

M5Dial

SKU:K130



Description

As a versatile embedded development board, **M5Dial** integrates the necessary features and sensors for various smart home control applications. It features a 1.28-inch round TFT touchscreen, a rotary encoder, an RFID detection module, an RTC circuit, a buzzer, and under-screen buttons, enabling users to easily implement a wide range of creative projects.

The main controller of M5Dial is M5StampS3, a micro module based on the ESP32-S3 chip known for its high performance and low power consumption. It supports Wi-Fi, as well as various peripheral interfaces such as SPI, I2C, UART, ADC, and more. M5StampS3 also comes with 8MB of built-in Flash, providing sufficient storage space for users.

The standout feature of M5Dial is its rotary encoder, which accurately records the position and direction of the knob, delivering a better interactive experience. Users can adjust settings such as volume, brightness, and menu options using the knob, or control home applications like lights, air conditioning, and curtains. The device's built-in display screen allows for displaying different interaction colors and effects.

With its compact size and lightweight design, M5Dial is suitable for various embedded applications. Whether it's controlling home devices in the smart home domain or monitoring and controlling systems in industrial automation, M5Dial can be easily integrated to provide intelligent control and interaction capabilities.

M5Dial also features RFID detection, enabling the recognition of RFID cards and tags operating at 13.56MHz. Users can utilize this function for applications such as access control, identity verification, and payments. Furthermore, M5Dial is equipped with an RTC circuit to maintain accurate time and date. Additionally, it includes an onboard buzzer and a physical button for device sound prompts and wake-up operations.

M5Dial provides versatile power supply options to cater to various needs. It accommodates a wide range of input voltages, accepting 6-36V DC input. Additionally, it features a battery port with a built-in charging circuit, enabling seamless connection to external Lithium batteries. This adaptability allows users to power M5Dial via USB-C, the DC interface, or an external battery for on-the-go convenience. M5Dial also reserves two PORTA and PORTB interfaces, supporting the expansion of I2C and GPIO devices. Users can connect various sensors, actuators, displays, and other peripherals through these interfaces, adding more functionality and possibilities.

Wake up can be initiated by pressing the "Wake" button or by an IRQ signal triggered periodically by the RTC. After triggering the wake-up signal, set the HOLD (GPIO46) pin to a high level (1) during program initialization to maintain the power supply. Otherwise, the device will enter the sleep state again.

When there is no USB external power supply, press the RST key to power off. Alternatively, when there is no USB external power supply, set HOLD (GPIO46) to 0 during program operation to achieve power off.

Download Mode

If you want to enter download mode, press and hold the G0 button on StampS3 before turning it on, then release it after powering it on.



Tutorial



Arduino IDE

This tutorial will show you how to program and control M5Dial devices through Arduino IDE

UIFlow2.0

This tutorial will show you how to control the M5Dial device through the UIFlow2.0 graphical programming platform

Features

- Circular TFT touch screen
- M5StampS3
- Encoder
- RFID
- 6-36V voltage input
- Interface extension: PORTA and PORTB interfaces
- Programming platform: Arduino, UIFlow、ESP-IDF

