

Flywoo

EXPLORER LR 4 Manual

HD Version



1/ drone introduction

Explorer LR quad is the masterpiece of the collaboration between Flywoo and #micro long range original creator Dave_C . #Micro long range is a brand new field, and we will explore more fun in this field with Dave_C in the future.



For me personally, Long Range cruising through epic landscapes is the best thing about FPV! But unfortunately, it was always kind of difficult to practice legally and without bothering people with all the noise a massive 6 or 7" long-range quad produces.

So the basic idea behind the original Project #MicroLongRange was born: Scale down a 7" long-range quad until it is below 250g take-off weight. With the support of an awesome community on Facebook and Instagram as well as a massive development effort by Flywoo, this concept has seen a lot of improvements that are now all implemented in the Explorer LR!

This tiny quad is equipped with GPS, Crossfire, and an independent model finder to give you the necessary confidence to push it to the maximum range of digital and analog video transmission. The powertrain with its GOKU 16x16 stack and the all-new 2750kV 1404 motors spinning 4" props is optimized for maximum efficiency and low weight: Flight times of way over ten minutes on a regular 850mah 4S LiPo battery are easily achievable! Cruising speeds of 40-50 kph (25-30mph) are astonishingly high for such a small quad and have allowed me to do 10km (6 miles) round trips easily. And the best thing about it: It's incredibly quiet! You will barely be able to hear it flying by as soon as you are a few dozen meters away. "

-----Dave_C

2/ Configuration and wiring diagram description



EXplorer LR 4 Vista / Nebula pro BNF Specification :

Goku F411 V2.1 nano stack 16x16
 Dave_C & Nin 1404 V2 2750kv motors
 Goku M8N mini gps v2.0
 Flywoo Finder v1.0
 Gemfan 4024 props
 Atomic 5.8 G antenna LHCP
 VTX: CADDX VISTA

Recommend Battery :

Naked Gopro & SMO 4K & Insta360 go
 ---Explorer 18650/ Tattu 1050 4s mah -- 650 4s mah

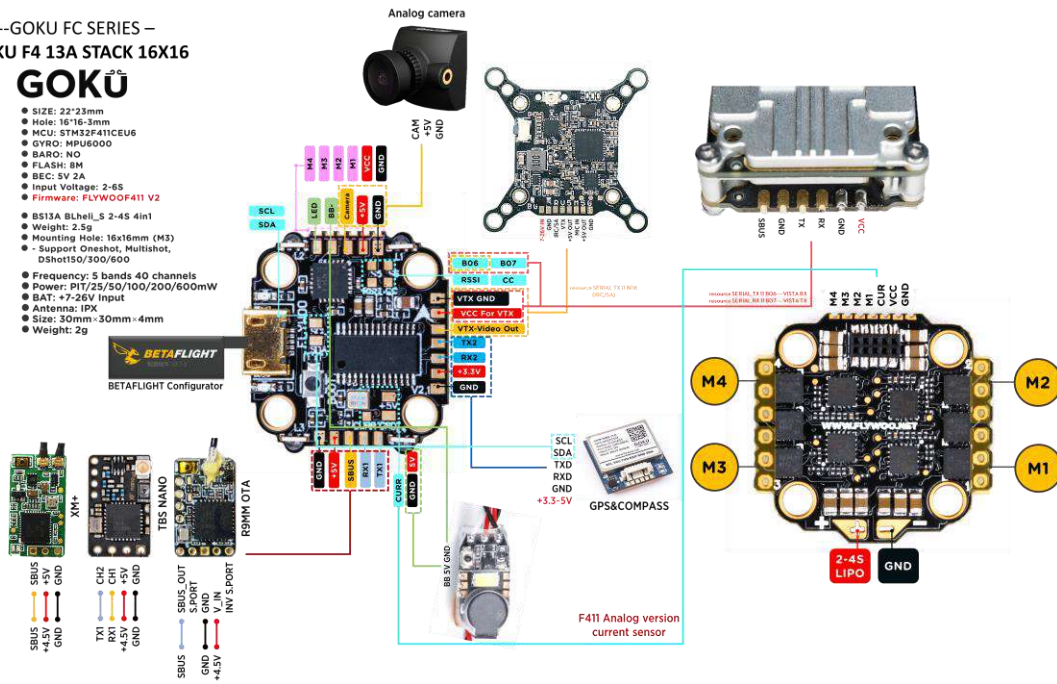
Highlights & Specification :

