

# Racewhoop30

## FPV Racing Drone

# Manual





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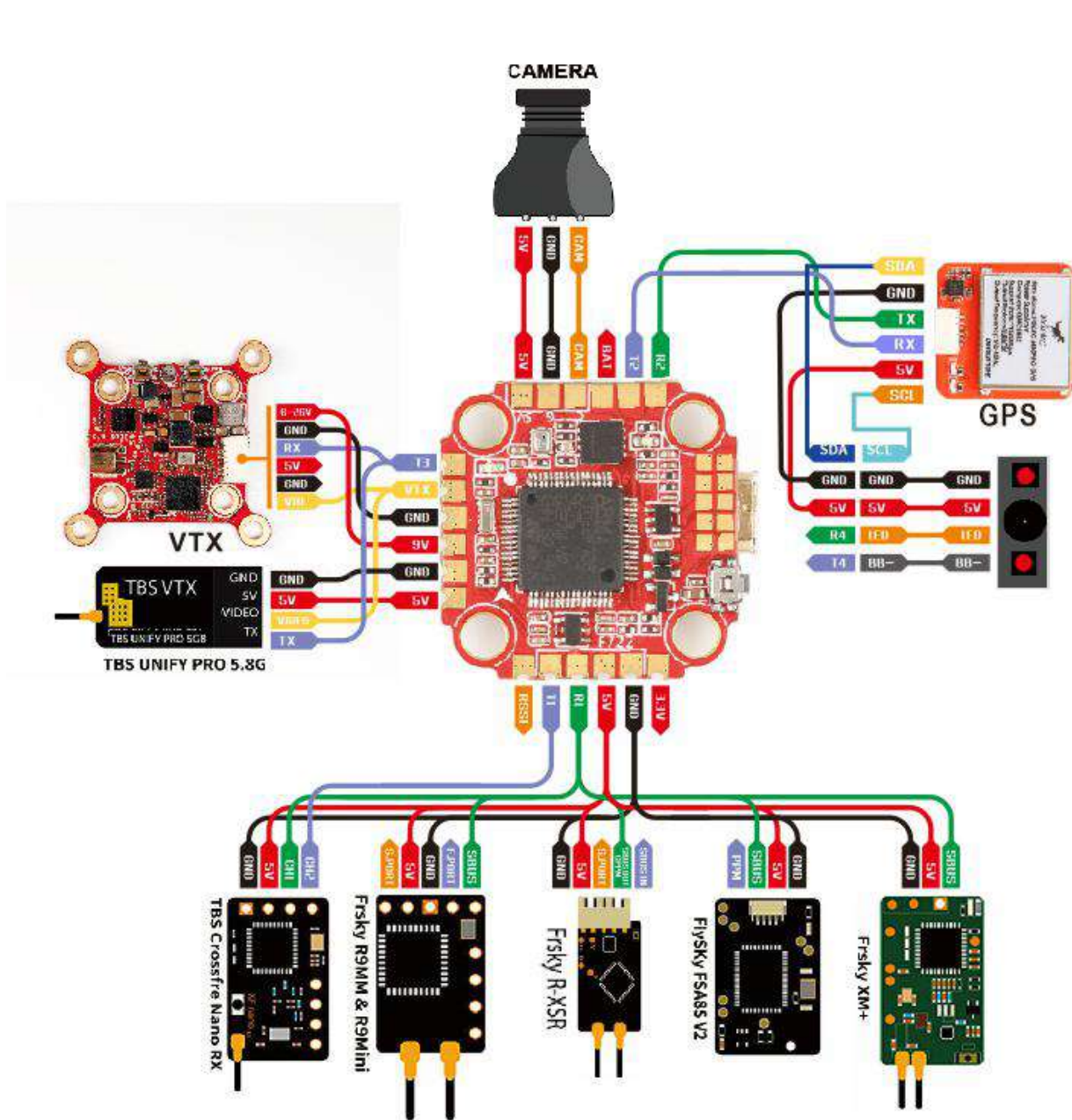
## Package Included

Racewhoop30 FPV Racing Drone*1	Accessory Package*1
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# 1. Product Specifications

Product parameters	
Model	Racewhoop30 VTX FPV Racing Drone
Frame Kit	Racewhoop30 Frame Kit
Flight Controller	Zeus F722 mini Flight Controller
ESC	28A 4in1 ESC
VTX	Zeus VTX 350mW
Motor	2105.5 Motor 4S KV3600 6S KV2800
Support Receiver	SBUS .DSMX.CRSF
Input Voltage	3-6S Lipo

# 2. Interface Description



## 3. Check the flight control drive

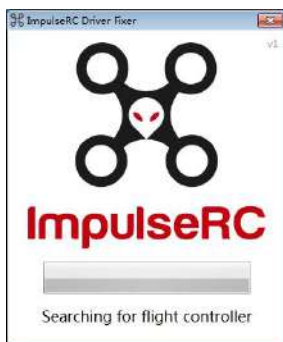
1. Long Press BOOT buttons.connect USB.The system automatically install the driver



2.Driver cannot be installed, please download ImpulseRC\_Driver\_Fixer



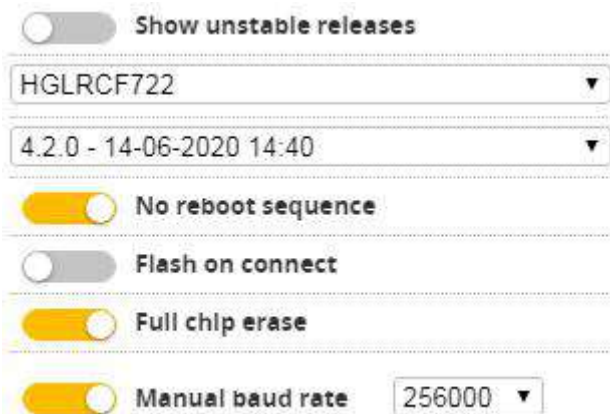
3.Double-click on the run(Plug in the flight controller to automatically install the driver)




