BETAFPV Configurator User Manual

Software Introduction

BETAFPV Configurator is an open-source configuration tool specifically designed for BETAFPV drone and Radio Transmitter. It can assist users in easily configuring and adjusting various parameters of the drone and Radio Transmitter, thus achieving more efficient flight control.
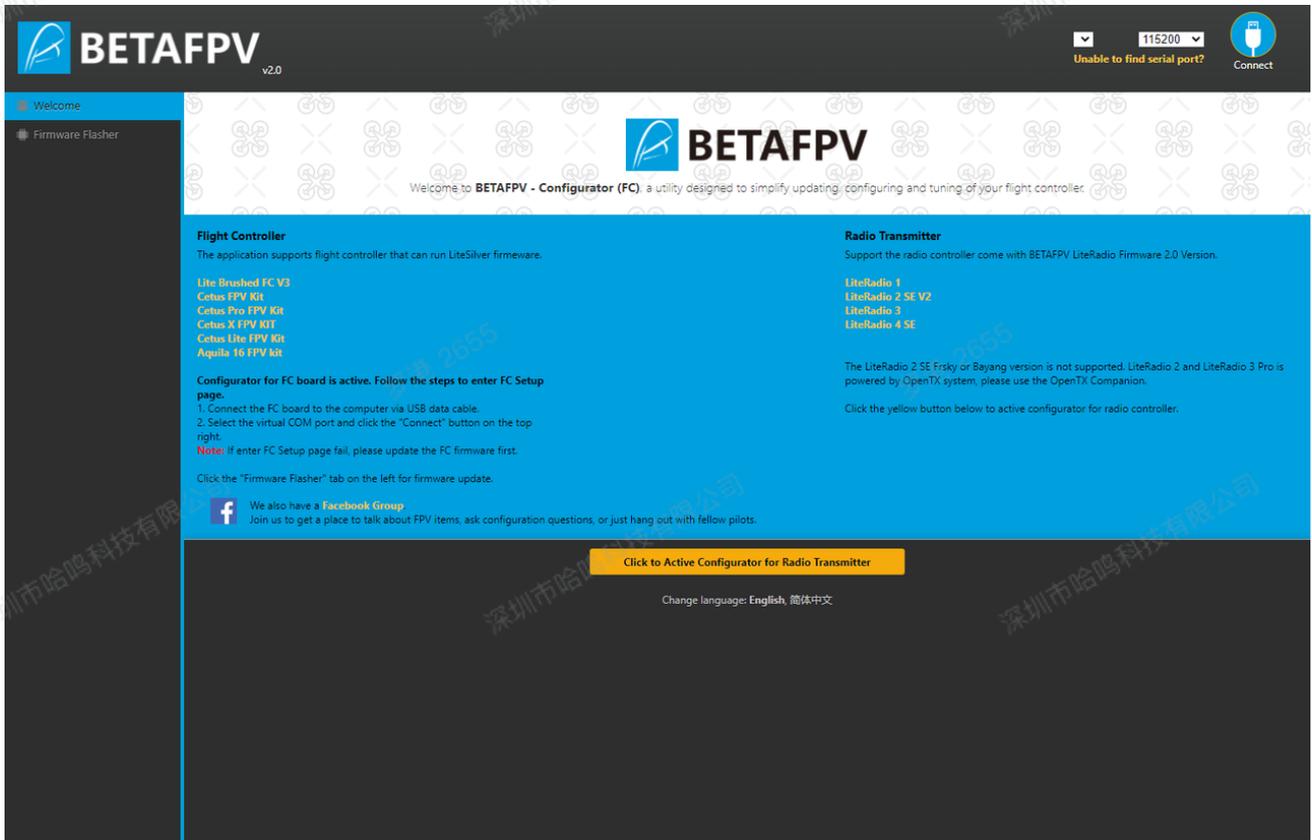
Supported Products：

- Flight Controllers/Complete Drones: Lite Brushed FC V3, Cetus FPV Kit, Cetus Pro FPV Kit, Cetus X FPV Kit、Aquila16 FPV Kit.

- Radio Transmitters: LiteRadio 1, LiteRadio 2 SE V2, LiteRadio 3, LiteRadio 4 SE.

Software Features：

- Parameter Adjustment: For the LiteRadio series Radio Transmitters and Cetus drones with specific hovering functions under BETAFPV, users can effortlessly adjust PID controller parameters through an intuitive graphical interface to optimize the flight performance. They can

also modify RF module parameters and set channel mixing control functions via the Radio Transmitter configuration panel to meet diverse requirements. For instance, in the PID adjustment, users can fine-tune the proportional, integral, and differential coefficients according to the drone's specific model, flight environment, and personal control habits to achieve the best flight performance.

