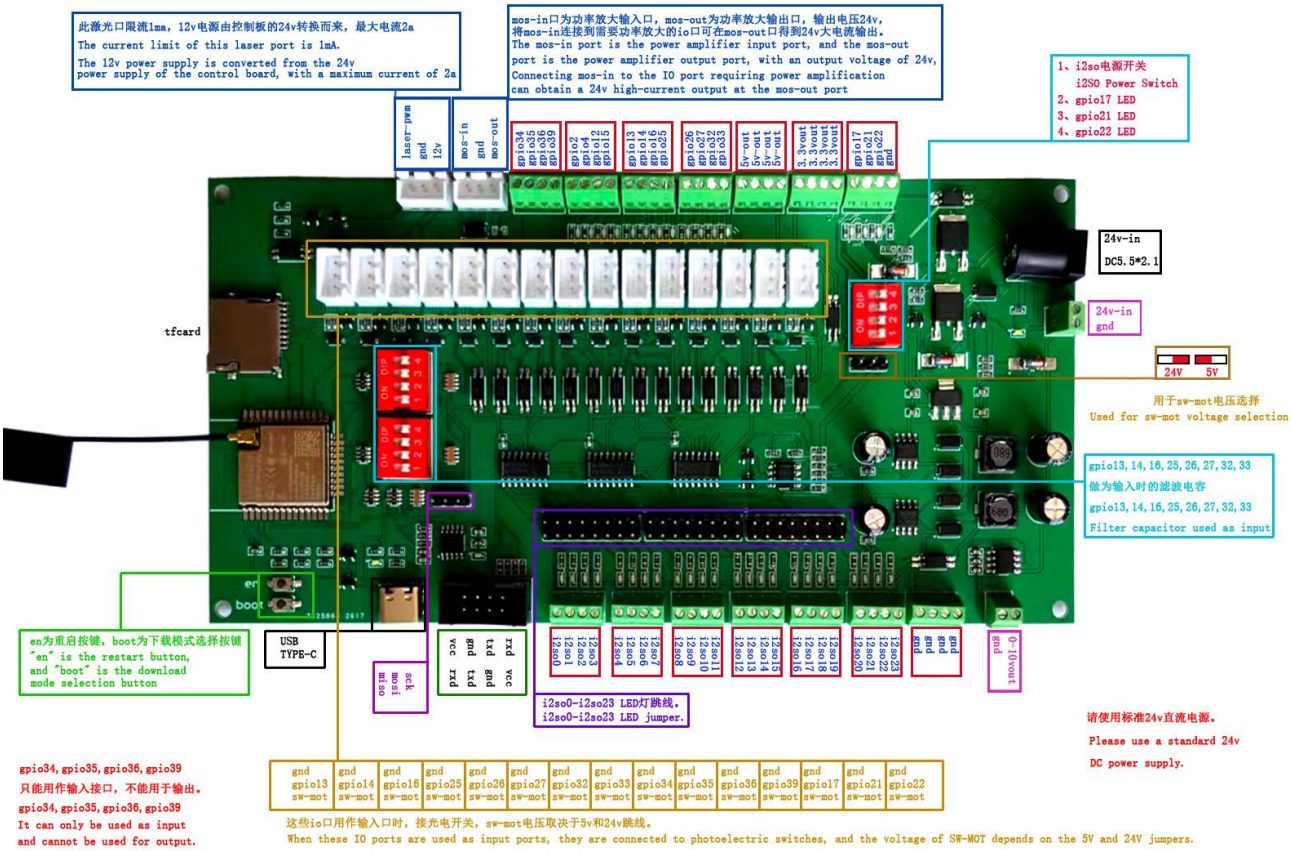
  Automatically select external power supply as the main control input power,and prevent reverse power transmission,protect USB port.


esp32-wroom32
ch340K
Q1 S8050
Q2 S8050
4位拨码开关
TF弹出卡座
TF1
KF128-2.54-4P
AMS1117-3.3v
AMS1117
TYPEC-16
3p单排针
TJP JTAG8p
Title
Size A3
Number
Revision
Date: 2026/8/26/周二
Sheet of
File: 1.PCB图 工程#FLUID$NCSFLUID$NCSFLUID$NCSFLUID$Rel.Doc

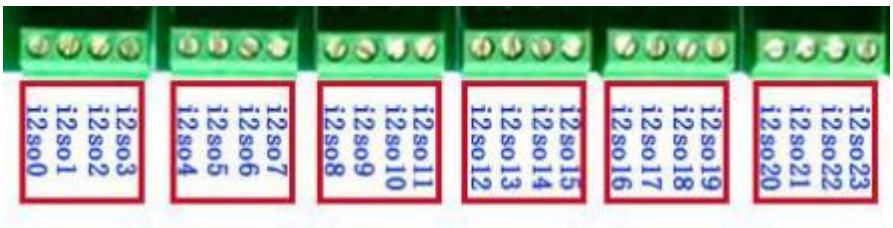

GP8101
NC
NC
PWM
VCC
V5V
SEL
VOUT
GND
C24
104
0-10V
C22
104
C23
104
POWER-IN
D2
SS36
R13
472
R14
472
T2
ao3401
D3
10V
D4
30V
ST1
20P06
VMOT-VCC
R15
472
SP1
SP2
SP3
16p双排针
VCC12
R107
123
D67
1N5819
LASER-OUT
R105
471
R106
123
t8
SS8050
EL3H7
LASER
3p2.54端子
Gpio17
Gpio21
Gpio22
VMOT-VCC
VCC
USB-5V
Gpio27
D61
DO214二极管
XL1509-12
XL1509-8P
L2
68UF
C19
470UF
C20
105
D62
C21
100UF
D5
XL1509-5
XL1509-8P
L1
68UF
C9
470UF
C10
105
D6
C11
100UF
VCC1.25
R16
102
R17
102
电源选择
R18
123
DT3
AO3400
R20
103
T4
AO340T
USB-5V
G1
AOUT
EL3H7光耦SOP-4
R22
VCC1.25
T5
AOUT
A-
A+
GND
VCC
BOUT
B-
B+
ins358p
R23
103
R19
512
R21
103
R36
471
D1
LED1
R37
R38
R39
R40
R41
R42
R43
D19
R44
R45
R46
R47
R48
R49
R50
R51
D27
R52
R53
R54
R55
R56
R57
R58
R59
D35
H14
POWER-IN
PWR
H1
KF128-2.54-4P
H2
H3
H4
H5
H6
H7
VMOT-VCC1
R101
D64
LED
N1
74hc595
VCC-I2S
C13
104
N2
C14
N3
C15
G15
EL3H7光耦SOP-4
R92
103
471
D T6
AO3401
HM3
R88
D58
4位拨码开关
POWER-IN
VCOND
5.5x2.1DC插座
10V
0-10V
Title
Size
A3
Number
Revision
Date: 2026/8/26/周一
Sheet of
File: E:\电路图_PIPFLUIDNC\FLUIDNC\Mainboard.SchDoc


Title
Size
A3
Number
Revision
Date: 2026/6/26/周三
File: I:\电路图_工程\FLUIDNC\FLUIDNC\Main.SchDoc
Sheet
of
AI问答


174.00
88.50
82.50
180.00
en
boot
ModuleB



i2so0-i2so23 output,can configure and connect stepper driver step,ena,dir or flood,mist.