Includes

- 1x M5Dial
- 1x M2 hex key
- 1x 2.54-2P terminal

Applications

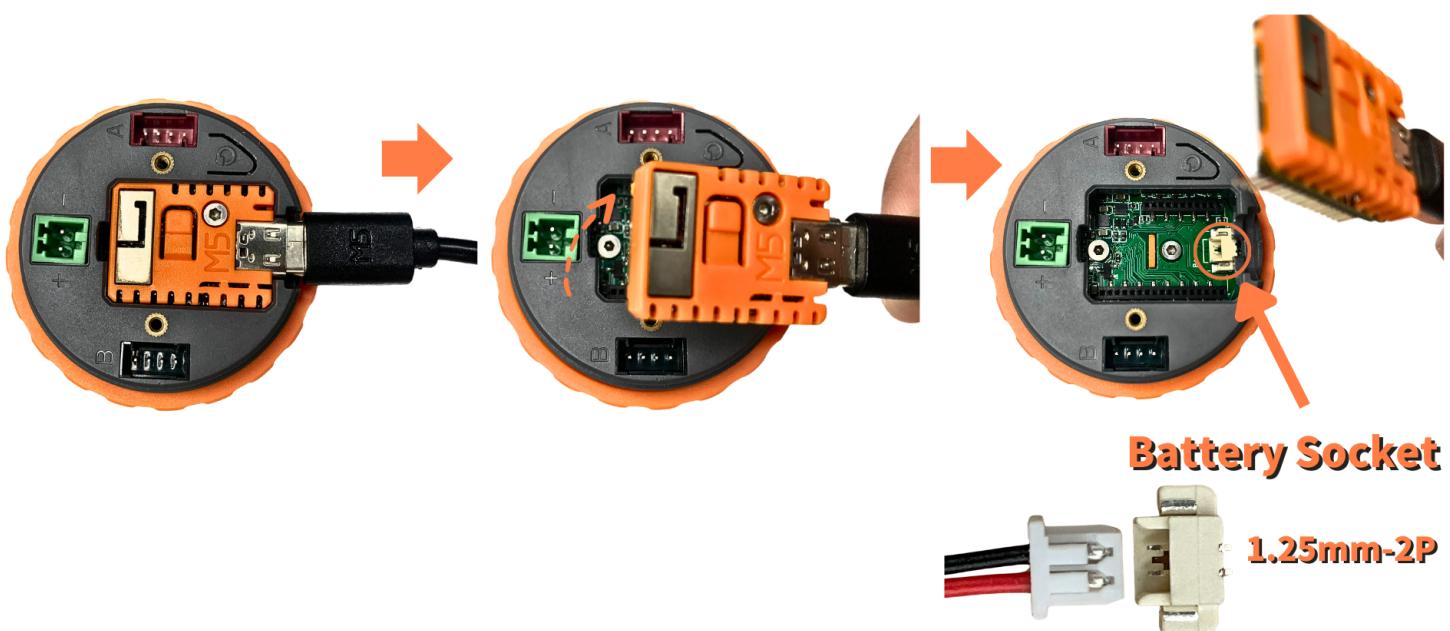
- Smart home control
- Internet of Things Project
- Access control system
- Industrial control

EasyLoader

- **Windows**
 - [M5Dial Factory Test Demo](#)
 - [M5Dial Smart Home panel program](#)

