BETAFPV

Aquila16

FPV Drone

User Manual

Version No.I 2023-10-16

1. Product List

1 x Aquila16 Brushless Quadcopter

Box Contents:
2 x Aquila16 Exclusive Battery(1100mAh
1 x BT2.0 Battery Charger and Voltage Tester
2 x Charging adapter cable
4 x Beta 45mm 3-Blades Prop (Spare Set)
1 x Prop Removal Tool
1 x Special Screw Package (Spare Set)
1 x Phillips screwdriver
1 x 4Pin Adapter Cable
1 x USB Type-C to FC Adapter (Used with 4Pin Adapter Cable to adjust configure quadcopter on BETAFPV Configurator)
1 x User Manual

2. Pre-flight Checks

1. Verify that all components are included, without damage and the quadcopter's frame has no deformation.
2. Verify that propellers and motors are installed correctly and stably.
3. Ensure that propellers do not scratch against frame ducts and motors spin smoothly.
4. Verify batteries (of quadcopter, remote control radio transmitter, and FPV goggles) are fully charged.
5. Be sure pilot is familiar with all flight controls.
6. Always keep a safe distance in all directions around the quadcopter (1 meter or more) when having a test-flight. Operate the quadcopter carefully in open space.
7. Please click the below link and watch the instruction video, you can learn how to install and remove the battery from the quadcopter and how to bind the remote control radio transmitter to the quadcopter.

https://www.youtube.com/watch?v=sVDAzZaIJRg

3. Flight Modes

The flight mode is displayed in the lower right corner of the flight screen, corresponding to the flight mode of quadcopter. Pilot can choose different flight modes according to different flight environments and their flight control skills.

1. Normal Mode: When the quadcopter ascends, center the two joysticks at the same time, and the quadcopter will maintain at a fixed point in a horizontal attitude. The position of the direction joystick controls the tilt direction and tilt angle of the quadcopter. The quadcopter has an auxiliary flight function that can assist in adjusting the altitude and horizontal position, which makes it easier for pilot to control. N MODE is displayed in the OSD.

2. Sport Mode: When the quadcopter ascends, pilot needs to operate the throttle joystick to control and adjust the altitude of the quadcopter. The position of the direction joystick controls the tilt direction and tilt angle of the quadcopter. When the direction joystick is moved back to the center, the quadcopter will return to a horizontal attitude. The quadcopter has no auxiliary flight function, which makes the operation relatively difficult for pilot. S MODE is displayed in the OSD.

3. Manual Mode: When the quadcopter ascends, pilot needs to operate the throttle joystick to control and adjust the flight altitude. Position of the direction joystick controls the roll direction and the roll speed of the quadcopter. The quadcopter will maintain its current attitude when the direction joystick is moved to the center. The quadcopter has no auxiliary flight function, and the flight attitude and altitude are completely dependent on the pilot to control the quadcopter by the remote control radio transmitter, which makes the operation very difficult for pilot. M MODE is displayed in the OSD.

4. Turtle Mode: If the quadcopter crashes into the ground and the fuselage is flip, the turtle mode can be activated to reverse the motor and turn the quadcopter back to the front. When in use, the direction joystick is used to control the rotation of the motor to drive the blades to rotate in the reverse direction, thereby realizing the reverse rotation of the fuselage. TURTLE is displayed in the center of the OSD. For more details, please refer to the chapter "Turtle Mode".

Note: Please keep the flight attitude within 0.3-3m when it is in the Normal Mode. This can keep the quadcopter fly stably. The outdoor flying height of the quadcopter should not exceed 3m as far as possible.

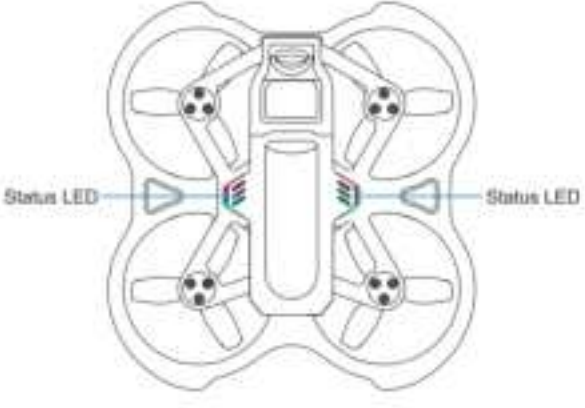
4. Binding the Quadcopter and Transmitter

The Aquila16 quadcopter integrated ExpressLRS 2.4G receiver with the default ExpressLRS 3.0 protocol.

Ensure that your transmitter is on the same protocol as Aquila16 quadcopter, which has all the channels preset beforehand (default channel map is AETR1234).

The following demonstrations are based on LiteRadio 2 SE transmitter (Mode 2 Left Stick Throttle) as an example to explain the binding process.

The binding steps are as follows:
- Ensure that the current protocol on the transmitter is ExpressLRS 2.4G 3.0 protocol;
- Power on and off the quadcopter 3 times rapidly. The status light on the quad turns green and starts to flash slowly, which means it enters the binding mode;
- Power on the transmitter and wait for the initialization to complete.
- Gently press the BIND button on the back of the transmitter, and the red LED on the transmitter will flash rapidly.
- If the status light on the quad turns solid blue, then the binding is successful.



