Name：Stable F4 MiniTower
Model 12A version：GEP–F4–BS12A–VTX58200–M
Model 20A version：GEP–F4–BS20A–VTX58200–M

User Manual v1.0
2017/12/25

Contents

Overview

Stable F4 MiniTower is the solution of the tower structure designed by our team specially for the micro drone FPV, Integrated flight control, esc, VTX.It has been updated to V1.2, very stable. The firmware is relatively mature based on the flight control design of OMNIBUS/ OMNIBUSf4SD (Betaflight). The Stable Mounting Hole is 20*20mm, which is suitable for most racks.

Simple, Stable is the advantage of Stable F4 MiniTower. The 4IN1 esc is based on the BLHeli_s, which supports the fast throttle response of Dshot, with two versions 12A and 20A. The power of 5.8g VTX is optional for off/25/100/200mW. It can also close the power of the power output, not affect other pilots, and has 48 channels adjustable, audio input function and accurate power. F4 flight control, they are coordinated, highly integrated, very stable, and easy to install, reducing the pilot's installation time.

Specifications
- Model: Stable F4 Tower
- Size:25×25mm
- Installation height:20mm
- Screws:M2×25mm
- Mounting Hole: 20x20mm
- Recommended the plate thickness: 2–4mm
- Weight： 9.5g

Flight Controller (Omnibus F4 Flight Controller)
- Firmware: betaflight 3.2.1（OMNIBUSF4SD）
- OSD Firmware: Betaflight OSD
- Video Camera Voltage:5V only
- Support Voltage monitor, buzzer and LED
- Support DSMX , SBUS and PPM Receiver
- Board Size:25×25mm
- Weight:2.3g

ESC 4 IN 1 (BLHelis 12A)
- PDB:Integrated
- Battery Monitoring:Integrated
- FC Power:Integrated
- Input Voltage:2–4S(12A)
- Con. Current: 12A
- Peak Current: 15A (5s)
- Oneshot 125/42 : YES
- Dshot 150/300/600:YES
- BlheliSuite Configurable:YES
- Firmware Version:BLHeli_S/Dshot 150/300/600 16.6(G_H_30/L_H_0)
- Board Size:25×25mm

- Weight:2.8g(12A)

ESC 4 IN 1 (BLHelis 20A)

- PDB:Integrated
- Battery Monitoring:Integrated
- FC Power:Integrated
- Input Voltage:2–4S(12A)
- Con. Current: 20A
- Peak Current: 30A (5s)
- Oneshot 125/42 : YES
- Dshot 150/300/600:YES
- BlheliSuite Configurable:YES
- Firmware Version:BLHeli_S/Dshot 150/300/600 16.6(G_H_30/L_H_0)
- Board Size:27×27mm
- Weight:3.3g(20A)

VTX(GEP–VTX58200–M)

- VTX Power:OFF/25/100/200mW
- CH:48CH
- VTX Power input:2–6S (using VTX layer alone)
- Video Camera Voltage: 5V

Features：

- Adopt the current popular tower structure solution, simple installation.

- Fast installation, and very stable.

- Reasonable structure size: 25*25mm*20mm (length * width * height)

- Mounting Hole 20*20mm, suitable for most racks.

- STM32 F405 MCU

- BLHeli_S firmware，Support(Oneshot 125/42 and Dshot 150/300/600)

- VTX have 48 channel, The power of VTX can choice OFF/25/100/200mW

- Support DSMX , SBUS and PPM Receiver

Stable Connections

4IN1 ESC
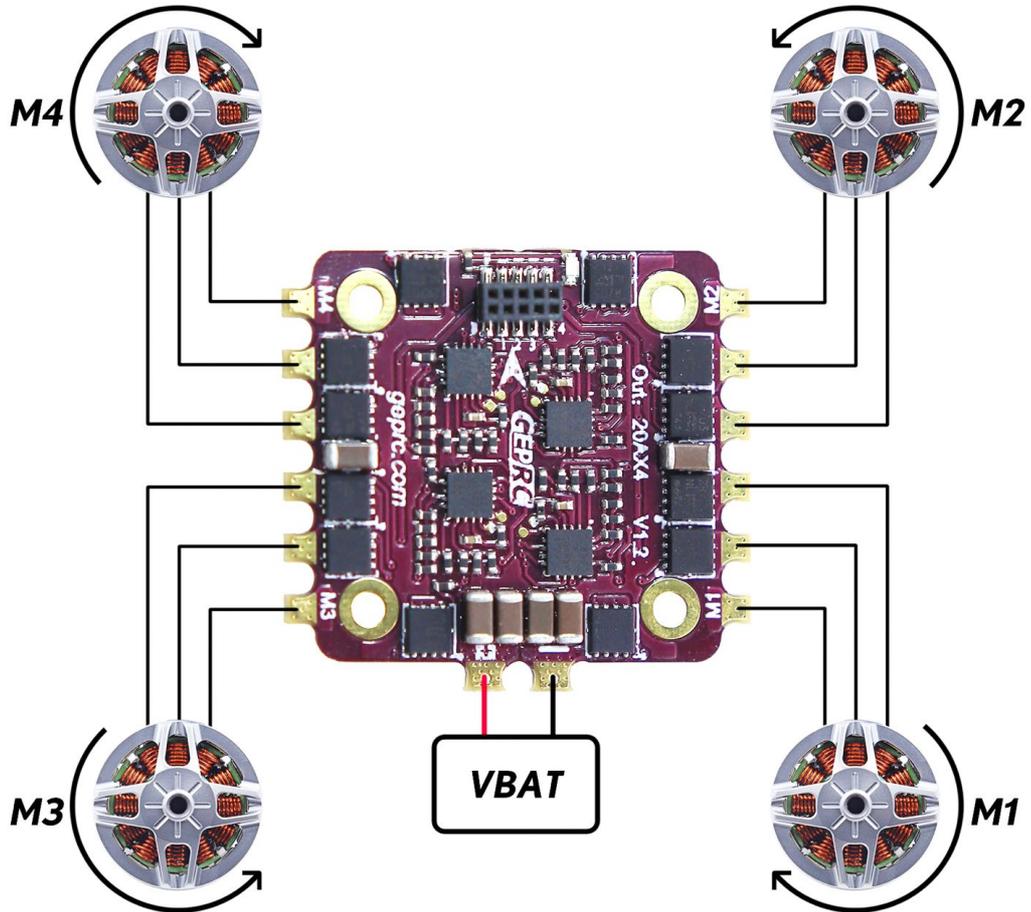
Flight Controller Top Plate Connections
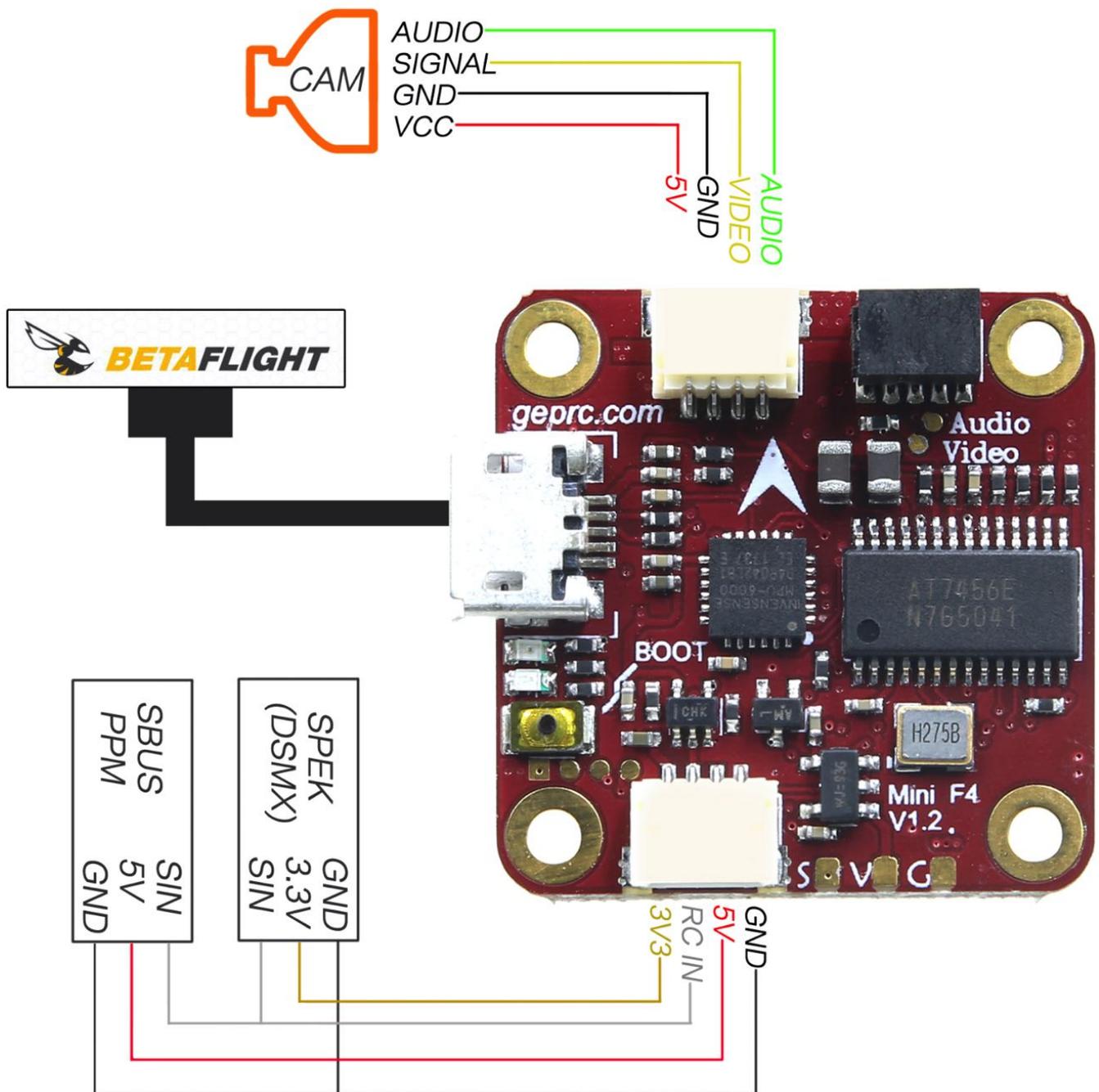
Flight Controller Bottom Plate Connections

