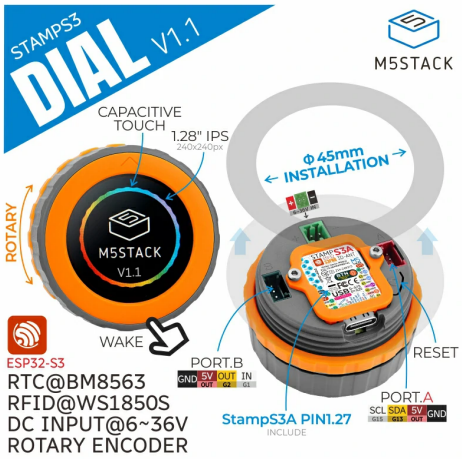
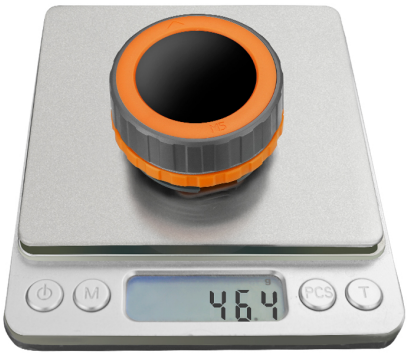
Dial v1.1

SKU:K130-V11





Description

Dial v1.1 is a high-performance, multifunctional embedded development board that has been fully upgraded from the original Dial product. The new version features the **Stamp-S3A** as the main controller, further enhancing system processing power and stability. Additionally, the core module antenna and buttons have been optimized to effectively improve wireless communication performance and user interaction experience. The product is equipped with a **1.28-inch** round TFT touch screen and a high-precision rotary encoder, and includes an **RFID** detection module, RTC circuit, onboard **buzzer**, and **under-screen buttons** to enable device interaction and wake-up alerts. The power supply solution supports **DC 6 ~ 36V** wide voltage input and includes a lithium battery interface and **charging** circuit to meet diverse application needs. Furthermore, the reserved PORT.A and PORT.B interfaces facilitate the expansion of I2C and GPIO devices. This product is widely applicable in smart home control, IoT applications, smart wearables, access control systems, industrial control, and educational maker projects.

Tutorial

Arduino IDE

This tutorial will guide you on how to program and control the Dial v1.1 device using Arduino IDE

UiFlow2

This tutorial will guide you on how to control the Dial v1.1 device using the UiFlow2 graphical programming platform

Features

- Round TFT touch screen
- Stamp-S3A as the main controller
- Rotary encoder
- RFID detection module
- Wide voltage input
- Interface expansion: Reserved PORT.A and PORT.B interfaces
- Development Platform

- UiFlow2
- Arduino IDE
- ESP-IDF
- PlatformIO

Includes

- 1 x Dial V1.1
- 1 x L-shaped 1.5mm hex wrench (compatible with M2 screws)
- 1 x 2.54-2P terminal

Applications

- Smart home control
- IoT projects
- Access control systems
- Industrial control

Specifications

Specification	Parameter
SoC	ESP32-S3FN8@Xtensa LX7 dual-core, Main frequency 240MHz, supports USB-OTG, supports CDC
Flash	8MB
Wi-Fi	2.4 GHz Wi-Fi
Wide Voltage Input Range	DC 6 ~ 36V
Screen Driver	GC9A01 1.28 Inch 240 x 240px
Touch Driver	FT3267
RFID	WS1850S @ Tag operating frequency: 13.56 MHz, ISO/IEC 14443 Type A/Type B protocol
Encoder	Resolution: 16 positions, 64 pulses/rev
Buzzer	80dB
Battery Socket Specification	1.25mm-2P
Sleep Current	USB supply: DC 5V@6.84mA (LDO idle power consumption) Battery only: DC 4V@6uA
Operating Current	USB supply: DC 5V@88.19mA Battery only: DC 4V@100mA
Power Interface Specification	Model KF2EDGV-2.54-2P, straight pin design, 2.54mm pitch (2Pin), green
Operating Temperature	0 ~ 40°C
Product Size	51.0 x 51.0 x 32.3mm
Product Weight	46.4g
Package Size	71.9 x 71.9 x 57.4mm
Gross Weight	61.0g

