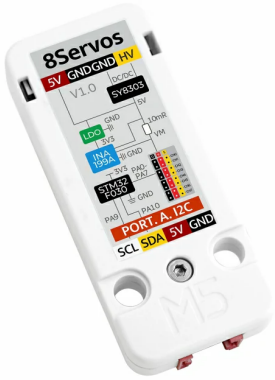
8Servos Unit

SKU:U165



Description

8Servos Unit is an 8-channel servo driver unit that uses the **STM32F030F4** master control to generate multiple PWM signals for servo drive and communicate with the M5 host through I2C (addr: 0x25). Built-in total power MOSTUBE switch circuit, support programming dynamic control motor release/lock;Built-in total current acquisition circuit, the total circuit parameters can be known. Supports two sets of power inputs (9-24V / 5V). This product is suitable for servo control, robot control, intelligent toys, etc.

Features

- 8-channel servo drive
- Programmable motor power supply
- I2C Protocol Control (0x25)
- Reverse power supply protection
- Total current harvesting function

Includes

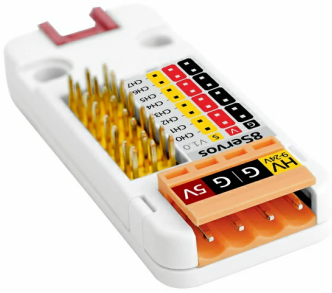
- 1 × 8Servo Unit
- 1 × HT3.96-4P
- 1 × HY2.0-4 Cable

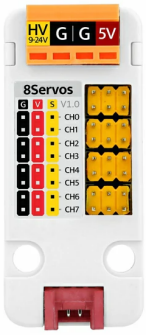
Applications

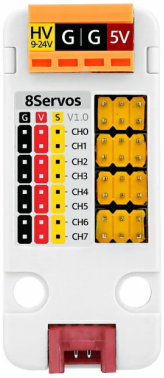
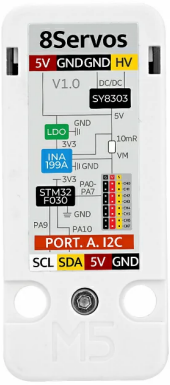
- Servo controller
- Robot control

Specification

Resources	Parameters
Current acquisition chip	INA199A1DCKR
Servo drive channel	8-channel
Maximum drive load capacity	8-channel maximum load capacity: DC5V@1.3A
I2C Address	0x25
Product Size	55*24*11.5mm
Package Size	136* 92* 13mm
Product Weight	10.1g
Package Weight	17.6g



