Microzone®
DIGITAL PROPORTIONAL R/C SYSTEM

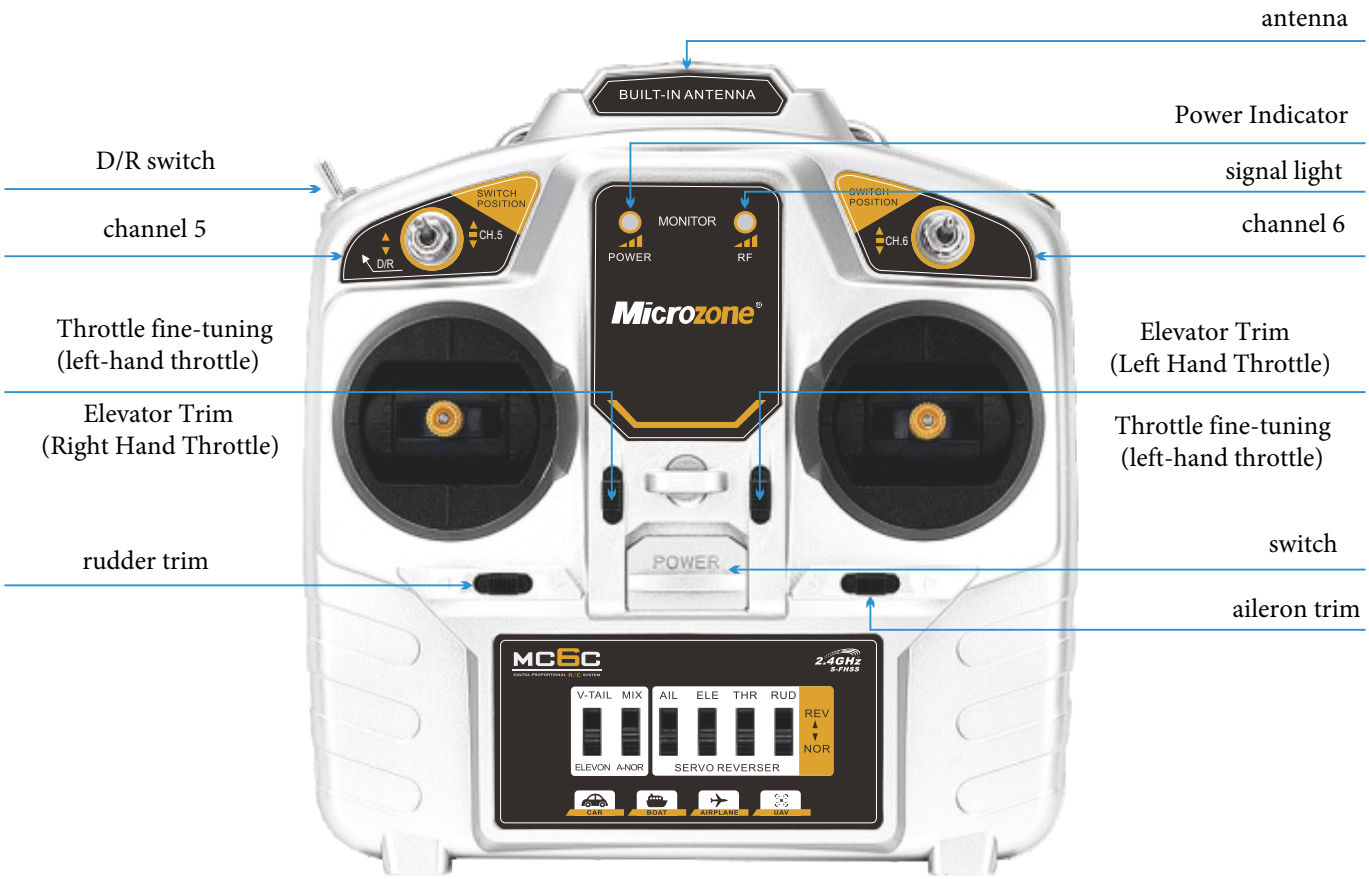
2.4GHz FHSS

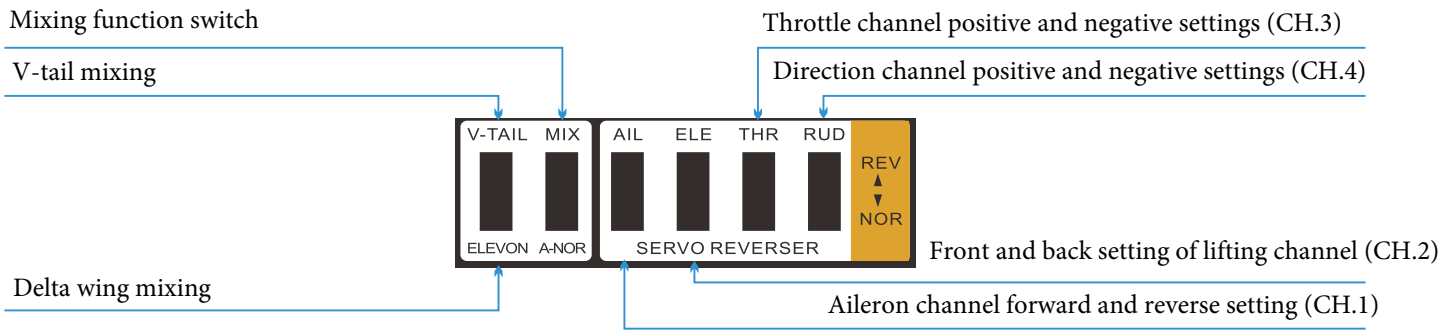
MC6C Manual

Please read carefully before use

Transmitter Analysis

MC6C





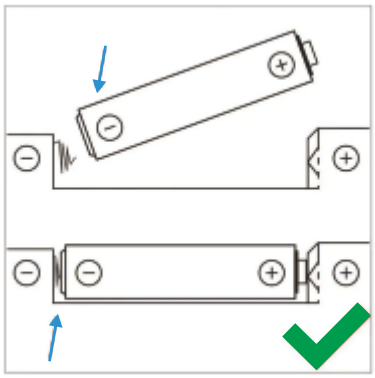
Transmitter parameters

Model	MC6C
Color	Silver
Application	Fixed wing, multi-axis, vehicle, boat
Number of channels	6 Aisle
Frequency band	2401MHz-2478MHz
Transmit power	⩽70MW
Fine-tuning method	Electronic trimming
Joystick dynamic range	80%-120%
Air control range	>800m
Modulation mode	Adopt the latest FHSS mode in the world and comply with European standards
Transmitter Power Requirements	4 AAA batteries or 2S lithium batteries
Receiver Power Requirements	DC4.5~6V
Dimensions (length, width and height)	180*85*185(mm)
Weight	550g

Detailed description

Powered by:

DC4-9V, You can use 4 AAA batteries to install in the battery compartment, as shown in the figure below,



You can also use an external power supply to connect to the DC power socket on the right side of the remote control. When using an external power supply, please remove the battery in the battery compartment first, as shown in the figure below.

First time use:

When you use the remote controller for the first time, you need to bind with the receiver. Please refer to the description of the receiver below for the method of frequency binding. The same remote controller and the same receiver only need to be bound once. The transmitter can control multiple receivers at the same time, and the receiver is only controlled by the remote controller that is bound to the frequency.

Start up:

Push up the power switch to turn it on, the orange light and blue light are on at the same time, the horn beeps twice, and the remote control turns on normally.

Shutdown:

In order to ensure the safety of the model airplane and yourself, do not follow the steps below to turn off the power of the receiver first, and then turn off the power of the remote control after the motor of the model airplane stops running.

Indicator light description:

The orange light is the power indicator light, and the blue light is the signal light;

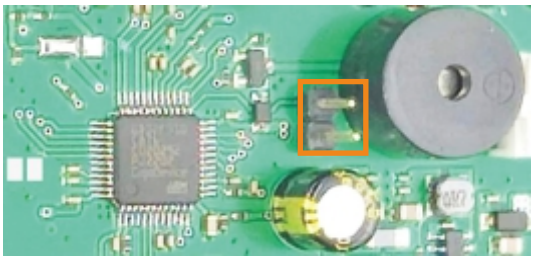
Alternate orange and blue: the remote control is in the calibration state;

Blinking orange light, blue light off: insufficient battery power;

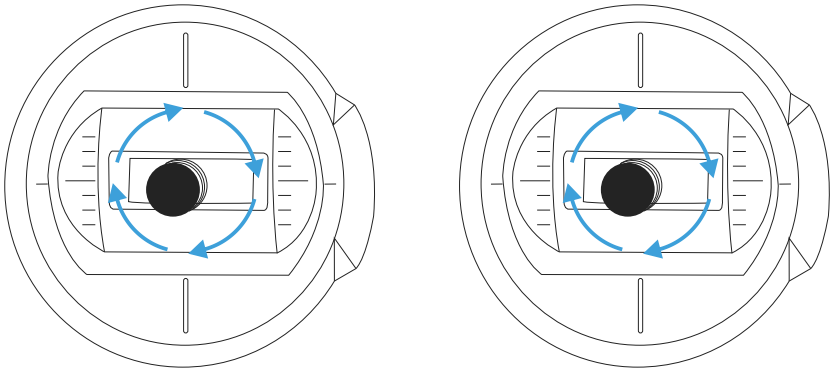
Blinking blue light: only appears in models with trainer function, when the blue light is flashing, it is the student machine control state.

Joystick Calibration:

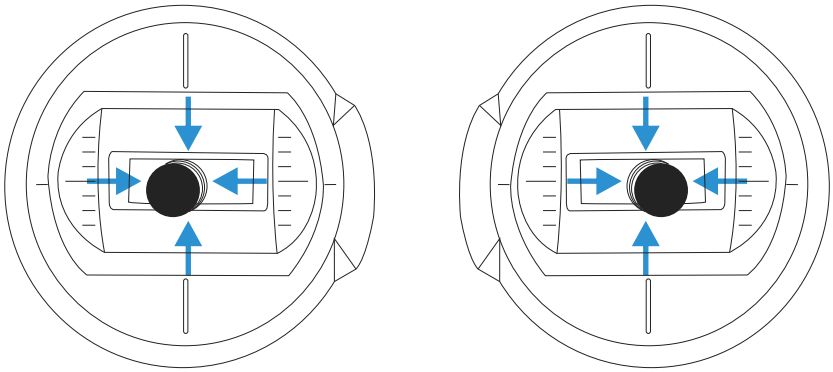
Versions before 2023: Remove the back cover of the remote control, and use wires to short-circuit the 2P pins on the circuit board.



