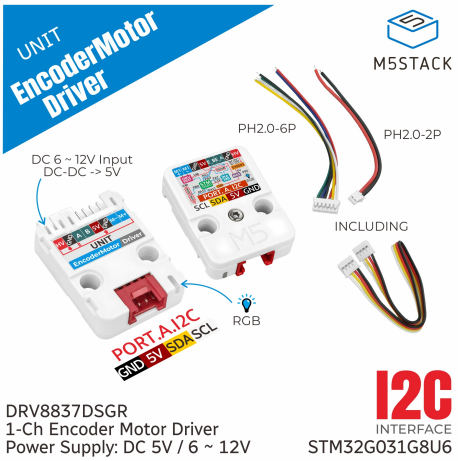
Unit EncoderMotor Driver

SKU:U232



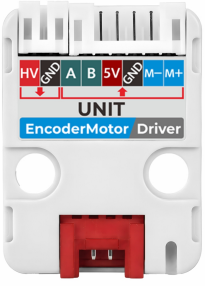




















Description

Unit EncoderMotor Driver is a single-channel encoder DC motor driver unit featuring an **STM32G031G8U6** main controller. It uses an I2C communication interface and provides one DC 5V motor output with a corresponding A/B encoder input, making it suitable for 6-wire encoder geared motors and TT geared motors. The driver supports PWM speed control, forward/reverse control, and closed-loop speed and position control. It integrates an INA199A current-sensing circuit and motor operating voltage detection, enabling real-time monitoring of motor current and voltage.

An onboard programmable RGB LED indicates the device operating status. The unit accepts an external DC 6 ~ 12V input and provides a DC 5V motor output through an onboard DC-DC buck converter. It is suitable for robot drive mechanisms, joint modules, smart cars, and similar applications.

Features

- STM32G031G8U6 main controller
- Single-channel encoder motor drive
  - Compatible with 6-wire encoder geared motors / TT geared motors (M+ / M- / GND / 5V / EN_B / EN_A)
  - Supports 3 ~ 15 PPR encoders
- Motor control
  - PWM speed control
  - Forward/reverse / stop
  - A/B phase counting
  - Speed loop / position loop closed-loop control
  - Soft start / soft stop
  - Sleep
- I2C communication interface
  - Default address 0x2F, software-configurable (0x08 ~ 0x77)
- Flexible power supply

    - External power input: DC 6 ~ 12V
    - Grove interface power input: DC 5V
    - Integrated DC-DC buck converter for motor power and Grove interface output, with a maximum load of DC 5V@8A
- Motor load
    - External power supply: maximum motor load DC 5V@1.2A
    - Grove interface power supply: total load ≤ DC 5V@1A
- Power monitoring
    - INA199A motor current detection
    - Motor DC 5V operating voltage detection
- Programmable RGB indicator

Includes

- 1 x Unit EncoderMotor Driver
- 1 x HY2.0-4P Grove cable (20cm)
- 1 x PH2.0-2P cable (100mm)
- 1 x PH2.0-6P cable (100mm)

