

# Joystick HAT EXCLUSIVE



## Description

Joystick HAT is one of the HAT module that is specifically designed for M5Stack. We have used a STM32F030F4 microprocessor inside to implement I2C communication with M5Stack. This mini-volume joystick module supports full angular movement and center press, and outputs angular data as well as button digital signals. With the 'HAT' unified plug-in design it can provide reliable connection, in the most streamlined way, which allows to get more HMI experience.

## Product Features

- STM32F030F4 inside
- communication protocol: I2C (address: 0x38)
- support omni-directional movement/button press
- Dimension: 24mm x 30mm x 17mm
- Weight: 3g

## Package Includes

- 1x Joystick HAT

## Applications

- Game Handle
- Wireless Joystick Device

## Communication protocol

I2C address: 0x38

Register:

0x01 Read only 4 bytes, single axis value 0 - 4096

- 0: low 8 bits of raw data on X-axis
- 1: high 8 bits of raw data on X-axis
- 2: low 8 bits of raw data on Y-axis
- 3: high 8 bits of raw data on Y-axis

0x02 only read 3 bytes

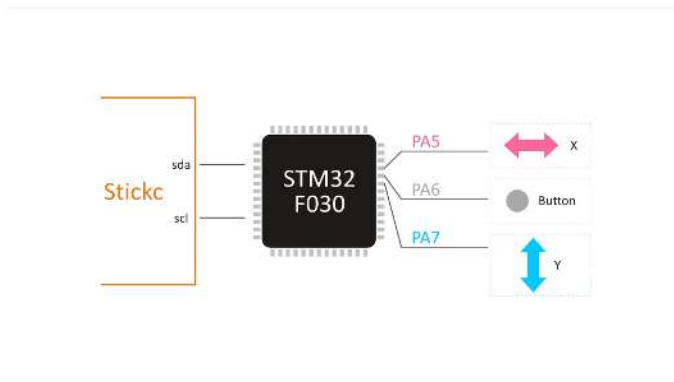
- 0: x-axis data after transform (-127 ~ 127)
- 1: y-axis data after transform (-127 ~ 127)
- 2: 0 or 1 (press down 0, release 1)

0x03 only write 1 bytes

- 0x00: Normal mode
- 0x01: Central spot set 0
- 0x02: Maximum Calibration (Require manually rotate the joystick to get the maximum value).
- 0x03: Save central spot and Maximum Calibration value to flash, and go to Normal Mode after finish.

Joystick calibration method: First I2C writes register 0x03 and then sends 0x02, the joystick is rotated several times around the top, bottom, left and right, and then 0x03 is saved in register 0x03.

## Schematic



## EasyLoader

[click to download EasyLoader](#)

1.EasyLoader is a simple and fast program burner. Every product page in EasyLoader provides a product-related case program. It can be burned to the master through simple steps, and a series of function verification can be performed.(Currently EasyLoader is only available for Windows OS)

After downloading the software, double-click to run the application, connect the MS device to the computer through the data cable, select the port parameters, click "Burn" to start burning. (For MSStickC burning, please Set the baud rate to 750000 or 115200 )

## Example

UIFlow



Arduino

To get complete code, please click [here](#)

## Pin Map

MSStickC	GPI00	GPI026	3.3V	GND
Joystick HAT	SDA	SCL	3.3V	GND