Learn

Power On/Off

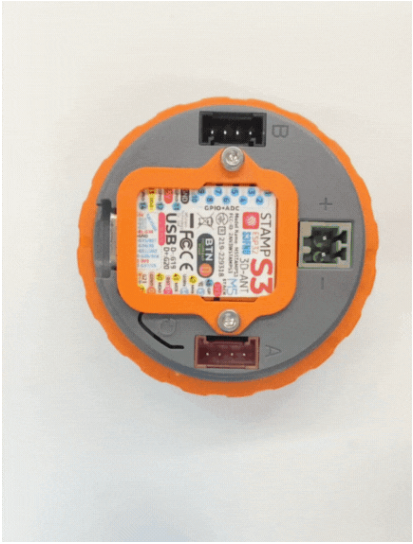
Power On/Off

Power On: When there is no external USB power supply (battery only), the device can be woken up by pressing the "WAKE" button or by an IRQ signal triggered by the RTC timer. After waking up, the HOLD (GPIO46) pin must be set to high (1) during program initialization to maintain power, otherwise the device will re-enter sleep mode.
Power Off: Similarly, when there is no external USB power supply (battery only), the device can be turned off by pressing the RST button or by setting the HOLD (GPIO46) pin to low (0) in the program.

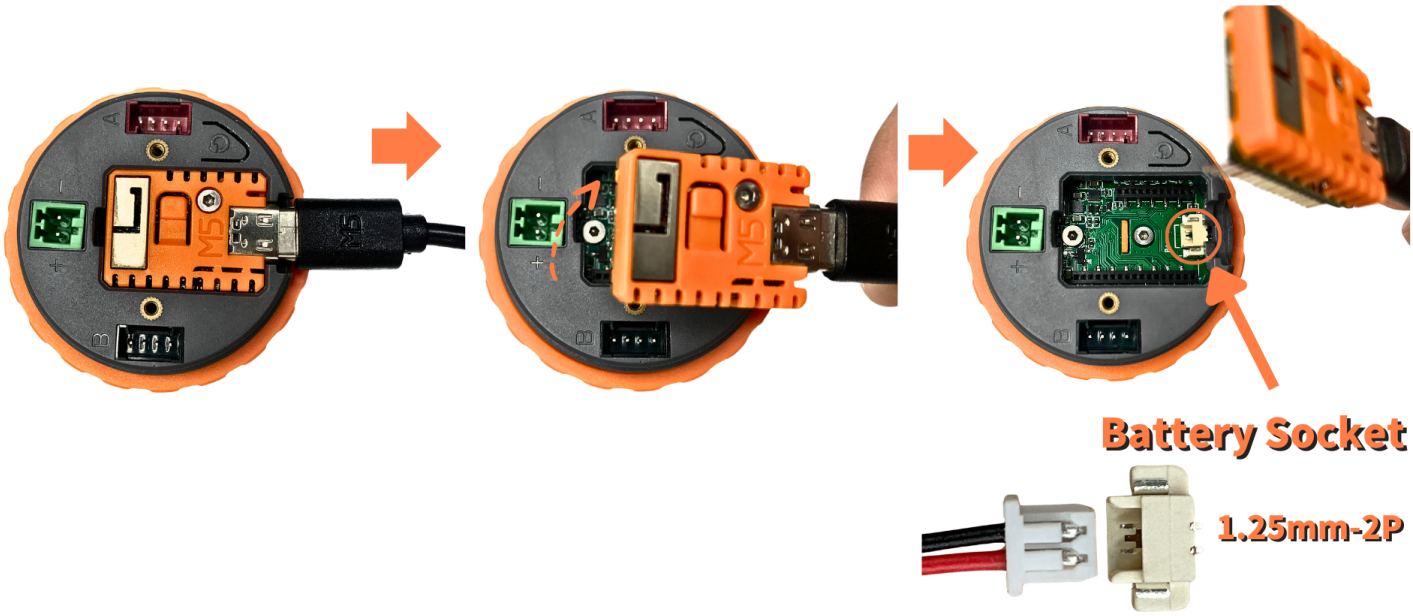
Download Mode

Download Mode

To enter download mode, hold the G0 button on the Stamp-S3A before powering on, then release it after power is applied.



