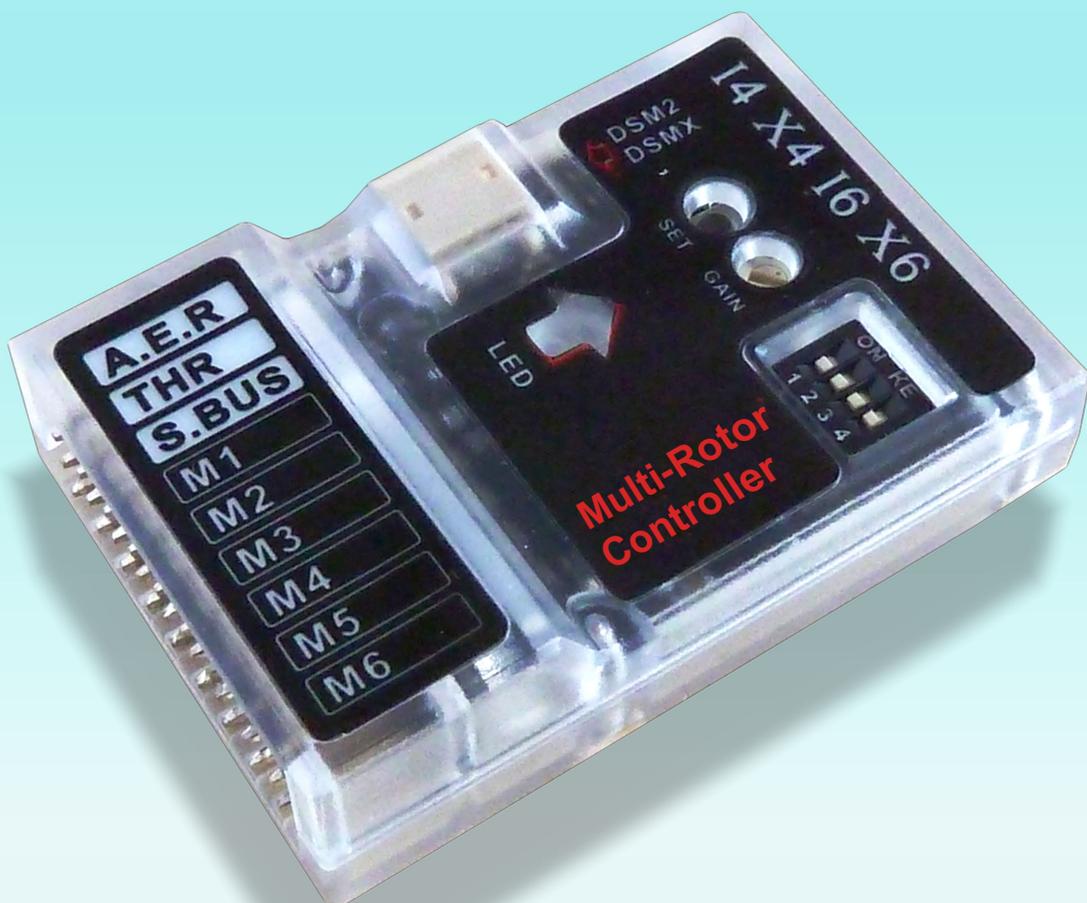


MULTI-ROTOR CONTROLLER

Instruction Manual



Thanks for purchasing Multi-Rotor Controller. This manual will guide you to finish the installation step by step from the correct mechanical installation to the first flight. Multi-Copter is not a toy, improper use or assemble of this product can result in serious injury or even death. Please read this manual carefully before using.

I. Product Specifications

Processor	32BIT ARM
Voltage	3,6V - 8,4V
Current	60mA*
Output rate	360Hz
Dimension (L – W – H)	43 x 29 x 13mm
Weight	13g