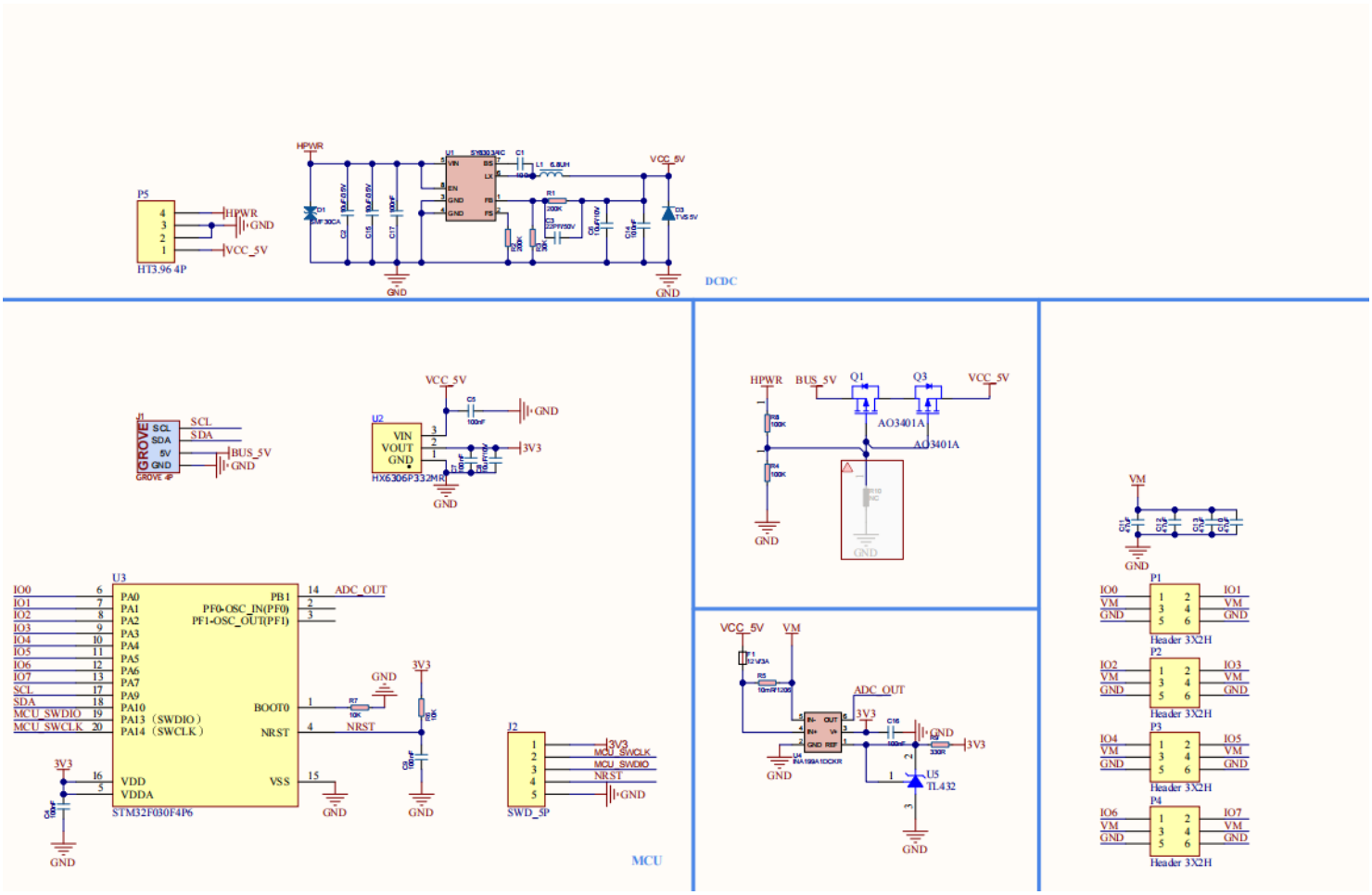



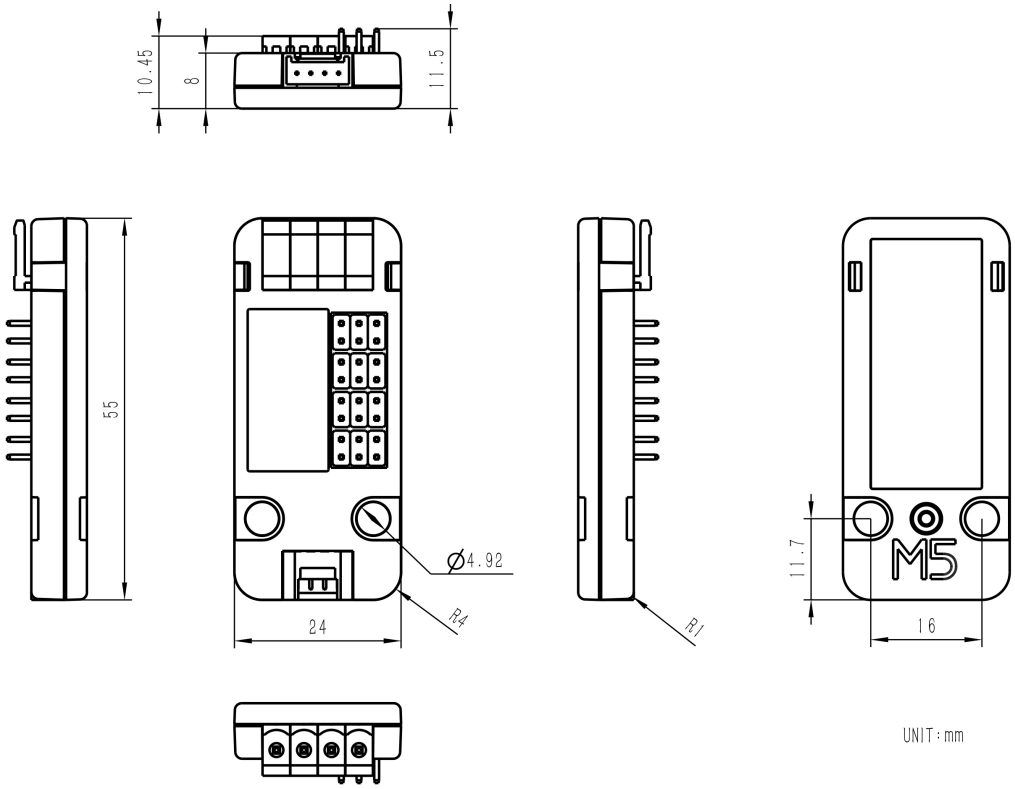
Related Link

- INA199A1DCKR

Schematic


HPWR
P5
HT3.96 4P
VCC_5V
GND
DCDC
SCL
SDA
BUS_5V
VIN
VOUT
HX6306P332MR
3V3
Q1
Q3
AO3401A
ADC_OUT
U3
STM32F030F4P6
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PA9
PA10
PA13（SWDIO）
PA14（SWCLK）
PB1
PF0-OSC_IN(PF0)
PF1-OSC_OUT(PF1)
BOOT0
NRST
VDD
VDDA
VSS
MCU_SWDIO
MCU_SWCLK
SWD_5P
MCU
VM
P1
P2
P3
P4
Header 3X2H
TL432

Module Size



Protocol

M5Stack Unit 8Servo I2C Protocol

V1 (FW Version)
2023/3/24

REG MAP (Addr:0x25)		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	note
MODE SETTING	0x00 W/R	IO0	IO1	IO2	IO3	IO4	IO5	IO6	IO7									Mode:0~4[1]
1 OUTPUT CTRL	0x10 W	IO0	IO1	IO2	IO3	IO4	IO5	IO6	IO7									0:LOW ; 1:HIGH
0 DIGITAL INPUT	0x20 R	IO0	IO1	IO2	IO3	IO4	IO5	IO6	IO7									0:LOW ; 1:HIGH
2 ANALOG INPUT-8Bits	0x30 R	IO0	IO1	IO2	IO3	IO4	IO5	IO6	IO7									value:0~255