Note:

1. The SPI ELRS 2.4G receiver integrated in Aquila16 supports the default ExpressLRS 3.0 protocol. It is not compatible with ExpressLRS 1.X or ExpressLRS 2.X protocols for frequency connection.

2. The SPI ELRS 2.4G receiver integrated in Aquila16 can use the Passthrough function through the ExpressLRS. It is recommended to only flash ExpressLRS 3.X firmwares. Down-grading to ExpressLRS 2.X may have the risk of firmware failure.

3. After one successful binding, restarting the quadcopter or transmitter will automatically binded. Re-bind is not needed.

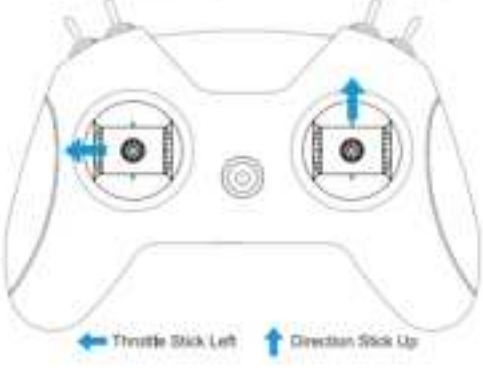
4. The re-binding of the remote control radio transmitter and the quadcopter may not be successful after pressing the BIND button of the remote control radio transmitter once. In this situation, pilot need to repress the BIND button to complete binding.

5. Kindly scan the QR code provided in point 7 of "Preflight Checks" to learn how to bind the transmitter to the quad through the instructional video.

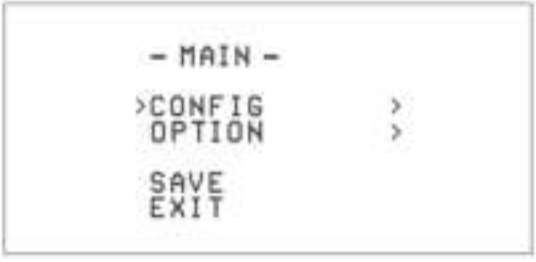
5. How to Access/Operate OSD Setting Menu

Below instruction applies to LiteRadio 2 SE Mode 2 Transmitter(Left Throttle).
The position of joysticks to access the OSD setting menu is shown below. The throttle joystick is moved to the left center and the direction joystick is towards the upward center.

Note: 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.



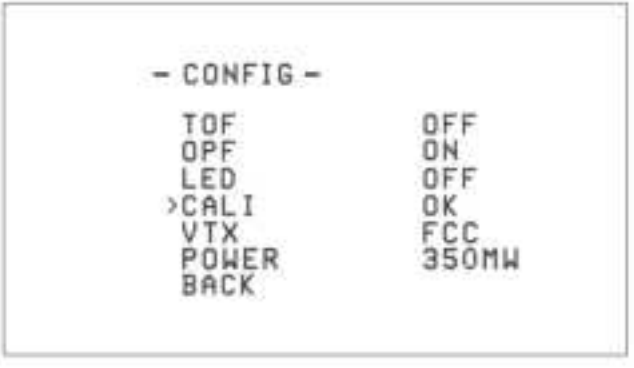
The OSD menu cursor can be controlled by the right joystick to operate the OSD interface:

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

5.1 Quadcopter Level Calibration

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

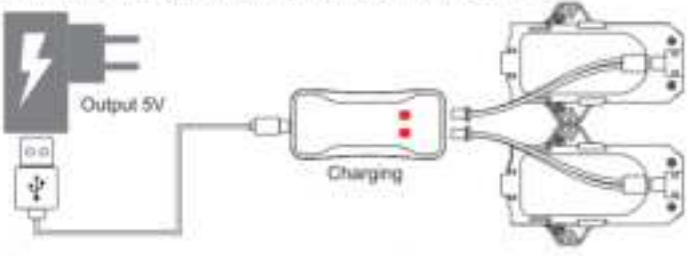
- Turn on the quadcopter and the remote control radio transmitter, and ensure that both devices are binded;
- Place the quadcopter on a horizontal plane;
- Enter the quadcopter's OSD menu (Refer to "OSD Menu Operation");
- In the MAIN menu, select CONFIG, then CALI;
- Push the direction joystick to the right to enter level calibration mode. The 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.



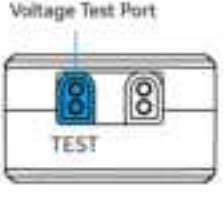
5.2 Battery Charging

Each battery provides 6 minutes of smooth flight. When LOW VOL is displayed in the OSD flight interface, which indicates that the battery is too low and needs to be charged. Charging steps are shown as below:

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



Two batteries can be charged at the same time. Charging a fully discharged battery takes approximately 60 minutes. When the battery is inserted into the TEST port and the charger is not plugged in via USB cable, the current battery level will be displayed. The number of 4.25-4.35 represents a fully charged battery while 3.30 or lower indicates a low battery.