5V(BUZZER+)
LED STRIP
BUZZER−
GND
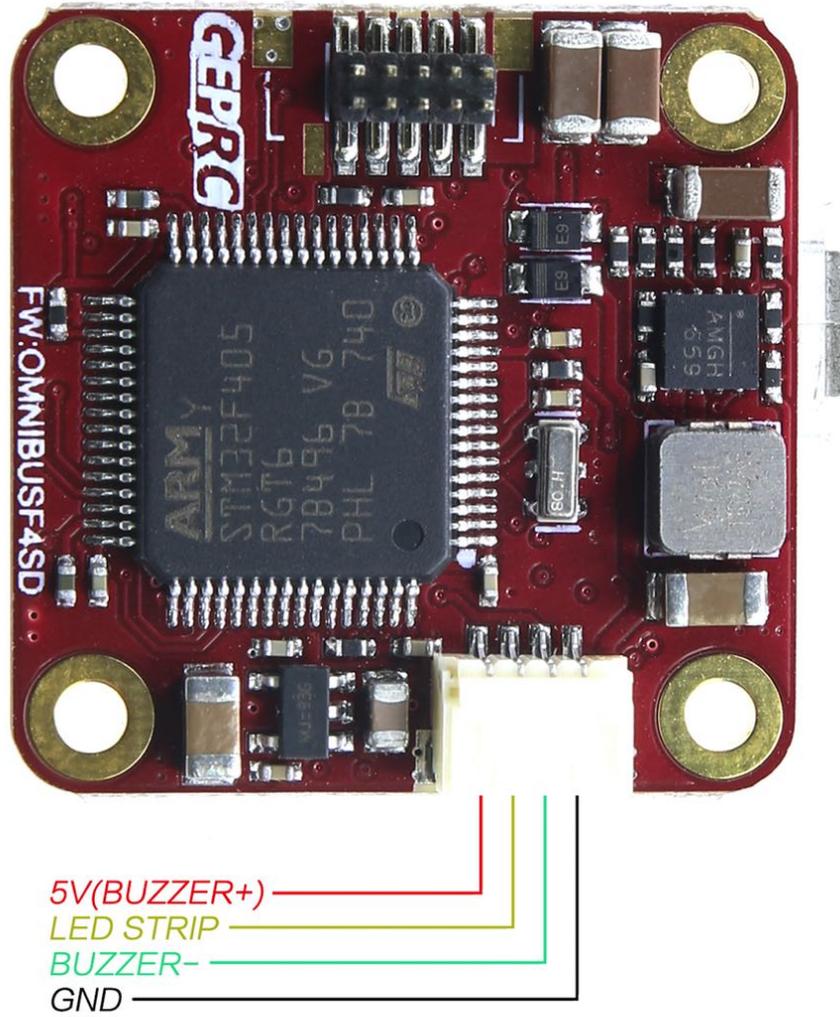
VTX Connections

The VTX board not need to be connected to any line, inserting the pin is working.

Channel LED
Band LED
Power LED

Set Button of two

Wire definition:

Connection Stable   Connection equipment

Image input   Connection camera

Receiver signal input   Connection DSMX

Receiver signal input   Connection receiver

LED&BUZZERsignal input   Connection LED&BUZZER
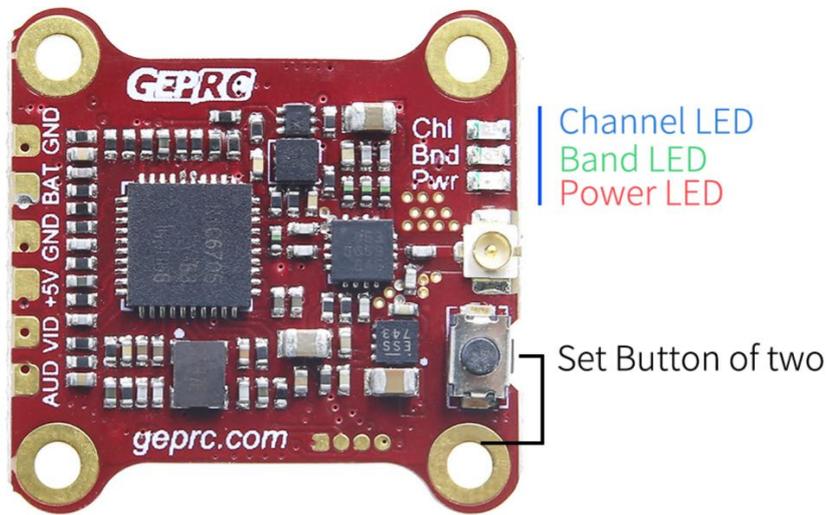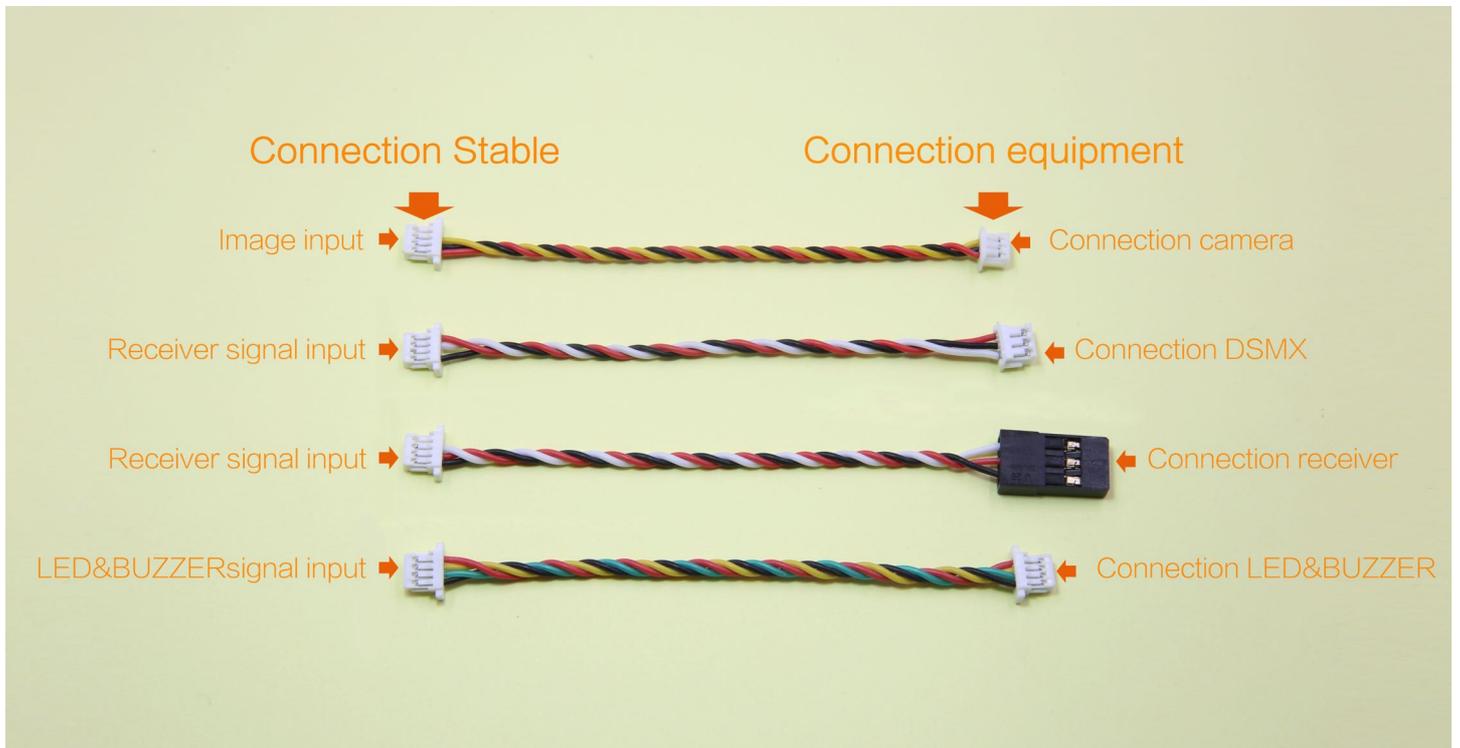
VTX Setup Instructions

How do I set up the VTX?

1. Set the Channel. In standby mode, press and hold the key for 3 seconds, the blue LED flashes, short press, change the channel value.Every time 1 press will change the CH, followed by 1CH to 8CH cycles.

2. Set the Band. In the channel setting mode, press and hold the key for 3 seconds, the green LED flashes, briefly presses, changes the frequency group value.Every time 1 press will change the band, and then the A band to F band loop.

3. Set the Power.In the band setting mode, press and hold the key for 3 seconds, the red LED flashes, short press, change the output power value.Every time 1 press will change the power, followed by 25mW / 100mW / 200mW cycle.

4. frequency table：

	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Band A	5865	5845	5825	5805	5785	5765	5745	5725
Band B	5733	5752	5771	5790	5809	5828	5847	5866
Band E	5705	5685	5665	5645	5885	5905	5925	5945
Band F	5740	5760	5780	5800	5820	5840	5860	5880
Band H	5362	5400	5436	5473	5510	5547	5584	5620
Band R	5658	5695	5732	5769	5806	5843	5880	5917

5. VTX LED display
   5.1. BLUE: Frequency channel display, the time of flash represents 1 to 8 channels, 1 = CH1,2 = CH2, ... 8 = CH8.
   5.2. GREE: Frequency Band display, the number of flashes represents the frequency group from A to R, 1=A, 2=B……6=R
   5.3. RED: Power output display, 1 = 25mW, 2 = 100mW, 3 = 200mW.
6. How to turn VTX on or off: In the working state, quickly double–click the set button, RED / GREEN / BLUE sync flash, VTX can be turned off, and also quickly double–click of the key to turn on the VTX output.

Stable Software Instructions

What is Betaflight?

The flight controller uses Betaflight firmware, and more:https://github.com/betaflight/betaflight .
If you want to configure your flight control, you need to install the VCP driver. Therefore, follow these steps.

Installation driver

Before you can flash your board, you must get the drivers installed on your computer. If you are on MacOS or Linux, Your O/S comes with the drivers you need pre–installed. You do not need to perform this step. You may skip directly to "Installing Betaflight Configurator".

If you are on Windows, you must install the drivers manually. For more, you can refer to video below.

	All About Betaflight Drivers, Including How to Install Them
	https://www.youtube.com/watch?v=m4ygG6Y5zXI

Please download the following driver and install it.

– CP210x Drivers (https://www.silabs.com/products/development–tools/software/usb–to–uart–bridge–vcp–drivers)

– STM USB VCP Drivers (http://www.st.com/en/development–tools/stsw–stm32102.html)

– Zadig (http://zadig.akeo.ie/)

Install Zadig

To flash the firmware you have to enter the so called DFU mode. On Windows 10 I had to use a tool called Zadig (download and start it) to be able to switch drivers for DFU mode to work. In order to switch drivers you have to take the following steps.

STEPS:

– Push BOOT button on the flight controller.

