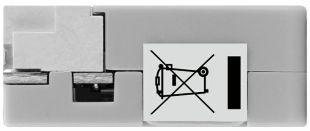
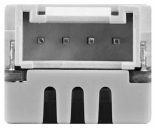
NanoH2

SKU:C149

WEIGHT: 2.5g
23.5 x 12 x 9.5 mm





Description

NanoH2 is an ultra-compact IoT development board in the M5Stack development kit series. It is powered by the ESP32-H2FH4S as the SoC and features hardware security mechanisms such as secure boot and Flash encryption. The device integrates IEEE 802.15.4 wireless communication and supports Zigbee, Thread, and Matter interoperability protocols based on Thread. The hardware integrates an LED, IR infrared transmitter, RGB, Grove interface, USB Type-C, and a user button. The Grove interface enables flexible expansion with various M5 devices, providing developers with rich hardware expansion capabilities. It is suitable for functional extension needs in lightweight IoT scenarios and can be applied in smart home, industrial control, low-power wireless communication nodes, and the development of various low-power IoT terminals based on IEEE 802.15.2.

Tutorial

Arduino IDE

This tutorial introduces how to program and control the NanoH2 device using the Arduino IDE.

Features

- Supports Zigbee and Thread, Matter wireless protocols
- Built-in LED, IR infrared transmitter, and RGB
- Equipped with a Grove port, supporting multiple peripheral expansions
- USB Type-C interface for power supply and programming
- Compact size
- Development Platform
  - Arduino
  - ESP-IDF

Includes

- 1 x NanoH2

Applications

- Smart home
- Industrial control
- Consumer electronics
- Low-power wireless communication nodes

Specifications

Specification	Parameter
SoC	ESP32-H2FH4S@RISC-V 32-bit single-core, up to 96 MHz
Flash	4MB
RGB	WS2812
Communication Protocol	IEEE 805.15.4 (including Zigbee 3.0, Thread 1.4, Matter)
OpenThread Range	Maximum distance 225m, packet loss rate 0%
IR Remote Parameters	IR transmission distance at ∠0°: 395CM IR transmission distance at ∠45°: 70CM IR transmission distance at ∠90°: 10CM
Grove Max Load	DC 4.43V@2A (5min, 25.2℃)
Operating Power	IEEE 805.15.4 wireless: TX: DC 5V@18.68mA / RX: DC 5V@18.82mA IR remote: DC 5V@6.80mA RGB (white): DC 5V@10.79mA LED: DC 5V@12.34mA (max brightness)
Product Size	23.5 x 12.0 x 9.5mm
Product Weight	2.6g
Package Size	100.6 x 80.0 x 10.5mm
Gross Weight	10.8g

