M5Stack K016-P

M5Stack M5StickC PLUS2 ESP32-PICO-V3-02 Mini IoT Development Kit User Manual

Model: K016-P

1. Introduction

The M5Stack M5StickC PLUS2 is a compact, versatile IoT development kit powered by the ESP32-PICO-V3-02 chip. It features a 1.14-inch TFT screen, Wi-Fi, and Bluetooth connectivity, making it suitable for a wide range of applications. This manual provides essential information for setting up, operating, and maintaining your M5StickC PLUS2.

Image 1.1: The M5StickC PLUS2 Mini IoT Development Kit.

1.1 Applications

The M5StickC PLUS2 is designed for various uses, including:

- Smart home device integration
- DIY electronics projects
- STEM education
- Wearable technology development

Image 1.2: Examples of M5StickC PLUS2 applications, including smart home integration, DIY projects, STEM education, and wearable devices.

2. Product Overview

The M5StickC PLUS2 integrates various components into a small form factor, designed for ease of use and rapid prototyping.

2.1 Device Components

Image 2.1: Labeled diagram of the M5StickC PLUS2, highlighting key components such as the 3D antenna, LED, IR transmitter, microphone, buttons (A and B), magnet, buzzer, USB-C port for charging and programming, and the HY2.0-4P Grove port.

- **ESP32-PICO-V3-02 Chip:** Dual-core processor with Wi-Fi and Bluetooth connectivity.
- **1.14-inch TFT Screen:** 135x240 resolution color LCD for display output.
- **Buttons A & B:** User-programmable input buttons.
- **USB-C Port:** For power supply, battery charging, and data communication (programming).
- **Grove Port (HY2.0-4P):** For connecting external modules via I2C, I/O, or UART.
- **IR Transmitter:** For infrared communication.
- **LED:** Status indicator.
- **Microphone:** For audio input (SPM1423).
- **Buzzer:** For audio output.
- **Internal Battery:** 120 mAh Lithium-ion battery.
- **Wearable & Mountable:** Designed for flexible integration into projects.

2.2 Dimensions and Weight

Image 2.2: The M5StickC PLUS2 measures approximately 48mm (1.88in) in length, 24mm (0.94in) in width, and 13.5mm (0.53in) in height.

Image 2.3: The M5StickC PLUS2 weighs approximately 16.9 grams (0.593 ounces).

3. Specifications

Product Detai

Image 3.1: Detailed specifications of the M5StickC PLUS2.

Specification	Parameter
SoC	ESP32-PICO-D4, 240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi
Flash Memory	4MB Flash
Input Voltage	5V @ 500mA
Interface	TypeC x 1, GROVE (I2C+I/O+UART) x 1
LCD Screen	1.14 inch, 135 x 240 Colorful TFT LCD, ST7789v2
Microphone	SPM1423
Buttons	Custom buttons x 2
LED	Red LED x 1
Wireless Type	Bluetooth, Wi-Fi
Operating System	FreeRTOS (default)
Battery	120 mAh Lithium Ion (included)
Dimensions	48 x 24 x 13.5 mm (1.9 x 1 x 0.54 inches)
Weight	16.9 grams (0.593 ounces)

4. Setup

4.1 Package Contents

Image 4.1: The package typically includes one M5StickC PLUS2 unit.

Please verify that your package contains the M5StickC PLUS2 unit and any accompanying accessories (e.g., USB-C cable, wristband if included in your specific kit).

4.2 Initial Charging

Before first use, ensure the M5StickC PLUS2 is fully charged. Connect the device to a standard 5V USB power

source (e.g., computer USB port, USB wall adapter) using a USB-C cable. The red LED on the device will typically indicate charging status.

4.3 Power On/Off

- **Power On:** Press and hold the side power button (often labeled as Button A or the larger button on the side) for approximately 2 seconds.
- **Power Off:** Press and hold the side power button for approximately 6 seconds.

