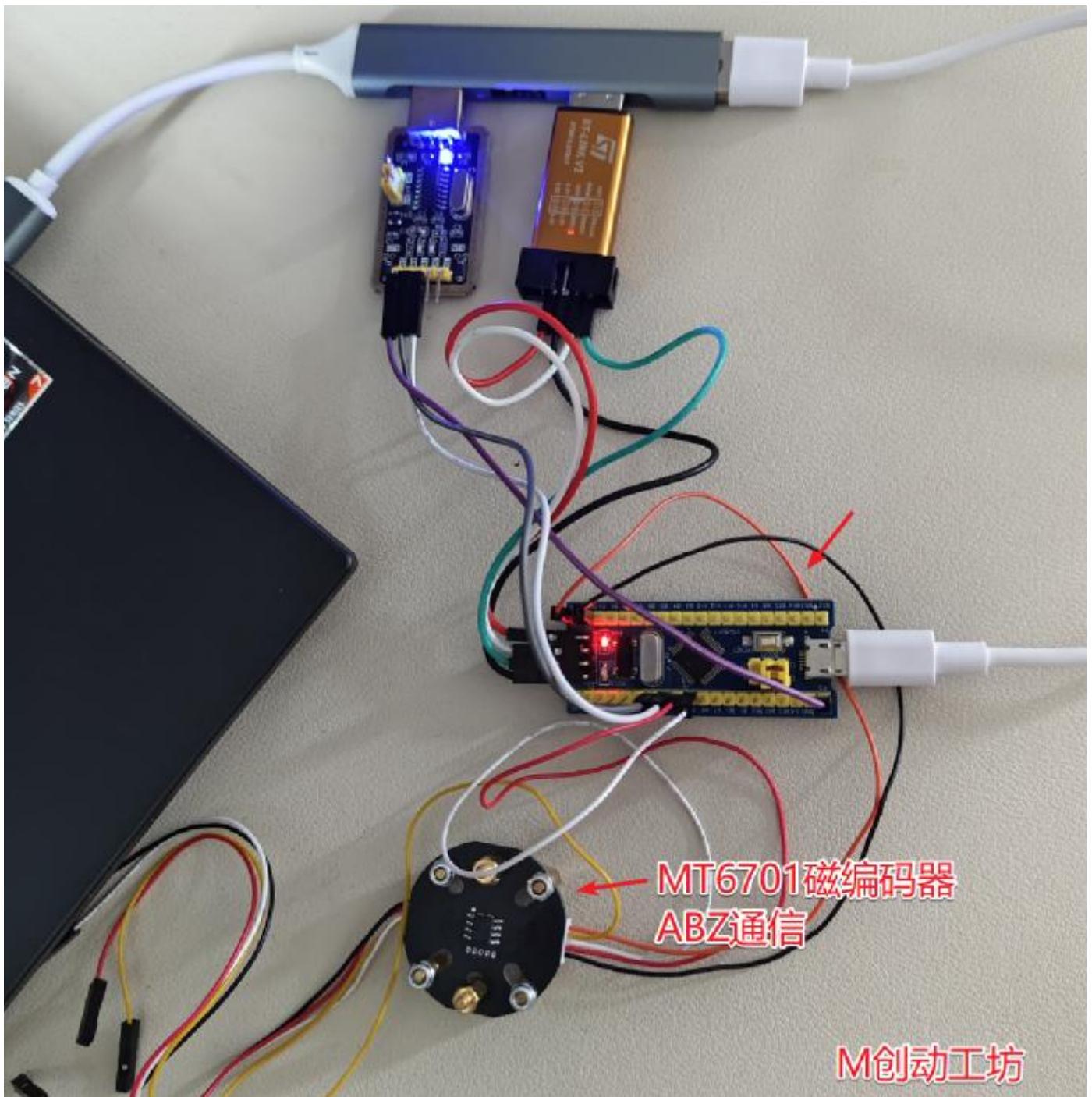


STM32 读取 MT6701 磁编码器

M 创动工坊提供 mcdgf.taobao.com

一、硬件准备



STM32 核心板, MT6701 磁编码器带线 (M 