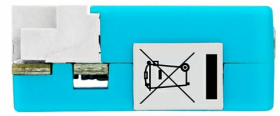


# NanoC6

SKU:C125





## Description

**NanoC6** is a micro and **low-power** IoT development board in the M5Stack development kit series. It is equipped with an ESP32-C6FH4 SoC, supporting wireless communication technologies such as Wi-Fi 6 and Zigbee, and features a built-in infrared transmitter for convenient control of infrared IoT devices. The onboard ceramic antenna ensures a stable wireless communication connection. Additionally, the device is equipped with programmable RGB LEDs, allowing for personalized visual effects in projects. The inclusion of a Grove interface enables flexible expansion with various M5 devices (customizable to connect different types of devices, such as those following UART/I2C communication protocols), providing developers with rich hardware expansion possibilities. This development board is suitable for smart homes, industrial automation, health monitoring, and IoT devices, offering a comprehensive development solution for innovative projects.

## Note

### WiFi 6

M5NanoC6 is the first core control board to support WiFi 6, supporting the 2.4 GHz Wi-Fi 6 protocol (802.11ax) and backward compatibility with 802.11 b/g/n. WiFi 6 offers higher speeds, greater capacity, lower latency, and enhanced security compared to previous WiFi protocols.

## Tutorial



### Arduino IDE

This tutorial will guide you on how to program and control the M5NanoC6 device using the Arduino IDE

## Features

- Supports (2.4GHz) Wi-Fi 6, Zigbee, and Thread, Matter wireless protocols
- Built-in infrared LED and RGB
- Equipped with Grove interface
- Ceramic antenna

- Compact size
- Development Platform
  - UiFlow2
  - Arduino IDE
  - ESP-IDF
  - PlatformIO

## | Includes

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- 1 x NanoC6

## | Applications

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- Smart home systems
- Industrial control systems
- Environmental monitoring systems
- Agricultural IoT systems
- Healthcare
- Consumer electronics
- Service robots

## | Specifications

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Specification	Parameter
SoC	ESP32-C6FH4@RISC-V single-core, main frequency 160MHz, supports CDC
Flash	4MB
Wi-Fi	2.4 GHz Wi-Fi 6 (802.11ax), backward compatible with 802.11b/g/n
Zigbee	Zigbee 3.0
Thread	Thread 1.3
Matter	Supported
RGB	WS2812
IR Remote Parameters	IR transmission distance at $\angle 0^\circ$ : 632CM IR transmission distance at $\angle 45^\circ$ : 83CM IR transmission distance at $\angle 90^\circ$ : 29CM
Grove Maximum Output Current	DC 5V@600mA (Output capability depends on USB power supply capacity)
Standby Current (Deep Sleep Mode)	USB Type-C power supply: DC 5V@125.5uA Grove power supply: DC 5V@50uA
Standby Current (ULP Mode)	USB Type-C power supply: DC 5V@252uA Grove power supply: DC 5V@201.5uA
Operating Current	In Wi-Fi mode: DC 5V@106.2mA
Wi-Fi Range Test (Antenna facing up, back facing the test)	54.9m
Operating Temperature	0 ~ 40°C
Product Size	23.5 x 12.0 x 9.5mm
Product Weight	2.7g
Package Size	100.6 x 80.0 x 10.5mm
Gross Weight	11.4g

