User Manual

RAZOR

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MADE IN CHINA

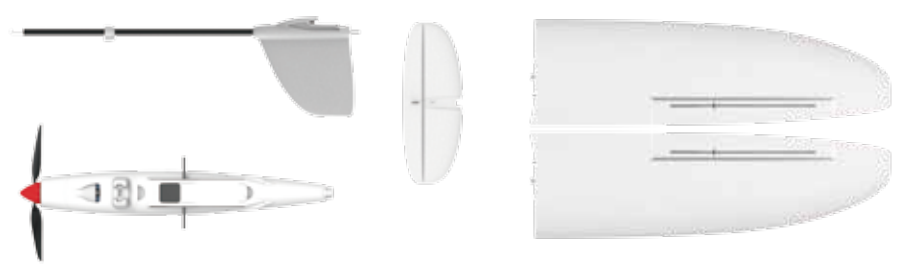
Brand Name: Eachine
Item Name: Razor
Material: High Quality EPO
Wingspan: 1200mm
Length: 817mm
CG：53.5mm from leading edge of main wing.
We Suggest setting the elevator control surface up about 5 degrees if you feel the plane nose heavy.

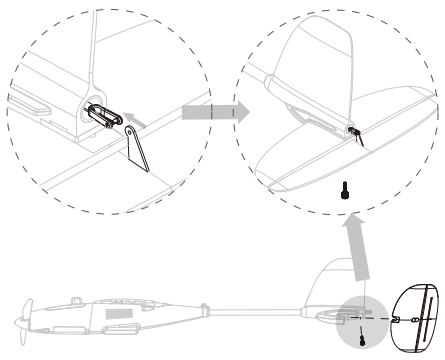
For KIT Version
Recommended Configuration
Motor: 2208–2600KV
ESC: 30A w/5V 2A BEC
Servos: 8g*3pc
Propeller: 7.5x4 Folding Prop
Recommended Battery：
Lipo 2S 1100–1500 mAh
Liion 18650 2S1P 3500mAh (Max)

For PNP Version
Default Configuration
Motor: 2208–2600KV
ESC: 30A w/5V 2A BEC
Servos: 8g*3pc
Propeller: 7.5x4 Folding Prop
Flight Controller: Eachine Safe–FC with GPS
Recommended Battery：
Lipo 2S 1100–1500 mAh
Liion 18650 2S1P 3500mAh (Max)

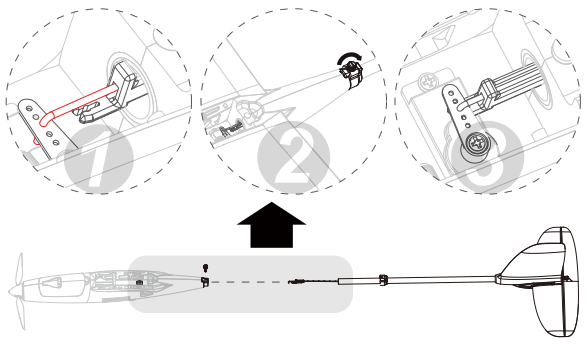
For FPV Version
Default Configuration
Motor: 2208–2600KV
ESC: 30A w/5V 2A BEC
Servos: 8g*3pc
Propeller: 7.5x4 Folding Prop
Flight Controller: Eachine Safe–FC with GPS
FPV Camera: Eachine AIO 400mw Camera with Vtx
Recommended Battery：
Lipo 2S 1100–1500 mAh
Liion 18650 2S1P 3500mAh (Max)

For RTF Version:
Default Configuration
Motor: 2208–2600KV
ESC: 30A w/5V 2A BEC
Servos: 8g*3pc
Propeller: 7.5x4 Folding Prop
Flight Controller: Eachine Safe–FC with GPS
FPV Camera: Eachine AIO 400mw Camera with Vtx
Radio Controller: Eachine 2.4Ghz 5ch
Default Battery：
Liion 18650 2S1P 3500mAh

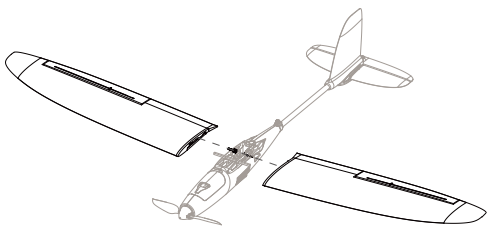




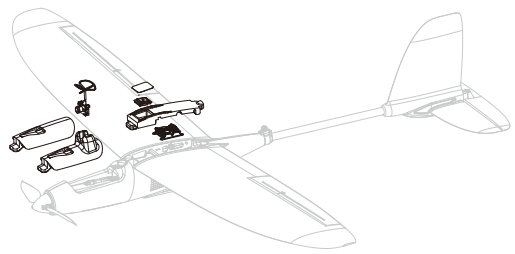
1. Install the horizontal stabilizer and make sure you are matching the hole on the tail section. Use the provided thumbscrew to lock the horizontal stabilizer in place. Connect the clevis to the hole of the control horn.