– Plug–in the USB cable (the red LED should not be as bright as normally).
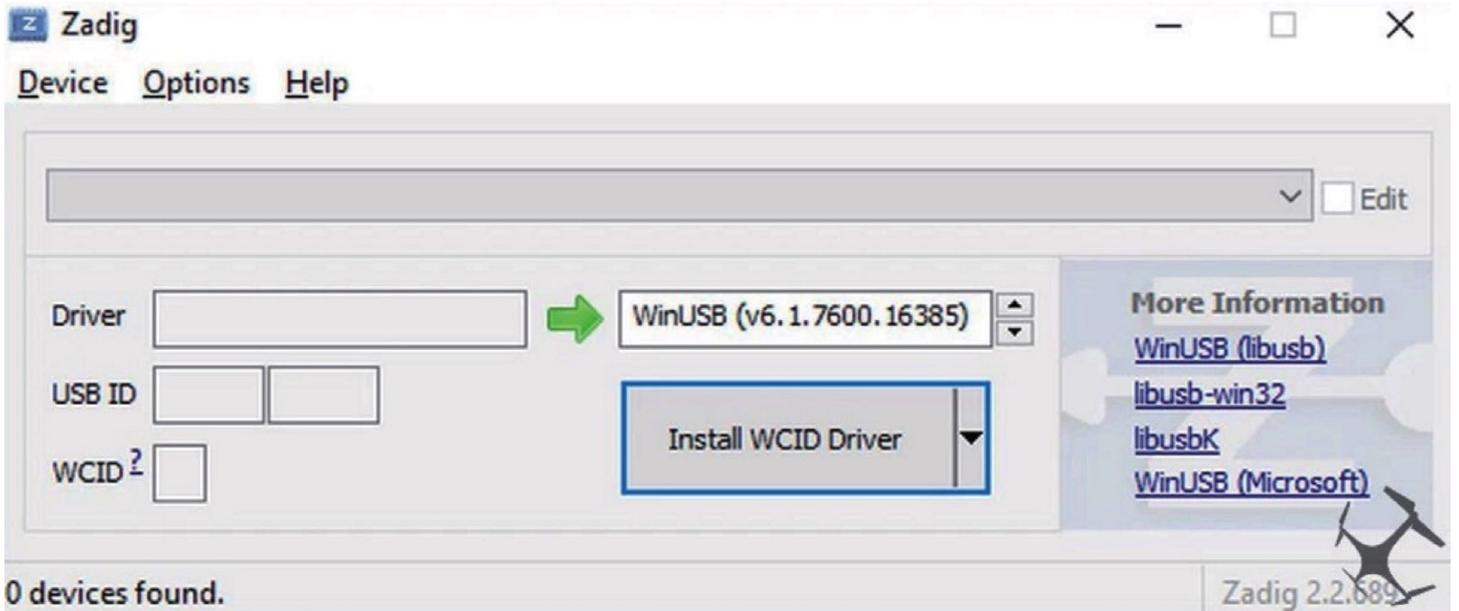
– Click Zadig and hit "Options" and then "List All Devices".
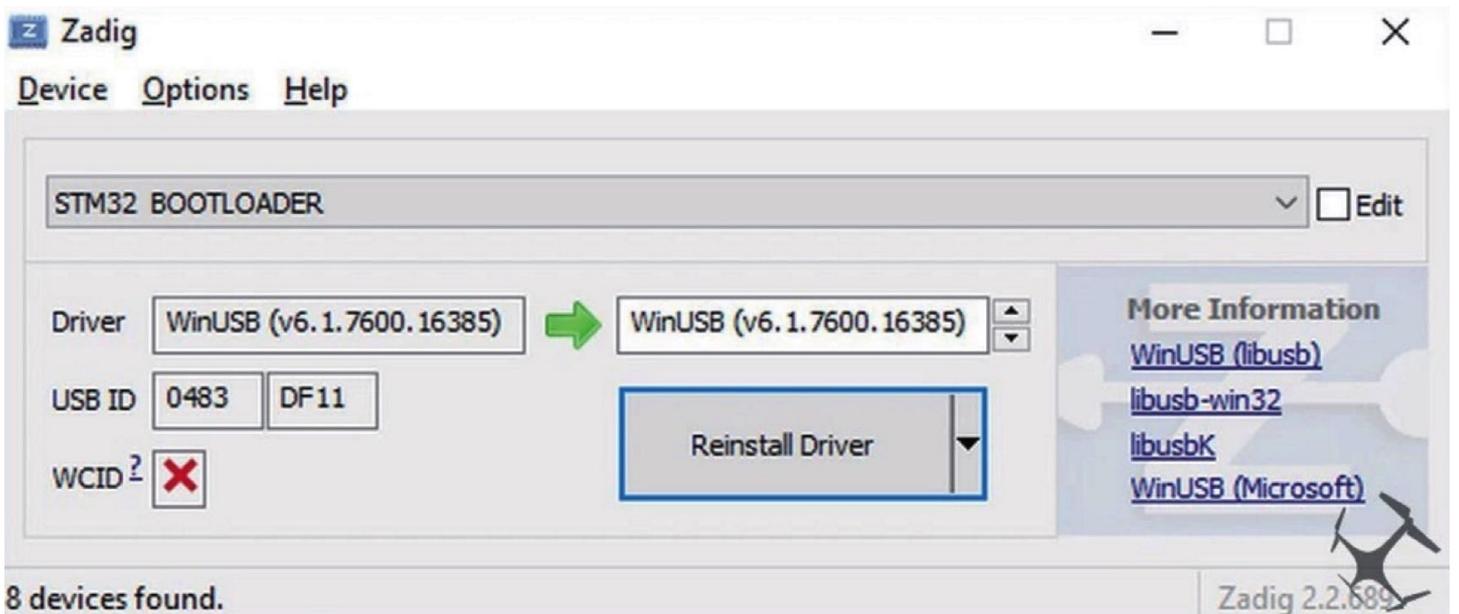
– From the list choose "STM32 BOOTLOADER".

– Under "Driver" choose "WinUSB" on the right and hit "Reinstall Driver".

– Close Zadig, disconnect the flight controller, close all Google Chrome instances.

Install Betaflight Configurator

Betaflight is managed using the Betaflight Configurator application, also known for short as the Betaflight GUI, or just, "The GUI". The Betaflight GUI is a Chrome app. To run it, first you need to install Google Chrome on your computer.

Download link: https://www.google.com/chrome/browser/desktop/index.html

After you download and install Chrome, open Chrome and enter the following url to install the

Betaflight Configurator plug–in.

Open in the url bar: https://chrome.google.com/webstore/detail/betaflight–configurator/

kdaghagfopacdngbohiknlhcocjccjao?hl=en

Here, you can run Betaflight Configurator for configuration.

1. Enter the URL chrome://apps/ in Chrome's address bar.
2. Click the icon for the Betaflight Configurator

Betaflight

3. Betaflight GUI would be open
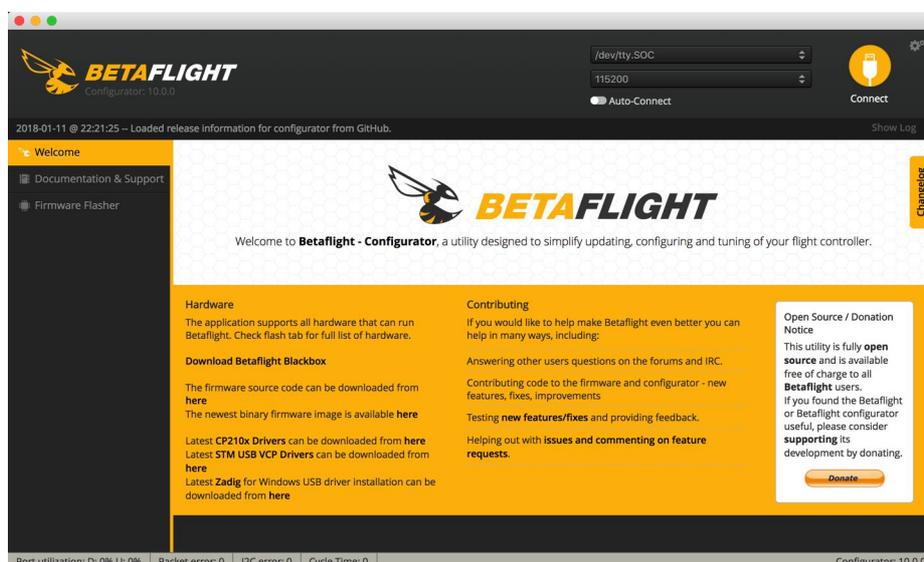
How to flash the firmware

The steps of Stable F4 MiniTower refresh firmware are as follows (As shown) :

1. Select the correct port.(Mark 1)

2. Select **Firmware Flasher** tabs.(Mark 2)

3. Select the parameters as shown below.(Mark 3)

4. Click **Load Firmare[Online]**, download firmware. (Mark 4)

5. After the firmware is downloaded, click **Flash Firmware**, and then the firmware is finished and

    reconnected. (Mark 5)

In general, the flash firmware does not need to press the Boot key to enter DFU mode, unless

the unpredicted problem occurs in the firmware process, it needs to be completely re–flash,

and then it is flashed by DFU.