2 ANALOG INPUT-12Bits	0x40 R	IO0-L	IO0-H	IO1-L	IO1-H	IO2-L	IO2-H	IO3-L	IO3-H	IO4-L	IO4-H	IO5-L	IO5-H	IO6-L	IO6-H	IO7-L	IO7-H	value:0~4095
3 SERVO 8Bits	0x50 W/R	IO0	IO1	IO2	IO3	IO4	IO5	IO6	IO7									value:0~180degree
3 SERVO 16Bits	0x60 W/R	IO0-L	IO0-H	IO1-L	IO1-H	IO2-L	IO2-H	IO3-L	IO3-H	IO4-L	IO4-H	IO5-L	IO5-H	IO6-L	IO6-H	IO7-L	IO7-H	value:500~2500us
4 RGB 24Bits	0x70 W/R	IO0-R	IO0-G	IO0-B	IO1-R	IO1-G	IO1-B	IO2-R	IO2-G	IO2-B	IO3-R	IO3-G	IO3-B	IO4-R	IO4-G	IO4-B	IO5-R	R/G/B:0~255
	0x80 W/R	IO5-G	IO5-B	IO6-R	IO6-G	IO6-B	IO7-R	IO7-G	IO7-B									
5 PWM DutyCycle	0x90 W/R	pwm 0	pwm1	pwm 2	pwm 3	pwm 4	pwm 5	pwm 6	pwm 7									DutyCycle:0~100 (frequency:1KHz)
Servo Current	0xA0 R	current-byte0	current-byte1	current-byte2	current-byte3													float
I2C ADDRESS SETTING	0xF0 W/R																Addr	value: 0~127 default:0x25
Firmware version	0xF0 R															Version		Version: firmware version

