

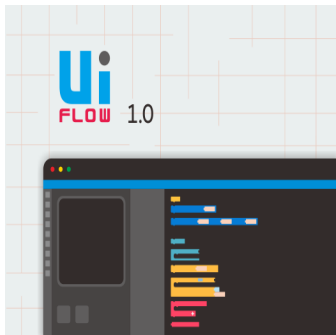
M5GO IoT Starter Kit v2.6

SKU:K006-V26



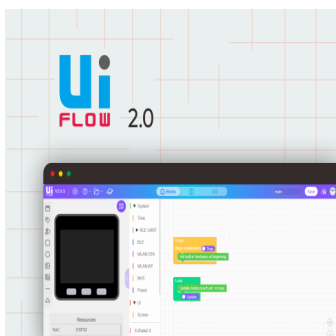
Tutorials & Quick Start

Select the development platform you want to use, view the corresponding tutorials to get started.



UIFlow

This tutorial will show you how to control M5GO devices through the UIFlow graphical programming platform



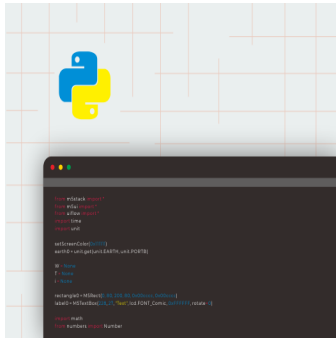
UIFlow2.0

This tutorial will show you how to control the M5GO device through the UIFlow2.0 graphical programming platform



Arduino IDE

This tutorial will show you how to program and control M5GO devices through Arduino IDE



Micropython

This tutorial will show you how to control M5GO devices through Micropython programming

Description

The **M5GO IoT Starter Kit** is a cost effective IoT starter development kit. The kit contains **Core Controller M5GO** + **6 expansion units with different functions** (sensors/actuators/splitters) + . The core controller **M5GO** adopts Espressif **ESP32** chip, equipped with 2 low-power **Xtensa® 32-bit LX6** microprocessors, with a main frequency of **240MHz** . With 16M FLASH memory for larger program size. Besides its powerful , the MCU also supports **Wi-Fi** , which can be used to build smart wearable devices, **smart home** and other applications.

Product Features

- Based on ESP32 development
- 16M FLASH
- Integrated HD IPS display panel with various hardware peripherals
- Rich resources interface, compatible with M5Stack stacking modules and sensors, Strong expandability
- The base is compatible with 8mm size LEGO blocks, the structures just so interesting!

- Microsoft Azure authentication device
- Compatible with multi-platform development:
 - [UIFlow](#)
 - [MicroPython](#)
 - [Arduino](#)
 - [.NET nanoFramework](#)

M5GO IoT controller

- **Low code development** :
 - Supports UIFlow graphical programming platform, scripting-free, cloud push
 - Fully compatible with Arduino, ESP32-IDF and other mainstream development platforms
 - FreeRTOS support, with dual-core and multitasking mechanism, it can perform the tasks efficiently, Program optimization.
- **High integration** .
 - 2.0-inch IPS display panel, 6-axis IMU, programmable RGB lights x10, microphone, speaker, custom buttons x3
 - Built-in Li-ion power supply, integrated power management chip, supports TypeC interface and POGO PIN interface power supply
 - Finely tuned RF circuitry for stable and reliable wireless communication
- **Strong expandability** .
 - GROVE expansion ports x3 (I2C, GPIO, UART)
 - Easy access to M5Stack hardware and software system, stackable module design, plug-and-play sensor expansion

6x expansion units

- ENV UNIT III: **Temperature, humidity, and atmospheric pressure sensors** , with I2C communication interface for rapid acquisition of environmental information.
- PIR UNIT: **Body sensor** , passive pyroelectric for human body sensing, digital signal output status.
- ANGLE UNIT: **Knob Potentiometer** , analog signal input for music/lighting adjustment
- IR UNIT: Integrated **infrared transmitter, receiver** . Free coding, infrared transceiver.

- RGB UNIT: 3x **Programmable RGB LED** , support programming to control any color display
- HUB UNIT: **I2C device splitter** , expand single I2C bus to 3 channels, can access different **I2C address** devices

Switch on/off operation:

Power on: Click the left red button

Power off: Quick double click the left red button

USB power: By default, It can not be shutdown when USB power is on.