4.open betafight configurator , enter DFU mode

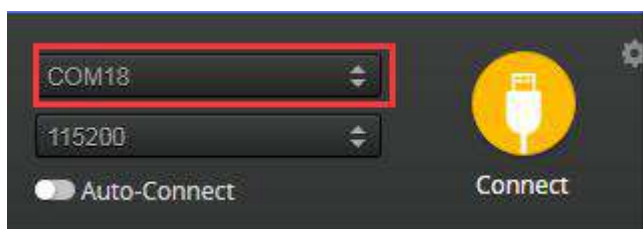


5. Click **Firmware Flasher** Select firmware version



6. Click **Load Firmware [Online]** Load firmware. **Flash Firmware** Waiting for completion **Erasing ...** It will be prompted upon completion. **Programming: SUCCESSFUL**

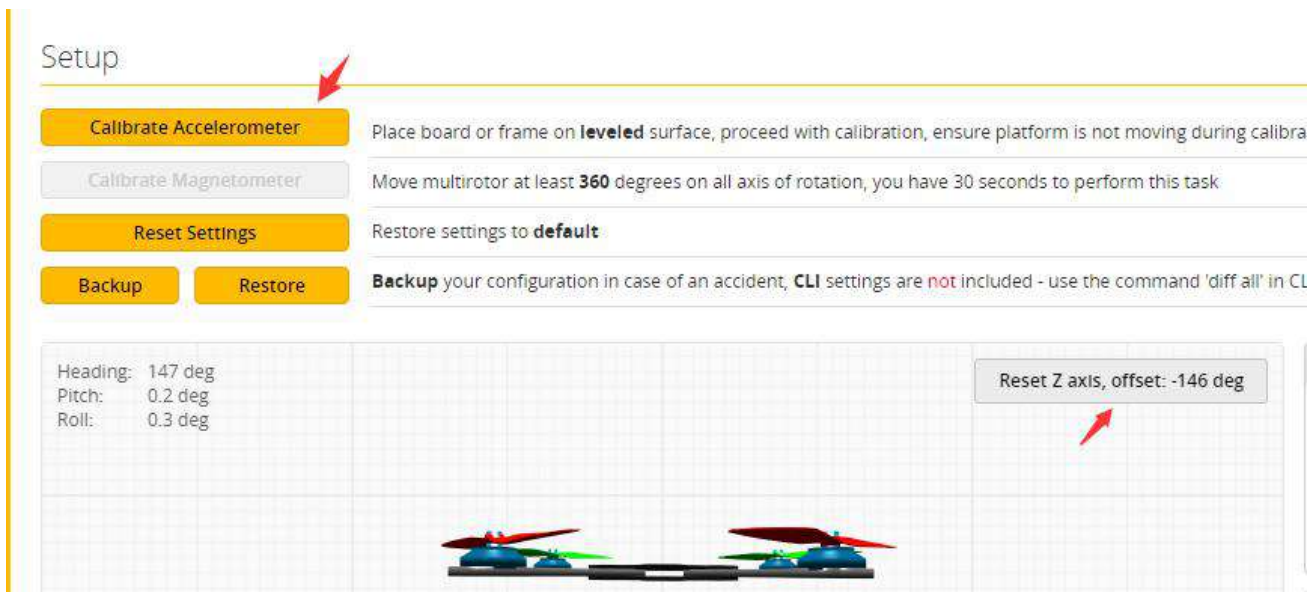
7. open betafight configurator . Controller plugged into the computer. Betaflight Automatically assigned port, click "Connect" Enter setup interface (Different computer COM)