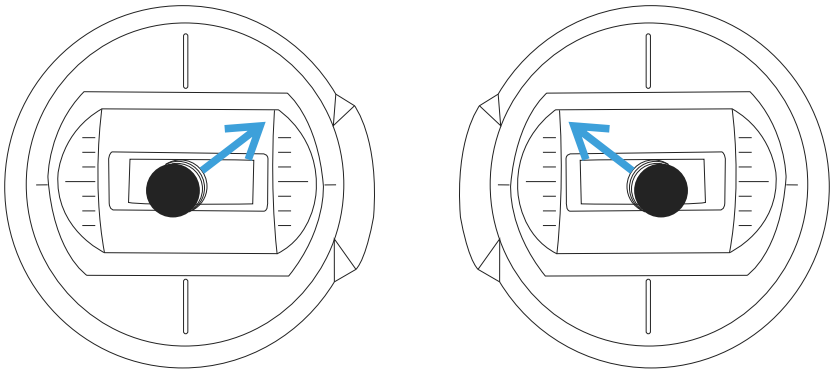
Turn on the power of the remote control, at this time the orange and blue lights flash alternately, the horn beeps, and the remote control enters the joystick calibration state. First, pull the two joysticks of the remote control left and right, up and down, as shown in the figure below.



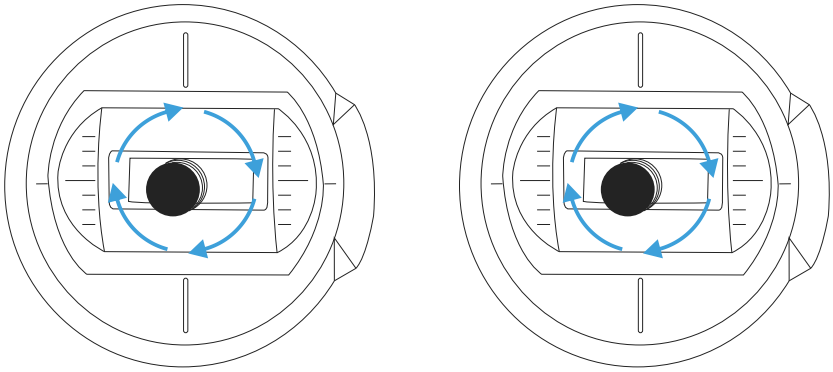
Then pull the joystick to the middle position, as shown in the figure below, and finally unplug the short-circuit wire, and the calibration is completed.



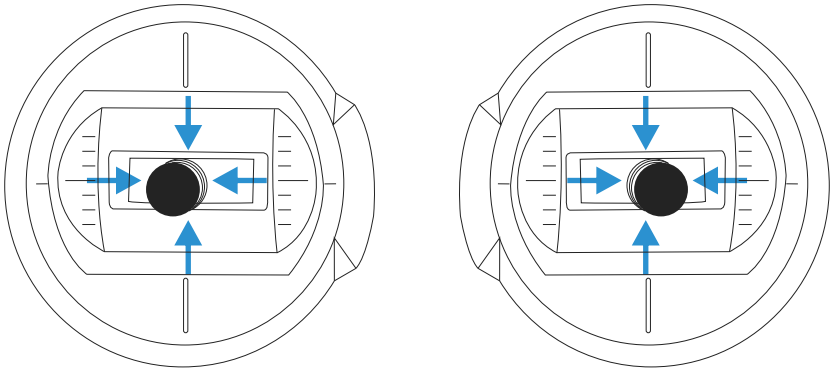
Versions after 2023: Pull the left joystick to the upper right corner, and pull the right joystick to the upper left corner, as shown below,



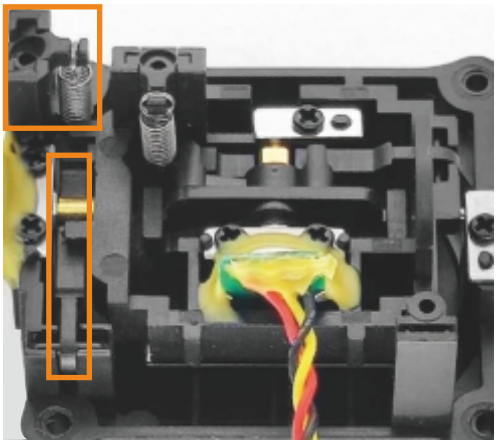
At the same time, turn on the power of the remote control, enter the joystick calibration state, first move the two joysticks of the remote control to the maximum, left and right, as shown in the figure below,

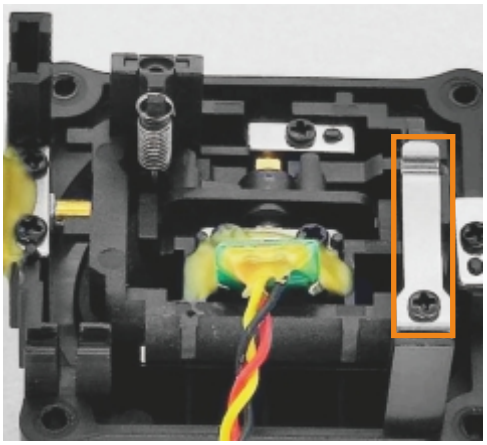


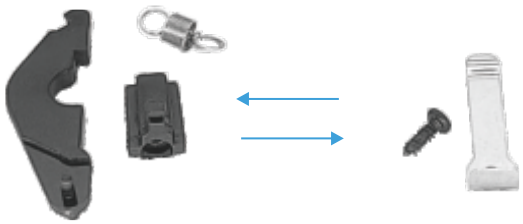
Then pull the joystick to the middle position, as shown in the figure below, and finally pull the D/R switch to complete the calibration.



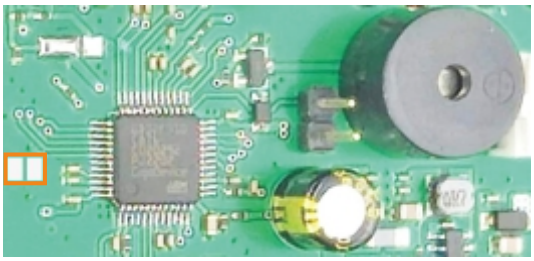
To switch between left and right:
Note: Recalibration is required for switching the left and right hand sticks;
Versions before 2023: Remove the back cover of the remote controller, and replace the retaining springs and neutral levers of the left and right joysticks, as shown in the figure below.



