M5STACK STAMPS3A Highly Integrated Embedded Controller User Manual

Contents

M5STACK

M5STACK STAMPS3A Highly Integrated Embedded Controller

OUTLINE

STAMPS3A is a highly integrated embedded controller designed for IoT applications. It utilizes the Espressif ESP32-S3FN8 main control chip and features 8MB of SPI flash memory. Powered by a high-performance Xtensa 32-bit LX7 dual-core processor, STAMPS3A delivers impressive processing power with a main frequency of up to 240MHz. This module is specifically designed to meet the demands of IoT projects that require embedded main control modules.

STAMPS3A comes equipped with a built-in highly integrated 5V to 3.3V circuit, ensuring stable power supply for reliable operation. It features an RGB status indicator and a programmable button for enhanced user control and visual feedback. The module conveniently leads out 23 GPIOs on the ESP32-S3, allowing for extensive expansion capabilities. The GPIOs are accessible through 1.27mm/2.54mm spacing leads, supporting various usage methods such as SMT, DIP row, and jump wire connections.

STAMPS3A offers a compact form factor, delivering strong performance, rich expansion IO, and low power consumption. Its 3D antenna design is more stable compared to previous versions, and the RGB LED power is programmable, enabling low-power operation. This makes STAMPS3A the ideal choice for IoT application scenarios that require the integration of embedded controllers. Its compact size and powerful features ensure reliable performance and flexible expansion options for a wide range of projects.

STAMPS3A

1. **Communication Capabilities:**

   Main Controller: ESP32-S3FN8

   Wireless Communication: Wi-Fi (2.4 GHz), Bluetooth Low Energy (BLE) 5.0

   Dual CAN Bus: Supports dual CAN bus interfaces for reliable data communication in industrial environments.
2. **Processor and Performance:**

   Processor Model: Xtensa LX7 Dual-core (ESP32-S3FN8)

   Storage Capacity: 8MB Flash
3. **Display and Input:**

   RGB LED: Integrated Neopixel RGB LED for dynamic visual feedback.
4. **GPIO Pins and Programmable Interfaces:**

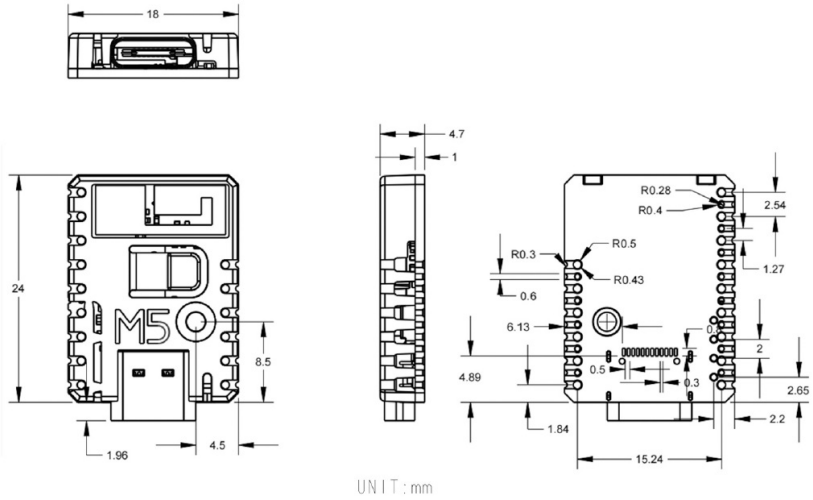
   23GPIOs
5. **Others**:

   Onboard Interface: Type-C interface for programming, power supply, and serial communication.

Physical Dimensions: 24*18*4.7 mm, designed for compact installation with an M2 screw hole on the back for fixation.

SPECIFICATIONS

Module Size

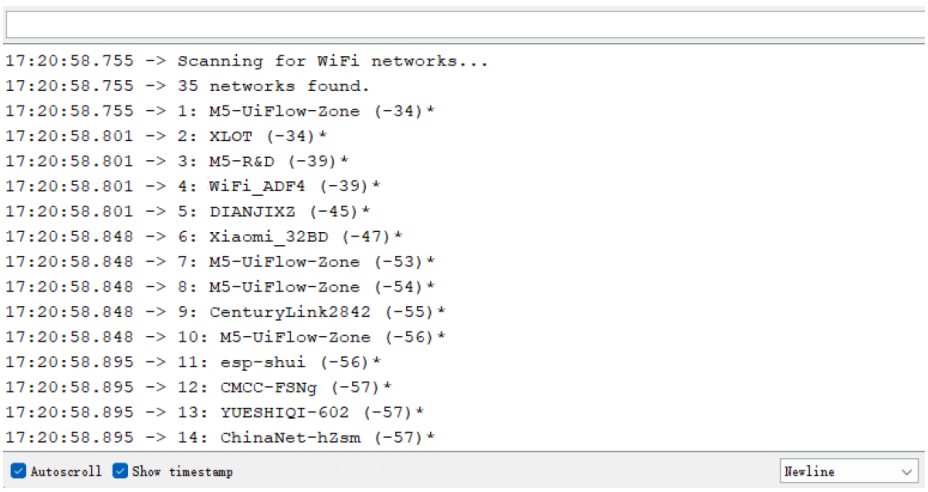


QUICK START

Before you do this step, look at the text in the final appendix: Installing Arduino

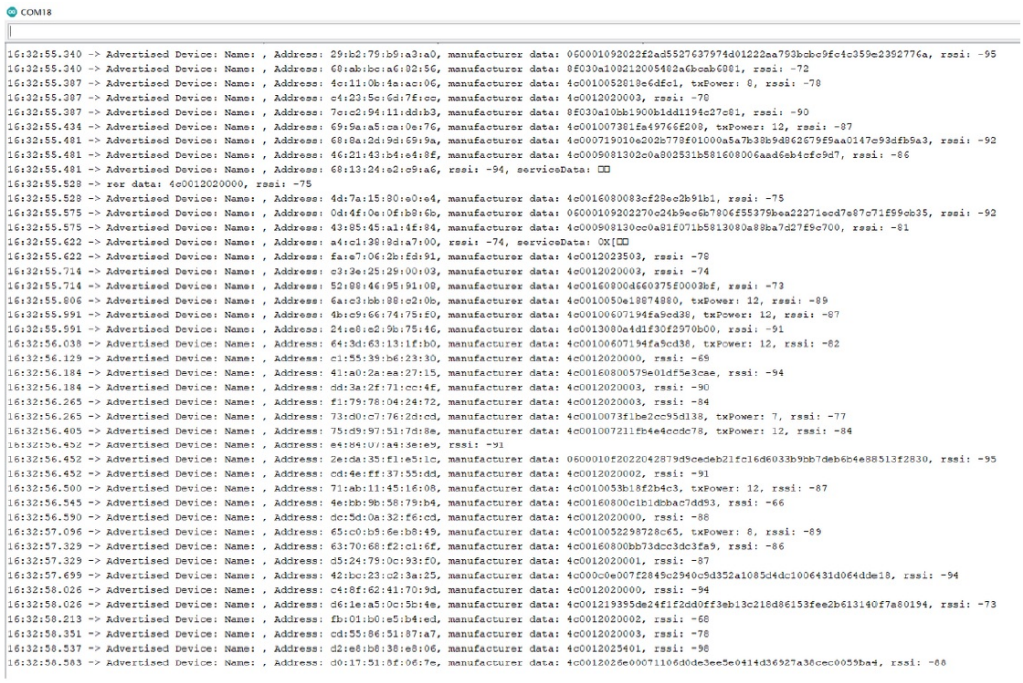
Print Wi-fi Information

1. Open Arduino IDE (Refer to **https://docs.m5stack.com/en/arduino/arduino_ide** for the installation guide for the development board and software)
2. Select the ESP32S3 DEV Module board and the corresponding port, then upload the code
3. Open the serial monitor to display the scanned WiFi and signal strength information



Print BLE information

1. Open Arduino IDE (Refer to https://docs.m5stack.com/en/arduino/arduino_ide for the installation guide for the development board and software)
2. Select the ESP32S3 DEV Module board and the corresponding port, then upload the code
3. Open the serial monitor to display the scanned BLE and signal strength information



FCC Warning

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

IMPORTANT NOTE:

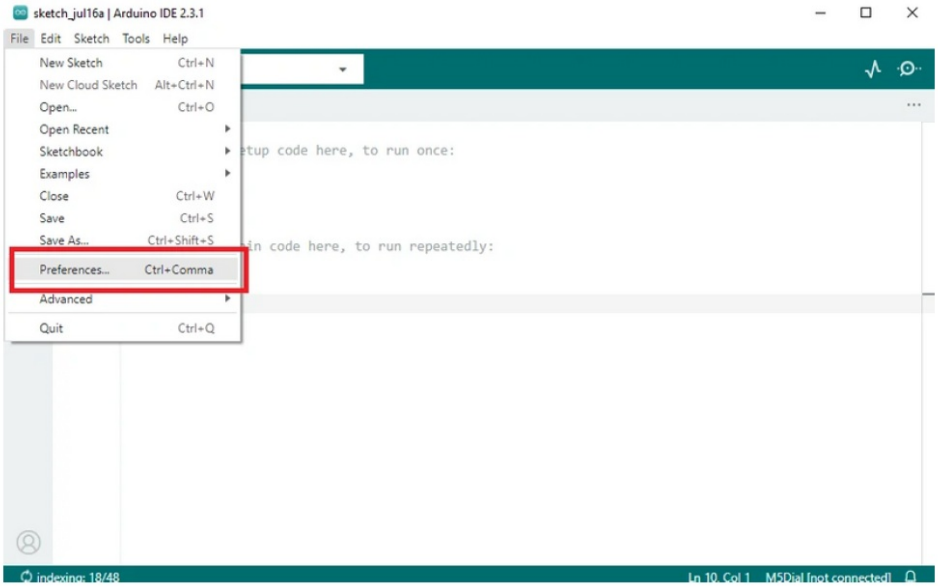
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate 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.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

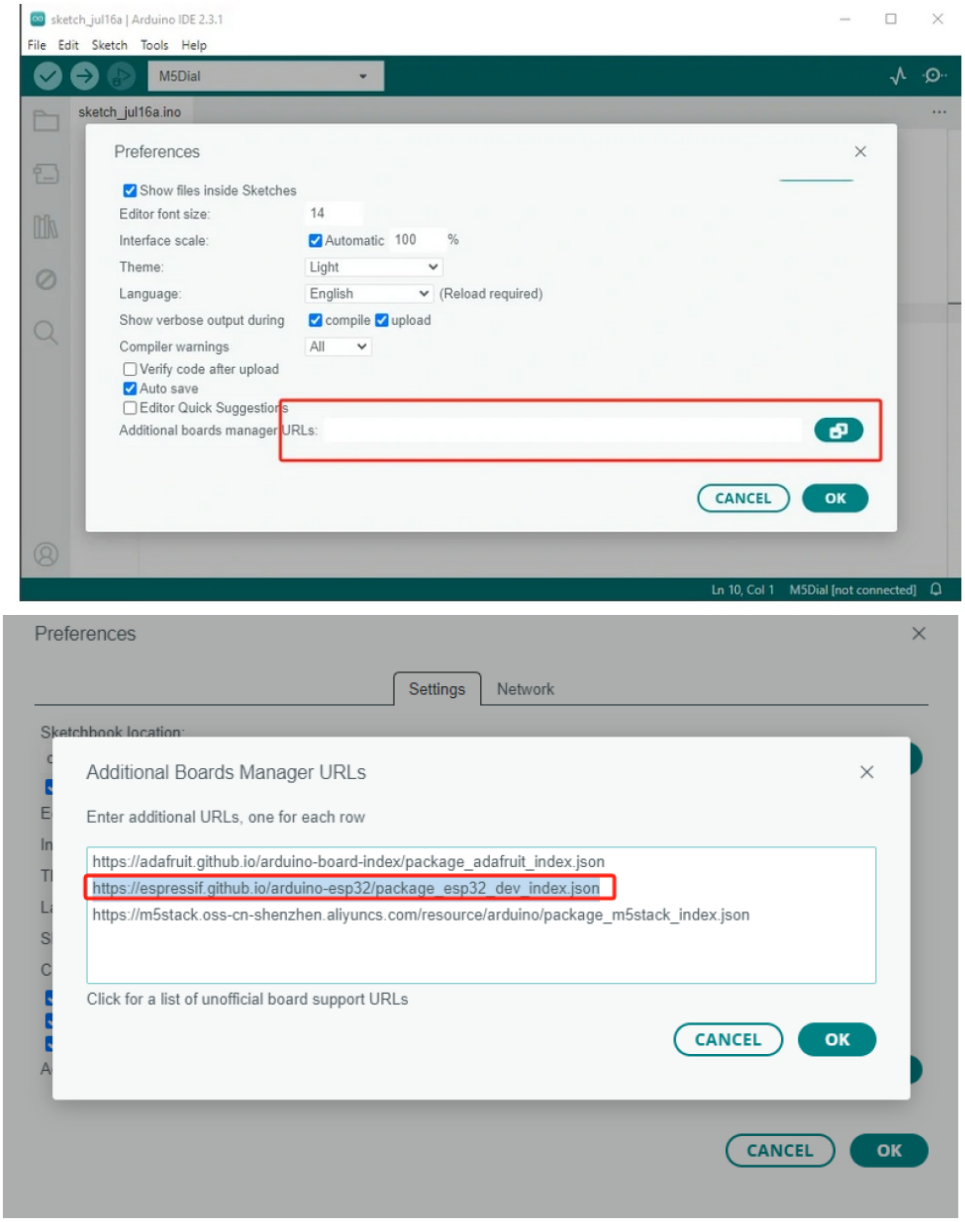
Arduino Install

- Installing Arduino IDE(https://www.arduino.cc/en/Main/Software) Click to visit the Arduino official website, and select the installation package for your operating system to download.
- Installing Arduino Board Management

1. The Board Manager URL is used to index the development board information for a specific platform. In the Arduino IDE menu, select File -> Preferences

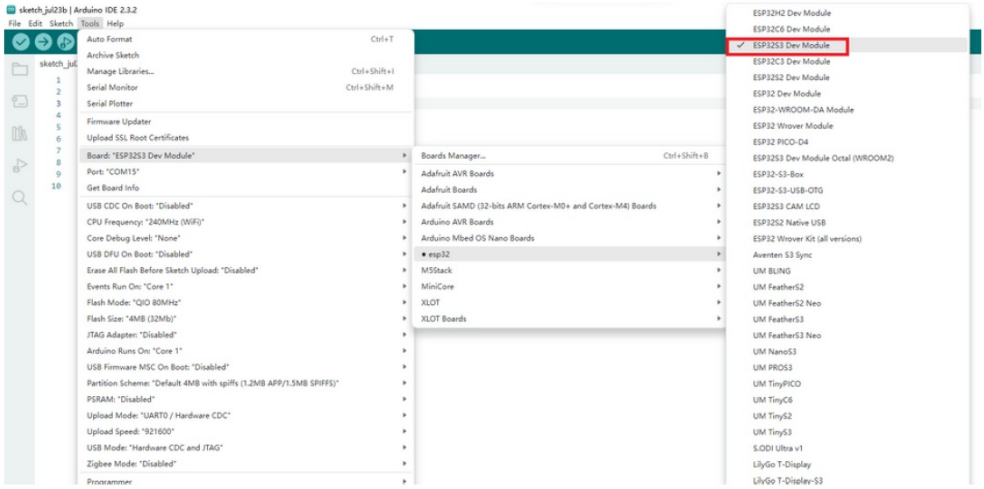


2. Copy the ESP board management URL below into the Additional Board Manager URLs: field, and save.
   https://espressif.github.io/arduino-esp32/package_esp32_dev_index.json



3. In the sidebar, select Board Manager, search for ESP, and click Install.

4. In the sidebar, select Board Manager, search for M5Stack, and click Install. Depending on the product used, select the corresponding development board under Tools -> Board -> M5Stack -> {ESP32S3 DEV Module board}.



5. Connect the device to your computer with a data cable to upload the program.

Documents / Resources

StampS3A M5STACK	M5STACK STAMPS3A Highly Integrated Embedded Controller [pdf] User Manual M5STAMPS3A, 2AN3WM5STAMPS3A, STAMPS3A Highly Integrated Embedded Controller, STAMPS3A, Highly Integrated Embedded Controller, Integrated Embedded Controller, Embedded Controller, Controller

References

- espressif.github.io/arduino-esp32/package_esp32_dev_index.json
- User Manual