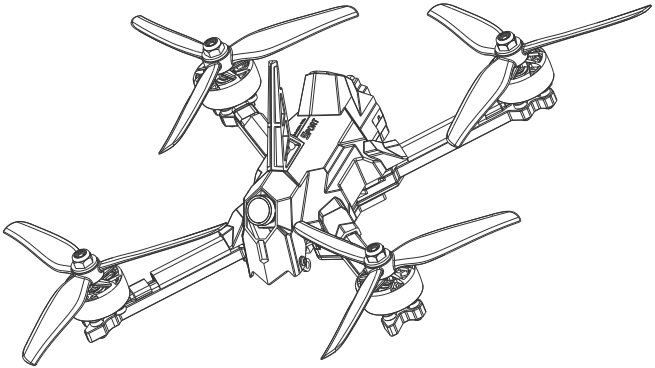
IFLIGHT
Flight Beyond Vision

MACH R5 SPORT

Quick Start Guide
快速入门指南

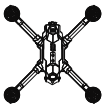


v1.0

I. Overview

The Mach R5 Sport aims to provide racing pilots a high-quality finished FPV drone while still allowing for DIY customization. By utilizing carbon plates and plastic components, the internal structure layout has been significantly improved. This not only facilitates easy maintenance but also reduces the weight of the drone while enhancing overall stability. The organized space layout guarantees that hardware components can be positioned logically, thus minimizing the risks of damage from crash impacts.

Packing List



Mach R5 Sport x1



CW Propellers x4



CCW Propellers x4



Sharkfin x1



Quick-release Buckle x1



Battery Pad x2



Battery Strap x2



Accessory Pack x1



Sticker x1

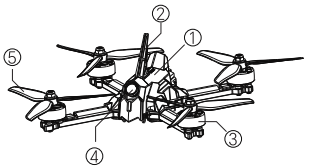


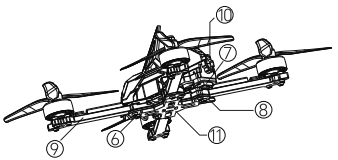
Safety Warning Card x1



Disclaimer x1

External Parts



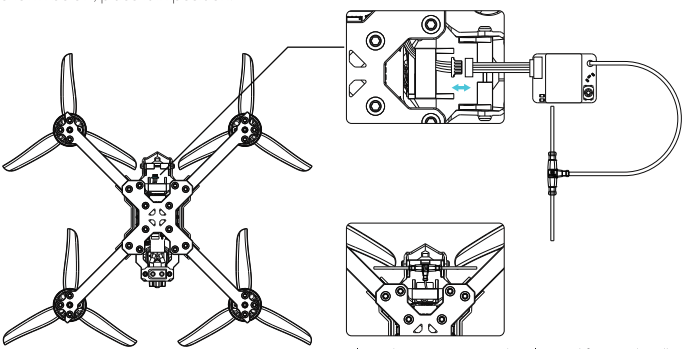


① Canopy Cover ② Sharkfin ③ Motors ④ Camera ⑤ Propellers
⑥ Receiver ⑦ XT60 ⑧ Bottom Plate ⑨ Arms ⑩ Quick-release Buckle
⑪ Battery Pad

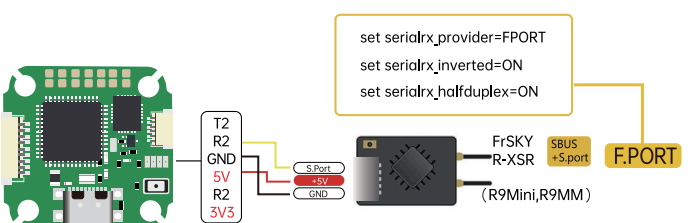
II. Binding Instruction

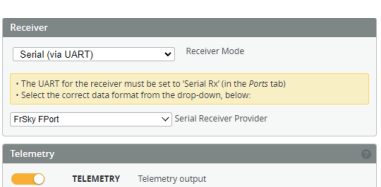
1. PNP Wiring Diagram

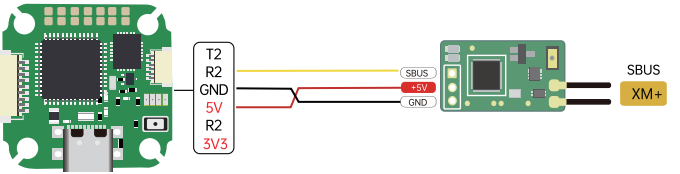
The PNP version has reserved a wire for customers to connect TBS, ELRS, etc. Connect the receiver to the antenna and wire, then plug in the reserved wire, place the receiver antenna into the receiver antenna slot, use a tool (tweezers) to arrange the excess wires neatly and stuff them into the inside of the drone (or open the canopy cover according to the "Flip-top cover operation diagram" for more convenience). After connecting the receiver antenna and terminal wire as shown below, place it in position.