4.25~4.35, Full Charged

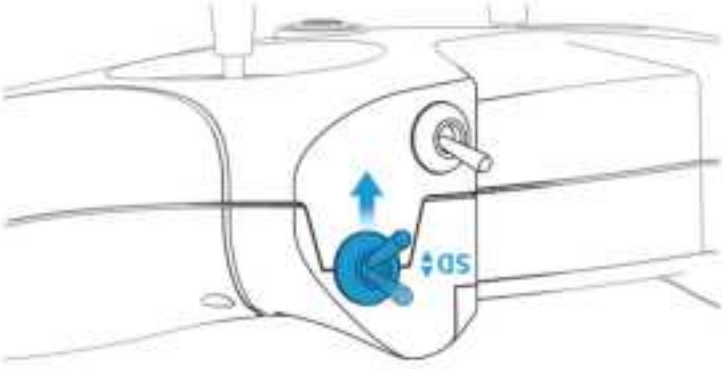
<3.30, Low Power

6. Turtle Mode

When the quadcopter falls to the ground and is facing down, we can activate turtle mode with the remote control radio transmitter to turn it over. To activate turtle mode:

The following example uses LiteRadio 2SE(Left Throttle) to demonstrate.

- Toggle switch SD from down to up to activate turtle mode. TURTLE is displayed in the OSD, as shown below;
- Move the direction joystick towards either direction. The motor will spin, and the quadcopter will reverse;
- Move switch SD down to turn off turtle mode;
- Arm the quadcopter and operate normally.



Quadcopter in Flip State:Toggle Switch SD
from Down to Up to Activate Turtle Mode

Note:

1. Turtle mode is suitable for flat ground and it's not recommended to activate this mode on grass or fabrics as the motor may be obstructed, resulting in damage of the motors and ESC.

2. When the battery power of the quad is too low, such as ≤3.3V, the quad may not be able to complete the Turtle action. At this time, it is necessary to manually flip the quadcopter to the right position.

7. How to Fix Quadcopter Drift

In Normal Mode, the optical flow positioning function of quadcopter is turned on by default. When the drone starts to drift, here is a checklist you should look for to understand why your drone drift sideways and how to fix them.

Q1: The blades are blocked or damaged;
A1: Common solutions include cleaning hair and other foreign objects wrapped around the motor, or replacing damaged blades to avoid friction with the frame protection guard when the blades rotate;

Q2: The ambient light is too dark, or flying above water, causing the optical flow sensor of the hover positioning function to fail.
A2: Please fly in an environment with obvious ground features and sufficient light. Try to avoid adverse environments where it is difficult to identify ground features (such as dark environments or above water), otherwise the quad may drift or have difficulty controlling.
If you need to fly in the above-mentioned adverse environments, please turn off the quad's optical flow positioning function. After the optical flow positioning function is turned off, the quad will lose flight assistance in the horizontal direction. A good flying skill is required from pilot in such scenario. You can enter the OSD setting interface to turn off/on the optical flow positioning function.

Q3: When the quad collides or falls, strong vibration causes the gyro sensor data to shift, and it cannot be automatically repaired.
A3: Enter the OSD menu to manually calibrate the gyroscope.
Enter the OSD menu, CONFIG page, select CALI, turn the joystick to the right to enter manual gyro calibration, the blue light on the quad flashes quickly; After the calibration is completed, the blue light stays on, and the word "OK" is displayed in the OSD menu (Please change Place the quad on a horizontal surface for calibration, do not move the quad during calibration);

```
- CONFIG -

 TOF          OFF
 OPF          ON
 LED          OFF
>CALI         OK
 VTX          FCC
 POWER        350MW
 BACK
```

Note: To set the OSD menu, please refer to the "How to Access/Operate OSD Setting Menu" chapter in the manual. For the detailed gyroscope calibration process, please refer to the "Quadcopter Level Calibration" chapter in the manual.

Q4: The ambient wind speed is greater than level 3, resulting in unstable hovering.
A4: In an environment with excessive wind speed, it is recommended to fly in S or M mode. Or turn off the optical flow positioning function and manually control the horizontal position of the flight. Kindly enter the OSD setting interface to turn off/on the optical flow positioning function.

Q5: Hovering is unstable due to dirty sensors.
A5: Please ensure that there is no covering object underneath the sensor and no dirt or dust on the sensor surface that affect its accuracy. When flight assistance is abnormal, please kindly wipe the sensor clean before continuing to use it.