- Real-time Feedback: Every setting change made by the user is instantly shown, facilitating real-time monitoring and further adjustments. This allows users to quickly understand the impact of parameter adjustments on the drone or Radio Transmitter. The immediate display of changes helps users make more informed decisions during the configuration process.

- Troubleshooting: When there is an issue with the drone or Radio Transmitter, this software can assist users in checking the firmware version and product status. By providing such information, it helps identifying and resolving issues effectively. For example, if the drone is not flying stably, users can use the software to check the sensor status and firmware version to identify possible problems.

- Firmware Flashing: The software supports firmware flashing for flight controllers and Radio Transmitters. It simplifies the firmware flashing process and provides clear prompts and a progress indicator during the operation to efficiently complete the firmware update. This ensures that users can easily keep their devices up to date with the latest firmware versions.

Software Download Link：

- Nutstore Link (Recommended for China Users):
  https://www.jianguoyun.com/p/DT3e2A4Q_afyCRjhv9oFIAA
- Github Link:

https://github.com/BETAFPV/BETAFPV_Configurator/releases/tag/V2.0.0

Installation Guide

Supported Systems：

BETAFPV Configurator supports Windows, macOS, and Linux (Debian series).

Windows System Installation

Windows users need to obtain the.exe file from the software download link. After downloading, double-click the installation wizard and follow the prompts to complete the software installation. Once installed, the software is ready to be used.

macOS System Installation

macOS users need to obtain the.dmg file from the software download link. The dmg file is divided into arm64 and x64 versions according to the computer's CPU architecture. Therefore, you need to determine your CPU architecture first and then download the corresponding dmg file for installation.

Method to Check CPU architecture in macOS:

1. Launchpad --> Search for "Terminal" or "terminal" --> Open Terminal.

2. Enter the following command to obtain CPU architecture information:

```
uname -a
```

3. At the end of the output content, the words "arm64" or "x64" will be displayed.

Installation Instructions:

1. Open the downloaded dmg file, drag the BETAFPV Configurator software icon to the Applications folder with the left mouse button and release it, as shown in the following figure:

Betafpv_Configurator_mac_arm64_...7.37.35.dmg

Betafpv_Configurator_mac_arm64_2.0.0

Betafpv_Configurator_mac_arm64_2.0.0

鼠标拖拽图标到这
Mouse drag icon to here

BETAFPV_Configurator

应用程序

2. Open Terminal, enter the following command, then enter a space, and do not press Enter yet. Keep this window open:

```
sudo xattr -rd com.apple.quarantine
```

3. Finder --> Applications --> Find the BETAFPV Configurator installed just now --> Drag the BETAFPV Configurator icon to the Terminal window reserved in step 2 --> Press Enter. The process of steps 2 and 3 is shown in the following figure:
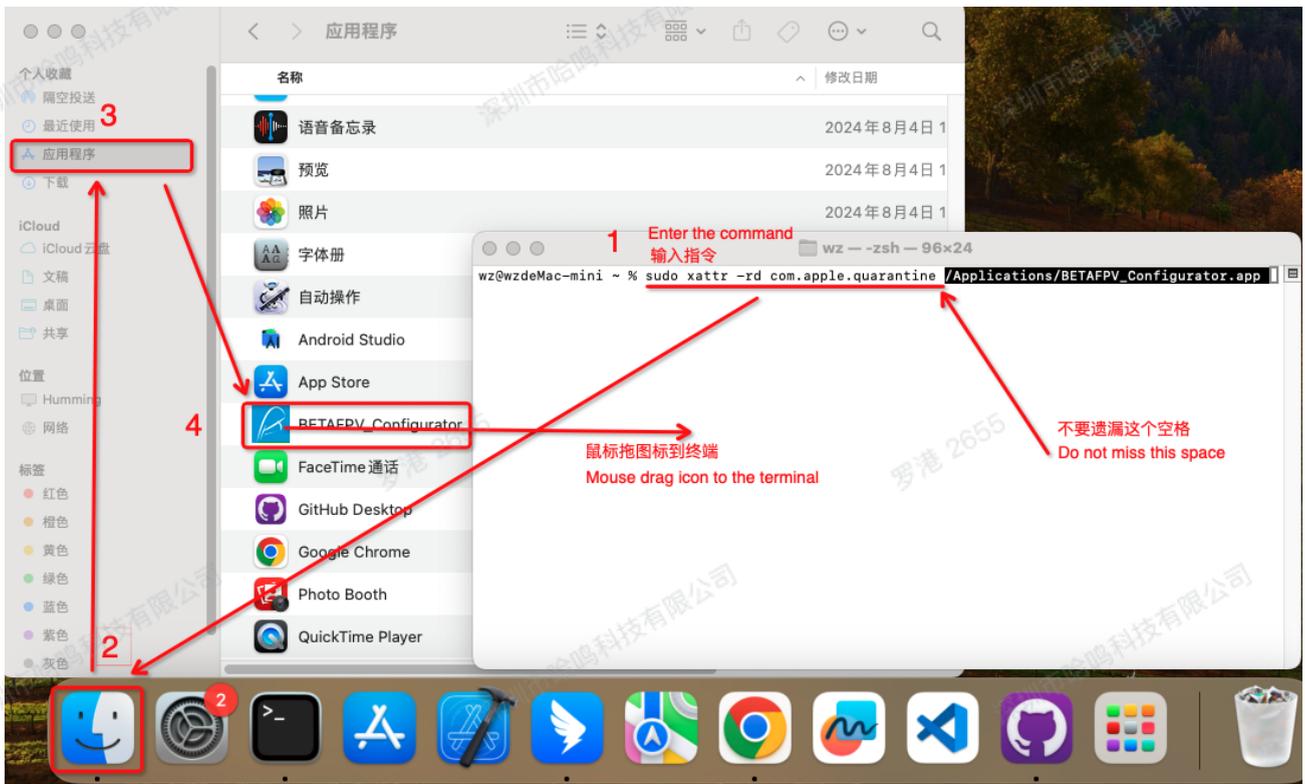
4. Enter the startup password --> Press Enter.

