CineRace20 DJI O3 HD

Manual

video guide: https://youtu.be/LkkEtJFXelw

1/ drone introduction

The CineRace20 O3 edition is currently the smallest cinewhoop of FLYWOO that is equipped with the DJI O3 Air unit module, measuring only 2 inch in size.
It features neon LED lights, offering a variety of color options for added fun during races or other events.
A specially designed GM10 Nano V3 GPS module is tailored to fit the CineRace20, providing minimal weight but the ability to search up to 30 satellites.
Use TPU soft material to prevent jelly effect. Pilots can quietly enjoy the fun of shooting a video without jelly
This is a truly innovative duct design. It is designed to block certain winds, increasing the thrust of the drone. The duct completely surrounds the propeller, making flying safer.

- Sub250 (even with battery)
- Support 4K\60fps recording
- GPS up to 30 satellites
- No Propellers in view, NO Jello flight Footage, stable flight picture
- Neon LED, various options. buzzer alarm
- Built-in SanDisk Extreme microSD card 128GB
- Innovative duct design

Specifications ：

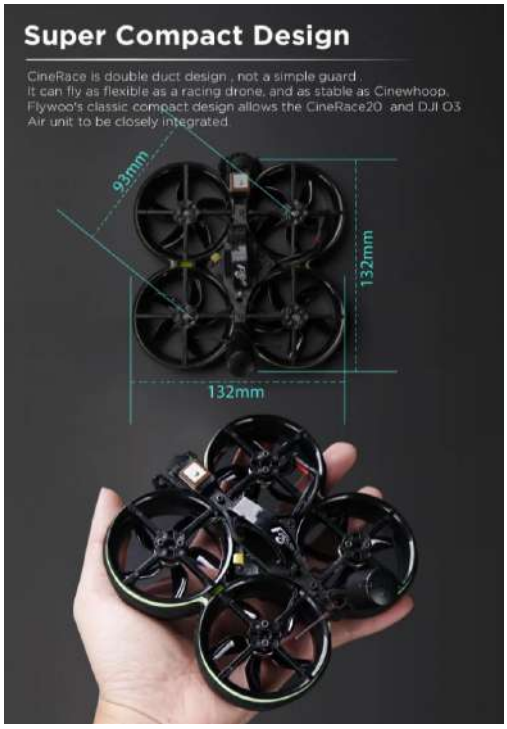
Model: CineRace20 HD DJI O3 2inch
Brand: FLYWOO
Frame: CineRace20 O3 (Different fromCineRace20 V1.2\V2 frame)
FC and ESC : GOKU GN 405S 20A AIO
GPS: GOKU GM10 Nano V3 GPS
Buzzer : 5PCS Active Alarm Buzzer
VTX: DJI O3 Air Unit
Camera: DJI O3
Propeller: D51-5 51mm
Antenna: DJI O3 antenna
Motor: NIN V2 1203PRO 4850Kv
Weight: 139g
Recommended Battery:
Exploer 450mah 4S (flight time 5mins)
Explorer 750mah 4S (flight time 6mins)
CineRace 20 LED O3
Double duct design， New concept cinewhoop
Sub250 I 4k 1080p I GM10 GPS V3 I Neno LED camera, you need to buy an adapter cable)

Real Duct design

This is a truly innovative duct design. It is designed to block certain winds, increasing the thrust of the drone. The duct completely surrounds the propeller, making flying safer.

Super Compact Design

CineRace is double duct design , not a simple guard . It can fly as flexible as a racing drone, and as stable as Cinewhoop. Flywoo's classic compact design allows the CineRace20 and DJI O3 Air unit to be closely integrated.