## 4. Calibration accelerometer

1. Put the aircraft horizontal and click “Reset Z axis”

Click again 

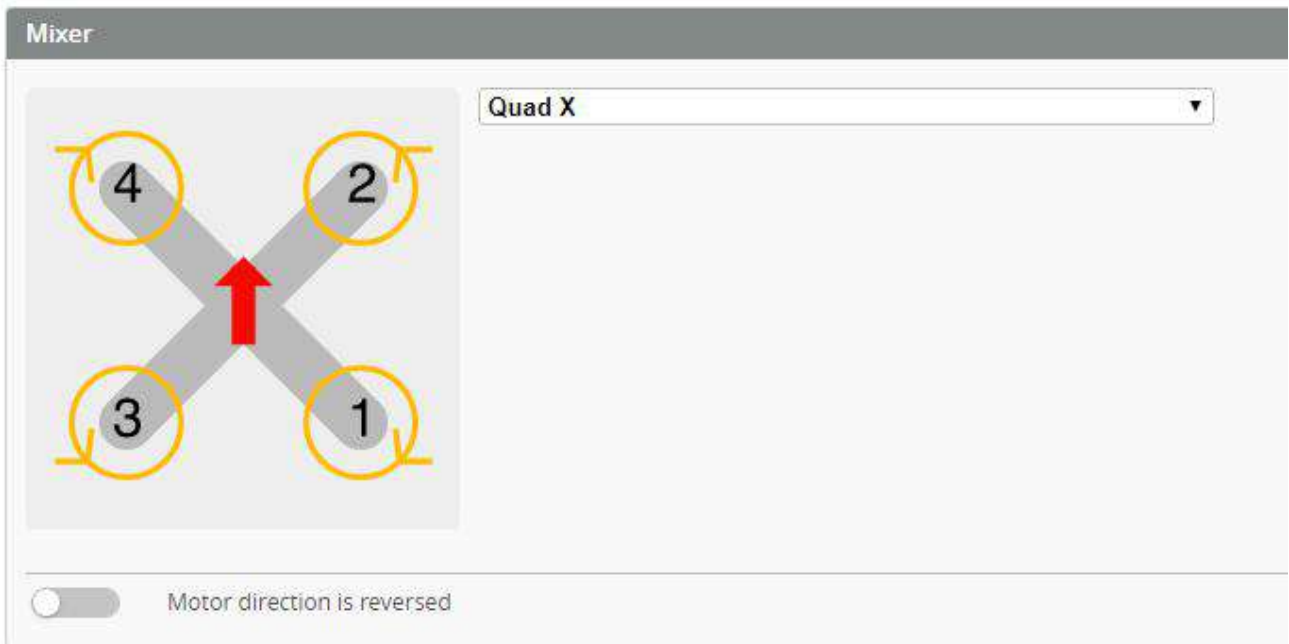



## 5. UART serial port use

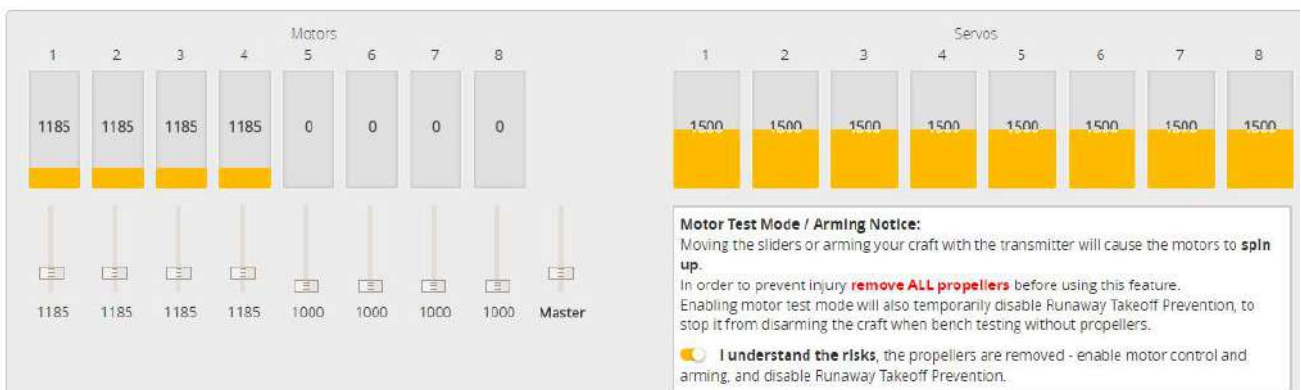
1. UART1 uses the receiver
2. UART2 uses GPS
3. UART3 uses 5.8G VTX
4. UART4 uses DJI
5. UART6 uses ESC telemetry

# 6. Select aircraft model

1. Click  Configuration Select model



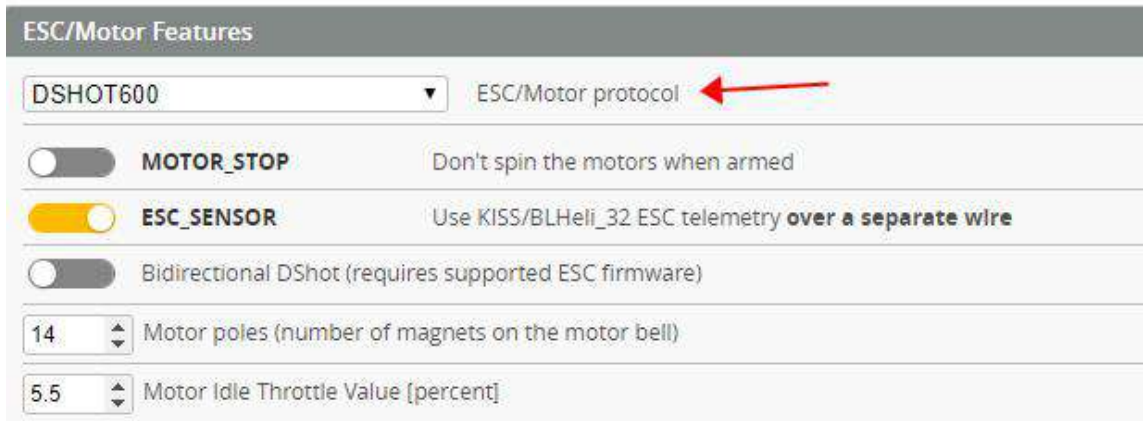
2. Click  Motors Click “**I understand the risks**” Push Master to check motor steering “**Master**” Steering can be changed at [BLHeliSuite](#)





