











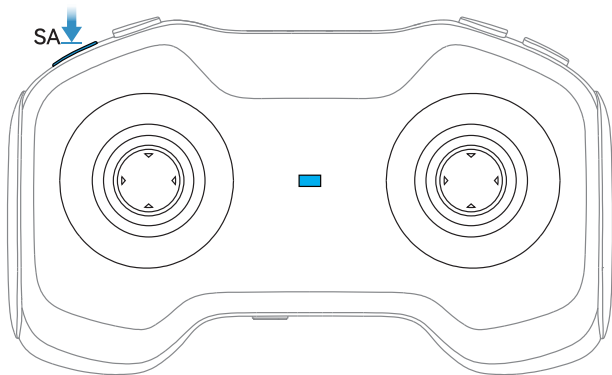








- Press switch SA to arm the quadcopter. Then motors will start spinning slowly. Press Switch SA again to disarm the quadcopter and motors will stop spinning.



Press Switch SA to Arm the Quadcopter

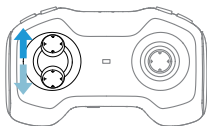
The completion of these steps verifies the normal functioning of the quadcopter and remote control radio transmitter, and the following flight operations can be continued.

## 3.2 Flight Operation

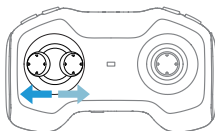
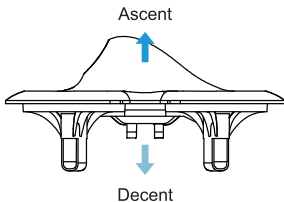
Step 4: Re-arm quadcopter (step 3). Motors will spin at a low speed.

Throttle (left) Joystick:

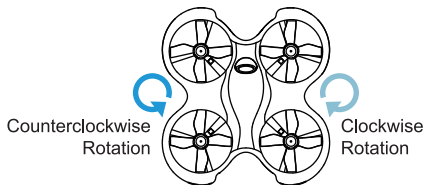
- Up/down controls rate of ascent/ descent.
- Left/Right controls counterclockwise/ clockwise rotation.



Joystick Up/Down

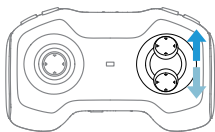


Joystick Left/Right

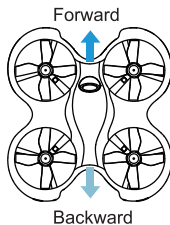


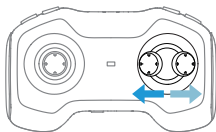
Direction (right) Joystick:

- Up/down controls forward/ backward.
- Left/right controls left/ right.

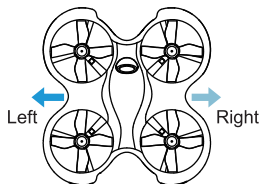


Joystick Up/Down





Joystick Left/Right

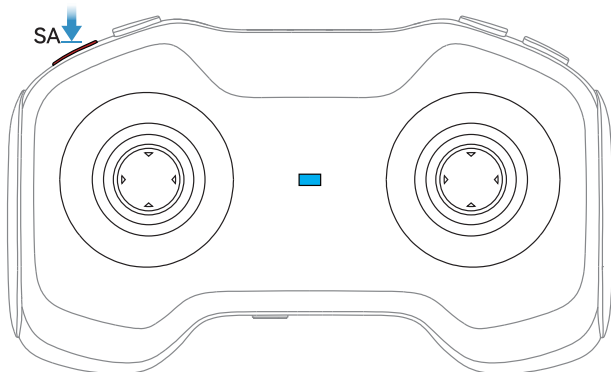


It is recommended to begin flying without using fpv goggles for practice. Be familiar with the controls and sensitivity of the joysticks by following the above-mentioned operation steps.

Caution:

1. Find a suitable open place for the first flight.
2. Push the joysticks slowly, especially the throttle joystick.
3. If the quadcopter becomes out of control or collides with objects, quickly pop-up switch SA to disarm, and motors will stop spinning.

- Step 5: Land quadcopter steadily and press switch SA to disarm, as shown below:



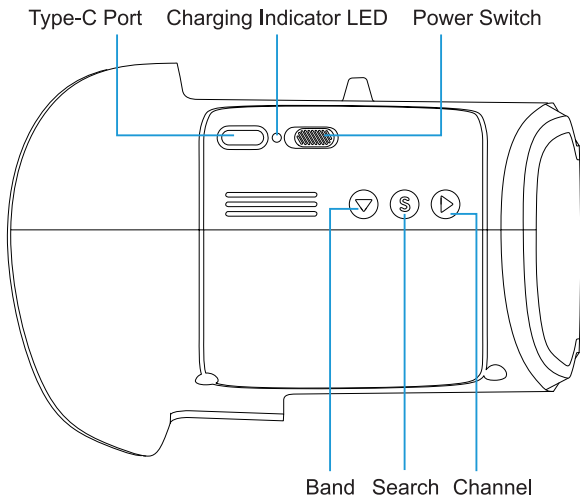
Press Switch SA to Disarm the Quadcopter

- Disconnect the battery with the quadcopter by removing it from the mounting slot. Push the power button on the bottom to the left, the LED indicator turns off. This indicates that the remote control radio transmitter has been powered off.

