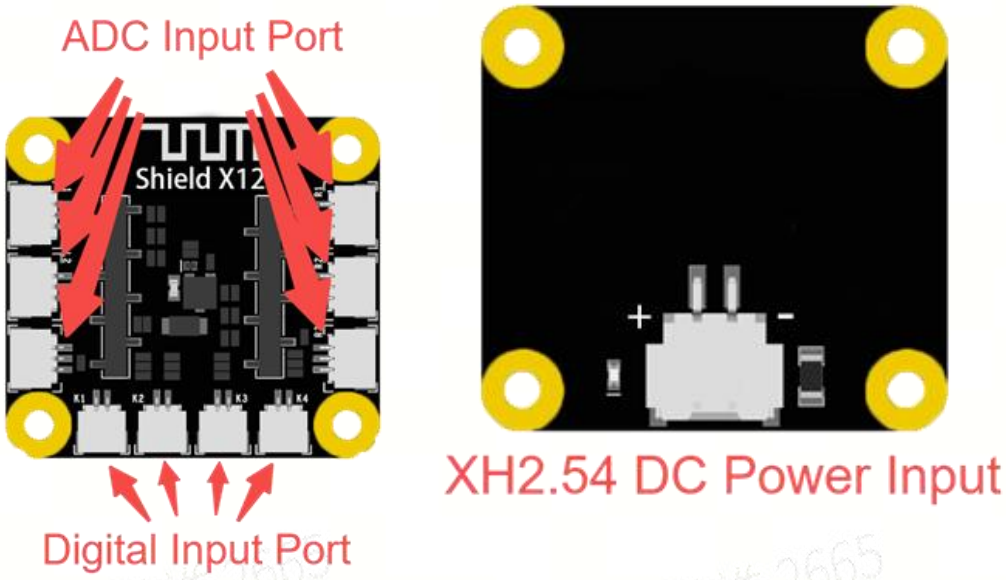
Maker's Supply CyberBrick User's Manual

1. Features

- 2.4Ghz wireless remote control, 10m control distance with an ultra-small size.
- High cost-performance ratio, suitable for car, ship and tank models, etc.
- Provide up to 10 channels for connecting different devices.
- Transmitter Input Voltage: 4.5V~12.6V（1S-3S）, operating current: 65mA.
- Receiver Input Voltage: 7.4V-12.6V（2S-3S）, standby current: 60mA, operating current: 200~300mA, maximum current: 3A.
- Support configuration on mobile phones& PCs, with a user-friendly interface.

2. Receiver&Transmitter Shield

Remote Control Transmitter Shield

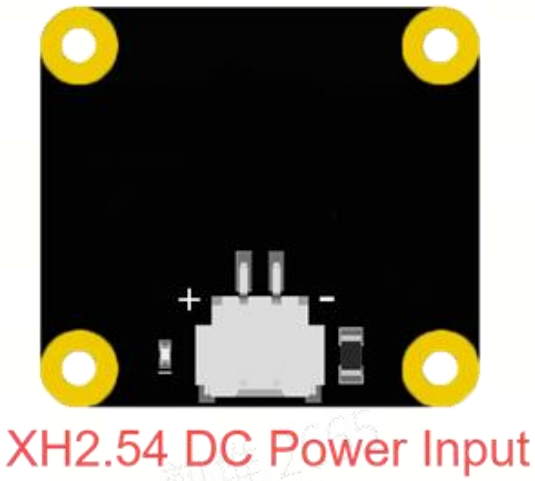


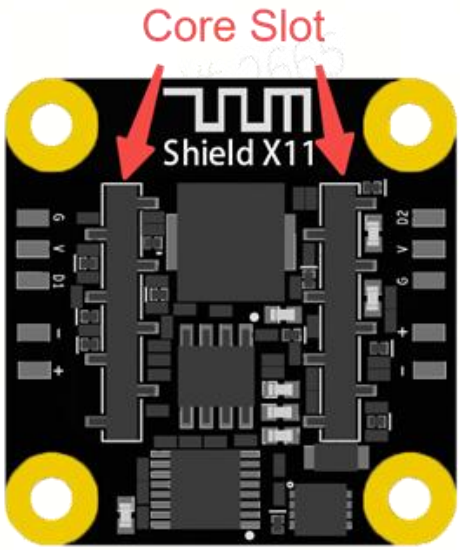
On the left and right sides of the transmitter shield, there are respectively 3 ADC input channels. Below it, there are 4 digital input channels. The gray slot on the back is the slot for the multi-function controller core. It can be powered through the XH2.54

power input.

- **ADC input port L1~L3，R1~L3**: 3pin SH1.0 slot. Connectable with single/dual axis joystick module, three-position rocker switch module, etc.
- **Digital input Port K1~K4**: 2pin SH1.0 slot. Connectable with momentary button module, etc.
- **XH2.54 DC power input**: 2pin XH2.54slot. Connectable with **4.5V~12.6V** power supply.

Remote Control Receiver Shield

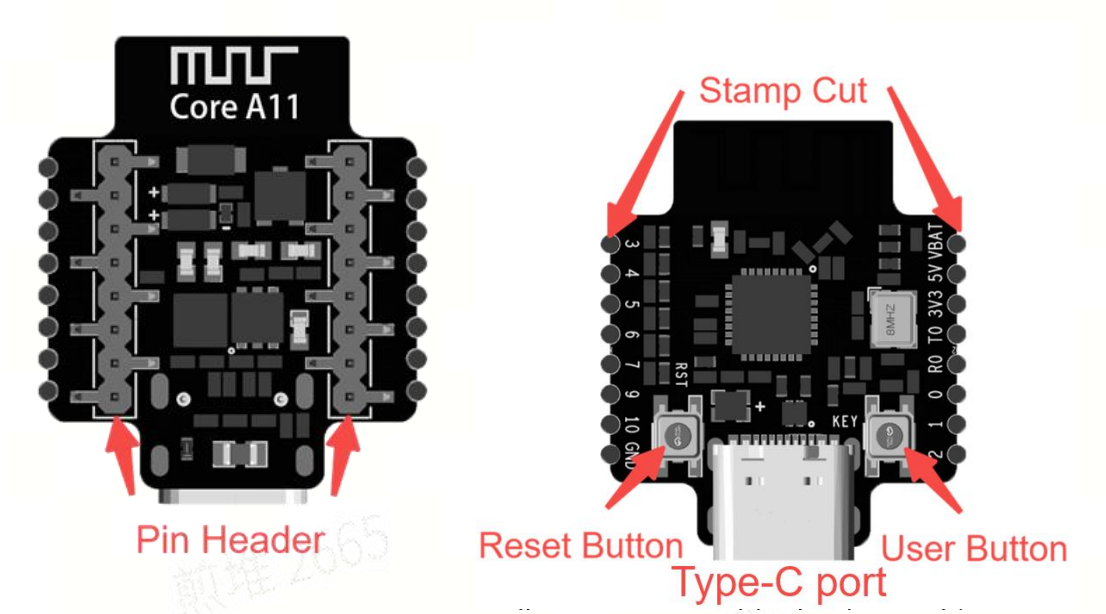




On the left and right sides of the receiver shield, there is respectively a DC motor port and a WS2812 port. In the center, there are 4 servo ports. It can be powered through the XH2.54 power input.

- **DC Motor Port M1、M2**: 2pin SH1.0 slot. Connectable with DC motor, supporting forward and reverse rotation control& PWM speed regulation.
- **WS2812 Port D1、D2**: 3pin SH1.0slot. Connectable with WS2812 LED hubs or other light strips that use the WS2812 protocol.
- **Servo Port S1~S4**: 3pin header. Connectable with universal 5V servo motors.
- **Core Slot**: A double-row gray slot. Connectable with multi-function controller core.
- **XH2.54 Power Input**: 2pin XH2.54 slot. Connectable with **7.4V~12.6V** power supply.

Multi-Function Controller Core

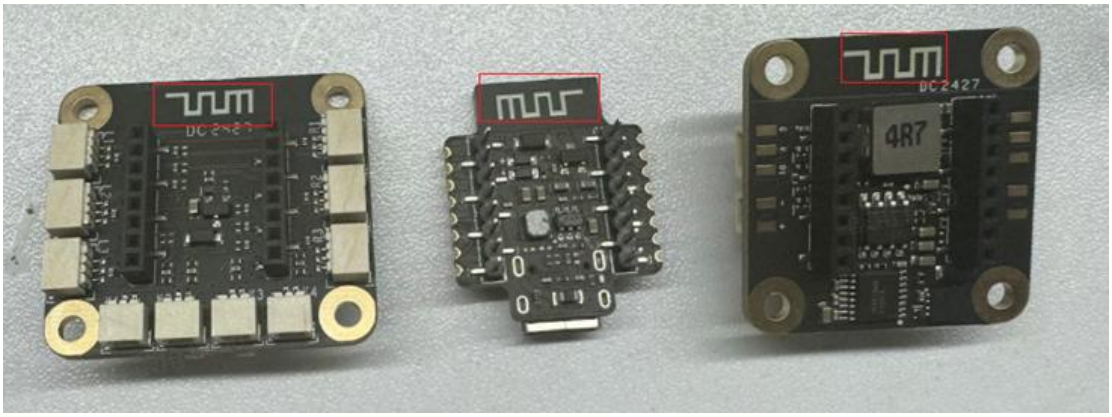


- **Stamp Cut:** Solderable Pinout. It allows users to solder leads to achieve customized circuit connections.
- **Reset Button**: Press to reset main program.
- **User Button**: Custom Function.
- **Type-C Port**: Type-C Port. Connect to the PC via a data cable for programming and burning the program.
- **Pin Header**: Pin Header. Connectable with Shield.

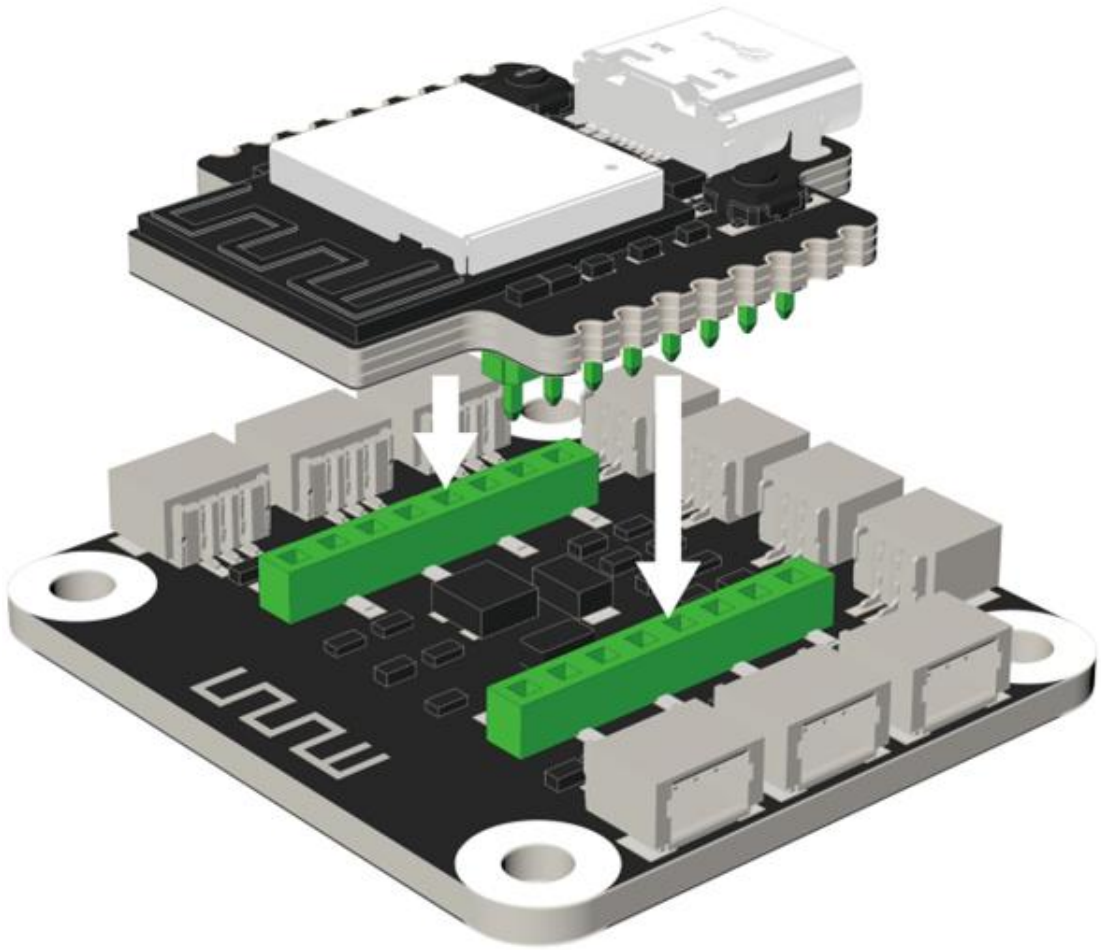
Hardware connection between controller core and remote control transmitter/receiver shield

As shown in the figure, the controller core, the remote control receiver shield, and the remote control transmitter shield have antenna symbols. When making the connection, it is necessary to ensure that the orientations of these three symbols are the same and the pins correspond to each other one by one.

Orientations of these three symbols are the same.



Pins correspond to each other one by one.

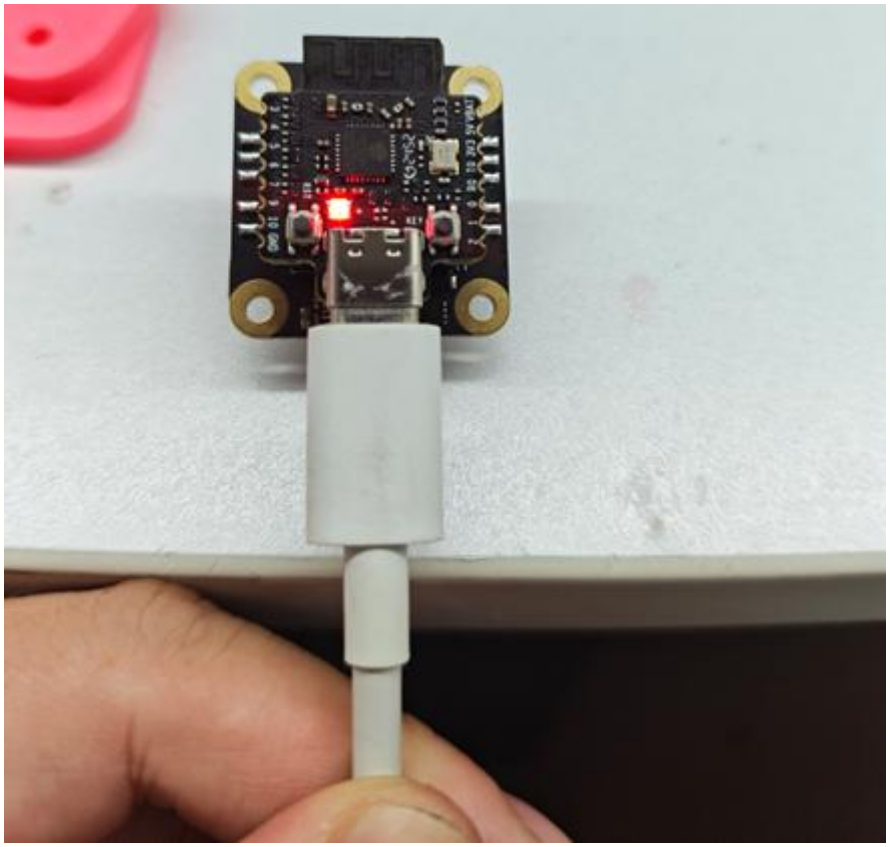


Definition of the System Status Indicator

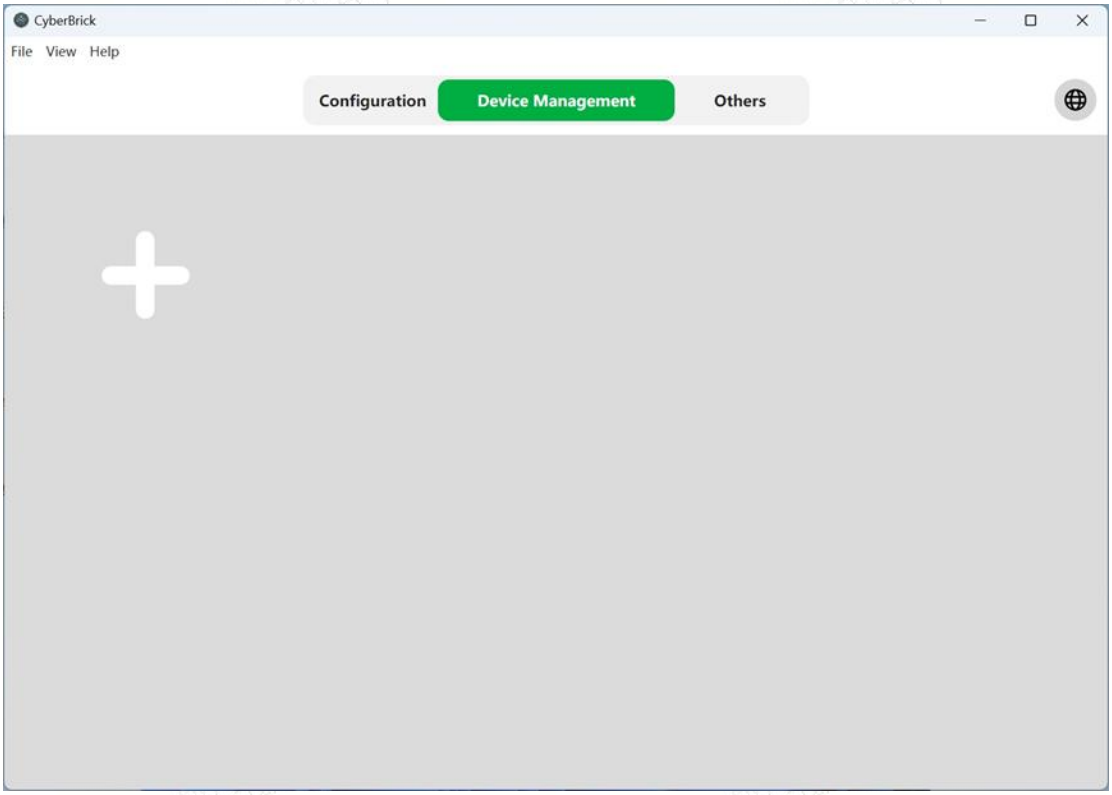
- Powered on but not connected: green light on
- Bluetooth connected: blue light on
- 2.4Ghz connected：yellow light on
- Bluetooth& 2.4Ghz connected：light flashes alternately between blue and yellow
- Profile upgrading: green light flashes at a frequency of 2Hz and continues until the transmission ends.
- Control object recognition: The green light flashes at a frequency of 1 Hz for 5 seconds.