1. Press the Boot button on the flight control and insert the USB serial port at the same time.(Mark 1)

2. Select **Firmware Flasher** tabs.(Mark 2)

3. Select the parameters as shown below.(Mark 3)

4. Click **Load Firmare[Online]**, download firmware. (Mark 4)

5. After the firmware is downloaded, click **Flash Firmware**, and then the firmware is finished and

    reconnected. (Mark 5)

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Initial configuration

After the new firmware is flashed, some basic configuration needs to be initialized.

Ports and Configuration Setup

1. Select the Ports tabs to open Serial RX of the UART6 Serial port so that you can use the S.BUS receiver and saved.
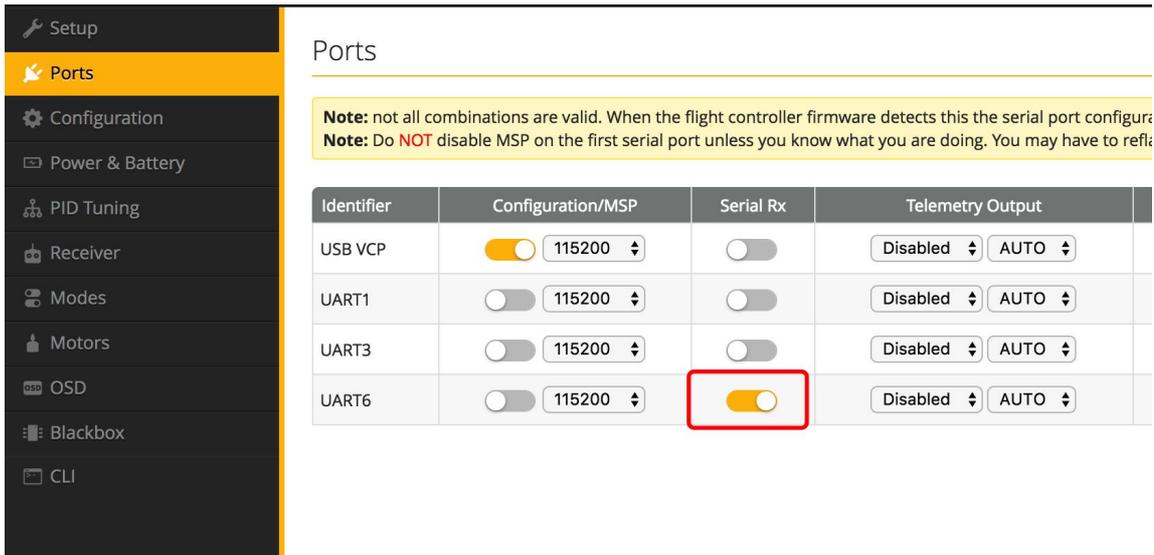
2. Open the Configuration tabs and open the Receiver Model for SBUS mode.

    2.1. The Serial Receiver Provider selects the type that matches its Receiver, such as the Frsky option SBUS, saved.
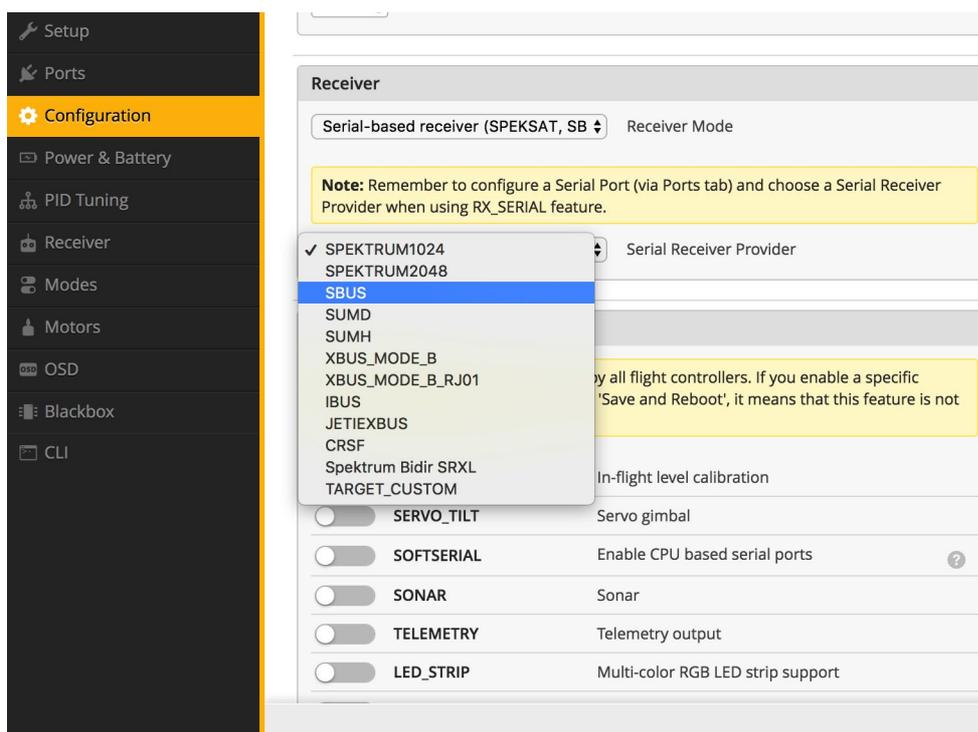
2.2.In the Configuration tabs, pull down, and there is an Other Features that will be opened and saved as shown.
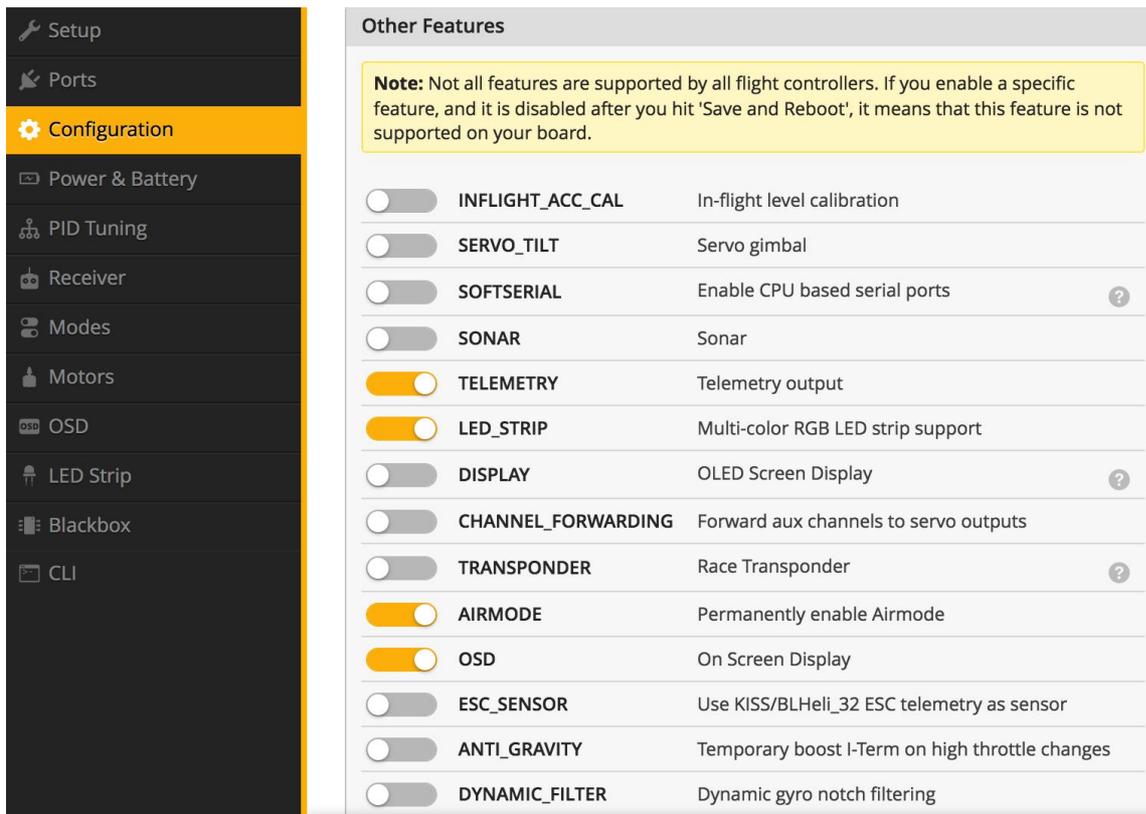
OSD