4.4 Development Environment Setup

The M5StickC PLUS2 supports various development platforms, including UIFlow, Arduino IDE, and MicroPython. To begin programming, you will need to set up your chosen development environment on a computer.

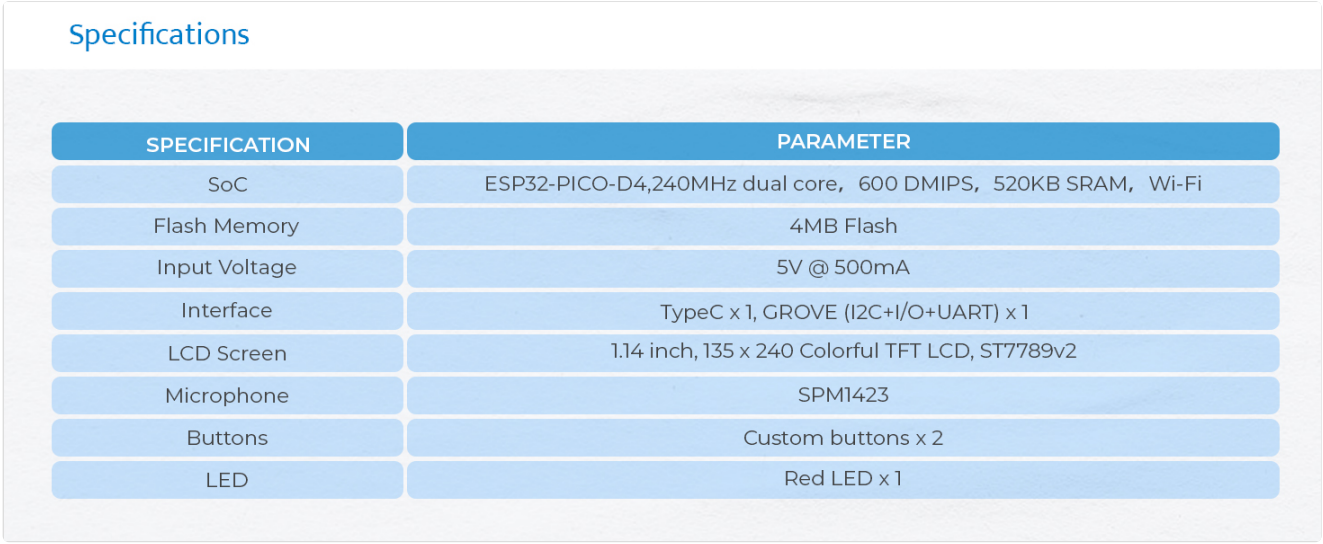


Image 4.2: Steps to find tutorials on the M5Stack website: 1. Visit m5stack.com, 2. Click "DOCUMENT", 3. Search for products, 4. Scroll down to find "Tutorial".

It is recommended to refer to the official M5Stack documentation for the most up-to-date programming instructions, driver installations, and examples. This resource provides comprehensive guides for getting started with different programming languages and platforms.

5. Operating Instructions

The M5StickC PLUS2's operation largely depends on the specific firmware or program loaded onto it. General operational aspects include:

- **Screen Display:** The 1.14-inch TFT screen will display information, graphics, or user interfaces as defined by the loaded program.
- **Button Functions:** Buttons A and B are user-programmable. Their functions will vary based on the application. Common uses include menu navigation, data input, or triggering specific actions.
- **Grove Port Usage:** External Grove modules can be connected to the HY2.0-4P port to extend the device's capabilities. Ensure compatibility and proper connection of modules.
- **IR Transmitter:** If programmed, the IR transmitter can send infrared signals for remote control applications.
- **Microphone and Buzzer:** These integrated components can be utilized by applications for audio input and output, respectively.

6. Maintenance

- **Cleaning:** Use a soft, dry, lint-free cloth to clean the device's exterior. Avoid using liquid cleaners, solvents, or

abrasive materials, as these can damage the screen or casing.