[1] 0: Input, 1: Output, 2: ADC, 3: Servo, 4: NeoPixel, 5: PWM

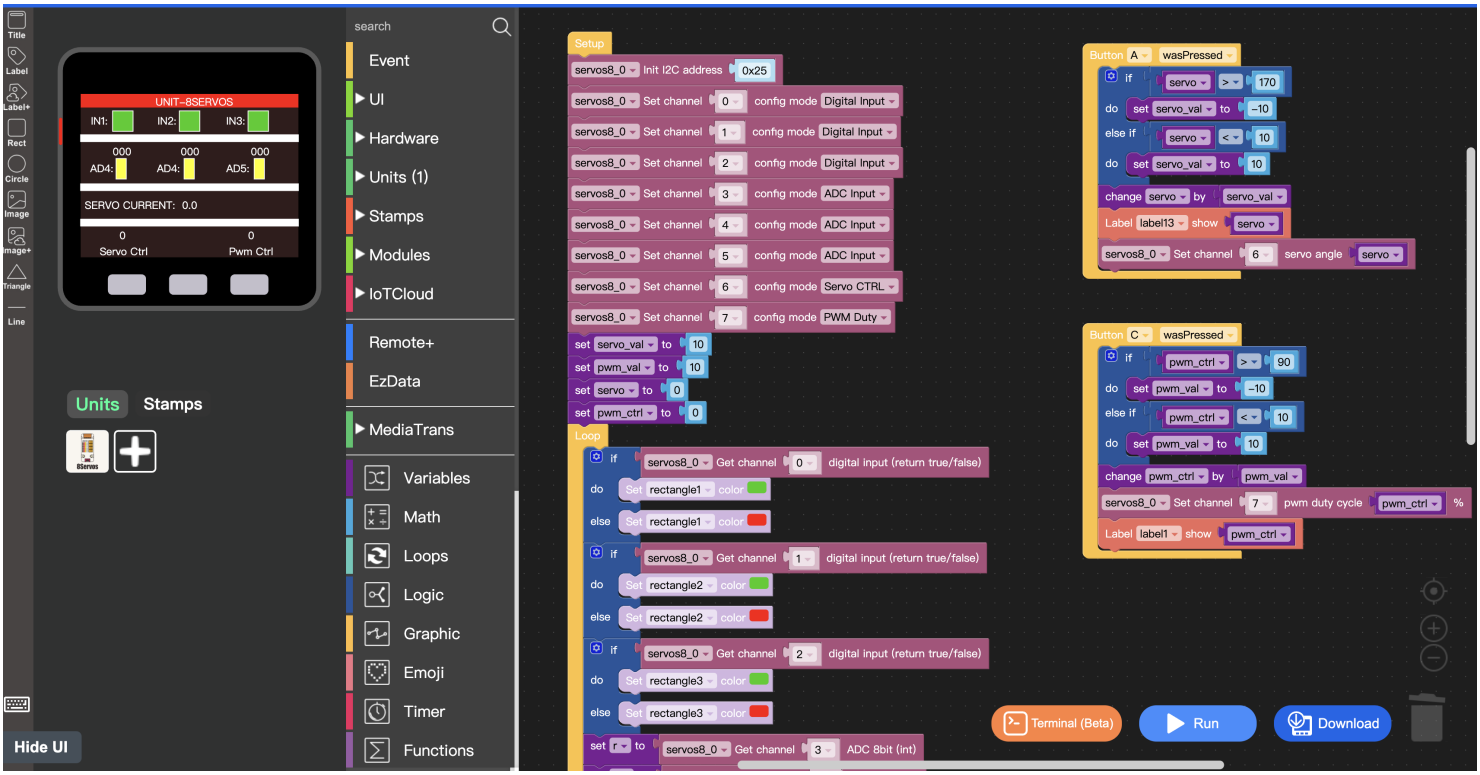
Examples

Arduino

- 8Servo Unit Firmware Download
- 8Servo Unit Example

UIFlow

- 8Servos Unit UIFlow Demo



UIFlow Blocks

- Init I2C address

- Set config mode

- Get config mode

- Get digital input

- Get ADC 8bit

- Get ADC 12bit

- Get servo angle

- Get servo pulse

- Get RGB LED color

- Get servo current

- Get firmware version

- Set digital output level

- Set servo angle

- Set servo pulse

- Set pwm duty cycle

- Set RGB LED color

- Set I2C address

Video

- control 8 servos demo

U165.mp4