# 7. Choose ESC protocol

1. Choose the right ESC protocol, the optional universal protocol DSHOT600.

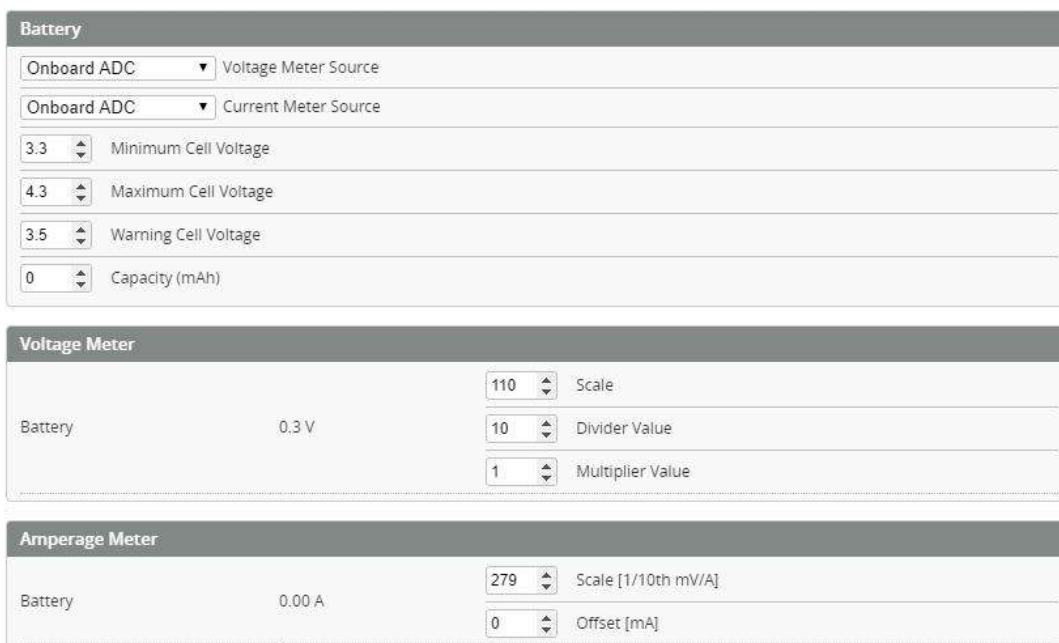


The screenshot shows the 'ESC/Motor Features' configuration panel. At the top, a dropdown menu is set to 'DSHOT600', with a red arrow pointing to the text 'ESC/Motor protocol' next to it. Below this are several toggle switches: 'MOTOR\_STOP' (off), 'ESC\_SENSOR' (on), and 'Bidirectional DShot (requires supported ESC firmware)' (off). At the bottom, there are two spinners: 'Motor poles (number of magnets on the motor bell)' set to 14, and 'Motor Idle Throttle Value [percent]' set to 5.5.

# 8. Voltage and current parameters setting

1. Click **Power & Battery** Setting parameters

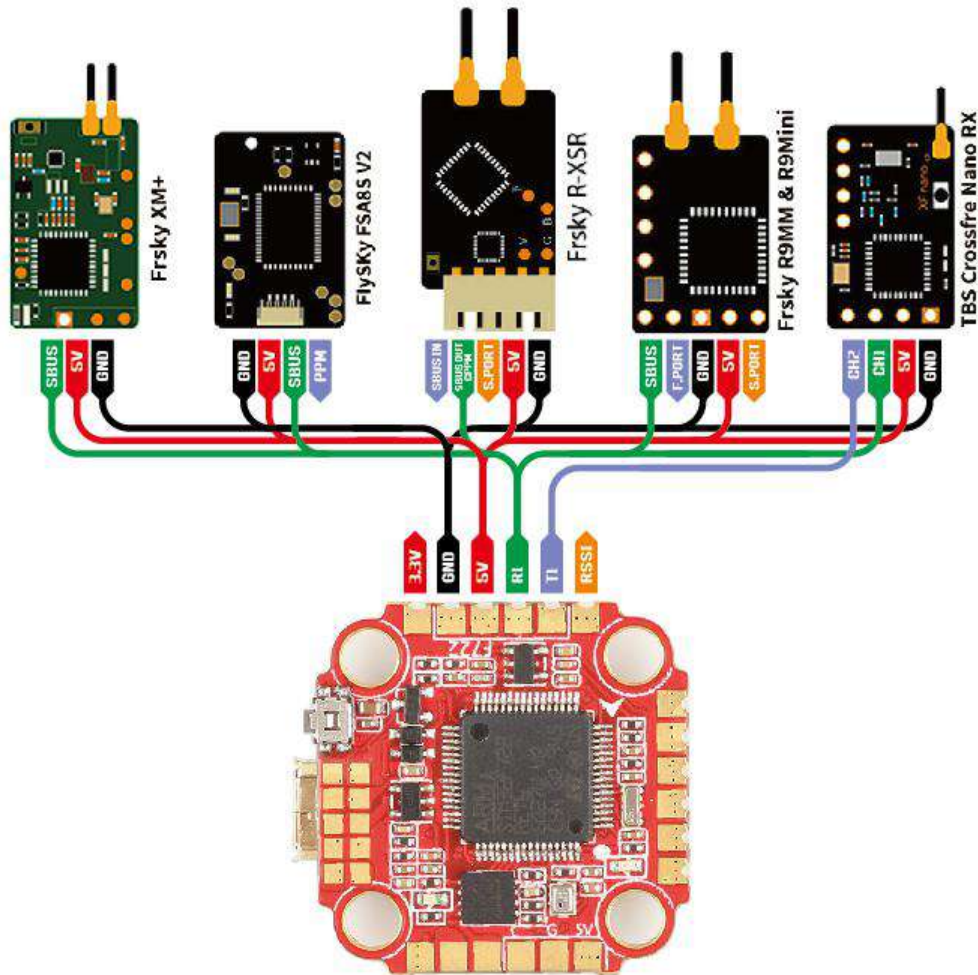
Power & Battery



The screenshot displays the 'Power & Battery' settings page, divided into three sections: 'Battery', 'Voltage Meter', and 'Amperage Meter'.  
The 'Battery' section includes: 'Onboard ADC' for both Voltage and Current Meter Sources; 'Minimum Cell Voltage' set to 3.3; 'Maximum Cell Voltage' set to 4.3; 'Warning Cell Voltage' set to 3.5; and 'Capacity (mAh)' set to 0.  
The 'Voltage Meter' section shows a reading of 0.3 V for the 'Battery' and three input fields: 'Scale' (110), 'Divider Value' (10), and 'Multiplier Value' (1).  
The 'Amperage Meter' section shows a reading of 0.00 A for the 'Battery' and two input fields: 'Scale [1/10th mV/A]' (279) and 'Offset [mA]' (0).