- **Storage:** Store the M5StickC PLUS2 in a cool, dry environment, away from direct sunlight, high humidity, and extreme temperatures.
- **Battery Care:** The integrated 120 mAh Lithium-ion battery should be charged regularly. To prolong battery lifespan, avoid completely discharging the device and store it with approximately 50% charge if not used for extended periods.
- **Firmware Updates:** Periodically check the official M5Stack website for available firmware updates. Updating the firmware can provide performance improvements, bug fixes, and new features. Follow the instructions provided by M5Stack for safe updating.

7. Troubleshooting

- **Device Not Turning On:**
    a. Ensure the device is sufficiently charged. Connect it to a 5V USB-C power source and allow it to charge for at least 15-30 minutes.
    b. Press and hold the power button (typically Button A) for approximately 2 seconds to attempt to power on.
    c. If still unresponsive, try holding the power button for 6 seconds to perform a hard reset, then release and press for 2 seconds to power on.
- **Screen Not Displaying Content:**
    a. Verify that the device is powered on.
    b. Confirm that the loaded firmware or program is designed to output information to the display. Some basic programs may not utilize the screen.
    c. If connected to a computer, check the serial monitor for any error messages or output that might indicate a program issue.
- **Connectivity Issues (Wi-Fi/Bluetooth):**
    a. Review your code to ensure Wi-Fi or Bluetooth modules are correctly initialized and configured with accurate network credentials (SSID, password).
    b. Ensure the device is within range of the Wi-Fi access point or Bluetooth device.
    c. Check for any interference from other wireless devices.
- **Programming Upload Errors:**
    a. Ensure the correct board and port are selected in your development environment (e.g., Arduino IDE).
    b. Verify that the necessary drivers for the ESP32 chip are installed on your computer.
    c. Try a different USB-C cable or USB port on your computer.
    d. Consult the specific development environment's documentation (UIFlow, Arduino, MicroPython) for detailed debugging procedures.

8. Warranty and Support

M5Stack products are typically covered by a limited manufacturer's warranty. For detailed information regarding warranty terms, conditions, and the return policy, please refer to the official M5Stack website or the documentation included with your purchase.
For technical assistance, troubleshooting beyond this manual, or inquiries about product functionality, please visit the official M5Stack support resources:

Official M5Stack Website: www.m5stack.com

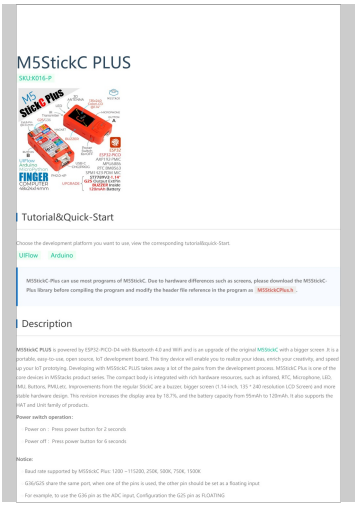
Image 8.1: M5Stack company logo.

Related Documents - K016-P

	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 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: 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.

	[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] 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.
	[M5StickC PLUS: ESP32-PICO-D4 Development Board Guide] Comprehensive guide to the M5StickC PLUS, an ESP32-based development board featuring a TFT screen, IMU, IR transmitter, and more. Learn about its hardware, pin descriptions, power management, and how to use UIFlow for programming.

Documents - M5Stack – K016-P

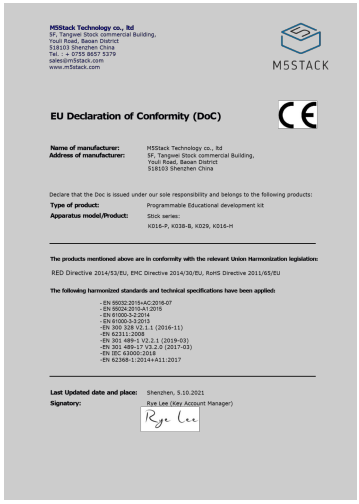


[pdf] Datasheet

K016 P media digikey Data Sheets M5Stack |||

M5StickC PLUS SKU:**K016-P** Tutorial Quick-Start Choose the development platform you want to use, view the corresponding tutorial quick-Start. UIFlow Arduino M5StickC-Plus can use most programs of M5StickC. Due to hardware differences such as screens, please download the M5StickCPlus library before c...