In the OSD tab, you can choose which values you want to see on screen while you are flying. Enable and disable individual elements using the Elements toggles on the left.

1. **You can rearrange the individual OSD elements on screen by dragging them with your mouse.**
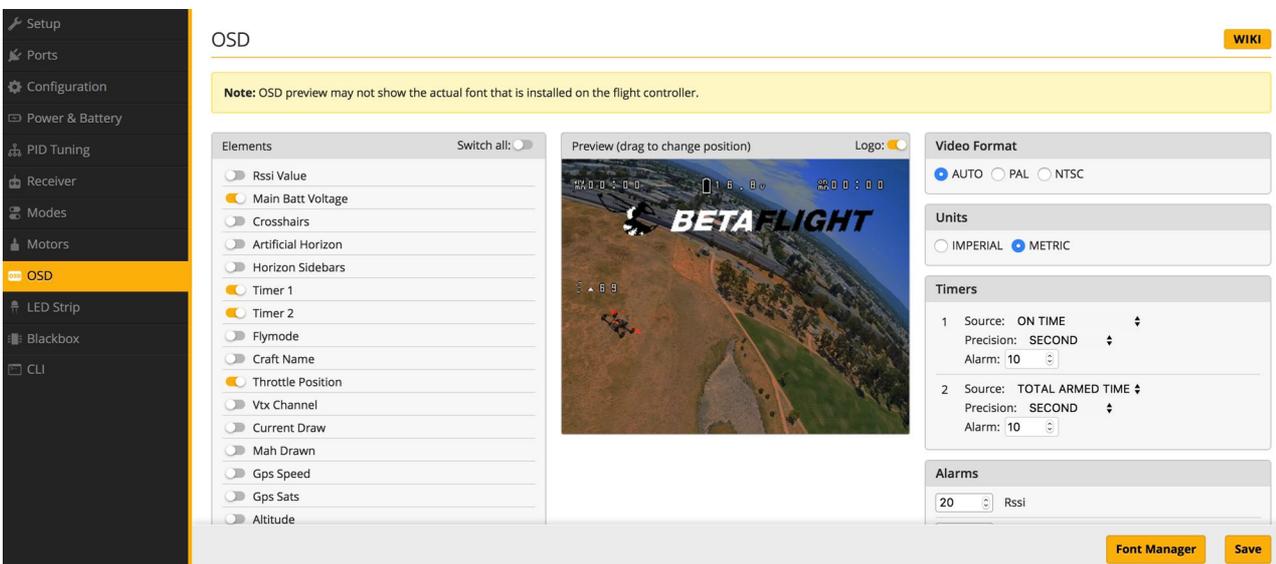
How to use OSD

OSD parameters can be accessed via the Radio into OSD and no longer need a computer. It is very suitable for outdoor flight, which is very convenient.

1. **How do I get into the OSD interface?**

Mode 2   *Mode 1*
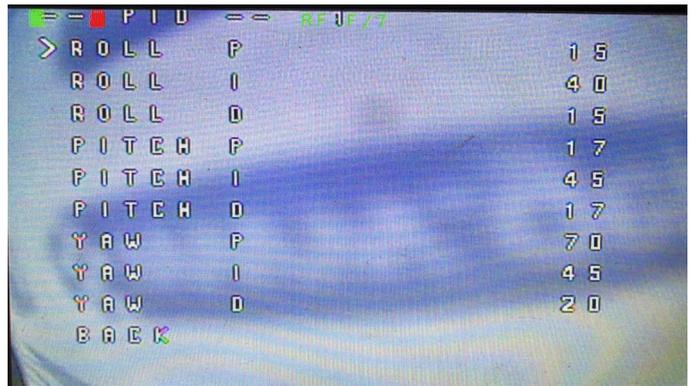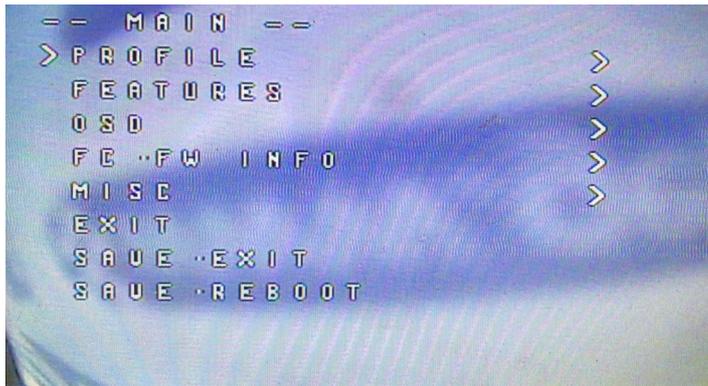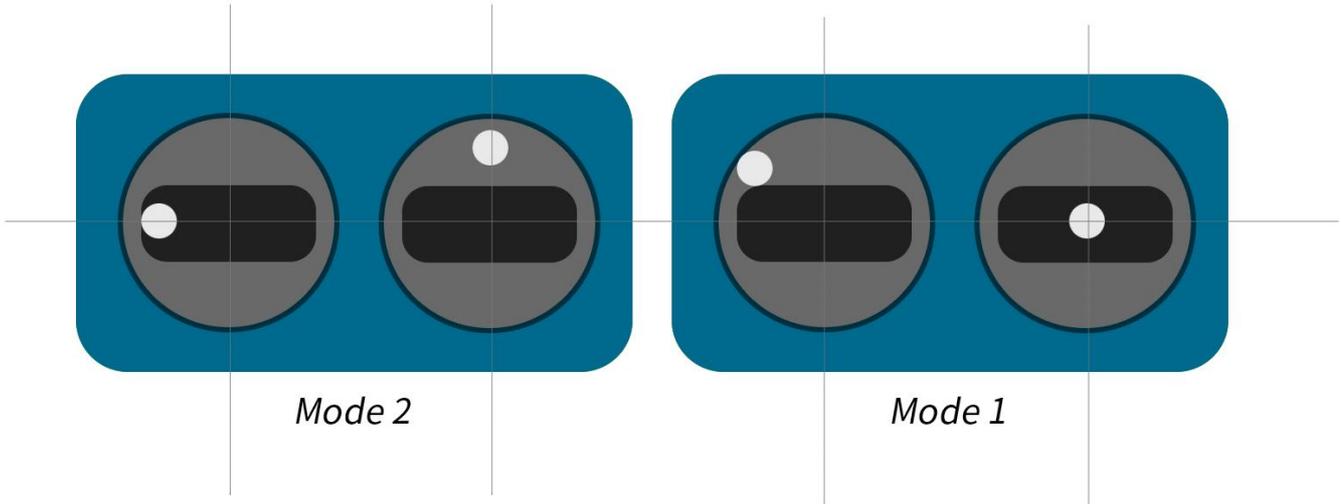
2. **How to select and set values?**