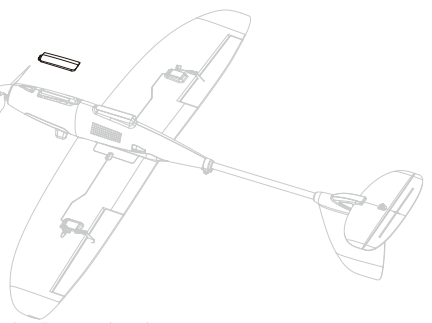
2. Install the tail boom following the graphics. The pushrod goes in the middle hole of the servo arm. Don't forget to lock the clevis against the pushrod when you are set. The tail should align perfectly with the motor. Once all is connected, lock the plastic part to hold the boom in position.



3. Insert the carbon fiber rod in the fuselage, and then connect the main wings, making sure both are touching the fuselage, then lock the main wings with the thumbscrews.

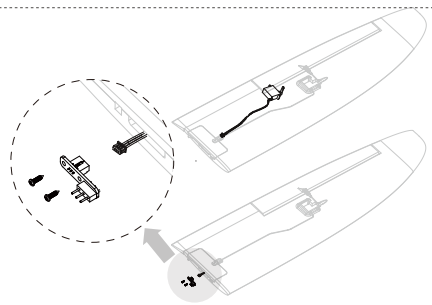


4. Install all your gear: Radio Rx, flight controllers, battery, etc. Check that all your surface are moving correctly before going to fly.

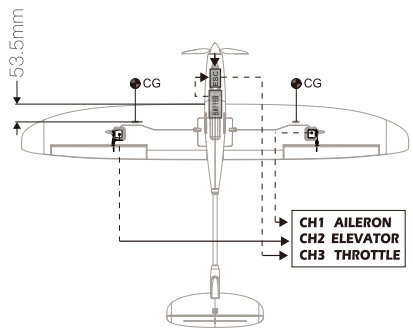


5. Close the Bottom hatch.

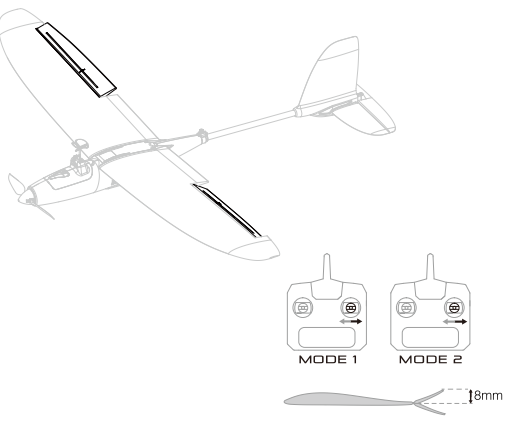
6. The extra FPV hatch can host most AIO cameras on the market and micro HD as well.

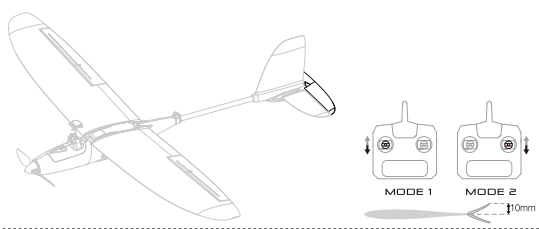


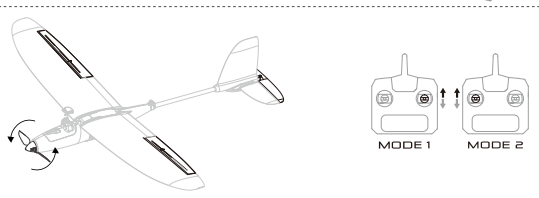
7. In case you ordered the KIT version, or you need to change a servo: Simple remove the screws that hold the servo connectors on the wings, disconnect the old servo and connect the new one, re–routing the cable in the same way it was before, screw the assembly back on and you are ready.