Connect to the RC Transmitter& Receiver on the PC client.

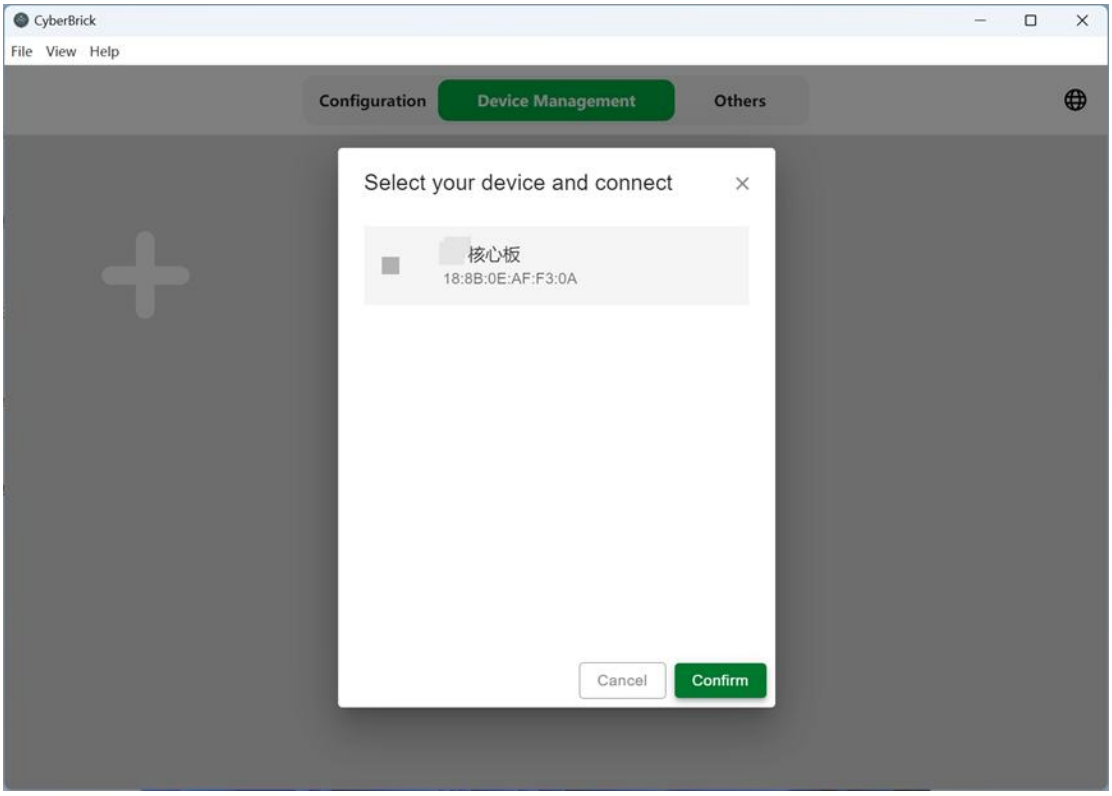
Power the controller core through the Type-C port or the XH2.54 Power Port on the expansion shield.



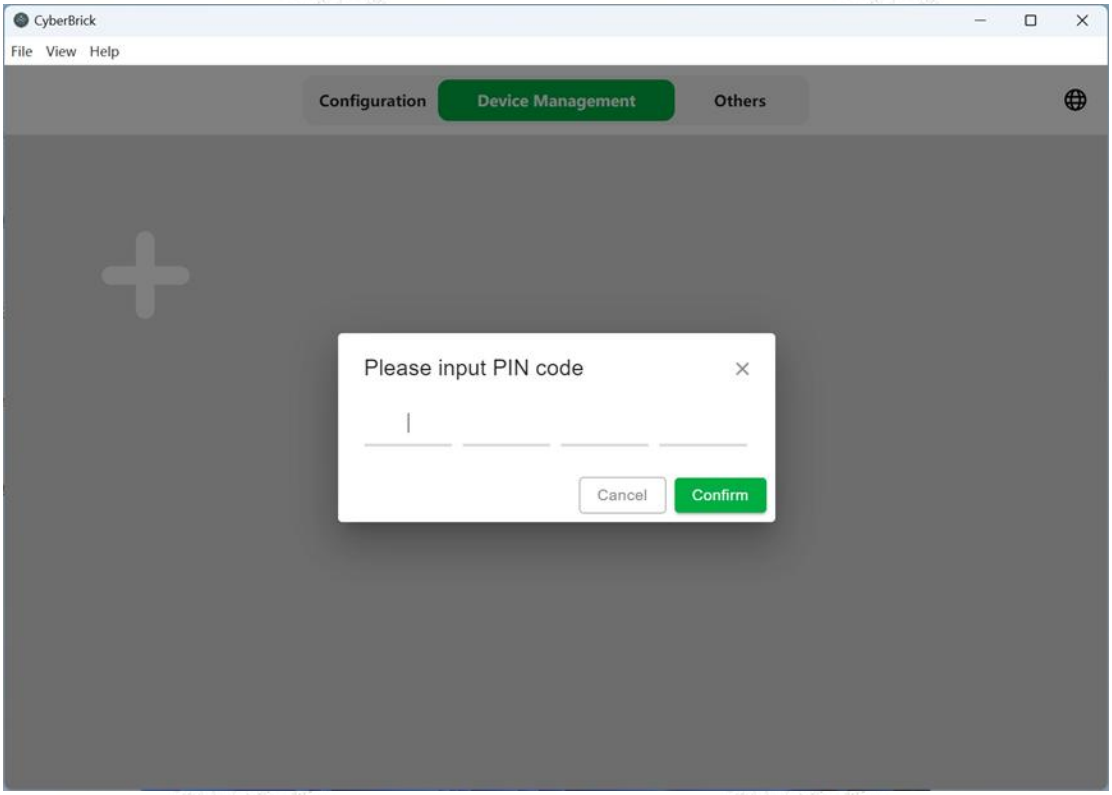
Run CyberBrick client, switch to Device Management



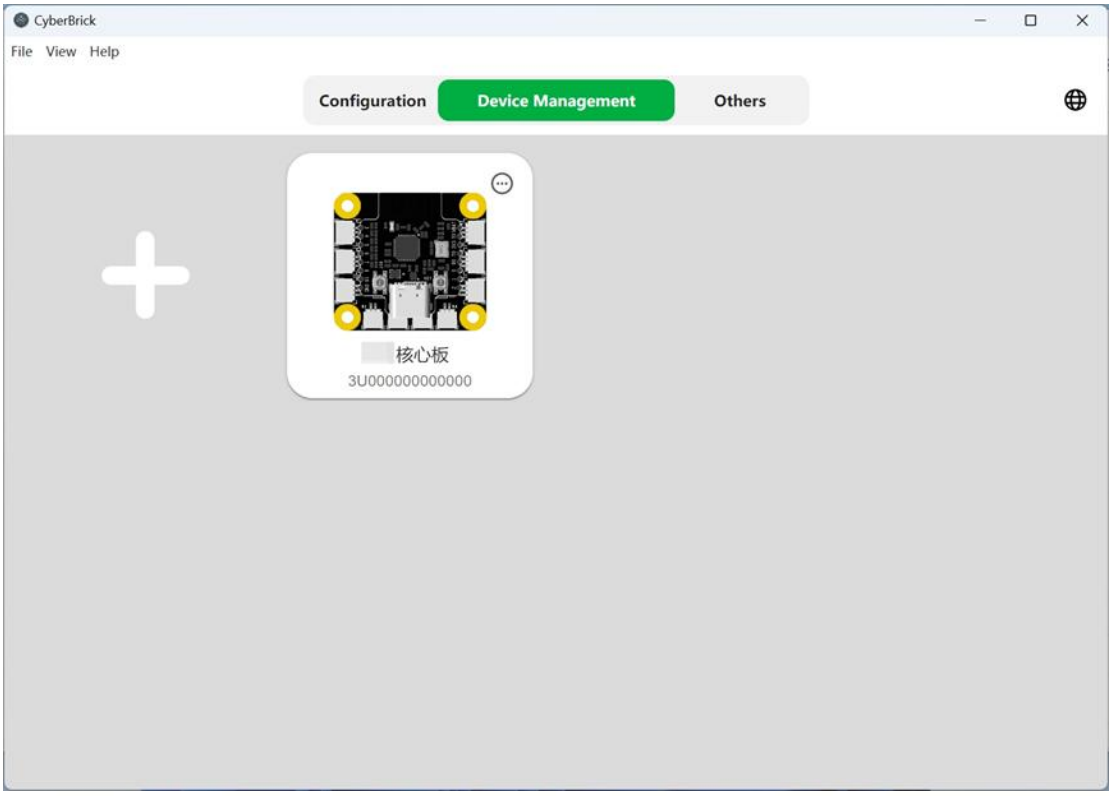
Click [+] to find your device



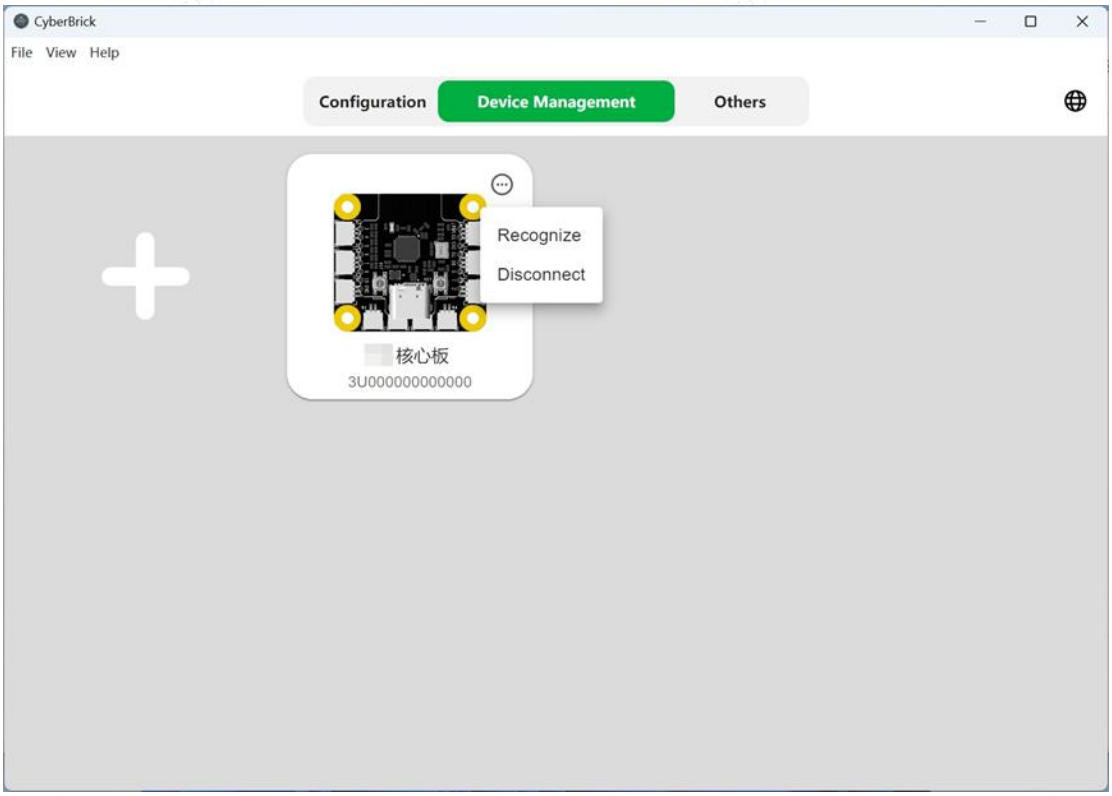
Connect the device by entering the PIN code. If the PIN hasn't been set during the first connection, confirm directly.



After successful connection, the indicator of controller core lights blue, and the client displays this device.

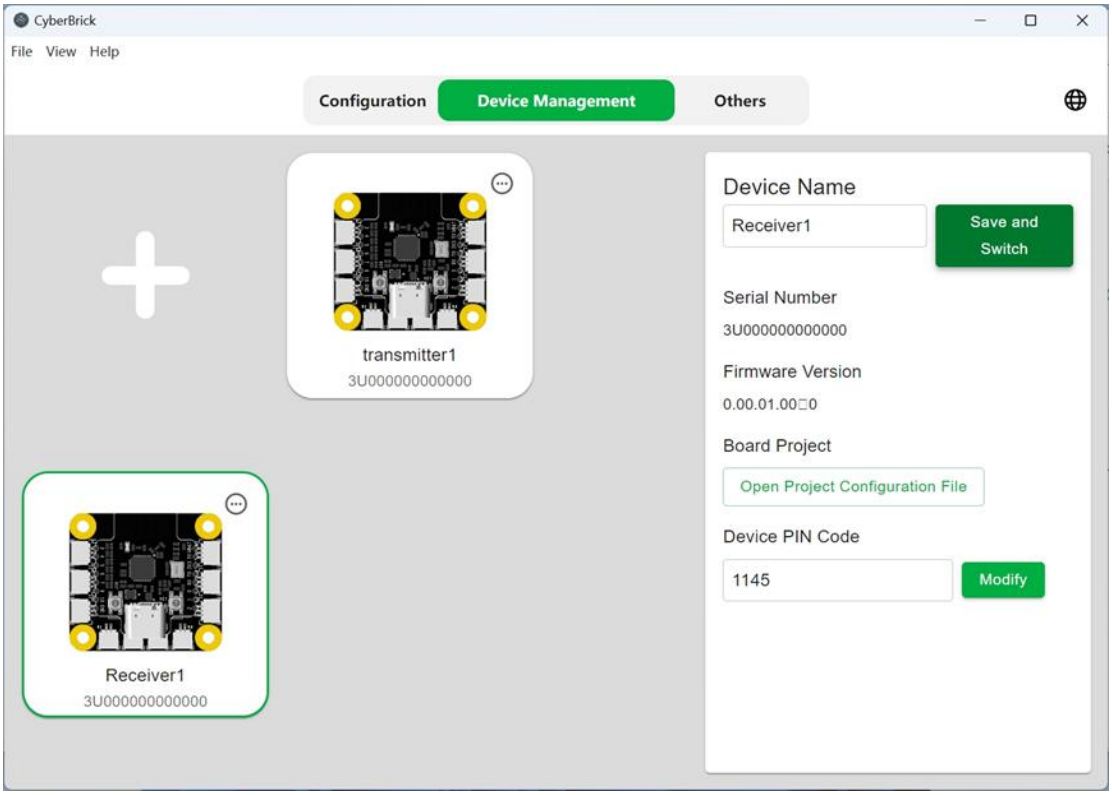


Click on the expansion symbol in the upper right corner of the device. If you have connected multiple devices, click on Recognize, the status indicator of the selected device will flash green; if you need to disconnect with the selected device, click on Disconnect.