The lightweight 4-inch quad below 250g even if you connect with the battery, meet the current requested of FAA rules. Easy to control and long flight time, we strongly recommend to FPV beginners and pilots who like to cruise!
 Equipped with GOKU 16X16 MICRO STACK, and NIN 1404 v2-2750kv, support 4s battery. You can get up to 20 minutes cruising! So this is a quad that is very suitable for FPV beginners and long-range enthusiasts!
 It is recommended installing side carbon fiber plate to increase the strength and stability of the Arm.

--GOKU FC SERIES --
GOKU F4 13A STACK 16X16

GOKU

- SIZE: 22x23mm
- Hole: 12x16-3mm
- MCU: STM32F411CEU6
- GYRO: MPU6000
- BARO: NO
- FLASH: 8M
- BEC: 5V 2A
- Input Voltage: 2-6S
- Firmware: FLYWOODF411 V2
- B513A BLHeli_S 2-4S 4in1
- Weight: 2.5g
- Mounting Hole: 16x16mm (M3)
- Support Onewhot, Multishot, DShot150/300/600
- Frequency: 5 bands 40 channels
- Power: PIT/25/50/100/200/600mw
- BAT: +7.25V Input
- Antenna: IPX
- Size: 30mm x 30mm x 4mm
- Weight: 2g



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 9600	Disabled AUTO
SOFTSERIAL1	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO

RX IN (SBUS/CRSF)
GPS Serial Port
VISTA OSD UART

CLI:

resource SERIAL_TX 11 B06----VISTA RX
resource SERIAL_RX 11 B07----VISTA TX
SAVE

UART1: TBS/R9M/XM+/DSMX/SBUS receiver

UART2: GPS module, the default baud rate is 9600

SOFTSERIAL1: VISTA OSD UART

3/ Receiver binding

TBS NANO 915:

When the USB is connected, the green light of the receiver flashes, and then bind according to the picture operation.

https://www.youtube.com/watch?v=-iNKVcOLITM&ab_channel=Danimal3D



R9MM FCC ACCESS OTA:

Make sure your remote control supports ACCESS protocol, then follow the link to register and bind

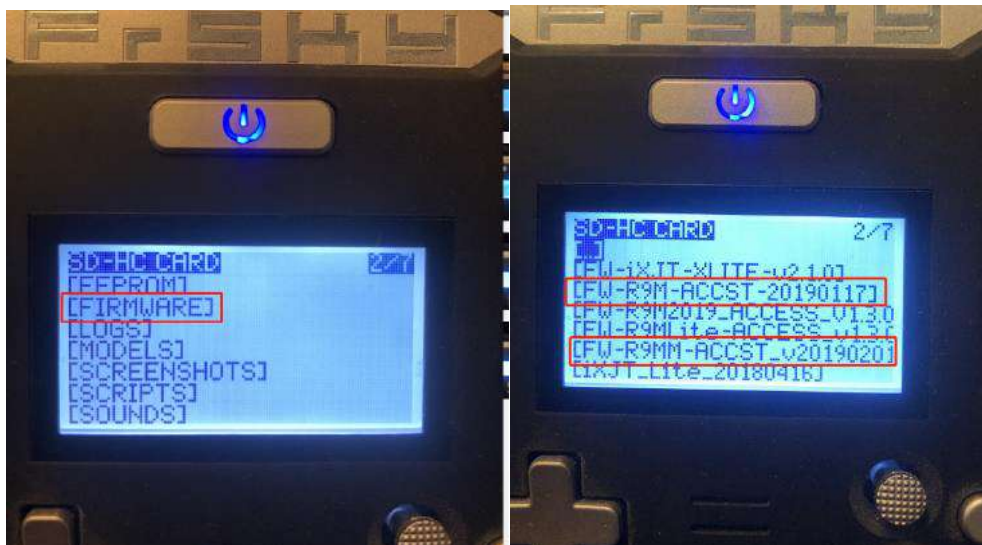
https://www.youtube.com/watch?v=az5hDdNBcjg&t=9s&ab_channel=FrSkyRC

If the remote control is ACCST protocol, please bind as follows:

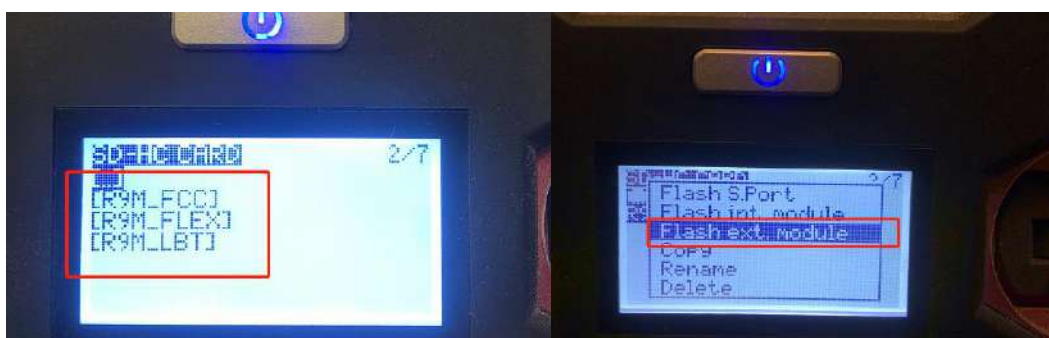
1/ Put these two files into the firmware directory of the SD card of the remote control.

R9MM firmware: FW-R9MM-ACCST_v20190201

R9M TX module: FW-R9M-ACCST-20190117



2/ Insert the R9M TX module and write the firmware you need



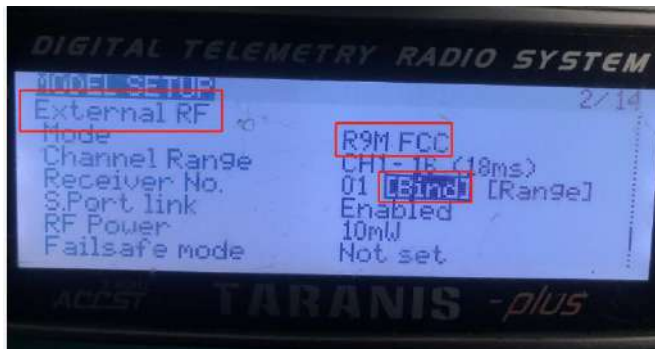
3/ To write the firmware of the R9MM receiver, you need to remove the R9MM receiver, and then write the firmware by connecting to the S.PORT port.



4/ After both R9M TX and R9MM RX are written into the ACCST firmware.

Binding method:

- 1/ Press and hold the button of RX, power on, the red and green lights are always on.
- 2/ Then after R9MM selects binding, RX red light flashes, and then exit
- 3/ RX is powered on again, and only a green light is displayed, indicating that the binding is successful.

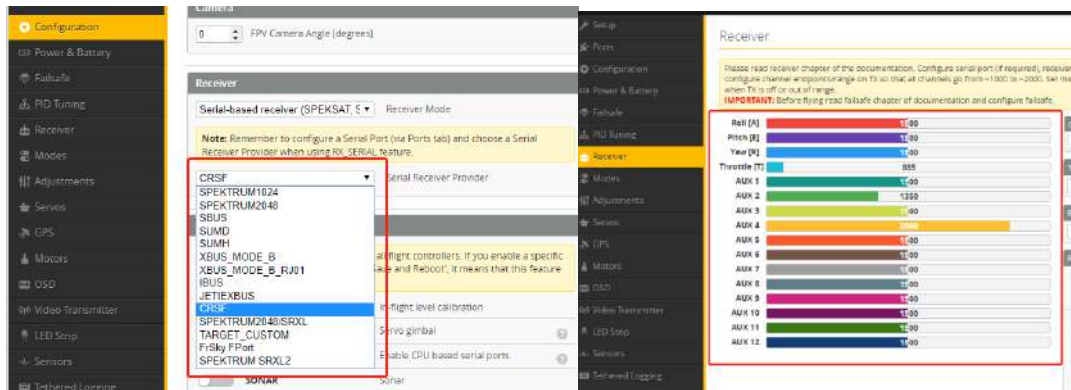


XM+ receiver:

- 1/ Press the XM+ receiver button, USB power supply, the red and green lights are always on
- 2/ The remote control turns on the binding mode, the green light flashes to indicate successful binding, turn off and restart

