M5Stack M5StickC Plus2

M5Stack M5StickC PLUS2 User Manual

Model: M5StickC Plus2
Brand: M5Stack

1. INTRODUCTION

The M5Stack M5StickC PLUS2 is a compact and versatile IoT development kit, featuring the ESP32-PICO-V3-02 chip. Designed for rapid prototyping and integration into various projects, it offers robust BLE and WiFi connectivity, making it ideal for applications in IIoT, home automation, smart retail, and STEM education. This manual provides essential information for setting up, operating, and maintaining your M5StickC PLUS2 device.

Figure 1.1: M5StickC PLUS2 Development Kit with Watch Accessories. The image displays the main M5StickC Plus2 unit, a USB-C cable, a watch strap, and two types of mounting brackets (Wall and Brick).

2. PACKAGE CONTENTS

Verify that all items are present in your package:

- 1 x M5StickC PLUS2 Unit
- 1 x Watch Strap
- 1 x USB-C Cable (50cm)
- 1 x WALL Mounting Bracket
- 1 x BRICK Mounting Bracket

Figure 2.1: Detailed breakdown of M5StickC PLUS2 Watch Kit components. Labels indicate M5StickC Plus2, USB-C 50CM cable, Watch Belt, BRICK mount, WALL mount, and key internal components like ESP32-PICO-V3-02, 8M FLASH, 2M PSRAM, CH9102, MPU6886, RTC BM8563, ST7789V2-1.14" display, built-in buzzer, IR transmitter, 200mAh battery, and SPM1423-PDM MIC.

3. SETUP

3.1 Initial Charging

Before first use, fully charge the M5StickC PLUS2 using the provided USB-C cable. Connect the cable to the device's USB-C port and the other end to a standard USB power adapter (5V @ 500mA recommended) or a computer's USB port. The device has a 200mAh battery.

3.2 Connecting to a Computer

To program or configure the M5StickC PLUS2, connect it to your computer using the USB-C cable. You may need to install appropriate drivers (e.g., CP210X or CH9102 drivers, depending on the specific USB-to-serial chip) for your operating system to recognize the device.

3.3 Software Setup

The M5StickC PLUS2 supports various development environments, including Arduino IDE, MicroPython (UIFlow), and ESP-IDF. Refer to the official M5Stack documentation for detailed instructions on setting up your preferred development environment and flashing firmware.

- **Arduino IDE:** Install the ESP32 board package and M5Stack libraries.
- **UIFlow (MicroPython):** Use the M5Burner tool to flash the UIFlow firmware, then program via the UIFlow web IDE.
- **ESP-IDF:** For advanced users, follow Espressif's ESP-IDF setup guide.

4. OPERATING THE M5STICKC PLUS2

4.1 Basic Operation

The M5StickC PLUS2 features a 1.14-inch TFT screen and multiple buttons for interaction. The exact functionality of these buttons and the display will depend on the firmware loaded onto the device.

- **Power On/Off:** Typically, a long press of the main button (usually the side button) will power the device on or off.
- **Navigation:** Short presses of the buttons can be used for menu navigation or triggering specific functions as defined by your program.

4.2 Connectivity

The device supports Wi-Fi and Bluetooth Low Energy (BLE) for wireless communication.

- **Wi-Fi:** Connect to local Wi-Fi networks to access the internet, communicate with cloud services, or create a local web server.
- **Bluetooth/BLE:** Establish connections with other Bluetooth-enabled devices for data exchange or control.

4.3 Wearable Use

With the included watch accessories, the M5StickC PLUS2 can be worn as a wrist device, enabling portable IoT applications and data collection.

Figure 4.1: M5StickC PLUS2 configured as a wearable device. The image shows the device attached to the orange watch strap and worn on a person's wrist, demonstrating its compact size and portability.

Figure 4.2: Wearable Devices application. This image emphasizes the M5StickC PLUS2's small size and low power consumption, making it suitable for wearable technology.

4.4 Application Scenarios

The M5StickC PLUS2 is versatile and can be used in various applications:

- **Sports Activity Monitoring:** Utilize its sensors (e.g., MPU6886 6-axis IMU) for tracking movement.
- **IoT Controller:** Act as a central hub or node in smart home or industrial IoT systems.
- **DIY Creation:** A flexible platform for custom electronic projects and rapid prototyping.

Figure 4.3: Scope of Application for M5StickC PLUS2. The image illustrates three primary uses: Sports Activity Monitoring (person tying shoelaces), IoT Controller (smart building), and DIY Creation (electronic components on a breadboard).

5. MAINTENANCE

To ensure the longevity and optimal performance of your M5StickC PLUS2, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the device. Avoid using liquids or abrasive cleaners.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Battery Care:** Do not expose the battery to high temperatures or puncture it. If the device will not be used for an extended period, charge it to about 50% before storing.
- **Avoid Physical Damage:** Protect the device from drops, impacts, and excessive force.
- **Firmware Updates:** Regularly check the M5Stack official website for firmware updates to ensure you have the latest features and bug fixes.