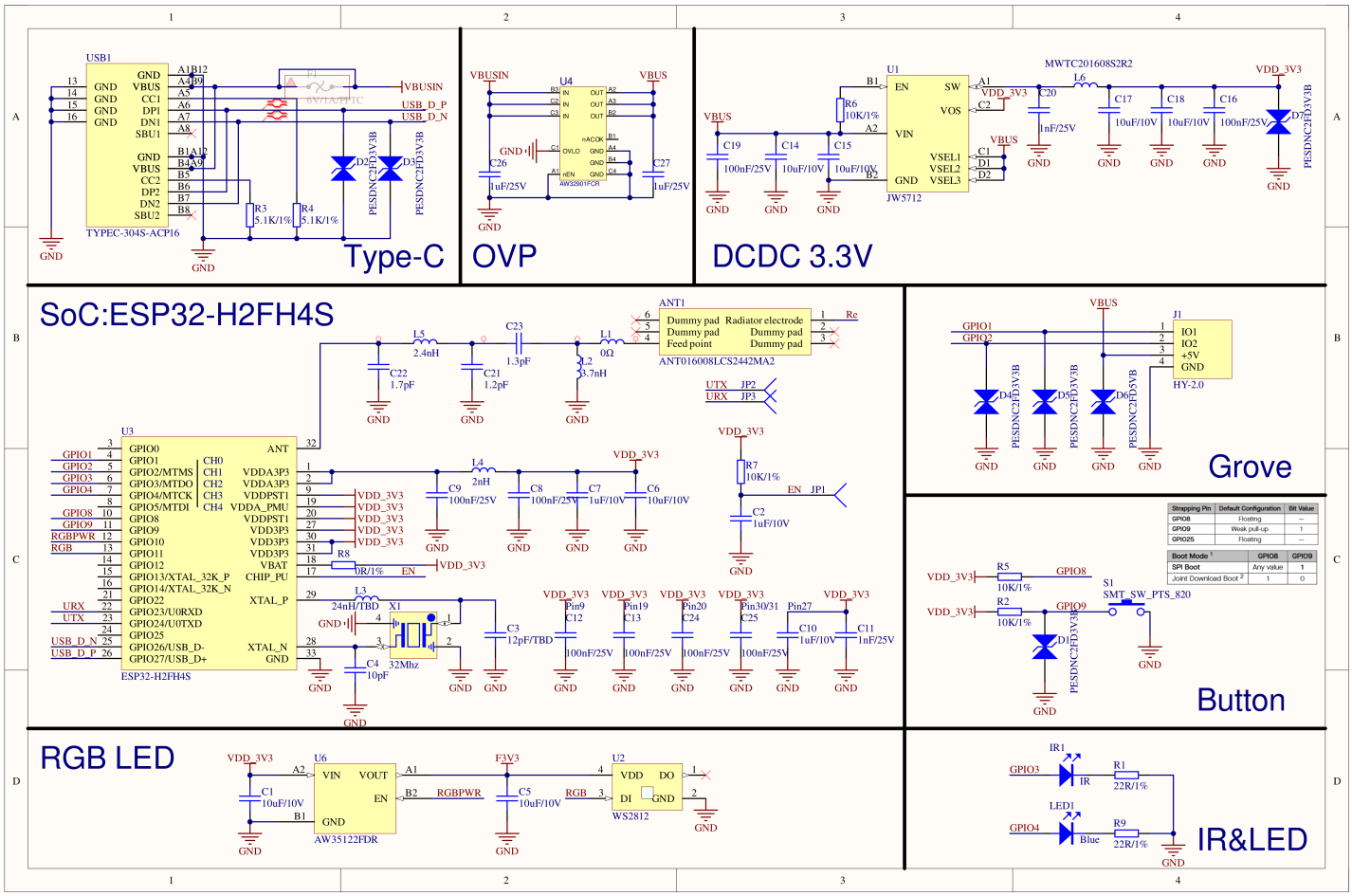
Learn

Download Mode

To flash firmware, you need to enter download mode: press and hold the button GPIO9, then connect the USB cable to enter download mode.

Schematics

- NanoH2 Schematics PDF



PinMap

IR & RGB & Button & LED

ESP32-C6FH4	G3	G4	G9	G10	G11
IR	IR				
LED		LED(Blue)			
BUTTON			BUTTON		
WS2812				EN(RGBPWR)	DI(RGB)

RGB Usage Notice:

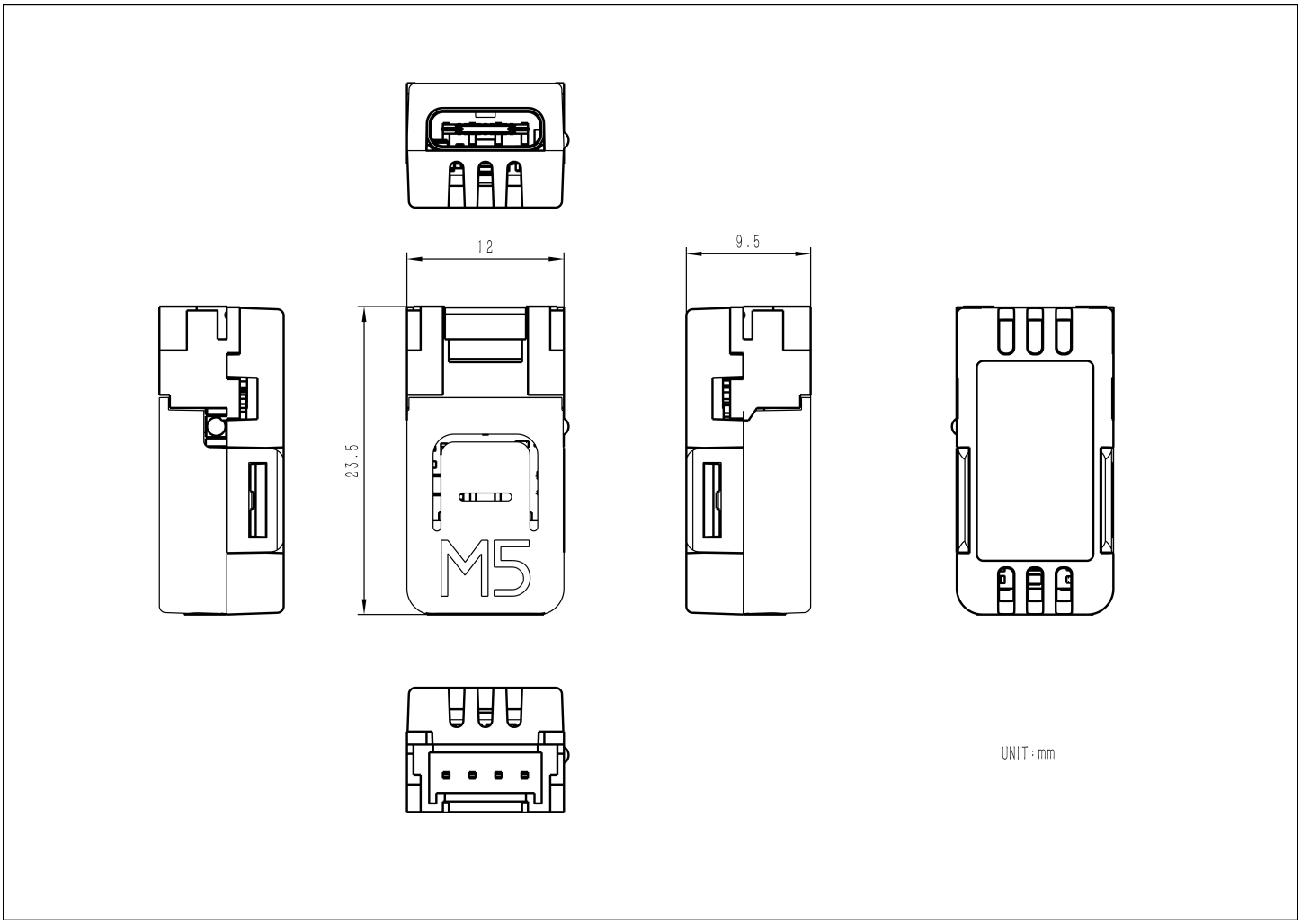
When using the RGB function, set the G10 pin to high level to enable RGB power supply.

HY2.0-4P

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

Model Size

- NanoH2 Model Size PDF



Datasheets

- ESP32-H2 Datasheet

Softwares

Arduino

- NanoH2 Arduino Quick Start

Video

- NanoH2 Product Introduction and Feature Demonstration

C149-NanoH2-video-EN.mp4