

Unit Joystick2

SKU:U024-V2



Description

Unit Joystick2 is a high-precision Hall effect joystick control unit, built with an STM32G030F6P6 main control chip and integrated firmware for joystick signal acquisition. The unit communicates via the I2C interface and supports three-axis control signal input, including analog input for the X/Y axes and digital button input for the Z axis. **Unit Joystick2** uses a Hall effect joystick, achieving high-precision control by detecting magnetic field changes, offering advantages such as contactless operation, wear resistance, high accuracy, and strong anti-interference capability, ensuring product stability and long service life. Additionally, the device is equipped with a WS2812 RGB LED for status indication and interactive display, and reserves a firmware upgrade interface for the STM32, making firmware updates convenient. This product is suitable for various application scenarios such as game controllers and robot control.

Features

- Hall effect joystick
- Three-axis input:
 - X/Y axis offset analog input
 - Z-axis button digital input
- Built-in STM32
- I2C communication
- RGB LED
- 2 x LEGO compatible holes

Includes

- 1 x Unit Joystick2
- 1 x HY2.0-4P Grove Cable (20cm)

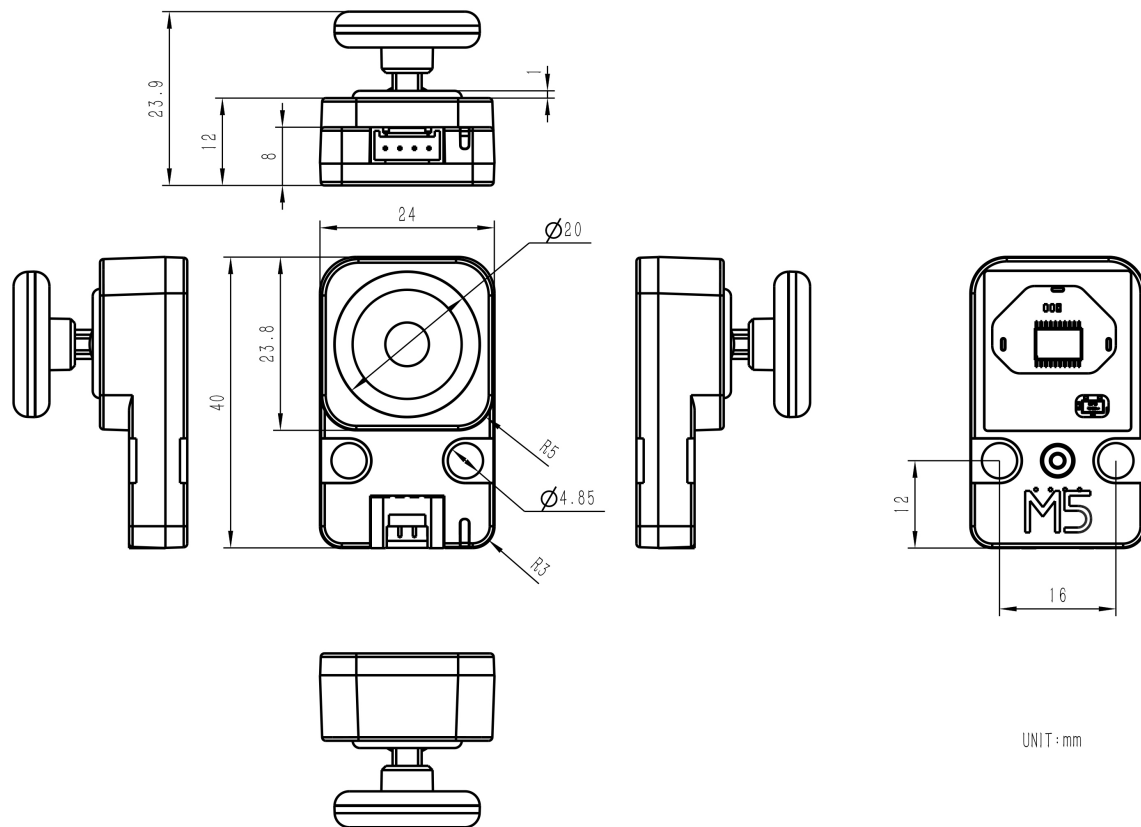
Applications

- Game controller
- Remote-controlled robot

Specifications

Specification	Parameter
MCU	STM32G030F6P6@Cortex-M0+, 64MHz main frequency
Flash	32KB
SRAM	8KB
Communication Interface	I2C Communication @0x63
X/Y axis output	16-bit ADC output (0-65535)
Z-axis button	0/1
RGB LED	1x WS2812C
Product Size	40.0 x 24.0 x 23.9mm
Product Weight	10.0g
Package Size	138.0 x 93.0 x 24.9mm
Gross Weight	15.7g