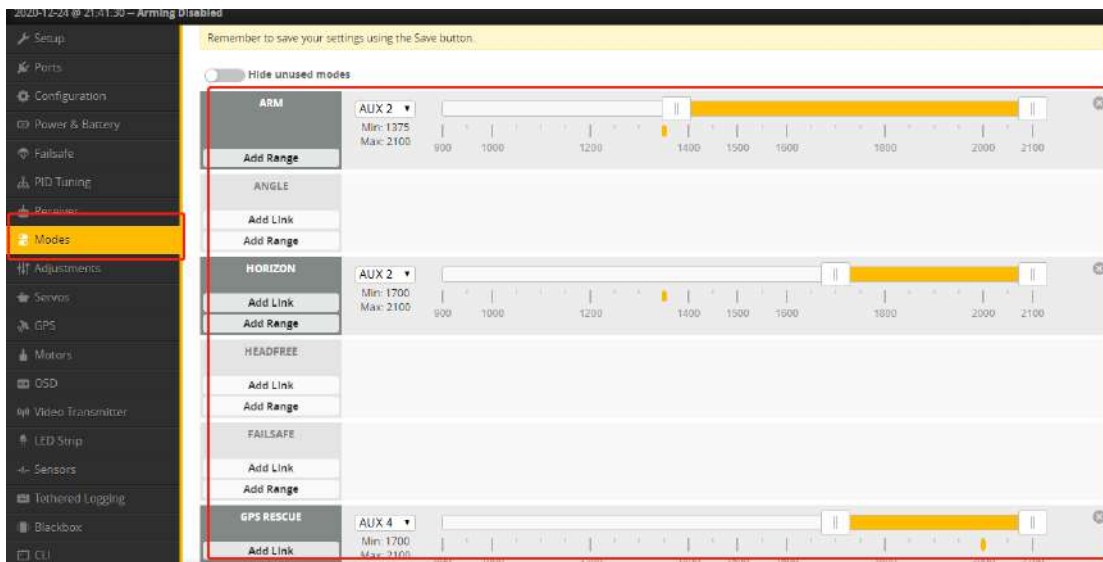


3-1/ Then set the corresponding serial port and receiver protocol to ensure the normal output of each channel of the receiver.



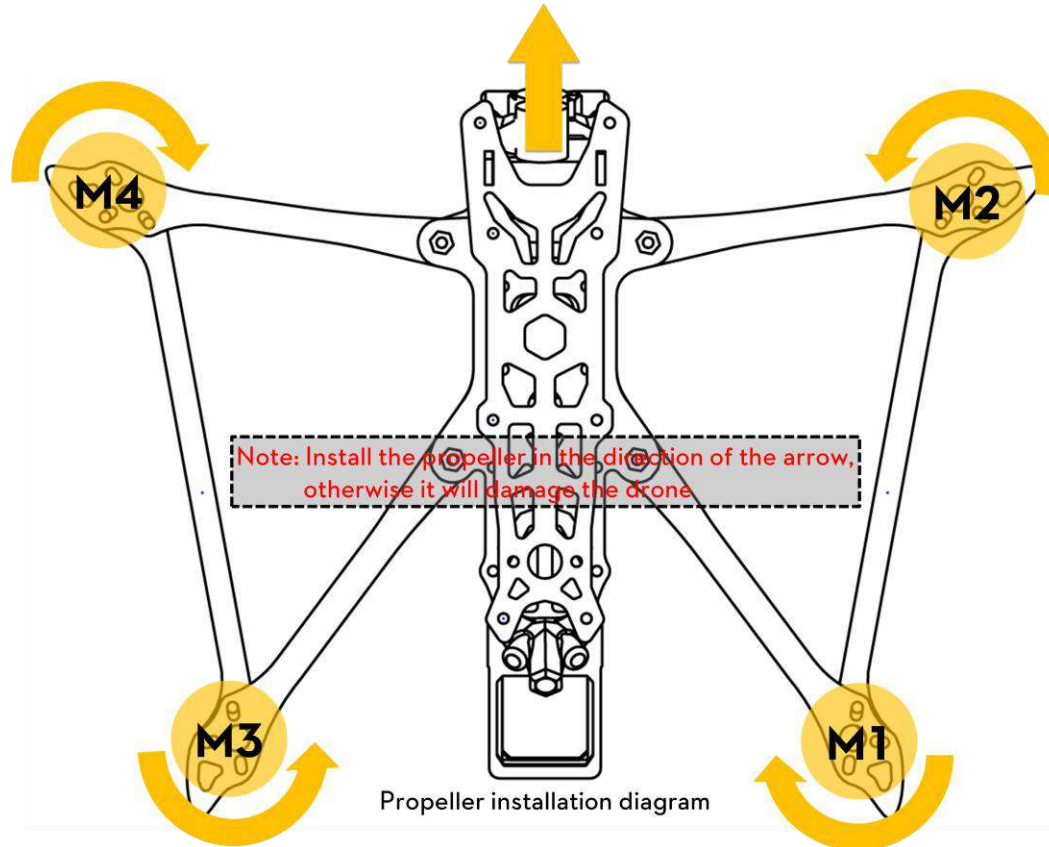
4/ Mode setting:

Set the ARM switch and flight mode switch, AUX* corresponds to the remote control switch, and the yellow area mark is turned on.



5/ Motor test:

Unload the propeller, test the rotation direction of the motor, turn on the safety switch, and test the rotation of the motors one by one.



- Setup
- Ports
- Configuration
- Power & Battery
- Failsafe
- PID Tuning
- Receiver
- Modes
- Adjustments
- Servos
- GPS
- Motors
- OSD
- Video Transmitter
- Sensors
- Tethered Logging
- Blackbox
- CU

Motors

Voltage: 1.71 V Amperage: 0.00 A Amp. drawn: 0 mAh

Motors				5	6	7	8	1
1088	1088	1088	1088	0	0	0	0	1500
1089	1089	1089	1089	1000	1000	1000	1000	Mester

Motor Test
 Moving the motors to 0 in order to test feature. Enabling motor prevention, propellers.

Motor prevention and

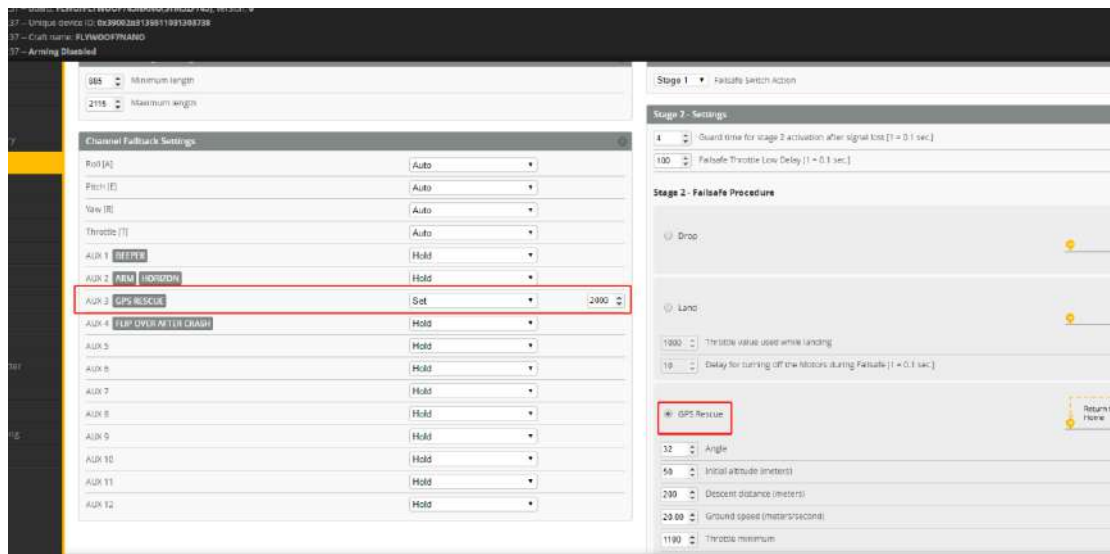
6/ GPS rescue mode

1/ When GPS finds 5 satellites and locks, it will display latitude/longitude/altitude/distance information.

2/ GPS rescue can only be turned on when the flight distance data exceeds 100 meters, otherwise it will fall directly.

3/ After the GPS rescue is turned on, DRONE will turn around and rise gradually and return to the home location.