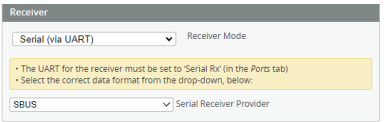


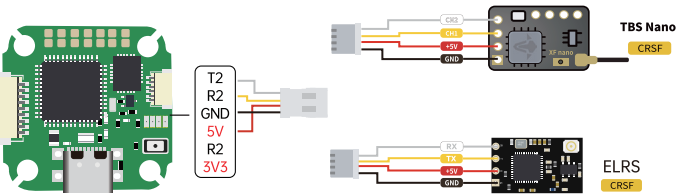
Place the receiver into the slot and fix it with adhesive

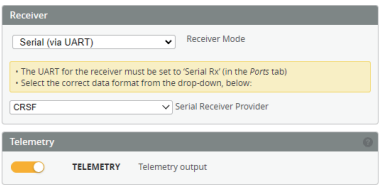





T2
R2
GND
5V
R2
3V3
SBUS
+5V
GND
SBUS
XM+

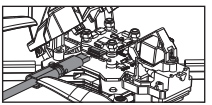

Receiver
Serial (via UART)
Receiver Mode
• The UART for the receiver must be set to 'Serial Rx' (in the Ports tab)
• Select the correct data format from the drop-down, below:
SBUS
Serial Receiver Provider


T2
R2
GND
5V
R2
3V3
CH3
CH1
+5V
GND
TBS Nano
CRSF
RX
TX
+5V
GND
ELRS
CRSF


Receiver
Serial (via UART)
Receiver Mode
• The UART for the receiver must be set to 'Serial Rx' (in the Ports tab)
• Select the correct data format from the drop-down, below:
CRSF
Serial Receiver Provider
Telemetry
TELEMETRY
Telemetry output

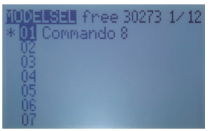
2. Receiver Binding Methods + Steps (ELRS+TBS)

1. Traditional Binding Procedure (Example: iFlight ExpressLRS 900TX)

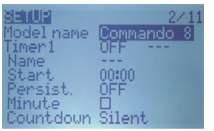


Plug and unplug the USB port for three times

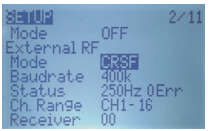
Power on and off the aircraft for three times, or plug and unplug the USB port for 3 times to supply power to the receiver when the aircraft is power off, the blue LED will start to double flash continuously. BIND mode active.



1.Once you power on the radio, press and hold the the Model setup to enter the MODELSEL page.



2. Press Next Page to enter the SETUP page.



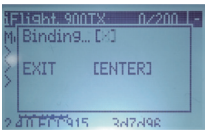
3. Scroll down to External RF and select CRSF.



4. Select the ExpressLRS LUA scrip (latest version installed). Press to enter.



5. Scroll down to Bind, press Enter to enter the binding mode. Bind mode active.



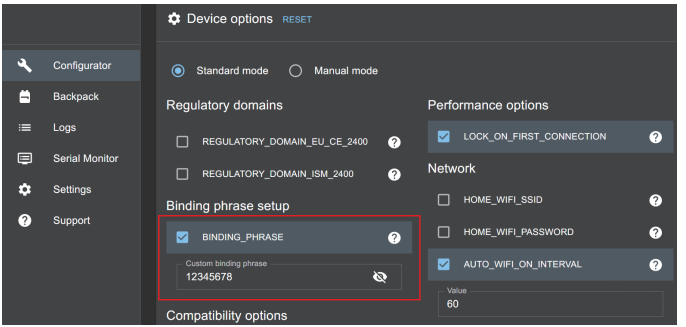
6. After binding, the blue LED on the receiver will turn to solid blue. Bind was successful.

[Caution]

1. Be quick with this process and set the receiver in binding mode first
2. After the binding process is completed, it's recommended to re-power receiver and transmitter.
3. The distance of receiver and transmitter should be more than 1m during the process.
4. The receiver firmware version should be consistent with the transmitter firmware version. If you can't bind your hardware, please try to update to the latest firmware.
5. If you can't bind your equipment, please try to reboot and several times if necessary.

2. Using Custom Binding Phrase

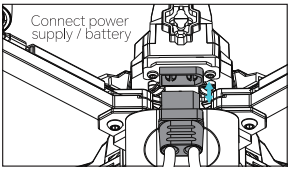
When flashing the latest ELRS firmware for Receiver and Transmitter, just set a unique custom binding phrase to automatically bind all your hardware. Do not set a too simple binding phrase, otherwise other pilot's devices with the same binding phrase might link up as well.