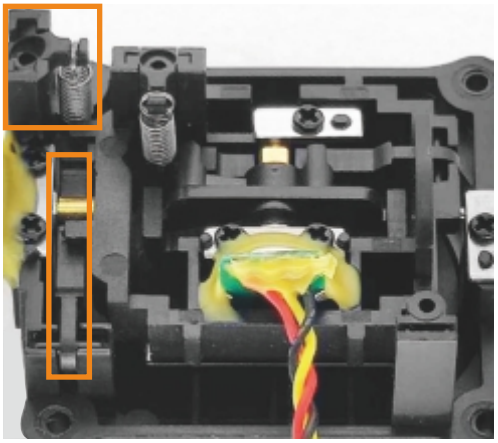


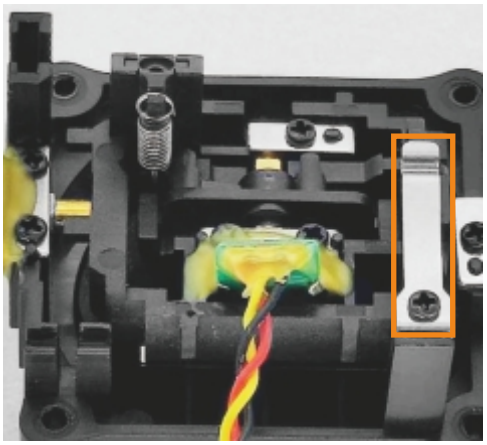


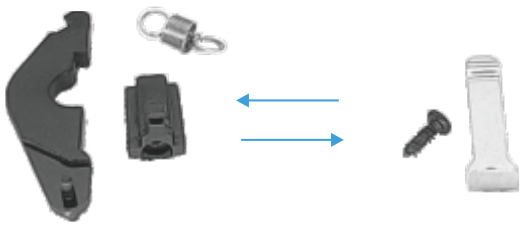
Solder the two square solder joints closest to the main IC with tin wire to complete the switch between left and right hands, as shown in the figure below.



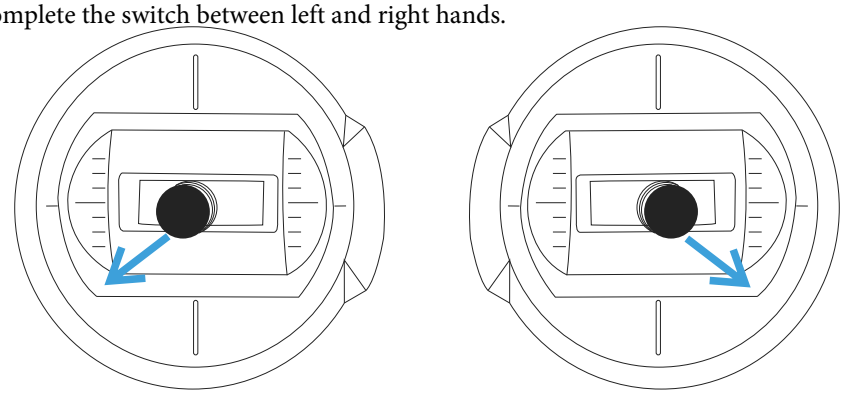
Versions after 2023: Remove the back cover of the remote control, and replace the retaining springs and neutral levers of the left and right sticks, as shown in the figure below.







Pull the left joystick to the lower left corner, and pull the right joystick to the lower right corner, as shown in the figure below, and at the same time turn on the power of the remote control to complete the switch between left and right hands.

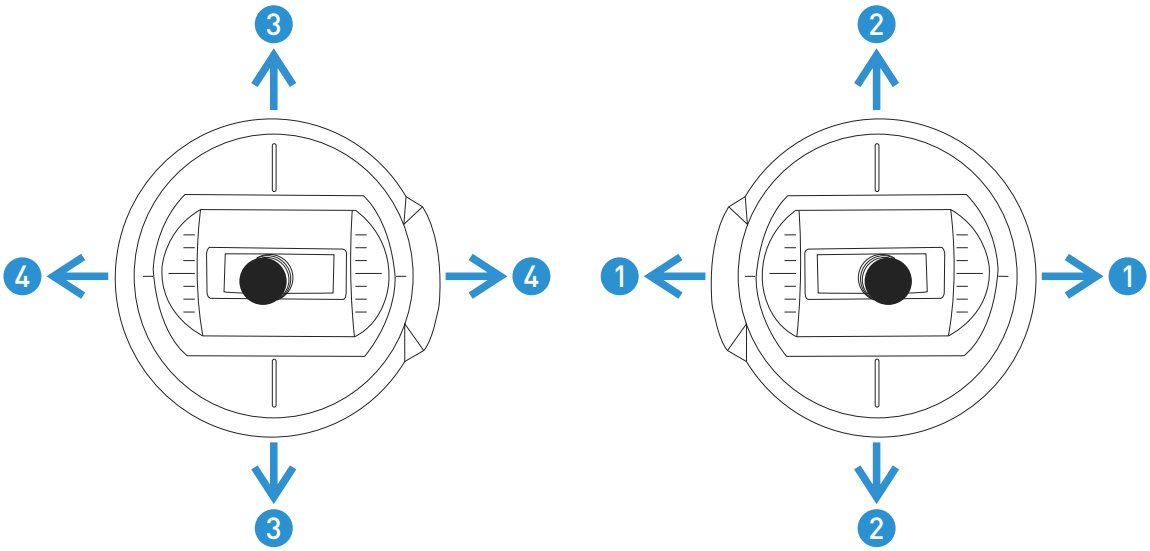


Channel description:

6 channels, the signal range is 1000-2000us (the value will increase or decrease 0-120 in the case of adding a fine-tuning value).