创动工坊提供), ST-link, USB 线等

二、软件准备

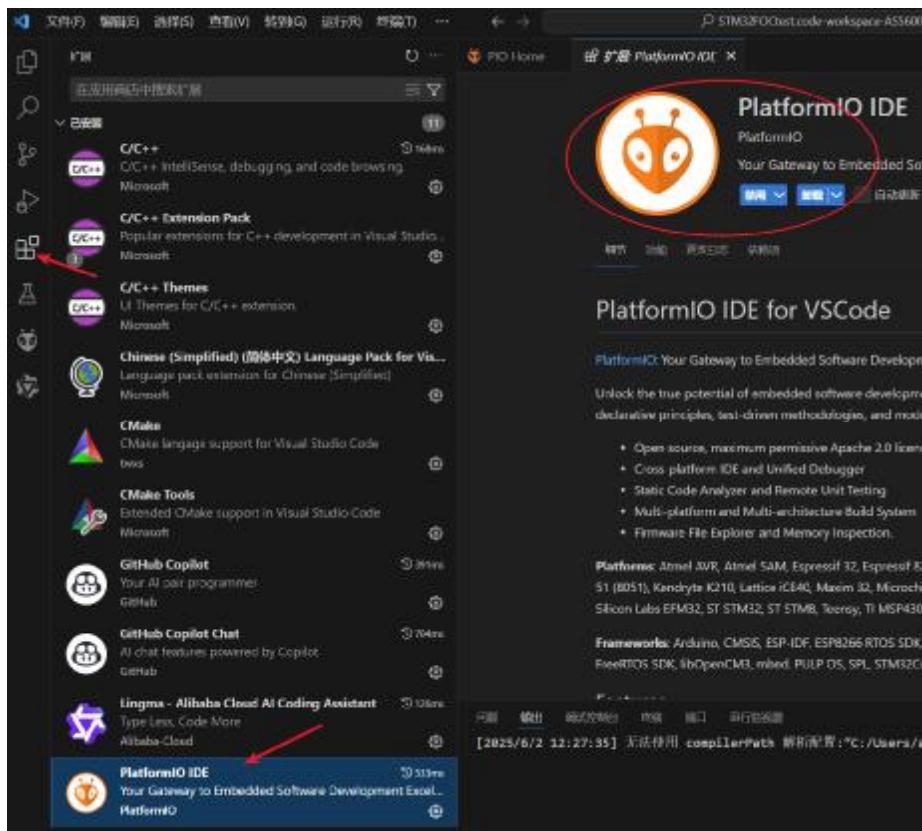
1. 安装微软的 Vscode, 网上很多教程, 且有说明书



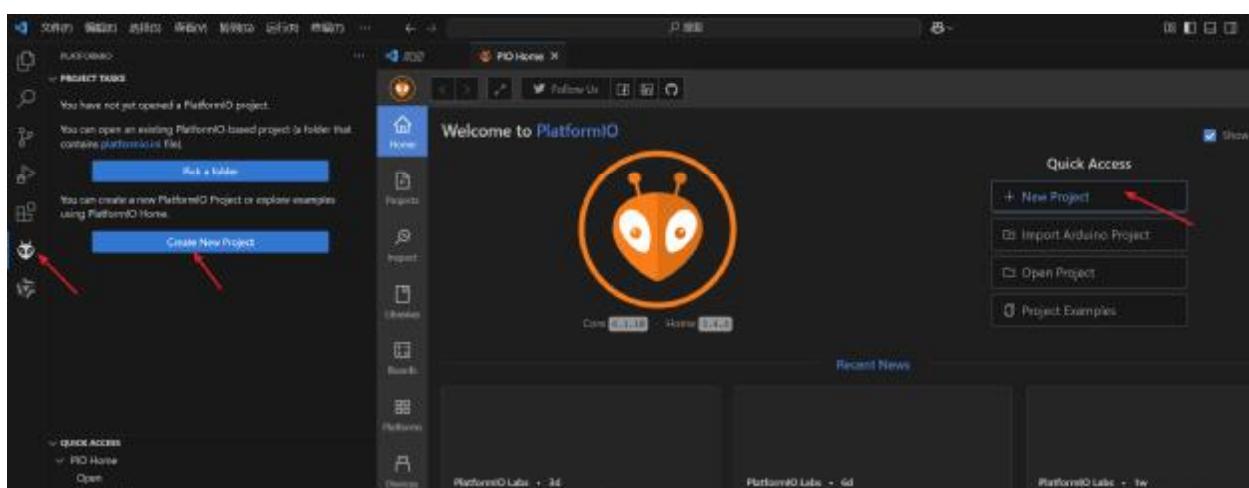