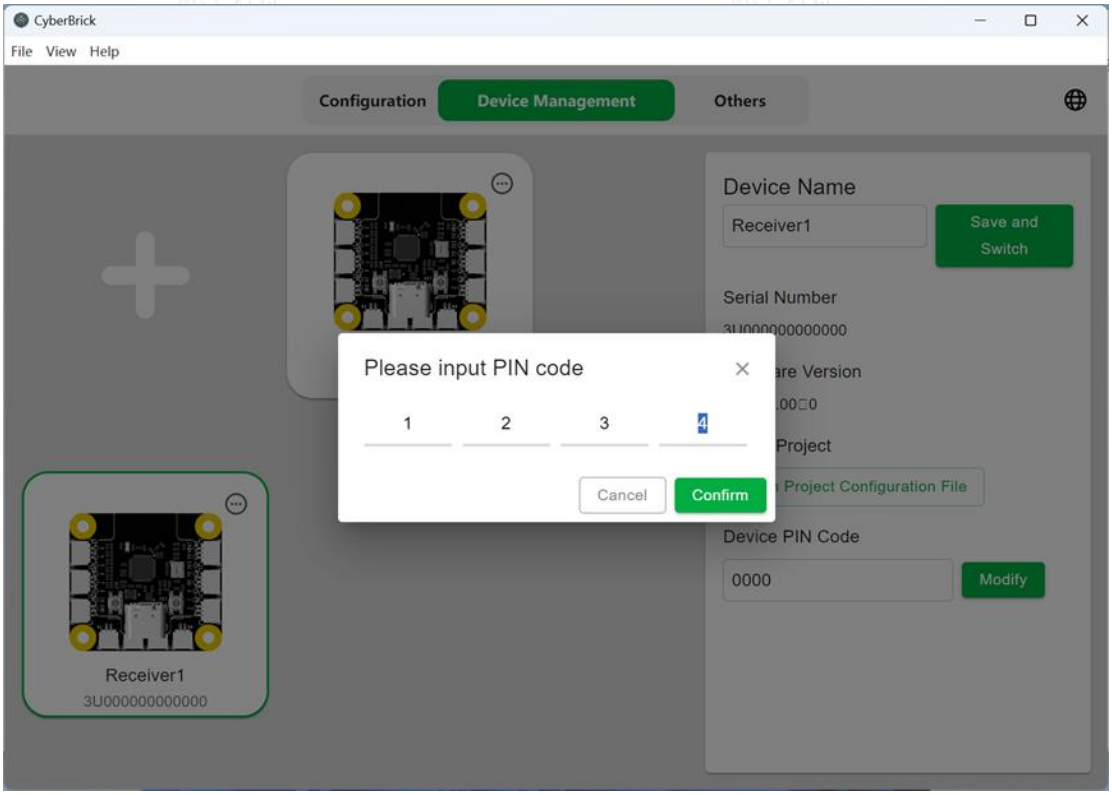


Click on the device, you can change the name of the device in the upper right corner

to make it easier to identify it when there are multiple devices.

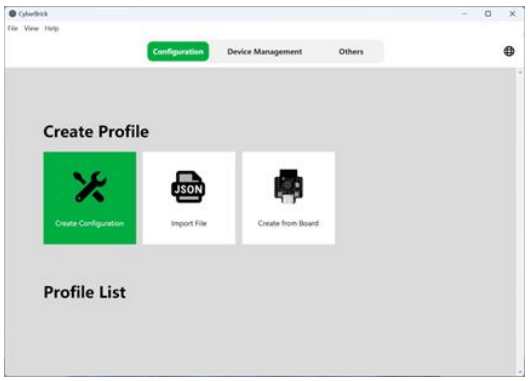


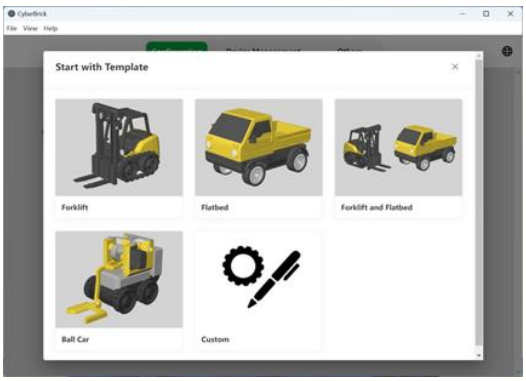
If you need to change the Pin code of the device, you can click Modify in the lower right corner and enter the new Pin code.



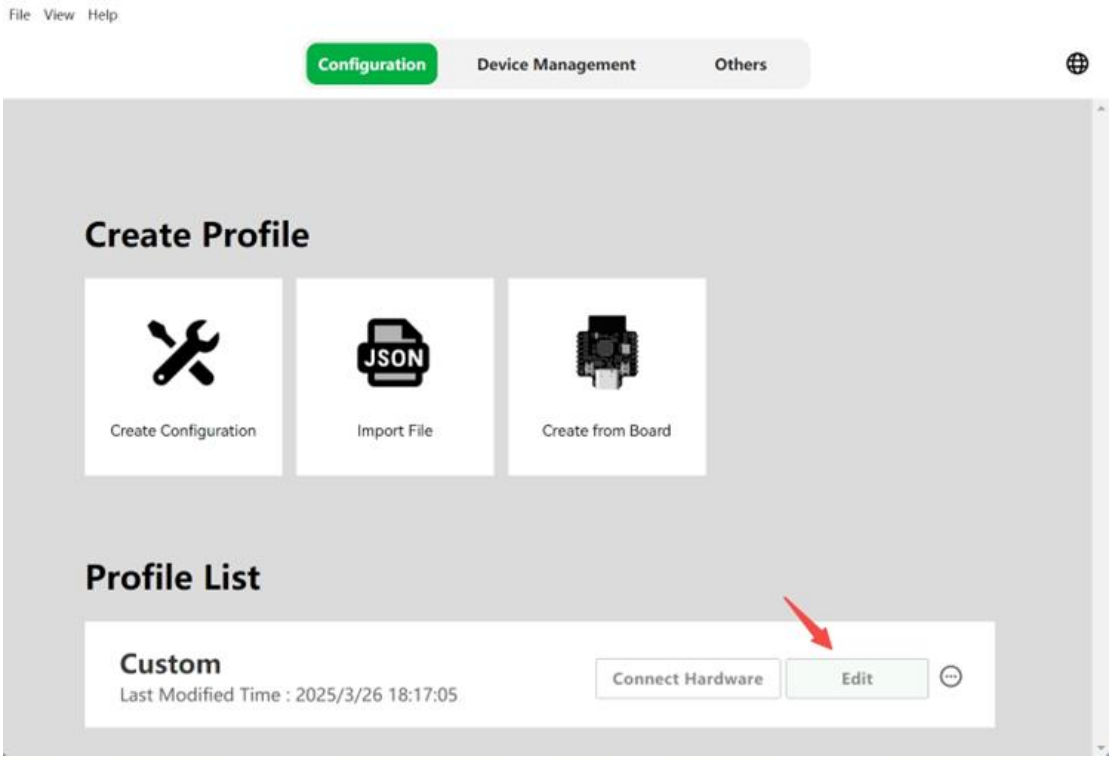
Configure the core controller profile

Click on the Configuration, click on Create Configuration, and start with a template, or an empty configuration[Custom].

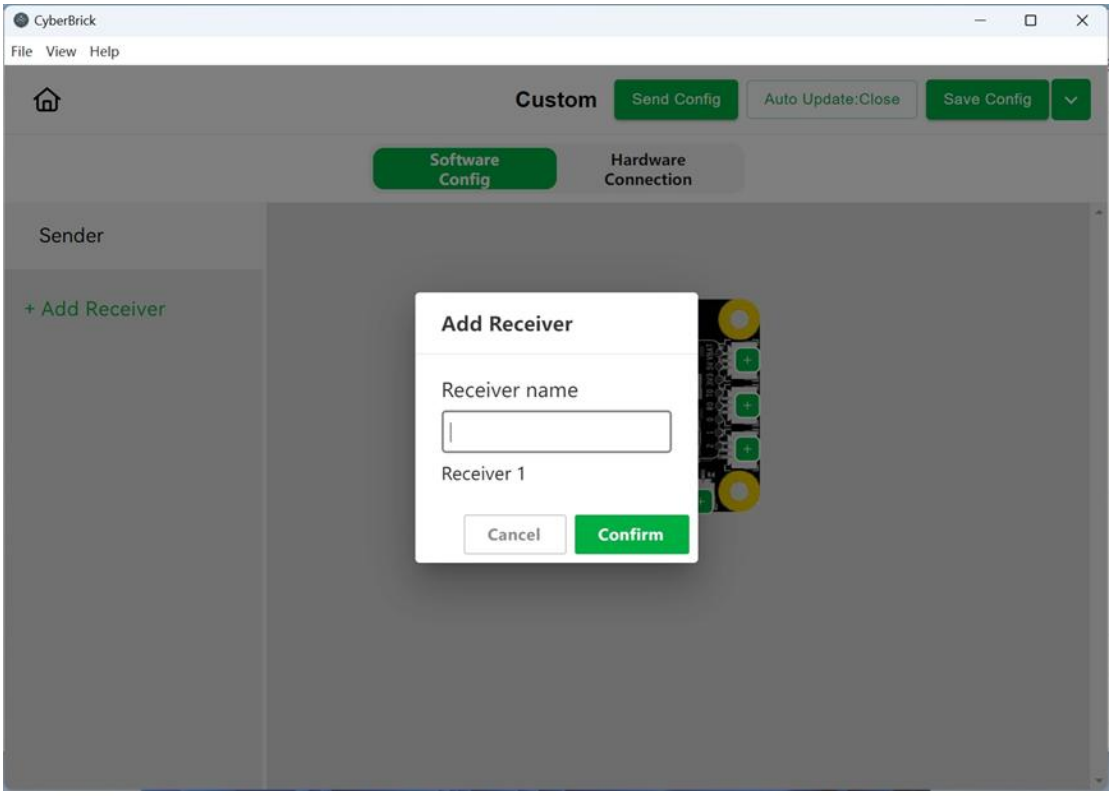




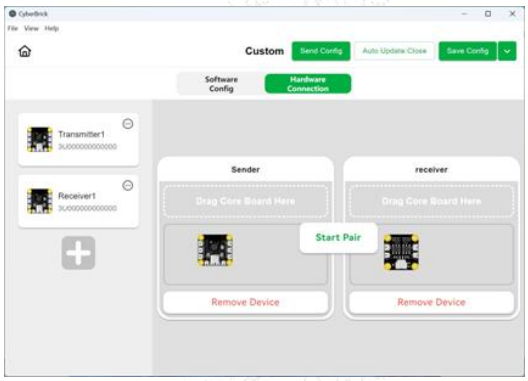
Here we take the custom empty configuration as an example, click on Custom and then click on Edit in the configuration list below.

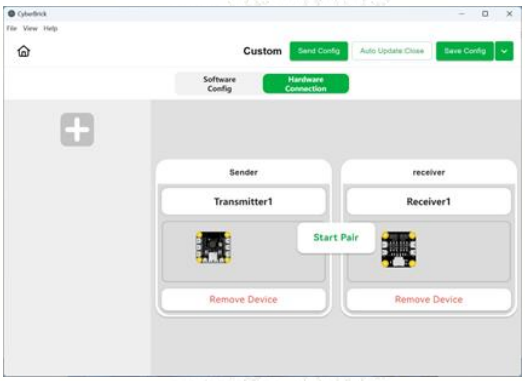


After entering the configuration interface, first, click Add Receiver on the left side, and input the name of the receiver.

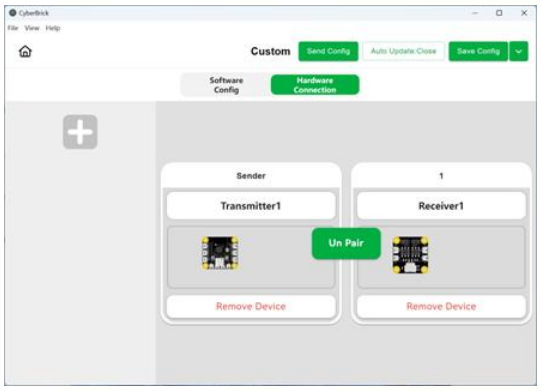


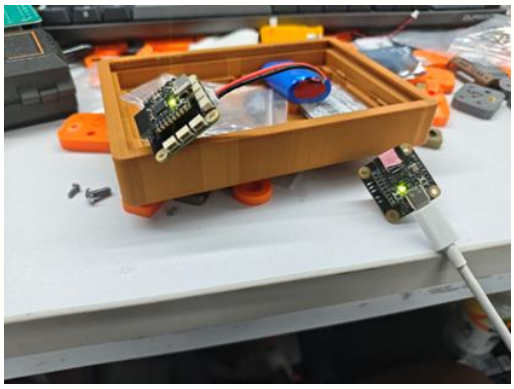
Click on the hardware connection above and drag the receiver device and controller device to the corresponding position.





Click to start pairing. After pairing successfully, the status indicators of these devices should flash blue and yellow alternately.

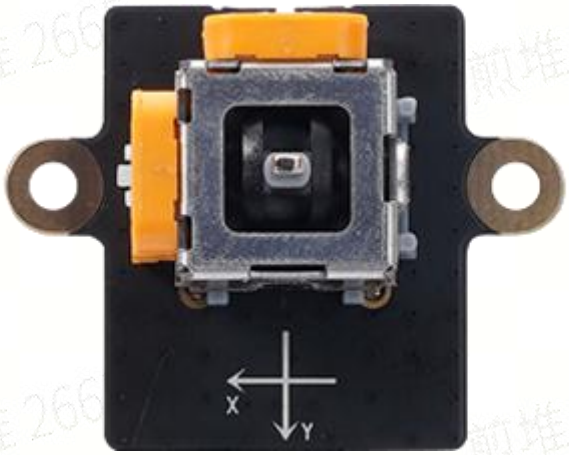




After modifying the configuration, remember to save the configuration locally with Save Config in the upper right corner, and update the configuration to the device with Send Config.

3. RC Transmitter Accessories

Dual-Axis Joystick Module-XA001



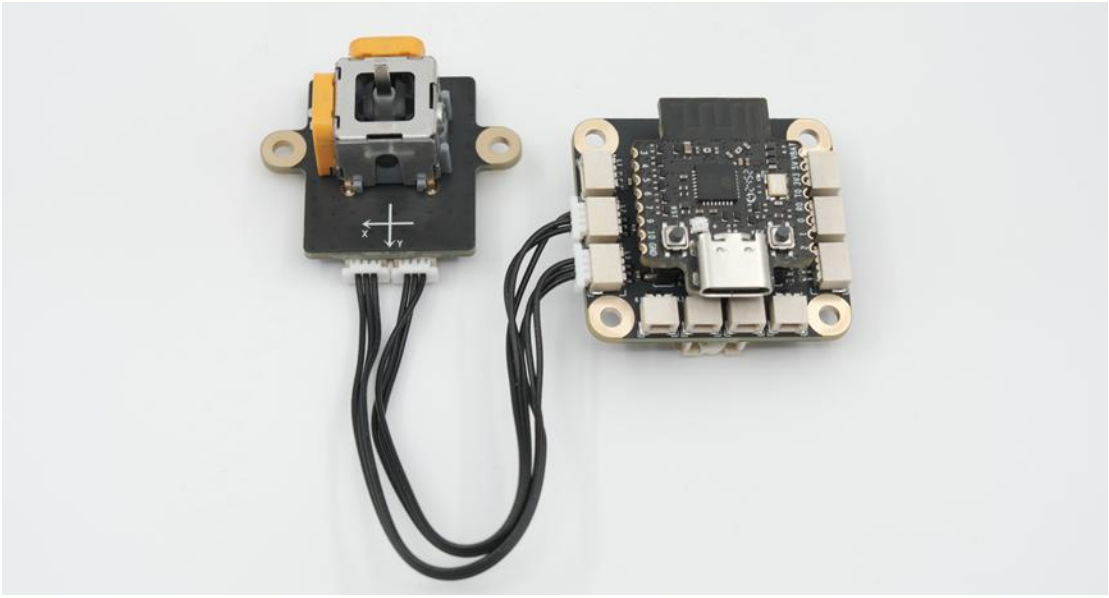
Dual-Axis Joystick Module is a 2CH analog input module. It will auto-return to the center.

The dual-channel joystick is suitable for serving as a control lever in various scenarios where the control of the movement speed and direction is required, especially when these movements are interrelated. For example, in vehicle models, one axis is used to control the moving speed, and the other axis is used to control the steering; or in the model of a tower crane, one axis is used to control the rotation, and the other axis is used to control the distance of trolley car.

Hardware Connection

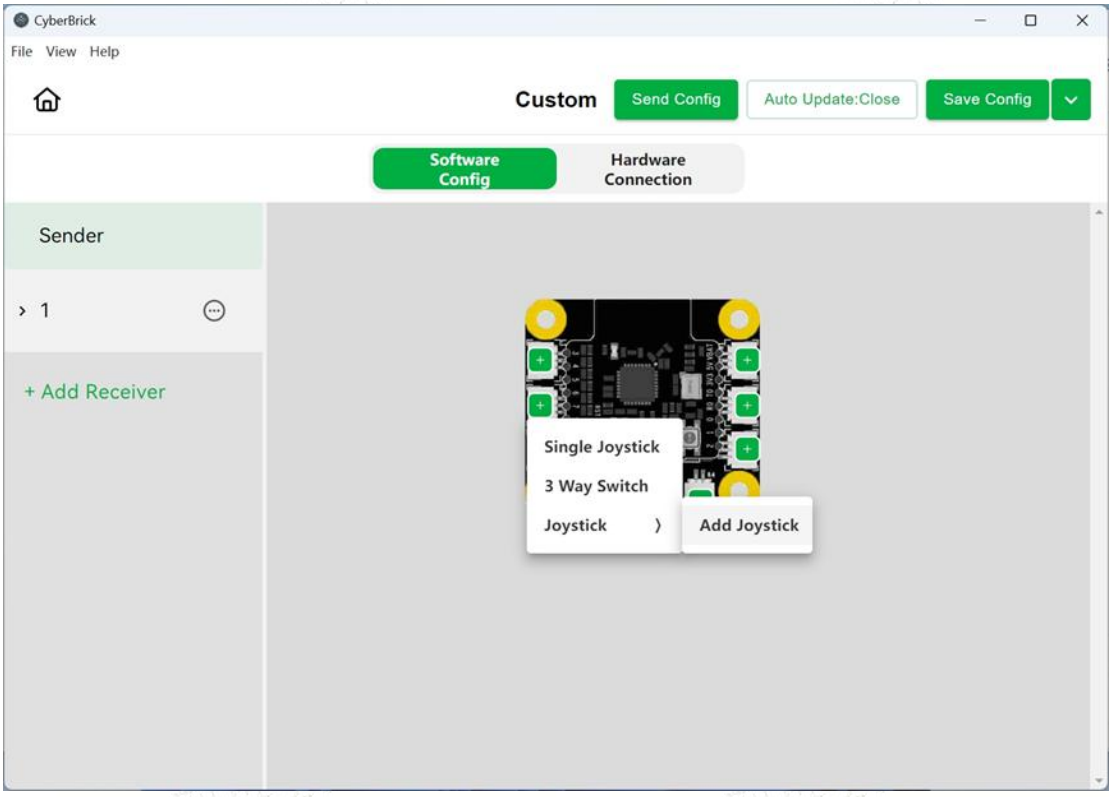
Connect SH1.0-3pin wires to each of the two terminals of the dual-axis joystick

module, and then connect the other end of the wires to the ADC input ports of the remote control transmitter shield.

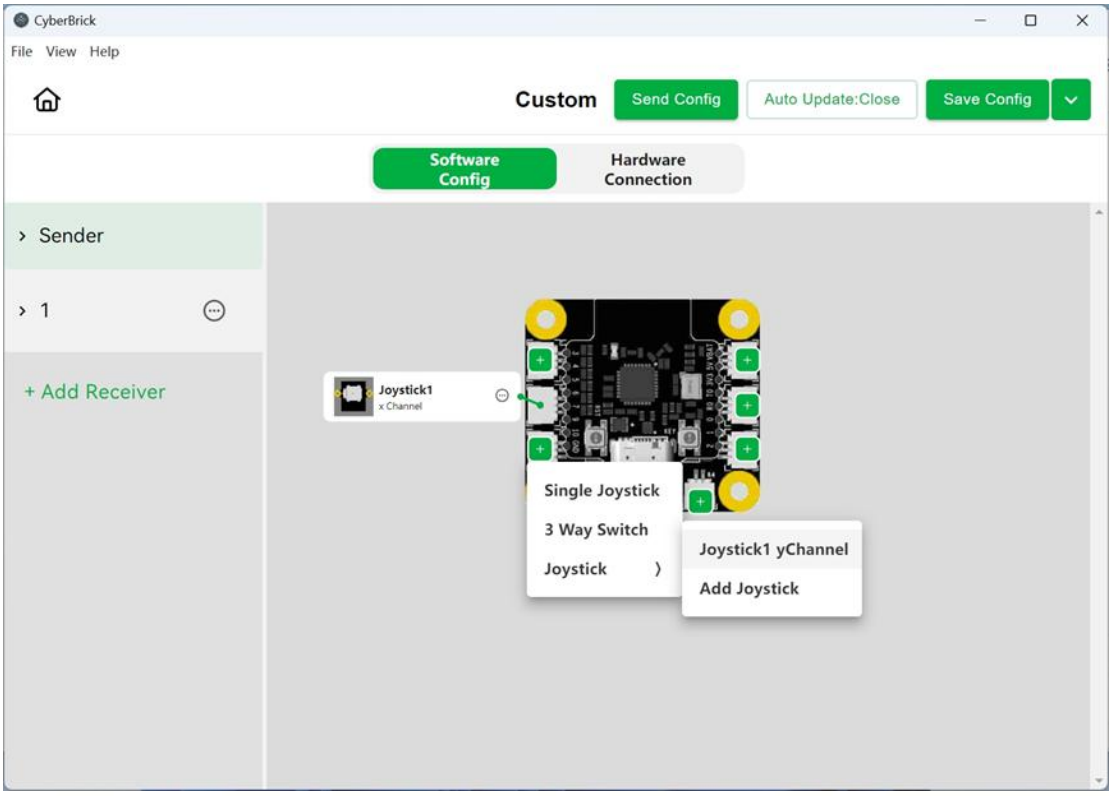


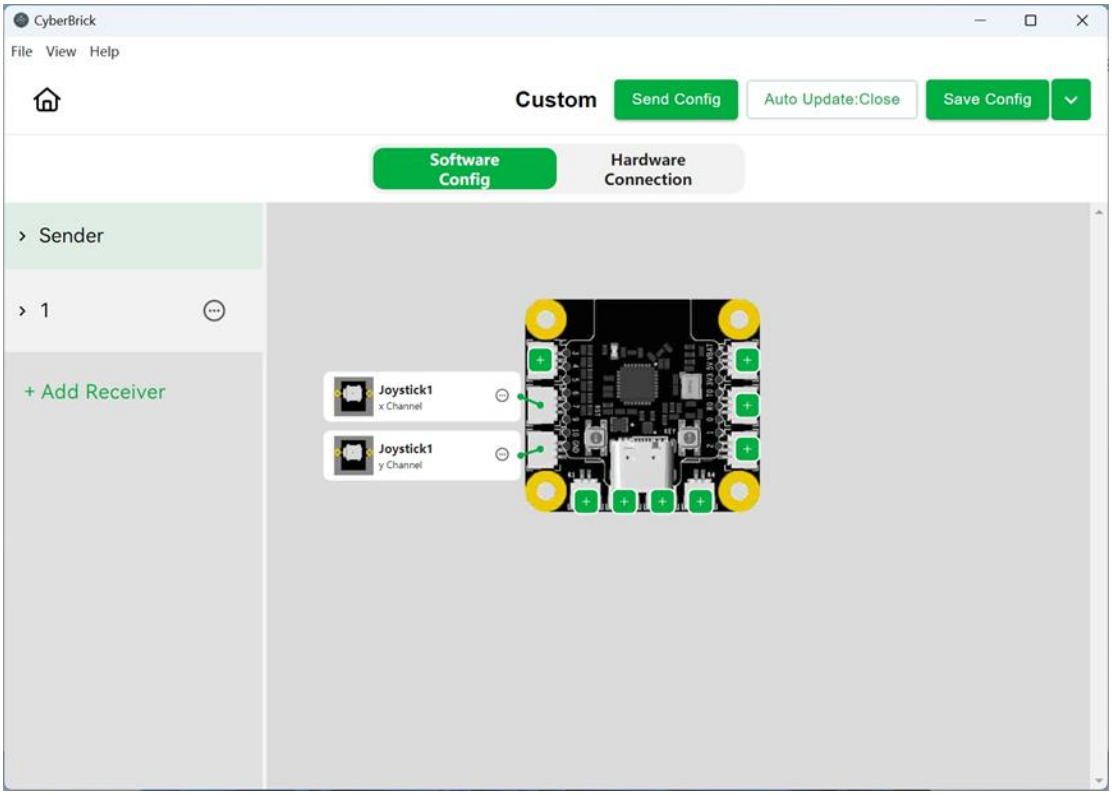
Software Configuration

In the Sender interface, click [+] of the port to which the X channel of the joystick is connected to, and select Joystick-Add Joystick.

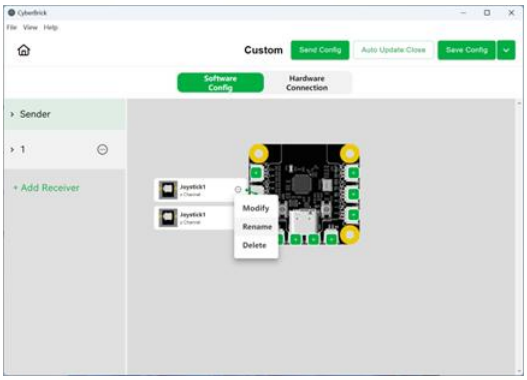


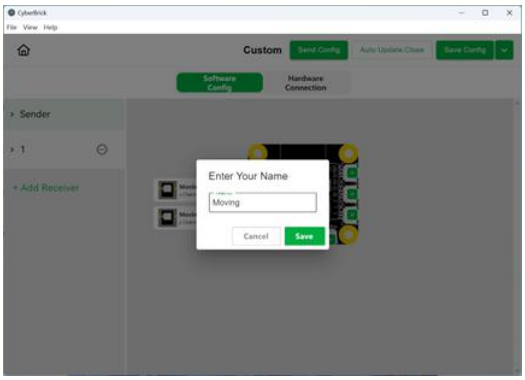
Click on [+] of the port to which the Y channel of the joystick is connected to. Select Joystick- joystick[x] yChannel.



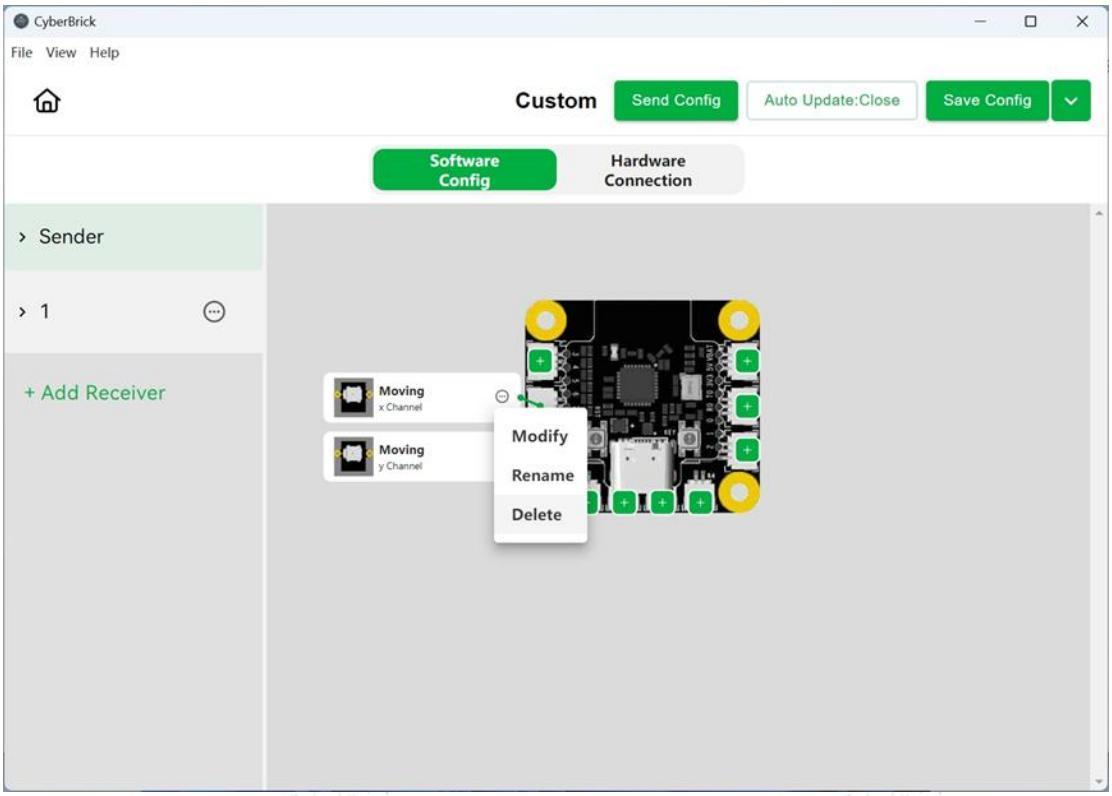


When using multiple joysticks, the joysticks can be renamed for easier recognition

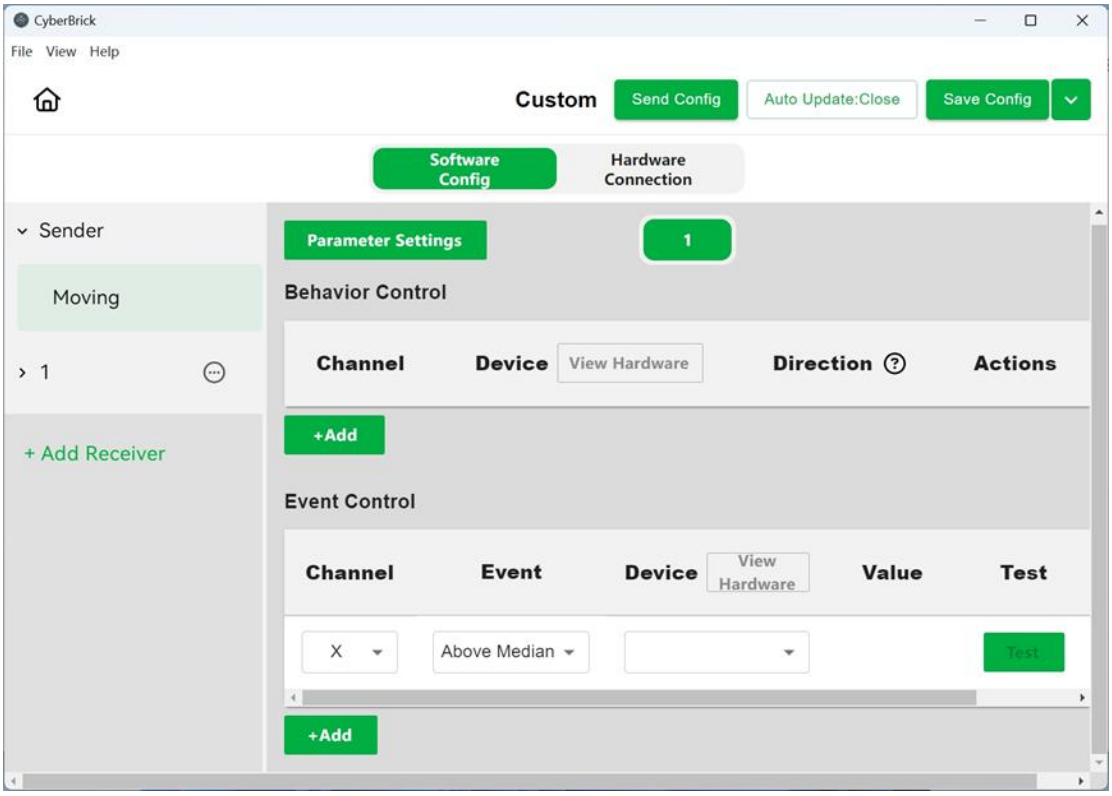




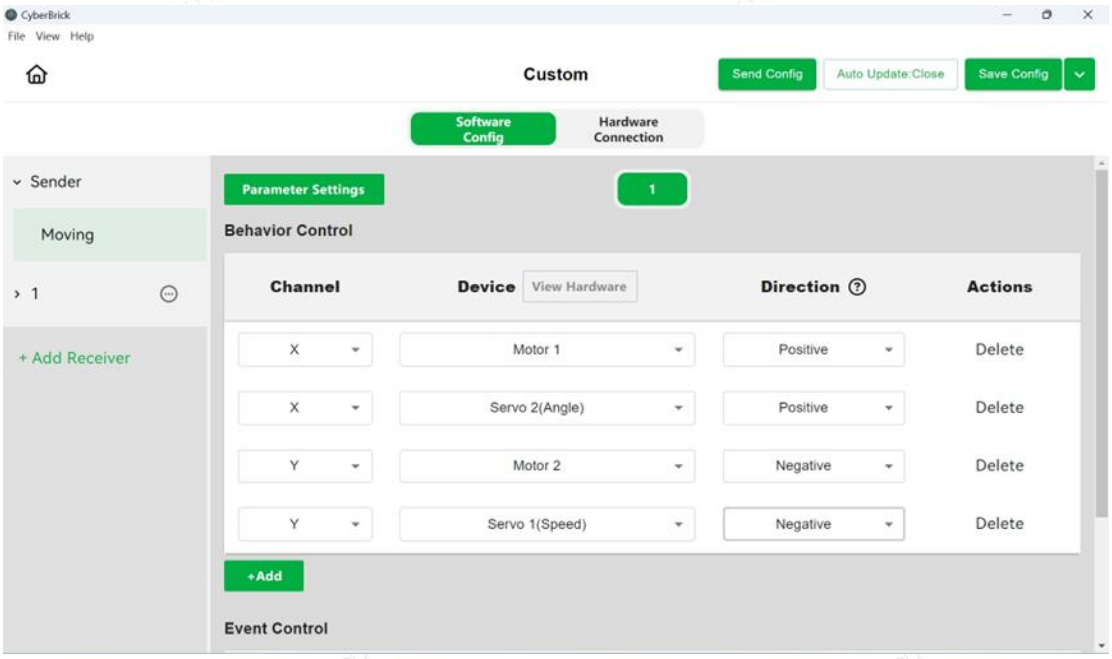
Click Delete to remove port config



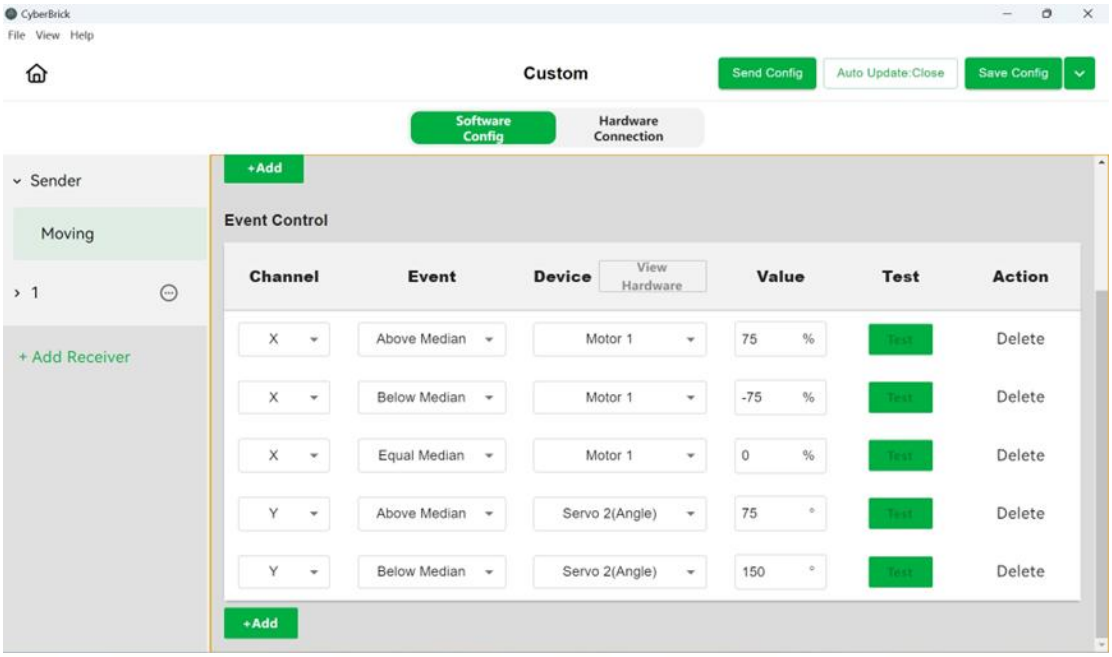
Click Modify to enter control config interface



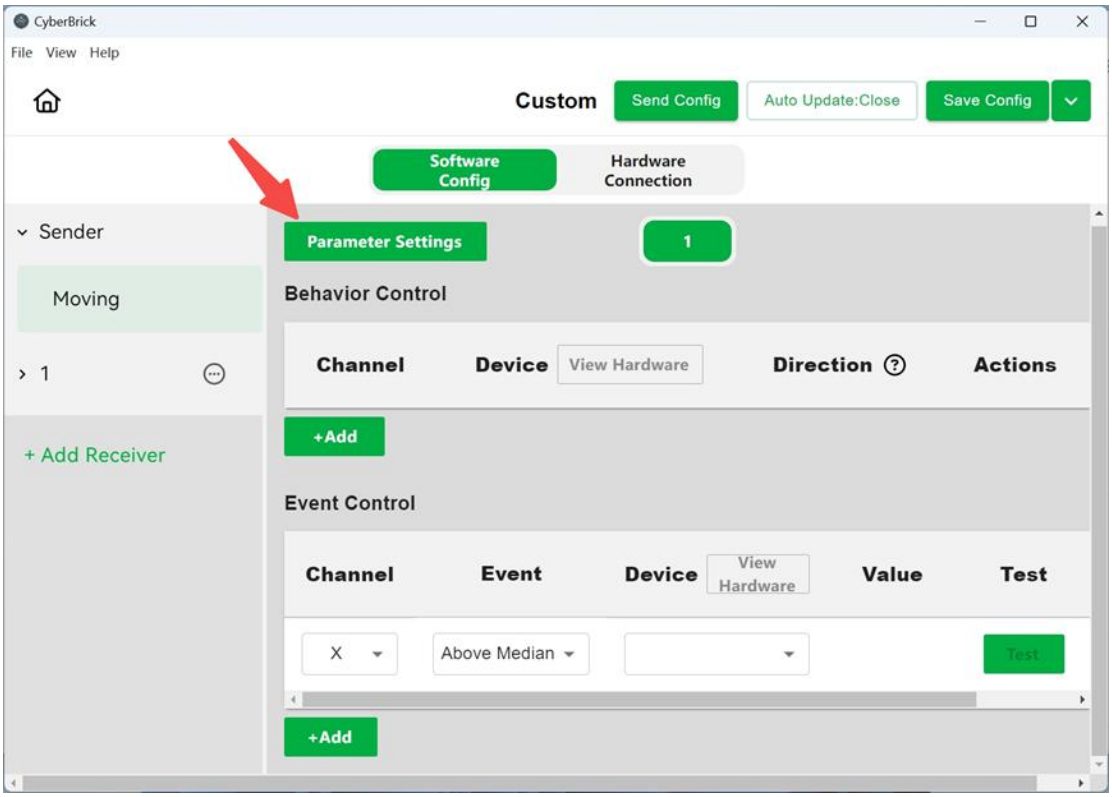
Behavior control will make the corresponding device output with the analogue value of the channel. It’s commonly used in joystick control of the speed of motor, the angle of the servo and so on. Click View Hardware next to the View to check the receiver's hardware connection config status.

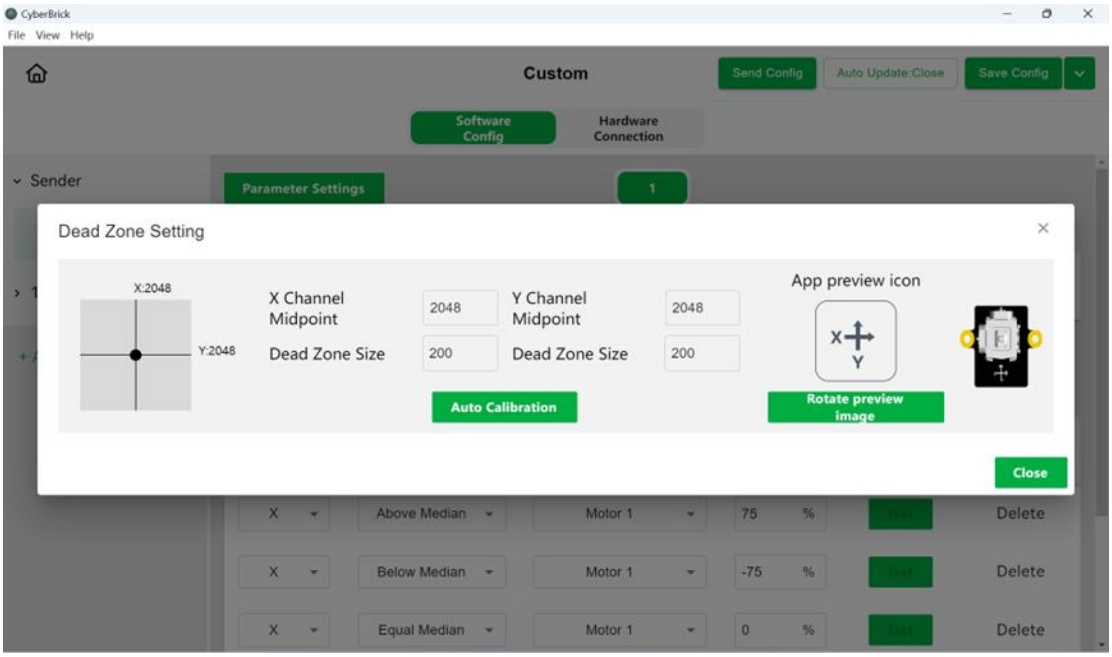


Event control consists of three cases for each channel, Above, Equal and Below Median. When the joystick crosses a zone, it controls the state of a certain device. This can be used to bind, for example, the status of the turn signal to the status of the steering.

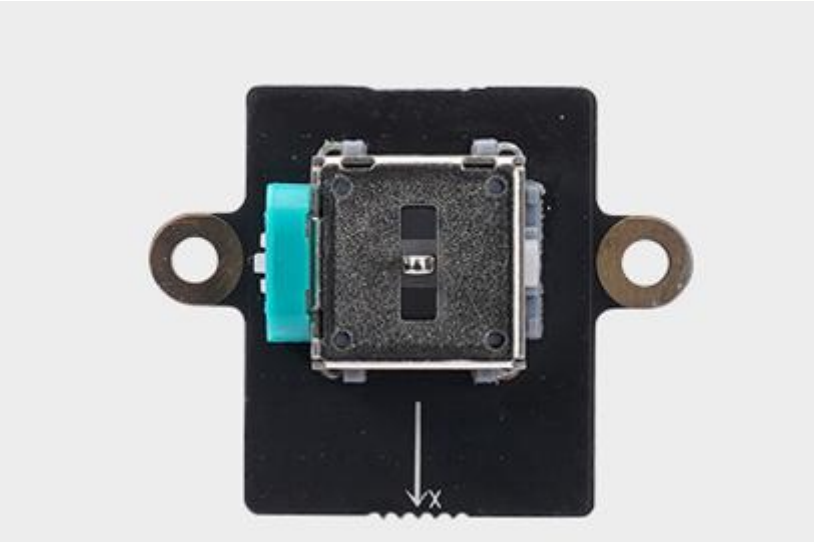


When the joystick is found to be drifting, use the Parameter Settings to calibrate the Midpoint and adjust the Dead Zone Size.





Single-Axis Joystick Module-XA009

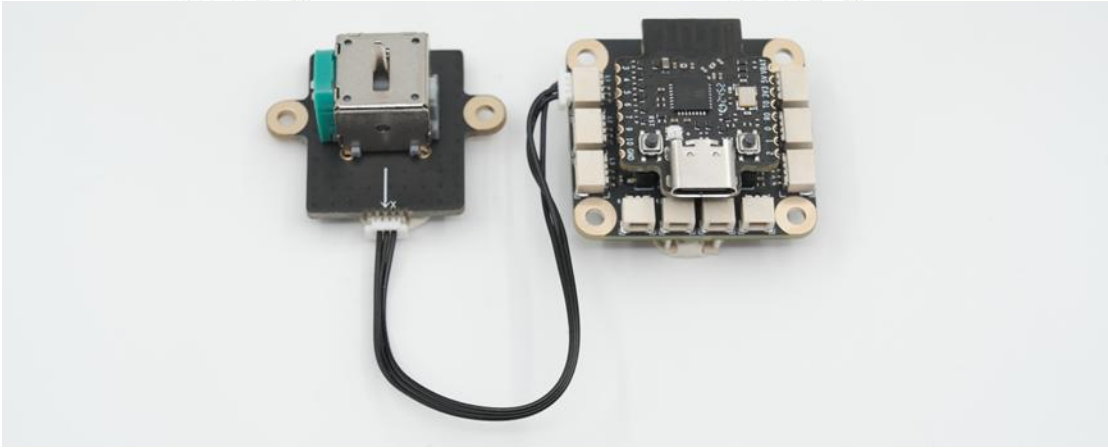


Single-Axis Joystick Module is a 1CH analog input module. It will auto-return to the center.

Compared with the dual-axis joystick, the single-axis joystick can only move in one direction and output one analogue signal, which is suitable to be used as a control lever in various scenarios that need to control the speed of motion or control the position that often returns to the center, especially when the control logic of these motions needs to be independent. For example, in the vehicle model, a single-axis stick module to control the speed of movement, another single-axis stick module to control the steering wheel; or in the tower crane model, a single-channel rocker module to control the hook lifting; or in the tracked vehicle model, two single-axis joystick modules to individually control the speed of both sides of the track.

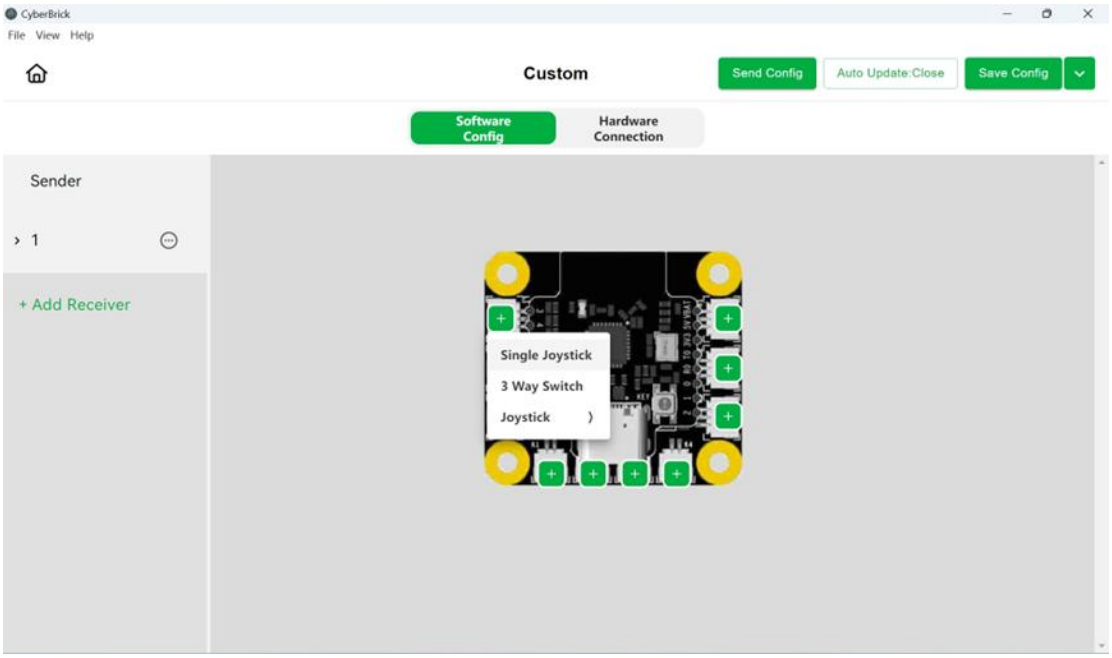
Hardware Connection

Connect a SH1.0-3pin wire to the terminal of the single-axis joystick module, and connect the other end of the wire to the ADC channel inputs on both sides of the remote control transmitter shield.



Software Configuration

Similar to the dual-axis joystick module, click [+] on the ADC port to add a Single Joystick.



The configuration of single-axis joystick module is the same as that of dual-axis joystick, except that there is only one channel. Please refer to the software configuration section of the dual-axis joystick module for configuration.

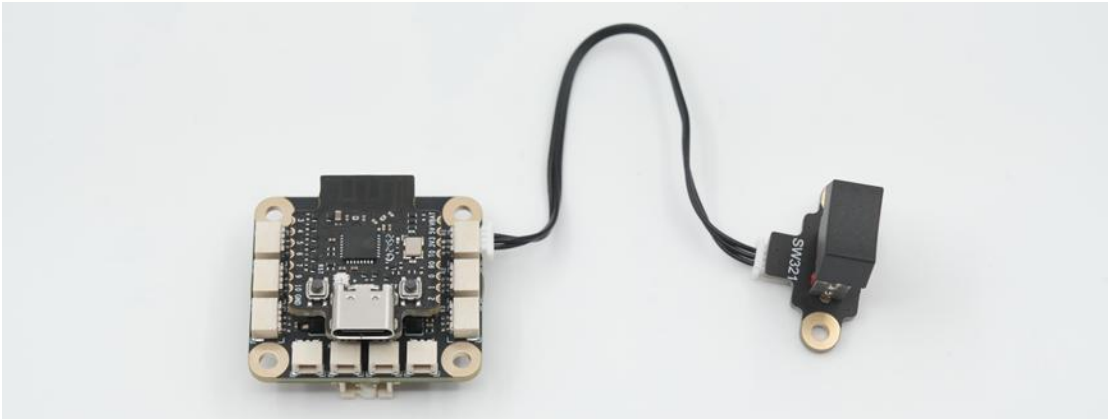
Three-Position Rocker Switch Module-XA010

Three-position rocker switch module is a 1CH input module with 3 status.

Three-position rocker switch module can be fixed on the left, center and right states, so it is very suitable as a state switch in various scenarios that need to switch the state of lights, deformation and so on. For example, it can be used to switch the lights on and off in vehicle models, or to switch the vehicles controlled by the remote control when it is used for one-to-many control.