### 3.3 First Person View (FPV)

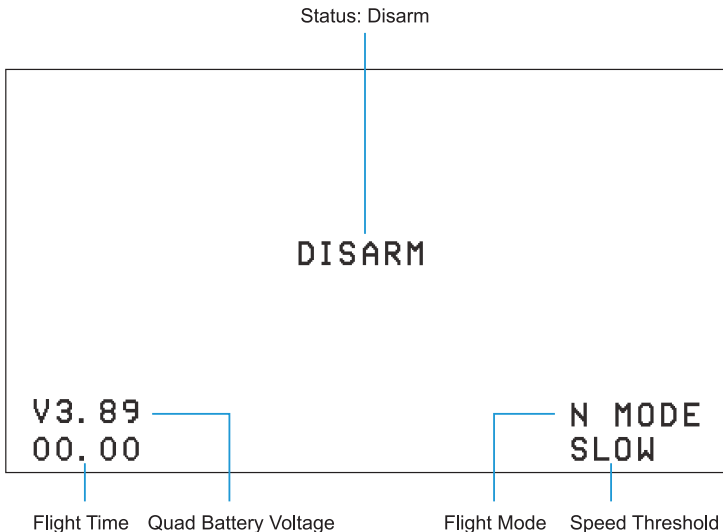
First-person view (FPV) is the real-time video transmission between image captured on quadcopter to fpv goggles.

- Take out the goggles, install the headband;
- Slide the power switch to the right. The screen lights up and the VR02 goggles are turned on;
- Long press the “S” button for 1 second to turn on the fast frequency search function. After 3 seconds, a beep will sound and the corresponding FPV cross-machine screen is displayed in the goggles, indicating that the frequency search is complete.



### 3.4 On-Screen Display (OSD)

After the frequency search, flight information and FPV images will be shown on the display. This information is called On-screen Display (OSD), as shown below:



About OSD information:

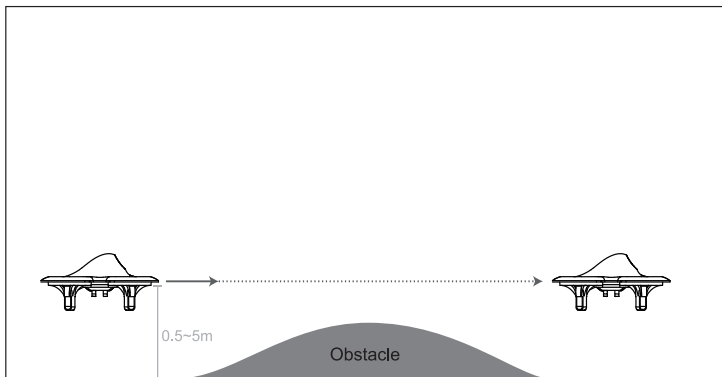
- The flight status of the quadcopter is displayed in the center. DISARM indicates locked status. LOW VOL indicates that the battery voltage of the quadcopter is low. RX LOSS indicates that the quadcopter has been disconnected with the remote control radio transmitter;
- Status of the quadcopter is displayed in the bottom of the screen, including the receiver protocol, quad battery voltage, flight time, flight mode, and speed threshold.

### 3.5 Flight Modes

Cetus Lite FPV only supports Normal Mode (N MODE). And there is no Sport Mode (S MODE) or Manual Mode (M MODE).

**N MODE:** When the quadcopter ascends, center two joysticks at the same time. Then quadcopter will maintain a horizontal attitude at a certain height. The position of the

directional joystick controls the tilt direction and tilt angle of quadcopter. It also has an auxiliary flight function, which can assist in adjusting the altitude position, but can not adjust the horizontal position.



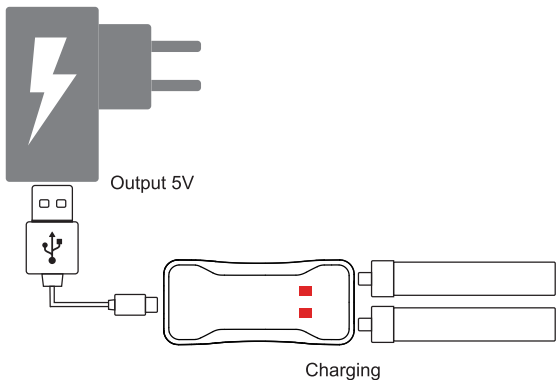
Caution 1: When flying in Normal mode, please try to choose an indoor or windless outdoor environment, keeping the flight height within 0.5m-5m. Meanwhile, the outdoor flight height should not exceed 5m. When in a harsh environment, such as flying in a strong wind, the quadcopter may not be controlled, drift and fall.

Caution 2: If you want to experience the auxiliary flight function in both altitude and horizontal positions, when in normal mode (N MODE), sport mode (S MODE), and manual mode (M MODE), please try Cetus or Cetus Pro kit, which supports more flight modes.

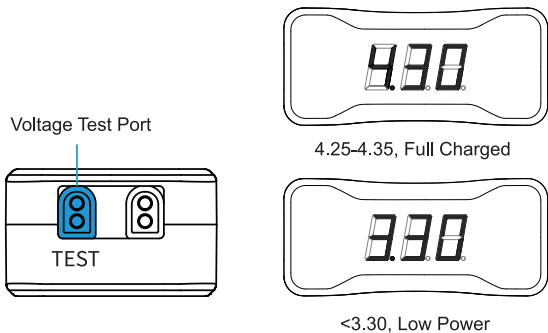
### 3.6 Battery Charging

Each battery provides 4-5 minutes of smooth flight. When LED indicator on the quadcopter started flashing red, indicating the battery is low on power and needs to be recharged. Charging steps are as follows:

- Connect the charger with a Type-C port USB cable;
- Connect one or two batteries to the port on the right of the charger and the charger's LED indicator will turn solid red while charging;
- When the charger's LED indicator turns solid green, charging process is complete.