1. 产品清单

1 * "云鹰16" Aquila16无刷整机

配件清单:
2 * Aquila16专用电池1100mAh
1 * 1S电量充电器
2 * 充电转接线
4 * 桨叶（备用）
1 * 取桨器
1 * 专用螺丝包（备用）
1 * 十字螺丝刀
1 * 4Pin转接线
1 * USB Type-C转接板 （与4Pin转接线配合用于飞控连接上位机调参）
1 x 使用说明书

2. 飞行前注意事项

1. 取出所有设备，对照产品清单，确定配件齐全无损，确定飞机机架无变形。
2. 检查桨叶和电机是否安装正确和稳固。
3. 检查电机是否能够正常旋转，如果出现桨叶摩擦机架，或者异物缠绕等阻碍电机旋转情况，请先处理。
4. 确保遥控器电池，飞机电池以及FPV眼镜电池电量充足。
5. 请确保熟知每个摇杆的功能后再进行飞行。
6. 请选择空旷场地进行试飞，并且人与飞机保持一米以上距离，小心操作，注意安全。
7. 请扫描以下二维码，通过视频了解如何拆装飞机电池以及如何使遥控器与飞机对频。

3. 飞行模式介绍

飞行模式显示在飞行画面的右下角位置，对应飞机的飞行方式。操控者可以根据不同的飞行环境和自身操控飞行技巧，选择不同的飞行模式。

1. 普通模式：即定高定点模式，飞机启动上升之后，油门摇杆居中时，飞机会以水平姿态定点悬停，向上推动油门摇杆时，飞机垂直上升，向下推动油门摇杆时，飞机垂直下降，方向摇杆的位置对应飞机的倾斜方向和倾斜角度，难度较小，OSD中显示N MODE。
2. 运动模式：飞机启动上升后，飞行者需要操作油门摇杆来控制和调整飞机的高度，方向摇杆的位置对应飞机的倾斜方向和倾斜角度，摇杆回中后，飞机会恢复水平姿态，飞机无辅助飞行功能，难度较大。OSD中显示S MODE。
3. 手动模式：飞机启动上升后，飞行者需要操作油门摇杆来控制和调整飞机的高度，方向摇杆位置对应飞机的翻滚方向和速度，摇杆回中后，飞机会保持当前姿态。飞机无辅助飞行功能，完全依靠飞行者通过遥控器操控飞机飞行，难度大。OSD中显示M MODE。
4. 反乌龟模式：若飞机碰撞落地后机身是反面朝上的状态，可通过启用反乌龟模式，使电机反转，将飞机翻转回正面。使用时用方向摇杆控制马达转动带动桨叶反转，进而实现机身反转回正。OSD中在屏幕正中央显示TURTLE。详见“反乌龟模式”章节。

注意：在使用普通模式飞行时，尽量选择无风环境，飞机启动高度保持在0.3~3m范围，可以使飞机更平稳地飞行，飞机室外飞行高度尽量不要超过3m。

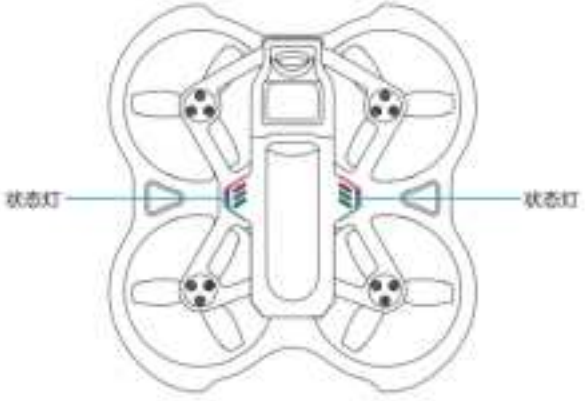
4. 遥控器和飞机对频

Aquila16整机集成ExpressLRS 2.4G接收机，出厂默认ExpressLRS 3.0协议。
使用遥控器与飞机对频，确保您的遥控器使用的协议和Aquila16整机的协议是一致的，并且已经配置正确了遥控器通道（通道配置为AETR1234）。

下面以遥控器LiteRadio 2 SE，美国手版本（左手油门）为例进行说明。

对频步骤如下所示：

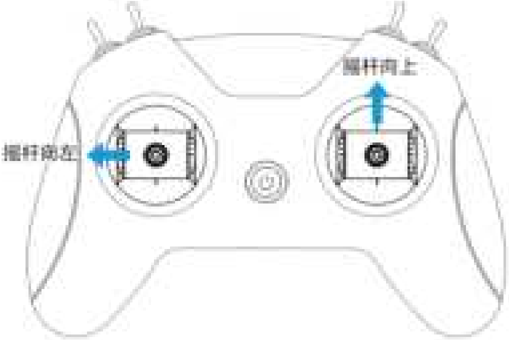
- 确保遥控器当前协议为ExpressLRS 2.4G协议第3版，即ELRS 3.0版本；
- 飞机快速连续上电三次，飞机上的状态灯变为绿色，并且开始缓慢闪烁，即进入对频模式；
- 遥控器开机，等待遥控器初始化完成；
- 用螺丝刀轻按遥控器背部的BIND按键，遥控器LED灯色快速闪烁；
- 如果对频成功，则飞机状态灯变为蓝色常亮，连接正常。