Applications

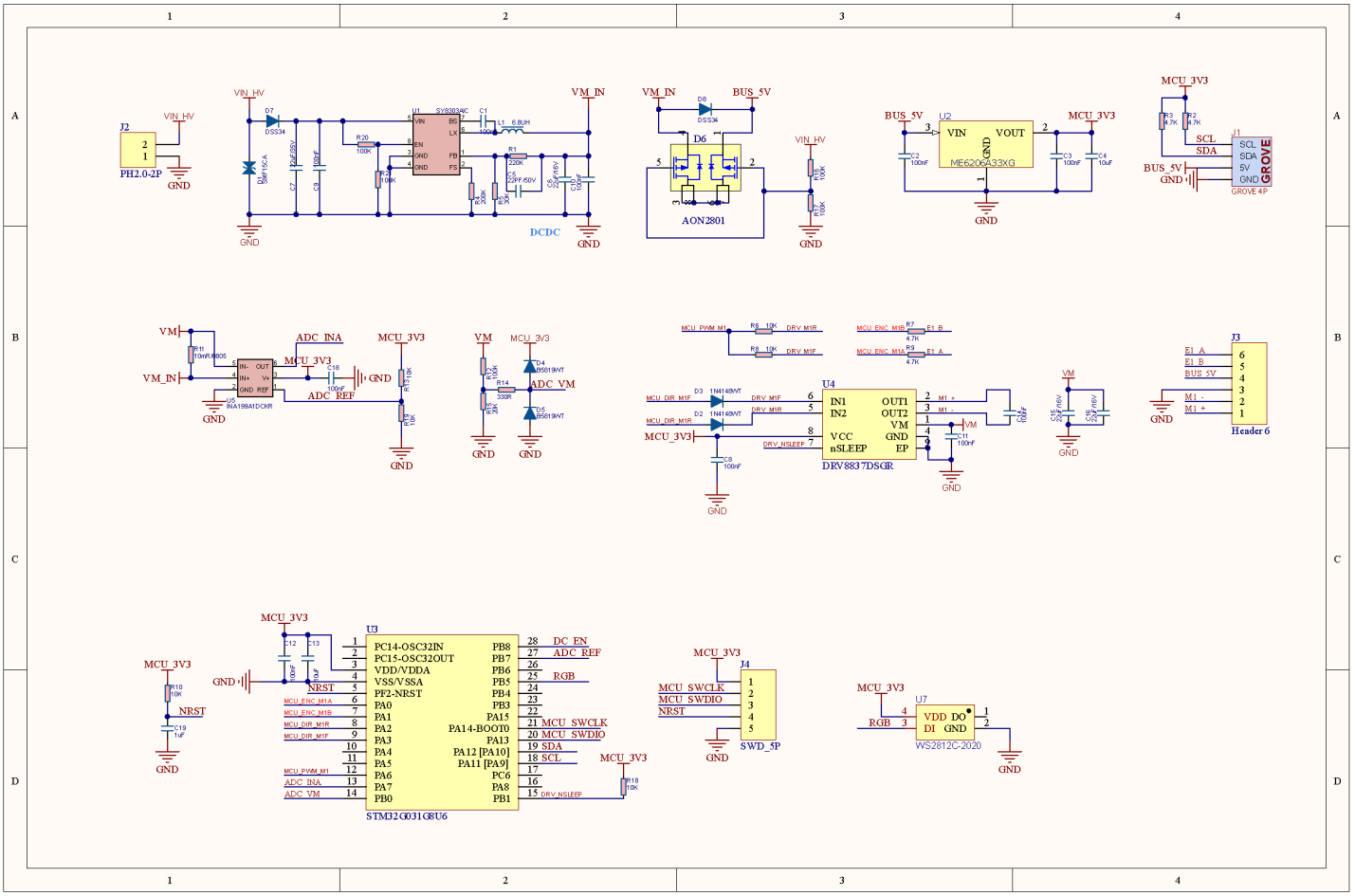
- Closed-loop control of encoder motors
- Robot drive mechanisms / joint drives
- Smart cars
- Speed / position control for conveyors, turntables, and similar equipment
- STEAM education and motor control instruction

Specifications

Specification	Parameter
MCU	STM32G031G8U6
Communication Interface	I2C @ 0x2F, software-configurable (0x08 ~ 0x77)
Motor Driver	Single-channel DRV8837DSGR H-bridge motor driver
Motor Load	Maximum load: DC 5V@1.2A (external input supply DC 6 ~ 12V)
Motor Operating Modes	PWM speed control, forward/reverse, soft start / soft stop, speed loop, position loop, sleep
Encoder	Single-channel AB encoder input, supports 3 ~ 15 PPR
Encoder Motor Interface	PH2.0-6P, compatible with 6-wire encoder geared motors / TT geared motors (M+ / M- / GND / 5V / EN_B / EN_A)
Power Supply	PH2.0-2P external DC power input: DC 6 ~ 12V HY2.0-4P Grove power input: DC 5V
Current Detection	INA199A
RGB LED	1x WS2812C-2020
Product Size	32.1 x 24.0 x 8.0mm
Product Weight	4.8g
Package Size	138.0 x 93.0 x 11.0mm
Gross Weight	13.4g