Included

- 1x M5GO
- 6x Units(ENV III, IR, RGB, PIR, ANGLE, HUB)
- 4x LEGO Blocks
- 12x LEGO Connections
- 4x GROVE cable
- 1x Type-C USB (20cm)
- 1x Quick Start Guide

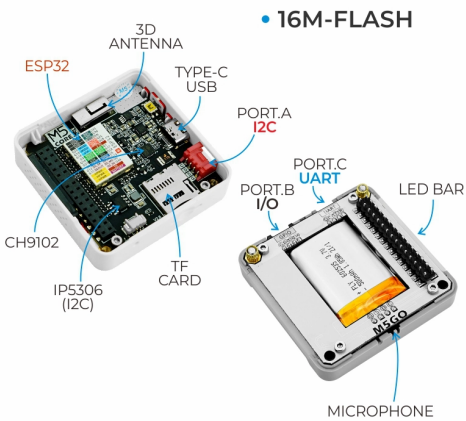
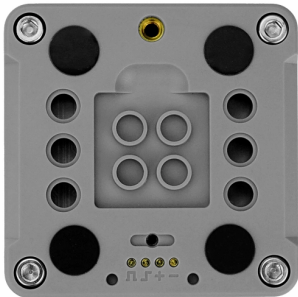
Applications

- STEM Education
- IoT Controller
- Smart Home
- Smart Weather Station

Specifications

Specifications	Parameters
ESP32-D0WDQ6-V3	240MHz dual core, 600 DMIPS, 520KB SRAM, Wi-Fi
Flash	16MB
Input Voltage	5V @ 500mA
Host Interface	TypeC x1, POGO PIN x1, I2C x1, GPIO x1, UART x1
IPS Screen	2 inch, 320x240 Colorful TFT LCD, ILI9342C, 853nit max brightness
Keys	Custom Keys x 3
Speaker	1W-0928
Microphone	Analog BSE3729 Microphone
IMU	6-axis MPU6886
USB Chip	CH9102F
LED	SK6812 RGB LED x 10
Antenna	2.4G 3D antenna
Battery	500 mAh @ 3.7V
Operating Temperature	0°C to 40°C
Net Weight	56.4g
Gross Weight	228g
Product Dimensions	54 x 54 x 21 mm
Package Size	147 x 90 x 40 mm
Specifications	Parameters

Cover Material	Plastic (PC)
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M5GO base

[Click for details of parameters](#)

Driver Installation

Click the link below to download the driver that matches the operating system. There are currently two driver chip versions, CP210X (for **CP2104** version)/CP34X (for **CH9102** version) driver compressed package. After decompressing the compressed package, select the installation package corresponding to the number of operating systems to install. (If you are not sure of the USB chip used by your device, you can install both drivers at the same time. During the installation process of **CH9102_VCP_SER_MacOS v1.7** , an error may occur, but the installation is actually completed, just ignore it.) When using it, if If the program cannot be downloaded normally (the prompt is overtime or Failed to write to target RAM), you can try to reinstall the device driver.

Driver name	Applicable driver chip	Download link
CP210x_VCP_Windows	CP2104	Download
CP210x_VCP_MacOS	CP2104	Download
CP210x_VCP_Linux	CP2104	Download
CH9102_VCP_SER_Windows	CH9102	Download
CH9102_VCP_SER_MacOS v1.7	CH9102	Download

EasyLoader

EasyLoader is a simple yet fast program burner has a built-in product-related case programs, which can be burned to the master in simple steps to verify function verifications.

Download Windows Version Easyloader

M5GO.mp4

Case Description:

Load the UIFlow firmware, the built-in demo program supports accelerometer, LED BAR, microphone, keypad and some peripheral sensors testing, the firmware can be used for UIFlow graphical programming.

Pin Mapping

LCD screen & TF card

LCD Pixel: 320x240 TF card support up to 16GB

ESP32 Chip	GPIO23	GPIO19	GPIO18	GPIO14	GPIO27	GPIO33	
ILI9342C	MOSI/MISO	/	CLK	CS	DC	RST	
TF卡	MOSI	MISO	CLK				

Button & Speaker

ESP32 Chip	GPIO39	GPIO38	GPIO37	GPIO25
Button Pins	BUTTON A	BUTTON B	BUTTON C	
Speakers				Speaker Pin

GROVE Interface A & IP5306

The power management chip (IP5306) is a custom I2C version, and its I2C address is 0x75. Click [here](#) to view the IP5306's register manual.