# 9.Setting up the receiver

## 1.Receiver connection diagram



2. Click  Ports. You have found “UART1” Open the receiver serial port

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART1	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART2	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	GPS   115200	Disabled   AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	VTX (RC Tran   AUTO
UART4	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART6	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	ESC   AUTO	Disabled   AUTO

3. Set the SBUS receiver

**Receiver**

Serial-based receiver (SPEKSAT, 5) Receiver Mode

**Note:** Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX\_SERIAL feature.

SBUS Serial Receiver Provider

4. Set the DSMX receiver

**Receiver**

Serial-based receiver (SPEKSAT, 5) Receiver Mode

**Note:** Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX\_SERIAL feature.

SPEKTRUM2048 Serial Receiver Provider

5. Set the CRSF receiver

**Receiver**

Serial-based receiver (SPEKSAT, 5) Receiver Mode

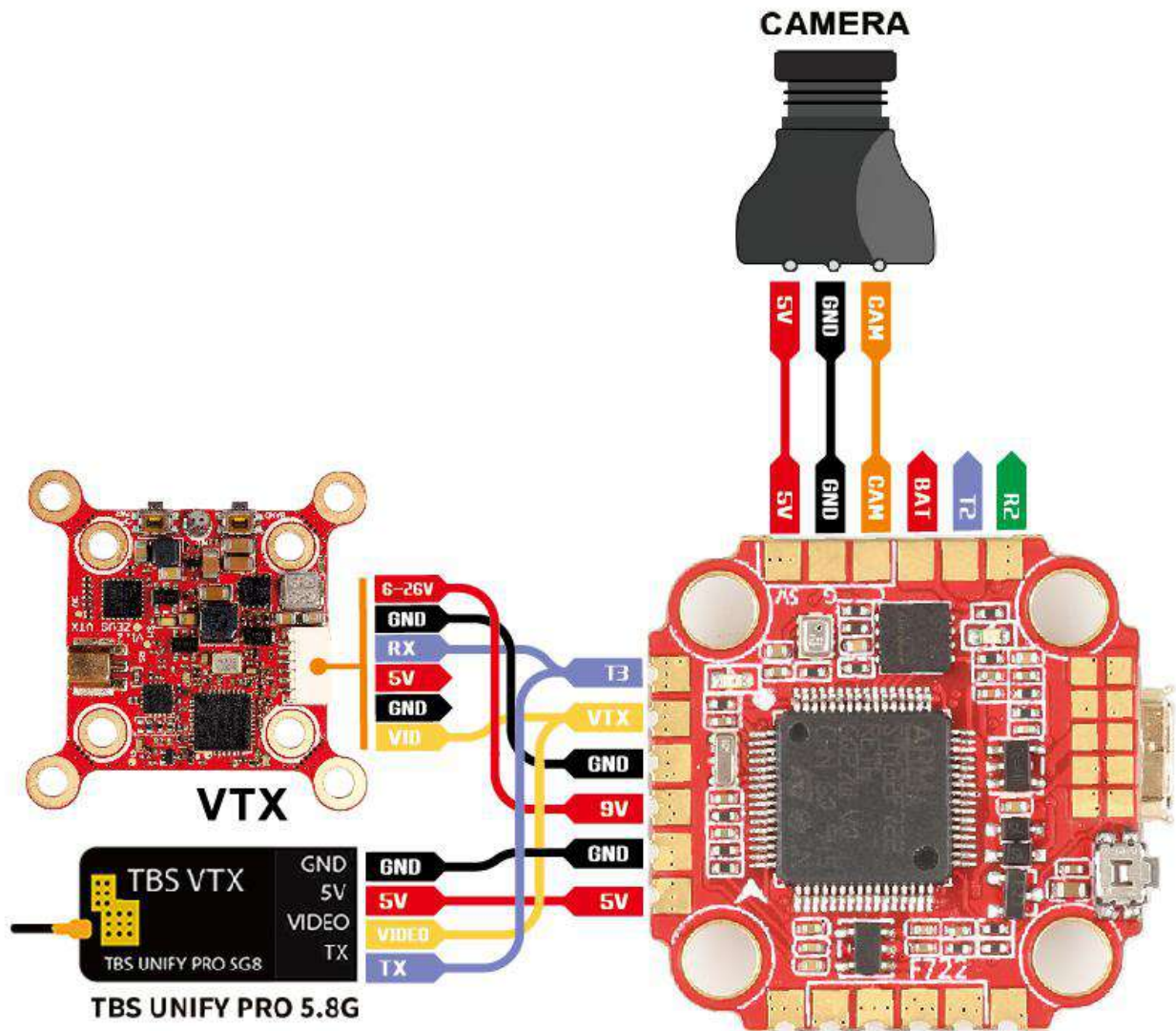
**Note:** Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX\_SERIAL feature.