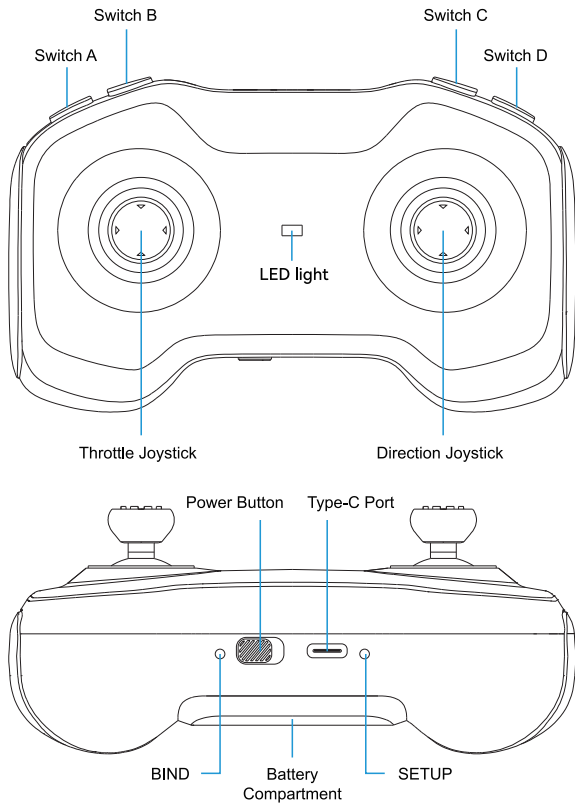
Two batteries can be charged at the same time. Charging a fully discharged battery takes approximately 20 minutes. When the charger is not connected to a USB cable and connector, inserting the battery to the TEST port of the charger can display the current battery level. The number of 4.25-4.35 represents a fully charged battery while 3.30 or lower indicates a low battery.



## 4. Remote Control Radio Transmitter

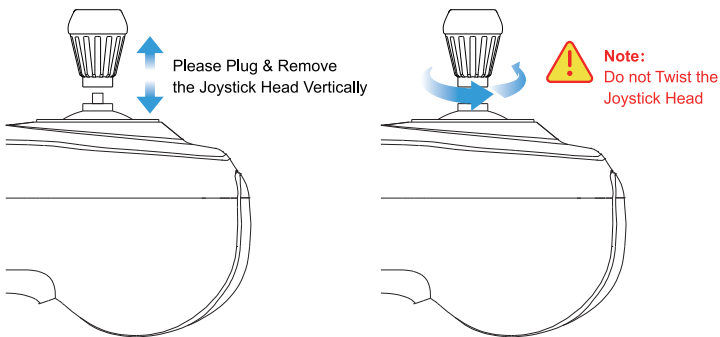
The remote control radio transmitter in this kit is LiteRadio 1 model.

Switch instructions as shown below.



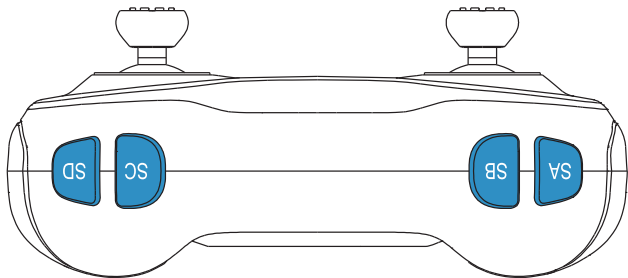


The LiteRadio 1 is compatible with two types of joystick heads. When replacing the joystick head, please be aware NOT to twist the joystick head. Instead, pull it out directly, then replace the joystick head. As shown below:



## 4.1 Switch Functions

Four switches are provided on the front of the remote control radio transmitter: SA, SB, SC, and SD, as shown below. Pilots can change different statuses and parameters of the quadcopter. Please take notice that these switches can only work after the remote control radio transmitter is successfully binded to the quadcopter.



Switch SA: Arm/Disarm Quadcopter

- Press switch SA to disarm
- Re-press switch SA to arm

Switch SB: Quadcopter Level Calibration

- Press Switch SB to perform Level Calibration

Switch SC: Speed Threshold of Quadcopter

- Press switch SC and change to slow mode(SLOW)
- Press switch SC again to change to fast mode(FAST)

When quadcopter is flying in a low gear(SLOW), quadcopter body is slightly tilted front with angle 3-5 degrees, and movement speed is around 2m/s;

When quadcopter is flying in a high gear(FAST), quadcopter body is slightly tilted front with angle 5-10 degrees, and movement speed is around 3.5m/s.

Switch SD: Change Video Transmitter (VTX) frequency

Press switch SD once. Then frequency will be automatically changed to the next.

There are in total 8 frequencies. After switching to the last frequency(5866), frequency will cycle to the first one (5733) and start again.

The factory default frequencies are 5733/5752/5771/5790/5809/5828/5847/5866 in sequence.

There are also 3 buttons at the bottom of the remote control radio transmitter.

Functions are as follows:

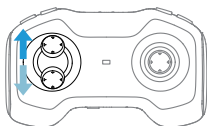
- Power Button: Push to the right to turn on, and Push to the left to turn off;
- BIND Button: Enter binding mode with a short press (active after the remote control radio transmitter is powered on);
- SETUP Button: Enter joystick calibration mode with a short press (active after the remote control radio transmitter is powered on);

Refer "Advanced Settings" for more information on binding or joystick calibration.

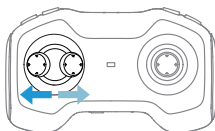
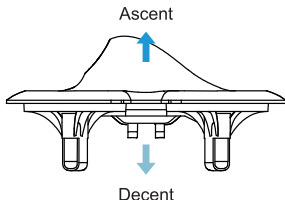
## 4.2 Joystick Functions

Two joysticks (throttle&direction joysticks) on the front of the remote control radio transmitter control the quadcopter: Ascent/descent (throttle), forward/backward tilt (pitch), left/right tilt (roll), and rotation of flight direction(yaw).

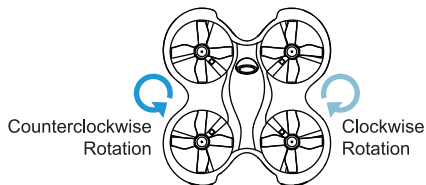
Throttle (left) Joystick - Ascent/descent (throttle) and rotation of flight direction (yaw).