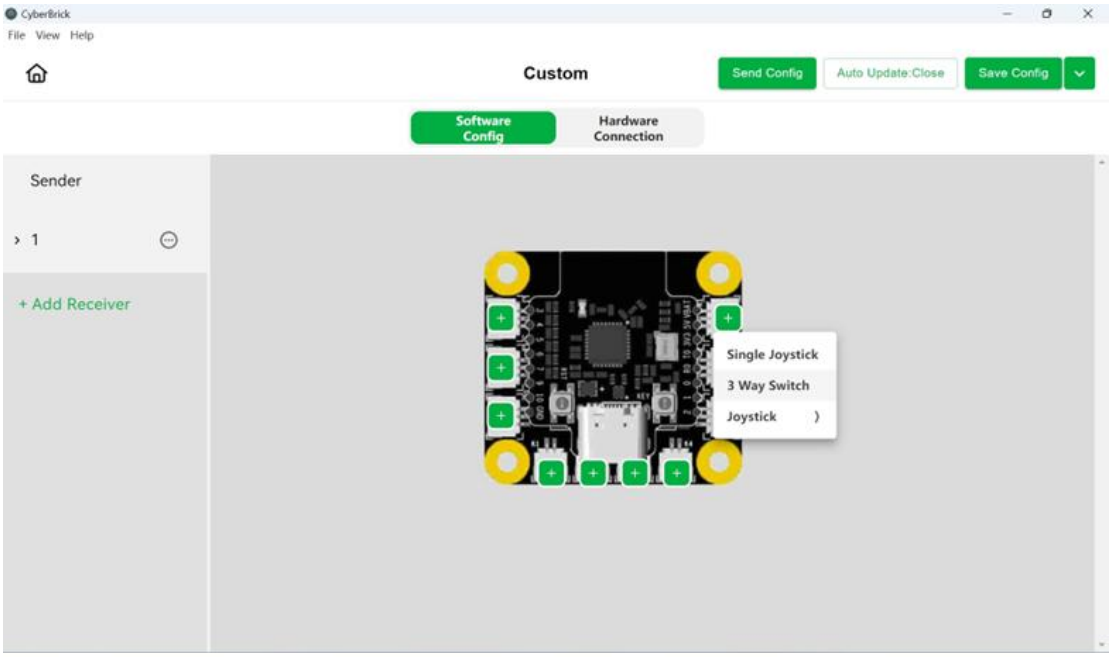
Hardware Connection

Connect a SH1.0-3pin wire to the terminal of the Three-position rocker switch module, and connect the other end of the wire to the ADC channel inputs on both sides of the remote control transmitter shield.

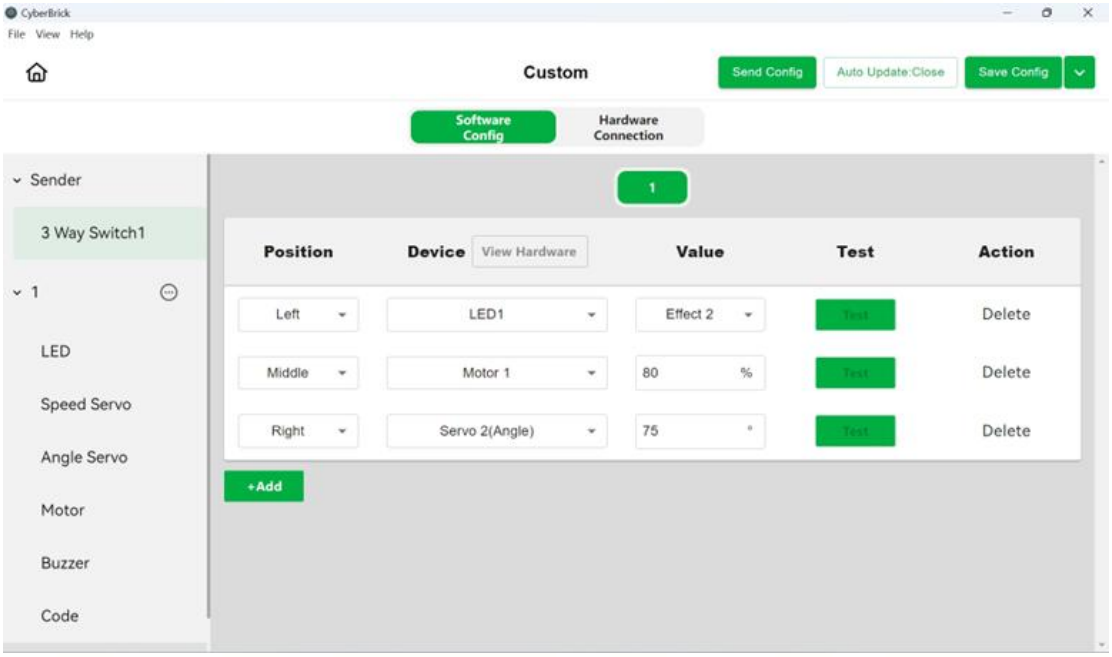


Software Configuration

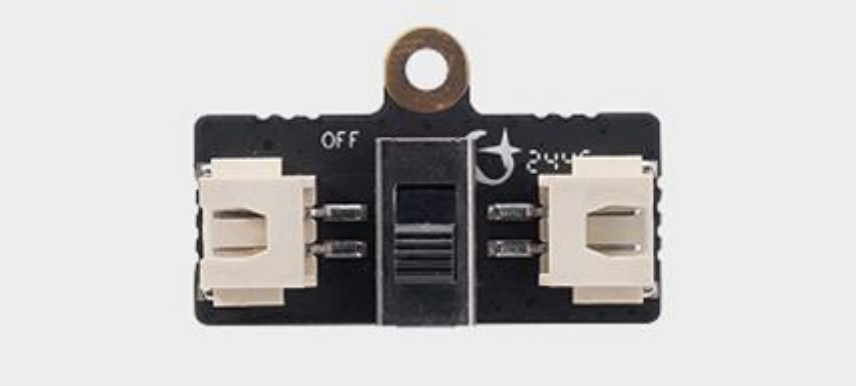
Click [+] on the ADC port in the configuration interface and select 3 Way Switch.



In the Modify interface of the 3 Way Switch, you can set the state of the device corresponding to the switch state, such as the light effect of the light, the speed of the motor, the position of the servo , etc. It's suitable for switching light state, controlling model deformation and other scenes.



Power Switch Module-XA007

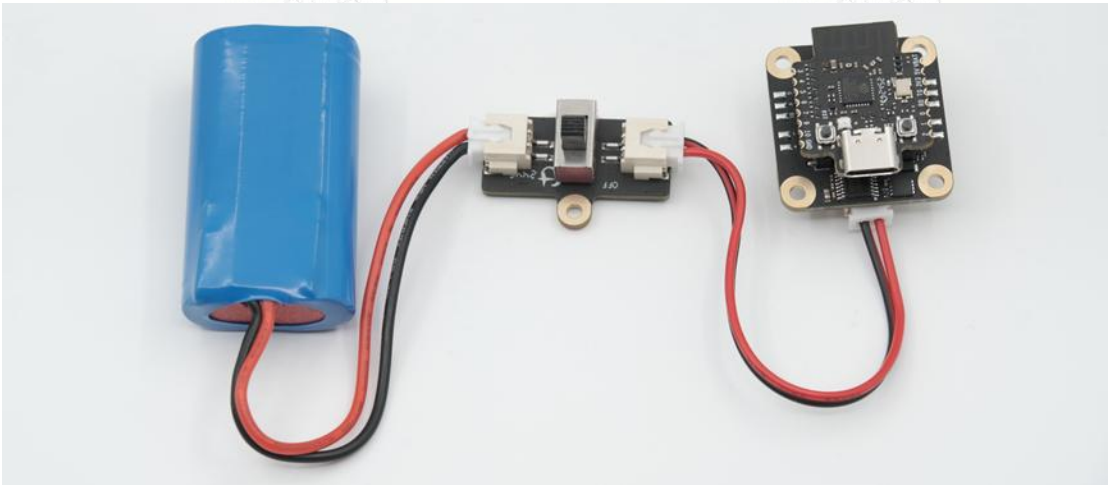


Power switch module is a two-position switch that is often used to control power on/off without removing the battery.

There are two 2pinXH2.54 connectors on the switch board, which are usually connected in series between the power supply and the expansion board. The switch board can be used to cut off the power supply without removing the battery directly, avoiding the continuous standby state that causes the battery to lose power as well.

Hardware Connection

Connect a power supply to one terminal of the power switch module, and connect the other terminal to a XH2.54 2P wire. Then connect the other end of the wire to the XH2.54 power input of expansion shield.



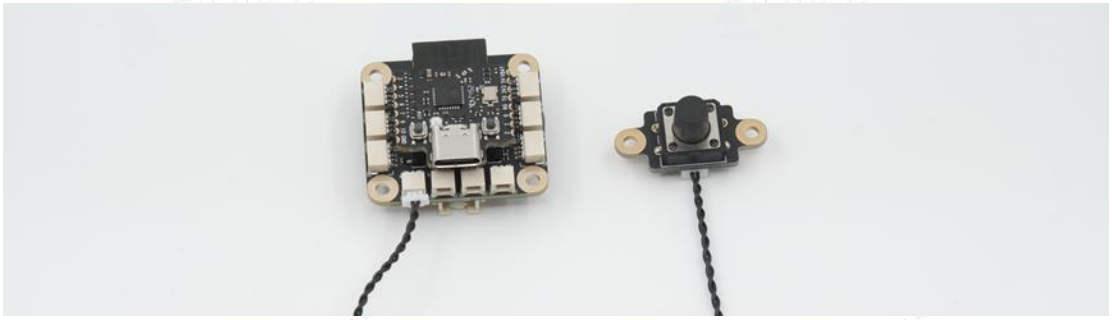
Momentary Button Module-XA008

Momentary button module is a binary input module. Different signals can be sent by short press, long press, press and lift and other actions.

Compared to a three-position rocker switch module, a momentary button module has only two states: pressed and flicked up, and it always returns to flicked up. The momentary button module can be used to switch between various modes in a specified order, trigger and stop some actions in real time. For example, triggering a shot on a model with a shooting mechanism, or switching the mode and color of lights on a model with RGB lights.

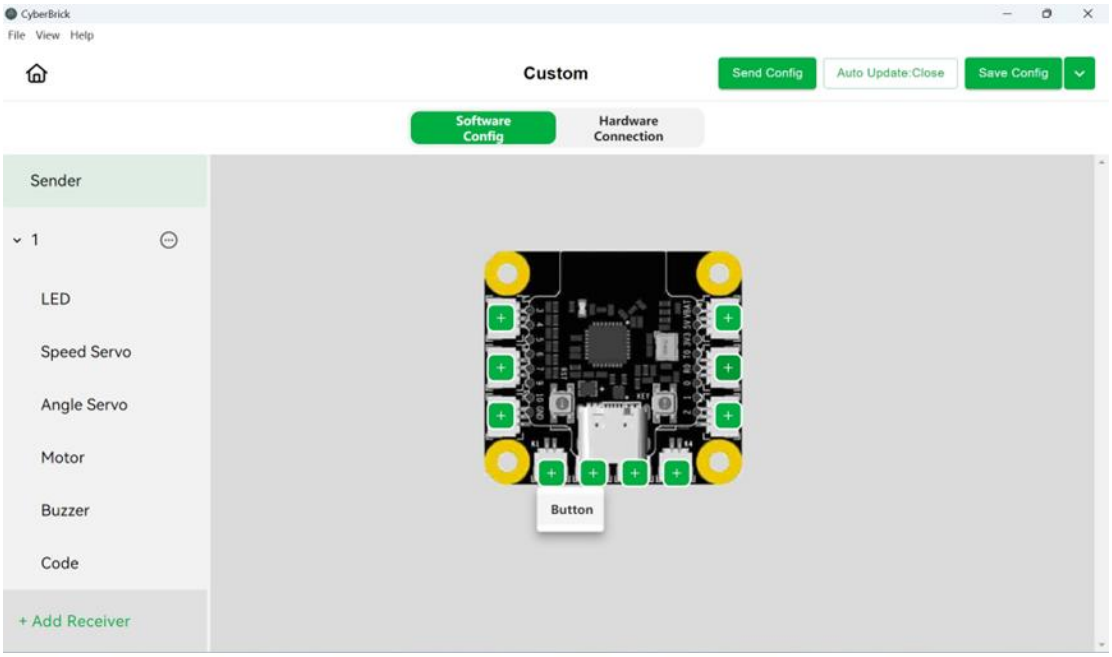
Hardware Connection

Connect the SH1.0 2P wire to the terminal of the momentary button module, and connect the other end of the wire to the digital signal input port on the bottom of the remote control transmitter shield.

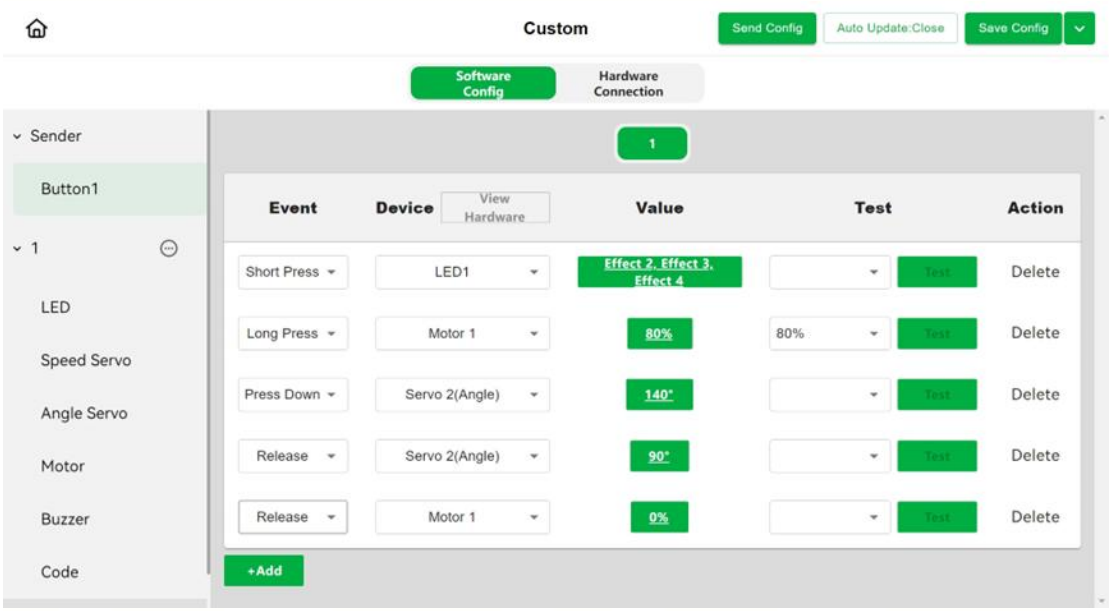


Software Configuration

Click [+] on the digital port at the bottom of the configuration interface to select the button module.



In the Modify interface of button, you can control the state value switching of the corresponding components through short press, long press, press and release actions of the button.



Click Value to add multiple state values. It will switch in order after the button action.

4. RC Receiver Accessories

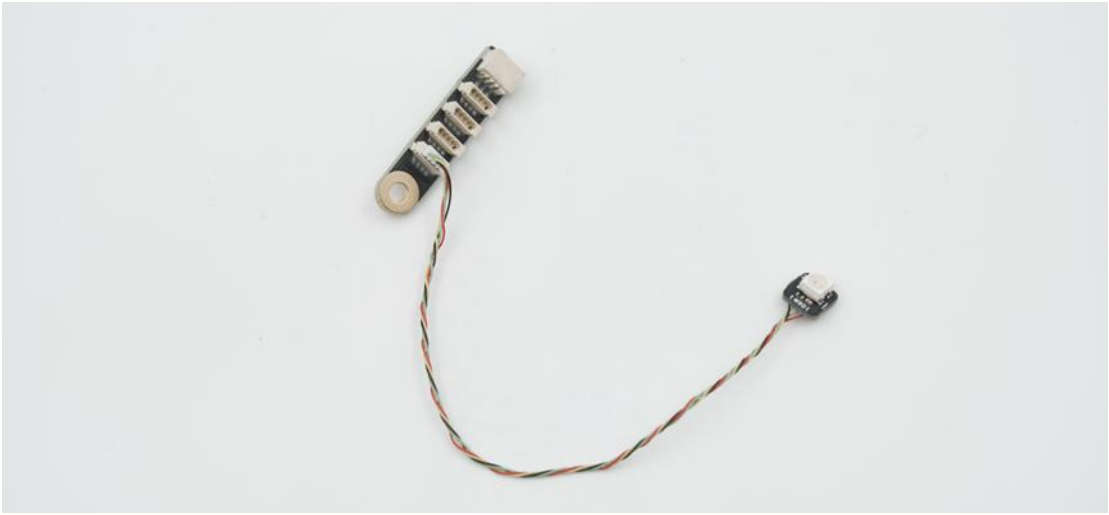
WS2812RGB LED-KB003

The WS2812 RGB LED is a LED board with connecting cable. It can be controlled using the WS2812 protocol and can emit multiple colors of light.

Used together with the WS2812 LED Hub-XA006, multiple WS2812 RGB LEDs can provide various kinds of visual effects, which is suitable for all kinds of models that need lighting, such as lamps on vehicle models.

Hardware Connection

Insert the plug of the WS2812 RGB LED into the terminal of the WS2812 LED hub.