CRSF Serial Receiver Provider

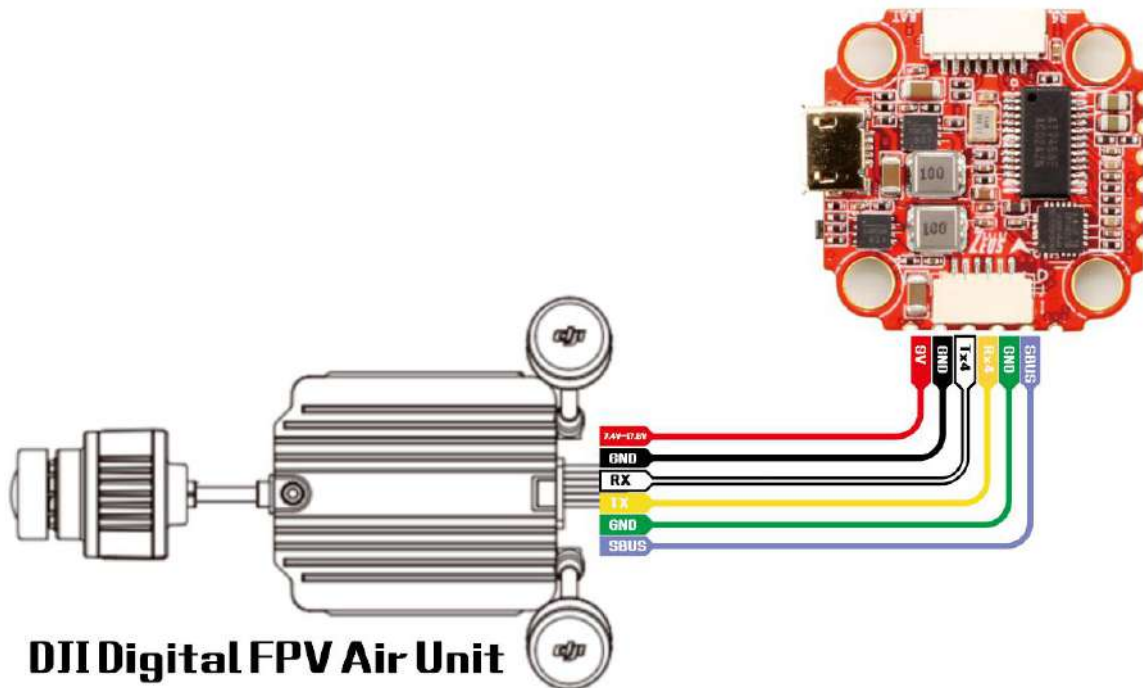
# 10.VTX serial port use wiring .

## DJI serial port use wiring

### 1. 5.8G VTX connection



## 2. DJI FPV Air Unit wiring



3. 5.8G VTX serial port opens. The protocol is selected according to its own VTX protocol.

Identifier	Configuraci3n/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART1	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART2	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	GPS   115200	Disabled   AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	VTX (IRC Tran)   AUTO
UART4	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART6	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	ESC   AUTO	Disabled   AUTO

4. DJI serial port opens

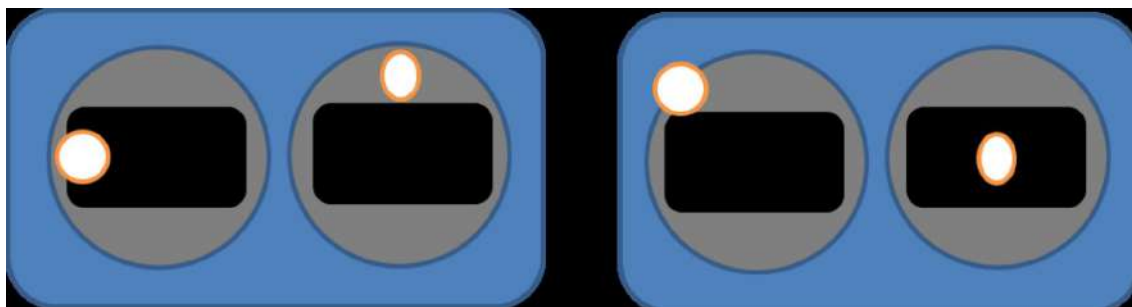
Identifier	Configuraci3n/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART1	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART2	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	GPS   115200	Disabled   AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART4	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART6	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	ESC   AUTO	Disabled   AUTO

## 5. Use OSD to adjust VTX

which displays information like battery voltage and mAh consumed while you fly. In addition, the Betaflight OSD can be used to configure the quadcopter, making in-field adjustments and tuning more convenient.

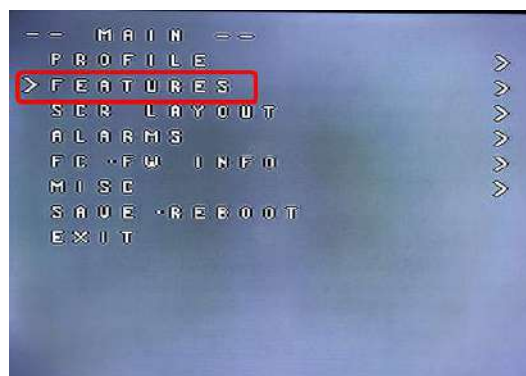
MODE2

MODE1



The graphics above show the stick command to bring up the OSD menu. The stick command is: throttle centered, yaw left, pitch forward. The exact stick command therefore depends on which mode your transmitter sticks are in.

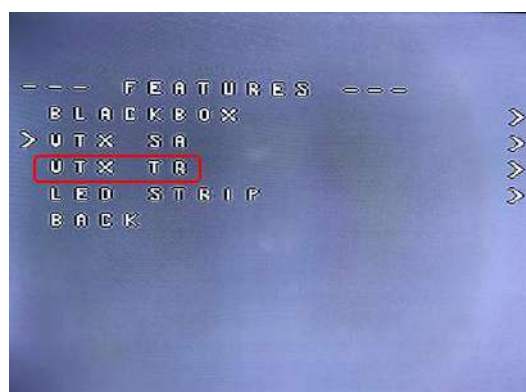
In the OSD menu, use pitch up/down to move the cursor between menu items. When a menu option has a > symbol to the right of it, this indicates that it contains a sub-menu. Roll-right will enter the sub-menu. For example, in the screen to the right, moving the cursor to “Features” and then moving the roll stick to the right will enter the “Features” sub-menu.



If you are using a video transmitter that supports remote configuration, enter the “Features” menu to configure the vTX. From there, enter either “VTX SA” if you are using SmartAudio (TBS Unify) or “VTX TR” if you are using IRC Tramp Telemetry.

To adjust PIDs, rates, and other tuning-related parameters, enter the “Profile” sub-menu.