8. CG: 53.5mm from the leading edge







Introduction of Eachine Razor 2.4Ghz 5CH Radio Controller

Safety Precautions

- Never operate this product in bad weather conditions. Poor visibility will cause disorientation and out of control.
- Never use this product in a crowd or illegal areas, but in a space without interference.
- Always check all servos and their connections prior to each flying.
- Make sure to powering off the plane before turning off the Radio Controller.

Charge the Radio Controller

When the voltage becomes low, the green indicator will flash with a warning tone. Make sure to charge the radio with the accessory USB Cable to avoid the possible damage by over discharge.

Introduction of the Eachine Safe Flight Controller:

Important: Please make sure to remove the propeller when configuring the Flight Controller to avoid accidents

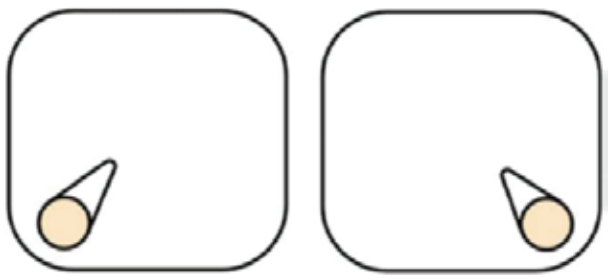
- The Eachine Safe–FC with GPS supports SBUS, PPM, PWM input; the default receiver is SBUS type.
- In SBUS, the FC will initiate RTH automatically in case the control signal was lost.
- In PPM and PWM, you have to set the fail–safe in your radio according to its own manual (while GPS still working) to get a proper RTH function working.
- You have to calibrate the radio for the first time use:
  1) Put the radio in default set, that means no mix–control, no joystick offset.
  2) The joysticks for aileron, elevator and rudder should be on the neutral position, throttle joysticks on the lowest position.
  3) Switch the Mode Switch quickly, and then the airplane control surface will move up and down, that means the radio calibration finish.

LED Status Table

Color	Blink	Constant on	Constant off
Red (GPS)	Number of Sat. <6	Number of Sat.>5	GPS not connected
Green (Mode)	Stabilizer Mode	RTH Mode	Manual Mode

When the Red and Green LED both quick flashes, means now is in Stabilizer calibration.

- After the radio calibration, you have to calibrate the airplane like below:
  1) Put the plane in a level position and the plane is at rest, then power the plane, please make sure it is not moving even with some wind.
  2) Put the joysticks like below for 3 seconds at least, until the 2 Green Lights keep Blinking, which means the calibration begins.
  3) When the 2 Green Lights back to normal, the calibration finished.



Unlock the Flight Controller

1) With GPS unit connected, the Flight Controller will be unlocked after the GPS unit gets contacted with the satellites (GPS indicator light changes to constant on from Blinking)
2) If GPS unit is not connected, the Flight Controller will be unlocked when power on.
   Note: In Manual Mode the motor will work when you start throttle, but in Stabilizer Mode and RTH (Return to Home) Mode, the motor will not work until the Flight Controller is unlocked.

Introduction of the 3 different Flight Modes in CH5

- RTH Mode: When switch to this Mode, the plane will fly back (about 13m/s) to the take off point, and then circle around at 70 meter altitude and 50 meter radius above the take off point, until you change to another Mode to control it. Please make sure to connect the GPS unit or the RTH will not work. When the altitude is less than 30m, if the throttle joystick is in the lowest position, the motor will not work.
- Stabilizer Mode: In this Mode, the radio and Flight Controller will control the plane's roll and pitch (max PITCH: 55°, max ROLL：55°), when the joystick go back to neutral, plane will keep level flying.
- Manual Mode: In this Mode, the Flight Controller is just a mixer; it doesn't take part in the control, just like normal manual flying.

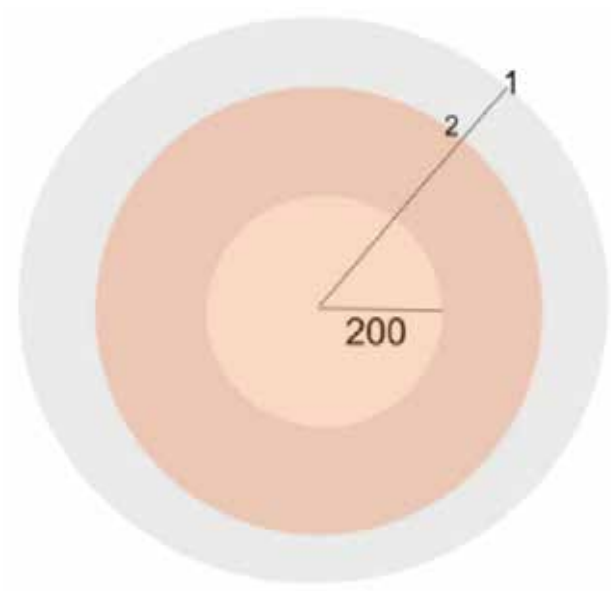
Introduction of the Auxiliary takeoff:

- Switch to RTH Mode.
- Move the throttle joystick away from zero position.
- Hold the plane and run until the propeller is spinning, then hand launch the plane, it will fly straight and climb to 30 meter altitude then circle around to climb to 70 meter altitude, until you change to other Mode to control it.

Introduction of the Low Voltage Return Home:

Important: The voltage detect connector is only for 2S battery. The Low Voltage Return Home function is only working in Stabilizer Mode, not in Manual Mode.

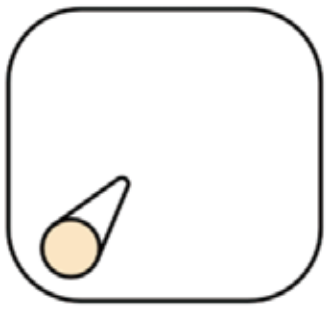
- Set the Low Voltage Return Home function: connect the battery charging port to the Flight Controller voltage DETECTION PORT, the Low Voltage Return Home function will be activated; otherwise, this function will not be activated.
- When the Flight Controller detect the battery voltage is less than 6.6V (single cell 3.3V), and the plane is more than 200m away from the take off point, the Low Voltage Return Home function will begin to work, the plane will fly back home automatically.
- You can't take over the control of the plane immediately when the Low Voltage Return Home function is 1activated and working, when it fly back for about 100m, the plane will be controllable, when you move any joysticks, the Low Voltage Return Home function will be deactivated, and you will take over the control of the plane, if you don't move any of the joysticks, the plane will fly back to the take off point and keep circling around above the take off point.
- Take below picture for example:
  1) When the plane activate the Low Voltage Return Home function in Point "1", it will begin to fly back, so you can't take over the control of the plane while it is flying from Point "1" to Point "2", the distance between "1" and "2" is less than or equal to 100m.
  2) After the plane reached to Point "2", you can deactivate the Low Voltage Return Home function and take over the control of the plane, the plane will be in Stabilizer Mode again.
  3) After you take over the control of the plane, it will not activate the Low Voltage Return Home function again, until you fly 200m far away from the take off point again.



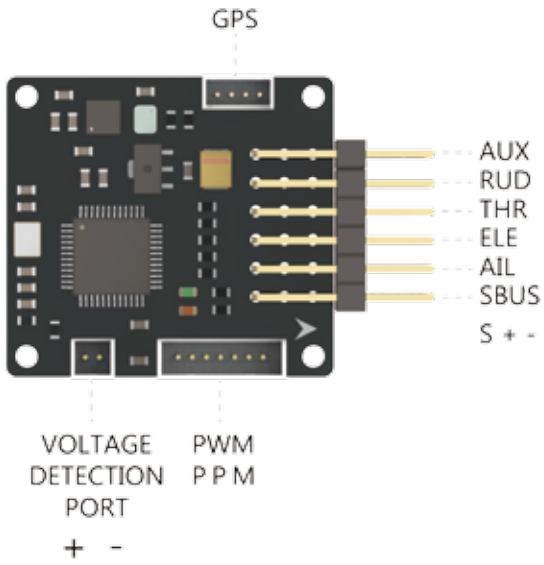
How to switch between 18650 Li–ion battery and Lipo battery:

In default setting, the Low Voltage Return Home function in this Flight controller is working for a 2S1P 18650 Liion battery, so it will be activated when the voltage is less than 6.6V (single cell 3.3V). When you use a 2S Lipo battery, it will be activated when the voltage is less than 7.4V (single cell 3.7V). You can switch between 18650 Liion battery and Lipo battery with the procedure shown below:

- Put the throttle joystick in the lowest position, then move the rudder to the leftmost position like in the graphic below.
- Hold on like this, then the elevator control surface will flap up and down.
- Release the joystick when it flaps for one time, now the setting is for 18650 Liion battery.
- Release the joystick when it flaps for two times, now the setting is for Lipo battery.



Connections Diagram



CAUTION:

This product is NOT a toy. Adult supervision is required for those under 14 years old. Improper adjustments and operation will result in damage to the item and/or injuries to the operator. Experience is required prior to handling this product.