4/ DRONE will not automatically land. When the control is restored, you need to control DRONE to land.



7/ Bluetooth function



Betaflight APP

The image displays three screenshots of the Speedy Bee Betaflight APP interface, illustrating the Bluetooth connection and configuration process.

Top Screenshot: Device Discovery
 The interface shows a list of other BLE devices under the heading "其他 BLE 设备". A device named "FLYWOO-BTNANO V2" is listed with a Bluetooth icon. The top status bar displays "Speedy Bee" and "断开连接" (Disconnect). A sidebar on the right contains various sensor icons: 陀螺仪 (Gyro), 加速度计 (Accelerometer), 磁力计 (Magnetometer), 气压计 (Barometer), GPS, and 声纳 (Sonar). The "Dataflash free:" space is shown as 16.0MB.

Middle Screenshot: OSD Configuration
 This screen is titled "OSD 屏幕叠加显示" (OSD Screen Overlay Display). It features a "预览" (Preview) window showing a Betaflight OSD layout with fields for Logo, OSD Profile 1, and various flight data. Below the preview, there are toggle switches for "元素" (Elements): Rssi Value, Main Batt Voltage, and Crosshairs. A "当前配置文件" (Current Config File) dropdown is set to "OSD Profile 1". The "视频制式" (Video Format) is set to "AUTO". Buttons for "刷新" (Refresh) and "取消" (Cancel) are at the bottom.

Bottom Screenshot: Flight Settings
 This screen is titled "设置" (Settings) and "配置" (Configuration). It shows a 3D model of the drone with heading, pitch, and roll angles: Heading: 11.0 度, Pitch: 11.7 度, Roll: -12.3 度. A "信息" (Info) section lists "禁止解锁标志" (2, 15) and "没有检测到有效的接收器信号" (2). The "系统设置" (System Settings) section includes "启用陀螺仪 32kHz 采样模式" (Enable Gyro 32kHz Sampling Mode), "陀螺仪更新频率" (Gyro Update Frequency) set to 8 kHz, and "PID 循环更新频率" (PID Loop Update Frequency) set to 8 kHz. A "加速度计" (Accelerometer) toggle is also visible.

8/ Finder BUZZER function



The buzzer has two modes of operation:

1. It is compatible with the functions of the traditional active buzzer and synchronized with the flight control.
2. When the flight control is normally connected, if the main battery in the flight is powered off, it can still automatically emit 100 dB of drip sound after 30 seconds of power failure, and the LED will emit white light.

To turn off the buzzer: Press and hold the release button for more than 2 seconds, the Finder V1.0 turns off the sound.

9/ Flight firmware upgrade and write default CLI

1/ Activate DFU mode

Target: FLYWOO LR4 (HEAD:M302H11) Mode: Firmware

2020-12-24 @ 21:59:32 - Unique device ID: Dc1e00403439510436383737
 2020-12-24 @ 21:59:32 - Craft name:
 2020-12-24 @ 21:59:32 - Arming Disabled
 2020-12-24 @ 21:59:32 - Arming Enabled
 2020-12-24 @ 21:59:32 - Runaway Takeoff Prevention temporarily Disabled

Setup

- Calibrate Accelerometer: Place board or frame on **leveled** surface, proceed with calibration, ensure platform is not moving during calibration period.
- Calibrate Magnetometer: Move multicopter at least **360** degrees on all axis of rotation, you have 30 seconds to perform this task.
- Reset Settings: Restore settings to **default**.
- Backup: Restore: **Backup** your configuration in case of an accident, CLI settings are **not** included - use the command 'diff all' in CLI for this.
- Activate Boot Loader / DFU**: Reboot into **boot loader / DFU** mode.

