

Unit RollerCAN-Lite

SKU:U188-Lite





Description

Unit RollerCAN-Lite is a brushless DC motor motion execution kit with integrated control functions, designed for efficient motion control. The product supports 6-16V DC power input (via **CAN** interface) or 5V input (via Grove interface), and can automatically adjust the power coefficient to ensure optimal performance.

Its built-in FOC closed-loop drive system uses a 3504 200KV brushless motor, with a maximum continuous phase current of 0.5A without forced cooling, and can reach 1A for short periods. The driver, with magnetic encoder feedback, supports current, speed, and position triple-loop control, ensuring precise control.

Additionally, the device features a 0.66-inch OLED display on the back for real-time status display. It also includes built-in RGB indicators and function buttons for easy human-machine interaction. The product base is designed with LEGO-compatible mounting holes and M3 screw holes for quick assembly and integration.

Unit RollerCAN-Lite is fully open-source in both hardware and software, supporting motion control and parameter adjustment via **CAN** or **I2C** buses, and provides SWD and SWO debugging interfaces to further enhance developer flexibility. This product is used in robot joints, motion control, industrial automation, and visual demonstration projects.

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Unit RollerCAN-Lite

This tutorial introduces how to use Unit RollerCAN-Lite, including device configuration, work mode settings, and wiring instructions.

Features

- Brushless DC motor control
- CAN/I2C communication control
- Integrated OLED display
- RGB indicators
- FOC closed-loop drive system

Includes

- 1 x Unit RollerCAN-Lite
- 1 x PwrCAN Cable (10cm)
- 1 x HY2.0-4P Grove cable (5cm)

- 6 x Friction pins
- 1 x Flange
- 1 x Bracket
- 1 x Motor Mounting Plate
- 1 x Hex key (2.5mm)
- 1 x Hex key (2mm)
- 6 x M3 nuts
- 2 x Hex socket head M3x14mm screws
- 4 x Hex socket head M3x10mm screws
- 1 x Hex socket head M2x5mm screw
- 4 x Hex socket countersunk M3x14mm screws
- 2 x Hex socket countersunk M3x12mm screws
- 4 x Hex socket countersunk M3x5mm screws
- 1 x Single-ended terminal cable 5P debug cable 1.25mm pitch 100mm length

Applications

- Robot joint control
- Smart manufacturing equipment
- Visual demonstrations

Specifications

Specification	Parameters
MCU	STM32G431CBU6@Cortex-M4, 128KB-Flash, 32KB-SRAM, 170MHz
Motor Type	D3504 200KV brushless motor@diameter: 41mm
Driver Chip	DRV8311HRRWR
Angle Sensor	TLI5012BE1000
Communication Interfaces	2x CAN (XT30 interface) @XT30 (2+2) PW-M 1x I2C (0x64)
Display	0.66-inch OLED display, resolution: 64 x 48, SPI communication
RGB LEDs	2x WS2812-2020
Motor Power	CAN (XT30 interface) power supply@6-16V Grove port DC 5V power supply
Load	Load:50g Motor speed:2100rpm Current:DC 16V/225mA Load:200g Motor speed:1400rpm Current:DC 16V/601mA Load:500g (max load) Motor speed:560rpm Current:DC 16V/918mA No load: DC 16V/78mA
Standby Current	Grove port DC 5V power supply@70mA CAN (XT30 interface) power supply DC 16V@32mA
Noise	48dB
Output Torque	Grove port DC 5V power supply:0.021N.m/0.2kgf.cm@current 350mA CAN (XT30 interface) power supply:0.065N.m/0.66kgf.cm@current 927mA
Operating Temperature	0 ~ 40°C
Product Size	40.0 x 40.0 x 40.0mm
Product Weight	72.2g
Package Size	105.0 x 76.0 x 54.0mm
Gross Weight	154.0g