# Download Mode

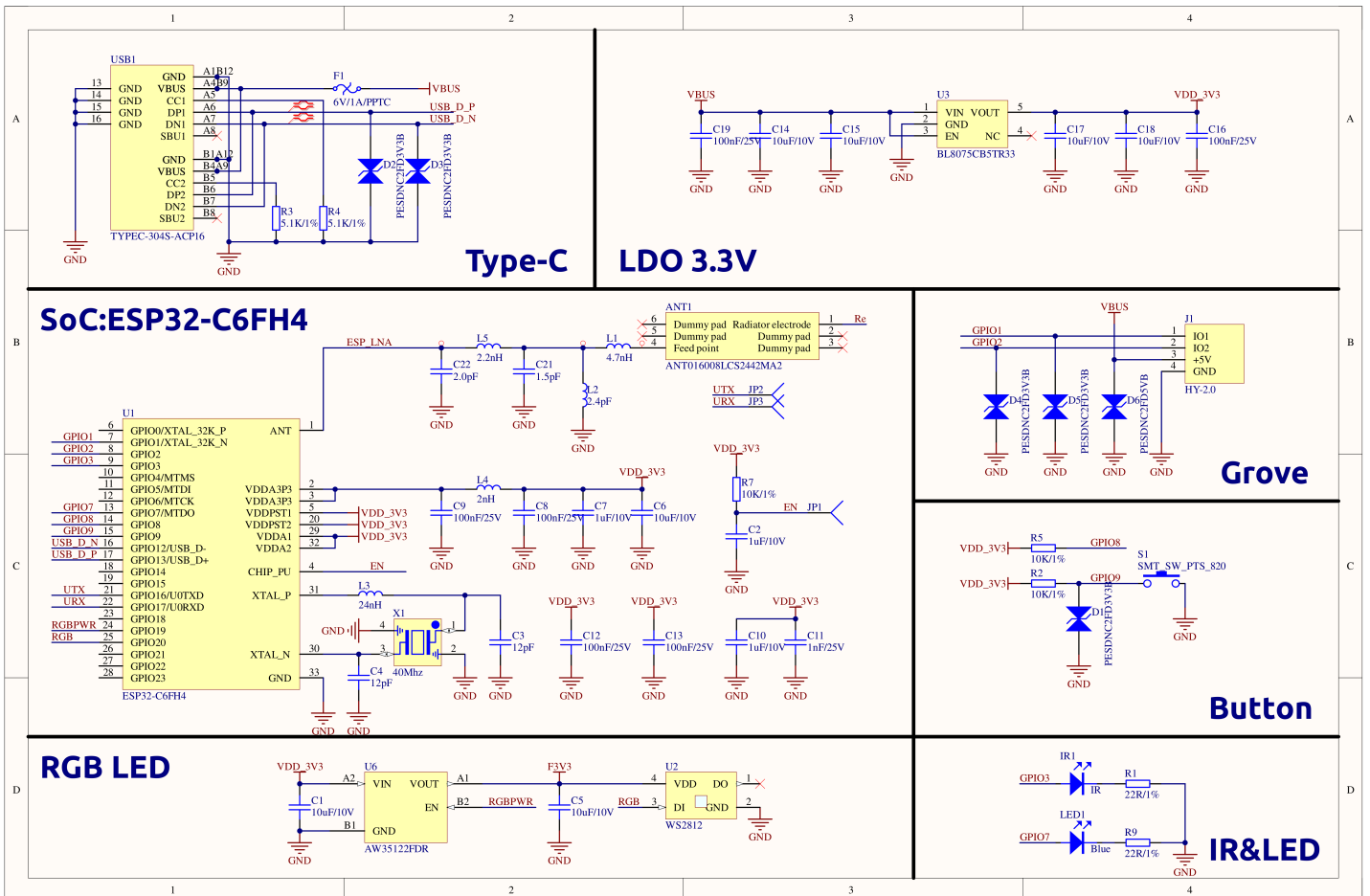
## How to Enter Download Mode

To enter download mode for programming, hold down the GPIO9 button and then connect the data cable.



## Schematics

[NanoC6 Schematics PDF](#)



## PinMap

## IR & RGB & Button & LED

ESP32-C6FH4	G3	G20	G19	G9	G7
IR	IR				
WS2812		WS2812	EN(RGBPWR)		
BUTTON				BUTTON	
LED(Blue)					LED(Blue)