安装好 stlink 驱动



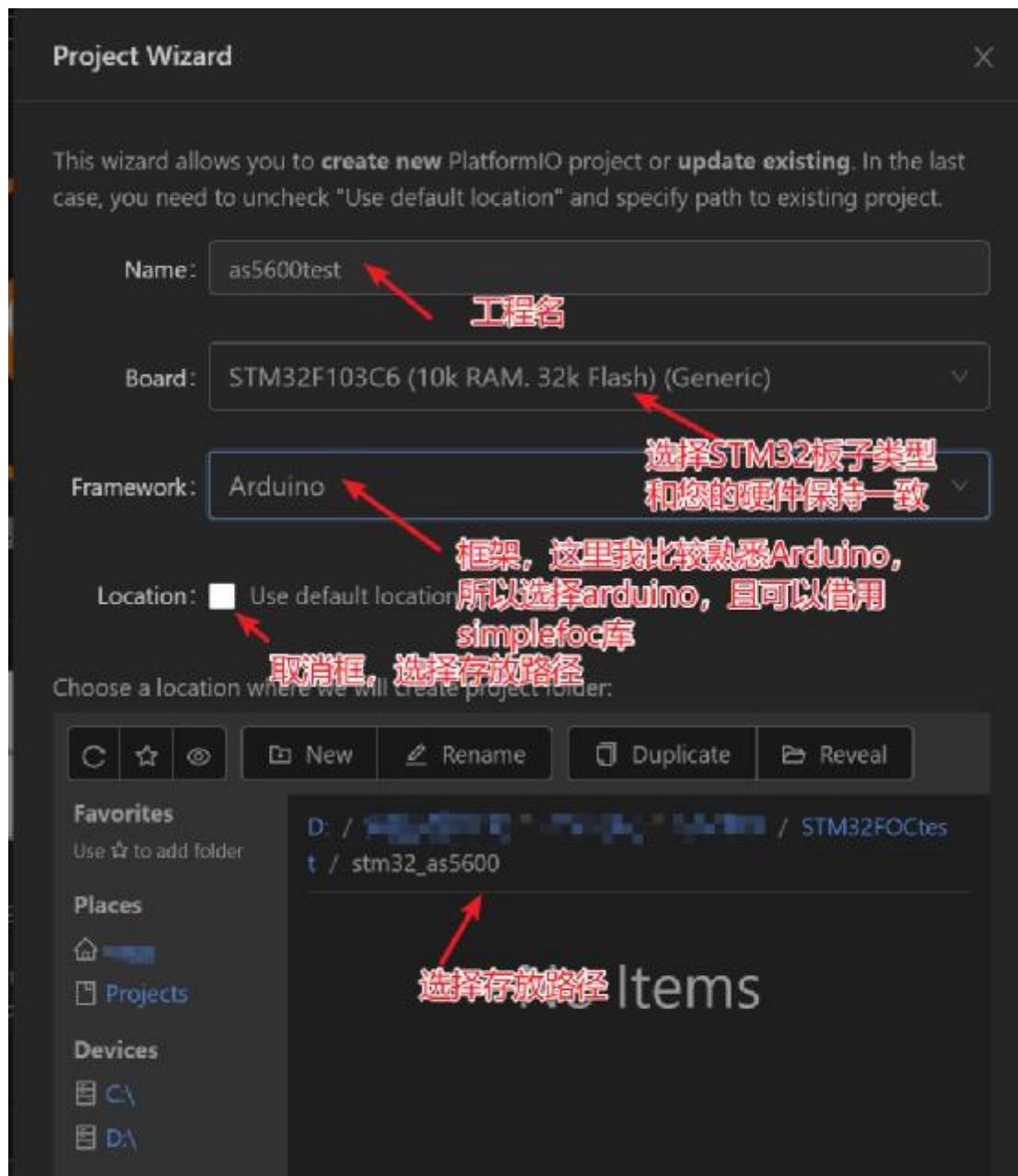
2. 打开 vscode 并安装 PlatformIO 插件。其他的一些中文插件、AI 插件等等，根据需要安装



3. 打开插件，新建工程



4. 重要的设置



5. Ini 文件设置, 这是关键

```

platformio.ini
1 ; PlatformIO Project Configuration File
2 ;
3 ; Build options: build flags, source filter
4 ; Upload options: custom upload port, speed and extra flags
5 ; Library options: dependencies, extra library storages
6 ; Advanced options: extra scripting
7 ;
8 ; Please visit documentation for the other options and examples
9 ; https://docs.platformio.org/page/projectconf.html
10
11 [env:genericSTM32F103C6]
12 platform = ststm32
13 board = genericSTM32F103C6
14 framework = arduino
15

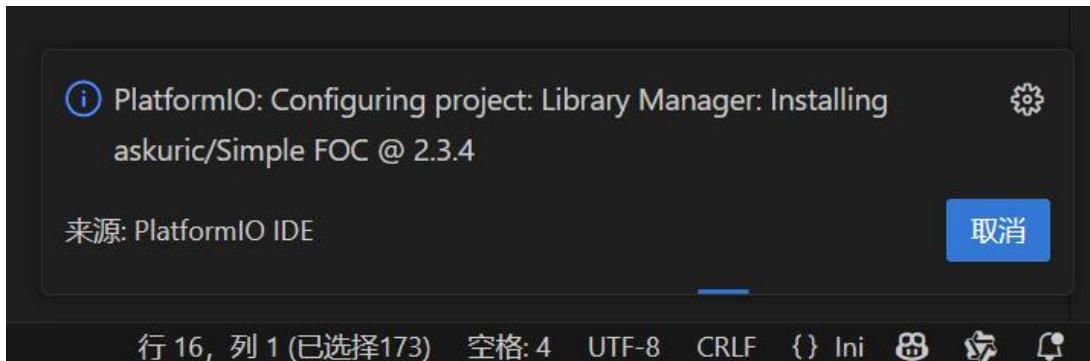
```

Ini文件设置

```
platformio.ini
1 ; PlatformIO Project Configuration file
2 ;
3 ; Build options: build flags, source filter
4 ; Upload options: custom upload port, speed and extra flags
5 ; Library options: dependencies, extra library storages
6 ; Advanced options: extra scripting
7 ;
8 ; Please visit documentation for the other options and examples
9 ; https://docs.platformio.org/page/projectconf.html
10
11 [env:genericSTM32F103C6]
12 platform = stm32
13 board = genericSTM32F103C6
14 framework = arduino
15
16 lib_deps =
17     askuric/Simple FOC@ 2.3.4
18 board_build.mcu = stm32f103c6t6
19 board_upload.maximum_size = 32768
20 upload_protocol = stlink
21 debug_tool = stlink
22 build_flags = -Os
23
```

```
lib_deps =
askuric/Simple FOC@ 2.3.4
board_build.mcu = stm32f103c6t6
board_upload.maximum_size = 32768
upload_protocol = stlink
debug_tool = stlink
build_flags = -Os
```

写好后，记得点保存，就开始自动下载库，右下角



设置到这里就结束了。

三、接线

根据程序定义，接线

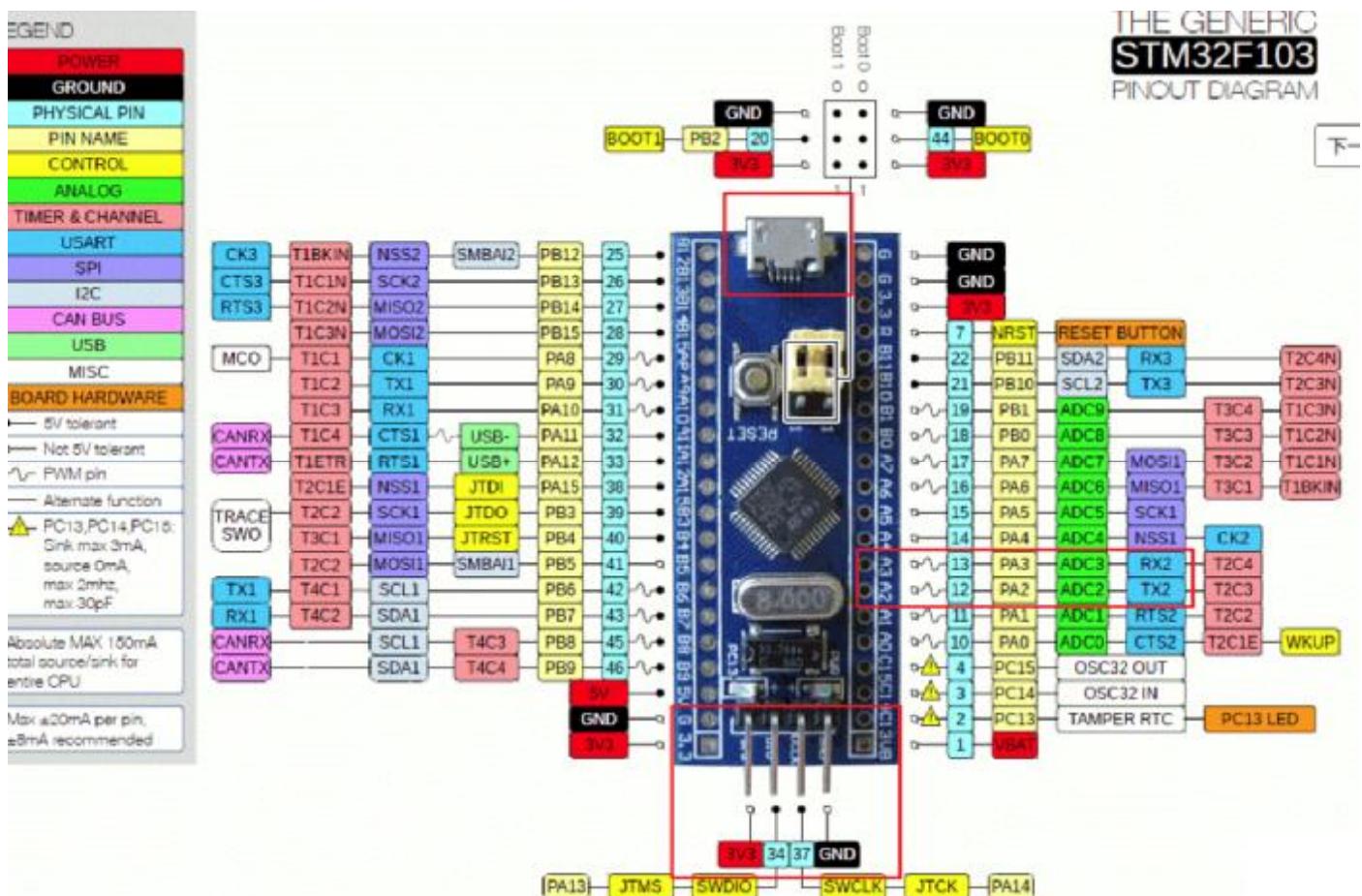
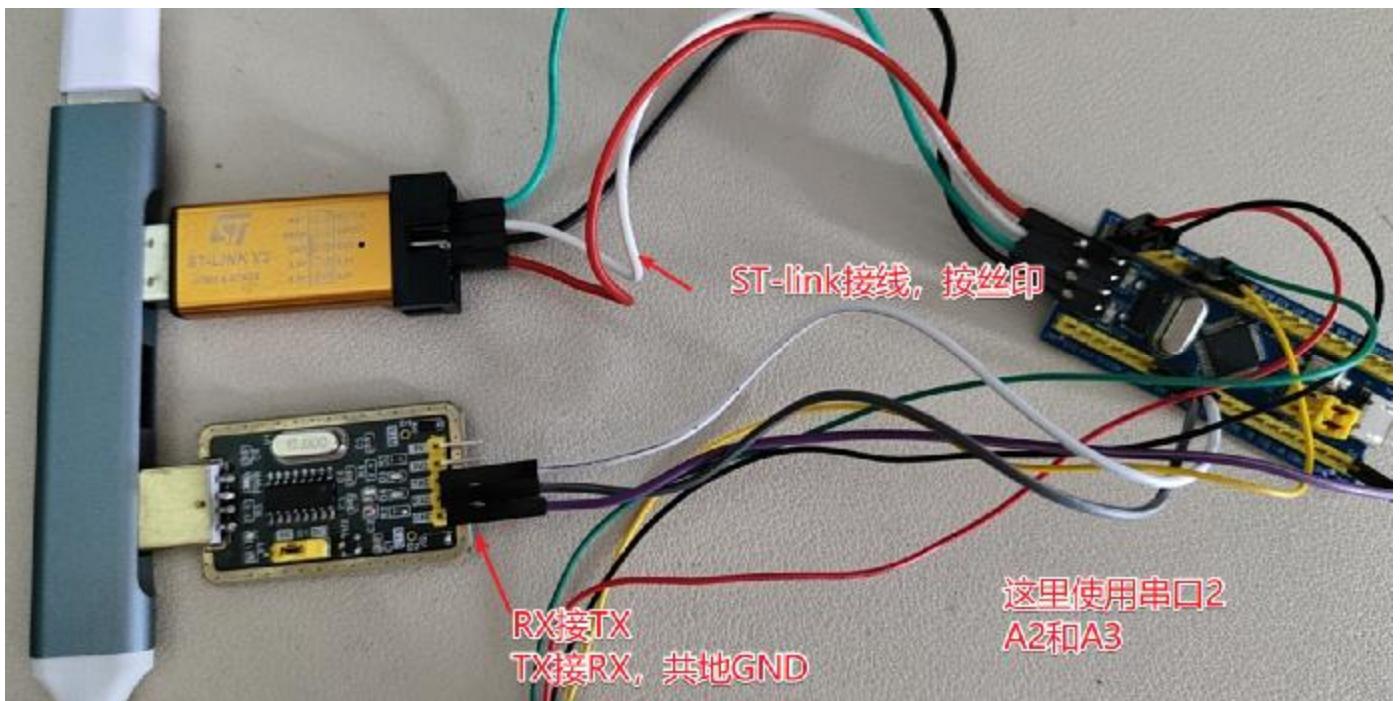
编码器与 STM32 接线：