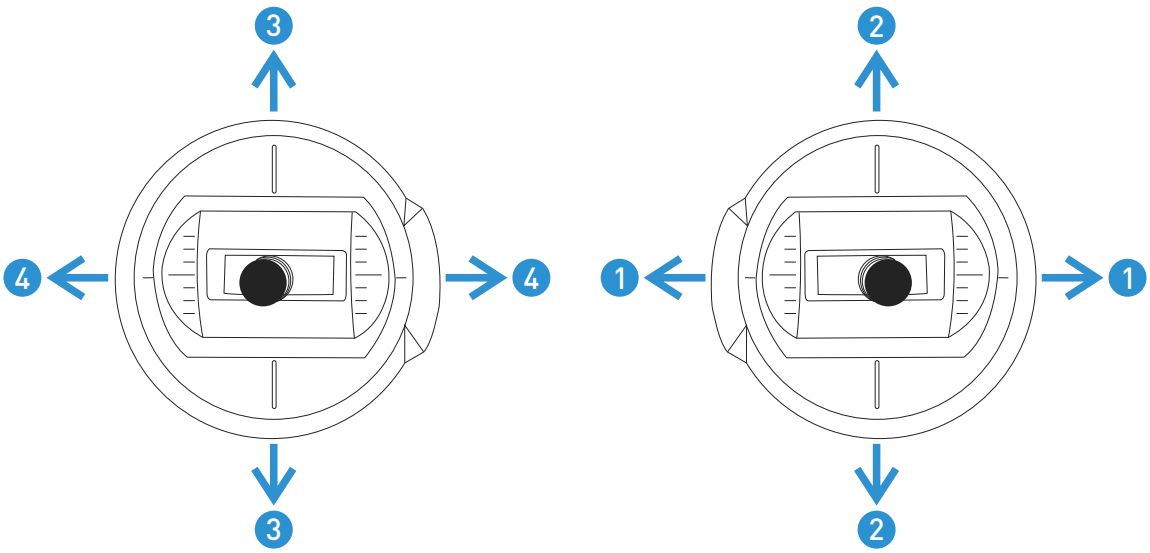
Left handed mode:

The left and right joysticks are channel 1, and the up and down are channel 2; the left and right joysticks are channel 4, and the up and down are channel 3; as shown in the figure below.



Right-handed mode:

The left and right of the right joystick are channel 1; the up and down are channel 3; the left and right joystick are channel 4; the up and down are channel 2; as shown in the figure below.

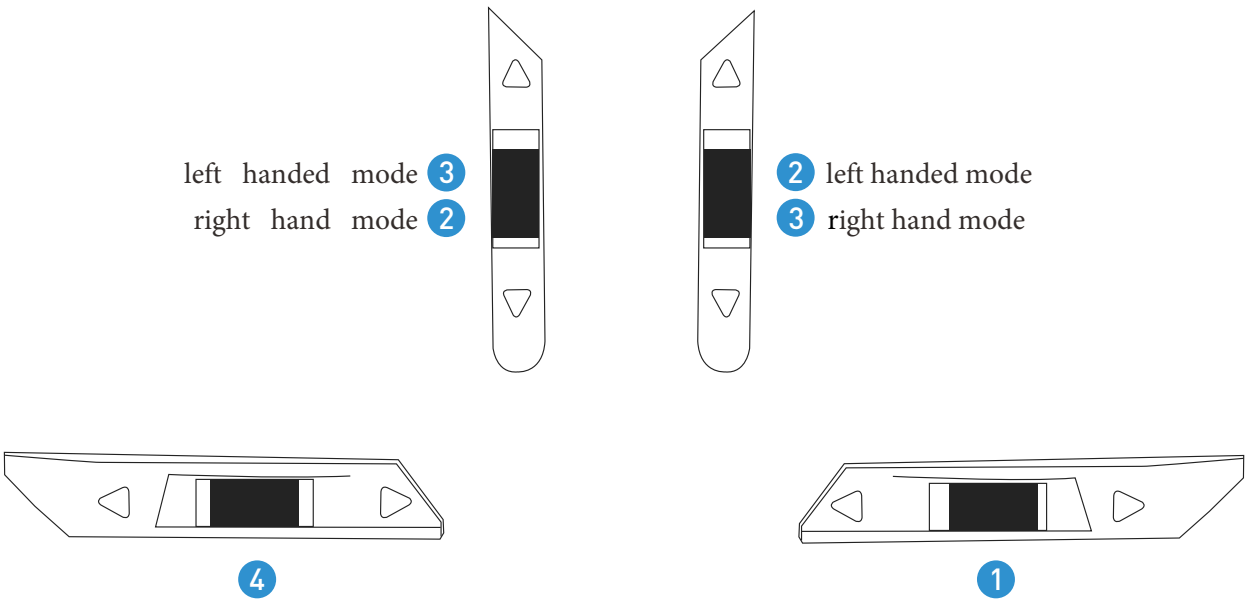


DR switch:

Large and small rudder switches, the signal output of the large rudder is 100%, that is, 1000-2000, and the output of the small rudder is 50%, that is, 1250-1750.