Software Configuration

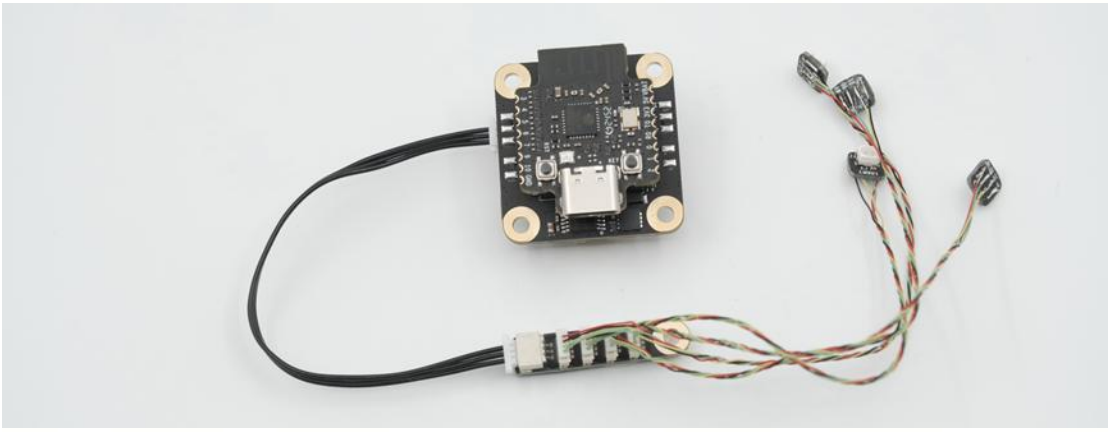
Needs to be used in conjunction with the WS2812 LED Hub, see details below.

WS2812 LED Hub-XA006

The WS2812 LED Hub is used to connect the LEDs supporting WS2812 protocol to the WS2812 Port on the RC receiver shield, thus enabling independent control of more LEDs. It is suitable for all kinds of models that need to use multiple LEDs.

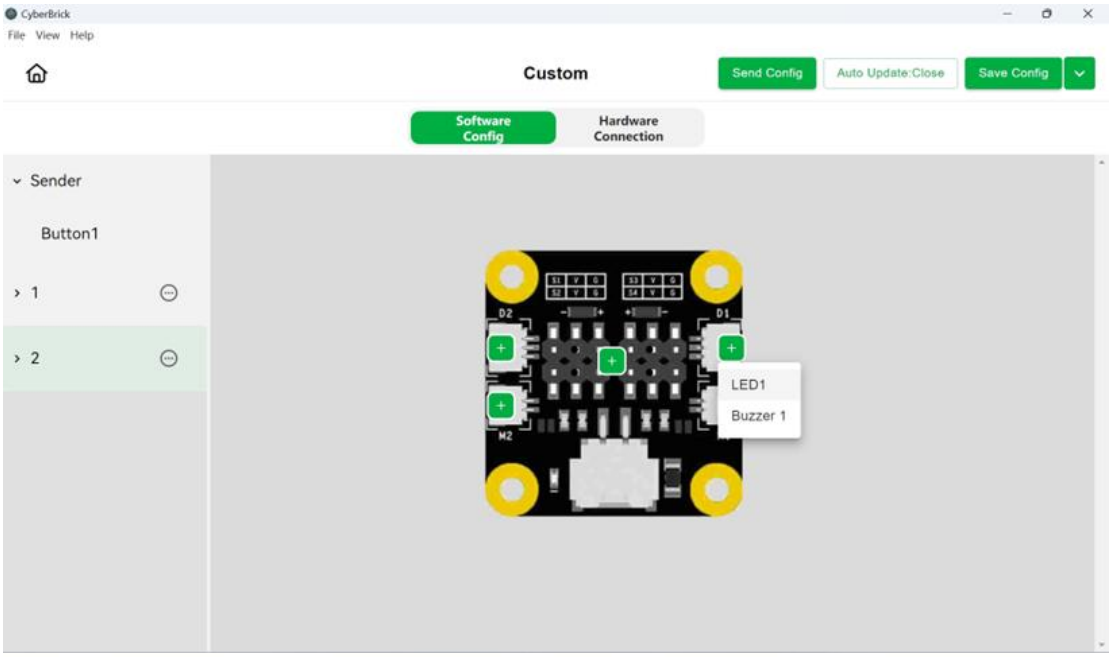
Hardware Connection

Connect the horizontal 3pinSH1.0 ports to the 3pinSH1.0 connecting wire, and the other end of the wire to the LED ports on both sides of the RC receiver shield. Connect the plugs of WS2812 RGB LED to the 4 vertical ports.

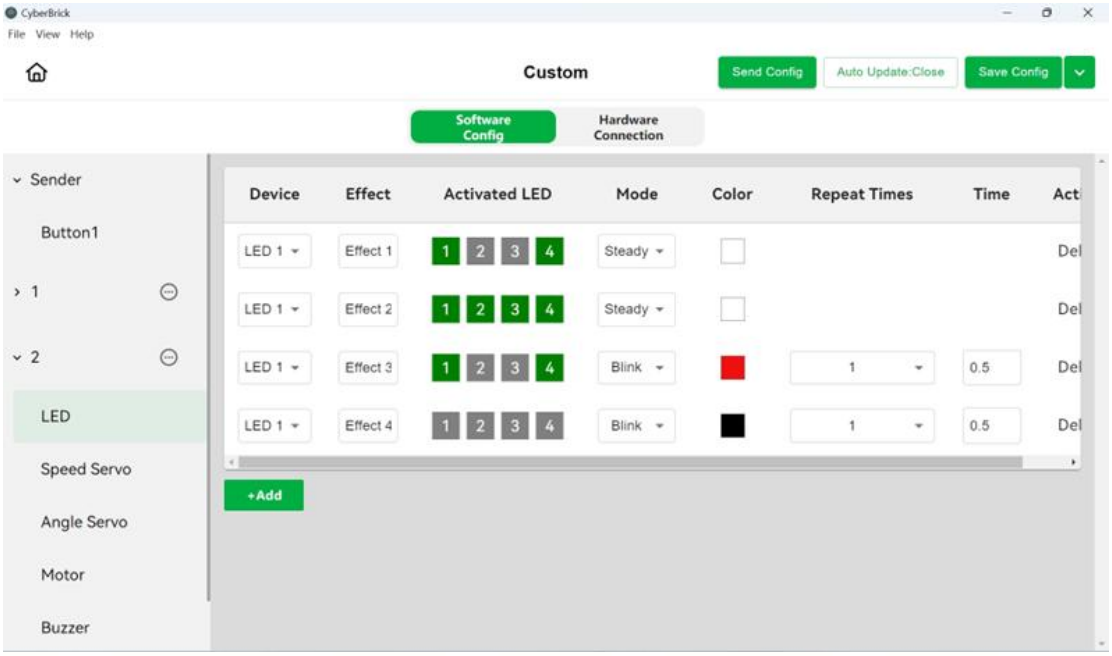


Software Configuration

Click on the left side of the interface to switch to the receiver, click on the WS2812 port to add WS2812 LED Hub.



In the Modify interface, click on 1234 under the Activated LED to select the LED to be controlled by this effect. Select the light effect as Blinking or Steady in Mode. Select the color of the lamp in Color. Set the blinking frequency in Repeat Times and Time.



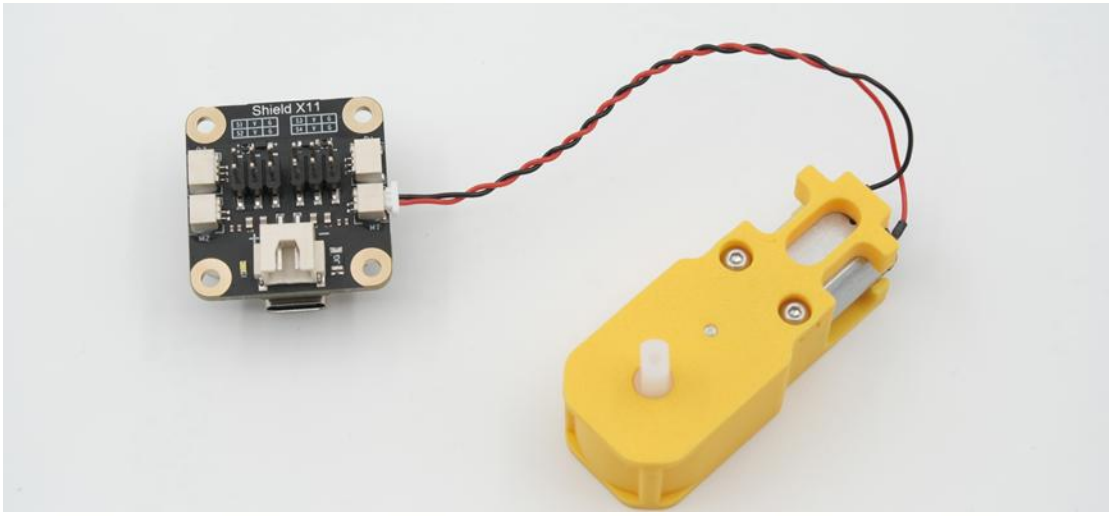
030Micro DC Motor -LA024

The 030 micro DC motor is a small size brushed motor.。

The 030 micro DC motor is balanced in size and power, and can be combined with different reduction ratios to form a variety of speeds of single/twin shaft reduction motors, suitable for all kinds of models that have the need for continuous motion, but do not need a very precise speed. For example, chassis drive motors for vehicle models, drive motors for turntables, etc.

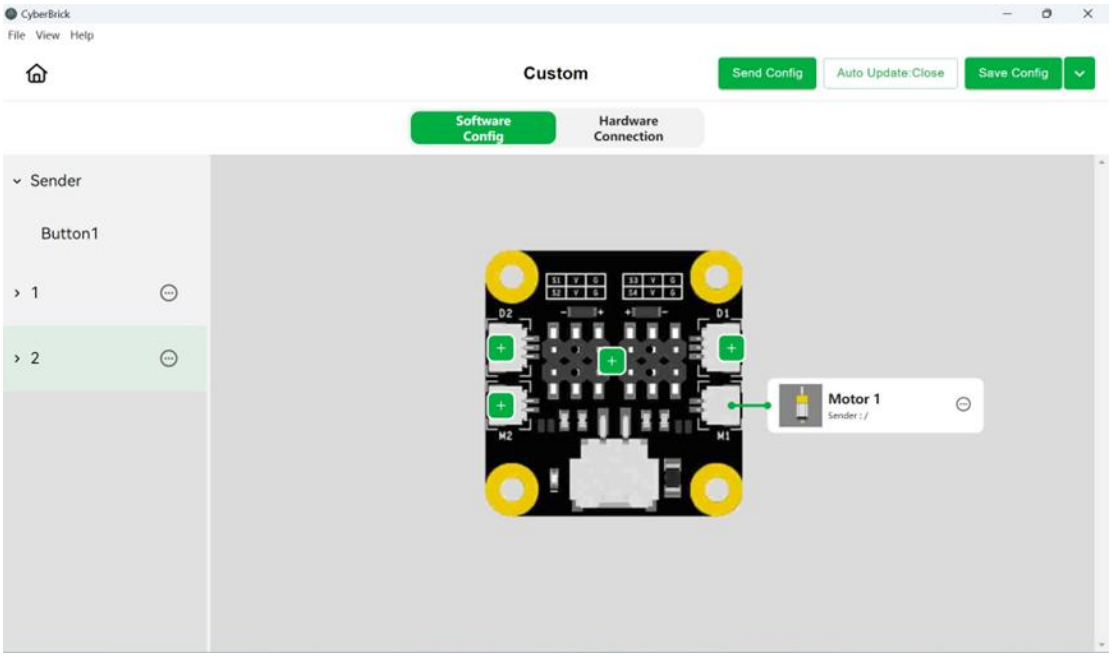
Hardware Connection

Connect the plugs of the 030 micro DC motor to the DC motor ports on both sides of the RC receiver shield.

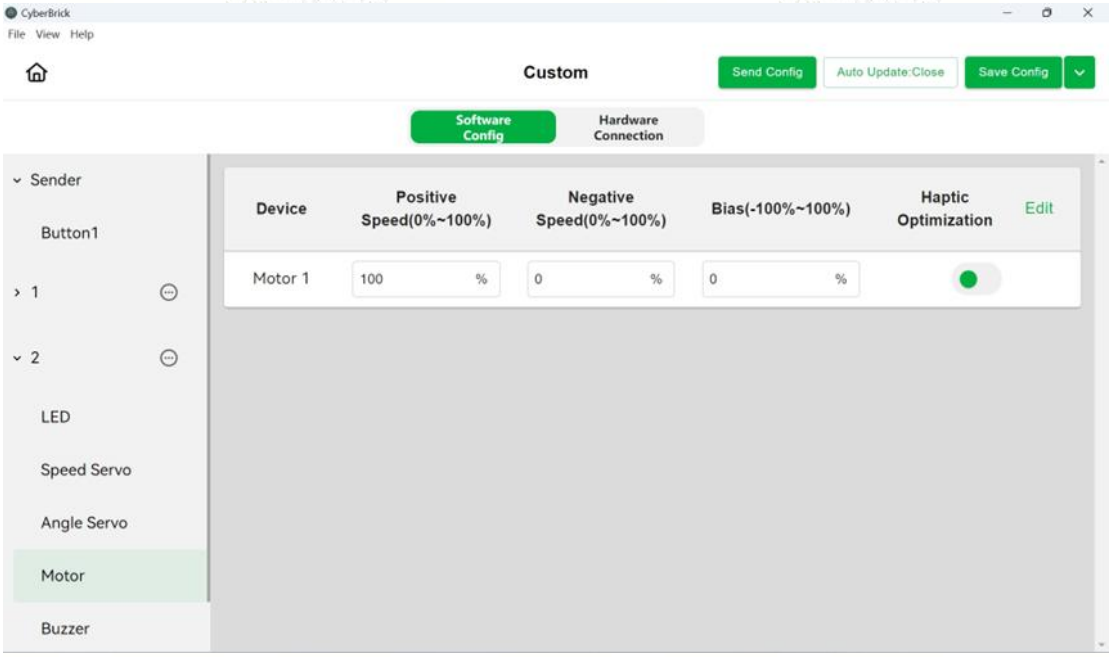


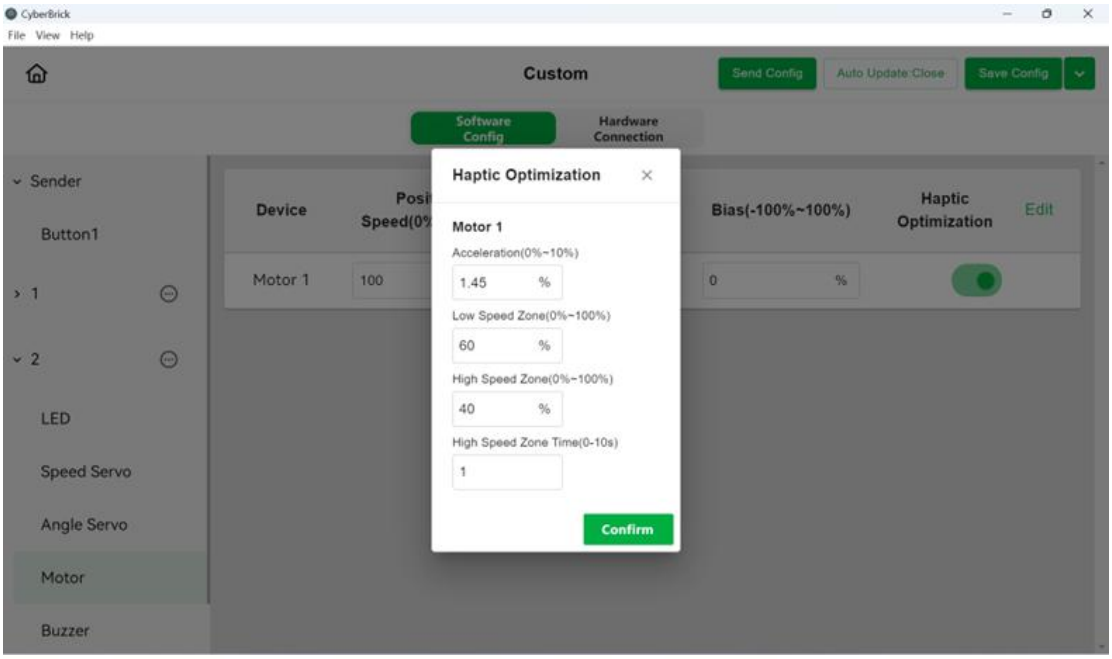
Software Configuration

Click [+] of DC Motor port to add Motor



Adjust the maximum speed and bias for forward and reverse motor rotation in the Modify interface. The Haptic Optimization allows the relationship between the joystick value and the motor speed to become non-linearly proportional (not a first-order linear relationship), so that the low-speed control is more accurate and the high-speed response is faster. You can specifically adjust the effect of haptic optimization in Edit.