6. TROUBLESHOOTING

If you encounter issues with your M5StickC PLUS2, try the following troubleshooting steps:

- **Device Not Powering On:**

  - Ensure the battery is charged. Connect to a power source and wait a few minutes.
  - Try a different USB-C cable or power adapter.

- **Computer Not Recognizing Device:**

  - Install the necessary USB-to-serial drivers (e.g., CP210X or CH9102).
  - Try a different USB port on your computer.
  - Ensure the USB-C cable supports data transfer, not just charging.

- **Firmware Upload Failure:**

  - Verify that the correct board and port are selected in your IDE.
  - Ensure no other applications are using the serial port.

- Try holding the boot button (if applicable) while initiating the upload.

- **Wi-Fi/Bluetooth Connectivity Issues:**

  - Check your code for correct Wi-Fi credentials or Bluetooth pairing procedures.
  - Ensure the device is within range of the Wi-Fi router or Bluetooth device.
  - Restart the M5StickC PLUS2 and the target network/device.

- **Screen Not Displaying:**

  - Check if the device is powered on.
  - Verify that your program is correctly initializing and writing to the display.

For more detailed troubleshooting or specific technical support, please visit the official M5Stack documentation or community forums.

7. SPECIFICATIONS

Specifications

RESOURCES	PARAMETER
MCU	ESP32-PICO-V3-02
FLASH	8 MB flash
PSRAM	2 MB PSRAM
Power Input	5V @ 500mA
Button	Custom button x 3
MEMS	MPU6886
Buzzer	built-in buzzer
Battery	200mAh @ 3.7V

Figure 7.1: M5StickC PLUS2 Technical Specifications. This image presents a table detailing the resources and parameters of the device, including MCU, Flash, PSRAM, Power input, Buttons, MEMS, Buzzer, and Battery.

Feature	Parameter
Brand	M5Stack
Model Name	M5StickC Plus2
MCU	ESP32-PICO-V3-02
Flash	8 MB
PSRAM	2 MB
Display	1.14-inch TFT (ST7789V2)
IMU	MPU6886 (6-Axis)
RTC	BM8563
Buzzer	Built-in
IR Transmitter	Yes
Microphone	SPM1423-PDM MIC

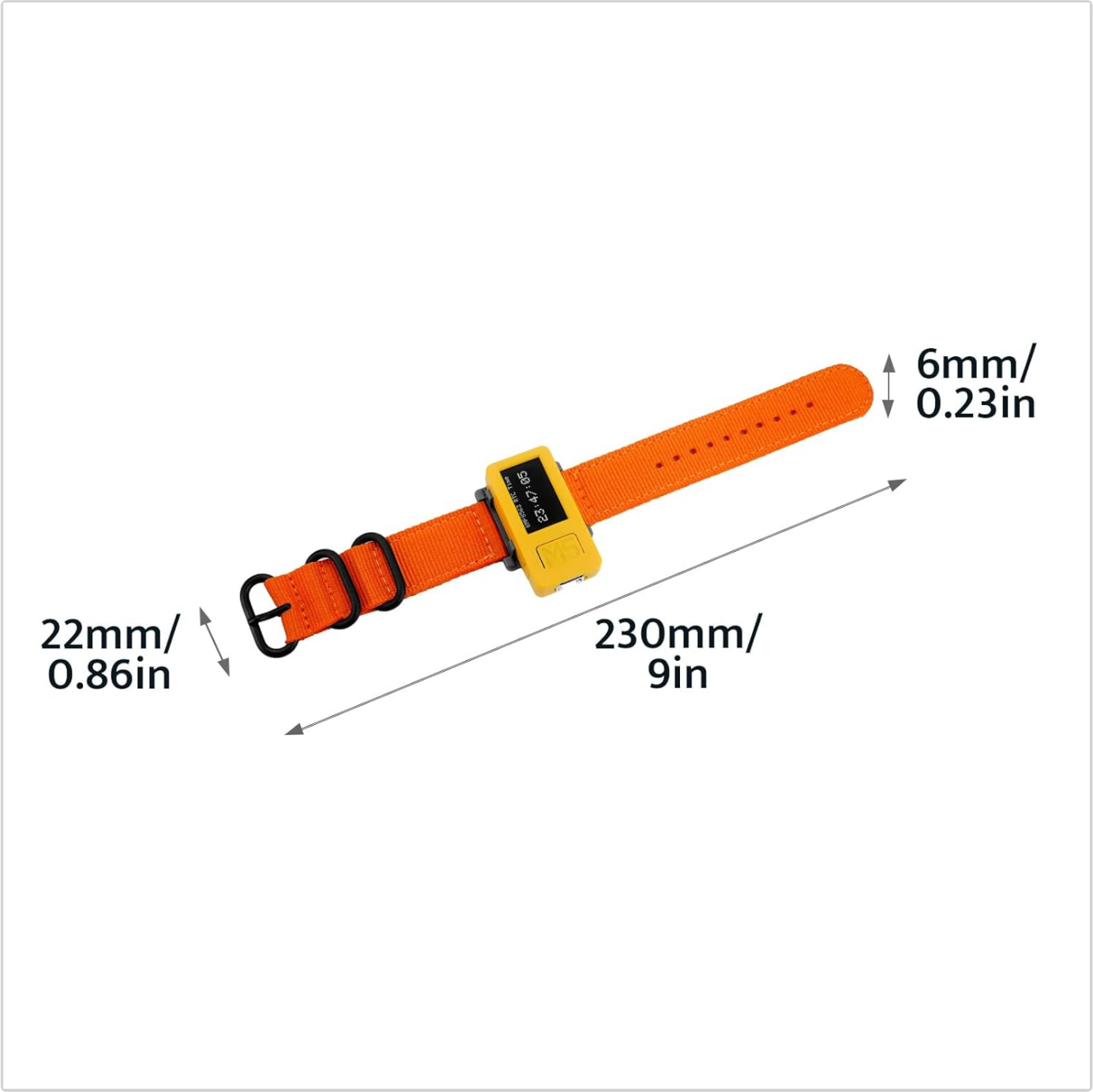| Feature	Parameter
Battery	200mAh @ 3.7V (Nonstandard Battery)
Power Input	5V @ 500mA (USB-C)
Connectivity	Wi-Fi, Bluetooth, BLE, HY2.0-4P, 8P@2.54mm
Item Weight	2.39 ounces
Package Dimensions	4.88 x 2.6 x 0.91 inches
Country of Origin	China