Linux System Installation

Linux users need to obtain the.deb file from the software download link.

Installation Instructions:

1. Open Terminal in the folder where the downloaded.deb file is located.

2. Execute the following command to install:

```
sudo dpkg -i BETAFPV_Configurator_2.0_linux_x64.deb
```

3. After installation, you need to enable USB-CDC device permissions. First, execute the following command in Terminal to obtain the group where ACM0 is located:

```
ls -l /dev/ttyACM0
```


4. You can see that the USB device belongs to the dialout user group. Enter the following command to view the username of the currently logged-in Linux account:

```
whoami
```

```
liyou@liyou-B450M-DS3H:~/Desktop$ whoami
liyou
```

5. Add this username to the dialout group. Taking the username liyou as an example:

```
sudo usermod -aG dialout liyou
```

6. You also need to enable USB-HID permissions. Open Terminal at any location and enter the following command to enter the rules directory:

```
cd /etc/udev/rules.d/
```

7. Create a betafpv-configurator.rules file and enter editing:

```
sudo vi betafpv-configurator.rules
```

8. Enter the following content, save and exit the vim editor:

```
SUBSYSTEMS=="usb",ATTRS{idVendor}=="0483",ATTRS{idProduct}=="5750",MODE=
"0777"
```

9. Reboot the computer to make all modifications take effect:

```
reboot
```

Function Introduction - Radio Transmitter

Function Configuration

Click the "Click to Active Configurator for Radio Transmitter " button marked by the rectangular box in the following figure to switch to the Radio Transmitter configuration program.
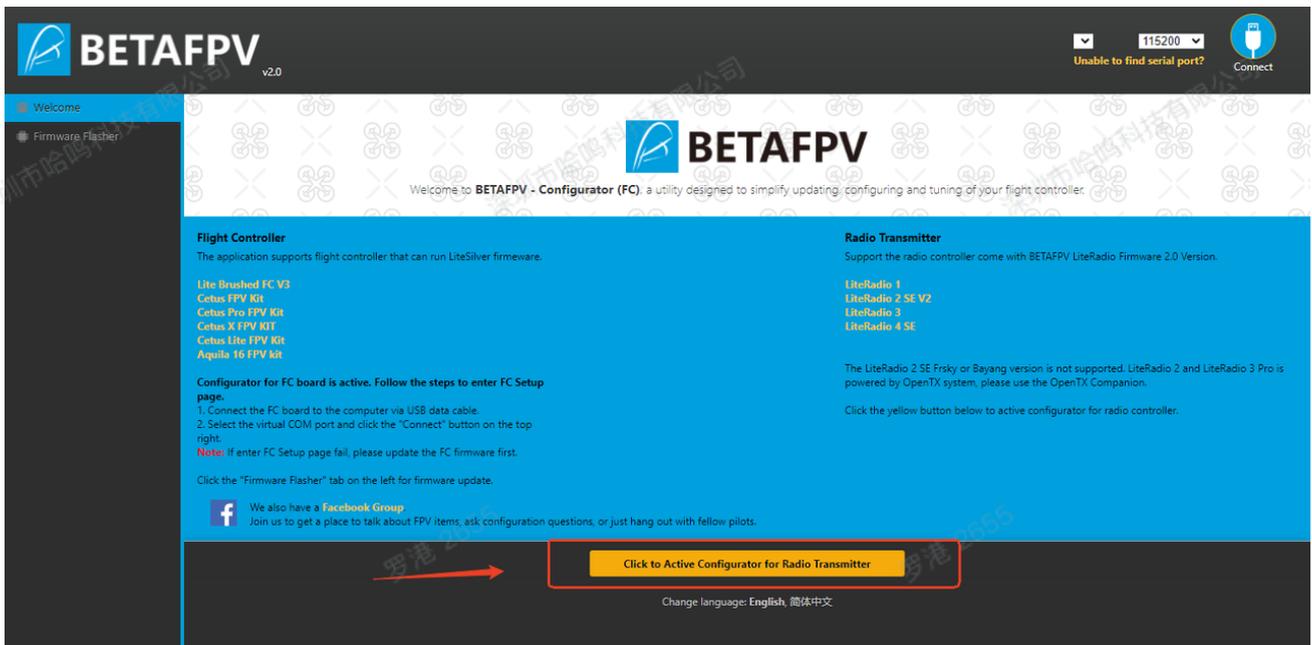
Entering the Radio Transmitter Configuration Panel:

1. Ensure that the Radio Transmitter is powered off and connect it to the computer via USB.

2. The "Handset" will be displayed in the upper right drop-down box when the Radio Transmitter is recognized.

3. Click the "Connect RC" button in the upper right corner to enter the configuration panel.

Configuration Panel Module Functions

- Basic Configuration: Displays complete basic configuration information, which is the basis for successful connection of the Radio Transmitter. This includes details such as the factory hardware of the Radio Transmitter and the current software version.

Radio Setup

Unit type: LiteRadio 3 SX1280 Internal Radio module: SX1280 Hardware version: 1.0.0 Firmware version(Firmware release date): 2024.12.03

Mode 2 Switch throttle stick position: Mode 1 (right stick throttle AKA Japan hand) Mode 2 (left stick throttle AKA American hand)

OFF Trainer Port

- RF-related Configuration: Used to switch protocols, set internal and external TX Module, and modify ExpressLRS parameters.

RF Module Setup

Internal RF module and external RF moudule could NOT open at the same time.

ON Internal RF module

ELRS3 2.4G Internal RF system radio link protocol

OFF External RF module

CRSF External RF module serial port protocol

ExpressLRS Protocol Setup

Configurator could detect the ExpressLRS system automatically. Please make sure the ExpressLRS system exist and setup correctly in the left "RF Module Setup" tab. Do NOT forget to "Save and reboot".
Internal ELRS is runing,Radio frequency:2.4GHz.

100mw Power

LORA_250HZ Pkt Rate

1:64 TLM Radio

☐ Enable Bind phrase

- Channel Configuration: You can modify the input-output mapping relationship according to your preferences (for example, configure it as American Mode (Right stick throttle), and also configure individual channels with proportion, offset, reverse, etc.

MIXS

Channel	Input	Scale	Offset	Reverse
CH1	Roll(A)	100	0	☐
CH2	Pitch(E)	100	0	☐
CH3	Throttle(T)	100	0	☐
CH4	Yaw(R)	100	0	☐
CH5	SA	100	0	☐
CH6	SB	100	0	☐
CH7	SC	100	0	☐
CH8	SD	100	0	☐

CH1 0
CH2 0
CH3 1
CH4 0
CH5 -100
CH6 0
CH7 -100
CH8 -100

- Other Configurations: Beeper switch, joystick dead zone adjustment.
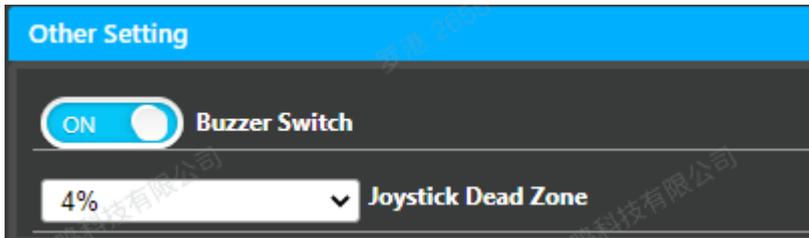
- After the configuration is completed, click the "Save and Restart" button in the lower right corner to ensure that the modified functions take effect when the Radio Transmitter is turned on next time.

Firmware Update

Firmware update allows the Radio Transmitter to obtain the latest support, including:

- Unlocking new features.

- Fixing known issues.