Heading: 332 deg
 Pitch: 22.9 deg
 Roll: 100.7 deg

Reset Z axis, offset: 0 deg

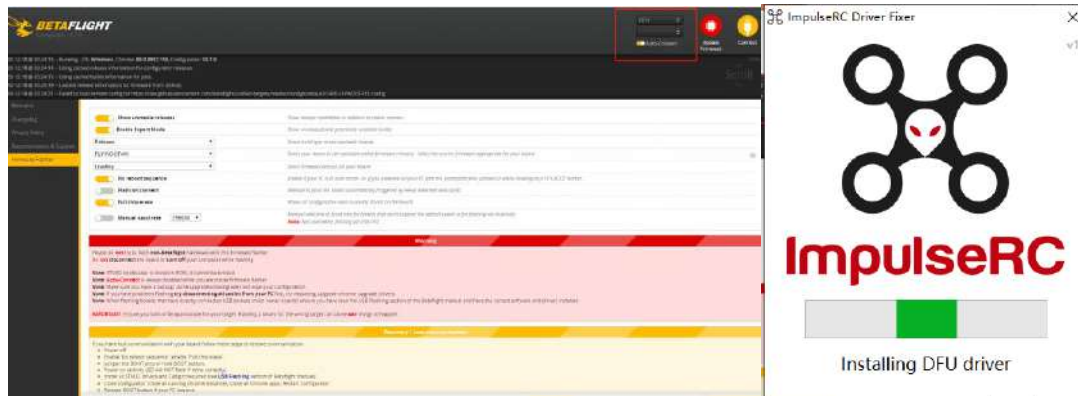
Info

- Arming Disable: R_V_I
- Flags:
- Battery voltage:
- Capacity drawn:
- Current draw:
- RSSI:

GPS

- 3D Fix:
- Sats:
- Latitude:
- Longitude:

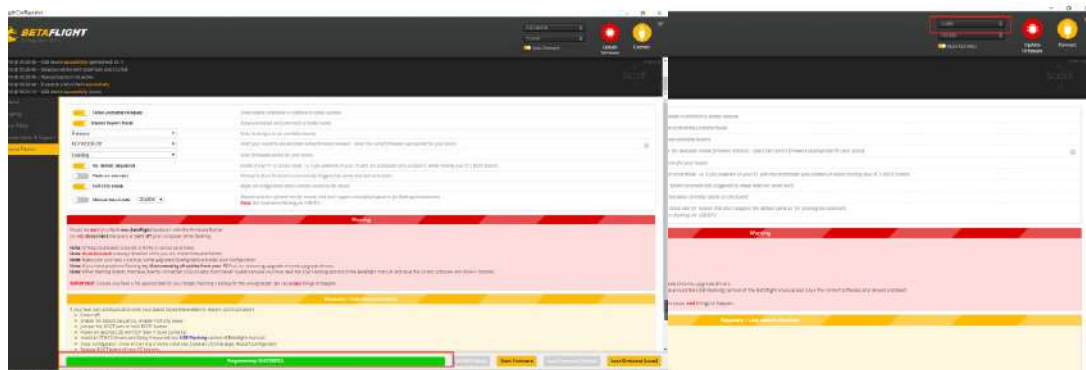
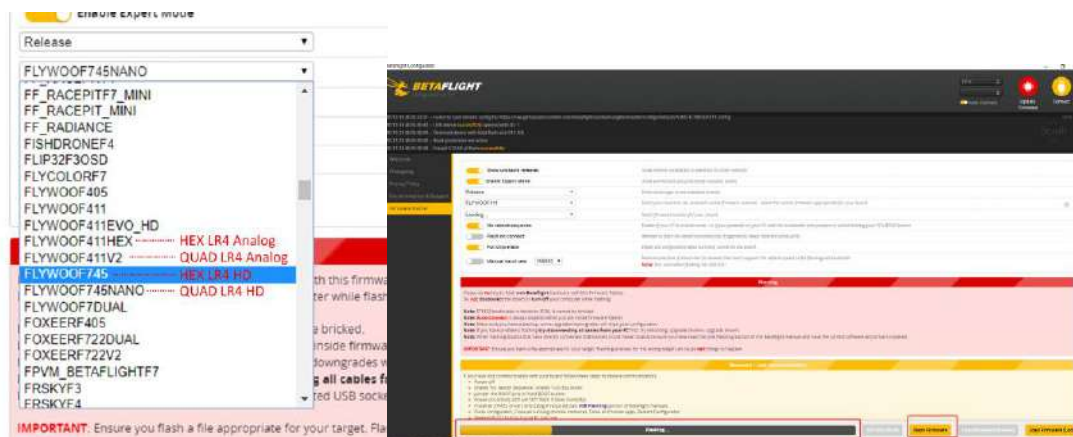
2/ BF Configurator will display to enter DFU mode. If it does not enter DFU mode, it may be that the driver is not installed. The driver can be installed using IMPULSE RC software