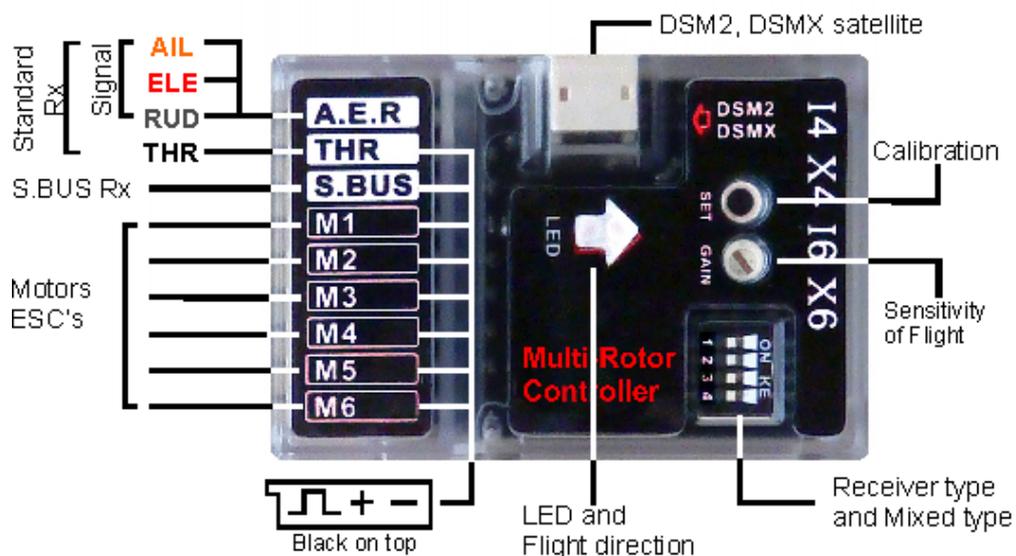
* Not including receiver or satellite

II. Product Feature

Multi-Rotor Controller have a built-in precise digital gyroscope. It is with an acceleration sensor which able to provide excellent self-leveling. Besides all standard PCM and 2,4G digital receivers. It is also compatible with S.BUS, DSM2 and DSMX satellite. They have the most convenient way to bind the model and adjust the sensor that makes you have more time enjoy the flight.

III. Hardware Connecting

Please check carefully before using to avoid any damage by improper connecting.



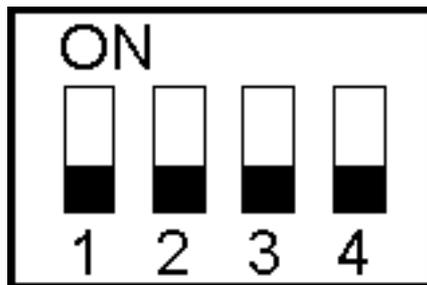
IV. Status LED

It has different lights color to show different status when power on, please refer to as shown below:

Power on >>>>>>		From left to right >>>>>>		Ready
LED on 1 second [Receiver type]	LED off 0.5 second	LED on 1 second [Mixed type]	LED off 0.5 second	Constant on [Ready]
White: Standard receiver		White : I-4		Green light constant on means lock
Blue : S.BUS	LED off	Blue : X-4	LED off	
Yellow : DSM2		Yellow : I-6		
Purple : DSMX		Purple : X-6		

V. DIP Switch

There is a 4 bits DIP switch for setting receiver type and mixed type. Once you changed the switch position, you have to re-power on! Please contrast as shown below:



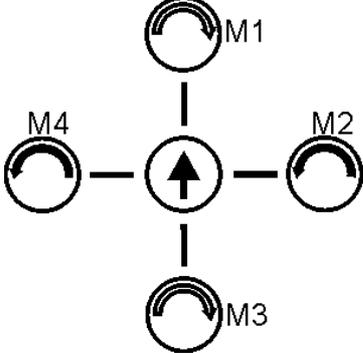
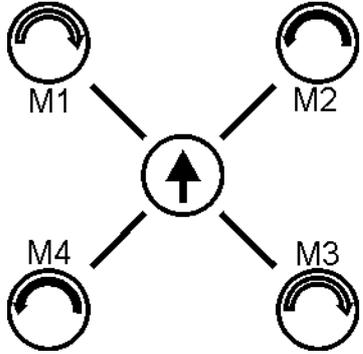
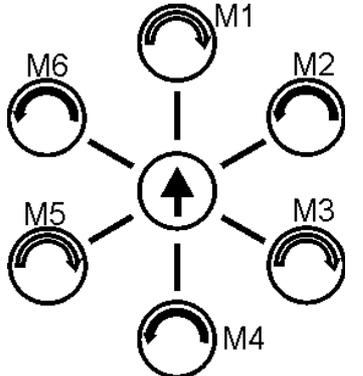
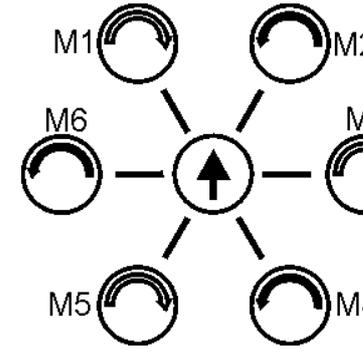
Switch schematic diagram