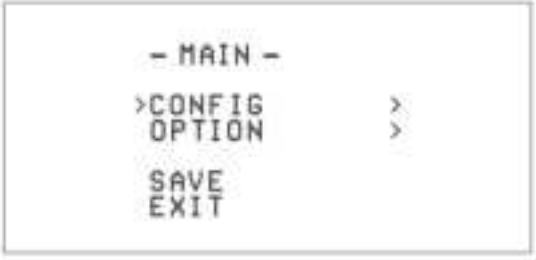
注意：
1. Aquila16集成的Serial ELRS 2.4G接收机出厂默认支持ExpressLRS 3.0协议，使用ExpressLRS 1.X或者ExpressLRS 2.X协议无法对频连接；
2. Aquila16集成的Serial ELRS 2.4G接收机可以通过ExpressLRS上位机使用Passthrough功能，建议更新ExpressLRS 3.X即可，更新为ExpressLRS 2.X可能存在未知的风险；
3. 对频成功之后，重启飞机或者遥控器，将会自动完成连接，无需每次上电重新对频。
4. 遥控器与飞机重新对频时，可能按压一次遥控器BIND键会无法完成对频操作，此时需要按压第二次遥控器的对频键才能完成对频。
5. 您也可以通过扫描"飞行器注意事项"第1页提供的二维码，通过教学视频了解遥控器如何与飞机对频。

5. OSD设置菜单操作

下面以遥控器LiteRadio 2 SE，美国手版本（左手油门）为例进行说明。
进入OSD设置菜单的打杆方式如下图所示，油门摇杆在中位向左打杆到底，方向摇杆同时向上打杆到底。注意，必须确保飞机处在上锁状态才能进入OSD菜单



进入OSD菜单之后，可以在FPV图像中看到如下图所示的主菜单界面。



可以通过方向摇杆控制OSD菜单光标，从而进行OSD界面操作：

- 往上打，光标往上移动
- 往下打，光标往下移动
- 往右打，确定/修改

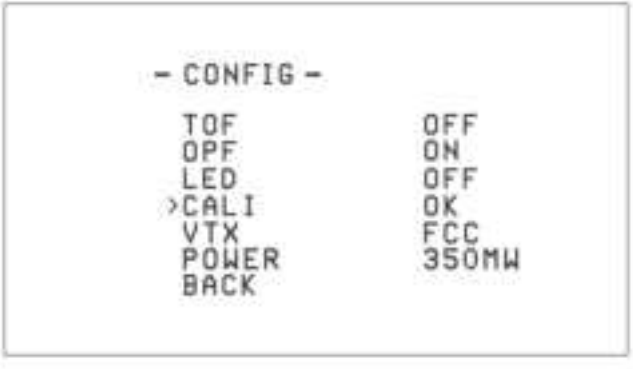
6. 飞机水平校准

飞机在多次起落之后，可能会出现飞机陀螺仪数据偏移的问题，表现为飞机飞起来之后，前单一方向倾斜。这个时候，可以将飞机进行陀螺仪数据校准。校准步骤如下：

- 将飞机和遥控器开机，并且确保连接成功；
- 将飞机放置于水平平面上；
- 通过遥控器操作，进入OSD设置菜单；
- 在MAIN主界面，选中CONFIG并进入CONFIG界面，并且将光标移动到CALI所在行。

如下图所示：

- 向右打方向摇杆，进入飞机水平校准，飞机蓝灯闪烁；
- 当后面出现OK提示，飞机恢复蓝灯常亮时，校准完成，退出OSD菜单即可。



7. 飞机电池充电

一片电池最长可以飞行8分钟。当OSD飞行界面上显示LOW VOL，表示电池电量过低，需要充电。充电步骤如下：

- 取出充电器，并且通过连接线插入Type-C接口中；
- 将电池接入充电器右侧的接口中，充电器变为红色，表示正在充电；
- 充电器LED指示变为绿色，充电结束。

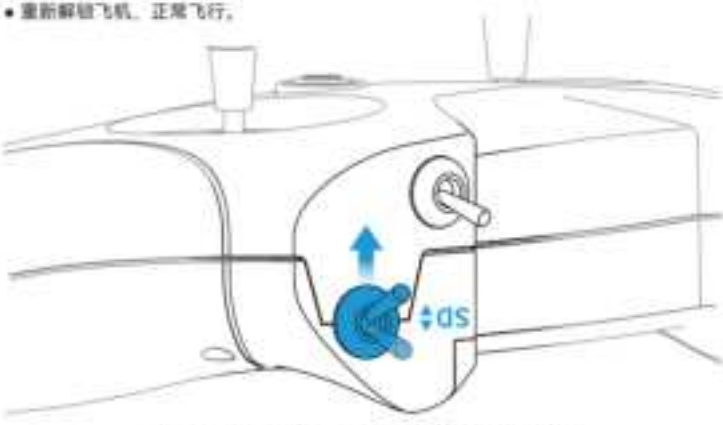
充电器一次可以充电2片电池。一片电池充电时间为60分钟左右。使用充电器上的测试口可以测试电池电量情况，电池插入测试口时会显示当前所插入电池的电量。显示4.25-4.35表示电池是满电；显示3.30及以下表示电池电量过低。