Entering the Radio Transmitter Firmware Update:

After switching to the Radio Transmitter configuration program, click the firmware flasher in the left menu bar to enter the Radio Transmitter firmware upgrade interface.
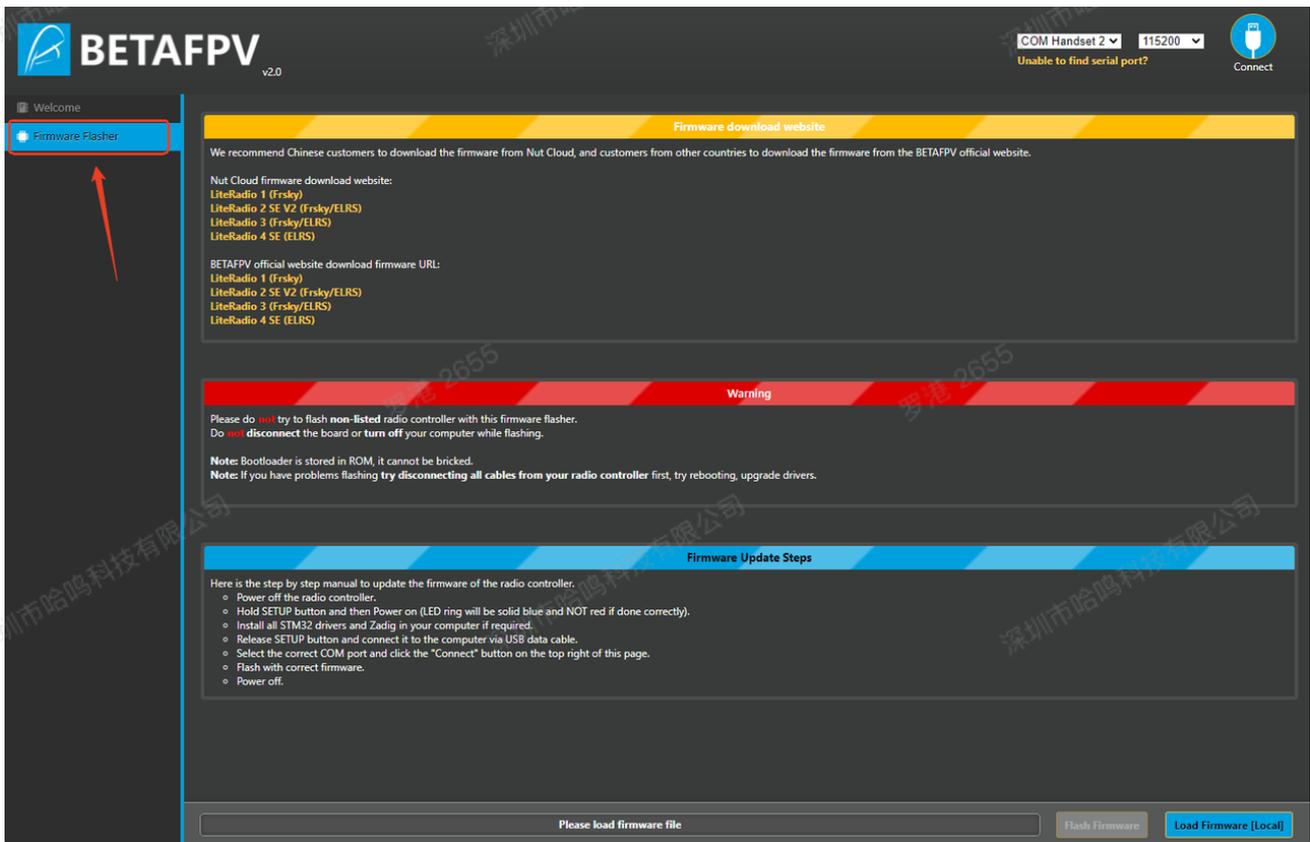
Radio Transmitter Firmware Flash Steps:

1. Find the firmware suitable for your Radio Transmitter from the download link provided in the "Firmware Download Address" section and download it to the computer.

2. Make sure the Radio Transmitter is turned off, hold the setup button and then briefly press the power button. The Radio Transmitter will emit a "Do Re Mi" sound, and the indicator light will be blue and constantly on. At this time, the Radio Transmitter has been ready to flashing.

3. Release the setup button, connect the USB to the computer. The "Handset" will be detected in the upper right corner. Keep the baud rate at the default 115200 and click Connect.

4. Click "Load Firmware[Local]" in the lower right corner, select the downloaded firmware, and then click the "Flash Firmware" button.

5. Wait for the flashing progress indicator to finish. The appearance of the "Successful" word indicates that the flashing is successful.

6. Disconnect the USB cable or briefly press the power button to turn off the Radio Transmitter.

Function Introduction - Flight Controller

Function Configuration

System Settings Module

Language and Interface Settings: Supports dual-language selection of Chinese and English. Users can set the interface language of the BETAFPV Configurator according to their language habits to enhance the convenience and comfort of operation. Additionally, personalized settings can be made for the interface layout and color theme of the BETAFPV Configurator to meet the aesthetic and operational needs of different users. For example, users can choose a light or dark color theme based on their preference.