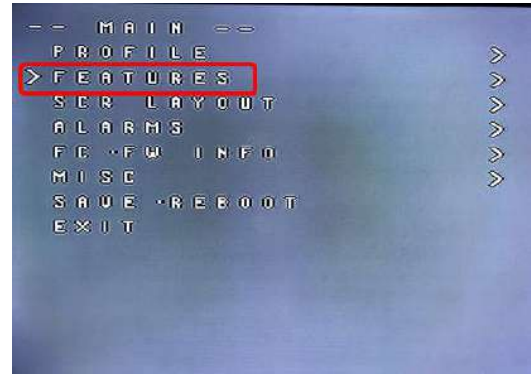
In the “Scr Layout” sub-menu, you can move the OSD elements (like battery voltage, mAh, and so forth) around on the screen.



The “Alarms” sub-menu lets you control when the OSD will try to alert you that battery voltage is too low or mAh consumed is too high.

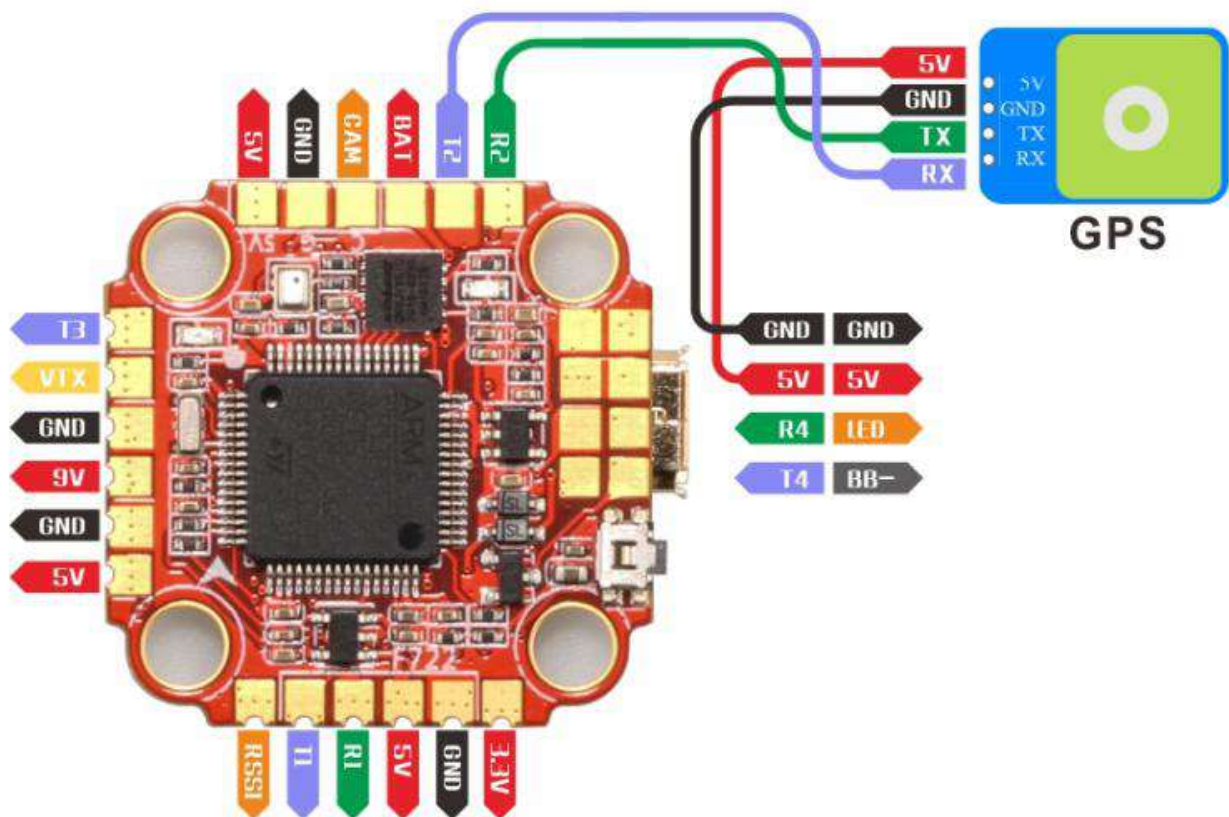
When a parameter can be modified, the parameter's current value will be shown on the right-hand side of the screen. In this case, roll left/right will adjust the parameter up and down.

The screen to the right shows the current vTX settings. From here, you can change the frequency band, channel, and power level of the video transmitter. After making the changes, move the cursor to "Set" and press roll-right to confirm the settings.



# 11.GPS parameters setting

## 1.GPS connection diagram



## 2. Open the GPS serial port

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART1	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART2	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	GPS   115200	Disabled   AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	Disabled   AUTO
UART4	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	Disabled   AUTO	VTX (IRC Tran   AUTO
UART5	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled   AUTO	ESC   AUTO	Disabled   AUTO

3. When using the GPS function, remember to configure the serial port (via the Ports tab).

**GPS**

GPS GPS for navigation and telemetry ?