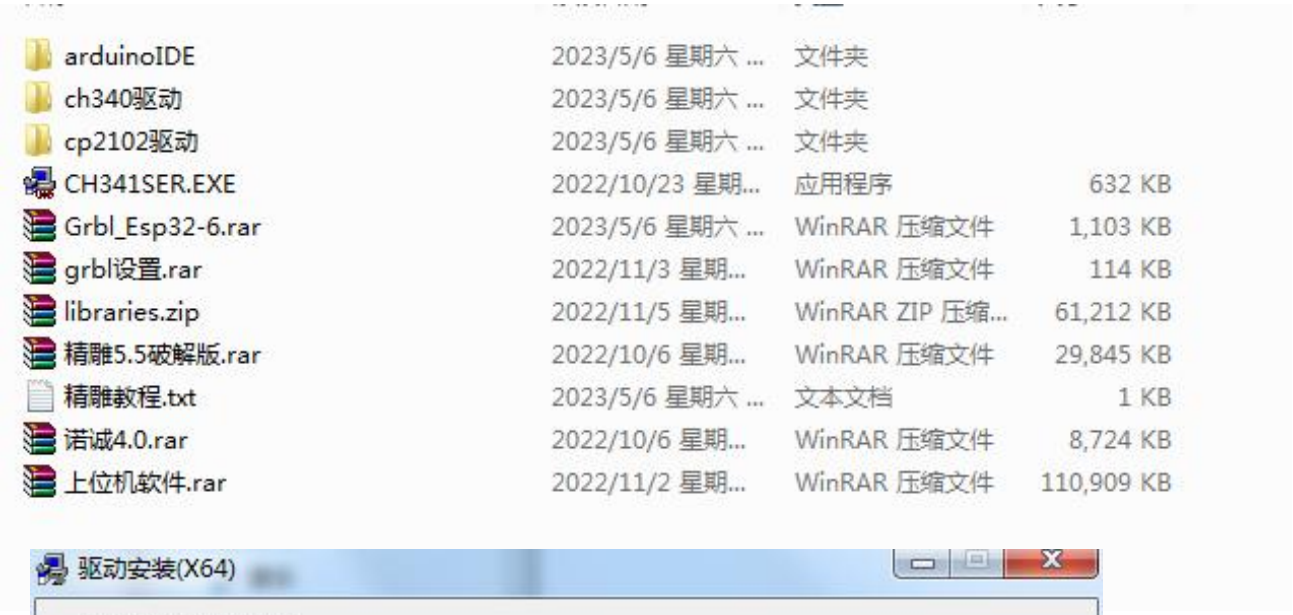


There four GND interfaces, one is 0-10V voltage output, GND can connect to pulse -, ena -, and dir - of common cathode stepper motor driver.

0-10V outputs analog voltage, converted by spindle PWM through GP8101 chip. The spindle must be configured with gpio27 as the IO port to use this voltage port. Below is PWM configuration in Yaml file.

```
PWM:
  pwm_hz: 5000
  output_pin: gpio.27
```