lang:en score:27 filesize: 4.45 M page_count: 6 document date: 2021-08-25



M5Stack Technology co., ltd
5F, Tangwei Stock commercial Building,
Youli Road, Baoan District
518103 Shenzhen China
Tel. : + 0755 8657 5379
sales@m5stack.com
www.m5stack.com

M5STACK

EU Declaration of Conformity (DoC)

Name of manufacturer: M5Stack Technology co., ltd
Address of manufacturer: 5F, Tangwei Stock commercial Building, Youli Road, Baoan District 518103 Shenzhen China

Declare that the Doc is issued under our sole responsibility and belongs to the following products:

Type of product: Programmable Educational development kit
Apparatus model/Product: Stick series: K016-P, K038-B, K029, K016-H

The products mentioned above are in conformity with the relevant Union Harmonization legislation:

RED Directive 2014/53/EU, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU

The following harmonized standards and technical specifications have been applied:

- EN 55032:2015+AC:2016-07
- EN 55024:2010+A1:2015
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- EN 300 328 V2.1.1 (2016-11)
- EN 62311:2008
- EN 301 489-1 V2.2.1 (2019-03)
- EN 301 489-17 V3.2.0 (2017-03)
- EN IEC 63000:2018
- EN 62368-1:2014+A11:2017

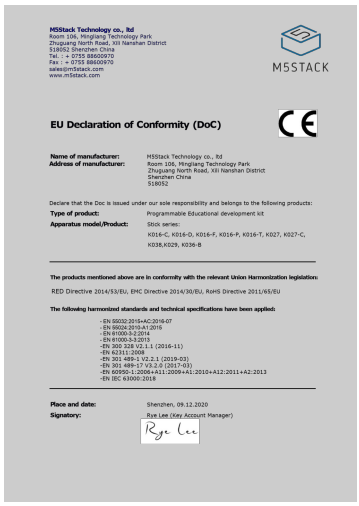
Last Updated date and place: Shenzhen, 5.10.2021
Signatory: Rye Lee (Key Account Manager)

[pdf] Specifications Decleration of Conformity Catalog

res EU Declaration of Conformity DoC M5Stack Technology DOC Stick mouser catalog additional |||

M5Stack Technology co., ltd 5F, Tangwei Stock commercial Building, Youli Road, Baoan District 518103 ... ype of product: Programmable Educational development kit Apparatus model/Product: Stick series: **K016-P**, K038-B, K029, K016-H The products mentioned above are in conformity with the relevant Union...

lang:en score:25 filesize: 84.01 K page_count: 1 document date: 2022-08-04



M5Stack Technology co., ltd
Room 106, Mingliang Technology Park
Zhuguang North Road, Xili Nanshan District
Shenzhen China
Tel. : + 0755 88600970
Fax : + 0755 88600970
sales@m5stack.com
www.m5stack.com

M5STACK

EU Declaration of Conformity (DoC)

Name of manufacturer: M5Stack Technology co., ltd
Address of manufacturer: Room 106, Mingliang Technology Park Zhuguang North Road, Xili Nanshan District Shenzhen China 518052

Declare that the Doc is issued under our sole responsibility and belongs to the following products:

Type of product: Programmable Educational development kit
Apparatus model/Product: Stick series: K016-C, K016-D, K016-F, K016-P, K016-T, K027, K027-C, K038,K029, K036-B

The products mentioned above are in conformity with the relevant Union Harmonization legislation:

RED Directive 2014/53/EU, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU

The following harmonized standards and technical specifications have been applied:

- EN 55032:2015+AC:2016-07
- EN 55024:2010+A1:2015
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- EN 300 328 V2.1.1 (2016-11)
- EN 62311:2008
- EN 301 489-1 V2.2.1 (2019-03)
- EN 301 489-17 V3.2.0 (2017-03)
- EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
- EN IEC 63000:2018

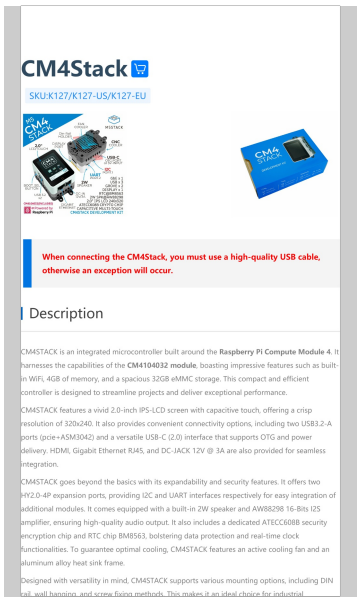
Place and date: Shenzhen, 09.12.2020
Signatory: Rye Lee (Key Account Manager)

[pdf] Specifications Decleration of Conformity Catalog

res EU Declaration of Conformity DoC M5Stack eu declaration conformity doc Stick revised mouser catalog additional

M5Stack Technology co., ltd Room 106, Mingliang Technology Park Zhuguang North Road, Xili Nanshan Di ... mable Educational development kit Apparatus model/Product: Stick series: K016-C, K016-D, K016-F, **K016-P**, K016-T, K027, K027-C, K038,K029, K036-B The products mentioned above are in conformity wit...

lang:en score:25 filesize: 84.38 K page_count: 1 document date: 2021-01-12



CM4Stack

SKU:K127/K127-US/K127-EU

When connecting the CM4Stack, you must use a high-quality USB cable, otherwise an exception will occur.

Description

CM4STACK is an integrated microcontroller built around the **Raspberry Pi Compute Module 4**. It harnesses the capabilities of the **CM4104032 module**, boasting impressive features such as built-in WiFi, 4GB of memory, and a spacious 32GB eMMC storage. This compact and efficient controller is designed to streamline projects and deliver exceptional performance.

CM4STACK features a vivid 2.0-inch IPS-LCD screen with capacitive touch, offering a crisp resolution of 320x240. It also provides convenient connectivity options, including two USB3.2-A ports (pcie+ASM3042) and a versatile USB-C (2.0) interface that supports OTG and power delivery. HDMI, Gigabit Ethernet RJ45, and DC-JACK 12V @ 3A are also provided for seamless integration.

CM4STACK goes beyond the basics with its expandability and security features. It offers two HY2.0-4P expansion ports, providing I2C and UART interfaces respectively for easy integration of additional modules. It comes equipped with a built-in 2W speaker and AW88298 16-Bits I2S amplifier, ensuring high-quality audio output. It also includes a dedicated ATECC608B security encryption chip and RTC chip BM8563, bolstering data protection and real-time clock functionalities. To guarantee optimal cooling, CM4STACK features an active cooling fan and an aluminum alloy heat sink frame.

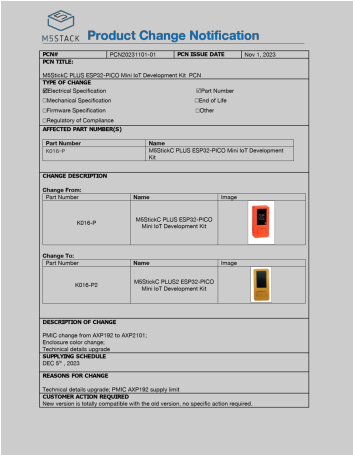
Designed with versatility in mind, CM4STACK supports various mounting options, including DIN rail, wall hanging, and screw fixing methods. This makes it an ideal choice for industrial