I Specification

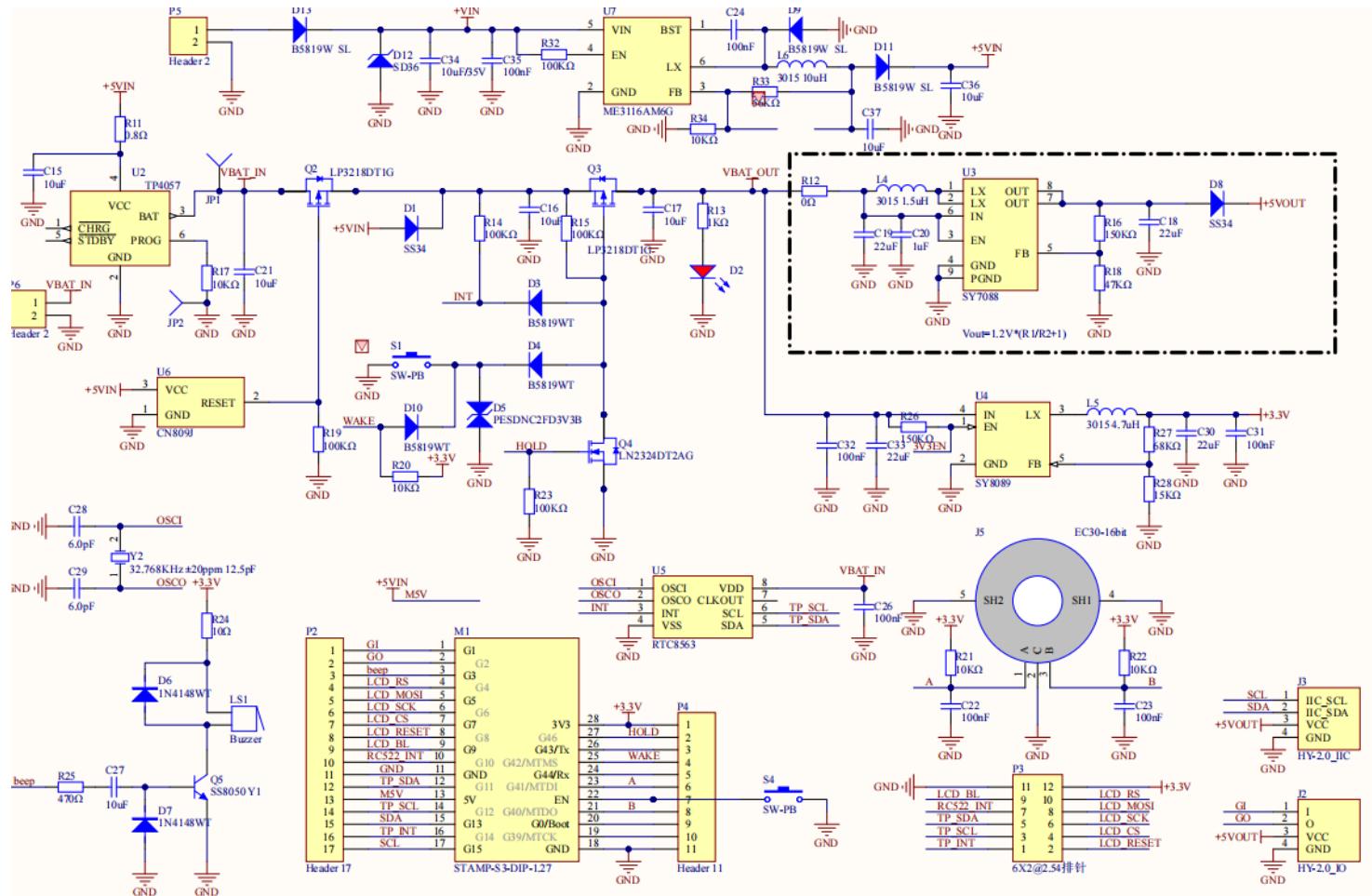
Resources	Parameters
MCU	ESP32-S3@Xtensa LX7 ,8M-FLASH,WIFI,OTG\CDC
Voltage input range	6-36V Function
Screen driver	GC9A01 1.28 Inch 240x240px
Touch driver	FT3267
RFID	WS1850S
Standby current (battery-powered standby current)	DC4.2V/1.9uA
Working current	DC6V power supply : DC6V/140.6mA DC12V power supply: DC12V/82.5mA DC36V power supply: DC36V/28.1mA
Battery seat specifications	1.25mm-2p
Product Size	45*45*32.3mm
Package Size	163*120*59mm
Product Weight	46.6g
Package Weight	83.83g



Related Link

- BM8563
- WS1850S
- Spec of external DC power connector
- Lithium battery seat

Schematic



- Complete schematic pdf

PinMap

PORt A (RED)

M5Dial (PORT A)	SCL	SDA	VCC	GND
	G15	G13	5V	GND

PORt B (BLACK)

M5Dial (PORT B)	IN	OUT	VCC	GND
	G1	G2	5V	GND

I2C Sensor(RTC8563 & WS1850S)