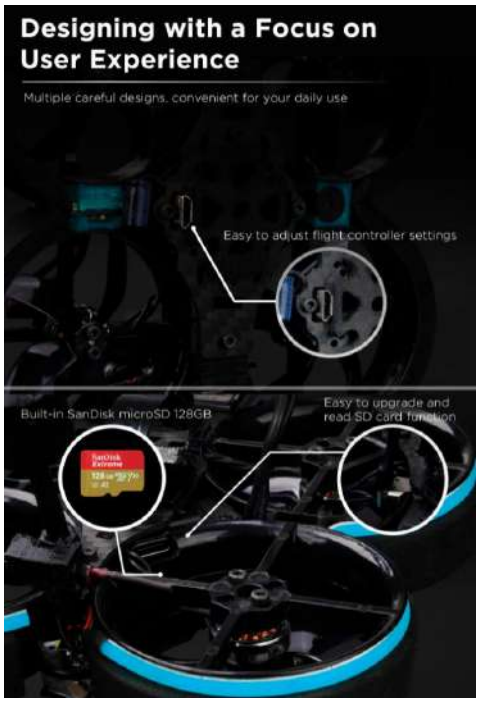


Ultra-Light Weight Sub250

2 inch CineWhoop below 250g even if you connect with the battery, meet the current requested of FAA rules. It can fly as flexible as a racing drone, and as stable as Cinewhoop

Designing with a Focus on User Experience

Multiple careful designs, convenient for your daily use
Easy to adjust flight controller settings
Built-in SanDisk microSD 128GB
Easy to upgrade and read SD card function



GOKU GM10 NANO GPS V3.0

Up to 30 satellites can be searched, making the rescue function more reliable. More assured flight, you can see the data of latitude and longitude, altitude, speed, distance

Race neon LED, Buzzer alarm

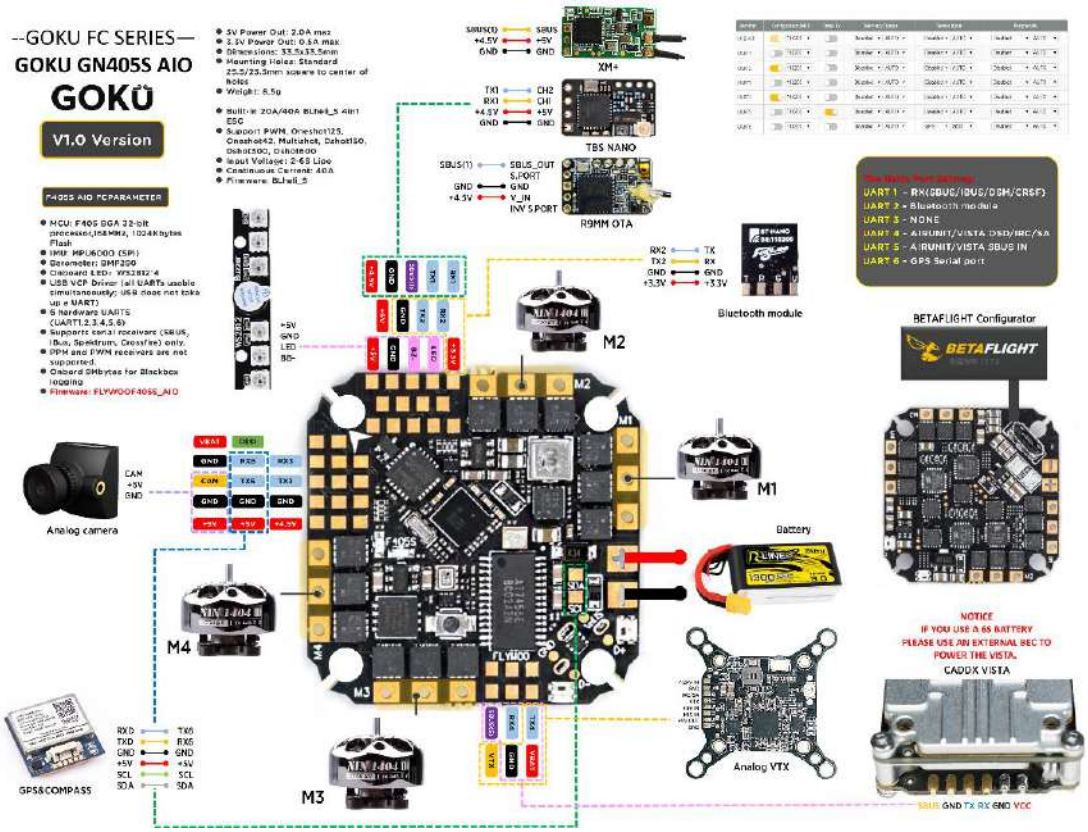
Allows you to control an LED light, turning it on or off as desired. It also offers a variety of color options, making it more fun to use during competitions or other events. (Changing the LED color requires soldering by yourself. If you can't solder, it is not recommended to try)