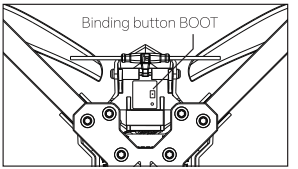


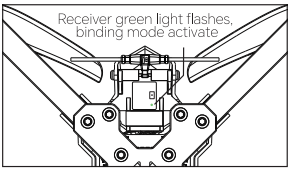
For more specific information please refer to the ELRS quick start tutorial on the official website.

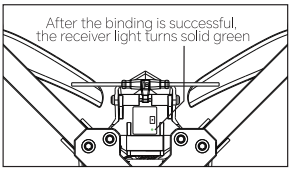
TBS Crossfire Binding Method: Using Button Binding

Power on the aircraft and after the aircraft completes self-check, use tweezers to short press the TBS Crossfire receiver BOOT button. If the green light flashes, it means binding mode activate. Enter the TBS Crossfire transmitter or TX module settings page, scroll down to [BIND], press the button to enter. After successful binding, the TBS Crossfire receiver indicator light will turn to solid green.



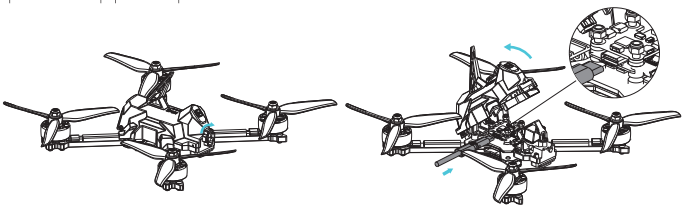






III. Betaflight Installation and Setup (FC Connection Diagram)

Turn the quick-release buckle 90° to the left or right and remove the buckle to open the canopy upwards for equipment replacement or maintenance.

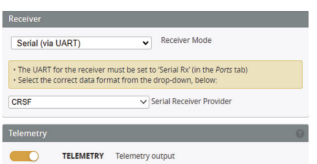


Download Betaflight Configurator and connect to FC

a. Receiver Port/Protocol

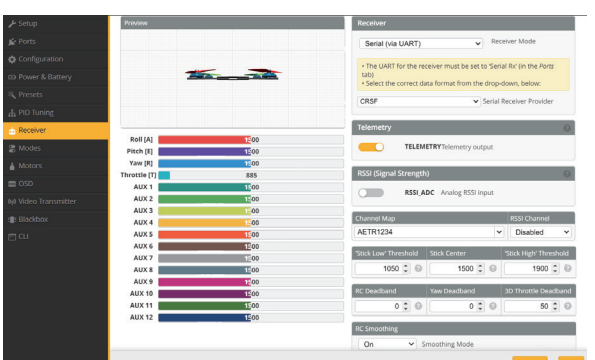
ELRS/TBS Receiver: CRSF





b. Channel Map Setting

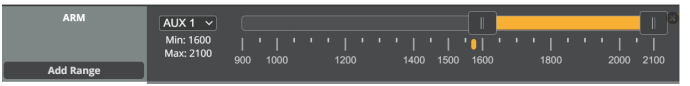
Receiver Channel Map: "AETR1234" Mode 1 Throttle, "TAER1234" Mode 2 Throttle



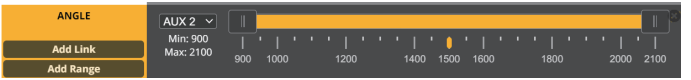
c. Mode Switch (Default Angle)

The default mode is Angle, and customers can also switch to other modes.

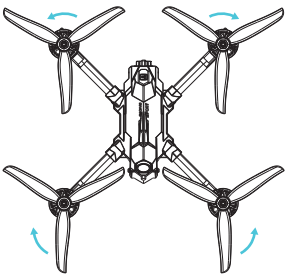
ARM: ARM/DISARM channel switch for arm and disarm the aircraft, default factory setting is AUX1, low range for disarm, high range for arm, The icon is lit to indicate arm, the icon is grey to indicate disarm.



ANGLE: Angle channel switch, used to tum on the Angle flight mode, the default factory setting is AUX 2, this mode remains on throughout the flight. The icon is illuminated to indicate Angle mode is on, the icon is grey to indicate Angle mode.



IV. Propellers Installation - Diagram



Identify CW & CCW propellers and install them correctly on the aircraft.