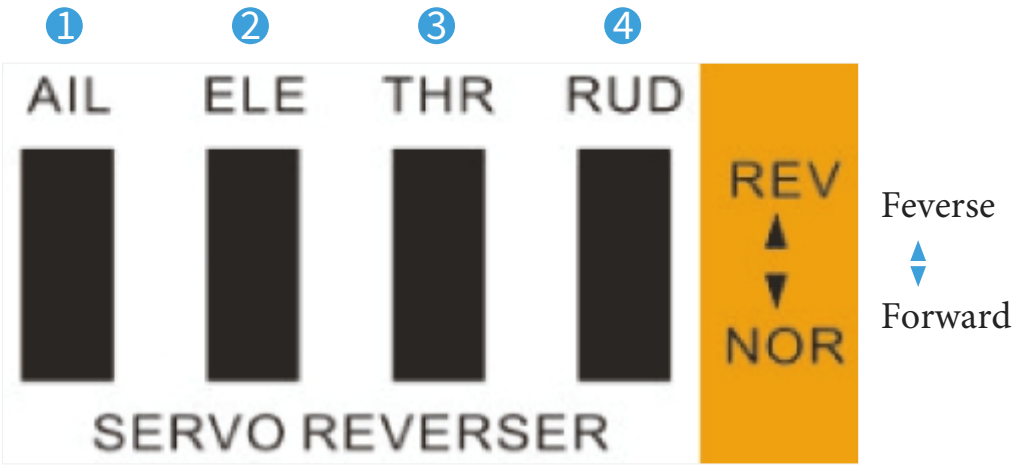
Trimmer switch:

The lower left trim switch corresponds to channel 4, and the right trim switch corresponds to channel 1; the upper left trim switch corresponds to channel 3 in left-hand mode, and channel 2 in right-hand mode; the upper right trim switch corresponds to channel 2 in left-hand mode, and corresponds to channel 2 in right-hand mode. Channel 3; as shown below.

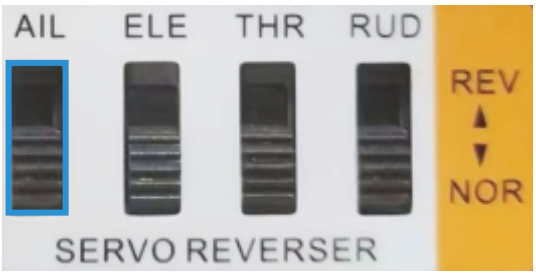


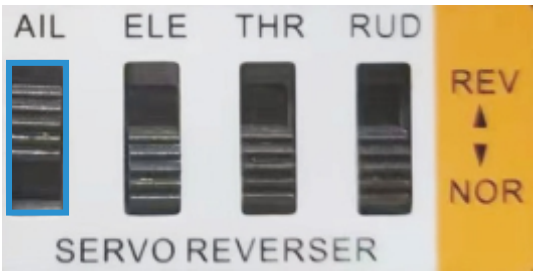
Forward and reverse switch:

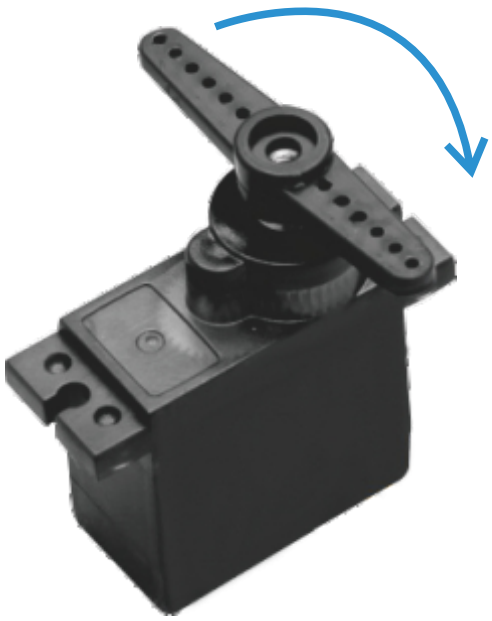
The 4 channel reverse switches correspond to channels 1, 2, 3, and 4 from left to right, as shown in the figure below.



Take channel 1 as an example, when the reverse switch is pulled down, pull the joystick from left to right, the servo will swing from left to right, and when the reverse switch is pulled up, pull it from left to right When the joystick is pressed, the servo will swing from right to left, as shown in the figure below.







Mixing switch:

The mixing control switch is pulled down to close, as shown in the figure below.

Mix Mode:

Pulling it to the bottom is the 1/2 channel mixing control of the three-wing wing, which is suitable for models such as the Su-27 trigger, and pulling it to the top is the 2/4 channel mixing control of the V tail, as shown in the figure below.