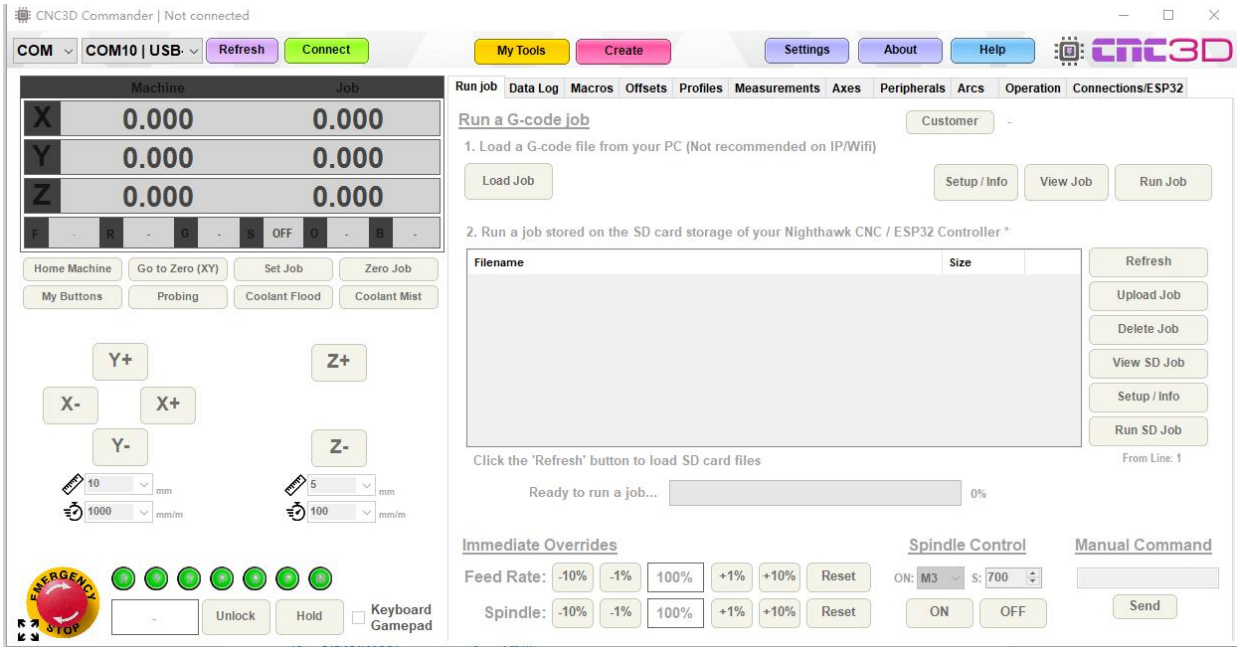
Install CH340 Driver

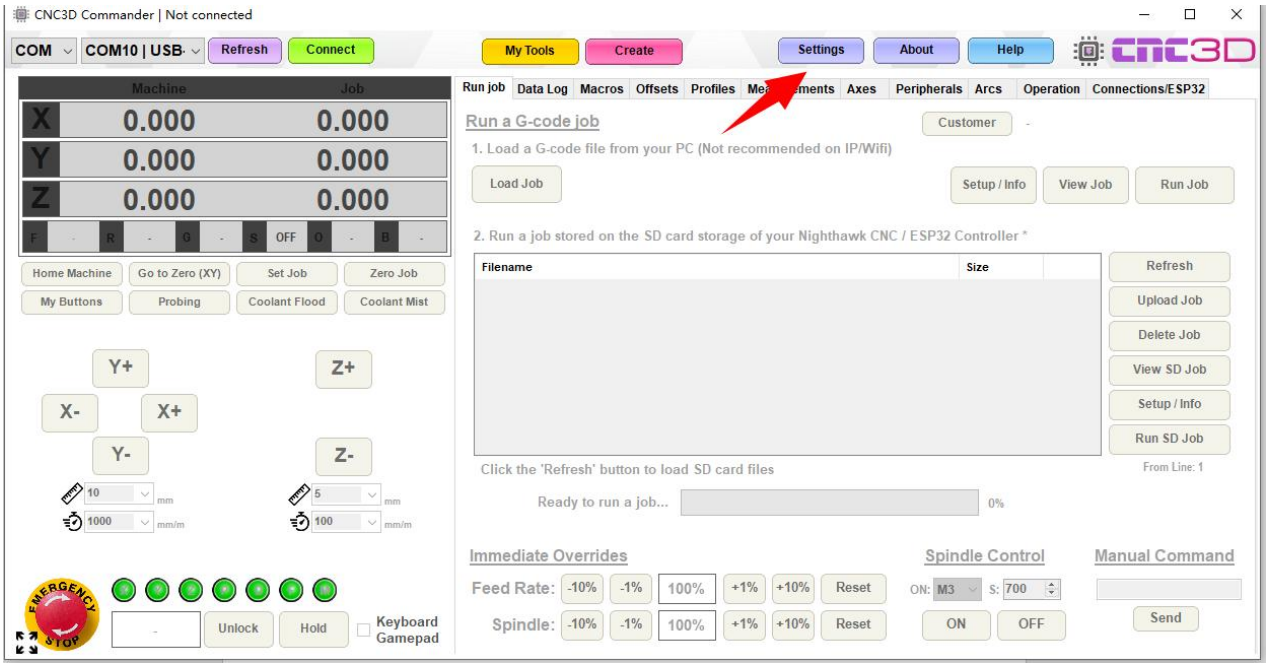


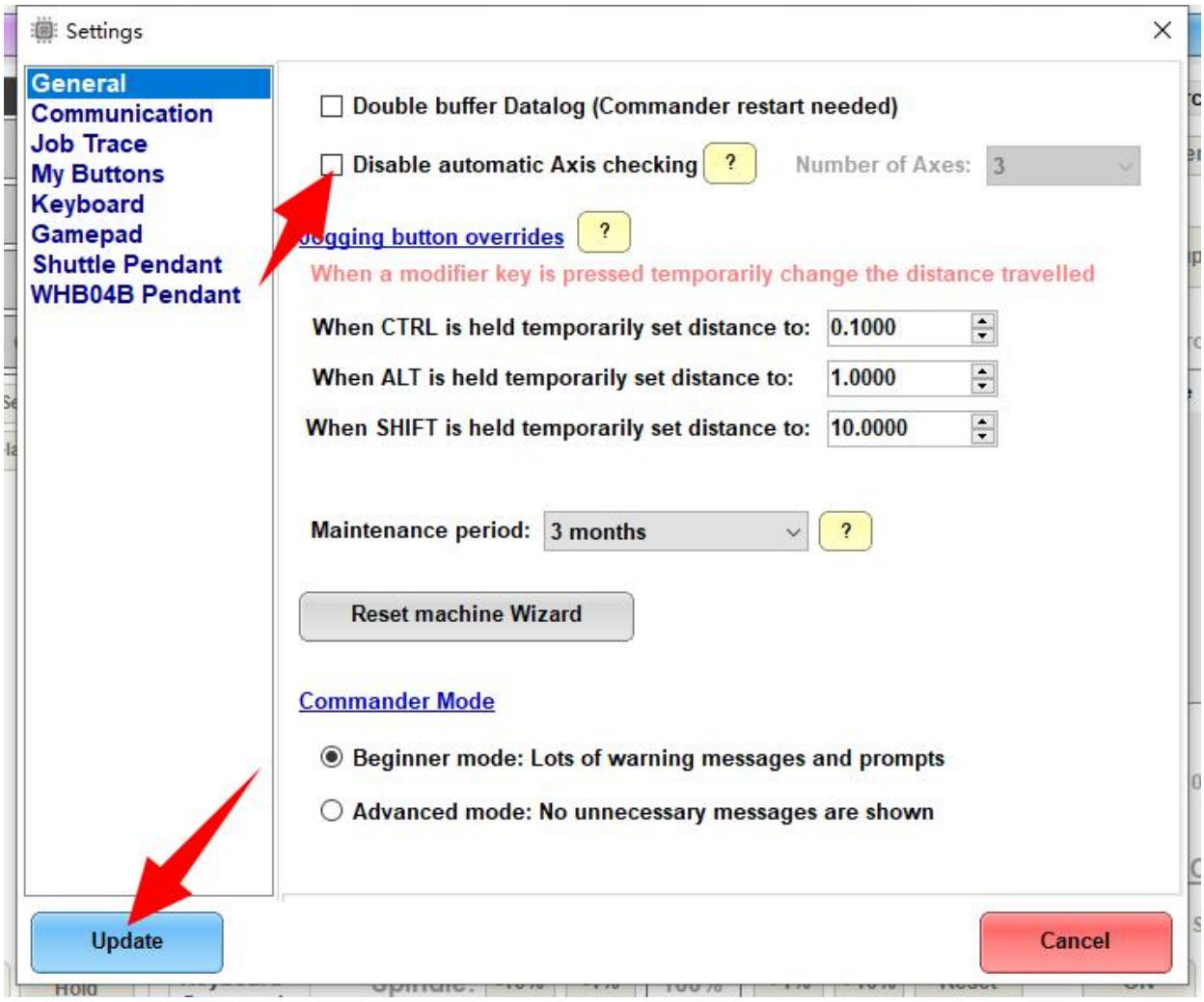
arduinoIDE	2023/5/6 星期六 ...	文件夹	
ch340驱动	2023/5/6 星期六 ...	文件夹	
cp2102驱动	2023/5/6 星期六 ...	文件夹	
CH341SER.EXE	2022/10/23 星期...	应用程序	632 KB
Grbl_Esp32-6.rar	2023/5/6 星期六 ...	WinRAR 压缩文件	1,103 KB
grbl设置.rar	2022/11/3 星期...	WinRAR 压缩文件	114 KB
libraries.zip	2022/11/5 星期...	WinRAR ZIP 压缩...	61,212 KB
精雕5.5破解版.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