**Note:** Remember to configure a Serial Port (via Ports tab) when using GPS feature.

UBLOX Protocol

Auto Baud

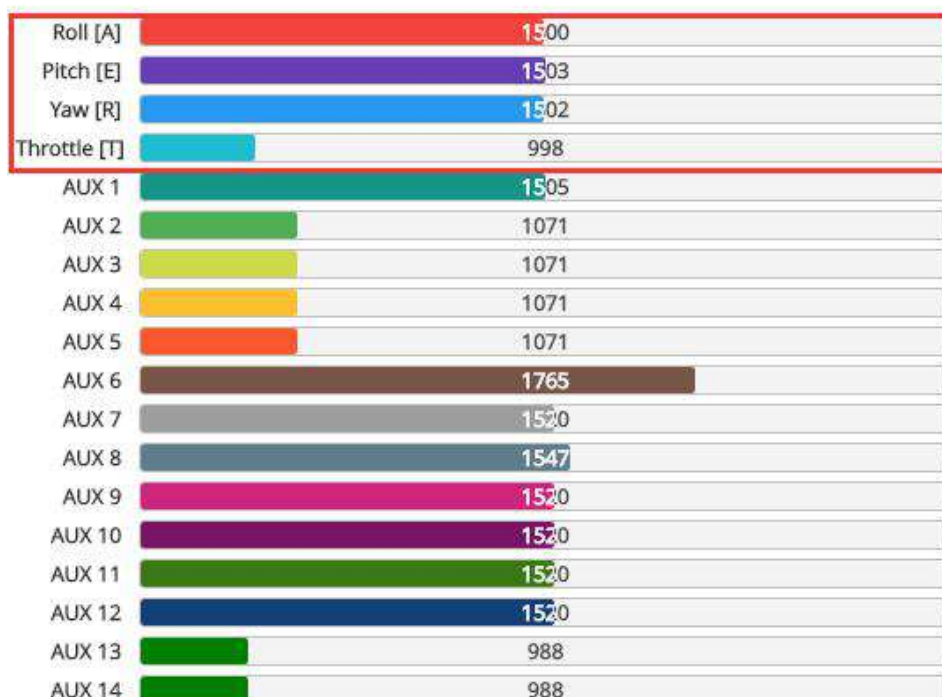
Auto Config

Auto-detect Ground Assistance Type

0.00 Magnetometer Declination [deg]


# 12. Check receiver signal

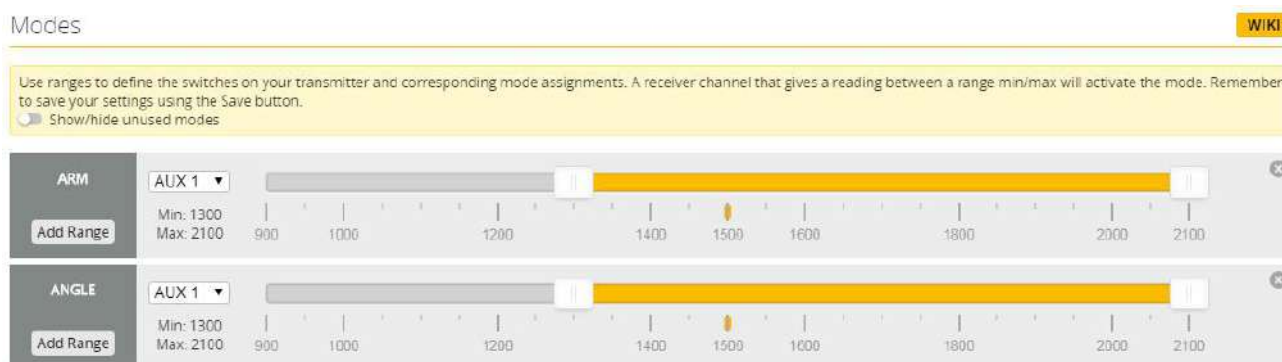
1. Click  Receiver Check the remote control output signal






# 13. Select flight mode startup mode

1. Click  Modes set up the function of remote control switch across the channel (below are for reference only)



# 14. OSD settings

1. Click  OSD the OSD Settings, according to the need to choose, drag the OSD schematic diagram of the parameters can be adjusted.

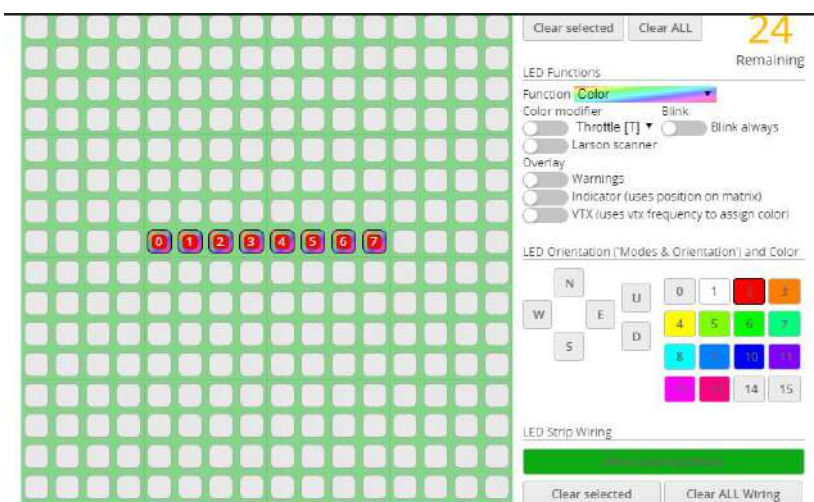


# 15.LED settings

1.Click  Configuration Turn on LED support



2.Click  LED Strip .Click  set according to need



# 16.Troubleshooting

## Warning:

Please read the cautions as follows, otherwise stability of your flight controller cannot be ensured, your flight controller will even get damaged.

- Keep focus on the polarity. Check carefully before power supply.
- Cut off the power when you connect, plug and pull anything.
- The refresh rate of PID and Gyroscope is up to 8K/8K.

## after sales question:

1. After receiving the goods, it is found that the product can not be used normally. If the return to the factory is a quality problem, the repair service will be provided free of charge.
2. If the product is damaged due to improper operation, the repair service may be provided under the condition that the inspection can be repaired.
3. For domestic customers, please contact the after-sales service personnel. For overseas customers, please contact the official website for after-sales service.

## Product daily problems

### 1.OSD garbled:

If you find garbled characters, please open Betaflight, click "OSD" .and click "Font Manager" clicks on "Upload Font" to update

1. When plugged in the battery, the aircraft does not pass the self-test

without "BBB" sound. There is only one sound.

Please check if the ESC agreement is correct

### 3.The spin of the aircraft keeps spinning

1. Please check if the propeller is correct
2. Please check if the motor direction is correct