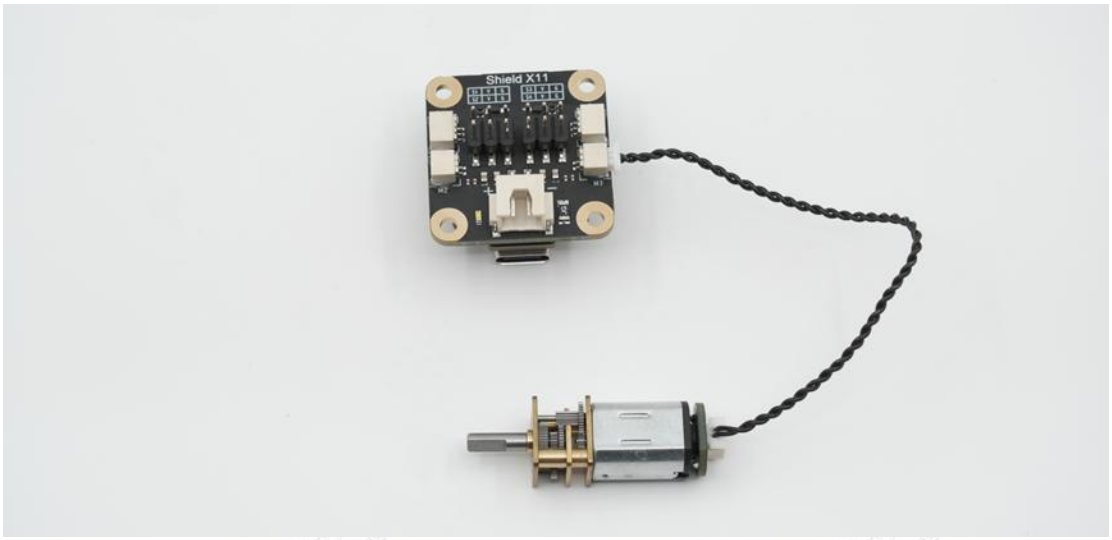
N20 Reduction Gear Motor-LA002~LA008

The N20 reduction gear motor is a miniature size DC brushed motor.

The N20 reduction gear motor is smaller in size than the 030 micro DC motor. Various output shaft types and speeds are available. It is suitable for all kinds of models with continuous motion requirements, small size, or need for self-locking (using the worm gear N20 motor). For example, chassis drive motors for vehicle models, joint drive motors for robotic arms and rotary tables.

Hardware Connection

Connect the terminal of the N20 reduction gear motor to one end of the 2pin SH1.0 wire, and the other end of the wire to the DC motor ports on both sides of the remote control receiver shield.



Software Configuration

DC brushed motors have the same configuration method. Refer to the 030 Motor Software Configuration section above for details.

9g Servo Motor 360° -PG002

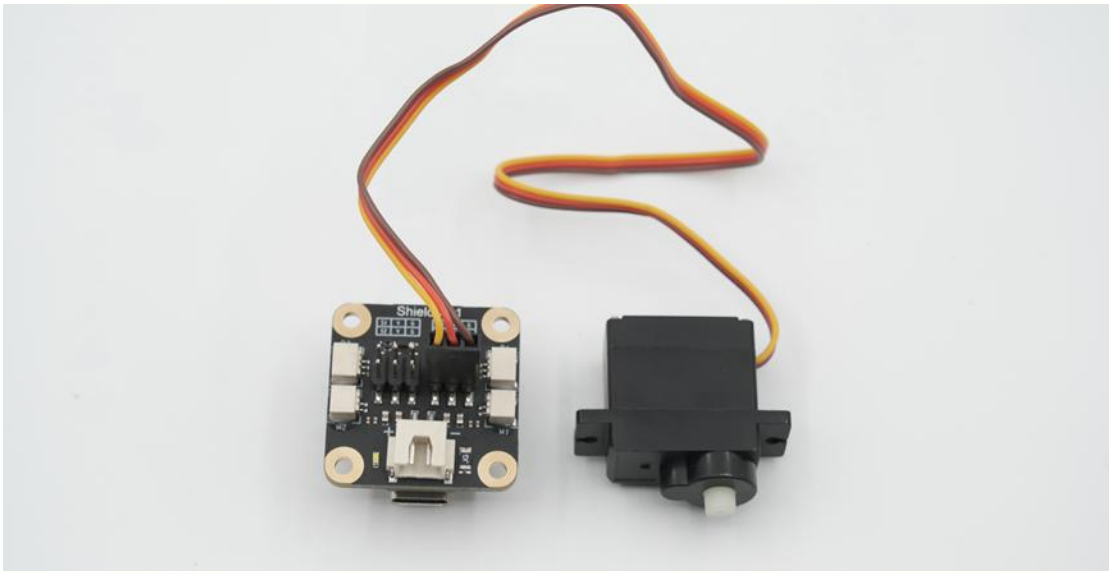
The 9g servo motor 360° is a motor with a velocity closed loop.。

Compared with other brushed motors, the 9g servo motor 360° has less torque, but can maintain a constant speed of rotation, and the movement is quieter, commonly used to drive the movement of some small and light decorative parts on the model.

Hardware Connection

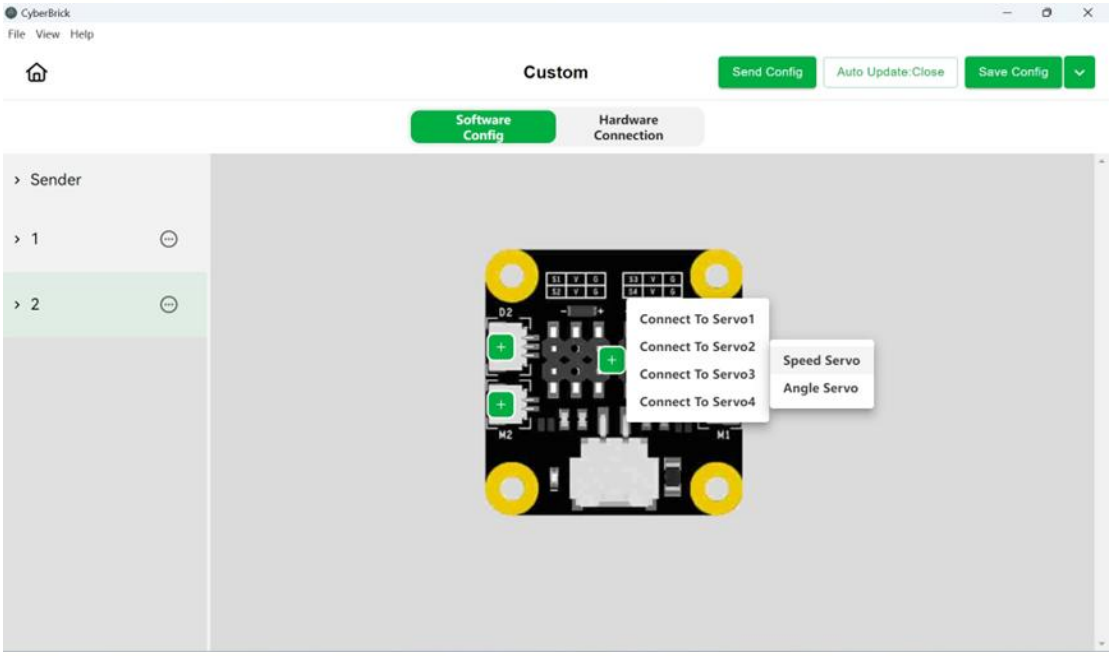
Plug the 9g servo motor 360° connector into the servo ports on the RC receiver

shield.

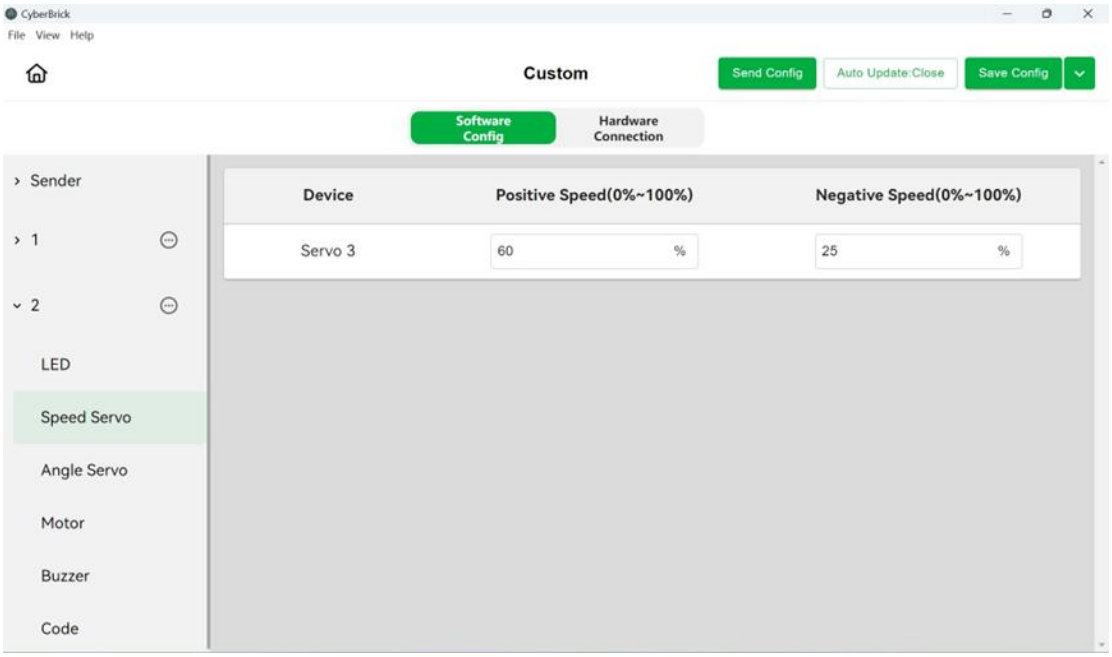


Software Configuration

Click [+] of servo port and add a Speed Servo



You can adjust the maximum speed of forward and reverse rotation of the speed servo in Modify interface



9g Servo Motor 180° -PG001

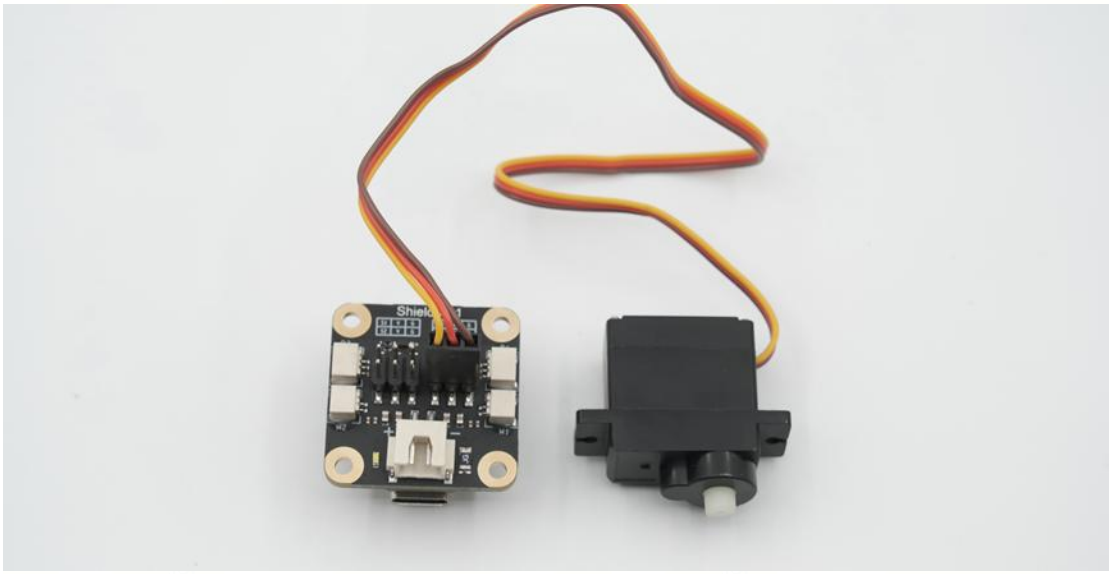
The 9g servo motor 180° is a motor with closed loop position.

The 9g servo motor 180° looks like a 9g servo motor 360° in appearance, but differs in that the 9g servo motor 180° will stabilise at a specified angle rather than speed. It makes the servo ideal for use as a steering mechanism, or as a deformation mechanism. For example, they are used to control steering racks in vehicle models and joint angles in robotic arm models.

Hardware Connection

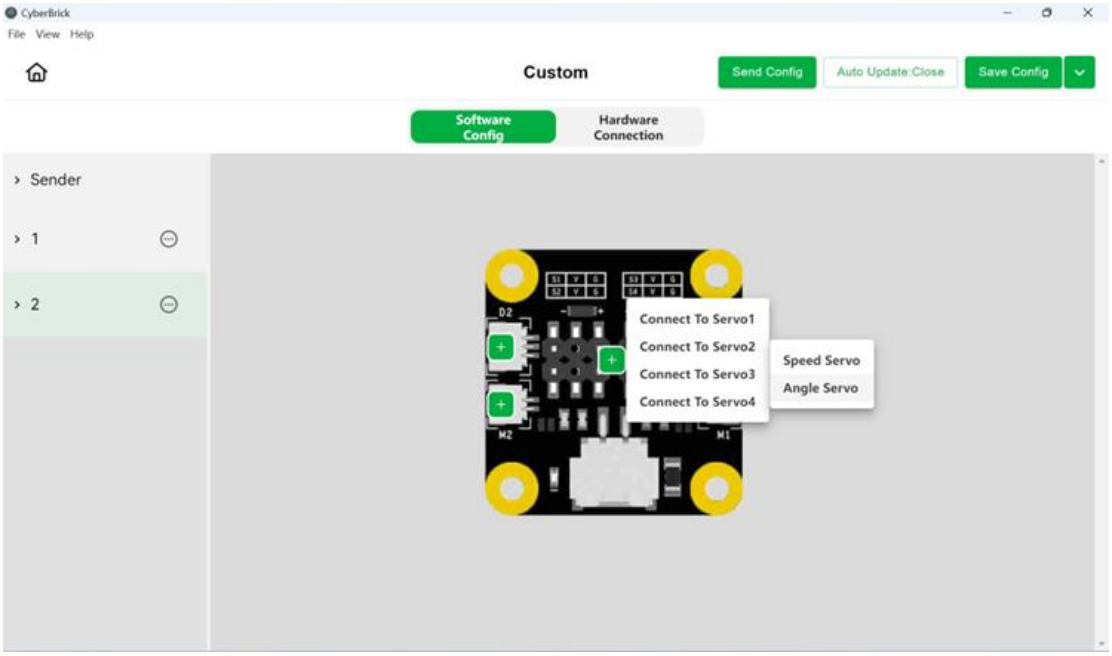
Plug the 9g servo motor 180° connector into the servo ports on the RC receiver

shield.

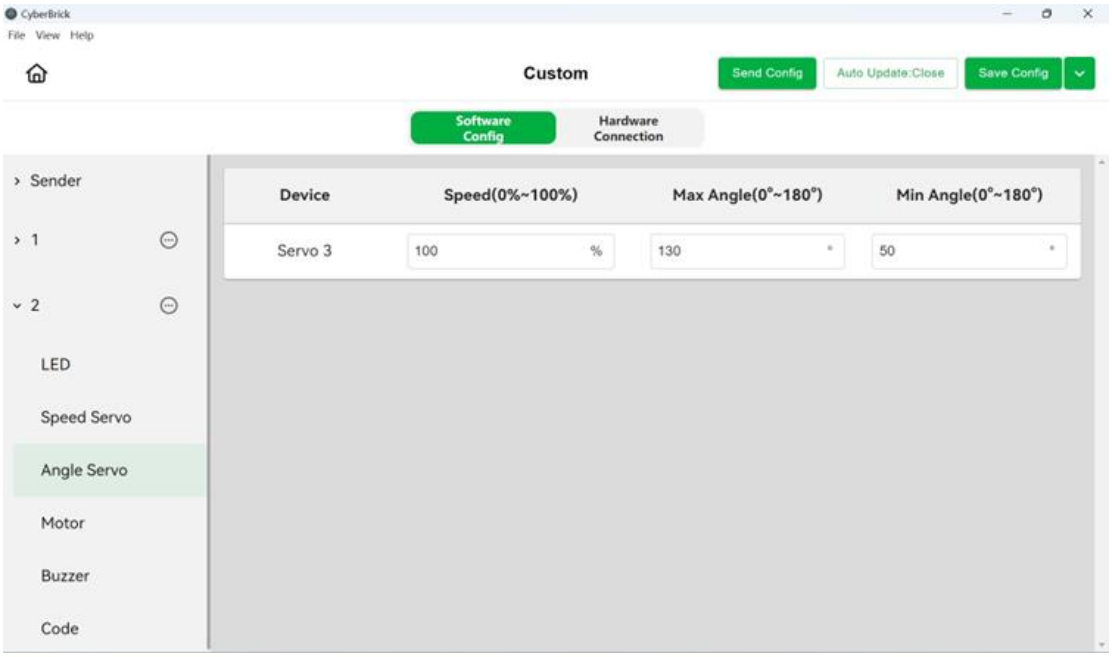


Software Configuration

Click [+] of servo port and add a Angle Servo



You can adjust the rotation speed and the maximum and minimum angle of the Angle Servo in the Modify interface


CyberBrick
File View Help
Custom
Send Config
Auto Update:Close
Save Config
Software Config
Hardware Connection
Sender
1
2
LED
Speed Servo
Angle Servo
Motor
Buzzer
Code
Device
Speed(0%~100%)
Max Angle(0°~180°)
Min Angle(0°~180°)
Servo 3
100
%
130
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50
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