Dial v1.1 Lithium Battery Expansion Interface

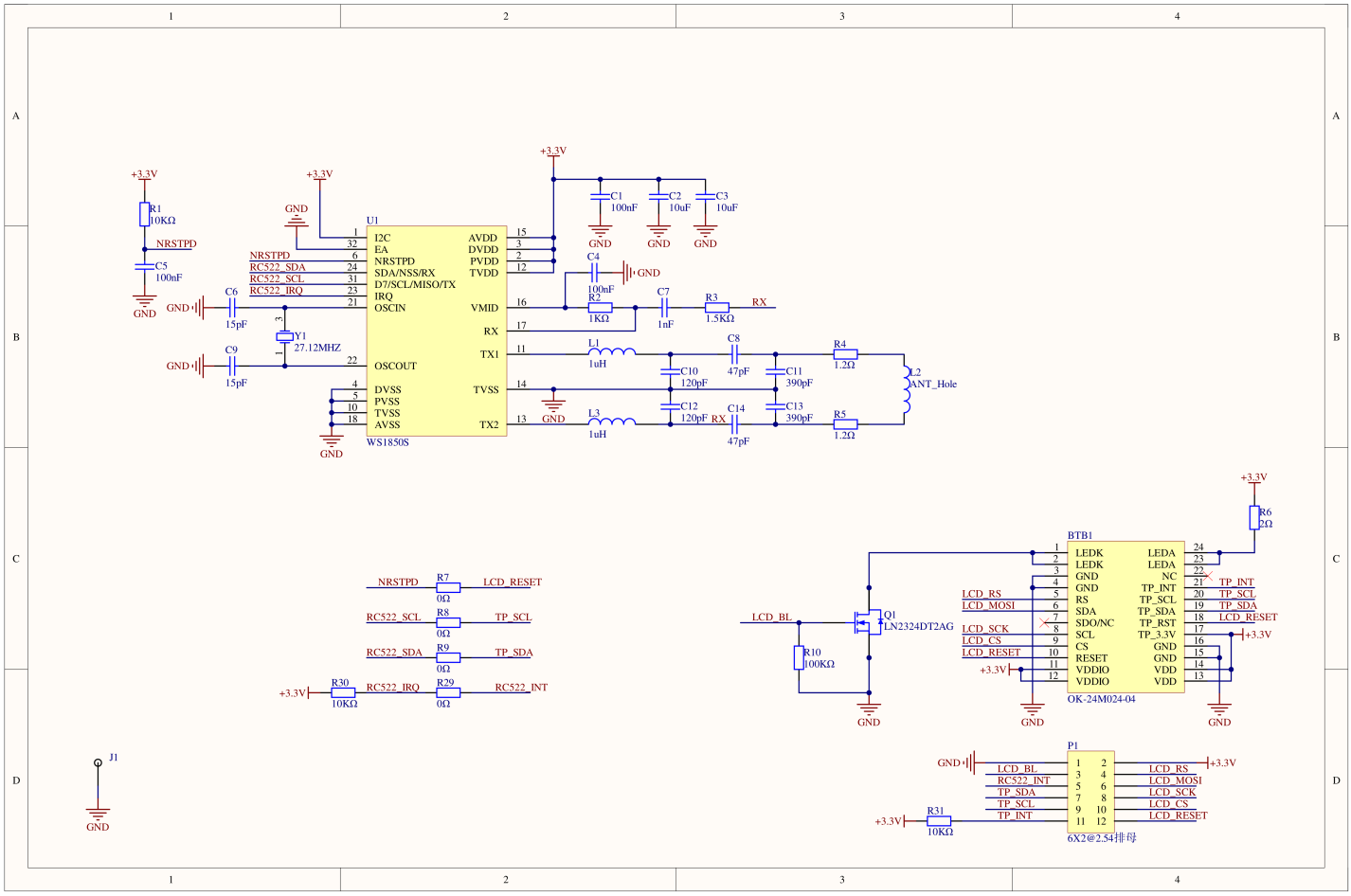


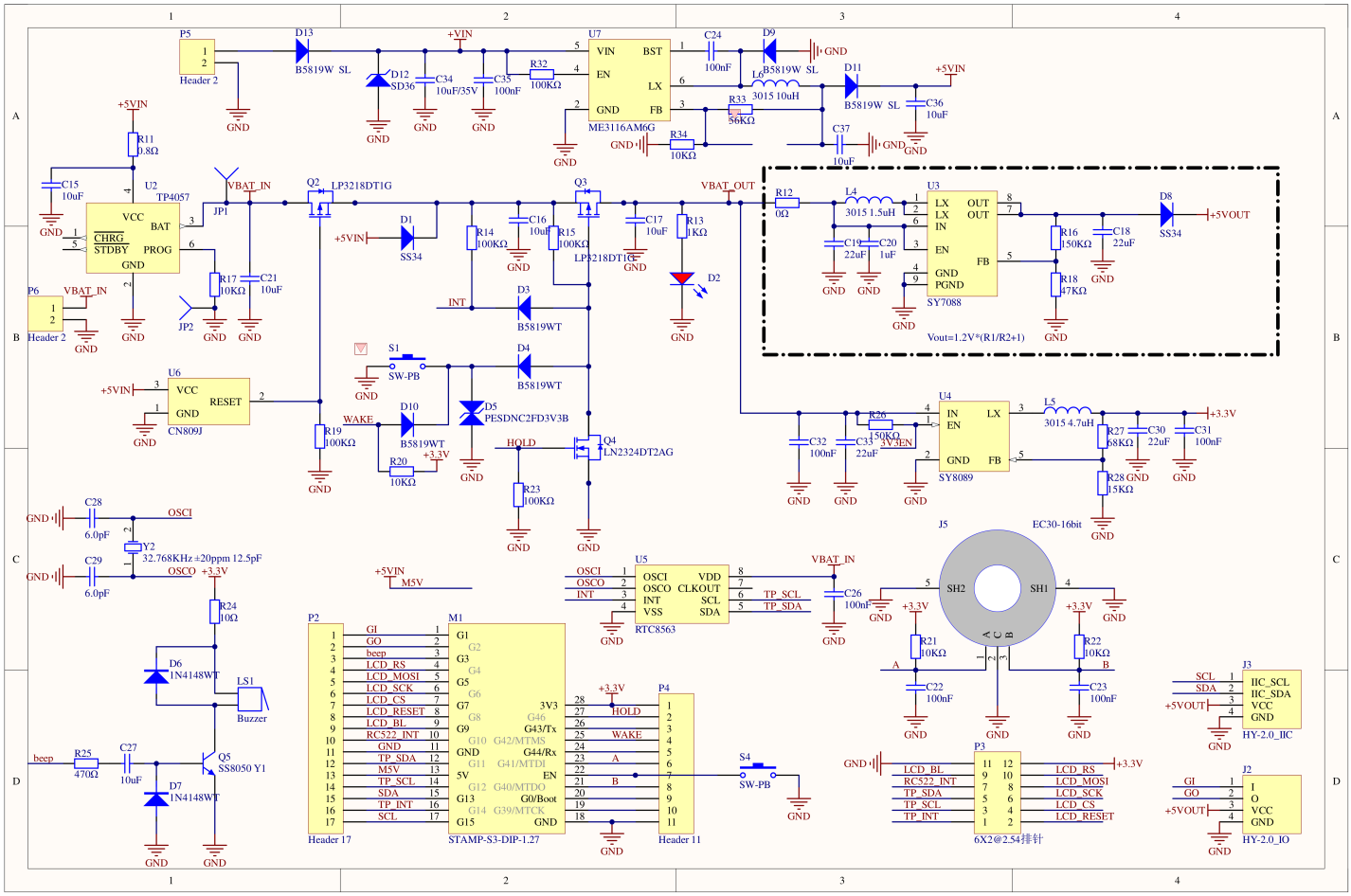
RFID Card

If the size of the RFID tag is smaller than the outer dimensions of the Dial, it may not be recognized or may cause communication errors. It is recommended to use an RFID card in the standard bank card size.