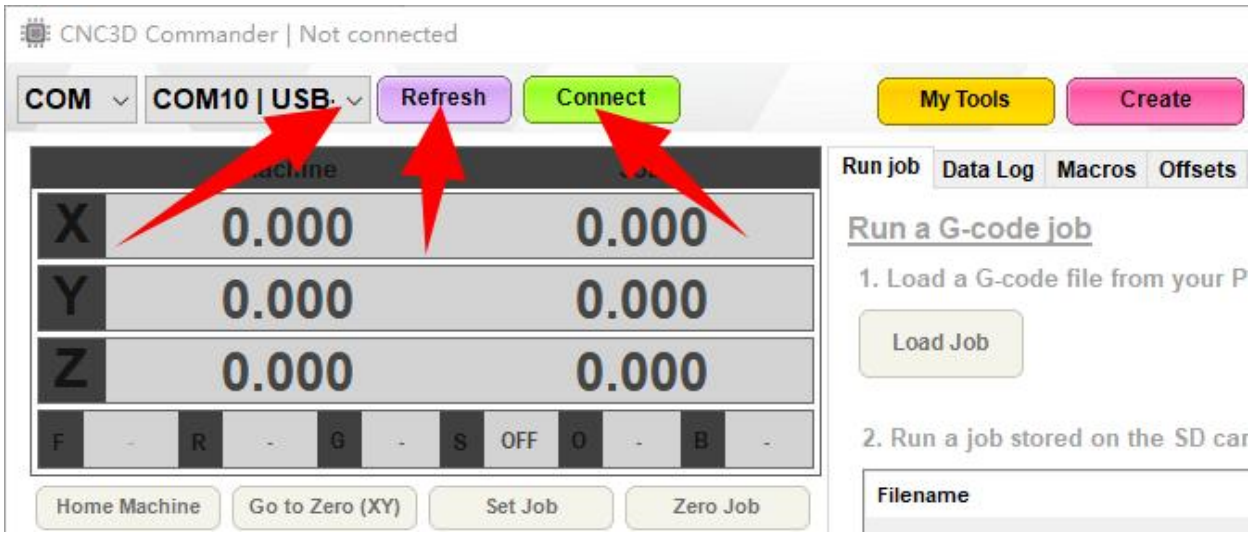
Software

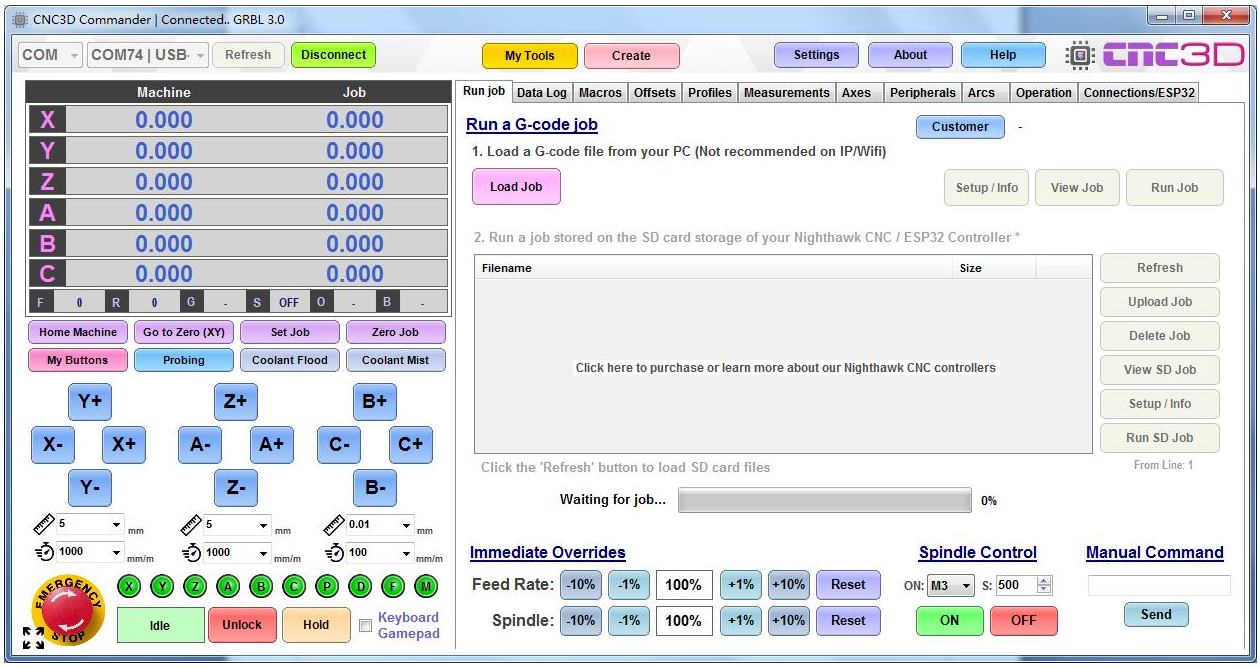
CNC3d Commander

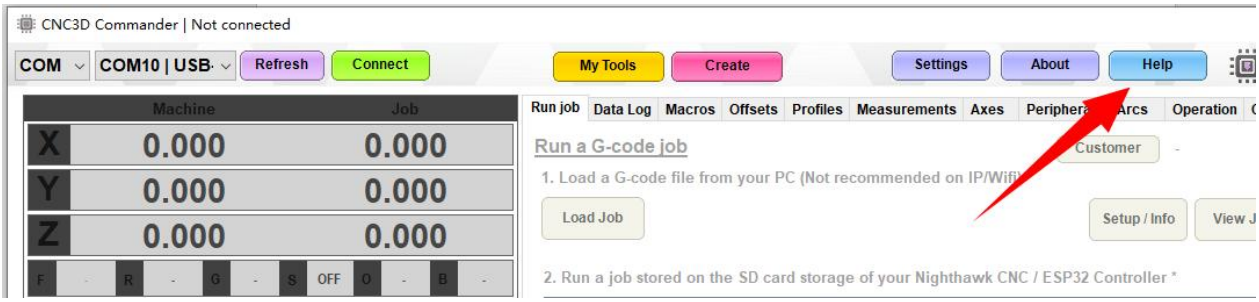


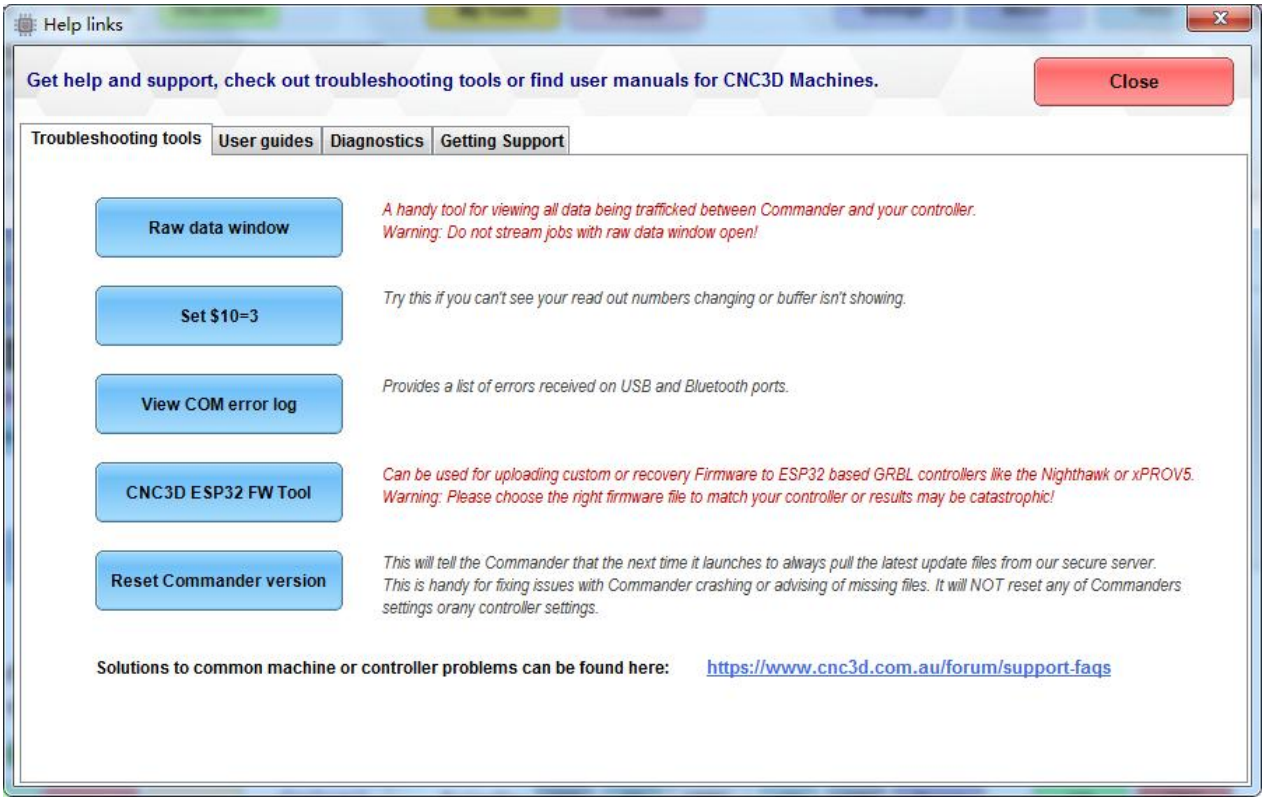


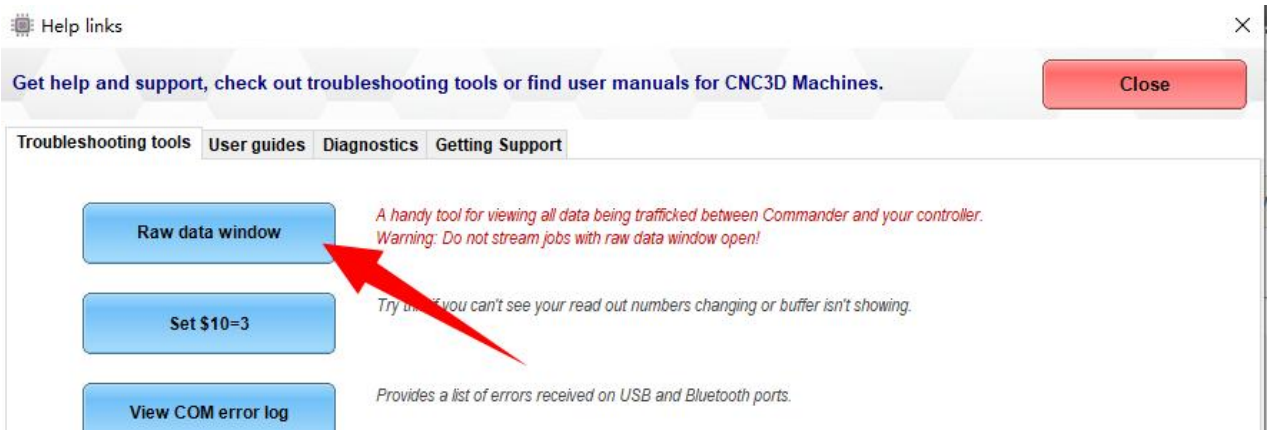

Settings
General
Communication
Job Trace
My Buttons
Keyboard
Gamepad
Shuttle Pendant
WHB04B Pendant
Double buffer Datalog (Commander restart needed)
Disable automatic Axis checking
?
Number of Axes:
3
Jogging button overrides
?
When a modifier key is pressed temporarily change the distance travelled
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+
Z+
B+
X-
X+
A-
A+
C-
C+
Y-
Z-
B-
EMERGENCY STOP
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
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
From Line: 1