The 1–2 bits of DIP Switch for Multi-Rotor mode define, the 3–4 bits for receiver type define, please refer to as shown below:

Mixed type	Switch schematic diagram	Receiver type	Switch schematic diagram	LED light color
I-4	<p>ON</p> <p>1 2</p>	Standard receiver	<p>3 4</p>	white
X-4	<p>ON</p> <p>1 2</p>	S.BUS	<p>3 4</p>	blue
I-6	<p>ON</p> <p>1 2</p>	DSM2	<p>3 4</p>	yellow
X-6	<p>ON</p> <p>1 2</p>	DSMX	<p>3 4</p>	purple

VI. Installation Instruction

It has different kinds of Multi-Copter mode. Please refer to as shown below, different mode has different direction and position:

Mixed type	Installation Instruction
I-4	 <p>The diagram shows a central hub with an upward-pointing arrow. Four arms extend from the hub: one vertically upwards to motor M1, one vertically downwards to motor M3, one horizontally to the left to motor M4, and one horizontally to the right to motor M2. Each motor is represented by a circle with a curved arrow indicating its rotation direction.</p>
X-4	 <p>The diagram shows a central hub with an upward-pointing arrow. Four arms extend diagonally from the hub to four motors: M1 (top-left), M2 (top-right), M3 (bottom-right), and M4 (bottom-left). Each motor is represented by a circle with a curved arrow indicating its rotation direction.</p>
I-6	 <p>The diagram shows a central hub with an upward-pointing arrow. Six arms extend from the hub: one vertically upwards to motor M1, one vertically downwards to motor M4, one horizontally to the left to motor M5, one horizontally to the right to motor M3, one diagonally up-left to motor M6, and one diagonally up-right to motor M2. Each motor is represented by a circle with a curved arrow indicating its rotation direction.</p>
X-6	 <p>The diagram shows a central hub with an upward-pointing arrow. Six arms extend diagonally from the hub to six motors: M1 (top-left), M2 (top-right), M3 (right), M4 (bottom-right), M5 (bottom-left), and M6 (left). Each motor is represented by a circle with a curved arrow indicating its rotation direction.</p>

VII. Installing

Notes:

- 1) **Please remove propellers during installing, to avoid any injury from motor accidental start!**
- 2) **Support all standard receiver, S.BUS, DSM2 and DSMX satellite, but you can only use one of these. Absolutely forbidden to install receiver together or mix!**
- 3) Controller must be securely mounted in as close as the barycenter of the multi-rotor. In order to provide better flight performance, we suggest to take some measures to avoid vibrations.
- 4) The ESC's travel midpoint is at 1520us, **DO NOT use 700us travel midpoint ESC**, as it may lead aircraft to fly away or cause injury and damage.
- 5) After controller power on, the status LED showing green and constant on means motor has been locked, green light fast blink means motor unlocked, then motor will enter idling mode and low speed spinning!

1 – ESC (Electronic Speed Controller)

Please calibrate ESC's one by one through the receiver directly before connect them to your controller and make sure all of them into Governor off, Break off to get best experience, then according to [VI. Installation Instruction] assemble to flight controller, according to [V. DIP Switch] to set the DIP switch.

2 – Transmitter (Tx) and receiver (Rx)

User needs to use the Tx which at least 4 channels and using S.BUS Rx or independent DSM2, DSMX satellite can greatly simplify the installation. Please according to your Rx type to set the DIP switch position follow [V. DIP Switch]. Create a new airplane mode on your Tx, if this is the first time to install, user need reset the model's data as default and shut off all mix control, set all channels range to $-100\% \approx +100\%$. Below are some examples for reference:

	Ail	Ele	Rud	Thr
FUTABA	Channel reverse	Channel reverse	Channel reverse	Channel reverse
JR/SPECTRUM	Channel obverse	Channel obverse	Channel obverse	Channel obverse

The FUTABA, JR, SPECTRUM Tx and Rx above had been tested. User need to test if you are using any other Tx!