Figure 7.2: Watch Strap Dimensions. The image shows the watch strap with measurements: 6mm/0.23in width, 22mm/0.86in buckle width, and 230mm/9in total length.

Figure 7.3: M5StickC PLUS2 Weight. The device, attached to its watch strap, is shown on a digital scale displaying a weight of 28.8 grams.

8. WARRANTY AND SUPPORT

M5Stack products typically come with a standard manufacturer's warranty. For specific warranty terms and conditions, please refer to the official M5Stack website or contact their customer support.

For technical support, documentation, and community forums, please visit the official M5Stack resources:

- Official M5Stack Website: www.m5stack.com
- M5Stack Store on Amazon: Visit M5Stack Store

M5Stack is committed to providing modular, open-source IoT development solutions, empowering innovation and rapid prototyping.

Related Documents - M5StickC Plus2

M5STICKC Lite User Manual	[M5STICKC Lite User Manual - M5Stack](#) Comprehensive user manual for the M5STICKC Lite development board by M5Stack. Covers hardware composition, pin descriptions, ESP32-PICO-V3 features, power management, Arduino IDE and UIFlow development setup, firmware burning, WiFi configuration, BLE UART, and FCC compliance.
M5StickC PLUS2	[M5StickC PLUS2: ESP32-PICO-V3-02 IoT Development Board](#) Explore the M5StickC PLUS2, an advanced ESP32-PICO-V3-02 based IoT development board by M5Stack. Discover its features, specifications, tutorials, and differences from its predecessor, ideal for rapid prototyping and creative projects.
M5StickC Plus2 Operation Guidance	[M5StickC Plus2 Operation Guidance and Setup](#) Comprehensive guide to the M5StickC Plus2 development board from M5Stack, covering setup, firmware flashing, features, specifications, and applications for IoT projects.
M5StickC Plus2 Operation Guidance	[M5StickC Plus2 Operation Guidance](#) Comprehensive operation guidance for the M5StickC Plus2 IoT development board. This guide covers common troubleshooting scenarios, including boot failures and battery issues, and provides detailed, step-by-step instructions for flashing official firmware using the M5Burner tool, including essential USB driver installation and port selection procedures.
StickC-Plus2	[M5Stack StickC-Plus2 Development Board: Features, Specifications, and Usage](#) Detailed overview of the M5Stack StickC-Plus2, a compact ESP32-PICO-V3-02 development board. Covers features, technical specifications, programming options like UIFlow and Arduino IDE, power management, and hardware comparisons.
M5StickC Plus2 Operation Guidance	[M5StickC Plus2 Operation Guidance and Firmware Flashing Tutorial](#) Comprehensive guide for M5StickC Plus2 operation, troubleshooting common issues like boot failures, and detailed steps for flashing firmware using the M5Burner tool. Includes driver installation and port selection instructions.