Schematics

- Unit EncoderMotor Driver Schematic PDF



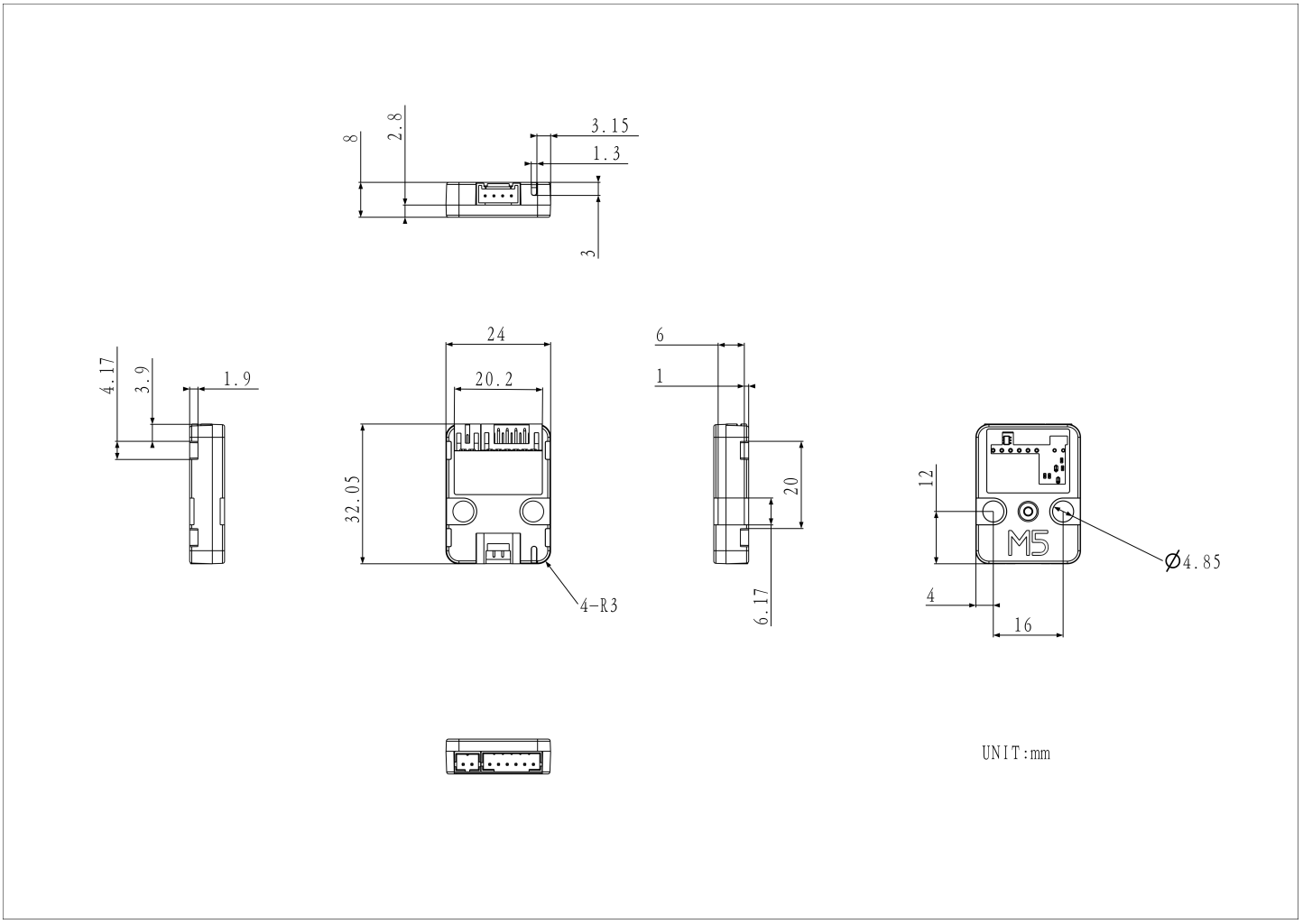
PinMap

HY2.0-4P

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

Model Size

- Unit EncoderMotor Driver Model Size PDF



Structure

- Unit EncoderMotor Driver Structure Files

Datasheets

- STM32G031G8U6
- INA199A1DCKR
- DRV8837DSGR

Softwares

Arduino

- Unit EncoderMotor Driver Arduino Driver Library

Protocol

View Protocol

Video

Product Comparison

Product Compare	 Unit EncoderMotor Driver	 Unit 4EncoderMotor Driver
Communication Interface	I2C	I2C
Channel Count	1-channel encoder motor	4-channel encoder motor
Motor Driver	DRV8837DSGR	4x DRV8837DSGR
Main Controller	STM32G031G8U6	STM32F030C8T6
Encoder Motor Interface	1x PH2.0-6P	4x PH2.0-6P
Power Input	DC 6 ~ 12V (1x PH2.0-2P)	DC 6 ~ 12V (2x PH2.0-2P)
Load Capacity	DC 5V@1.2A	Single-channel DC 5V@1.2A
Current Detection	INA199	INA199
Grove Interface	1x HY2.0-4P	2x HY2.0-4P
Product Positioning	Single-motor control	Multi-motor control