[pdf] Datasheet

Description M5Stack K127 EU US 3313805 mouser datasheet 2 1117 |||

CM4Stack SKU:K127/K127-US/K127-EU When connecting the CM4Stack, you must use a high-quality USB cabl ... K010 CORE2 FOR AWS K010-AWS TOUGH K034 STATION 485 K123 BASIC-V27 K001-V27 M5StickC PLUS **K016-P** ATOM Lite C008 AtomS3 C123 StampS3 S007 M5PAPER v1.1 K049-B Related Link CM4Stack Qu...

lang:en score:25 filesize: 2.72 M page_count: 9 document date: 2023-09-12

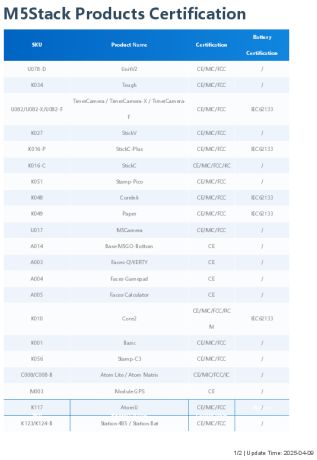


[pdf] Specifications

Allen Chao K016 P M5Stack Technology Co Ltd Maker DIY Educational DigiKey PCN20231101 01 mm digikey Volume0 opasdata d220001 medias docus 5721 |||

Product Change Notification PCN# PCN TITLE: PCN20231101-01 PCN ISSUE DATE Nov 1, 2023 M5StickC ... Life Firmware Specification Other Regulatory of Compliance AFFECTED PART NUMBER S Part Number **K016-P** Name M5StickC PLUS ESP32-PICO Mini IoT Development Kit CHANGE DESCRIPTION Change From: Part...

lang:en score:25 filesize: 239.59 K page_count: 1 document date: 2023-11-17

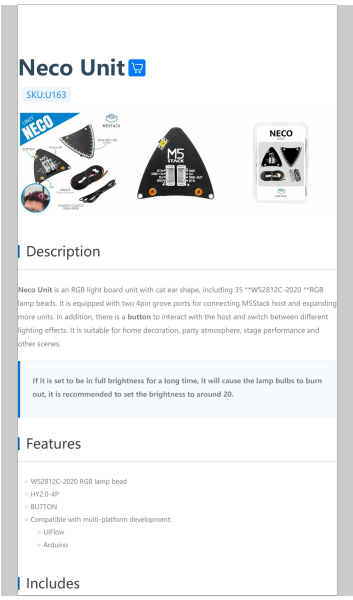


[pdf]

M5Stack Products Certification Apr 9 2025 · SKU Product Name Battery U078 D UnitV2 M003 Module GPS CE K117 AtomU MIC FCC K123 K124 B certification m5stack oss cn shenzhen aliyuncs resource docs static en start |||

M5Stack Products Certification SKU Product Name Certification U078-D UnitV2 CE/MIC/FCC K034 Tough CE/MIC/FCC U082/U082-X/U082-F TimerCamera / TimerCamera-X / TimerCameraF CE/MIC/FCC K027 StickV CE/MIC/FCC **K016-P** StickC-Plus CE/MIC/FCC K016-C StickC CE/MIC/FCC/KC K051 Stamp-Pic...

lang:it score:24 filesize: 192.68 K page_count: 2 document date: 2025-04-09



[pdf] Specifications

Neco Unit Distrelec It is equipped with two 4pin grove ports for connecting M5Stack host and expanding more units In addition there a button to interact the and U163 eng tds media distrelec Web Downloads t ds |||

Neco Unit SKU:U163 Description Neco Unit is an RGB light board unit with cat ear shape, including 35 ... 34.7g Products related to this item CoreS3 K128 CORE2 K010 BASIC-V27 K001-V27 M5StickC PLUS **K016-P** AtomS3 C123 StampS3 S007 Related Link WS2812C-2020 Datasheet 3D Drawing Schematic Mo...