ESP32 Chip	GPIO22	GPIO21	5V	GND
GROVE A	SCL	SDA	5V	GND
IP5306	SCL	SDA	5V	GND

IP5306 charge/discharge, voltage parameters

Charging	Discharging
0.00 ~ 3.40V -> 0%	4.20 ~ 4.07V -> 100%
3.40 ~ 3.61V -> 25%	4.07 ~ 3.81V -> 75%
3.61 ~ 3.88V -> 50%	3.81 ~ 3.55V -> 50%
3.88 ~ 4.12V -> 75%	3.55 ~ 3.33V -> 25%
4.12 ~ / -> 100%	3.33 ~ 0.00V -> 0%

MPU6886 3-axis accelerometer + 3-axis gyroscope

MPU6886 I2C address 0x68

ESP32 Chip	GPIO22	GPIO21	5V	GND
MPU6886	SCL	SDA	5V	GND

M5GO Base Pins

GROVE Interface B

ESP32 Chip	GPIO36	GPIO26	5V	GND
GROVE B	GPIO36	GPIO26	5V	GND

GROVE Interface C

ESP32 Chip	GPIO16	GPIO17	5V	GND
GROVE C	RXD	TXD	5V	GND

LED strip & microphone & speaker

ESP32 Chip	GPIO15	GPIO34	GPIO25
hardware	SIG Pin	MIC Pin	Speaker Pin

M5 Port Description

PORT	PIN	Note:
PORT-A(red)	G21/22	I2C
PORT-B(black)	G26/36	DAC/ADC
PORT-C(blue)	G16/17	UART

ESP32 ADC/DAC

ADC1	ADC2	DAC1	DAC2
8 Channel	10 Channel	2 Channel	2 Channel
G32-39	G0/2/4/12-15/25-27	G25	G26

M-BUS

GPIO TYPE	Analog Function	M-BUS			Analog Function	GPIO TYPE	
		LINE 0		LINE 1			
		GND		ADC	G35	ADC1_CH7	I
				ADC	G36	ADC1_CH0	I
				RST	EN		
I/O/T		G23	MOSI	DAC/SPK	G25	ADC2_CH8	I/O/T
I/O/T		G19	MISO	DAC	G26	ADC2_CH9	I/O/T
I/O/T		G18	SCK	3.3V			
I/O/T		G3	RXD1	TXD1	G1		I/O/T
I/O/T		G16	RXD2	TXD2	G17		I/O/T
I/O/T		G21	SDA	SCL	G22		I/O/T
I/O/T	ADC2_CH2/T2	G2	GPIO	GPIO	G5		I/O/T
I/O/T	ADC2_CH5	G12	IIS_SK	IIS_WS	G13	ADC2_CH4/T4	I/O/T
I/O/T	ADC2_CH3/T3	G15	IIS_OUT	IIS_MK	G0	ADC2_CH1/T1	I/O/T
		HPWR		IIS_IN	G34	ADC1_CH6	I
				5V			
				BATTERY			

When use the RGB LEDs of GPIO15, we recommend initialize the pins Mode(15, OUTPUT_OPEN_DRAIN); For more info about pin assignment and pin remapping, please refer to [ESP32 datasheet](#)

| Schematic

- [Schematic](#)

| Related links

- **Datasheet**
 - [ESP32](#)
 - [ILI9342C](#)
 - [MPU6886](#)
 - [IP5306](#)
- **API**
 - [Arduino API](#)

| Examples

Arduino

- Click [here](#) to see the Arduino example

| Related Videos

- **About M5Stack**

| Version Updates

Release Date	Product Changes	Notes
2018.4	First Release	/
2019.6	MPU9250 changed to MPU6886+BMM150	/
2019.7	Change TN screen to IPS screen	Please upgrade your M5Stack library to the latest version (v0.2.8 or above) to solve the screen reflection problem.
2019.11	Battery capacity 600mAh changed to 500mAh	/
2020.6	Change ENV Unit to ENV II in the package	/
2021.8	Upgrade to v2.6: BMM150 magnetometer removed, CP2104 changed to CH9102, structure details optimized, ENV Unit changed to ENV III	/
2023.2	Change packaging	/

Note: 2018.2A PCB version of the device does not support C2C (TypeC to TypeC) connection and PD power supply.