Schematics



Structure

- [Unit Joystick2 Structure Files](#)

Softwares

Arduino

- [Unit Joystick2 Arduino Library](#)

UiFlow1

- [Unit Joystick2 UiFlow1 Docs](#)

UiFlow2

- [Unit Joystick2 UiFlow2 Docs](#)

Internal Firmware

- [Unit Joystick2 Internal Firmware](#)

Protocol

M5Stack Unit JoyStick2 I2C Protocol																		V1 (FW Version)		
REG MAP (Addr:0x63)		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	2024/V10		
																		note		
Raw Value	Joy1 ADC Value (16bits)	0x00 R	Joy1 X ADC Value-L (0x00)	Joy1 X ADC Value-H (0x01)	Joy1 Y ADC Value-L (0x02)	Joy1 Y ADC Value-H (0x03)												ADC Value: ADC = (ADC Value-L + ADC Value-H * 256) 0~65535		
	Joy1 ADC Value (8bits)	0x10 R	Joy1 X ADC Value (0x10)	Joy1 Y ADC Value (0x11)														0~255		
	Button	0x20 R	Button (0x20)															Button: 1, no press; 0, press		
RGB	RGB	0x30 R/W	RGB-B (0x30)	RGB-G (0x31)	RGB-R (0x32)	NULL (0x33)												RGB value		
Mapped Value	Joy1 ADC Min&Max&Center Value (16bits)	0x40 R/W	Joy1 X ADC Negative Min Value-L (0x40)	Joy1 X ADC Negative Min Value-H (0x41)	Joy1 X ADC Negative Max Value-L (0x42)	Joy1 X ADC Negative Max Value-H (0x43)	Joy1 X ADC Positive Min Value-L (0x44)	Joy1 X ADC Positive Min Value-H (0x45)	Joy1 X ADC Positive Max Value-L (0x46)	Joy1 X ADC Positive Max Value-H (0x47)	Joy1 Y ADC Negative Min Value-L (0x48)	Joy1 Y ADC Negative Min Value-H (0x49)	Joy1 Y ADC Negative Max Value-L (0x4A)	Joy1 Y ADC Negative Max Value-H (0x4B)	Joy1 Y ADC Positive Min Value-L (0x4C)	Joy1 Y ADC Positive Min Value-H (0x4D)	Joy1 Y ADC Positive Max Value-L (0x4E)	Joy1 Y ADC Positive Max Value-H (0x4F)	Joy1 X ADC Negative Min Value: The minimum ADC value on the negative half-axis of X. Joy1 X ADC Negative Max Value: The maximum ADC value on the negative half-axis of X. Joy1 X ADC Positive Min Value: The minimum ADC value on the positive half-axis of X. Joy1 X ADC Positive Max Value: The maximum ADC value on the positive half-axis of X. Joy1 Y ADC Negative Min Value: The minimum ADC value on the negative half-axis of Y. Joy1 Y ADC Negative Max Value: The maximum ADC value on the negative half-axis of Y. Joy1 Y ADC Positive Min Value: The minimum ADC value on the positive half-axis of Y. Joy1 Y ADC Positive Max Value: The maximum ADC value on the positive half-axis of Y.	
	Int12 Value (with offset)	0x50 R	X-L (0x50)	X-H (0x51)	Y-L (0x52)	Y-H (0x53)												Int12 Value: -4095~4095		
	Int8 Value (with offset)	0x60 R	X-L (0x60)	Y-L (0x61)															Int8 Value: -127~127	
	Bootloader Version	0xF0 R												Version (0xFC)						Version: Bootloader version number
Firmware Version	0xF0 R																	Version (0xFE)		Version: firmware version number
I2C Address	0xF0 R/W															Address (0xFF)		Address: I2C Address		

Video

- Unit Joystick2 product introduction and case demonstration

U024-V2 JoyStick2 Unit 视频.mp4

- UiFlow2 Unit Joystick2

Product Comparison

Product Compare		
		
	Unit Joystick v1.1	Unit Joystick2
MCU	MEGA8A	STM32G030F6P6
RGB	/	WS2812C
X/Y axis offset output value	8 bits (0-255)	16 bits (0-65535)
Communication Mode	I2C (0x52)	I2C (0x63)
manufacturing technique	Carbon film joystick	Hall effect joystick