V tail 2/4 channel mixing control

▲

mixed control mode

▼

Triplane 1/2 channel mixing control

Open

▲

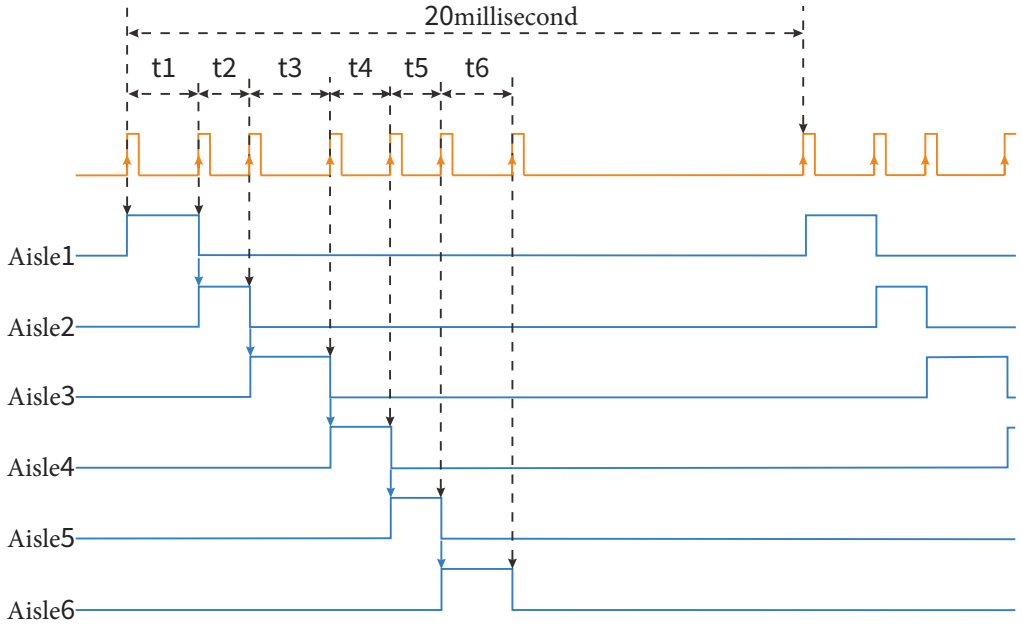
Mixing switch

▼

Close

PPM simulator signal:

PPM signal has a frame of data every 20ms, starting with low power frequency, the duration from the first rising edge to the second rising edge is channel 1 data, and the duration from the second rising edge to the third rising edge is channel 2 data, and so on.



Coach function:

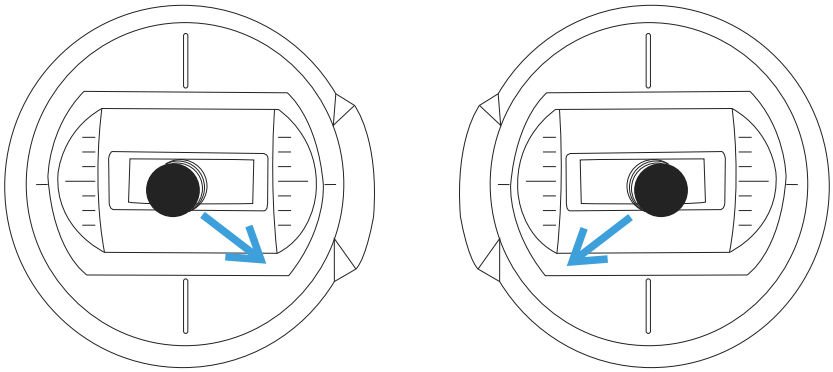
For models with a trainer function, use a male-to-male audio cable to connect the PPM data interface of the trainer's remote controller and the trainee's remote controller. Turn the remote controller on the trainer switch, and the blue indicator light will flash. At this time, the trainees can control the aircraft model. When the trainees fail to control the aircraft, the trainer quickly flips the trainer switch to return to the trainer control.

3.5mm Male to Male Audio Cable

Trim lock:

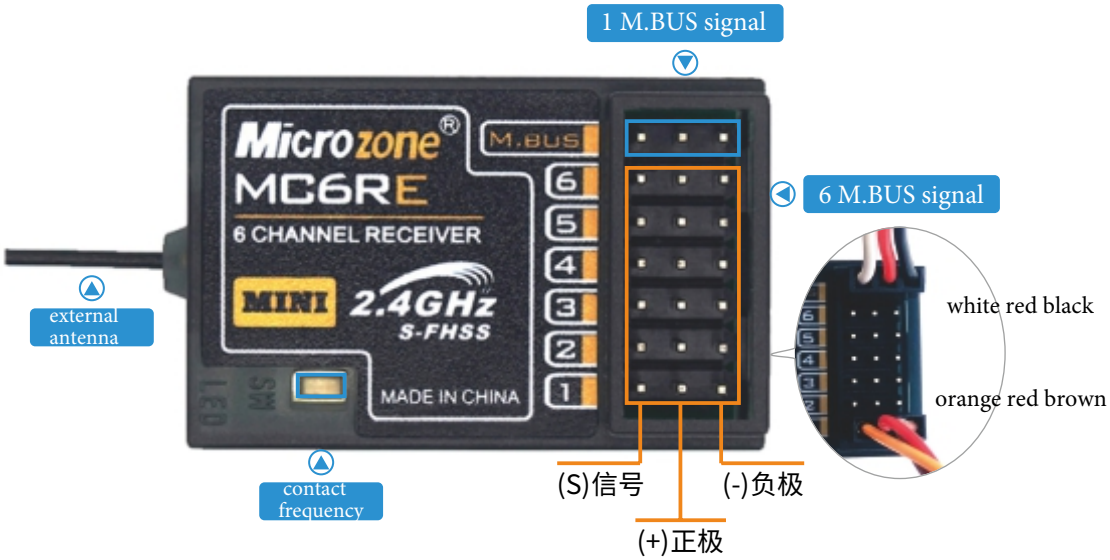
This function is only valid for products after 2023. It is used to prevent the rudder from accidentally touching the trimmer when operating the joystick;

Operation mode: Pull the left joystick to the lower right corner, and pull the right joystick to the lower left corner, as shown in the figure below, At the same time, turn on the power of the remote control to complete the fine-tuning lock. At this time, flipping the fine-tuning switch will be invalid, and the unlocking method is the same.