V. Pre-Flight Check

1. Make sure the aircraft batteries are fully charged and there is no obvious damage, deformation or leakage in the battery.
2. Make sure the battery model is compatible with the aircraft and the voltage specification is correct (e.g. for 6S battery, it should be about 22.2V).
3. Make sure the aircraft battery is properly connected and secure, there is no looseness, dirt or damage.
4. Make sure the transmitter is powered on and linked to the aircraft, and make sure the receiver indicator light flashes normally or shows connected.
5. Make sure the motor rotates in the right direction, take off the propellers and connect the aircraft to Betaflight Configurator, then push the throttle to confirm the rotation on the motor page.
6. Make sure propellers are in good condition and mounted onto the motors correctly and securely

7. Only fly in open areas without tall buildings and large metal structures around. Buildings with a large number of concrete irons will affect the signal and interfere with the flight. It is recommended to fly at least 10m away from buildings, poles, obstacles, etc.
8. If it is the first flight or after a major upgrade, it is recommended to conduct a ground test first to make sure all functions are normal before flying in the air. These preventive inspections can effectively reduce flight accidents caused by negligence and ensure the safe operation of FPV drones..

VI. Takeoff/Landing

Takeoff Procedure:
Start by pushing the throttle to the lowest position, then gradually increase it to lift the aircraft approximately 10-20 centimeters off the ground. Once the aircraft's attitude is stable, throttle down and disarm the remote controller. Put on FPV goggles or face the monitor (such as a handheld monitor), arm the remote controller and slowly increase the throttle to smoothly ascend.

Landing Procedure:

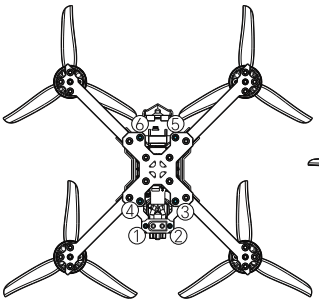
1. Decrease altitude, before landing, gradually lower the aircraft to an appropriate altitude, maintaining a stable flight speed and attitude.
2. Approach landing spot, control the aircraft to slowly approach the pre-selected landing area, preferably using a gliding approach to better control the distance.
3. Reduce throttle, slowly decrease throttle output to allow the aircraft to land slowly.
4. Disarm the aircraft when it touches the ground or is 5-10cm away from the ground, be careful to avoid hard landings that could cause damage.
5. After landing, immediately unplug the battery to power off the device to avoid injury.

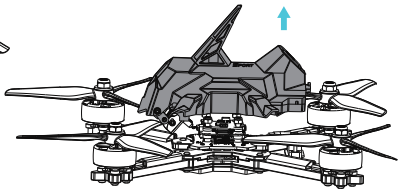
Precautions:
- Monitor battery level: During flight, check the OSD battery level display on FPV goggles or monitor. Judge based on flight distance (the farther the distance, the earlier the return) and consider returning for landing when single cell voltage drops to 3.7V.
- Observe surroundings: Before landing, double-check the surrounding environment for safety, ensuring no people or animals are in the landing area.
- Disconnect battery: After landing, unplug the battery immediately to power off the device and avoid accidentally triggering the remote controller switch, which could lead to dangerous situations. Ensure the throttle on the remote controller is at zero and the connection to the aircraft is disconnected before removing the battery.

VII. Possible Reasons for Successful Binding but Failure to Disarm

1. Check if the actual wiring of the serial port and receiver protocol settings match the serial port connected to the receiver.
2. Conflicting mode settings leading to arm failure, verify the mode settings on Betaflight Configurator.
3. Verify if the motor options are set to bidirectional DShot and if the ESC supports bidirectional DShot on Betaflight Configurator.
4. Make sure the receiver channel presets match those of the transmitter.
5. Aircraft may be unable to arm at tilted angles, check the maximum arm angle setting on the Betaflight configuration page.
6. Aircraft with GPS pre-installed may fail to arm due to unsuccessful satellite acquisition, check if GPS rescue in the fail-safe settings is enabled.

VIII. Steps to Replace the Canopy with Carbon Top Plate





Remove the six screws at the bottom , open the top cover of the canopy and disconnect the wires from the camera, receiver, and VTX antenna. Remove the electronic components, including the camera, receiver, and VTX antenna. Replace them with the screws pack from the carbon top plate kit, following the standard Mach R5 Sport installation procedure. Refer to the video for specific instructions.

IX. Disclaimer

This product is not a toy and requires a certain level of knowledge to control, so it should be approached gradually. Before using, please pay special attention to the notices and warnings in the <iFlight Disclaimer and Safety Guidelines>.

IFLIGHT INNOVATION TECHNOLOGY LIMITED

TEL：+86752-3866-695
Email：support@iflight.com
Website：www.iflight.com
ADD：6th Floor, Building B2, Galaxy IMC, Beixin Road, Zhongkai Avenue, Huizhou 516006, Guangdong, CHINA

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