    2.1. You can set the remote control, down, left, right, to adjust the parameters.

    2.2. When finished, save the exit.

	Betaflight OSD 3.0.1 Overview / With Sirin FPV
	https://www.youtube.com/watch?v=Na4P8KFtrC0

STABLE

ESC firmware update and setup.

By default, you don't have to work with an electrical setting. But if you need to set parameters, refer to the following.

Install BLHeli Configurator

1. Open Chrome.

2. Open in the url bar: https://chrome.google.com/webstore/detail/blheli-configurator/mejfjggmbnocnfibbibmoogocnjbcjnk

3. Install the BLHeli Configurator plug-in.

4. Enter the URL chrome://apps/ in Chrome's address bar.

5. Click the icon for the BLHeli Configurator

blheli-configurator

6. BLHeli Configurator would be opened
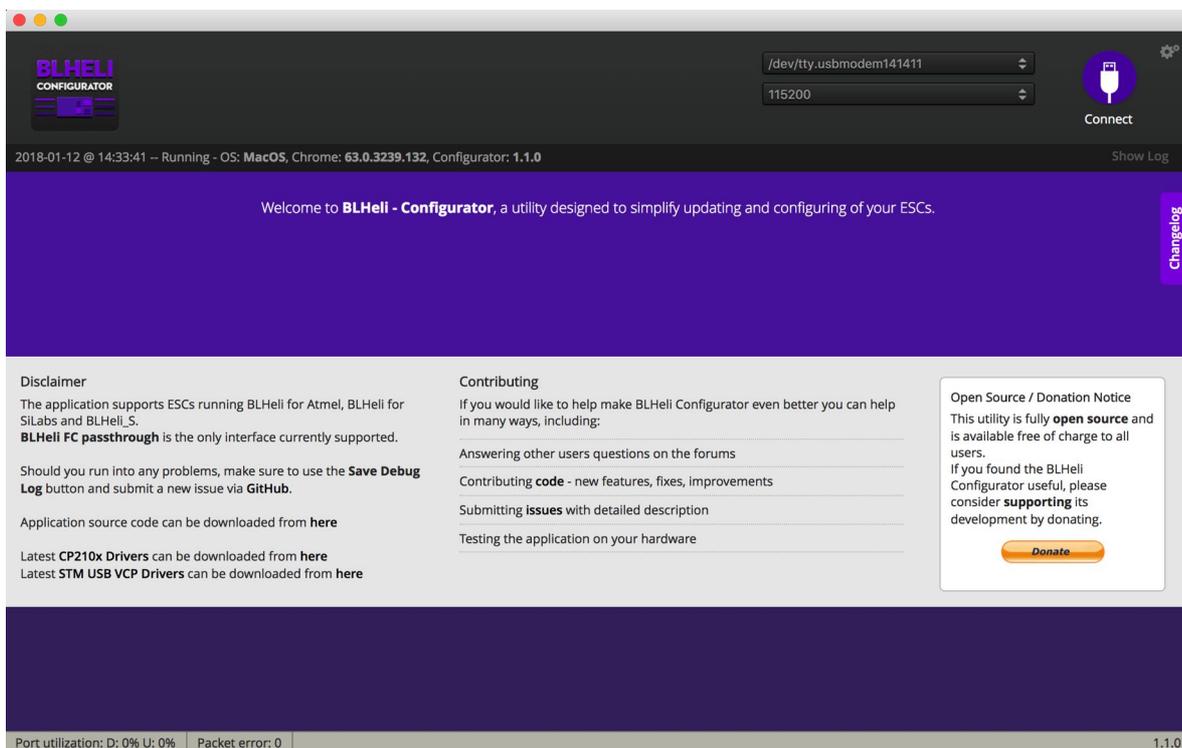
Uses BLHeli Configurator

1. OpenBLHeli Configurator

2. Provide power to Stable F4 MiniTower.

3. Select the correct port and click Connect as shown below.
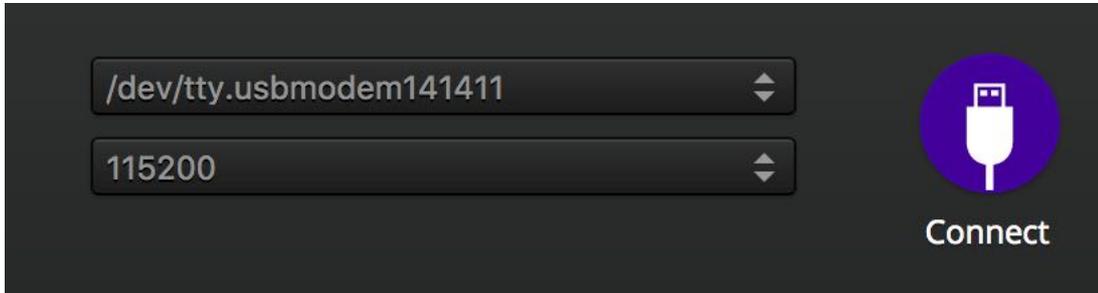
4. Click "Read Setup"
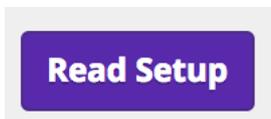
5. You'll see the Settings screen.
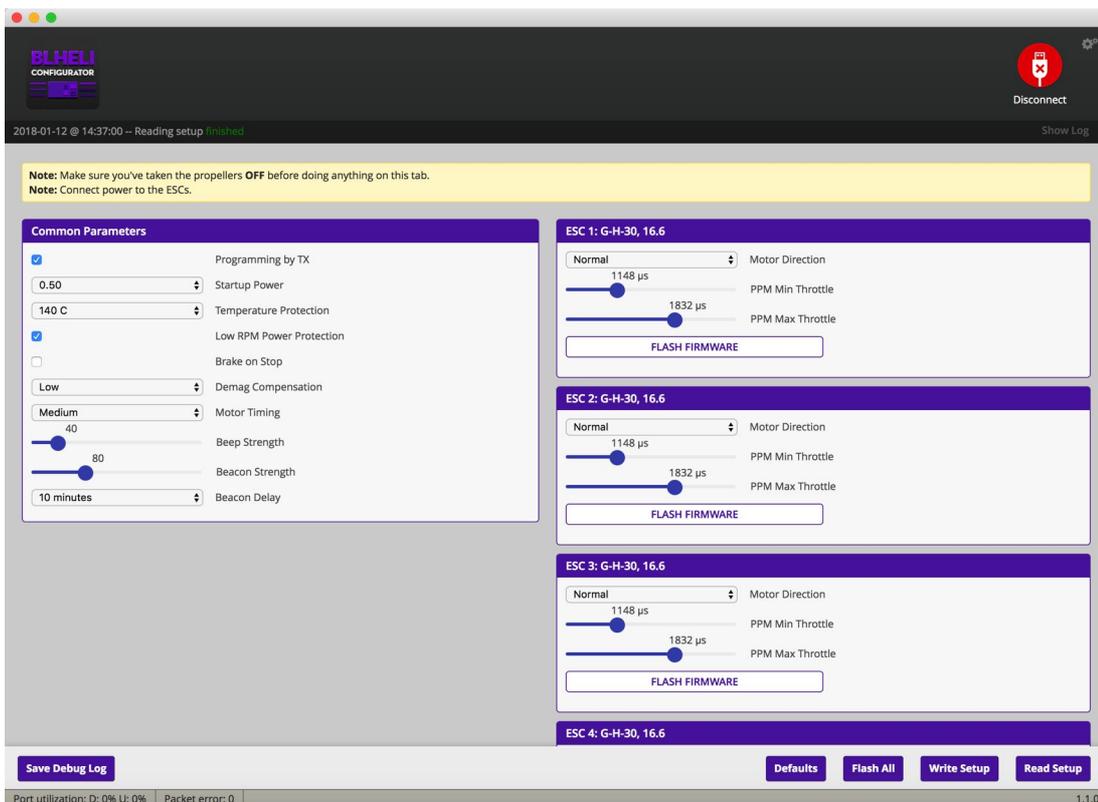
6. If needed, you can set the CW/ CCW of the esc. Such as motor of 1