Communication Settings: Used to configure the communication parameters between the BETAFPV Configurator and the drone device, such as serial port number, baud rate, communication protocol, etc. This ensures that a stable and reliable communication connection can be established between the BETAFPV Configurator and the drone, enabling the normal transmission and interaction of data. The correct connection settings are crucial for the BETAFPV Configurator to connect effectively with the drone.

Device Configuration Module

Information Panel: Supports real-time viewing of the current flight status, firmware, model, and current voltage of the drone. It can also calibrate various sensors on the drone, such as accelerometers, gyroscopes, magnetometers, etc. Accurate sensor data is essential for flight

attitude calculation and stable control. Calibration can eliminate sensor deviations and errors, thereby improving the accuracy and reliability of flight control. For example, calibrating the gyroscope can ensure more precise flight stabilization.
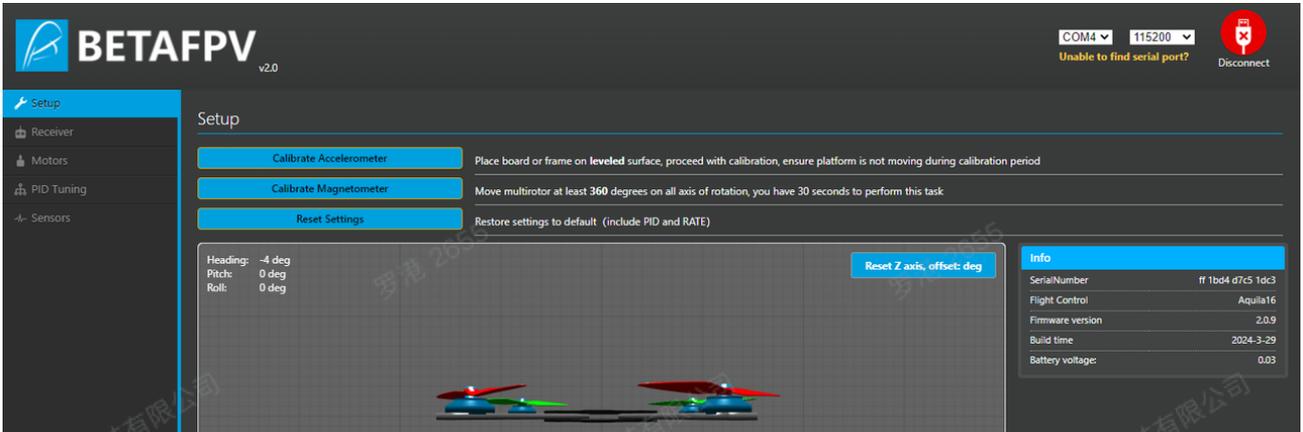
Channel View: After the receiver is paired, the operation status of each channel of the remote control can be viewed. This allows users to monitor the input from the Radio Transmitter and ensure that all channels are functioning correctly.
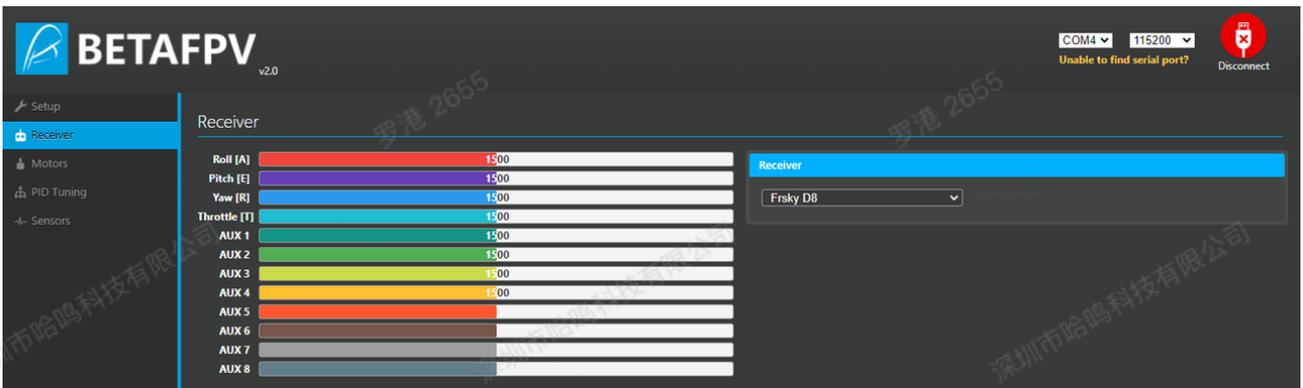
Flight Controller Parameter Adjustment: Fine-grained configuration of the flight controller parameters of the drone can be performed, such as PID controller, Rate, motor idle speed, and other parameter adjustments. PID parameters are vital for flight stability and controllability. Through BETAFPV Configurator, users can fine-tune the proportional, integral, and differential coefficients according to the specific model of the drone, flight environment, and personal control habits to achieve the best flight performance. For instance, in windy conditions, users may need to adjust the PID parameters to maintain stable flight.
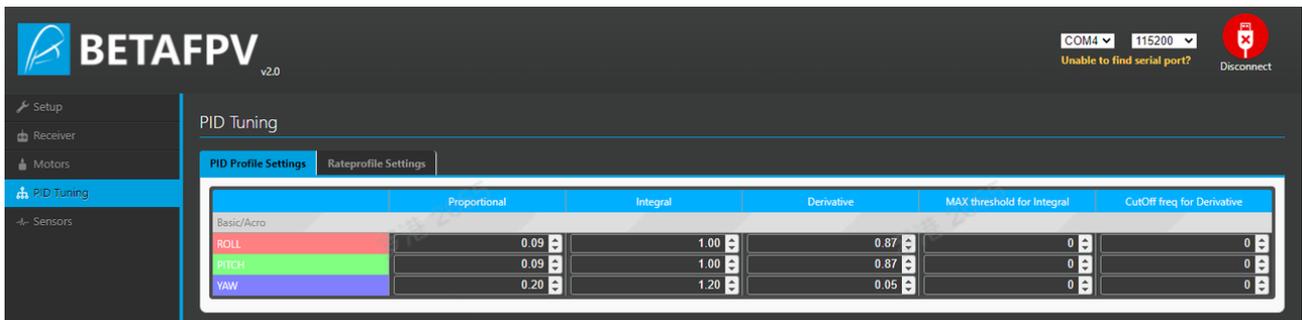
Data Monitoring Module

