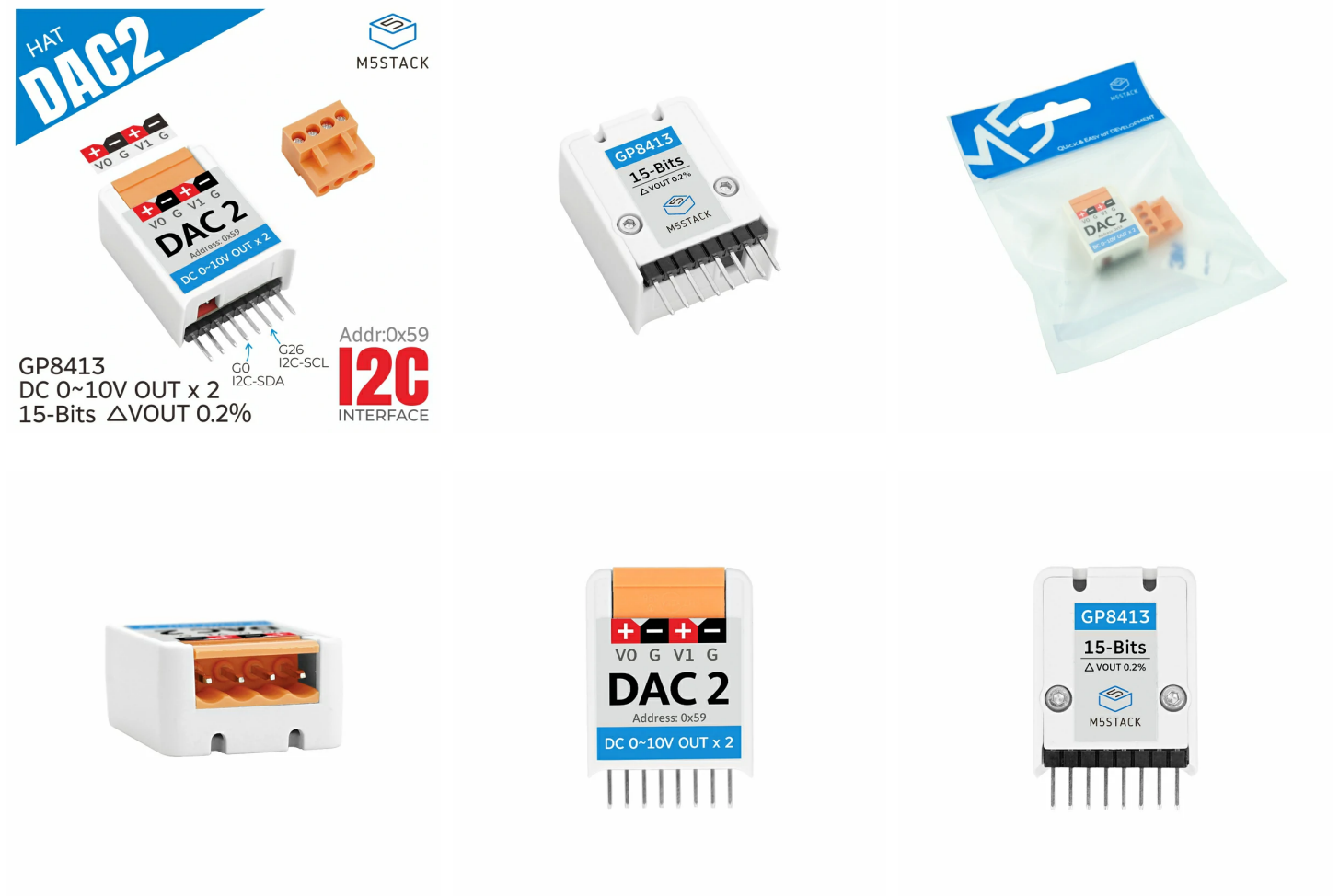# Hat DAC2

SKU:U068-B



## Description

**Hat DAC2** is an I2C digital-to-analog signal conversion unit designed for the StickC series controllers. Using the GP8413 solution, this chip can linearly convert a 15-bit digital quantity into two independent 0–5V / 0–10V analog voltages with an output voltage error of 0.2% and linearity of 0.01%. For scalability, the circuit design allows selection via three hardware address pins (A2/A1/A0). In terms of safety, the device supports output short-circuit protection — when the output pin is shorted to ground, it automatically enters protection mode and stops output. It is suitable for general signal conversion, motor speed control, LED dimming, inverters, power supplies, and industrial analog signal isolation applications.

## Features

- Compatible with StickC / StickC PLUS / StickC PLUS2
- I2C communication (default address 0x59)
- Supports multi-channel parallel connection
- Short-circuit protection
- High precision, low error

# Includes
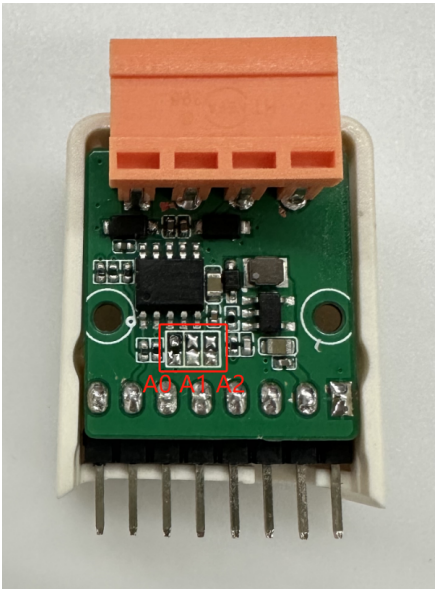
- 1 x Hat DAC2
- 1 x HT3.96-4P Terminal
- 1 x Sticker

# Applications

- General signal conversion
- Motor speed control, LED dimming
- Inverters, power supplies
- Industrial analog signal isolation