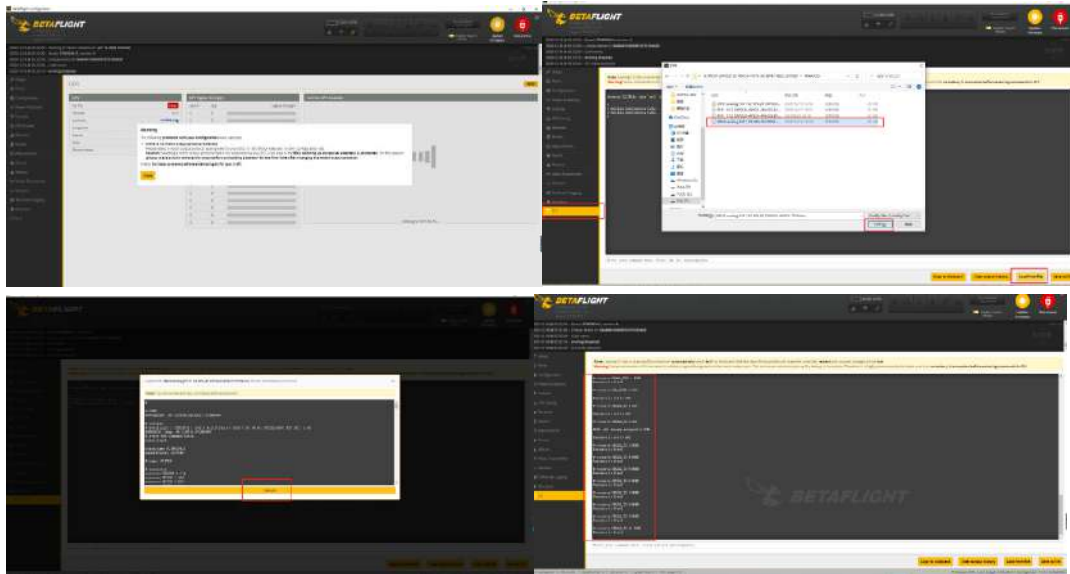
Driver software:

https://impulserc.blob.core.windows.net/utilities/ImpulseRC_Driver_Fixer.exe

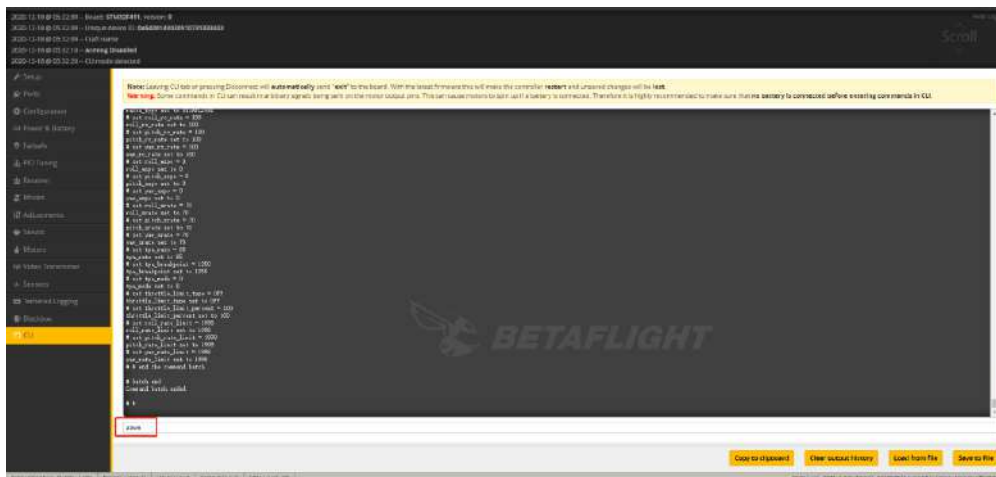
3/ Then load the local HEX firmware and wait for the flashing to complete. A green progress bar is displayed to indicate completion, and DFU will become a COM port



4/ After the connection is entered, it is a blank interface, you need to write CLI commands, Factory CLI LINK: <https://flywoo.net/pages/manual>



5/ If the command is not restarted after writing the command, please write SAVE and press Enter to save, and the FC will restart



6/ Then all functions of FC return to normal.