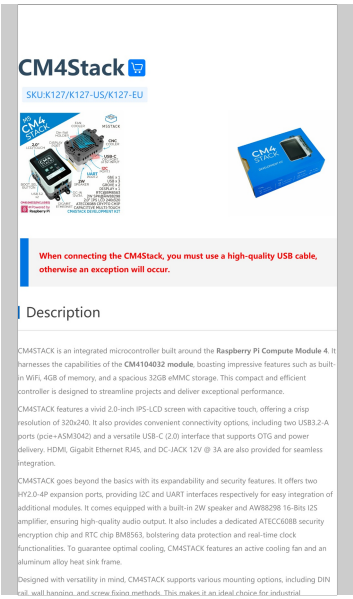
lang:en score:22 filesize: 3.02 M page_count: 7 document date: 2023-07-26

[pdf]

M5StickC PLUS ESP32 PICO Mini IoT Development Kit Инструмент разработчика M5Stack ATOM средства разработки k016 p eng tds west l ru td |||

M5StickC PLUS ESP32-PICO Mini IoT Development Kit Description M5StickC PLUS is powered by ESP32-PICO-D4 with Bluetooth 4.0 and WiFi and is an upgrade of the original M5StickC with a bigger screen .It is a portable, easy-to-use, open source, IoT development board. This tiny device will enable you to ...

lang:en score:22 filesize: 105.06 K page_count: 4 document date: 2020-08-06



[pdf]

Description K127 EU US mouser Docs CM4StackDescription1 x CM4Stack Power Adapter input 100 240VAC output DC 12V 3A 1 Hex power connector Gigabit Ethernet RJ45 port for connecting to Descriptionv1K127 USmouser srsltid AfmBOoq4JFzP4XR8h3ZVW0iKaUk9wR0hEz0If8y9Y5KD4EjmrCOGbpBkmouser ||| ||| CM4Stack SKU:K127/K127-US/K127-EU When connecting the CM4Stack, you must use a high-quality USB cable, otherwise an exception will occur. Description CM4STACK is an integrated microcontroller built around the Raspberry Pi Compute Module 4.

CM4Stack SKU:K127/K127-US/K127-EU When connecting the CM4Stack, you must use a high-quality USB cabl ... K010 CORE2 FOR AWS K010-AWS TOUGH K034 STATION 485 K123 BASIC-V27 K001-V27 M5StickC PLUS **K016-P** ATOM Lite C008 AtomS3 C123 StampS3 S007 M5PAPER v1.1 K049-B Related Link CM4Stack Qu...

lang:en score:17 filesize: 2.89 M page_count: 8 document date: 2023-09-12


秋月電子通商 株式会社秋月電子通商 製品カタログ

[pdf]

micon akizukidenshi category |||

https://akizukidenshi.com 1 20240202 PYNQ-Z1 Zynq-7020 6003-410-017 113812 1 42,760 Lattepan ... ld TSX00003 115459 1 1,700 Seeeduino XiaoGrove 103020312 115734 1 830 M5StickC Plus M5STACK-**K016-P** 116011 1 4,200 ESP8684-DevKitM-1-H4 ESP8684-DevKitM- 118289 1 1-H4 1,850 CQInterface 2023...

lang:en score:14 filesize: 8.77 M page_count: 86 document date: 2024-02-01

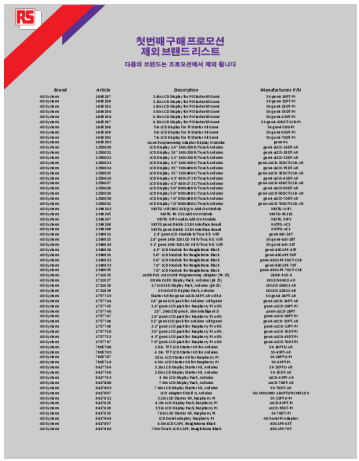

秋月電子通商 株式会社秋月電子通商 製品カタログ

[pdf]

rf akizukidenshi category |||

https://akizukidenshi.com 1 20240202 Wi-Fi ESP-WROOM-32 DIP AE-ESP-WROOM-111755 1 32 900 TLM92 ... 109124 1 550 Arduino UNO R3 IM315TX IM IM315-SHLD-TX-V2 109071 1 2,200 M5StickC Plus M5STACK-**K016-P** 116011 1 4,200 RN4870 Sensor RN-4870-SNSR RN-4870-SNSR 111993 1 6,500 GPS/GLONASS LNA D...