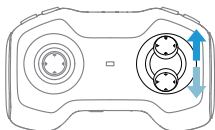
Joystick Up/Down



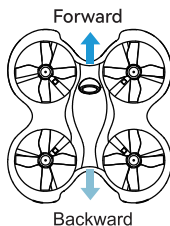
Joystick Left/Right

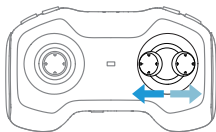


Direction (right) Joystick - forward/backward tilt (pitch) and left/right tilt (roll).

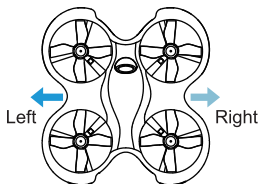


Joystick Up/Down





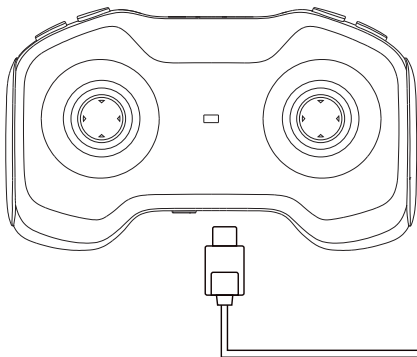
Joystick Left/Right



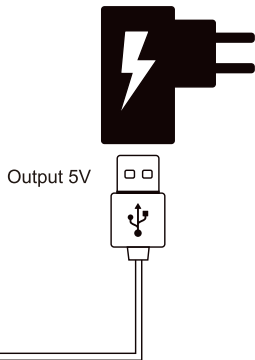
## 4.3 Charging the Remote Control Radio Transmitter

Remote control radio transmitter has a built-in 1000mAh battery. When red light flashes twice and the buzzer alarms twice, indicates that radio transmitter is low battery and needs to be recharged. Below are the charging methods for reference:

- Turn off the radio transmitter;
- Plug in remote control radio transmitter with adapter by USB cable (5V output adapter is allowed);
- The LED light breathes in red means charging, while in green means fully charged.



Type-C Data Cable



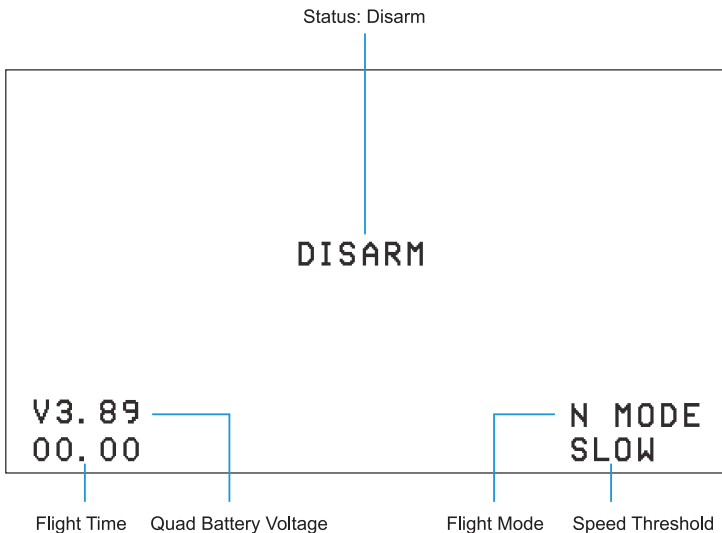
The continue working time for full charged battery is about 8 hours.

When battery is fully charged and left being unused within 30 days, battery power can still maintain about 80%.

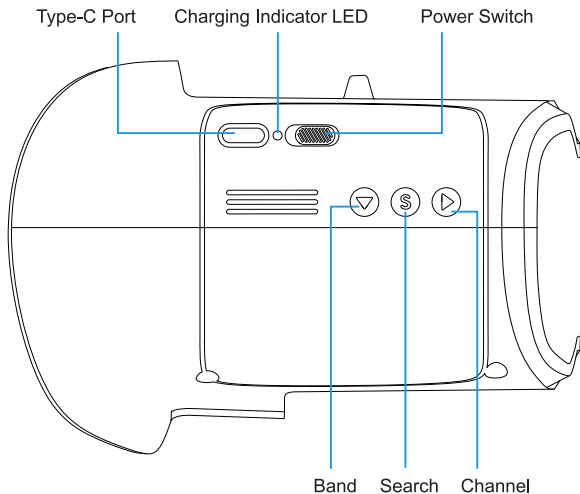
Fast charging protocol is not supported. So radio transmitter can not be quickly charged.

## 5. FPV Goggles

The FPV goggles used in the kit named model VR02. The FPV goggles uses built-in antenna to receive signal.



## 5.1 Button Operation



- Power switch

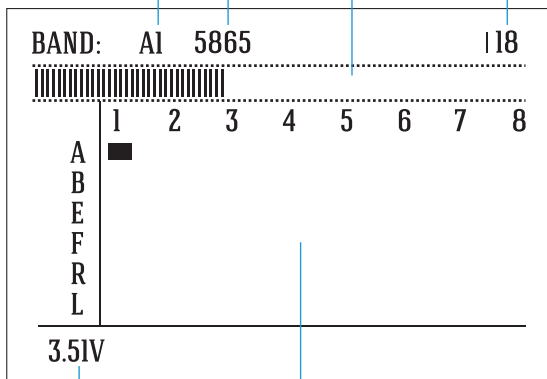
Turn the power switch left and right to turn the goggles on or off. When facing the switch, the left position is off; the opposite of the position is on.

- Search button (S)

Quick frequency search: Press and hold the frequency search button for 1 second to start the frequency search. After 3 seconds, a beep will sound and the best available frequency will be selected. Quick frequency search is completed.