Waiting for job...
0%
Immediate Overrides
Spindle Control
Manual Command
Feed Rate:
Spindle:
-10%
-1%
100%
+1%
+10%
Reset
ON: M3
S: 500
ON
OFF
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
Customer
1. Load a G-code file from your PC (Not recommended on IP/Wifi
Load Job
Setup / Info
2. Run a job stored on the SD card storage of your Nighthawk CNC / ESP32 Controller *

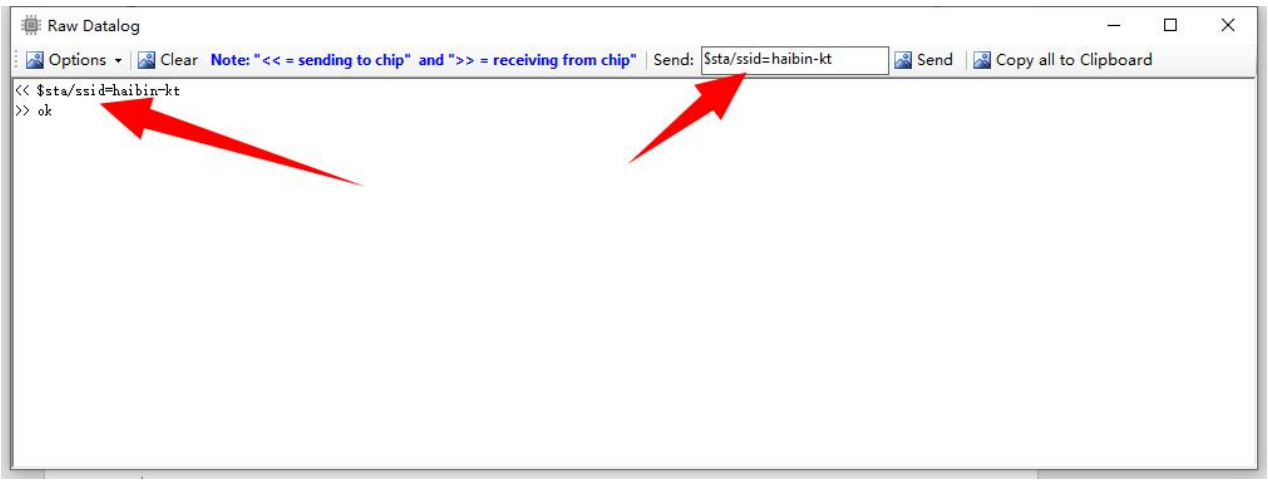

Help links
Get help and support, check out troubleshooting tools or find user manuals for CNC3D Machines.
Close
Troubleshooting tools
User guides
Diagnostics
Getting Support
Raw data window
A handy tool for viewing all data being trafficked between Commander and your controller.
Warning: Do not stream 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