Receiver Analysis

MC6RE



Receiver parameters

Model	MC6RE
Color	Black
Application	Fixed wing, multi-axis, vehicle, boat
Channel output	6 PWM signals, 1 SBUS signal
Frequency band	2401MHz-2478MHz
Receiving distance	>800m
Receiver supply voltage	DC:3.5~9V
SBUS	Wordlength 9Bit
Binding method	Contact frequency
Restore performance	Fast recovery signal
Antenna type	External antenna
Antenna length	110mm
Dimensions (length, width and height)	37*23*13 (mm)
Weight	8g

Detailed description

Boot:

The positive and negative poles can be turned on when they are connected to the power supply.

Indicator light description:

Orange light flashing slowly: no signal;

Orange light is always on: signal reception is normal;

Orange light flashes quickly: Binding is in progress.

Binding method:

Turn off the remote control, press the link button on the receiver, the orange light will flash quickly, indicating that the receiver is in the link mode, as shown in the figure below, then turn on the remote control, the orange light on the receiver will become solid, and the receiver is receiving signals normally .

Contact frequency

PWM signal:

The high level is 3.3V, a cycle of 14ms, and the output pulse width is 1000-2000us when it is not mixed, and it can reach 880-2120 when it is mixed or fine-tuned, as shown in the figure below.

Failsafe:

When the receiver loses the signal unexpectedly, it will automatically switch to the out-of-control state. When out of control, channel 1/2/4 of the receiver will output 1500us, channel 3 will output 900us, and the other channels will remain unchanged.

Failsafe switching:

This function is only valid for products after 2023, this operation will modify the failsafe value of channel 3 to 1500us;

Operation method:Power off the receiver, short-circuit channel 5 and channel 6 with a wire, unplug the wire three seconds after the receiver is powered on, and restart the receiver.

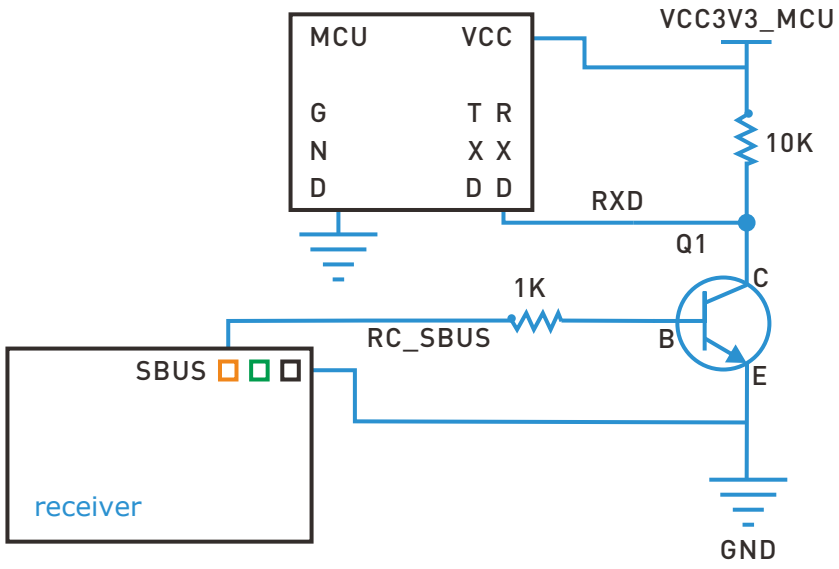
SBUS:

High level is 3.3V, 100k baud rate, 8 data bits (9 bits should be selected in stm32), even parity (EVEN) 2 stop bits, starting with 0x0F, ending with 0x00, a total of 25 bytes , a frame of data every 14ms;

Arranged as follows:[0x0F] [data0] [data1] [data2] [data3] … [data10] [flag] [0x00];

data1...data22:Corresponding to 16 channels (ch1-ch16), each channel is 11bit, and the value range of channel data is 200-1800

Connecting to the SBUS signal requires hardware inversion of the level, software inversion is invalid, and the inversion circuit is shown in the figure below.



Precautions

Read the following precautions carefully before using the remote control!
1. Please do not use it at night, thunderstorms, snow, low visibility, and other bad weather environments.
2. Please do not use it in places with snow or water; if water enters the remote control, the circuit will be short-circuited and cannot be used.
3. Signal interference may lead to loss of control of the remote control; places with greater interference impact are as follows:

A. Near mobile phone towers
B. Near high-voltage wires and communication radio antennas
C. Near the military radar tower
D. Wireless communication complex and human activity commercial road
E. Navigable waters

4. Please do not use this product after people feel tired, uncomfortable, drinking alcohol, taking intoxicated food, or stimulant drugs, otherwise it will seriously injure yourself or others.
The 5.2.4G wireless band is completely different from the low-frequency radio band used before; please ensure that the model product is within your line of sight when using it, as large obstacles will block the wireless signal and thus Cause the remote control and model to lose control.
6. Before use, make sure that the remote control and the model are installed correctly, and that all servos move in the same direction as the control direction, otherwise the model may be severely damaged.
7. When the remote control distance continues to be long, there may be a possibility of loss of control, please shorten the control distance appropriately; the battery voltage of the transmitter is not enough, and the transmitter has no signal, which will lead to loss of control; so when the remote control power indicator light frequently Please replace the battery with a new one as soon as possible when it flashes and gives an alarm.
8. When you stop using the remote control, please be sure to cut off the power of the receiver, and then turn off the transmitter; if you turn off the power of the transmitter first, the receiver is still working, which may cause the model to lose control or the engine to continue to work, from Serious accidents occur.
9. Improper use of the remote control may cause serious injury or even death to the operator or others; in order to ensure the safety of you, others and the equipment, please read this guide carefully and operate according to the requirements.
10. The transmitter and receiver required by our company's 2.4G wireless transmission system are used in pairs, and other companies' products cannot be connected to our company's products.