# Specifications

| Specification | Parameter |
| --- | --- |
| DAC Chip | GP8413 |
| Resolution | 15-bit |
| Communication Interface | I2C Communication @0x58 ~ 0x65, Default 0x59 |
| Max Output Voltage | 10V |
| Output Voltage Error | <0.2% |
| Output Voltage Linearity Error | 0.01% |
| Operating Temperature | 0–40°C |
| Product Size | 35.0 x 24.0 x 13.7mm |
| Product Weight | 6.7g |
| Package Size | 136.0 x 92.0 x 13.7mm |
| Gross Weight | 15.0g |

# Learn

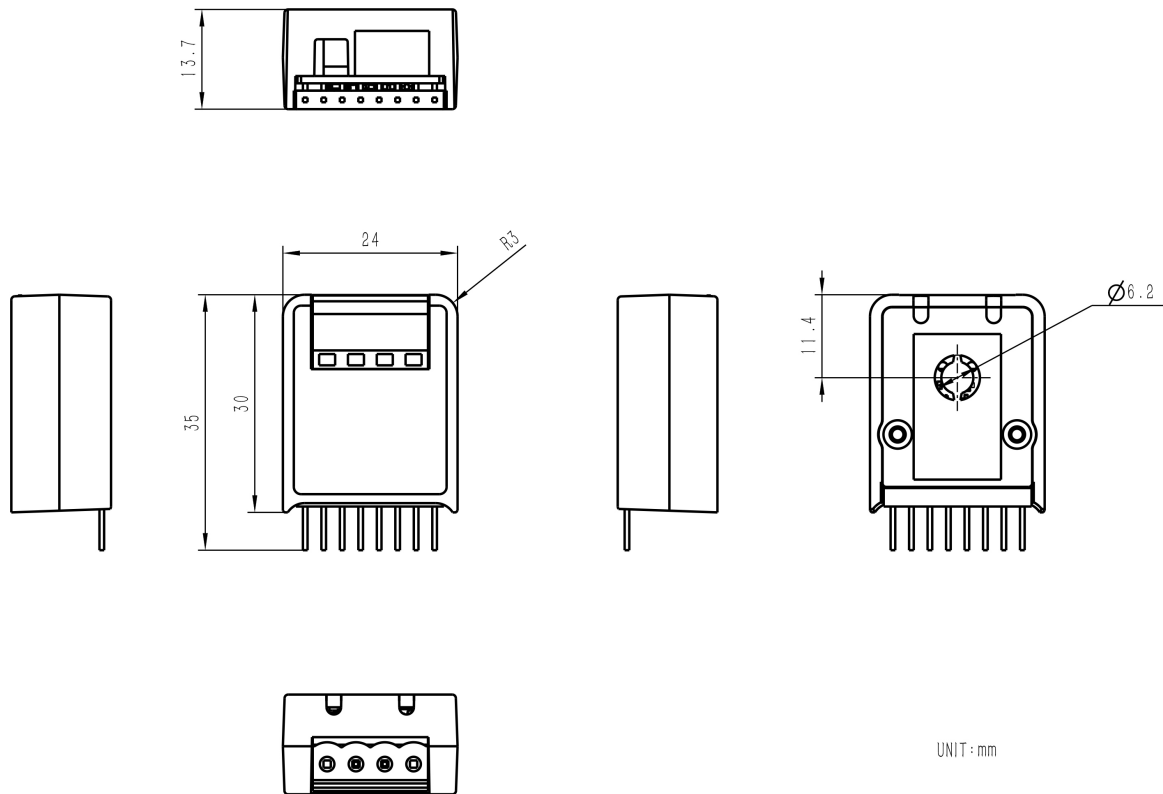| A2 | A1 | A0 | I2C Address (7-bit) |
|---|---|---|---|
| 0 | 0 | 0 | 0x58 |
| 0 | 0 | 1 | 0x59 (Default) |
| 0 | 1 | 0 | 0x5A |
| 0 | 1 | 1 | 0x5B |
| 1 | 0 | 0 | 0x5C |
| 1 | 0 | 1 | 0x5D |
| 1 | 1 | 0 | 0x5E |
| 1 | 1 | 1 | 0x5F |

**Address Selection**

By setting pins A0, A1, and A2 to high (1) or low (0), you can obtain eight different I2C addresses from 0x58 to 0x5F.

Connecting a resistor indicates a high level (1), while leaving it unconnected means a low level (0).

## Schematics

- Hat DAC2 Schematics PDF

## PinMap

| StickC | SDA | SCL | VCC | GND |
|--------|-----|-----|-----|-----|
| DAC2 Hat | G0 | G26 | 5V | GND |

## Model Size

UNIT:mm

# Datasheets

- GP8413 Datasheet

# Softwares

## Arduino

- Hat DAC2 - with M5StickC
- Hat DAC2 - with M5StickC-Plus
- Hat DAC2 - with M5StickC-Plus2

## UiFlow1

- Hat DAC2 UiFlow1 Docs

## UiFlow2

- Unit DAC2 UiFlow2 Docs

# FAQ

## Question: What is the difference between Hat-DAC2 and Hat-DAC?

| Product | Communication Protocol | Chip Solution | EEPROM | Resolution | Output Voltage | I2C Address | Channel |
|---------|------------------------|---------------|--------|------------|----------------|-------------|---------|
| DAC2 Hat | I2C | GP8413 | / | 15Bit | 0–10V | Adjustable A0/A1/A2 (8 I2C addresses) (Default 0x59) | Dual |
| DAC Hat | I2C | MCP4725 | Built-in | 12Bit | VDD (0–3.3V) | Default 0x60, not adjustable | Single |