Real-time Data Display: When the flight controller is connected to the BETAFPV Configurator, it can display the sensor data of the drone in real-time. If the flight controller has relevant sensors, they will be displayed in real-time. Common sensors include accelerometers, gyroscopes, magnetometers, barometers, etc. Users can understand the sensor status of the drone in real-time through an intuitive graphical interface or data dashboard, facilitating the timely discovery of abnormal situations and making corresponding adjustments. For example, if the accelerometer data shows sudden spikes, it may indicate a problem with the drone's movement.
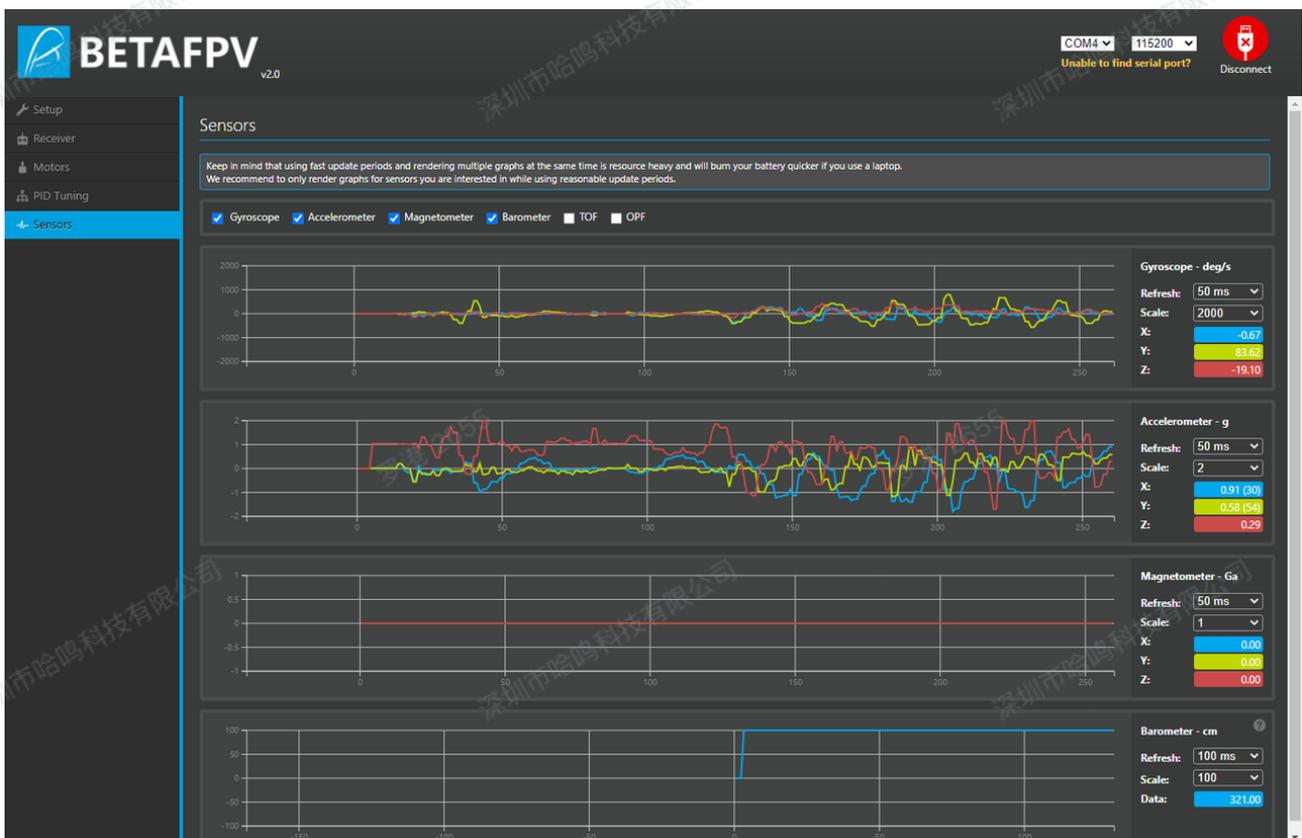
Firmware Management Module

