M5STACK M5STACK-U173

M5Stack QR Code Scanner Unit (STM32F030) User Manual

Model: **M5STACK-U173** | Brand: **M5STACK**

1. Introduction

This document provides comprehensive instructions for the M5Stack QR Code Scanner Unit (STM32F030). This unit is a 1D/2D code scanner equipped with a 640 x 480 resolution CMOS QR code capture engine and an STM32F030 MCU for bus conversion. It is designed for various applications requiring efficient barcode scanning.

The communication interface can be easily switched between I2C and UART using a toggle switch. It supports a wide range of 2D and 1D codes, and its firmware is upgradeable for future enhancements. The unit includes a scan trigger button, a buzzer, and auxiliary LED illumination to provide clear feedback on focus and aiming status. The trigger mode can be configured for continuous or manual operation via programming, making it suitable for logistics, retail, manufacturing, and other industries.

2. Product Features

- **MCU:** STM32F030F4P6@32 bit ARM Cortex-M0 processor
- **Sensor:** 640x480 CMOS for high-resolution scanning
- **Illumination:** White LED for optimal scanning in various lighting conditions
- **Focus/Aiming Indicator:** Green LED and buzzer provide real-time feedback
- **Supported 2D Codes:** PDF417, QR Code, Data Matrix
- **Supported 1D Codes:** Code39, Code93, Code 128, EAN-13, EAN-8, UPC-A, UPC-E, Interleaved 2 of 5
- **Reading Accuracy:** ≥5 mil
- **Print Contrast:** ≥ 20%
- **Scan Angle:** Pitch ±55° / Skew ±55° (adjustable with reflective scan head)
- **Communication Interface:** I2C Serial Communication (0x21) and UART, switchable via toggle
- **Case Material:** Durable Plastic (PC)
- **Firmware:** Upgradeable
- **Trigger:** Scan trigger button for manual operation

3. Setup

Before using the M5Stack QR Code Scanner Unit, ensure it is properly connected to your M5Stack host device or compatible system.

3.1. Physical Connection

1. Locate the 4-pin connector on the M5Stack QR Code Scanner Unit.
2. Connect the unit to a compatible port on your M5Stack device. Ensure the connector is inserted correctly and securely.
3.



Image: Close-up view of the 4-pin connector, showing the interface for connecting to a host device.

3.2. Interface Selection (I2C/UART)

The unit supports both I2C and UART communication protocols. A toggle switch on the side of the unit allows you to select the desired interface.

1. Identify the small toggle switch located on the side of the scanner unit.
2. Slide the switch to the position corresponding to your desired communication protocol (I2C or UART). Refer to your M5Stack host device's documentation for compatible interfaces.
3.

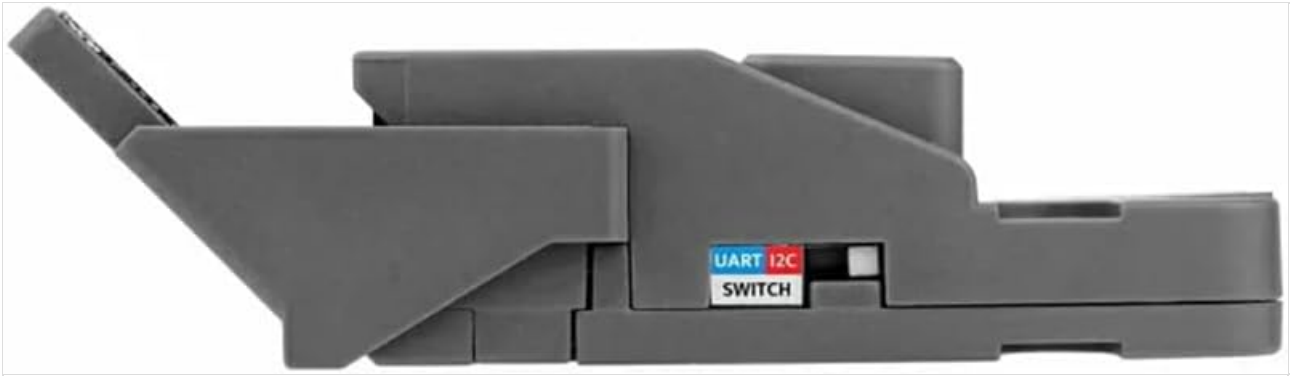


Image: Side view of the scanner unit, highlighting the toggle switch for selecting between UART and I2C communication modes.