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Power Supply Voltage

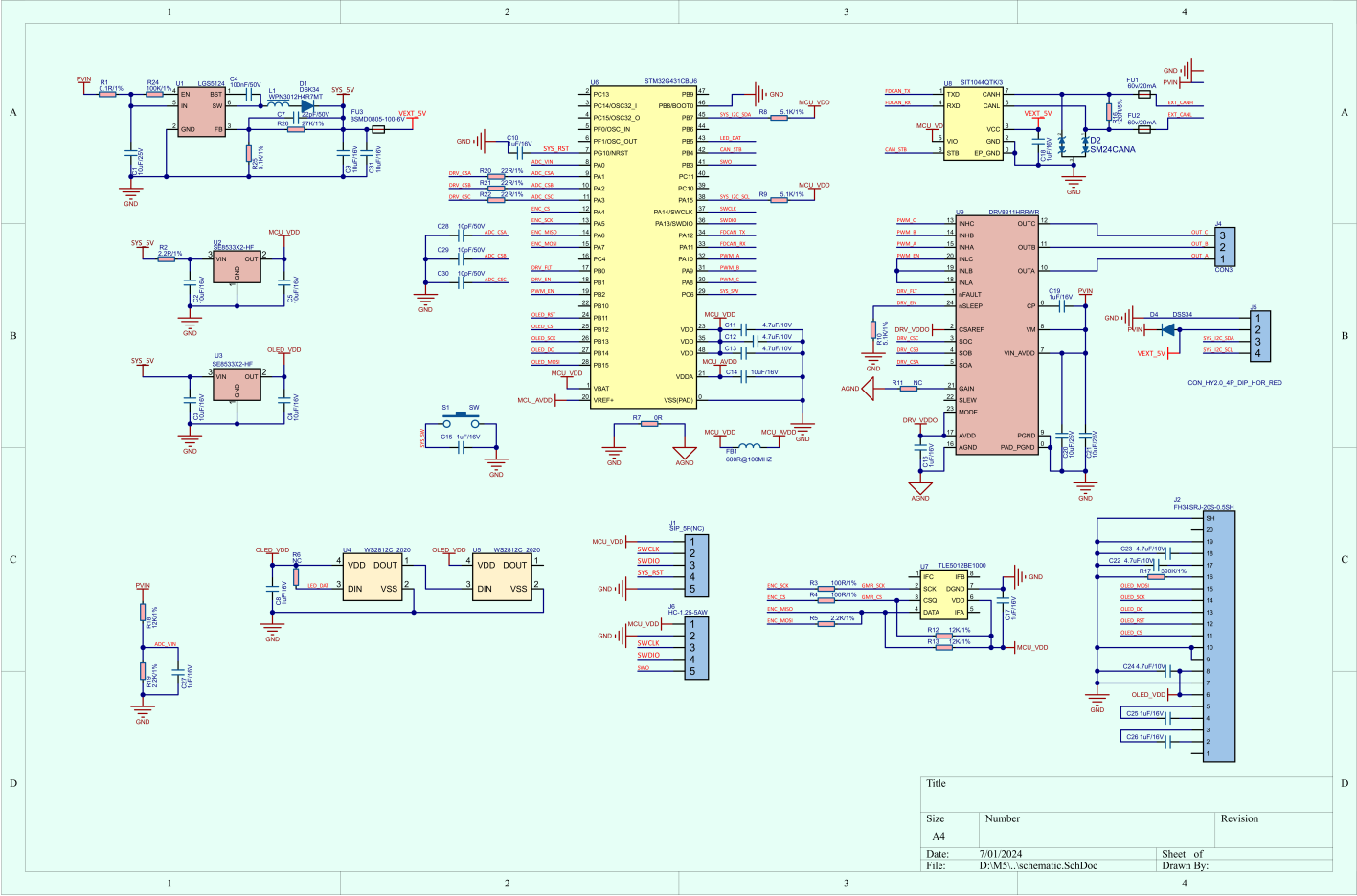
The power supply should not exceed 16V. If the voltage exceeds 18V, the motor fault code E:1 will be displayed, the motor will not work, and "Over Voltage" will be displayed, with the LED lighting up blue.

Encoder Value and Rotation Angle

In absolute position mode, the encoder value of 36000 pos corresponds to 360°. Due to the fact that the mechanical installation angle and the encoder angle are not strictly aligned, there may be an error of approximately 2°.

Schematics

◦ [Unit RollerCAN-Lite Schematics PDF](#)



