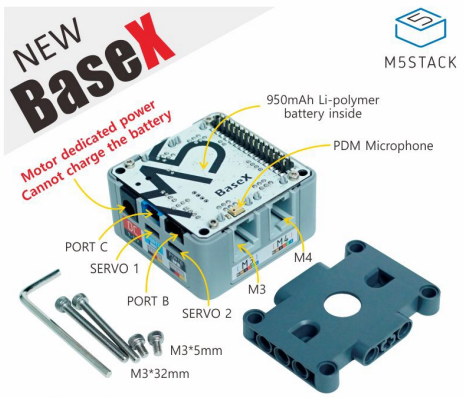
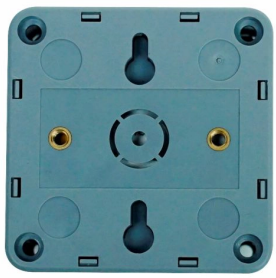
Base X

SKU:K037



54mm * 54mm * 32mm
External Input: 9~12V DC(5V for servos,9V for motors)
Charging Interface: USB-C(From core)



Description

Base X is a specialized base compatible with LEGO EV3 motors. Its structural design is similar to BASE26, supporting multiple mounting methods, and additionally providing a LEGO connector base that allows **Base X** to be easily integrated into LEGO builds. **Base X** can connect up to 4 LEGO motors (RJ11) simultaneously, supporting angle/speed reading and control, perfectly compatible with the original motor functions.

In addition, the base provides 2 servo interfaces for direct servo angle control, a built-in PDM microphone for sound acquisition, a UART interface (16/17), and a GPIO interface (26/36), making it more flexible for connecting various sensors in different scenarios. The base has a built-in 950mAh battery that can be charged via the M5Core’ s USB Type-C port to extend battery life. To improve the driving capability of the interfaces, the base is equipped with a DC power jack for powering motors using an external 9 ~ 12V DC power supply (charging through the base is not supported).

Features

- 4-way RJ12 LEGO motor interface (total maximum current output 2A for the base)
- 2-way servo drive (total maximum current output 2A for the base)
- 1-way UART
- 1-way GPIO
- Built-in PDM microphone (G34)
- Onboard DC-DC conversion (9 ~ 12V input, for independent motor power only)
- Built-in 950mAh battery
- Multiple mounting methods / LEGO hole support

Applications

- LEGO encoder motor/servo controller
- Intelligent control for LEGO DIY toys

Includes

- 1 x Base X
- 1 x LEGO Base
- 2 x M3 * 5mm 304 Stainless Steel Hex Socket Bolt
- 2 x M3 * 32mm 304 Stainless Steel Hex Socket Bolt
- 1 x Hex Key L-Shape 2.5mm (For M3 Screw)

Specifications

Specification	Parameter
MCU	STM32F030C8T6
Communication Interface	I2C Communication @0x22
Product Size	54.0 x 54.0 x 26.0mm
Product Weight	59.0g
Package Size	150.0 x 65.0 x 40.0mm
Gross Weight	110.0g