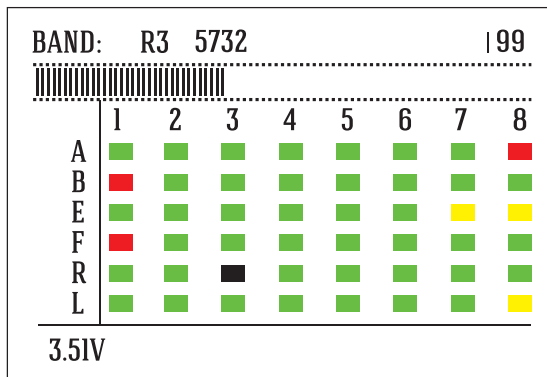
Frequency scan: Short press the frequency search key once to enter the frequency scan interface.

Frequency Position Frequency RSSI Display Bar RSSI  
Coordinate



Goggles Voltage Frequency Scanning Results Table

Press and hold for 1 second to start the frequency scan, and the frequency scan result will be displayed after 3 seconds. The different colors in the screen indicate the current status of each frequency as follows:



Green	0<RSSI<20 Frequency is available
Yellow	20<RSSI<70 Frequency has moderate interference from another transmitter
Red	70<RSSI<99 Frequency is completely in use by a transmitter
White	The strongest signal which the goggles received in this scan

- Band Key and Channel Key

In the frequency scan interface, the Band Key can be cycled down to select different bands, and the Channel Key can be cycled to the right to select different channels.

Pilot can select the goggles frequency by pressing the Band Key and Channel Key.

For example, select a band and channel with green status since these frequencies are not occupied and signal interference is relatively weak. Then, set the quadcopter to the corresponding frequency and adjust the goggles to match.

## 5.2 Frequency Selection

The FPV goggles can receive 48 frequency points in the 5.8GHz spectrum, distributed across 6 bands (A, B, E, F, R, and L) of 8 channels (CH-1, ....., CH-8), as shown below:

The stock quadcopter included in this kit only uses 8 frequency points of band B, which is the second row in the table below:

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



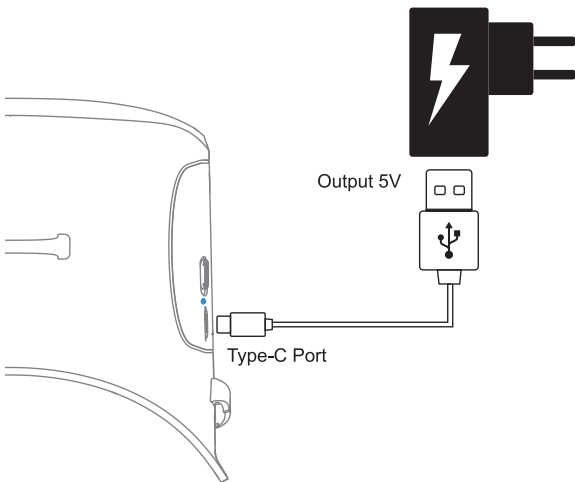
Press and hold the Search Key for 1 second to automatically search for the frequency point with the strongest signal strength in the space to obtain the FPV picture of the quadcopter.

We can also shortly press the Band Key to switch to the designated band and use the Chanel Key to switch to the designated channel so that the FPV goggles can work on the designated frequency point.

## 5.3 Charging the FPV Goggles

The FPV goggles have a built-in 2000mAh battery and no external battery is required. When voltage is below 3.40V, a beep will sound in every 10s and it needs to be recharged. User can also press the S button to check the voltage. To charge the goggles battery:

- Turn off the FPV goggles;
- Connect FPV goggles and adapter with the Type-C cable (5V output adapter is allowed, such as mobile phone charger);
- The power light will be blue when charging and lights out when fully charged.



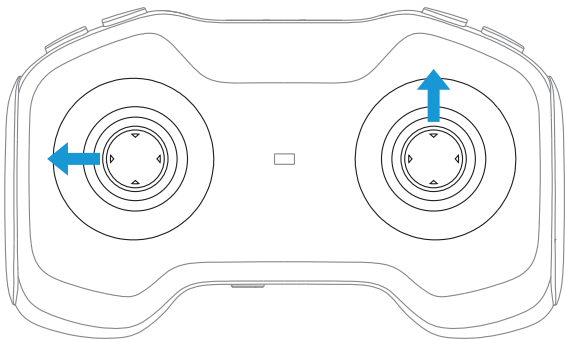
Note: Fast charging protocol is not supported. So FPV goggles can not be fast charged.

## 6. Quadcopter OSD Menu Operation

The OSD menu is a set of operation interfaces designed to modify the configuration of the quadcopter. The most used functions are to turn on or off quadcopter RGB lights and OSD, together with other options.

### 6.1 How to Access/Operate OSD Setting Menu

The position of joysticks to access the OSD setting menu is as shown below. The throttle joystick is moved to the left-center and the direction joystick towards the upward center.

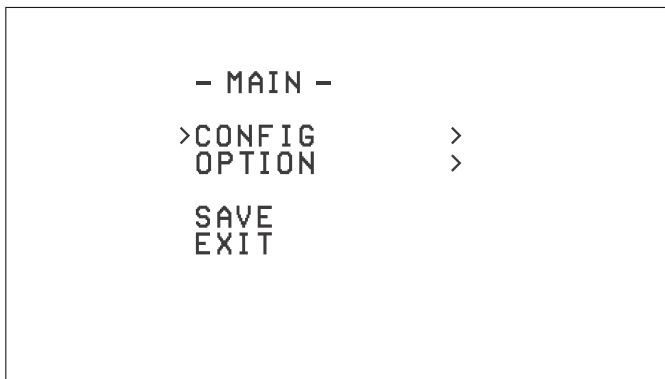


← Throttle Stick Left

↑ Direction Stick Up

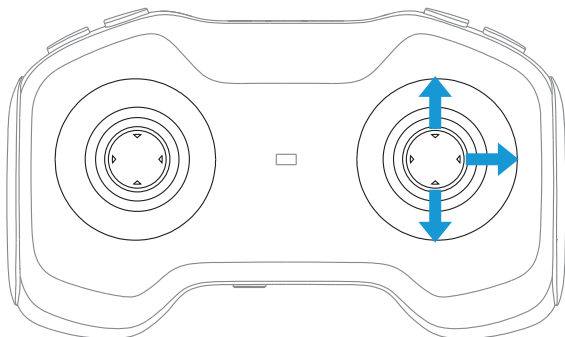
Caution: Make sure the quadcopter is disarmed before accessing the OSD menu.