PinMap

Unit RollerCAN-Lite

HY2.0-4P	Black	Red	Yellow	White
PORT.A	GND	5V	SDA	SCL

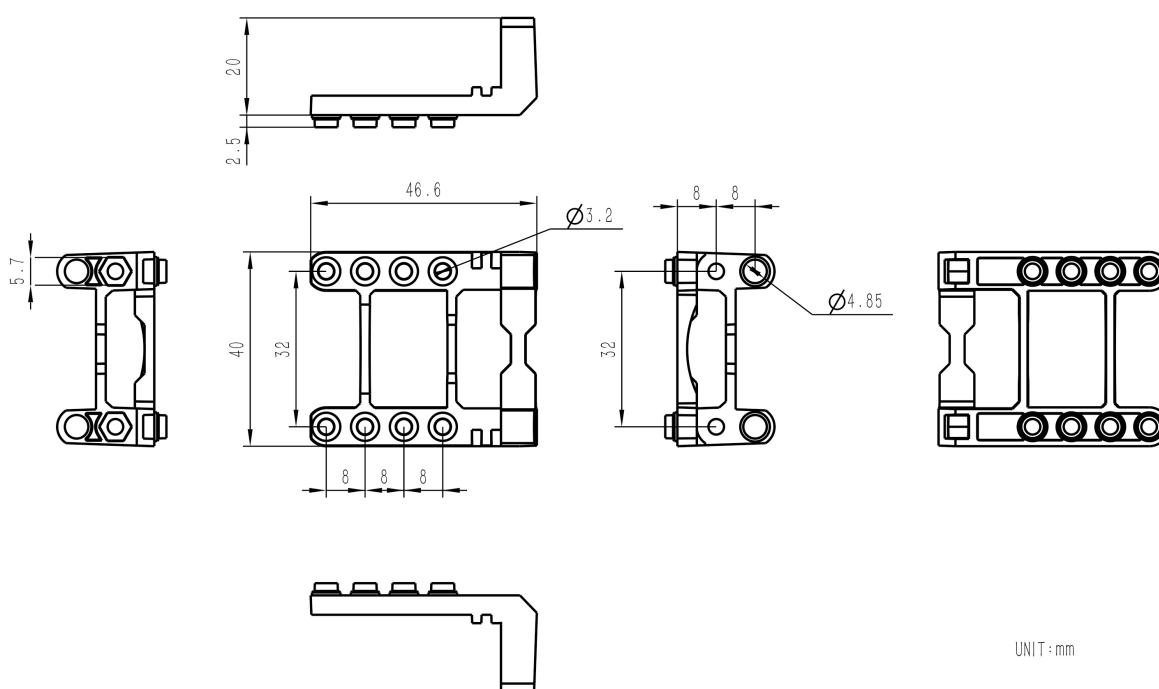
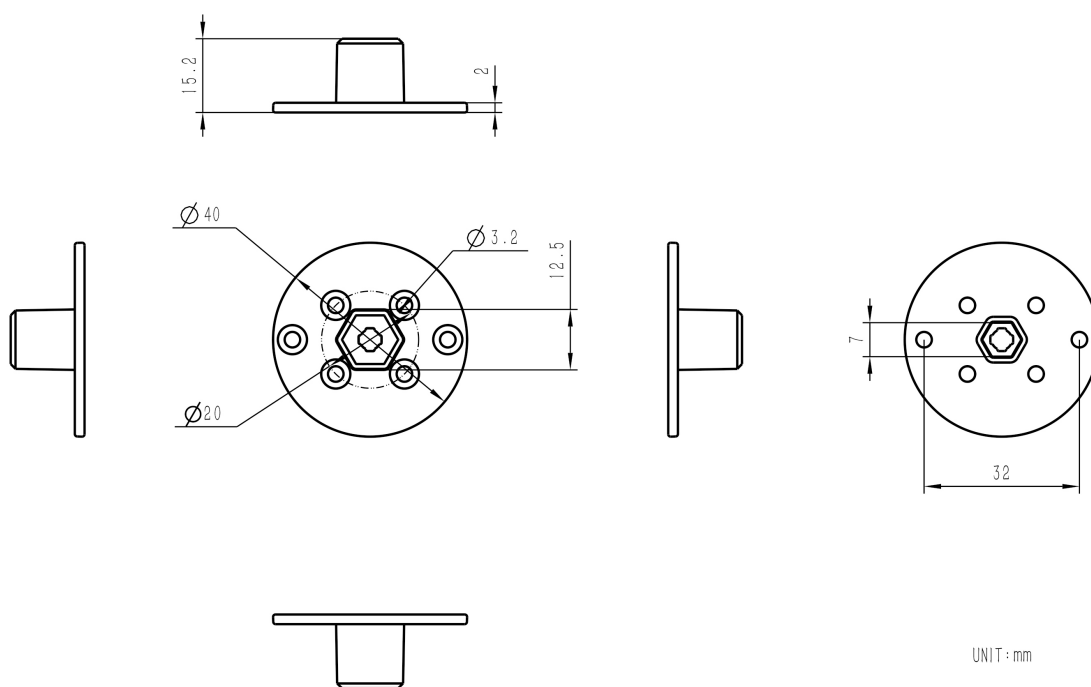
I2C, CAN, RGB, Button