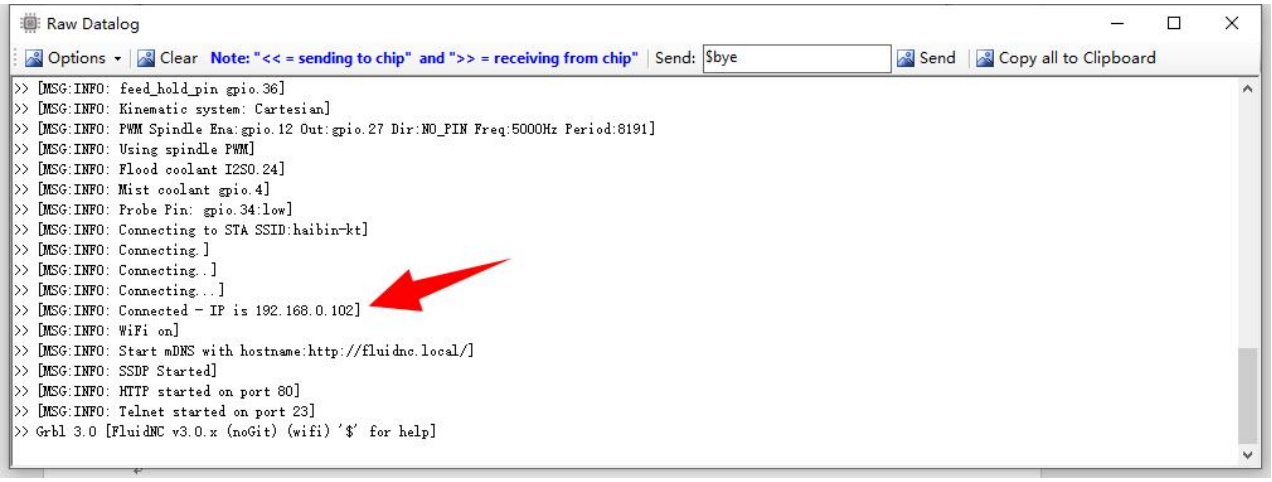


$sta/ssid=Your wifi account

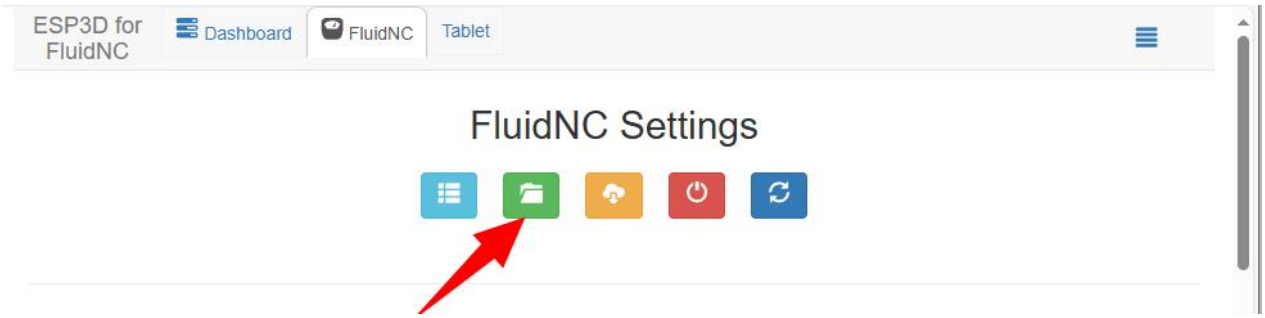
$sta/password=Your wifi password

$bye

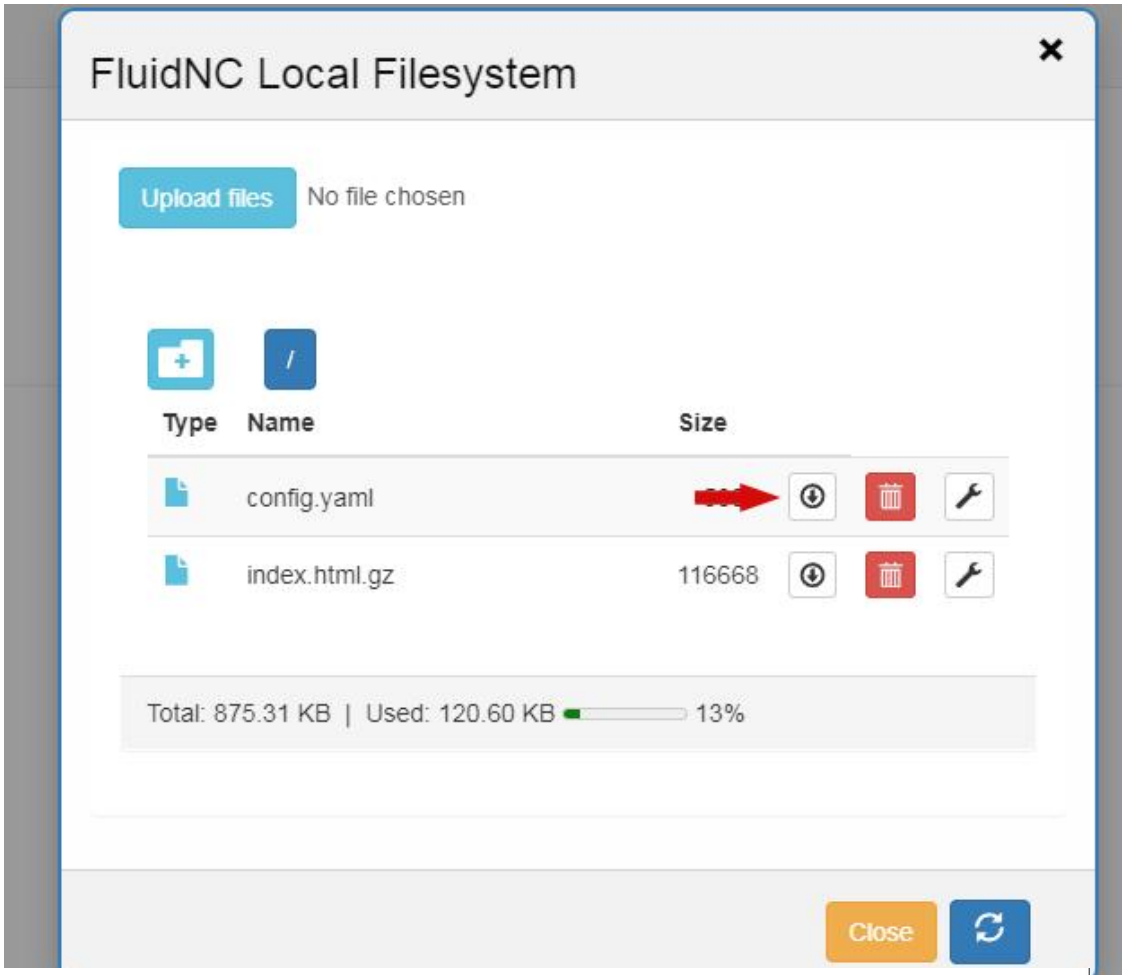




Open browser and enter above IP address to access the control card.



Download config file and open.