Firmware Update: Users can conveniently upgrade the firmware of the drone device to the latest version through the BETAFPV Configurator to obtain better performance, stability, and security. At the same time, they can also enjoy the new features and improvements brought by the new firmware. Keeping the firmware updated is important for the drone to operate optimally.

Firmware Upgrade

- Connection: Connect via the Type-C to SH1.0 adapter board provided by BETAFPV. No driver download is required.

- Upgrade Firmware Steps:

    1. Obtain the required firmware from the BETAFPV official website and customer service personnel and download it to the computer.

    2. Power off the quadcopter and hold the button at the bottom of the flight controller.

    3. Power on (either through the battery or USB). If the operation is correct, the LED light at the bottom of the flight controller will be white and constantly on, indicating that it is in the firmware flashing state.

4. Release the button at the bottom of the flight controller and connect the flight controller to the computer via a USB data cable.

5. The upper right corner of the BETAFPV Configurator will recognize the COM port and baud rate (default 115200). Then click the "Connect" button. If the button turns red and displays "Update Firmware", it means the connection is successful. (If it is not correctly recognized as a COM port, please check if the driver is installed correctly. For connection details, refer

   to: https://github.com/BETAFPV/BETAFPV_Configurator/blob/main/docs/UpdateFirmware Procedure_CN.md)

6. Click "Load Firmware [Local]" in the lower right corner, select the downloaded firmware, and then click the "Flash XX" button.

7. After the firmware flashing is successful, "Flash Finished" will be displayed.

FAQ

- BETAFPV Configurator is Unable to Detect the Radio Transmitter?

① The Radio Transmitter status is on;

Solution: check and assure the Radio Transmitter is turned off;

② The USB cable data transmission gets wrong;

Solution: check if the USB cable supports data transmission;

③ The USB driver program is abnormal;

Solution: install the correct USB driver program;

④ For the Linux system, if the USB-CDC and USB-HID permissions are not correctly enabled.

Solution: follow the Linux installation instructions to enable the relevant permissions.

- When Using the Linux System to Connect the Radio Transmitter, the Basic Configuration Module is Not Completely Displayed?

Problem Judgment: When LiteRadio 2 SE V2 ELRS3 or LiteRadio 3 ELRS3 is connected to the Linux BETAFPV Configurator, it is not very stable.

Solution: Disconnect and reconnect the USB data cable (may need to be repeated 20 times or more), or use the BETAFPV Configurator of other operating system versions for connection.

- The Welcome Interface Content is Not Loaded After Opening the Software in macOS?

Problem Judgment: The dmg file corresponding to the CPU architecture is not selected.

Solution: Check if the CPU architecture matches the dmg installation package.

- Why Does the Receiver Protocol Display Frsky D8 Version When Connecting the Aquila16 Complete Drone?

Answer: This is normal. Please rest assured to use it. The Aquila16 receiver is an ELRS 2.4G protocol. During the firmware compilation process, the technical staff found that the ELRS protocol display would be abnormal, so it was replaced with the Frsky D8 protocol display. This has no impact on the functions of the complete drone, and this issue will be optimized later.

Contact Us

If you encounter any problems or need further technical support during the use of the BETAFPV configurator, please contact us through the following methods:

- Official Website: https://betafpv.com/
- Email: support@betafpv.com
- Facebook: @BETAFPV
- Marketing Cooperation: marketing@betafpv.com

Our technical support team will wholeheartedly serve you and help you solve problems to ensure that you can fully enjoy the flying fun brought by BETAFPV products.