PinMap

M5-Bus

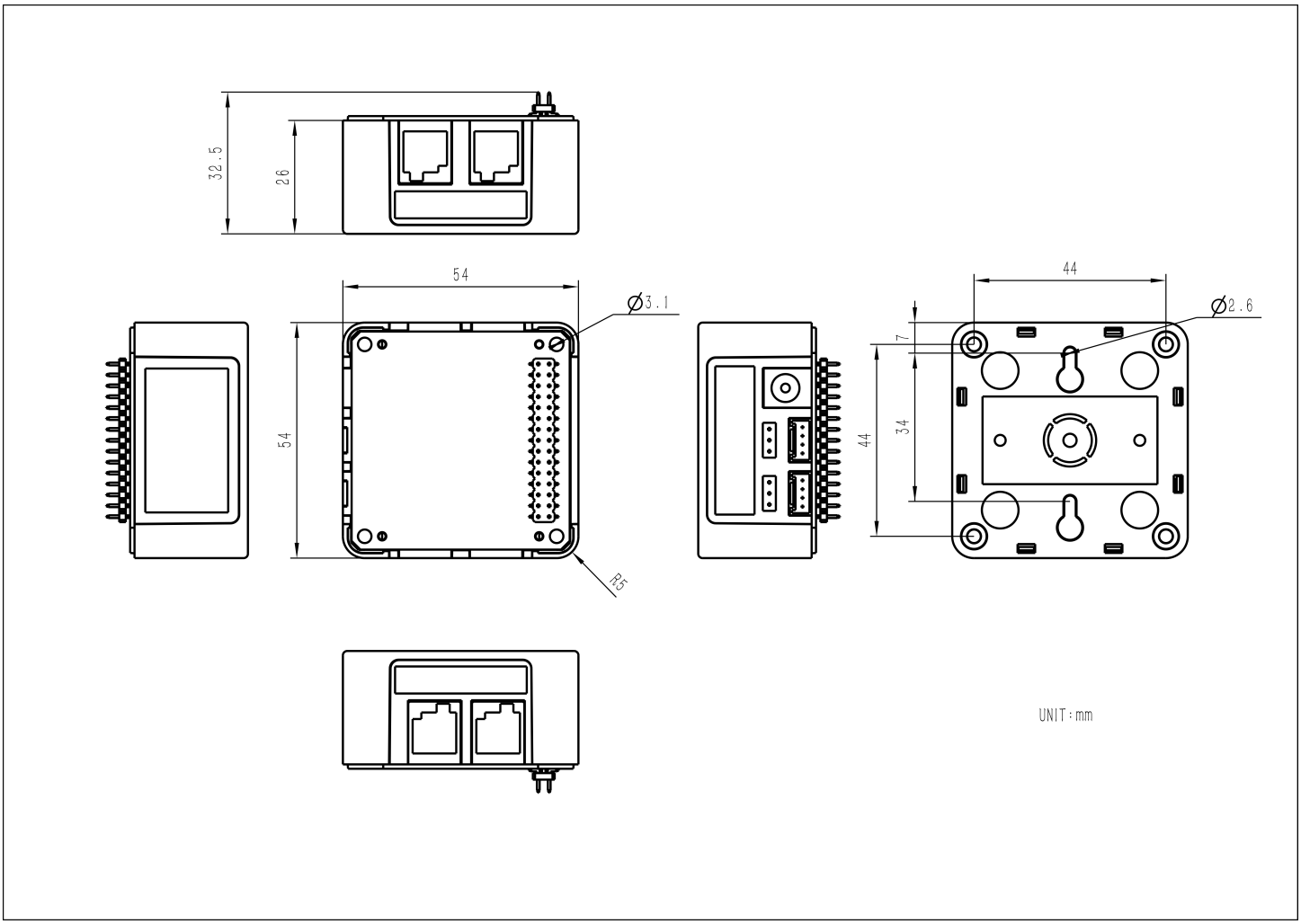
Switch

The pins in the M5-Bus below marked as `SW` can be switched via the DIP switch to adapt to different main controllers.

PIN	LEFT	RIGHT	PIN
GND	1	2	NC
GND	3	4	PORT.B
GND	5	6	NC
NC	7	8	NC
NC	9	10	PORT.B
NC	11	12	3V3
NC	13	14	NC
PORT.C	15	16	PORT.C
I2C_SDA	17	18	I2C_SCL
NC	19	20	NC
NC	21	22	NC
NC	23	24	I2S_LRCK (SW)
HPWR	25	26	I2S_DIN (SW)
HPWR	27	28	5V
HPWR	29	30	BAT

Model Size

- Base X Model Size PDF



構造

- Base X 構造ファイル

Softwares

Arduino

- Base X Test Program

UiFlow1

- Base X UiFlow1 Docs

Protocol

I2C Control Description

- I2C Slave Address: 0x22

Function	Register Address	Value
SERVO1_ANGLE_ADDR	0X00	0~180
SERVO2_ANGLE_ADDR	0x01	0~180
SERVO1_PULSE_ADDR	0x10	(uint16_t)500~2500
SERVO2_PULSE_ADDR	0x12	(uint16_t)500~2500
MOTOR1_PWM_DUTY_ADDR	0x20	-127~127
MOTOR2_PWM_DUTY_ADDR	0x21	-127~127
MOTOR3_PWM_DUTY_ADDR	0x22	-127~127
MOTOR4_PWM_DUTY_ADDR	0x23	-127~127
MOTOR1_ENCODER_ADDR	0x30	int32_t
MOTOR2_ENCODER_ADDR	0x34	int32_t
MOTOR3_ENCODER_ADDR	0x38	int32_t
MOTOR4_ENCODER_ADDR	0x3C	int32_t
MOTOR1_SPEED_ADDR	0x40	-127~127
MOTOR2_SPEED_ADDR	0x41	-127~127
MOTOR3_SPEED_ADDR	0x42	-127~127
MOTOR4_SPEED_ADDR	0x43	-127~127

I2C Motor Address:

Motor No.	Motor Address
MOTOR1	0x50
MOTOR2	0x60
MOTOR3	0x70
MOTOR4	0x80

Configuration Method

Motor Address + nBit

Bit	Value
0	Motor Run Mode
1	position-p(3)
2	position-i(1)
3	position-d(15)
4/5/6/7	position-point (lower bit effective)
8	position-max-speed
9	speed-p
10	speed-i
11	speed-d
12	speed-point

Motor Run Mode	Value
Normal	0X00
Position	0x01
Encoder	0x02
3	position

EasyLoader

Easyloader	Download	Note
Base X Test Easyloader	download	/

Video

BaseX.mp4