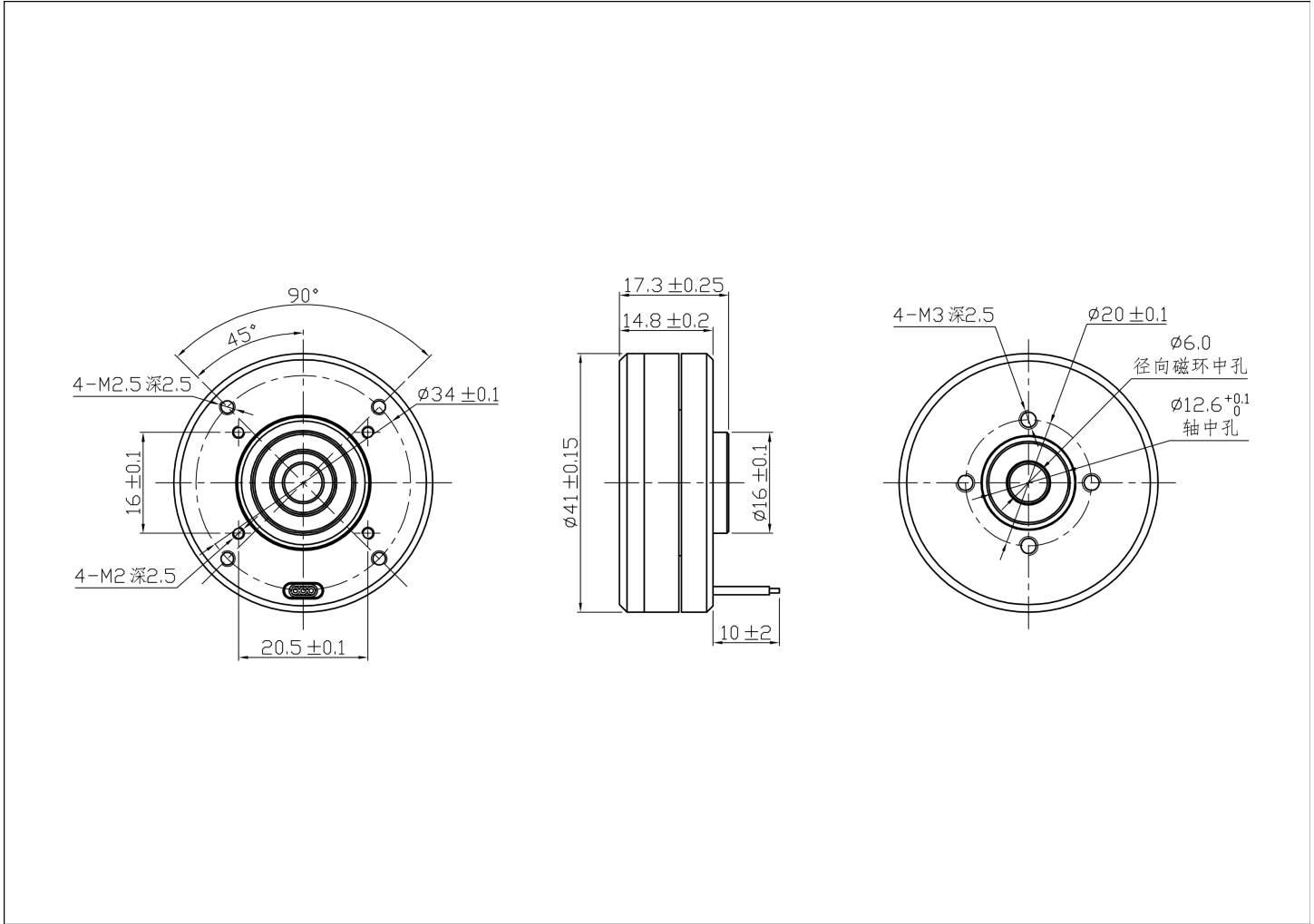
STM32G431CBU6	PA15	PB7	PA11	PA12	PB4	PB5	PC6
I2C	SYS_I2C_SCL	SYS_I2C_SDA					
CAN			FDCAN_RX	FDCAN_TX	CAN_STB		
WS2812C						LED_DAT	
Button A							SYS_SW

OLED

STM32G431CBU6	PB15	PB13	PB14	PB11	PB12
OLED	OLED_MOSI	OLED_SCK	OLED_DC	OLED_RST	OLED_CS

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Structure

- [Unit RollerCAN-Lite Structure Files](#)

Datasheets

- [Angle Sensor TLI5012BE1000](#)
- [Motor Driver DRV8311HRRWR](#)

Softwares

Arduino

- [Unit RollerCAN Arduino Library](#)

Internal Firmware

- [Unit RollerCAN Internal Firmware](#)

Communication Protocols

- I2C Protocol
- [Unit RollerCAN-I2C Protocol](#)
- [Unit RollerCAN-I2C User Manual](#)
- CAN Protocol

- [Unit RollerCAN-CAN Protocol](#)
- [Unit RollerCAN-CAN User Manual](#)

Video

- [Unit RollerCAN-Lite Product Introduction and Case Demonstration](#)

[RollerCAN RollerCAN Lite product intro video.mp4](#)

Product Comparison

Product Comparison				
	Unit RollerCAN	Unit RollerCAN Lite	Unit Roller485	Unit Roller485 Lite
Driver Chip	DRV8311	DRV8311	DRV8311	DRV8311
Communication	CAN/I2C	CAN/I2C	RS485/I2C	RS485/I2C
Slip Ring	With slip ring	Without slip ring	With slip ring	Without slip ring
Power Indicator LED Color	Blue	None	Green	None
Product Color	Black	Black	Gray	Gray