ESP32S3 Chip	G12	G11	G8	G10	G3
RTC8563	SCL	SDA			
WS1850S (RFID)	SCL	SDA	RST	IRQ	
BUZZER					beep

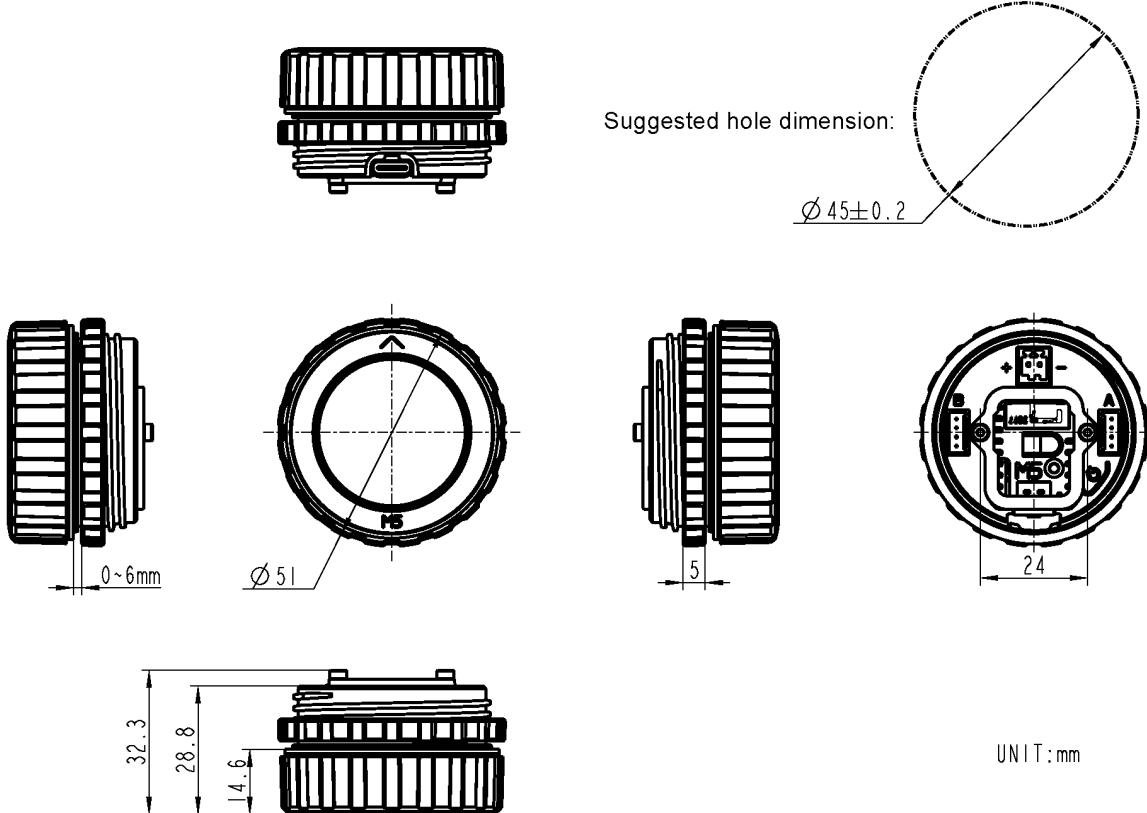
ENCODER

ESP32S3 Chip	G40	G41	VCC	GND
ENCODER	B	A	5V	GND

Screen Driver(GC9A01-SPI)

ESP32S3 Chip	G4	G5	G6	G7	G8	G9
GC9A01	LCD_RS	LCD_MOSI	LCD_SCK	LCD_CS	LCD_RESET	LCD_BL

Module Size



Examples

Arduino

- [M5Dial Library](#)
- [M5Dial Smart Home panel program](#)
- [M5Dial Factory Test Demo](#)

ESP-BSP

- [Espressif's Board Support Packages - M5Dial](#)

| Video

- Introduction of M5Dial

[0906 M5产品介绍片.m4v](#)

- M5Dial Factory Test Demo

[M5 DIAL 视频.mp4](#)

