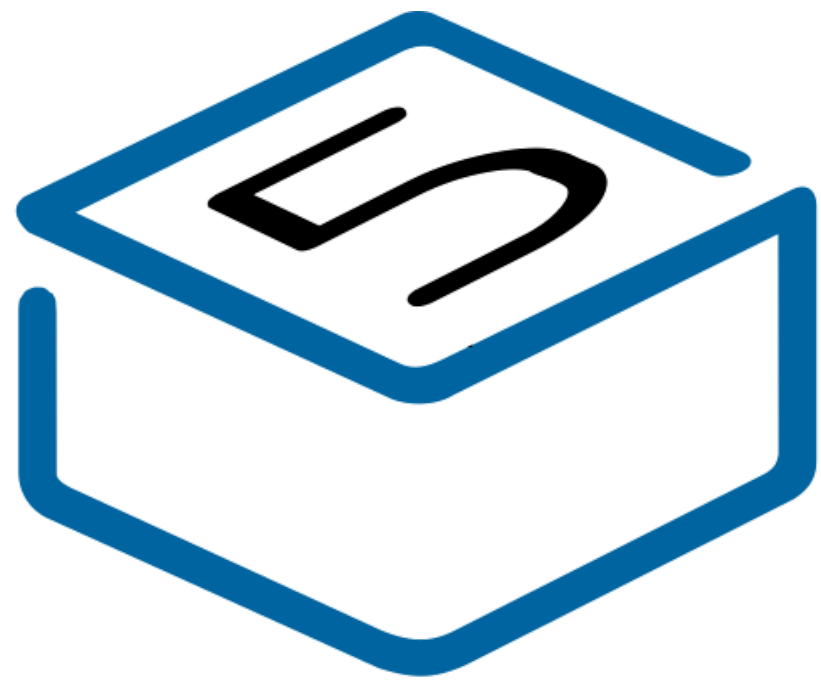
M5STACK

Dinmeter



M5STACK

2024

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1. OUTLINE

DinMeter is a1/32 DIN standard embedded development board equipped with a 1.14-inch ST7789 screen and powered by an M5StampS3 as its main controller. It features a built-in rotary encoder for precise knob position tracking. Additionally, it includes an RTC circuit, an onboard buzzer, and buttons below the screen for device interaction and alert notifications. In terms of power supply, the design supports a wide voltage input range of 6-36V DC and has reserved interfaces for a lithium battery and charging circuit to cater to various needs. Moreover, reserved PORTA and PORTB interfaces facilitate the expansion of I2C and GPIO devices. This product is suitable for applications in parameter measurement and detection, smart home control, Internet of Things (IoT) projects, smart wearables, access control, industrial control, and educational maker projects.

1.1. M5STACK DinMeter

1. Communication Capabilities:
   - Main Controller: ESP32-S3FN8
   - Wireless Communication: WiFi (WIFI), OTG\CDC functionality
   - Infrared Emission: Infrared emitter for IR control
   - Expansion Interface: HY2.0-4P interface, can connect and expand I2C sensors
2. Processor and Performance:
   - Processor Model: Xtensa LX7 (ESP32-S3FN8)
   - Storage Capacity: 8M-FLASH
   - Processor Clock Speed: Xtensa® dual-core 32-bit LX7 microprocessor, up to 240 MHz
3. Memory:
   - Micro SD Card Expansion: Supported, for expanding storage space
4. GPIO Pins and Programmable Interfaces:
   - Grove Port: Can connect and expand I2C sensors

2. SPECIFICATIONS

Parameters & Specifications	Values
MCU	ESP32-S3FN8@Xtensa® dual-core 32-bit LX7, 240MHz
Communication Capabilities	WiFi, OTG\CDC functionality, I2C sensor expansion
Flash Storage Capacity	8MB-FLASH
Power Supply	USB/DC Power/Lithium Battery
Sensors	Rotary Encoder
Screen	1.14 Inch TFT Screen, 240×135px
Audio	Passive On-board Speaker
Expansion Ports	Grove Port, for connecting and expanding I2C sensors
Dimensions	53 * 32 * 30mm
Operating Temperature	0℃ to 40℃

3. QUICK START

3.1. Print WiFi information

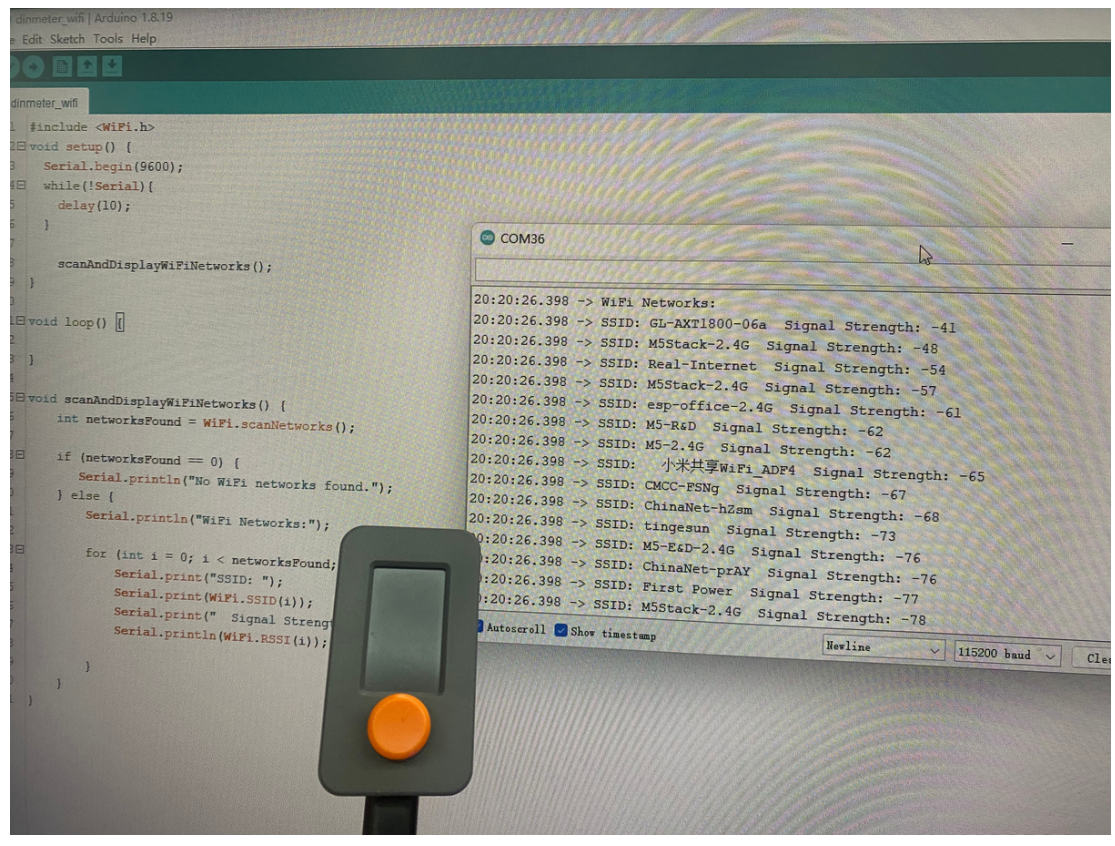
1. Open the Arduino IDE
(refer to https://docs.m5stack.com/en/arduino/arduino_ide View the installation development board and software tutorial)
2. Select the M5StampS3 board and upload the code
3. The screen displays the scanned WiFi and the intensity information

dinmeter_wifi | Arduino 1.8.19

File Edit Sketch Tools Help

dinmeter_wifi

```ino
#include <WiFi.h>
void setup() {
  Serial.begin(9600);
  while(!Serial){
    delay(10);
  }

    scanAndDisplayWiFiNetworks();
}

void loop() {

}

void scanAndDisplayWiFiNetworks() {
    int networksFound = WiFi.scanNetworks();

    if (networksFound == 0) {
       Serial.println("No WiFi networks found.");
    } else {
        Serial.println("WiFi Networks:");

        for (int i = 0; i < networksFound; ++i) {
            Serial.print("SSID: ");
            Serial.print(WiFi.SSID(i));
            Serial.print("  Signal Strength: ");
            Serial.println(WiFi.RSSI(i));

        }
    }
}
```