If you are using S.BUS, or DSM2 / DSMX satellite, you should also check their output channel's order as default shown below:

	Ail	Ele	Rud	Thr
S.BUS	Channel 1	Channel 2	Channel 4	Channel 3
DSM2 / DSMX	Channel 2	Channel3	Channel 4	Channel 1

3 – Receiver connecting

If you are using the standard receiver or S.BUS receiver, please follow the Transmitter manual to connect. If you are using the DSM2 or DSMX satellite, please refer to the instruction as shown below:

Operating instructions	
First step	Connect the satellite to flight controller, set the receiver type to standard receiver or S.BUS using the DIP switch, power on the controller
Second step	Set the DIP switch according to your satellite mode and power on. The indicator light of satellite will start blink. Turn on your transmitter to bind and complete finish the connecting.
<ol style="list-style-type: none">1. If the indicator light of satellite did not blink, please re-try from the first step. This problem may be due to the poor contact during power-on.2. DSMX satellite can binding and working under DSM2 mode, but DSM2 can not binding and working under DSMX mode. If your transmitter support DSMX mode, please stay on DSMX mode.3. During our testing of a few SPEKTRUM transmitter, try different distance when binding can make connecting quickly.	

4 – Transmitter calibration

First install or after changing a new receiver, you have to calibrate the transmitter. Make sure removed all blades, move the throttle down and other channels in the center. First turn on the transmitter and then power on the flight controller. The status LED will lighten two times after power on, different color lighten is showing you the currently receiver type and mixed type, you can refer to [IV. Status LED]. When the status LED becomes constant green (means motor has been locked), press and hold the setting button of receiver start transmitter calibration and the LED will go off, the LED will light up until transmitter calibration is successful complete. The flight controller will record the center point of Ail, Ele, Rud and the lowest point of Thr, please don't use the throttle holding function during the calibration!

5 - Sensor Calibration

Multi-Rotor controller not only need to keep in a rest state but also required to rest on horizontal and firm ground. When controller's indicator green light constant on (that means motor has been locked), push throttle stick to the highest position and rudder stick to the most left (you can refer to the appendix at the end of this manual) green light will go out means sensor is adjusting, when the green light flash on again means sensor has been successful adjusted.

6 – Gain

When controller's indicator green light constant on (means motor has been locked), user can rotate the knob to adjust the sensitivity of flight. Sensitivity increases by clockwise, decreases by counterclockwise. For first fly, we suggest sensitivity being middle and adjust depend on your demand during flight. Adjust sensitivity cab be only adjusting during the indicator green light constant on (means the motor has been locked), new parameters

record no need to re-power, it can be automatic update in the next green light blink (means motor has been unlocked).

7 – Motor unlock and lock

Notes: The green light is fast blink after motor unlock, motor will enter idling mode and low speed spinning, please don't get too close during unlock!

Pull the throttle stick down and rudder stick at the most right to unlock motor (you can refer to the appendix at the end of this manual), after unlock, the green light will flash fast blink, motor will enter idling mode and low speed spinning. Pull the throttle stick down and rudder stick at the most left to lock motor (you can refer to the appendix at the end of this manual), after lock the motor, the green light will constant on, motor will not spin.

8 – Before the first time to flight

Before the first time to flight, please test your fly kit and transmitter control's direction, to make sure all direction are correct and avoid any improper install cause danger!

9 – Precautions

1	The range value of rudder suggest to $-100\% \approx +100\%$, rudder channel works with throttle channel are for lock and unlock motor. If you set the range $<85\%$, since different transmitters, you may not be lock and unlock the motor. If you think the stick range too wide, we suggest you to reduce the range of Ail and Ele only.
2	If you think the throttle control value too low, but the throttle channel rang already be $-100\% \approx +100\%$, then you should consider to check, you might be turn on the throttle holding when calibrate the transmitter. Please re-set the transmitter calibration and make sure you turn off the throttle holding.
3	Obvious shift happened during flight, please recalibrate transmitter and sensor, you can adjust via corresponding button to correct.

Appendix:

