



# F121 Pro

**Mini Racing Drone with Manual Mode  
Altitude Hold by Inertial Navigation**

**User Manual**

V 1.1



\* Please be kindly noted that this manual will be updated regularly and please visit RadioLink official website to download the latest version : [www.radiolink.com](http://www.radiolink.com)

**Thank you for purchasing RadioLink mini racing drone F121 Pro.**

To fully enjoy the benefits of this product and ensure safety, please read the manual carefully and set up the device as instructed steps.

If any problems found during the operation process, either way listed below can be used as online technical support.

1. Send mails to [after\\_service@radiolink.com.cn](mailto:after_service@radiolink.com.cn) and we will answer your question at the earliest.
2. If purchased from an approved dealer or distributor, you can contact them directly for support.

All manuals are available on RadioLink official website [www.radiolink.com](http://www.radiolink.com) and more tutorials are uploaded.

**SAFETY PRECAUTIONS**

- Never operate models during adverse weather conditions. Poor visibility can cause disorientation and loss of control of pilot's model.
- Never use this product in a crowd or illegal areas.
- Always ensure the trim levers of the transmitter at 0 and battery properly charged before connecting the receiver.
- Stay at a certain distance from the aircraft during flight to avoid getting hurt by the components of high-speed rotation (e.g., Propellers, brushed motors)
- After landing off, make sure the aircraft is disarmed and propellers have stopped moving before getting close to touch the aircraft.
- Always be sure about turning off the receiver/powering off the aircraft before the transmitter.
- Follow the instructions of propellers installation in case of dropping during flight.
- To ensure the best radio communication, please enjoy the flight at the space without interference such as high voltage cable, communication base station or launching tower.

**WARNING**

This product is not a toy and is **NOT** suitable for children under the age of 14. Adults should keep the product out of the reach of children and exercise caution when operating this product in the presence of children. Water or moisture may enter the mini drone and the transmitter through gaps of electronics and cause model instability, even out of control. If flying in the wet weather (such as game) is inevitable, always use plastic bags or waterproof cloth to cover the transmitter.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference, and prevents external wireless interference, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

# CONTENT

Chapter 1 Features of F121 Pro .....	2
Chapter 2 Before Flight .....	2
2.1 Power Supply .....	2
2.2 Transmitter .....	2
2.3 F121 Pro .....	3
Chapter 3 Get Ready to Flight .....	6
3.1 Motor Installation .....	6
3.2 Propellers and Propeller Protectors Installation .....	7
3.3 Power on F121 Pro .....	8
3.4 Flight Note .....	8
3.5 Setup Compatible Transmitters .....	8
3.6 Binding .....	9
Chapter 4 Flight at Different Flight Modes .....	10
4.1 Arm and Disarm F121 Pro .....	10
4.1.1 How to Arm .....	10
4.1.2 How to Disarm .....	11
4.2 Altitude Hold Mode .....	11
4.2.1 Rise/Descend .....	11
4.2.2 Hover .....	11
4.2.3 Forward/Backward/Right/Left .....	12
4.2.4 Clockwise/Anticlockwise Rotation .....	12
4.3 Stabilize Mode .....	12
4.4 Manual Mode .....	12
4.5 Switch for 360 Angle Flips Mode .....	12
4.6 Low Battery Alarm .....	13
4.7 Calibration .....	13
Chapter 5 Image Transmission of F121 Pro .....	14
Chapter 6 FPV Goggles of F121 Pro .....	15
6.1 Buttons and Connector .....	15
6.2 FPV Goggles' Battery .....	16
6.3 DVR Mode .....	16
6.4 Assembly and Disassembly of Goggles .....	16
Chapter 7 Specification .....	16
7.1 Aircraft .....	16
7.2 Remote Controller .....	17
7.3 Charger .....	17
7.4 Camera & Video Transmission .....	17
7.5 FPV Goggles .....	17

## Chapter 1 Features of F121 Pro

As the mini racing drone that can fly at high speed at Altitude Hold Mode, F121 Pro is very easy to master for drone freshman. The inertial navigation system technology blending Kalman filtering, gyro, accelerometer, and barometer makes F121 Pro possible to flight through narrow space with accuracy and hold altitude even it's less than ten centimeters height to the surface or at high speed.

F121 Pro have three flight modes that AltHold Mode, Stabilize Mode and Manual Mode. Even beginners can flight stably at the first trial at AltHold Mode.

F121 Pro is monitored by RadioLink mini racing drone flight controller F121, which is different from other flight controllers with PID needs to be set before use, will tune automatically. The software noise reduction technology not only enables a more pleasant flight but also makes the motors more responsive and more efficient than traditional 8520 brush-less motors. It can be thrown and start to fly at any angle even under high-speed and remains stable even facing with sudden airflow fluctuations such as during takeoff, under braking, or after extended flying. Without compass locking, F121 Pro always automatically modify angles during flight.

## Chapter 2 Before Flight

### 2.1 Power Supply

**Power for transmitter T8S:** Make sure the transmitter is fully charged.

**Power for F121:** The voltage of 1S LiPo battery packed with F121 Pro by default is not fully charged so the battery needs to be charged with the charger CM120 before flight.

The LiPo battery charger CM120, specially designed for 1S LiPo battery, sharing the professional development and high precision of CB86PLUS, ensures safer charging and battery life span.



Charging current can be set as 1A or 2A by toggling the switch at the side of the charger.

The Red LED always on indicates the battery is under charging. The Green LED always on indicates the battery is fully charged. The Red and Green LED Flashing alternately indicates fault prompt.

CM120 applies general USB connector, both computer and power bank for mobile phone can be used with CM120.

**Note** Voltage output of power supply should be NO higher than 5V.

### 2.2 Transmitter

The two joysticks of T8S correspond to the four basic channels respectively. The below example takes RadioLink radio T8S Mode 2 (Throttle on the left stick).

#### Left joystick

Make the F121 Pro rise or descend by toggling the left stick (THROTTLE) vertically upward or downward and turn clockwise or anticlockwise by toggling the left stick (YAW) to the left or right.

#### Right joystick

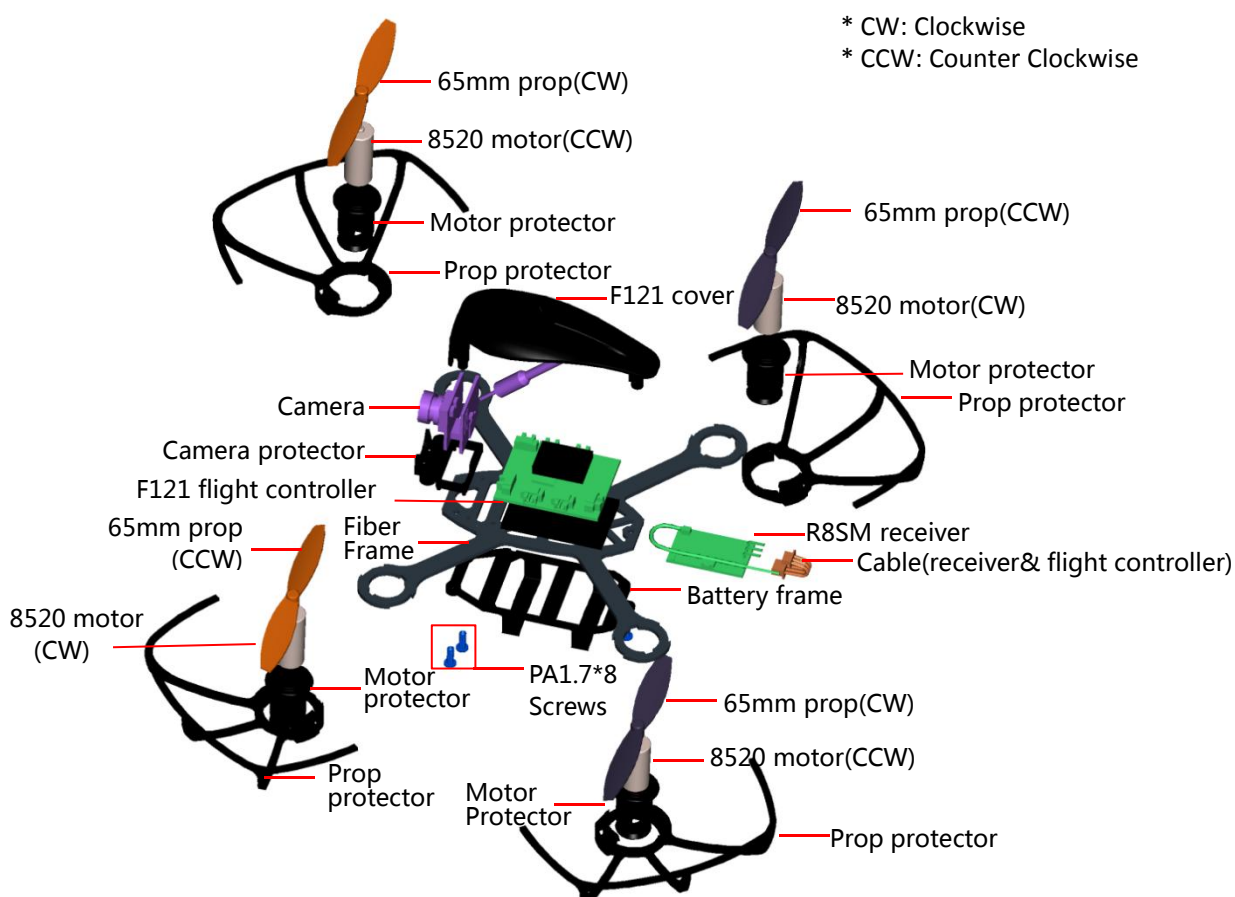
Make the F121 Pro fly forward or backward by toggling the right stick (PITCH) vertically upward or downward and to left or right by toggling the right stick (ROLL) to the left or right.



**Note** If it's the transmitter from other brands used with RadioLink F121 Pro, make sure that the receiver should be SBUS signal output supported. Once the receiver is installed on the mini drone, the phase of the throttle should be reversed while the other three channels normal and the CH5 should be set with a 3-way switch to change the flight mode and the CH7 set a switch (a 2-way switch or a 3-way switch is OK) for arm or disarm. Servo phases of transmitters from other brands should be set according to the actual situation.

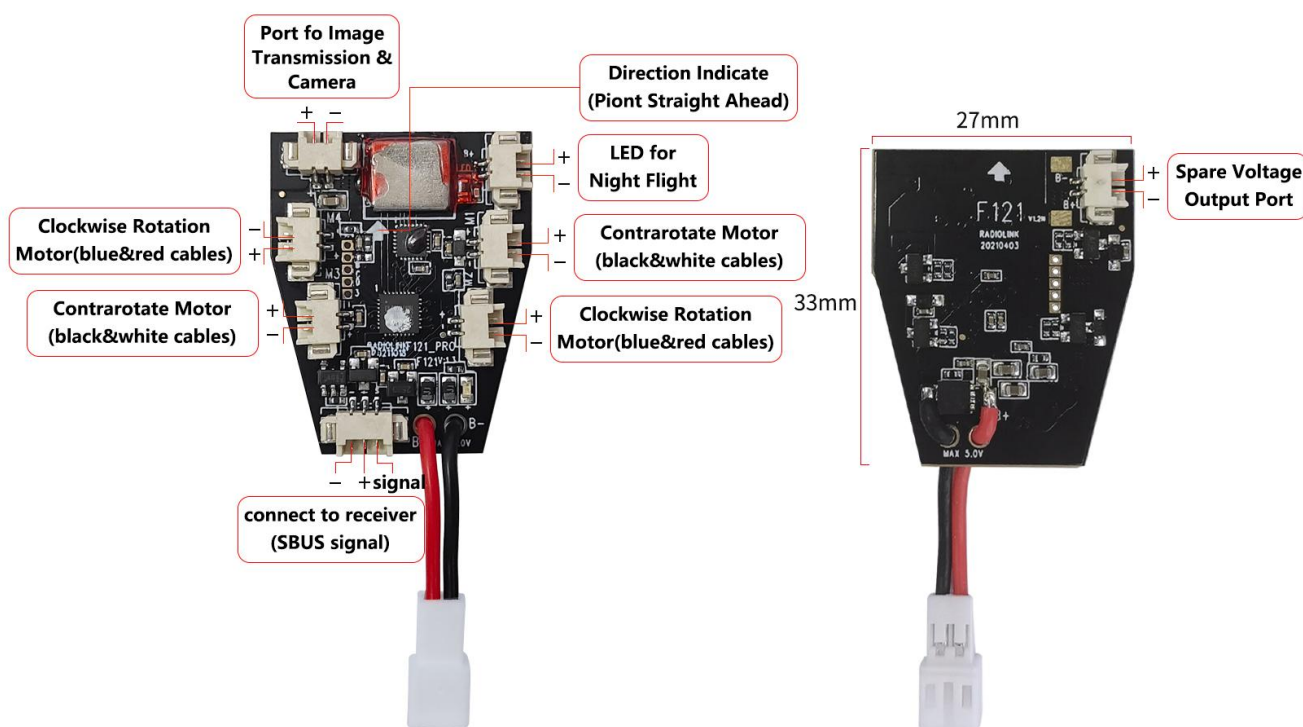
## 2.3 F121 Pro

Assembled as building block makes the RC students exercise their DIY ability and free from lengthy mobile games. Learning knowledge of science and technology when assembling, setting parameters and flight.



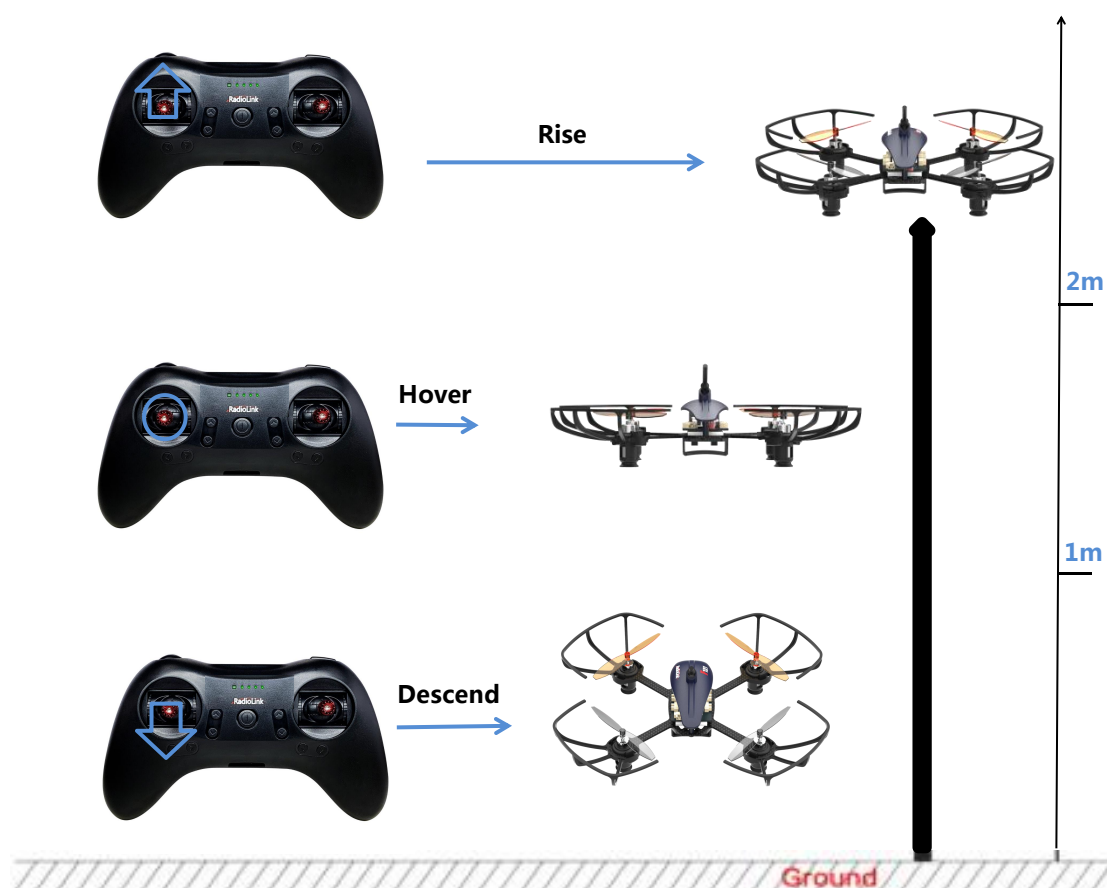
\*There are screws packed with F121 Pro to ensure the firm installation of the propeller's protector to the F121 Pro frame even with collision. Pilots can fix them on as necessary.

### Flight Controller for F121 Pro



Toggle the throttle stick (on the left) vertically upward and F121 Pro will rise and toggle the throttle vertically downward, then F121 Pro descends.

If at Alt-Hold Mode, toggle the throttle stick vertically upward till the F121 Pro rises to the preferred height, then toggle back to center position and release, the F121 Pro will remain at this height.





### B. Yaw: Clockwise/Anticlockwise

Toggle the yaw stick (on the left) to the left and F121 Pro will turn anticlockwise and toggle the yaw stick to the right, then F121 Pro turns clockwise.



**Yaw stick to the left, F121 Pro turns anticlockwise**



**Yaw stick to the right, F121 Pro turns clockwise**

### C. Pitch: Forward/Backward

Toggle the pitch stick (on the right) vertically upward and F121 Pro will fly forward and toggle the pitch stick vertically downward, then F121 Pro flies backwards.



**Pitch stick upward, F121 Pro moves forward**



**Pitch stick downward, F121 Pro moves backward**

### D. Roll: Right/Left

Toggle the roll stick (on the right) to the left and F121 Pro will fly to the left side and toggle the roll stick to the right, then F121 Pro will fly to the right side.



**Roll stick to left, F121 Pro fly to the left side**

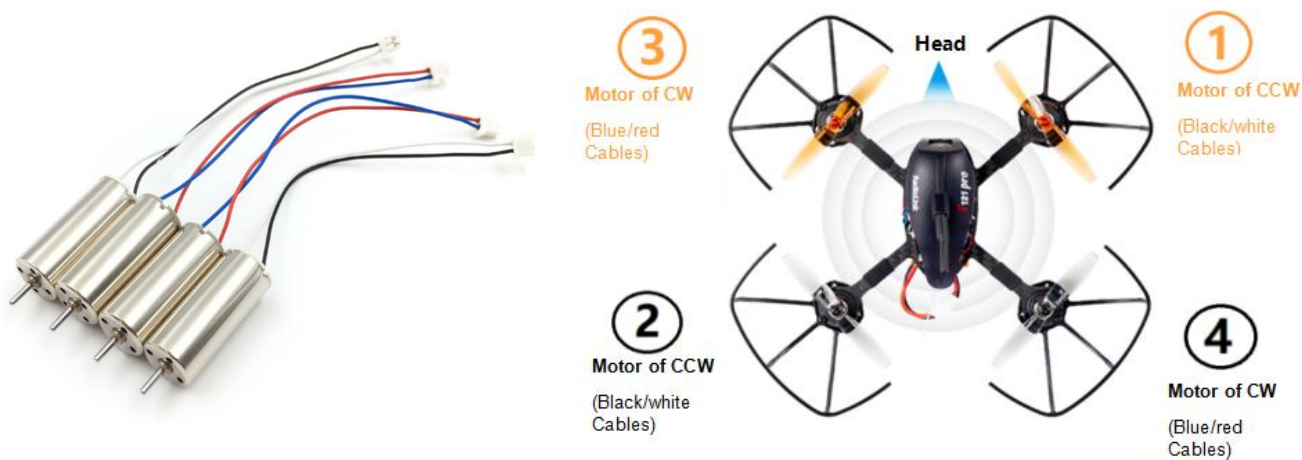


**Roll stick to right, F121 Pro fly to the right**

## Chapter 3 Get Ready to Flight

### 3.1 Motor Installation

To make the aircraft fly, motors usually rotate clockwise (CW)/counterclockwise (CCW) with the propellers. The rotation direction of F121 Pro motors can be identified by the cable colors. That is, motor with red and blue wire means motor of clockwise (CW) while with black and white wire means that of counterclockwise (CCW). It is very important to make sure about the rotation direction as below when installing motors. Otherwise, the drone would fail to take off.



\* Motors installation can be skipped as the whole F121 Pro is already assembled by factory default. If any of the motors is worn out and needs to be replaced, it's essential to identify the correct motor rotation.



### 3.2 Propellers and Propeller Protectors Installation

F121 Pro is installed propellers protector by factory default, you can follow the steps below if you need change them. To ensure a safety flight, it's strongly advised to check if the protectors are well installed.

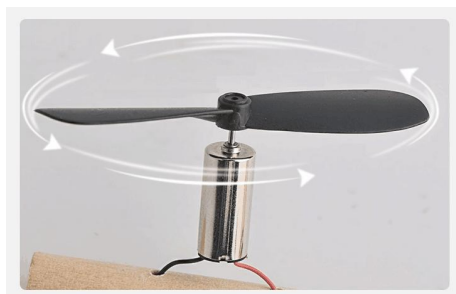
- ① Find the two notches respectively on the motor protector and propeller protector as image on the right.
- ② Put on the propeller protector from the bottom and adjust the position of the notches correspondingly.
- ③ Stabilize the frame with left hand and buckle the notch of one side with right hand. Then buckle the notch of the other side with left hand. A “DA” sound will be heard if the installation is done with success.
- ④ Extra 4 screws are in the package and pilot can installed on the propeller protector as prefer.



**Note** After the installation of the four propeller protectors, double confirm if they are leaning or slightly shake F121 Pro to see if they drop. If they are crooked or drop, repeat the above steps to ensure the well installation.

Propeller installation can be skipped as the whole F121 Pro is already assembled by factory default. If the default propellers get worn and needs to be replaced after a period of flight, it is important to well identify the rotation direction of propellers. If installed incorrectly, F121 Pro can't take off even the throttle is pushed to max.

In order to identify the propellers rotation, take a propeller and observe there's a radian at both sides of the small cylinder in the middle. The higher part (also called windward side) of the right propeller is at the front and the rotating motor will make propeller rotate counterclockwise (CCW). On the contrary, that is clockwise (CW) rotation. For the 65mm GEMFAN propellers used on F121 Pro, there are two marked with a letter R, meaning they should be installed on the motors of clockwise.



When the installation is done, make sure the four motors are vertical to the aircraft frame. If necessary, adjust them to vertical positions, otherwise F121 Pro may not flight successfully.



### 3.3 Power on F121 Pro

Before powering on F121 Pro, make sure T8S is fully charged. Put the throttle stick at the lowest position and long press power key to power on T8S. Then power on F121 Pro. Fully charge the 1S LiPo battery first. Plug the PH2.0 end of the battery into the F121 Pro, then insert the battery into the battery frame under at the bottom of F121 Pro.

- (1) Orange propellers indicates the head of F121 Pro by default. make sure they point to the same direction as the pilot when powering on and be ready to fly, to ensure safety.
- (2) The green LED of F121 Pro will begin flashing when powered on. When it's off, it means F121 Pro finishes calibration.

**Note** Head direction is determinate. If F121 Pro is calibrated with the direction different from the default, it will turn back to the default direction automatically when starts flying, that's what we called Head Front Forward Point Without Compass.

### 3.4 Flight Note

If it's the first time of flying drone, flight mode of Altitude Mode is strongly advised to set. At the Altitude Mode, when toggle the throttle upward till the drone reaches a certain height and release, F121 Pro will remain at this height. It's simpler because pilots only need to toggle the other joystick to make the F121 Pro move forward/backward or turn left/right. If it's the Stabilize Mode especially Manual Mode chosen, try to toggle the joysticks slightly to correct the flight and avoid the drone having sudden moves.

If F121 Pro drops by hitting something, toggle the throttle joystick to the bottom position immediately to stop motor rotation.

Make sure the signal output of receiver is SBUS to ensure normal operation of F121 Pro. For RadioLink receivers(R8SM/R6DSM) installed on F121 Pro, the LED indicator is blue/purple when it's SBUS working mode.

### 3.5 Setup Compatible Transmitters

By factory default, RTF version of F121 Pro is packed with the transmitter T8S and receiver R8SM combo.

Receiver R8SM is also compatible with RadioLink T8FB. If you ready to change the transmitter to AT10/AT10II/AT9/AT9S/AT9S Pro to control the F121 Pro, compatible receiver should be R6DSM.

When using transmitters and receivers from other brands, please note:

1. Check the minimum working voltage of the receiver.

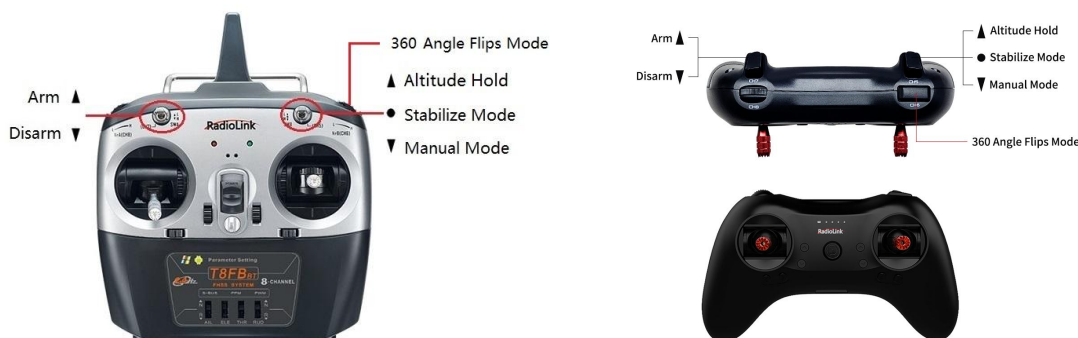
The minimum working voltage of many mini receivers on the market can only reach 3.7V, while aircrafts with coreless motors are usually powered by 1S 4.2V lithium batteries, and the voltage of the aircraft can easily drop below 3.7V during high-speed flight. Then the receiver will lose control due to insufficient power supply, and the aircraft will crash. So if you use transmitters and receivers from other brands, please pay attention to the minimum working voltage of the receiver. The minimum working voltage of RadioLink R8SM, R8FM, R6DSM mini receivers and F121 flight controllers can work well even when it reaches 2.3V.

2. Please make sure that the receiver you are using supports SBUS signal.

#### T8FB/T8S

RadioLink 8-channel transmitter are well set by factory default with the flight modes. To control F121 Pro, binding is the only thing needs to be done.

There are three flight modes for F121 Pro including Altitude Mode, Stabilize Mode and Manual Mode. It can be changed by pressing the three-way switch on the right of T8FB- SWB or of T8S- CH5 as below



### AT9S Pro/AT9S/AT9/AT10/AT10II

- ① Enter BASIC MENU, select MODEL TYPE and choose MULTIROTOR.
- ② Back to BASIC MENU, select REVERSE and set CH3 Throttle as REV.
- ③ Back to BASIC MENU, select AUX-CH and set CH7 control switch as SwA.
- ④ Enter ADVANCE MENU, select ATTITUDE and set the CHANNEL as CH5, SW3 as SWC with up position as AltHold Mode, middle position as Stabilize Mode and low position as Manual Mode.

[ADVANCE MENU]		[ATTITUDE]		
<MULTIROTOR		CH:CH5	SW3:SwC	SW2:SwA
Model-005>		-rate-	-posi-	-swt-
ATTITUDE		ATTI.: 0%	(UP-UP)	(ON )
THR-CURVE		STABL.: 50%	(CT-UP)	(OFF )
PROG. MIX		NORMAL: 100%	(DN-UP)	(OFF )
SERVO-DLY		HOVER : 25%	(UP-DN)	(OFF )
THR-HOLD		F/S : 75%	(CT-DN)	(OFF )
		AUX : 50%	(DN-DN)	(OFF )



\* For more setting instructions of different RadioLink transmitters, please visit [www.radiolink.com](http://www.radiolink.com) to download the corresponding detailed e-manual.

### 3.6 Binding

There's no need to bind because the binding is complete with receiver R8SM installed by factory default if the RTF version (whole pack including T8S+F121+bag) you have purchased.

However, if you want to change the control transmitter, binding between the transmitter and receiver needs to be done first.

If fly F121 Pro with RadioLink transmitter and receiver, binding steps are same as following.

- ① Place the transmitter and receiver(installed on F121 Pro) close to each other within 50 centimeters.

- ② Power on the transmitter and the receiver.
- ③ There is a black binding button(ID SET) on the side of the receiver, press it for more than 1 second. When the LED starts flashing, meaning binding process has started.
- ④ The binding is complete when the LED is always on.
- ⑤ Make sure F121 Pro is armed (Details in next section). Gently push the throttle of transmitter to see if motors move. If doesn't, retry binding again.



#### Note

- F121 Pro currently supports SBUS signal output only, always make sure the LED of R8SM/R6DSM is blue/purple, meaning SBUS signals output. If the LED is red, press the binding button twice in 1 second and release to change it to purple/blue.
- If it's the transmitter of AT9S Pro/AT9S/AT10/AT10II used, channel quantity needs to be set first in order to be compatible with receiver R6DSM. Long press MODE to enter BASICE MENU, select SYSTEM and modify CH-SELECT as 10CH. Otherwise, F121 Pro won't be able to be armed.

## Chapter 4 Flight at Different Flight Modes

It's strongly advised for beginners to start from Altitude Hold Mode to then to Stabilize Mode.

It's better to keep the direction of F121 Pro head same as pilot in order to easily judge the flight direction. Otherwise, F121 Pro may flight towards pilot and get him/her hurt. If the aircraft head is changed unexpectedly and different from pilot's direction, pull the throttle stick to the lowest position to land F121 Pro.

Experienced pilots can control the F121 Pro with the Manual Mode to enjoy the funny freestyle and racing time.

### 4.1 Arm and Disarm F121 Pro

#### 4.1.1 How to arm

When the throttle is at the lowest position, press the CH7 switch (the 3-way switch on the left of T8S) towards the back of T8S, the green LED of F121 Pro is on means arm successful. When the transmitter is T8FB, push the throttle to the lowest position and then put the CH7 switch (the 2-way switch on the left) to the top position to arm. If you use the other transmitter except the T8S or T8FB to control the F121 Pro, set a 2-way switch to control the CH7, and when the throttle is at the lowest position and the switch at the top position, the green LED of F121 Pro is on means arm successful. For security reasons, F121 Pro will be disarmed automatically if there is not any operation of the throttle for 5 seconds. So arm F121 Pro again when the flight is ready.





#### 4.1.2 How to disarm

When the flight is finished, always make sure F121 Pro is disarmed when get close and try touching it to avoid unexpected harm. Always be sure about turning off F121 Pro before T8S.

Press the CH7 switch (the 3-way switch on the left of T8S) towards the front of T8S, the green LED of F121 Pro is off means disarm successful. When the transmitter is T8FB, put the CH7 switch (the 2-way switch on the left) to the bottom position to disarm. If you use the other transmitter except the T8S or T8FB to control the F121 Pro, set a 2-way switch to control the CH7, and when the switch at the bottom position, the green LED of F121 Pro is off means disarm successful.



#### 4.2 Altitude Hold Mode

##### 4.2.1 Rise/Descend

Press the CH5 switch of T8S backward, which makes F121 Pro fly at Altitude Hold Mode. Make sure the orange propellers at front when powering F121 Pro on. Then arm F121 Pro and push the throttle joystick vertically upward higher than center position, then the F121 Pro will rise while if push it vertically downward, then the F121 Pro will descend.

##### 4.2.2 Hover

Push the throttle joystick vertically upward till the F121 Pro rises to a height as wish, then toggle it back to center position and release, the F121 will hover at this height.

#### 4.2.3 Forward/Backward/Right/Left

At Altitude Mode, F121 Pro can fly forward/backwards or towards to right/left by toggling the right stick at the certain height.

For beginners, make sure to push the stick gently because being a racing drone, F121 Pro is very responsive. It's advised to release the stick as soon as toggle to one direction so that F121 Pro will back to level automatically. Otherwise, F121 Pro will keep flying to the toggled direction with accelerated speed.

#### 4.2.4 Clockwise/Anticlockwise Rotation

When get familiar with the above flights, try flight clockwise/anticlockwise because the yaw practice is more difficult to judge the flight direction. Clearly knowing the direction will quickly help master drone flight. Try imagine sitting on the drone could be a better way to practice.

Toggle the rudder joystick to the left and F121 Pro will flight anticlockwise while if to the right, then the F121 Pro will flight clockwise.

#### 4.3 Stabilize Mode

Press the CH5 switch of T8S to the center position to change the F121 Pro working mode to Stabilize Mode.

The basic operation such as Rise/Descend/Forward/Backward etc. of Stabilize Mode are same as Altitude Hold Mode.

When at Stabilize Mode, F121 Pro will flight faster than when at Altitude Mode.

The flight controller will not help keep F121 Pro altitude hold, which is more challenging, that will ask the pilot keep a long-time practice.

The flight angle of F121 Pro still limited at Stabilize Mode, if you want to control the F121 Pro keep roll over or freestyle, the Manual Mode will be the best choice.

#### 4.4 Manual Mode

Manual Mode is the classic FPV flight control mode.

Press the CH5 switch of T8S backward to change the F121 Pro working mode to Manual Mode. The basic operation such as Rise/Descend/Forward/Backward etc. of Manual Mode are same as Altitude Hold Mode.

When at Manual Mode, the flight controller will stop to working, F121 Pro will flight faster than when at Altitude Mode or Stabilize Mode and there is no limited to the flight angle, you can control the F121 Pro keep roll over or freestyle.

Please make sure that you have skillful to control the F121 Pro and then select the Manual Mode. Toggle joysticks as gentle as possible to avoid drastic movements, which may possibly hurt the pilot. Make sure that the battery is fully charged before enjoying the flight.