In the Box :

1 x CineRace20 HD DJI O3
8 x D51-5 props
2 x Battery strap 9x150mm \ 9x200mm
1 x Set of screws
1 x SanDisk Extreme microSD Card 128GB
1 x 90° USB Type-C

2/ Configuration and wiring diagram description

Flight control wiring diagram



PID and filter settings

Lighter battery 4S 450MAH / 4S 750MAH

	Proportional	Integral	D Max	Derivative	Feedforward
Basic/Acro					
ROLL	99	119	99	66	113
PITCH	109	126	109	71	120
YAW	108	126	0	0	113

Heavy battery 4S 900MAH or equipped with an action camera

	Proportional	Integral	D Max	Derivative	Feedforward
Basic/Acro					
ROLL	85	102	85	56	97
PITCH	94	108	94	61	103
YAW	92	108	0	0	97

Default serial port settings

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200		Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	115200		Disabled AUTO	Disabled AUTO	Disabled AUTO
UART2	115200		Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	115200		Disabled AUTO	GPS 115200	Disabled AUTO
UART4	115200		Disabled AUTO	Disabled AUTO	Disabled AUTO
UART5	115200		Disabled AUTO	Disabled AUTO	Disabled AUTO
UART6	115200		Disabled AUTO	Disabled AUTO	Disabled AUTO

UART1: ELRS/TBS/R9M/XM+/DSMX/SBUS receiver(Only open RX1)

UART2: NULL

UART3: GM10 NANO GPS (baud rate is 115200)

UART4: DJI O3 UNIT OSD

UART5: DJI O3 SBUS RX (Only use DJI remote control to turn on, and turn off RX1)

UART6: NULL

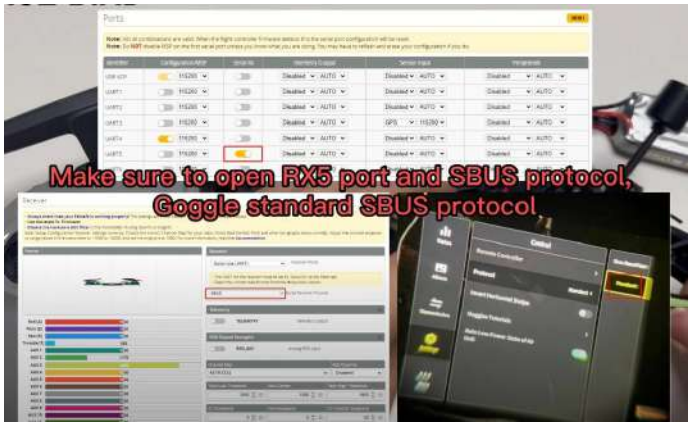
3/ Receiver binding

BNF DJI RX:

1/ Open the UART RX4 serial port

2/ Set SBUS receiver protocol

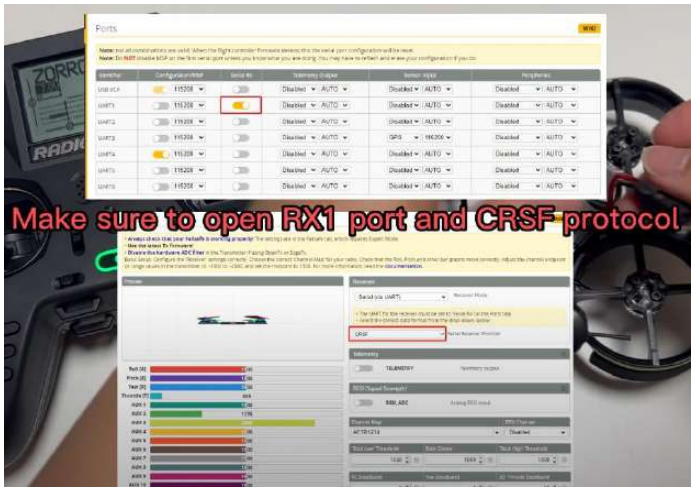
3/ The goggles set the SBUS standard protocol



https://www.youtube.com/watch?v=LkkEtJFXelw&t=88s&ab_channel=flywoofpv

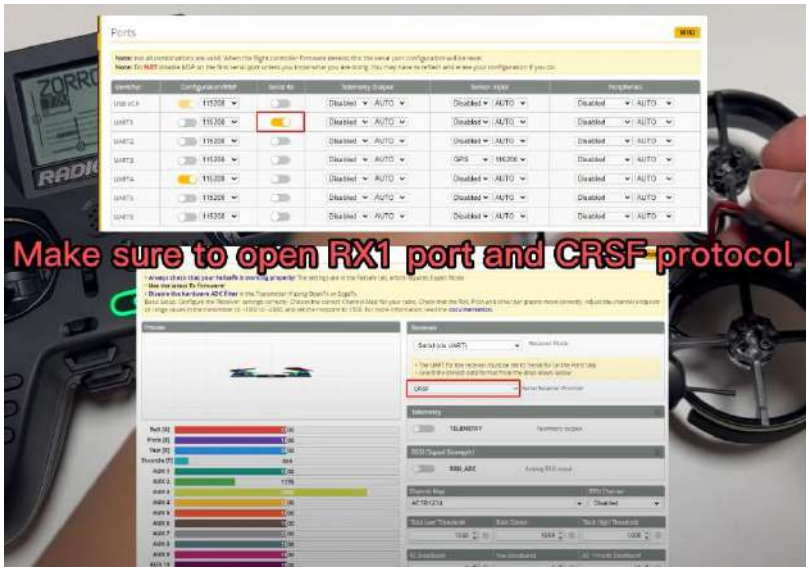
TBS NANO 915:

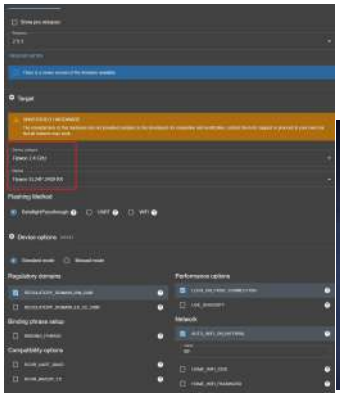
When the USB is connected, the green light of the receiver flashes, and then bind according to the picture operation.

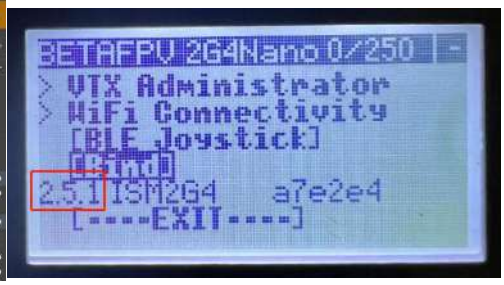


https://www.youtube.com/watch?v=-iNkVcOLITM&ab_channel=Danimal3D

ELRS 2.4G RX:







Bind procedure:

- Supply power to the EL24E/EL24P rx, wait until the LED on the RX is off, immediately turn off the power, and then repeat again the above steps. When the RX is powered on for the third time, the LED light will start to double-flash, which means that the RX enters the binding mode

- Insert the 2.4G ELRS TX to Radio transmitter, and choose External RF mode to CRSF protocol, then you can find ELRS menu from the Radio systems(Need to copy the ELRS.LUA file to the SD-Card tools first), Enter into ELRS and press [Bind], the LED on the RX module will getting to be solid if bind successfully.