After accessing the OSD menu, pilot will see the following menu interface on the FPV screen.



The OSD menu cursor can be controlled by the right joystick to operate the OSD interface:

- Up: move the cursor up
- Down: move the cursor down
- Right: confirm/modify selection



↑ Joystick Up:  
Cursor Moves Up

↓ Joystick Down:  
Cursor Moves Down

→ Joystick Right:  
Modification/Confirmation

## 6.2 Turn Quadcopter RGB LED ON/OFF

The quadcopter status LED light is solid blue by default when flying. User can set it to color cycling mode:

- In the MAIN menu, select CONFIG and enter the CONFIG menu, as shown below;
- Select LED, select OFF (for solid blue) or ON (for RGB color cycling effect);
- Select BACK to exit CONFIG sub-menu;
- Select SAVE in the MAIN menu to save changes and exit the OSD.

- CONFIG -

>LED  
CALI  
VTX


OFF  
OK  
FCC

BACK

## 6.3 OSD Other Options

Quadcopter gyroscope default settings can be restored.

- Enter OPTION, select RESET and confirm;
- The LED indicator of the quadcopter flashes blue and the screen automatically exits the OSD interface, this means complete restoration of quadcopter gyroscope default settings.

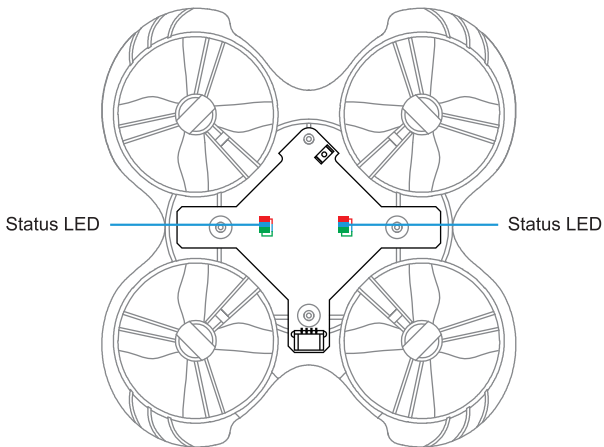


```
  - OPTION -  
>RESET      >  
  
  BACK
```

# 7. LED Light/Beep Status Codes

## 7.1 Quadcopter LED Light

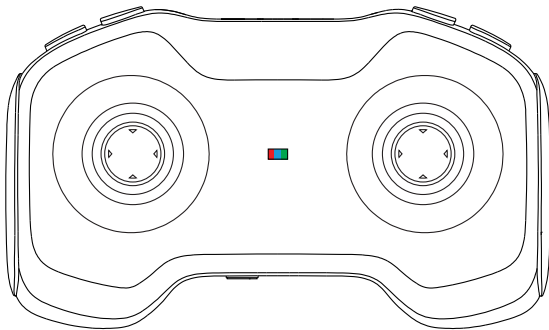
There are two RGB LED indicator on the bottom of the quadcopter.



Status LED color	Status	State description	Solution
—	Off	The power on the quadcopter is abnormal or off	Replace the battery and power on again
Red	Flashing slowly	Quadcopter battery is low	Replace the battery
Blue	Solid	The quadcopter is connected with the remote control radio transmitter	
Blue	Flashing fast	Quadcopter is horizontal calibrating	Place the quadcopter on a horizontal surface and wait for a while
Purple	Solid	Quadcopter accessed the OSD menu	Unplug the battery and power it on again
Green	Flashing fast	Quadcopter is in binding mode	
White	Flashing fast	Arming failed, because the throttle joystick was not in the center position when arming	Disarm, and place the throttle joystick at the center position
Amber	Flashing slowly	Loss of remote control radio transmitter signal	Re-establish the connection with the remote control radio transmitter

## 7.2 Remote Control Radio Transmitter LED Light & Beep Status Codes

There are two RGB LED indicator on the bottom of the quadcopter.



Indicator LED color	Status	State description	Solution
Red	Solid	Throttle joystick is not at the lowest position when starting	Move throttle joystick to the lowest position
Red	Flashing fast	Remote control radio transmitter is in binding mode	Wait for binding
Red	Flashing slowly	Battery voltage is too low	Charge remote control radio transmitter

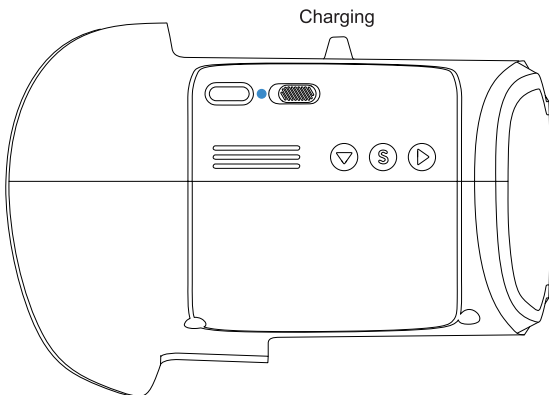
There is a built-in beeper, pilot can recognize the working status of the remote control radio transmitter by its sound.

Beep	State description
The buzzer alarms twice: di-di	Low battery



## 7.3 FPV Goggles LED Light Status Codes

The FPV Goggles have a LED indicator lights which indicate Charging status.