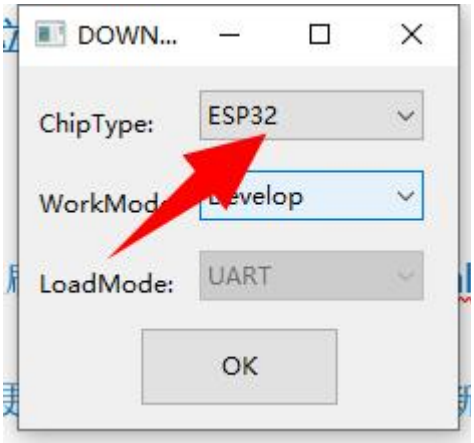

```
board: 6 Pack
name: 6 Pack StepStick XYZABC
stepping:
  engine: I2S_STREAM
  idle_ms: 250
  pulse_us: 4
  dir_delay_us: 6
  disable_delay_us: 0

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_tool_3.9.3_0 software.



Upload file

First line

firmware.bin

2th

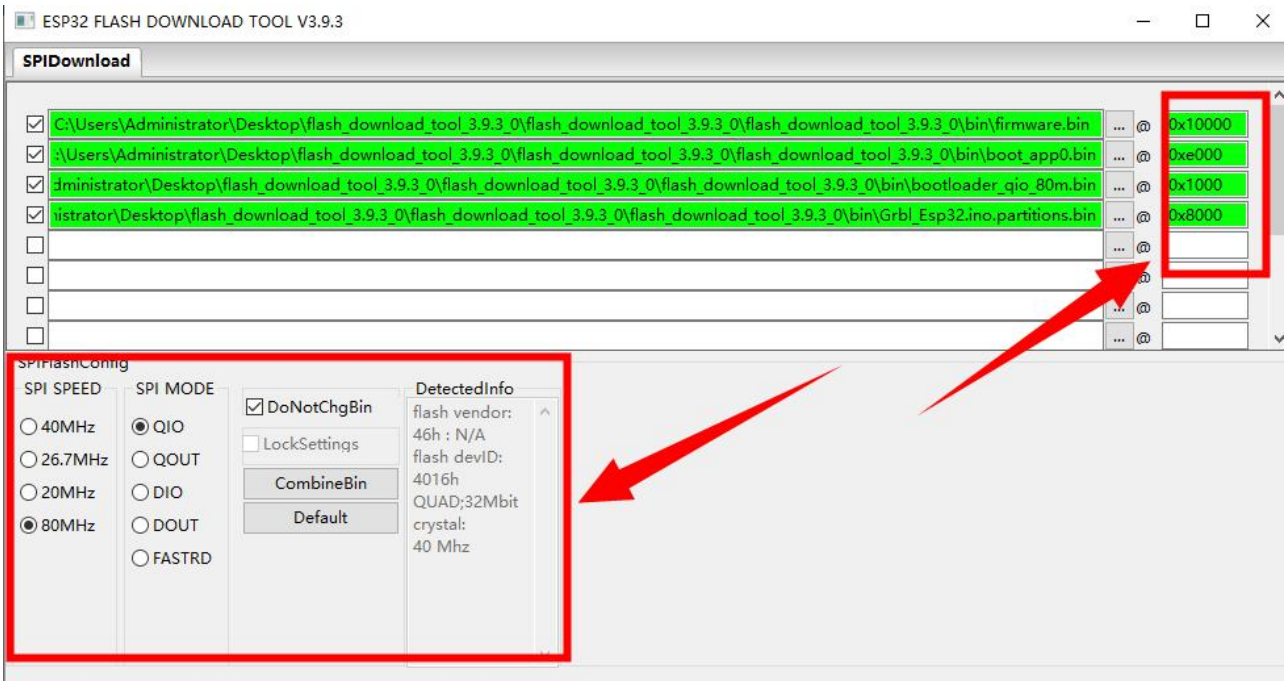
boot_app0.bin

3th

bootloader_qio_80m.bin

4th