3. QUICK START

3.1. Print BLE information

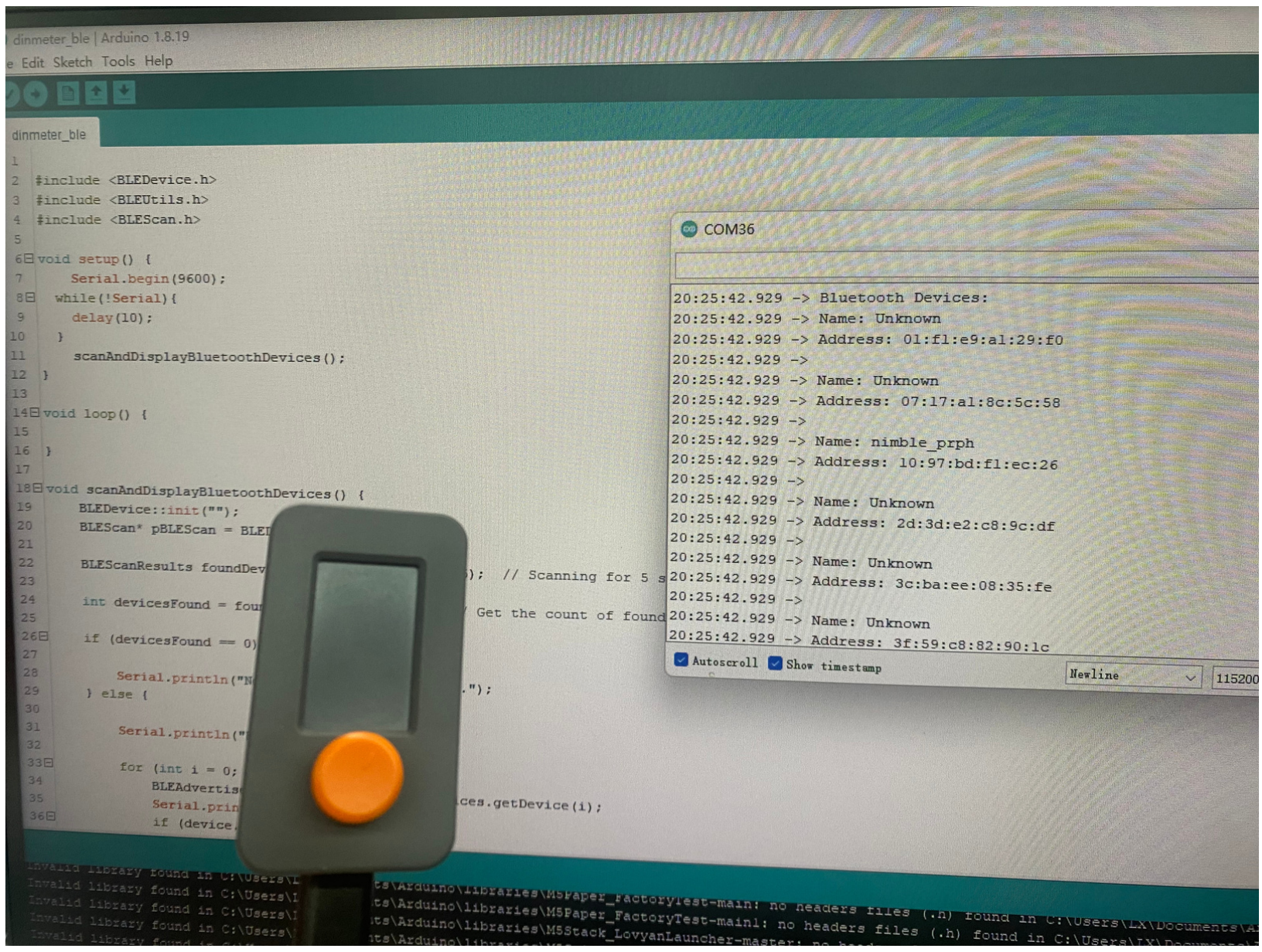
1. Open the Arduino IDE
(refer to https://docs.m5stack.com/en/arduino/arduino_ide View the installation development board and software tutorial)
2. Select the **M5StampS3** board and upload the code
3. The screen displays the scanned BLE device

dinmeter_ble | Arduino 1.8.19

File Edit Sketch Tools Help

dinmeter_ble

```
#include <BLEDevice.h>
#include <BLEUtils.h>
#include <BLEScan.h>

void setup() {
    Serial.begin(9600);
  while(!Serial){
    delay(10);
  }
    scanAndDisplayBluetoothDevices();
}

void loop() {

}

void scanAndDisplayBluetoothDevices() {
    BLEDevice::init("");
    BLEScan* pBLEScan = BLEDevice::getScan();

    BLEScanResults foundDevices = pBLEScan->start(5);  // Scanning for 5 seconds, adjust as needed

    int devicesFound = foundDevices.getCount();  // Get the count of found devices

    if (devicesFound == 0) {

        Serial.println("No Bluetooth devices found.");
    } else {

        Serial.println("Bluetooth Devices:");

        for (int i = 0; i < devicesFound; ++i) {
            BLEAdvertisedDevice device = foundDevices.getDevice(i);
            Serial.print("Name: ");
            if (device.getName().length() > 0) {
```



FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.