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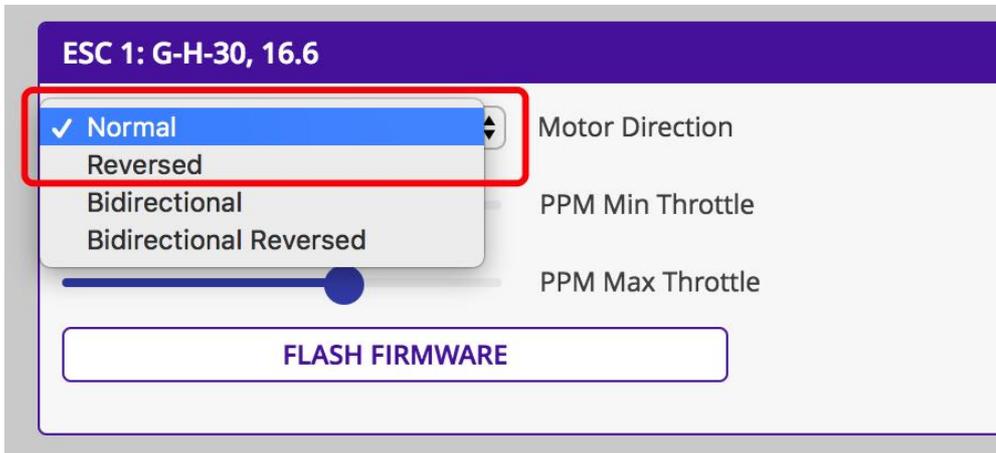
7. When finished, click Write Setup to save the Settings.

8. How to flash BLHeli Configurator firmware?

    1. Click FLASH FIRMWARE
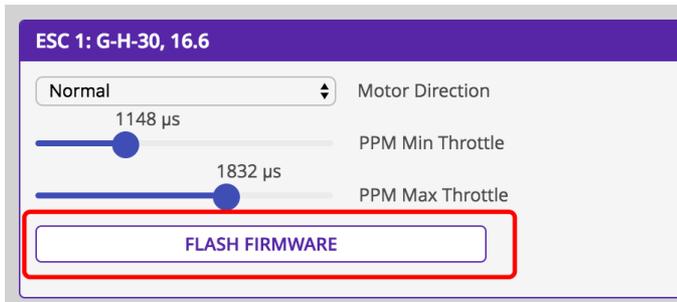
    2. Select the firmware model: G–H–30, and click FLASH to start to flash the firmware, as shown below:
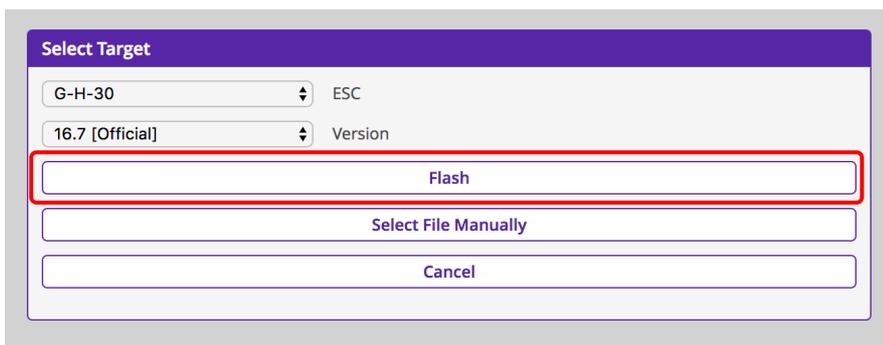
	BLHeli Configurator Chrome App
	https://www.youtube.com/watch?v=8kNB8fsnYdk

Saving Your Configuration

Once you have finished building, configuring, and tuning your multirotor, it's a good idea to back up your configuration so that you can restore it later. This is useful if you lose your quad, or if you damage your flight controller, or if you accidentally lock yourself out of your flight controller and must reset it to get back in.

Before we show you the right way to save and restore your configuration, let us warn you about the wrong way. Betaflight and Cleanflight have a "save configuration" and "restore configuration" button. Without going into too much detail, they have some significant drawbacks that mean we don't recommend that you use them.

The correct way to save your configuration is as follows:

1. Connect your F4 board to your PC by plugging in USB.

2. Start the Betaflight GUI app.

3. Go to the CLI tab.

4. In the text box at the bottom of the CLI, type "diff" and hit enter. This will cause the flight controller to display all configuration options that you have changed from the default values.

5. Scroll back to the top of the window to find the line where you typed "diff".

6. Click your mouse and drag/scroll down to select all of the text below where you typed "diff". This is your configuration data.

7. Right-click and choose "Copy" to copy the highlighted text to the clipboard.

8. Open any text editor, such as Windows Notepad or MacOS TextEdit.

9. Right-click in the text editor window and choose "Paste" to paste the highlighted text into the editor.

10. Save the document somewhere you won't lose it.

To restore your configuration, do this:

1. Open the text file in your text editor.

2. Highlight the entire contents of the file.

3. Right-click in the text editor window and choose "Copy".

4. Connect your F4 board to your PC by plugging in USB.

5. Start the Betaflight GUI app.

6. Go to the CLI tab.

7. Click the mouse once in the text box at the bottom of the CLI tab to place the cursor there.

8. Instead of typing any commands, right-click in the text box and choose "Paste".

9. Press the Enter key on your keyboard. The pasted-in text will rapidly scroll past.

10. Type "save" in the text box at the bottom of the screen.

11. Press Enter. The flight controller will reboot and the configuration will be restored.

	How To Save and Restore Your Configuration
	https://www.youtube.com/watch?v=HsxTqp76Brs

Contact us

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