#### 4.5 Switch for 360 Angle Flips Mode

F121 Pro add a mode named Switch for 360 Angle Flips Mode except Altitude Hold Mode, Stabilize Mode and Manual Mode, the setting steps as below:





Switch(VrB) for 360 Angle Flips Mode



Switch(CH6) for 360 Angle Flips Mode

When the transmitter is T8S, press the CH6 switch twice continuous and then push the aileron or elevator stick. If push the aileron stick to the left, the F121 Pro will roll 360 degrees to left. If push the aileron stick to the right, the F121 Pro will roll 360 degrees to right. If push the elevator stick upward, the F121 Pro will roll 360 degrees forward. If push the elevator stick downward, the F121 Pro will roll 360 degrees backward.

When you ready to controlling your F121 Pro roll 360 degrees backward, you must fly your F121 Pro far away from yourself first to ensure safety.

When the transmitter is T8FB, the 360 Angle Flips Mode switch is VrB, the operating steps are same as T8S.

Attention: ① the interval time for push the aileron or elevator stick do not more than 5 second when you press the 360 Angle Flips Mode Switch. You have pressed the switch again if the time is more than 5 second.

② the 360 Angle Flips Mode only adapted to the Altitude Hold Mode and the Stabilize Mode. 360 degrees roll at Manual Mode depends on the pilot' operating of sticks.

#### 4.6 Low Battery Alarm

When the green LED on F121 Pro starts slowly flashing during flight, it means the voltage of F121 Pro is lower than 3.7V, when the green LED on F121 Pro starts quickly flashing during flight, it means the voltage of F121 Pro is lower than 3.8V as this value is default for 1S battery. It's advised to stop flying to avoid battery over discharging.

\* F121 Pro FPV RTF version is capable of OSD function and pilot can check the current voltage of the battery by goggle or FPV screen in real time.

#### 4.7 Calibration

Level calibration have finished when you received the F121 Pro, you can re-calibrate if you need. F121 Pro is in disarmed state when calibration.

Level calibration steps as below:

- ① make sure the four motors are vertical to the aircraft frame. If necessary, adjust them to vertical positions, otherwise F121 Pro may not flight that balance.
- ② put the F121 Pro on a level surface, and then power on both F121 Pro and transmitter.
- ③ put the left stick to the lower left position and the right stick to the lower right position, keep about 3 seconds till the green LED of F121 Pro blink once, then calibrate success.



## Chapter 5 Image Transmission of F121 Pro

The image transmission device of F121 Pro is 5.8G 25mW all-channel camera integrated image transmission. If it's the image transmission version purchased, the binding between F121 and the FPV screen has been done by factory default. Pilots only need to power both on before flight.

The default transmission power is 25mW. Available power among 25mW, 100mW and 200mW can be changed by pressing the button on the camera. More instructions about setting the power, please visit [www.radiolink.com](http://www.radiolink.com) for detailed manual.

**Note** As device of image transmission includes transmit and receive, the distance could be influenced by the gain of transmit and receive.

### Definition of the image transmission LED indicator

- ① Both RED and BLUE LED always on means normal working status.
- ② If RED LED is always on while BLUE is off, meaning it's at PitMode. That is, transmission off. The transmission distance is 1-2m. It's advised to choose this mode if there are many people switching channels simultaneously at the same space so that channels won't get mixed.

### Customize the power and the channel frequency

After powering on, wait for 10 seconds to initialize, both RED and BLUE LED always on means normal working status. Long press the channels/power switching button, the frequency, the band and the transmit power will recycle.



**Table of Band/Frequency**

Band/Freq	1	2	3	4	5	6	7	8
A	5865M	5845M	5825M	5805M	5785M	5765M	5745M	5725M
B	5733M	5752M	5771M	5790M	5809M	5828M	5847M	5866M
C	5705M	5685M	5665M	5645M	5885M	5905M	5925M	5945M
D	5740M	5760M	5780M	5800M	5820M	5840M	5860M	5880M
E	5658M	5695M	5732M	5769M	5806M	5843M	5880M	5917M
F	5362M	5399M	5436M	5473M	5510M	5547M	5584M	5621M

**Frequency Selection:** Long press the channels/power switching button for 5 seconds, the RED LED flashes once means entering the frequency selection mode, then short press the button again to change the frequency. The frequency changes each time the button is short pressed once. The BLUE LED flashes once means Frequency 1, twice means Frequency 2, 3/4/5/6/7/8 etc.

**Band Selection:** Long press the channels/power switching button for 5 seconds, the RED LED flashes twice means entering the band selection mode, then short press the button again to change the band. The band changes each time the button is pressed once. The BLUE LED flashes once means Band A, twice means Band B, C/D/E/F etc.

**Power Selection:** Long press the channels/power switching button for 5 seconds, the RED LED flashes three times means entering the power selection mode, then short press the button again to change the power. The power changes each time the button is pressed once. The BLUE LED flashes once means 25mA, twice means 100mW and three times means 200mW.

**Turn on/off the transmission:** When at the normal working status (both RED and BLUE LED on), quickly press the button twice and the working mode will change. When the RED LED is on and BLUE LED is off, it means it's at Pitmode(Low power mode). When both RED and BLUE LED are on, it means the normal transmission mode.

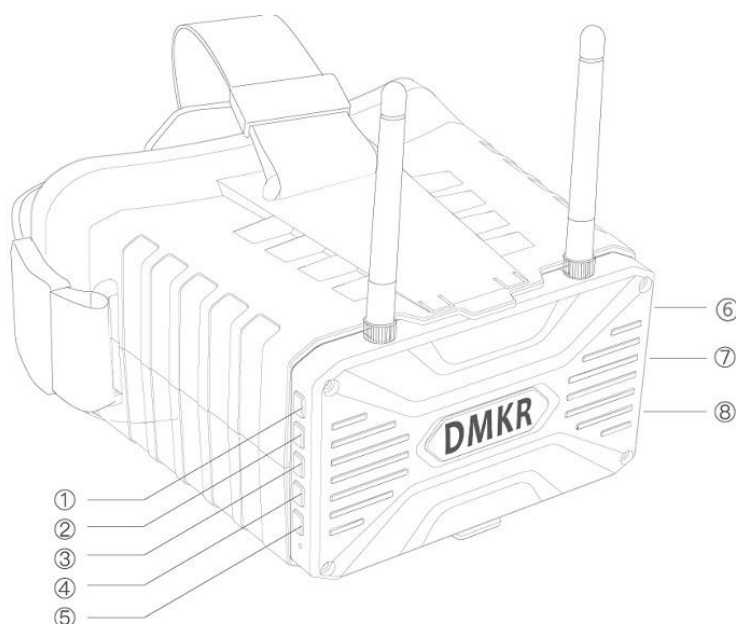
**When all parameters have set, long press the channels/power switching button till the RED and BLUE LED always on to make the settings saved, then into normal working status. Otherwise, the setup mode remains and all the parameters set above can't be saved with success.**

#### Note

- ① When installing the image transmission, make sure the heat radiation is considered. Otherwise, the transmission power will decrease even turn off as the protection of overheating is activated.
- ② It's normal that the camera will get heated during usage. DO NOT touch it directly with hands in case of getting burnt.
- ③ If the transmission antenna is broken or not well welded, the transmission distance will be impacted. Replace the antenna as soon as possible.
- ④ The detailed instructions of setting FPV screen and goggle, please refer to its corresponding manual.
- ⑤ If there's interference during the usage, try switching the camera channel first, then search for a new channel on FPV screen or goggle.

## Chapter 6 FPV Goggles of F121 Pro

### 6.1 Buttons and Connector



#### ① Power/Menu

Press the Power/Menu button three seconds to make the goggles power on or power off.

Short press the Power/Menu button three seconds to make the goggles into setting menu.

#### ② Search

Short press the Search button when the goggles power on will search the signal automatically

#### ③ CH+

Press CH+ button to select the CH1 to CH8

#### ④ BAND+

Press BAND+ button to select the band A, B, E, R, F

#### ⑤ REC

Press REC button to start recording, press REC button again to stop and save the recording, the recording function need a TF card.

#### ⑦ AV: AV output

#### ⑧ TF card support to 32GB

#### ⑨ UBS cable connector:

Wide Operating Voltage Tolerance: 5-23V DC

It can be powered by the USB cable or a 2S-6S LiPo battery.

### 6.2 FPV Goggles' Battery

A 3.7V 1200mAH LiPo battery have built-in.

### 6.3 DVR Mode

\*How to into DVR mode?

Short press the power button to into the setting menu, choose DVR, select the DVR mode by press the CH+ button.

Attention: the DVR mode need a TF card, the goggles of F121 Pro are default without the TF card, if you want to use the DVR function, please add a TF card first, it max support a 32GB TF card.

### 6.4 Assembly and Disassembly of Goggles

The goggles that come with F121 Pro is from DMKR, it can be easily disassembled to use as a FPV display.

## Chapter 7 Specification

### 7.1 Aircraft

Name: Eneopterinae

Model: F121 Pro

Takeoff Weight: 74.5g(2.63oz)

Dimensions: 121\*55mm

Applicable Age: Above 14 years

Material: Carbon fiber and plastics

Coreless Motor: 8520

Flight Controller: RadioLink F121

Propeller Diameter: GEMFAN 65mm (2.56" )

Battery: FULLYMAX 1S 3.7V 660mA 25C Li-Po battery

Charger: USB with 1A/2A charging current options

Flight Environment: Outdoors/Indoors

Flight Time: about 8 minutes

Operating Temperature: depends on actual environment of battery usage

Low Battery Alarm: Green LED on FC flashes

## **7.2 Remote Controller**

Frequency (Radio): 2.400-2.4835 GHz

Transmitter: Radiolink 8 channels transmitter T8S

Receiver: Radiolink 8 channels MINI receiver R8SM

Control distance: 2000 meters (1.24Miles with R8SM)

## **7.3 Charger**

Input: 5V

Output: 5V

Current: 1A/2A

## **7.4 Camera & Video Transmission**

Operating Frequency: 5.8G(48 channels: 6 brands, 8 channels of each band)

Power: 25mW/100mW/200mW

Voltage: DC 3~5.2V (1S)

Current (4.2V): 320mA(25mW)/400mA(100mW)/460mA(200mW)

Weight: 4.4g

Dimensions: 18.03\*16.83\*16.55mm

Resolution: 800 TVL

FOV: 150°

Focal Length: 1.2mm

## **7.5 FPV Goggles**

Display Dimensions: 4.3 inch

Goggles Dimensions: 155\*152\*96mm (without antenna)

Weight: 350g

Display Specification: IPS highlight, 360 degrees field of view

Resolution: 800\*480 pixel

Luminance: 500 lumens

Receive Sensitivity: -90dbM

Channel: 40 channels (five band, 8 channels of each band)

DVR: auto selecting

DVR Mode: VGA/D1/HD

Playback: support

Storage by TF card

Storage Standard: C10, up to 32G

Audio: stereo

Battery: 1200mAh (1S LiPo battery)

Working Time: more than 2 hours

Charging Port: micro-USB

Power Supply: 5~23V input voltage (2S~6S LiPo Battery)

Language: Chinese, English

Operating Temperature: -10~+65 degree

5.8GHz receiver built-in

AV in/out port built-in

Support OSD display

**Thank you again for choosing RadioLink products.**