1. 编码器的 A 引脚接 STM32 板子的 A4
2. 编码器的 B 接 A5
3. 编码器的 VCC 接 3V3
4. 编码器的 GND 接 GND

STM32 与 ST-Link 接线

按 STM32 和 ST-link 的丝印接即可

STM32 与 USB 转串口模块接线



这里使用串口 2，详见程序内定义。

USB 供电， microUSB 接口。

到此，线已接完。

四、编程

1. 开始编程

打开默认是这样的

```

src > main.cpp > ...
1 #include <Arduino.h>
2
3 // put function declarations here:
4 int myFunction(int, int);
5
6 void setup() {
7     // put your setup code here, to run once:
8     int result = myFunction(2, 3);
9 }
10
11 void loop() {
12     // put your main code here, to run repeatedly:
13 }
14
15 // put function definitions here:
16 int myFunction(int x, int y) {
17     return x + y;
18 }

```

2. 按 arduino 格式，写入以下代码，代码就不做注释了，可以直接复制粘贴到 AI，如 DEEPSEEK 上，让它帮忙逐行解析。

五、实现

```

#include <Arduino.h>
#include <HardwareSerial.h>

#include <SimpleFOC.h>

Encoder encoder = Encoder(PA4, PA5, 1024);
// interrupt routine initialisation
void doA(){encoder.handleA();}
void doB(){encoder.handleB();}

void setup() {
    // monitoring port
    Serial2.begin(115200);

    // enable/disable quadrature mode
    encoder.quadrature = Quadrature::ON;

    // check if you need internal pullups
    encoder.pullup = Pullup::USE_EXTERN;

    // initialise encoder hardware
    encoder.init();
    // hardware interrupt enable
    encoder.enableInterrupts(doA, doB);

    Serial.println("Encoder ready");
    _delay(1000);
}

```

```

void loop() {
    // iterative function updating the sensor internal variables
    // it is usually called in motor.loopFOC()
    // not doing much for the encoder though
    encoder.update();
    // display the angle and the angular velocity to the terminal
    Serial2.print(encoder.getAngle());
    Serial2.print("\t");
    Serial2.println(encoder.getVelocity());
}

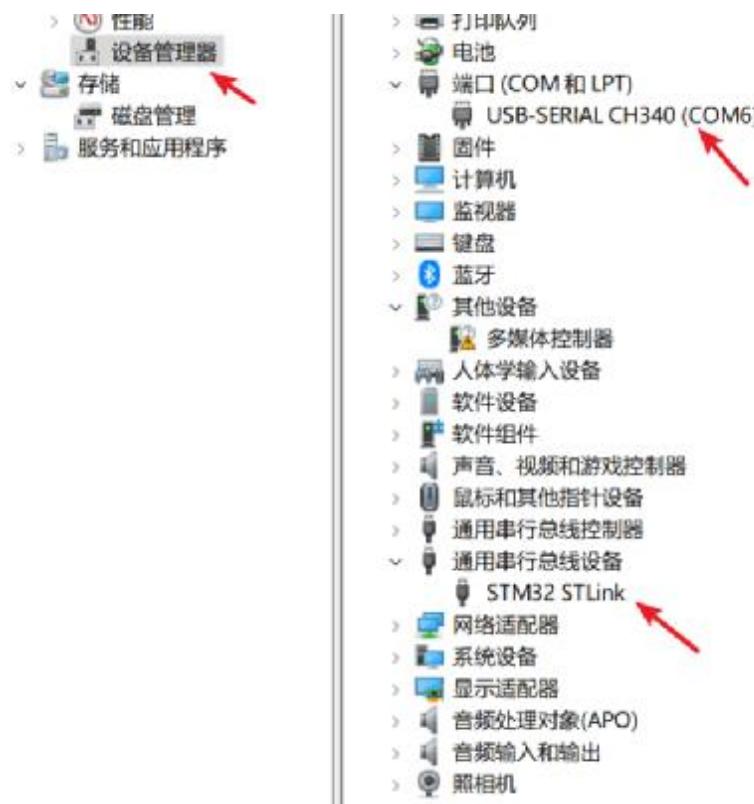
```

1. 编译烧录



2. 插上 USB, 开始烧录

确定驱动安装正确，设备管理器中，可以看到这两个。



3. 烧录成功

```

m1a_swd
[stm32f0x.cpu] halted due to debug-request, current mode: Thread
rPSR: 0x00000000 pc: 0x000035f0 msp: 0x20002800
** Programming Started **
Main : Adding extra erase range, 0x00004800 .. 0x00004bff
** Programming Finished **
** Verify Started **
** Verified OK **
** Resetting Target **
shutdown command invoked

```

[SUCCESS] Took 17.83 seconds

4. 打开串口监视



到此，测试结束！本文档主要针对 M 创动工坊淘宝店提供硬件, mcdgf.taobao.com