lang:it score:13 filesize: 2.7 M page_count: 21 document date: 2024-02-01


첫번째구매프로모션
제외 브랜드 리스트

[pdf]

Simon Zhang First time purchase RS Korea kr ftp product exclusion list rs online euro img task requests 189803 |||

Brand 4D Systems 4D Syste...

lang:de score:13 filesize: 518.97 K page_count: 26 document date: 2021-10-20

sertronics

Datenblatt

M5Stack StickC PLUS ESP32-PICO Mini IoT Dev Kit

Réf. d'article : M5-K016-P
Hersteller: M5Stack
Herkunftsland: China

Der **M5StickC PLUS** wird von ESP32-PICO-D4 mit Bluetooth 4.0 und WiFi angetrieben und ist ein Upgrade des originalen M5StickC mit einem größeren Bildschirm.

Es ist ein tragbares, einfach zu bedienendes, Open Source IoT Entwicklungsboard. Dieses winzige Gerät ermöglicht es Ihnen, Ihre Ideen zu verwirklichen, Ihre Kreativität zu bereichern und Ihre IoT-Prototierung zu beschleunigen. Die Entwicklung mit dem M5StickC PLUS nimmt Ihnen viele Mühen des Entwicklungsprozesses ab. Der M5StickC Plus ist eines der Kerngeräte der M5Stacks Produktserie. Das kompakte Gehäuse ist mit umfangreichen Hardware-Ressourcen ausgestattet, wie Infrarot, RTC, Mikrofon, LED, IMU, Tasten, PMU usw. Die Verbesserungen gegenüber dem regulären StickC sind ein Summer, ein größerer Bildschirm (1.14 Zoll, 135 * 240 Auflösung LCD-Bildschirm) und ein stabileres Hardware-Design. Diese Revision vergrößert die Displayfläche um 18,7% und die Batteriekapazität von 80mAh auf 120mAh. Es unterstützt auch die HAT- und Unit-Produktfamilie.

Netzschalterbetrieb::

- Einschalten : Drücken Sie den Netzschalter für 2 Sekunden
- Ausschalten : Drücken Sie die Netztaste für 6 Sekunden

Hinweis:

- Von M5StickC Plus unterstützte Baudrate: 1200 ~115200, 250K, 500K, 750K, 1500K
- G36/G25 teilen sich den gleichen Port, wenn einer der Pins verwendet wird, sollte der andere Pin als Floating Input gesetzt werden
- Um zum Beispiel den G36-Pin als ADC-Eingang zu verwenden, konfigurieren Sie den G25-Pin als FLOATING
- Der Eingangsbereich von VBUS_VIN und VBUS_USB ist auf 4.8-5.5V begrenzt, und die interne Batterie wird durch das AXP192 Power Management geladen, wenn VBUS mit Strom versorgt wird.

```
setup()
{
    M5.begin();
    pinMode(36, INPUT);
    gpio_pulldown_dis(GPIO_NUM_25);
    gpio_pullup_dis(GPIO_NUM_25);
}
```


[pdf]

M5Stack StickC PLUS ESP32 PICO Mini IoT Dev Kit DE FR BerryBase prieš 23 valandas — Der M5StickC wird von D4 mit Bluetooth 4 0 und WiFi wenn einer der Pins verwendet sollte andere Pin als Floating Input gesetzt berrybase de fr Pixel data Article id 9533 onumber M5 K016 P |||

...

lang:de score:9 filesize: 214.02 K page_count: 3 document date: 2022-05-26