8. 反乌龟模式

当飞机掉落地上，并且正面朝下的时候，可以通过遥控器使用反乌龟模式把飞机反过来，基本步骤如下：

下面以遥控器LiteRadio 2 SE，美国手版本（左手油门）为例进行说明。

- 把SD旋杆从下到上拨动一次，开启反乌龟模式，OSD图像中显示TURTLE，如下图所示；
- 朝任一方向拨动方向摇杆，马达转动，飞机反转过来；
- 把SD旋杆拨到最下，关闭反乌龟模式；
- 重新解锁飞机，正常飞行。



飞机反面朝上时，从下到上拨动一次开启反乌龟模式

注意：

1. 反乌龟模式建议在较为平整地面进行，如果掉落在草地、沙地等表面，飞机正面朝下时，可能会有异物卡住马达，影响计使用反乌龟翻动马达，会导致飞机损坏。
2. 当飞机电池电量过低时，如<3.5V时，飞机可能无法完成反乌龟动作，这时需要手动把正机身。

9. 悬停故障排除指南

普通模式下，飞机的光流定位功能处于开启状态，该功能可以实现飞机水平方向的飞行辅助，将油门摇杆放至中位时，能够实现精准的定点悬停。如果起飞之后悬停不稳，朝某个方向偏飞，可以通过下面几个步骤排除故障。

常见问题一：马达桨叶出现缠转或者损坏；
解决方案：常见的如清理马达上缠绕的头发等异物，或者更换损坏的桨叶，避免桨叶旋转时摩擦到机架保护环；

常见问题二：环境光线太暗，或者在水面上方，导致悬停定位功能的光流传感器失效。
解决方案：请到地面特征较明显、光线较为充足的环境下飞行，需要尽量避开难以识别地面特征的不良环境（如光线较暗的环境或水面上方），否则飞机可能会出现有漂移或控制困难的问题。
若需要在上述不良环境中飞行，可以关闭飞机的光流定位功能。光流定位功能关闭后，飞机会失去水平方向上的飞行辅助，因此要求飞行者有较好的飞行基础。可以进入到OSD设置界面关闭/开启光流定位功能。

常见问题三：飞机在碰撞或者掉落时，强烈振动导致了陀螺仪传感器数据发生偏移，且无法自动修复。
解决方案：进入OSD菜单进行一次手动校准陀螺仪。

进入OSD菜单，CONFIG页面，选中CALI，向右打方向摇杆进入手动陀螺仪校准，飞机上蓝色灯快速闪烁，校准完成后蓝色灯常亮，并且OSD菜单中显示OK字样；（请将飞机放置在水平面上进行校准，不要在校准过程中移动飞机）

```
- CONFIG -

  TOF          OFF
  OPF          ON
  LED          OFF
 >CALI         OK
  VTX          FCC
  POWER        350MW
  BACK
```

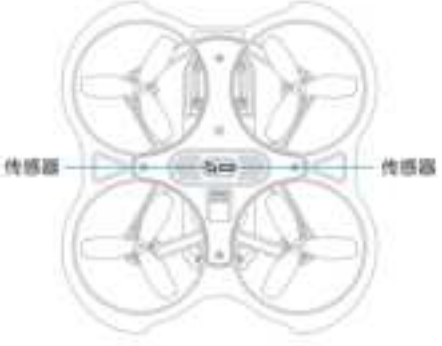
注意：设置OSD菜单请参考说明书"OSD设置菜单操作"章节，详细的陀螺仪校准过程请参考说明书"飞机水平校准"章节。

常见问题四：环境风速大于3级导致悬停不稳。

解决方案：在风速过大的环境下，建议使用S档或者M档飞行。或者关闭光流定位功能，手动控制飞行的水平位置。可以进入到OSD设置界面关闭/开启光流定位功能。

常见问题五：因传感器脏污导致悬停不稳。

解决方案：请确保传感器下方没有被异物遮挡，传感器表面没有影响其精度的污渍和灰尘。飞行辅助异常时可以擦拭干净传感器再继续使用。



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BETAFPV

免责声明与安全操作指南

Disclaimer and Safety Guidelines

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免责声明与警告

免责声明

本产品并非玩具，需要有一定的基础知识才能控制，所以请确保熟悉，在开始使用前，请特别留意其中的注意与警告。深圳市贝塔科技有限公司（BETAFPV）保留更新本《免责声明与安全操作指南》的权利。

本产品为多旋翼飞行器，配备了动力强劲的电机和锋利的螺旋桨，具有较快的飞行速度，同时具有一定的危险性，操作时需谨慎使用，在电源正常工作且各部件未损坏的情况下将提供优异的飞行体验。

务必在使用产品之前仔细阅读本文档，了解您的合法权益、责任和安全说明，否则，可能带来财产损失、安全事故和人身安全隐患。一旦使用本产品，即视为您已理解、认可和接受本文档全部条款和内容。使用者承诺对自己的行为负责及因此而产生的所有后果负责。使用者承诺仅出于正当目的使用本产品，并且同意本条款及BETAFPV可能制定的任何相关政策或者准则。