Indicator LED color	Status	State description
Blue	Solid	Charging
—	Off	Not charging or charging is complete

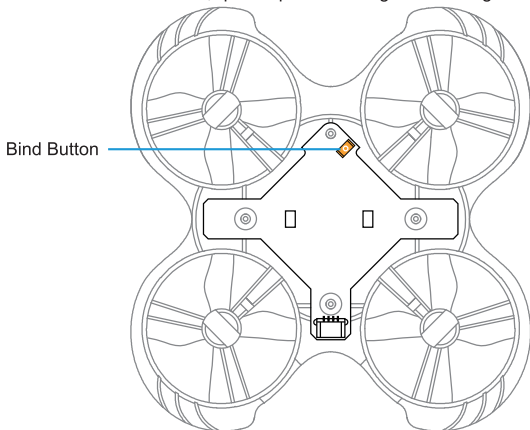
# 8. Advanced Settings

Additional advanced settings are available in case of special operations.

## 8.1 Re-Bind for Quadcopter

If quadcopter and remote control radio transmitter cannot be binded successfully, the pilot may need to re-bind. This can happen when replacing new electronic parts of the quadcopter during maintenance or upgrading the remote control radio transmitter. The steps are as follows:

- Power on the quadcopter and wait for its system to load completely;
- Use a screwdriver to lightly press the button on the quadcopter and the status light on the quadcopter turns green and starts to flash;
- Power on the remote control radio transmitter and wait for its system to load completely;
- Lightly press the BIND button on the bottom of the remote control radio transmitter with a screwdriver. The power indicator will flash red;
- If re-bind is successful, quadcopter status light will change to blue.



Note: The re-binding of the remote control radio transmitter and the quadcopter may not be successful after pressing the BIND button of the remote control radio transmitter once. In this situation, pilot needs to press the BIND button a second time to complete the binding.

## 8.2 Quadcopter Level Calibration

After the quadcopter has taken off and landed several times, the quadcopter gyroscope may become offset. This will cause the quadcopter to always tilt in the same direction during a flight. To fix up it, the quadcopter gyroscope can be recalibrated. The steps are as follows:

- Turn on the quadcopter and the remote control radio transmitter, and ensure that the connection is successful;
- Place the quadcopter on a horizontal plane;
- Enter the quadcopter's OSD menu (Refer "OSD Menu Operation");
- In the MAIN menu, select CONFIG, then CALI;
- Push the direction joystick to the right to enter level calibration mode. Quadcopter's LED flashes blue;
- When the OK prompt appears and the LED returns to solid blue, the calibration is complete. Pilot can exit the OSD menu.

- CONFIG -

LED  
>CALI  
VTX

OFF  
OK  
FCC

BACK

## 8.3 Joystick Calibration

The joystick data may offset after it has used for a period of time (if joystick has been hit against physically). User need to re-calibrate joysticks based on following steps:

- After powering on, press SETUP button on the back of remote control radio transmitter, it hears two "Bee Bee" sounds, and red LED flash quickly (two flashes each time), which means remote control radio transmitter entered calibration mode;
- Move throttle joystick and direction joystick to middle position, press SETUP button again, wait until the buzzer beep three "Bee Bee Bee" sounds, red LED light flashes quickly (two flashes each time), which indicates joystick data has been acquired and enter into the boundary value calibration mode;
- Toggle the joystick to move to the top, bottom, left, and right joystick boundaries respectively (do not to press too hard, the joystick just needs to touch the boundary) and keep the position for 1-2S, then press the SETUP button one more time, user can hear a long beeping sound (about 3 seconds) from the buzzer again, and the red LED light stops flashing, indicating that the calibration of the joystick is completed.

## 8.4 Switching Protocol

How to check the current protocol

The radio transmitter could support 4 different protocols, including Frsky D16 FCC, Frsky D16 LBT, Frsky D8 and Futaba S-FHSS.

The current protocol is indicated by the flashing times of the red LED when power on, before the buzzer alarm.

How to change the current protocol

Below are the steps to change protocol (Frsky FCC D16, Frsky D16 LBT, Frsky D8, or Futaba S-FHSS).

- Power off the radio transmitter;
- Press and hold the BIND button while power on the radio transmitter;
- Then the flash times of the red LED before buzzer alarms will change, according to the tables above.

LED Status	Protocol Version
Flash once	Frsky D16 FCC (ACCST 1.X Version)
Flash twice	Frsky D16 LBT (ACCST 1.X Version)
Flash Three Times	Frsky D8
Flash Four Times	Futaba S-FHSS

Note: LiteRadio 1 only work with D16 ACCST 1.x Frsky protocol. So if you use a Frsky receiver with D16 ACCST 2.X version or ACCESS version, binding will fail.

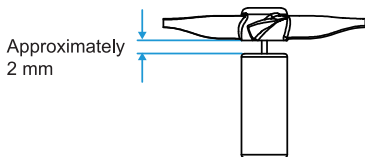
# 9. FAQ

## 9.1 How to Replace Propellers and Motors

Propellers can be deformed or fall off when quadcopter collides with an object. Bent or missing propellers need to be replaced.

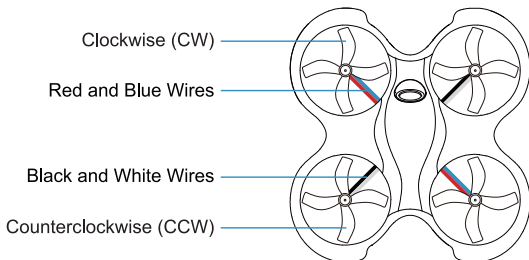
Firstly, use the included propeller removal tool to remove propellers from the motor. The tool should be placed between the motor and the propellers. Please hold the motor instead of the frame duct with your hand when removing propellers to protect the frame from being deformed by overexertion.

Secondly, the distance between the replaced propeller and the motor is kept at about 2mm. There is no need to press down forcefully. Pressing down forcefully will cause damage to the motor or the blade to deform, and rubbing against the frame when quadcopter is powered on.



4 spare propellers are included: two each clockwise (CW) and counterclockwise (CCW). CW propeller warps clockwise. It is used on the front left or rear right motor. CCW propeller warps counterclockwise. It is used on the front right or rear left motor. Install as in the diagram below.