4. Operating Instructions

This section details how to operate the M5Stack QR Code Scanner Unit for effective code reading.

4.1. Scanning a Code

1. Ensure the unit is powered on and connected to your host device.
2. Point the scanner's lens towards the 1D or 2D code you wish to scan. The optimal scanning distance may vary depending on code size and type.
3. Press the "TRIG" (Trigger) button located on the top of the unit to initiate a scan.
4.



Image: Top view of the scanner unit, clearly showing the "TRIG" button used to activate the scanning process.

5.



Image: Front view of the scanner, displaying the integrated lens for code capture and the white illumination LED.

4.2. Feedback Indicators

- **Green LED:** Illuminates to indicate successful focus and aiming.
- **Buzzer:** Emits a sound to confirm a successful scan.

4.3. Trigger Modes

The scanner supports different trigger modes, which can be configured via programming on your M5Stack host device:

- **Manual Mode:** Requires pressing the "TRIG" button for each scan.
- **Continuous Mode:** The scanner continuously attempts to read codes without requiring repeated button presses.

Refer to the M5Stack documentation and programming examples for details on how to set these modes.

5. Specifications

Feature	Detail
MCU	STM32F030F4P6@32 bit ARM Cortex-M0 processor
Sensor	640x480 CMOS
Illumination	White LED
Focus/Aiming Indicator	Green LED
Supported 2D Codes	PDF417, QR Code, Data Matrix
Supported 1D Codes	Code39, Code93, Code 128, EAN-13, EAN-8, UPC-A, UPC-E, Interleaved 2 of 5
Reading Accuracy	≥5 mil
Print Contrast	≥ 20%
Scan Angle	Pitch ±55° / Skew ±55° (Adjustable with reflective scan head)
Communication Interface	I2C Serial Communication (0x21), UART

Feature	Detail
Case Material	Plastic (PC)
Product Dimensions	65.8 x 18.4 x 15.8 mm
Product Weight	14 g
Package Dimensions	136 x 92 x 16 mm
Package Weight	19.4 g

6. Maintenance

Proper maintenance ensures the longevity and optimal performance of your M5Stack QR Code Scanner Unit.

- **Cleaning:** Use a soft, dry cloth to gently wipe the exterior of the unit. For the scanner lens, use a lens cleaning cloth and solution to avoid scratches. Do not use abrasive cleaners or solvents.
- **Storage:** Store the unit in a cool, dry place away from direct sunlight, extreme temperatures, and high humidity.
- **Handling:** Avoid dropping the unit or subjecting it to strong impacts, as this can damage internal components.

7. Troubleshooting

This section addresses common issues you might encounter with the M5Stack QR Code Scanner Unit.

Problem	Possible Cause	Solution
Scanner not responding	Loose connection, incorrect interface selected, no power.	◦ Check if the unit is securely connected to the M5Stack host. ◦ Verify the I2C/UART switch is in the correct position for your setup. ◦ Ensure the M5Stack host device is powered on.
Cannot read codes	Incorrect distance, poor lighting, damaged code, dirty lens, wrong trigger mode.	◦ Adjust the distance between the scanner and the code. ◦ Ensure adequate lighting; use the auxiliary LED if necessary. ◦ Clean the scanner lens with a soft, lint-free cloth. ◦ Check if the code is damaged or poorly printed. ◦ Confirm the trigger mode (manual/continuous) is set as desired.

Problem	Possible Cause	Solution
Buzzer/LED not working	Unit malfunction, programming issue.	◦ Ensure the unit is receiving power and is properly connected. ◦ Check your M5Stack programming to ensure buzzer/LED feedback is enabled.

If you continue to experience issues, please refer to the M5Stack official documentation or contact customer support.

8. Warranty and Support

For warranty information, please refer to the terms and conditions provided at the time of purchase or visit the official M5Stack website. Technical support is available through M5Stack's official channels, including their documentation, forums, and customer service contact points.

For the latest resources and community support, visit:M5Stack Official Website

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Question

Example: How do I reset this device or fix this error?

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