Schematics

- Dial v1.1 Schematics PDF


U1
WS1850S
I2C
EA
NRSTPD
SDA/NSS/RX
D7/SCL/MISO/TX
IRQ
OSCIN
OSCOUT
AVDD
DVDD
PVDD
TVDD
VMID
RX
TX1
TVSS
TX2
DVSS
PVSS
TVSS
AVSS
Y1
27.12MHZ
ANT_Hole
BTB1
OK-24M024-04
LEDK
LEDA
GND
NC
TP_INT
RS
SDA
TP_SCL
TP_SDA
SDO/NC
TP_RST
SCL
TP_3.3V
CS
RESET
VDDIO
VDD
LCD_RESET
LCD_BL
LCD_RS
LCD_MOSI
LCD_SCK
LCD_CS
RC522_INT
TP_SDA
TP_SCL
TP_INT
RC522_SCL
RC522_SDA
RC522_IRQ
RC522_INT
Q1
LN2324DT2AG
P1
6X2@2.54排母
J1
RX


U2
TP4057
VCC
BAT
CHRG
STDBY
PROG
GND
U3
SY7088
Vout=1.2V*(R1/R2+1)
U4
SY8089
U5
RTC8563
U6
CN809J
U7
ME3116AM6G
VIN
BST
EN
LX
GND
FB
VBAT_IN
VBAT_OUT
+VIN
+5VIN
+5VOUT
+3.3V
M5V
Q2
LP3218DT1G
Q3
LP3218DT1G
Q4
LN2324DT2AG
D1
SS34
D2
D3
B5819WT
D4
B5819WT
D5
PESDNC2FD3V3B
D6
1N4148WT
D7
1N4148WT
D8
SS34
D9
B5819W SL
D10
B5819WT
D11
B5819W SL
D12
SD36
D13
B5819W SL
L4
3015 1.5uH
L5
3015 4.7uH
L6
3015 10uH
P2
Header 17
P3
6X2@2.54排针
P4
Header 11
P5
Header 2
P6
Header 2
M1
STAMP-S3-DIP-1.27
J2
HY-2.0_IO
J3
HY-2.0_IIC
J5
EC30-16bit
S1
SW-PB
S4
SW-PB
LS1
Buzzer
Q5
SS8050 Y1
JP1
JP2
Y2
32.768KHz ±20ppm 12.5pF
WAKE
HOLD
INT
OSCI
OSCO
SCL
SDA
IIC_SCL
IIC_SDA
TP_SCL
TP_SDA
LCD_BL
LCD_RS
LCD_MOSI
LCD_SCK
LCD_CS
LCD_RESET
RC522_INT
TP_SDA
TP_SCL
TP_INT
beep
GI
GO
A
B
C

PinMap

I2C Sensor (RTC8563 & WS1850S)