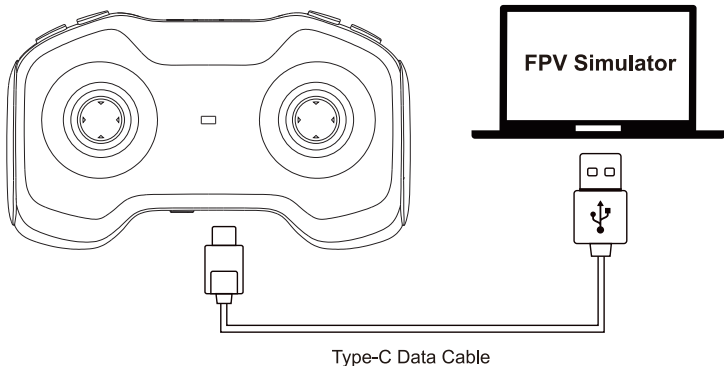
The CW propeller corresponds to the motor with red and blue wires, and the CCW propeller corresponds to the motor with black and white wires.



Caution: Please do not power on the quadcopter when the popeller is deformed, loosen or damaged. Quadcopter may loose control in flight per situation. User needs to replace the popeller before performing the next flight.

## 9.2 Radio Connecting to Simulator

It is the safest and quickest method to get started using FPV simulator for practicing FPV flights. LiteRadio 1 remote control radio transmitter supports most of the FPV simulators on market with comprehensive configuration.



Operation steps below:

- Turn off radio transmitter;
- Connect the transmitter to computer via USB data cable. Wait for the LED light breathes in red or green;
- Install driver from PC automatically, prompt box pops up after successful installation. Then, remote control radio transmitter works normally.

### ⚙️ Setting up a device ➔ ⚙️

We're setting up 'BETAFPV Joystick'.

Other devices



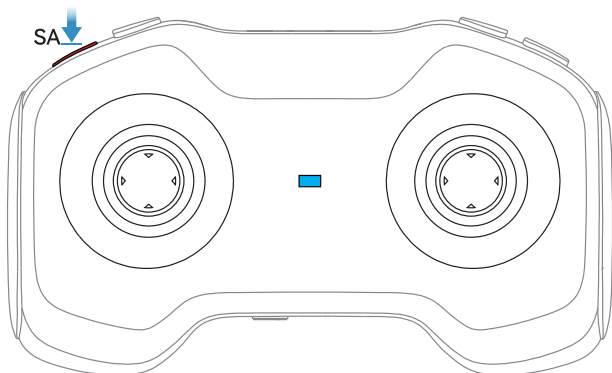
BETAFPV Joystick

User needs to manually install driver if PC doesn't install automatically or installed incorrectly.

DO NOT power on the transmitter first and connect it to the PC. The USB port is invalid in this situation.

### 9.3 How to Stop After A Collision

- Press switch SA on the remote control radio transmitter immediately once the quadcopter collides with an object. Press switch SA to arm the quadcopter and all motors will immediately stop spinning.
- If the flying altitude is too high and it is difficult to control, please press switch SA immediately to stop the motor.



Press Switch SA to Disarm the Quadcopter

Caution: Press switch SA immediately when the quadcopter is hit or the propellers scratch against the frame duct.



# 10. Supplement

## 10.1 Warning & Security

- Move the throttle joystick as gently as possible to avoid the quadcopter ascending and descending too suddenly.
- Press switch SA on the remote control radio transmitter to stop the motor running immediately if the quadcopter collides with any object.
- Please try to keep motors perpendicular to the body. Otherwise, flight performance will be degraded.
- Learn to control the quadcopter proficiently before flying in a large outdoor area or with the wind.
- Battery life can be significantly reduced if pilot continues to fly after the low voltage warning is shown.
- Do not fly in rain. Humidity may cause unstable flight or loss of control.
- Keep the battery away from water. If the flight controller touches water, a short circuit may occur and the flight controller may burn out.
- Do not fly in inclement weather with thunderstorms or lightning.
- Do not fly in areas that are not permitted by local law.

## 10.2 Precautions for Battery Use and Charging

- Do not immerse the battery in water. Store in a dry area if not used for a long time.
- Keep away from children. If swallowed, seek medical attention immediately.
- Do not use or store the battery near heat sources, microwave ovens, or open flames.
- Only use a battery charger that meets the specifications when charging.
- Do not throw the battery into fire or heat the battery.
- Do not use or store the battery in an extremely hot environment, such as in a car under direct sunlight or hot weather. Overheating affects the performance of the battery and shortens the service life of the battery. Overheated batteries can catch fire.
- If the battery has a peculiar smell, temperature, deformation, discoloration, or any other abnormal phenomenon, stop using the battery. Recycle and replace the battery.
- If the battery connector gets dirty, please wipe it with a dry cloth before use. Avoid getting battery contacts dirty, which can cause energy loss or failure to charge.
- Disposing of the battery randomly may cause a fire. Please fully discharge the battery and use insulating tape to dispose of the battery output connector before

disposing of the battery. Refer to local regulations before disposing or recycling a battery.

## 10.3 After-Sale Service

- **Warranty:** All defective merchandise, unless otherwise indicated, may be returned for a replacement within 30 days from the date of goods received. We cannot provide refunds or replacements beyond 30 days.
- If the product is confirmed to have a quality problem (product design or quality issues), we will cover it with replacing or refund.
- All warranty replacements are required to have photos or videos and a detailed description. The warranty does not cover physically damaged merchandise. We are willing to figure out the best solutions, as always.
- For after-sale service, please reach out via e-mail: [support@betafpv.com](mailto:support@betafpv.com)

This clause only applies to the products manufactured by BETAFPV and sold by BETAFPV authorized dealers.

The specific interpretation rights of this clause belong to BETAFPV.





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