本产品的文档会有更新，恕不再行通知，请访问https://betafpv.com/了解最新信息。

警告

请务必熟悉产品的功能之后再进行操作。如果没有正确操作本产品可能会对自身或他人造成严重伤害，或者导致产品损坏和财产损失。本产品较为复杂，需要经过一段时间熟悉后才能安全使用，并且需要具备一些基本常识后才能进行操作。本产品不适合儿童使用。切勿使用非BETAFPV提供或建议的部件，必须严格遵守BETAFPV的指南安装和使用产品。本指南文档包含安全、操作和维护等说明。在进行组装、设置和使用之前务必仔细阅读用户手册中的所有说明和警告。

出口管制

遵守出口管制法律

本产品的出口、再出口或转移需受中国的出口管制法律及其他适用的出口管制法律管控。除非适用的出口管制法律允许，或者获得相关出口管制主管机构的许可，您对本产品的使用、销售、转让、出租或者其他行为需要满足：
1. 不违反适用出口管制法律的禁运政策。
2. 不向适用出口管制法律禁止的最终用户进行交易。
3. 仅用作民用用途，禁止直接或间接将BETAFPV产品用于以下内容或与其有关的（1）任何军事战斗目的或军事战斗相关用途；（2）恐怖主义活动；（3）其他犯罪和违法行为。受让方也应要求其客户或最终用户遵守前述要求。

出口合规免责声明

您需要遵守适用中国及其他国家或地区适用的出口或进口管制法律，任何由于您使用、销售、转让、出租本产品或其他行为导致违反前述适用的出口或进口管制法律的情形下，您将独立承担相应法律责任。BETAFPV在任何情况下均不对您违反适用的出口或进口管制法律的行为负责，并且您还应保障BETAFPV及其附属机构、管理人员、员工、代理商、代表人不因您的前述行为而遭受任何法律责任和损害。如发生前述情况，您将承担相关费用，包括但不限于赔偿金、诉讼费、律师费、差旅费等。

使用须知

遥控器

1. 每次飞行前，确保遥控器电量充足。
2. 如更换遥控器，需要重新对频。
3. [illegible]

飞行器

1. 每次飞行前，确保飞行器电量充足。
2. [illegible]
3. [illegible]

电池

1. 充电时必须使用符合规格的充电器。
2. 请勿在无人看管的情况下充电。
3. 请勿过充。
4. 请勿短路（正负极接触）。
5. 请在0-45℃的温度内充电。
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. [illegible]
12. [illegible]
13. [illegible]

注意：电池电可能高温烫手！

飞行警告

1. 恶劣天气下请勿飞行，如大风、下雪、下雨、有雾天气等。
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]

法律规范

警告

为避免违法行为，可能的伤害和损失，务必遵守以下告诫

1. 禁止将飞行器进行任何改装或用于其他非法用途。
2. 切勿在载入飞机燃油飞行，必要时立即降落。
3. 禁止在大型活动现场使用飞行器，这会给他们造成不便于、体验过差体验、骚扰员。
4. 切勿在有效法律禁止的区域飞行。
5. 确保飞行器飞行时不会对航线上的大型载入飞行器造成影响，控制保持警惕，并解避免在飞行器。

小心

为避免违法行为，可能的伤害和损失，务必遵守以下告诫

1. 禁止操控飞行器进入法律法规规定的禁飞区，禁飞区包括但不限于：机场、边境线以及主要城市和临时举行活动区域。
2. 禁止在超过限定高度的空域飞行。
3. 确保飞行器在您的视距范围内飞行，您每必要可实时观察其有助您监控飞行器位置。
4. 禁止使用飞行器搭载任何违法危险物品。

注意

1. 确保您已清楚了解飞行活动的类别（例如：娱乐、公务或商务），在飞行前务必获取相关部门颁发的许可证，如有必要，可向当地政府主管部门咨询飞行活动类别的详细定义说明。请注意，在某些地区和国家禁止使用飞行器进行任何形式的商业行为。

2. 禁止在靠近建筑设施、学校、发电站、水电站、监狱、交通要道、机场大楼以及军事设施附近使用飞行器。

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Disclaimer and Warning

Disclaimer

This product is a multi-rotor aircraft, equipped with powerful motors and sharp propellers, has fast flight speed, but also has a certain hazard when operating, need to be used with caution.

This product is not a toy and requires some basic knowledge to control, so please pay special attention to the warnings and cautions before you start using it. BETAFPV reserves the right to update this Disclaimer.

By using this product, you are deemed to have understood, acknowledged and accepted all of the terms and conditions of this document and you undertake to be responsible for your own actions and all consequences arising therefrom. You undertake to use this product only for legitimate purposes and agree to all of the terms and conditions of this document and any related policies or guidelines that BETAFPV may establish.

BETAFPV reserves the right to update this disclaimer and the safety guidelines. Visit https://betafpv.com/ for the latest version.

Individual Parts

Remote Controller

1. Make sure remote controller batteries are fully charged before flight.
2. It is necessary to be re-bind if the remote controller has been replaced.
3. DO NOT block or cover the built-in antenna of the remote control for a strong antenna reception.

Aircraft

1. Make sure aircraft batteries are fully charged before flight.
2. Make sure propellers are in good condition and mounted onto the motors correctly and securely.
3. Make sure the battery is mounted securely.