ESP32-S3	G12	G11	G8	G10	G3
RTC8563	SCL	SDA			
WS1850S(RFID)	SCL	SDA	RST	IRQ	
Buzzer					beep

ENCODER

ESP32-S3	G40	G41	VCC	GND
ENCODER	B	A	5V	GND

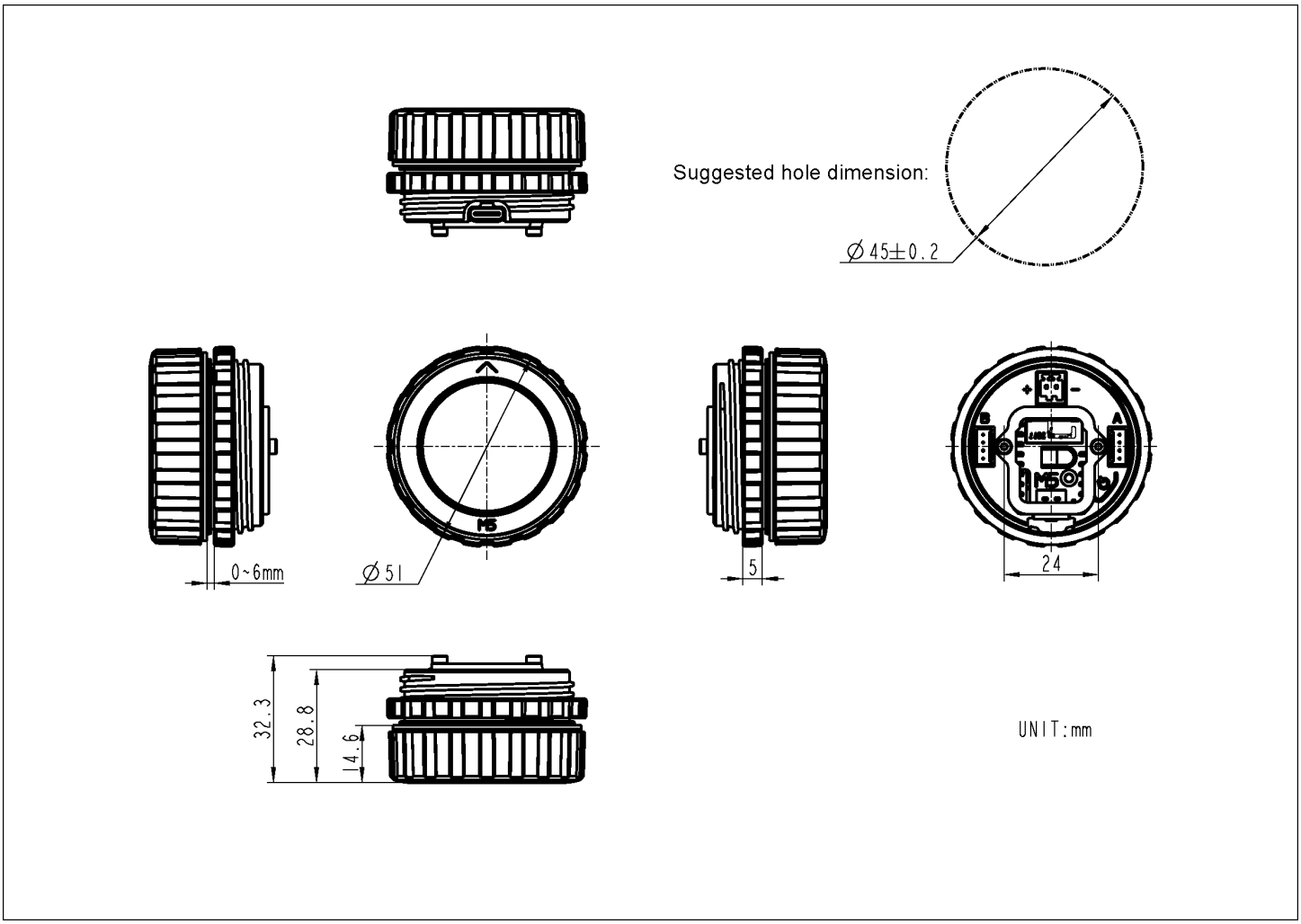
Screen Driver (GC9A01-SPI) & Touch Driver

ESP32-S3	G4	G5	G6	G7	G8	G9	G11	G12	G14
GC9A01	LCD_RS	LCD_MOSI	LCD_SCK	LCD_CS	LCD_RESET	LCD_BL			
FT3267							TP_SDA	TP_SCL	TP_INT

HY2.0-4P

HY2.0-4P	Black	Red	Yellow	White
PORT.A	GND	5V	G13	G15
PORT.B	GND	5V	G2	G1

Model Size



Datasheets

- BM8563
- WS1850S
- DC Power Terminal Specifications
- Lithium Battery Connector

Softwares

Arduino

- Dial v1.1 Arduino Quick Start
- Dial v1.1 Arduino Driver Library

UiFlow2

- Dial v1.1 UiFlow2 Quick Start

Easyloader

Easyloader	Download Link	Notes
Dial v1.1 User Demo Easyloader	download	/
Dial v1.1 Knob Panel Demo Easyloader	download	/

ESP-IDF

- Espressif's Board Support Packages - M5Dial
- Dial v1.1 User Demo
- Dial v1.1 Knob Panel Demo

Video

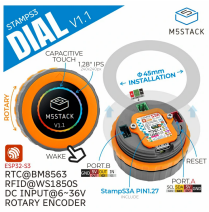
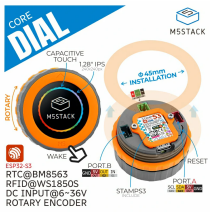
- Dial v1.1 Introduction Video

0906 M5产品介绍片.m4v

- Dial v1.1 Product Introduction and Case Showcase

M5 DIAL 视频.mp4

Product Comparison

Comparison Item	 **Dial v1.1**	 **Dial**
Core Module	Stamp-S3A	StampS3
Antenna Design	Optimized design, stronger signal	Standard design
Stamp-S3A module Boot button	Optimized button feel, buttons use 4.0 x 3.0 x 2.0mm specs	Button specs 2.6 x 1.6 x 0.55mm
Power Consumption	Optimized for lower power consumption	Standard design