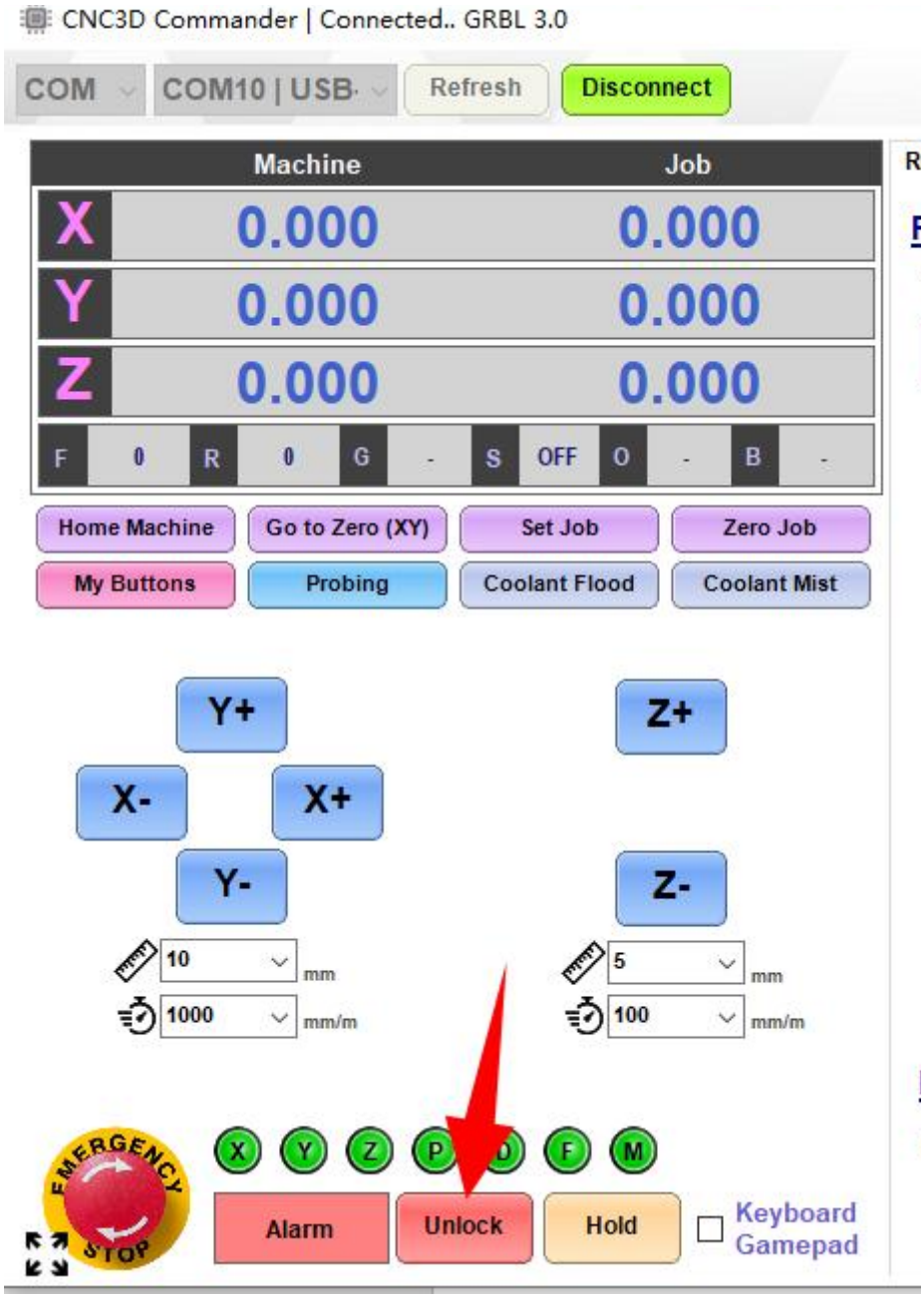
Grbl_Esp32.ino.partitions.bin



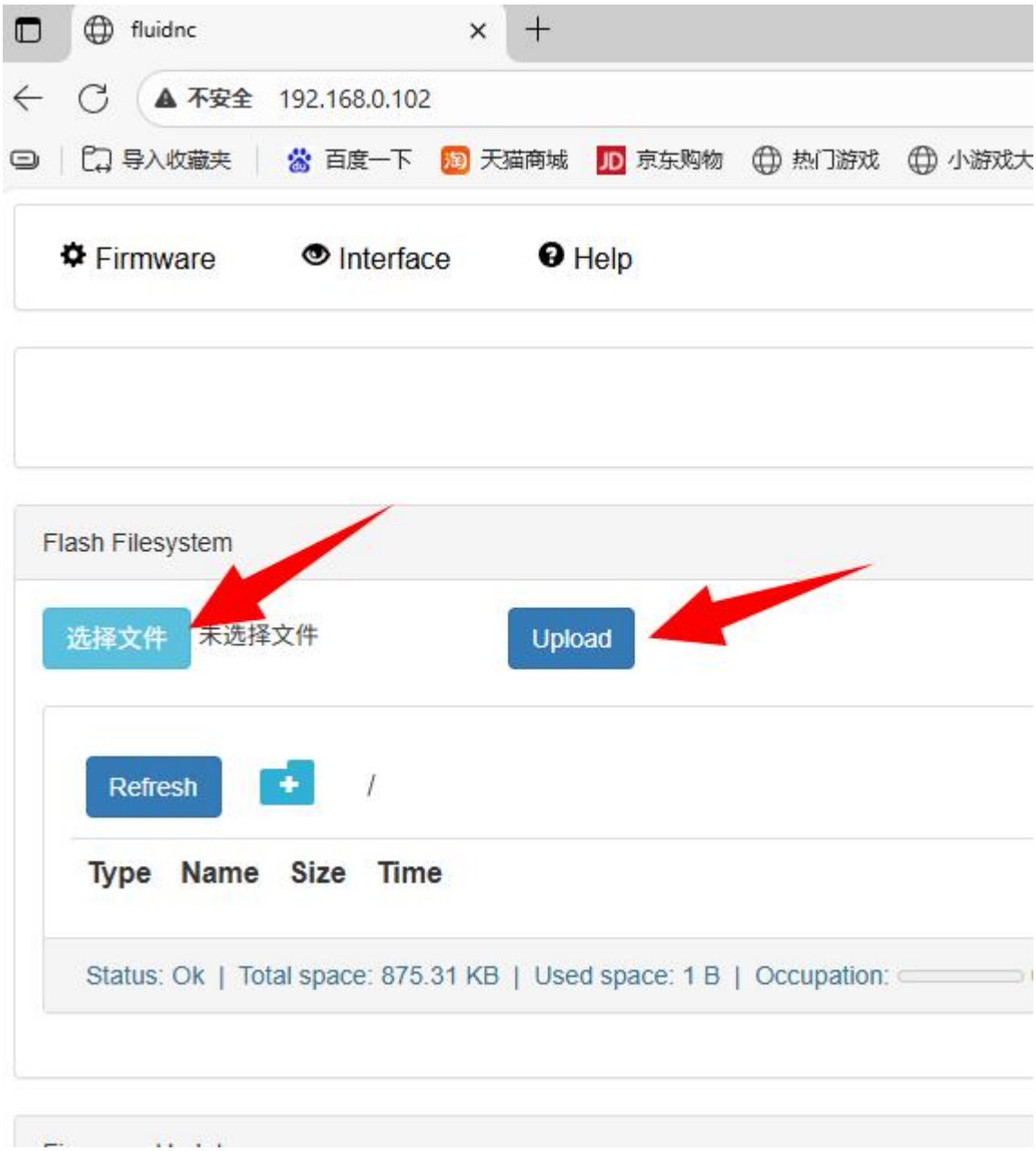
Select COM,then Erase previous files.

After successfully download,configure wifi as previous tell.

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

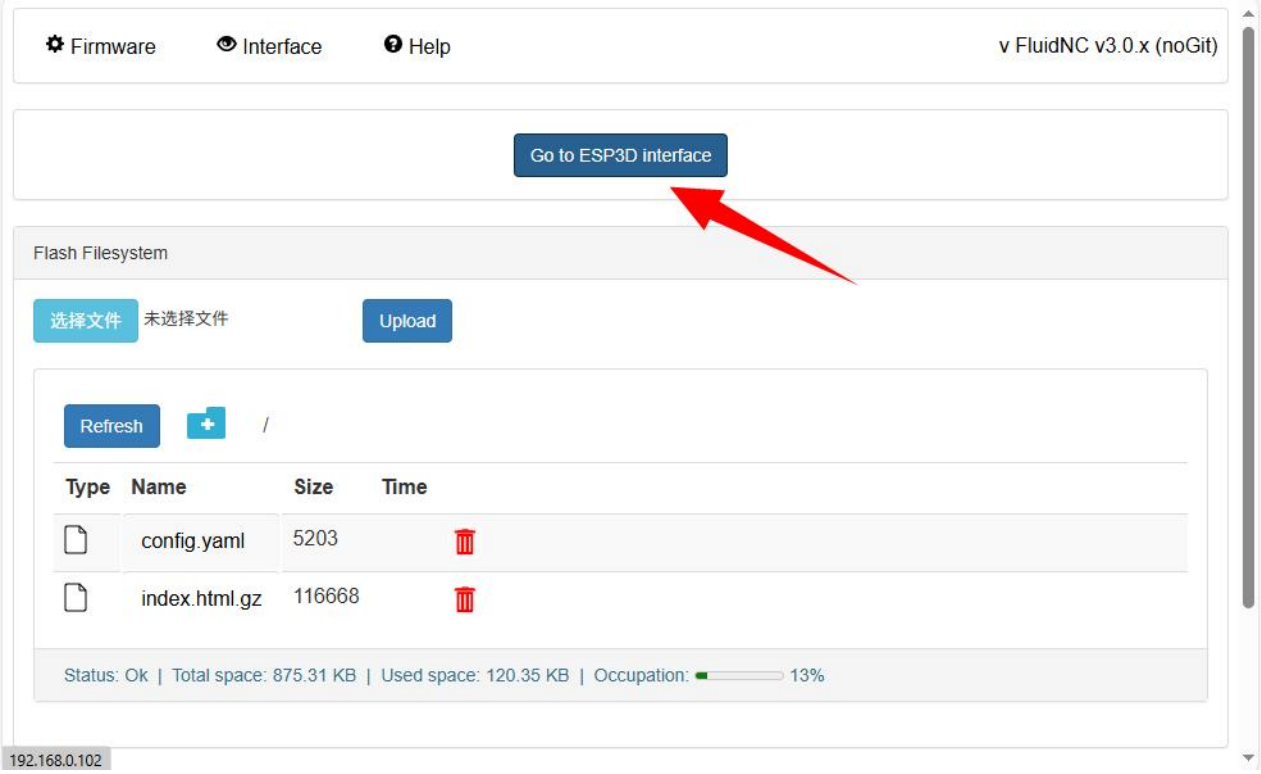


Unlock and upload config.yaml and index file.


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