Battery

1. Only use a battery charger that meets the specifications when charging.
2. Never leave while battery is in charging process. Do not charge the battery unattended.
3. Do not over charge the battery.
4. Do not short circuit the battery. Make sure the wire connection polarity is correct.
5. Do not charge/discharge battery at of recommended temperature range (Charge: 0 to 45℃).
6. Always place the battery in a fire resistant surface or fire safety container alone when charging/discharging. The middle of a cement driveway is a good example of a safe location.
7. Do not allow LiPo cells to overheat at any time. Cells which reach greater than 60℃ will usually become damaged and will catch fire.
8. Do not charge/discharge battery inside house, garage, vehicle, building and away from any combustible material.
9. Do not over discharge the battery. Do not discharge a battery pack to a level below 3.3V per cell.
10. Do not allow the electrolyte to get into eyes or on skin. Wash affected areas immediately if they come into contact with electrolyte. Do not alter or modify connectors or wires of a LiPo battery pack. Do not have contact with a leaky/damaged battery directly.
11. Do not assemble LiPo cells or pre-assembled packs together with other LiPo cells or packs.
12. Inspect batteries if crash, battery should be placed in a safe area for observation for at least 30 minutes after crash.

Caution: The battery may be in high temperature!

Flight Condition Requirements

1. Do not fly in severe weather conditions including strong wind, snow, rain, fog, etc.
2. 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.
3. When flying, please keep control within sight and away from obstacles, crowds, water, etc.
4. Please do not fly in areas with high voltage lines, communication base stations or transmission towers to avoid interference.
5. Do not take off from moving objects, such as cars and ships.
6. Do not use the aircraft in an environment at risk of a fire or explosion.
7. To avoid injury, stay away from rotating propellers or motors.

Regulations

WARNING

To avoid non-compliant behavior, serious injury, and property damage, observe the following rules:
1. DO NOT modify the aircraft or use the aircraft for other illegal purposes.
2. DO NOT operate in the vicinity of manned aircraft, regardless of altitude. If necessary, land immediately.
3. DO NOT fly the aircraft in areas where the large events are being held, including but not limited to sporting events and concerts.
4. DO NOT fly the aircraft in areas prohibited by local laws.
5. Remain well clear of and DO NOT interfere with manned aircraft operations. Be aware of and avoid other aircraft and obstacles at all times.

CAUTION

To avoid non-compliant behavior, serious injury, and property damage, observe the following rules:
1. DO NOT fly the aircraft near or inside restricted zones specified by local laws and regulations. Restricted zones include, but are not limited to, airports, borders between two sovereign countries or regions, major cities, and areas where temporary events or activities are being held.
2. DO NOT fly the aircraft above the authorized altitude.
3. Make sure to keep your aircraft within VLOS, and use an observer to assist if needed.
4. DO NOT use the aircraft to carry illegal or dangerous payloads.

NOTICE

1. Make sure you understand the nature of your flight operation (such as for recreation, for public use, or for commercial use) and have obtained corresponding approval and clearance from the related government agencies before flight. Consult with your local regulations for comprehensive definitions and specific requirements. Note that remote controlled aircraft may be banned from conducting commercial activities in certain countries and regions.

2. DO NOT fly around sensitive infrastructure or property such as power stations, water treatment facilities, correctional facilities, heavily traveled roadways, government facilities, and military zones.

Export Controls

Comply with Applicable Export Control Laws

You are advised that export, re-export, and transfer of the Products are subjected to Chinese export control law and other applicable export control laws and sanctions (hereafter collectively referred to as "Export Control Laws"). Prior to your use, sale, transfer, rental, or other conduct related to the Products, unless permitted by the Export Control Laws or with the license issued by competent authorities, you shall in particular check and guarantee by appropriate measures that:

1. There will be no infringement of an embargo imposed by the Export Control Laws;
2. The Products will not be provided to the entities, persons, and organizations listed in all applicable sanctioned party lists;
3. It is only for civilian use, and it is forbidden to directly or indirectly use BETAFPV products for or related to the following content (1) any military combat purpose or military combat-related purposes; (2) terrorist activities; (3) other criminal acts. The purchaser shall also require its customers or users to comply with the aforementioned requirements.

Export Compliance, Disclaimer & Indemnity

You acknowledge it is your responsibility to comply with Chinese export control law and any other applicable export control laws. You shall solely be responsible for the legal responsibility if any of your use, sale, transfer, rental or other conduct related to the Products fail to comply with the applicable export control laws. BETAFPV shall, in no circumstances, be responsible for your violation of any applicable export control laws. Furthermore, you shall indemnify, defend, and hold harmless BETAFPV, its affiliates, directors, officers, employees, agents, and representatives, from and against any and all claims, demands, suits, causes of action, expenses (including reasonable attorneys' fee), damages, losses, or liabilities of any nature whatsoever, arising from, or allegedly arising from, or related to, your failure to comply with applicable export control laws.

Compliance Information

FCC STATEMENT

This equipment complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference interference that may cause undesired operation.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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