### RGB Light Usage Notice:

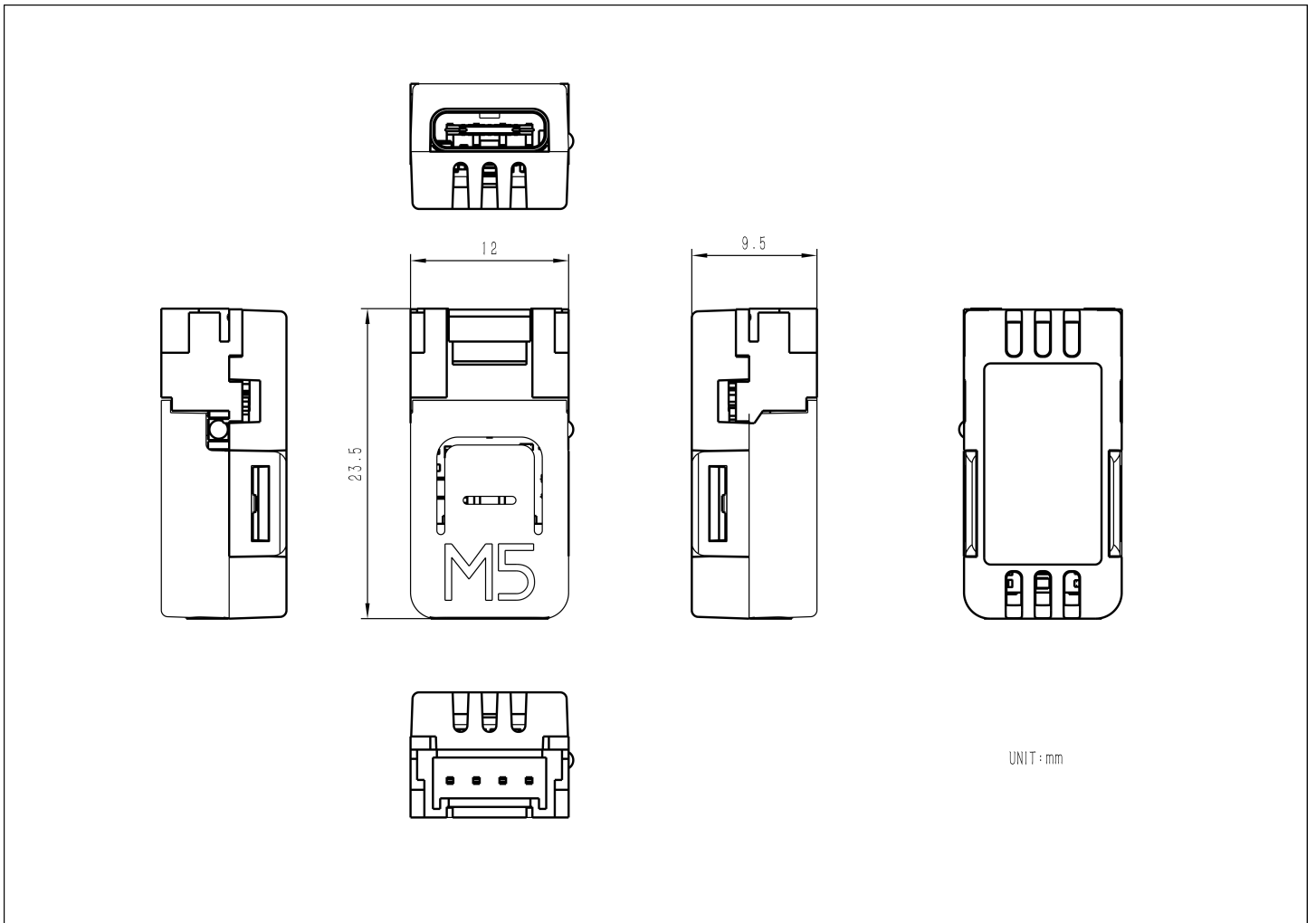
When using the RGB function, set pin G19 to a high level to enable power supply.

## HY2.0-4P

HY2.0-4P	Black	Red	Yellow	White
PORT.CUSTOM	GND	5V	G2	G1

## Model Size

- [NanoC6 Model Size PDF](#)



## Datasheets

- [ESP32-C6 Datasheet](#)

## Softwares

### Arduino

- [NanoC6 Arduino Quick Start](#)
- [NanoC6 Button Example](#)
- [NanoC6 IR NEC Example](#)
- [NanoC6 LED Example](#)
- [NanoC6 RGB LED Example](#)

### PlatformIO

```
[env:m5stack-nanoc6]
platform = https://github.com/pioarduino/platform-esp8266/archive/refs/heads/develop.zip
board = esp32-c6-devkitc-1
framework = arduino
upload_speed = 1500000
monitor_speed = 115200
build_flags =
  -D ARDUINO_USB_MODE=1
  -D ARDUINO_USB_CDC_ON_BOOT=1
  -D CONFIG_ARDUHAL_LOG_COLORS=1
  -DCORE_DEBUG_LEVEL=5
lib_deps =
  M5Unified=https://github.com/m5stack/M5Unified
```

## | Video

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- NanoC6 Product Introduction and Applications

[a9273fea2acb78cfca1ea5f8dc95e606.mp4](#)