- Receiver LED status meanings:

EL24E/EL24P RX: LED solid means bind successful or Connection established; LED double-flash means in bind mode; LED flash slowly means no signal connection from the TX module; LED flash fast means in WIFI hotspot mode, you can connect the WIFI of the RX and upgrade firmware of the RX via visit 10.0.0.1 from the web browser(password: expresslrs)

Updating Firmware Tutorial via BETAFLIGHT

https://www.youtube.com/watch?v=yhPw_3ODHBw&t=5s&ab_channel=flywoofpv

Notice

The ELRS version of the remote control and receiver must be consistent before they can be bound

1/ ELRS 2.X.X versions can be bound to each other

2/ ELRS 3.X.X versions must be consistent, for example, both must be version 3.0.0

XM+ receiver:

1/ Press the XM+ receiver button, USB power supply, the red and green lights are always on

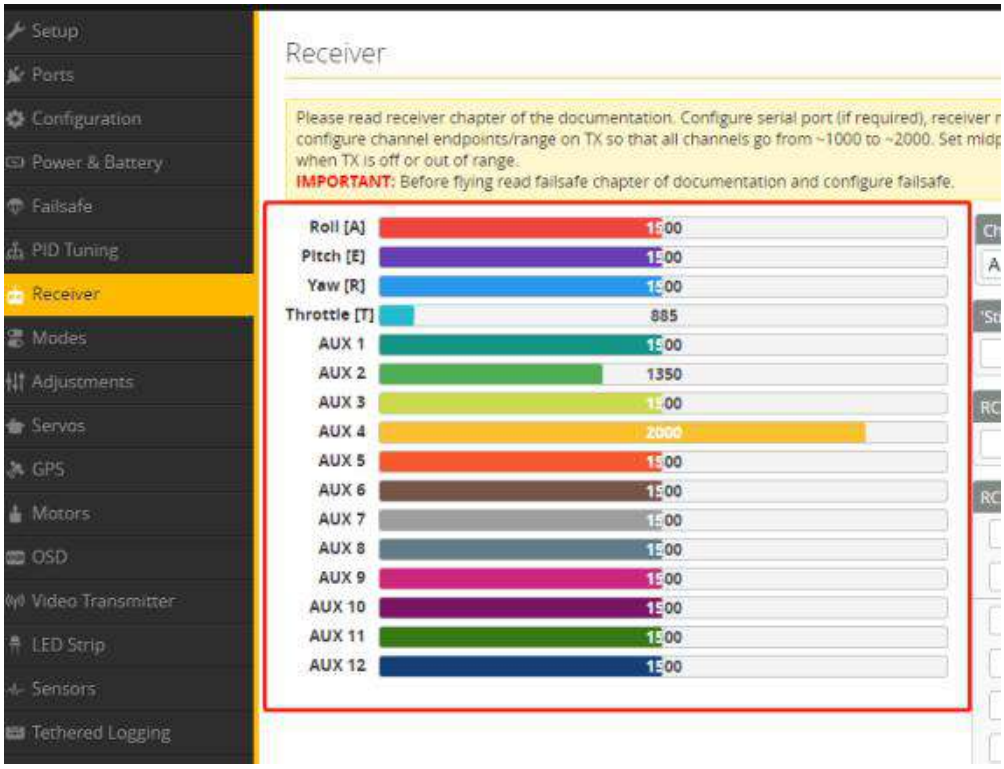
2/ The remote control turns on the binding mode, the green light flashes to indicate successful binding, turn off and restart

Notice（Other open TX remotes）

Receiver 1.x firmware just select FrskyX D16 in the remote control

Receiver 2.x firmware just select FrskyX2 D16 in the remote control

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



4/ Goggle binding:

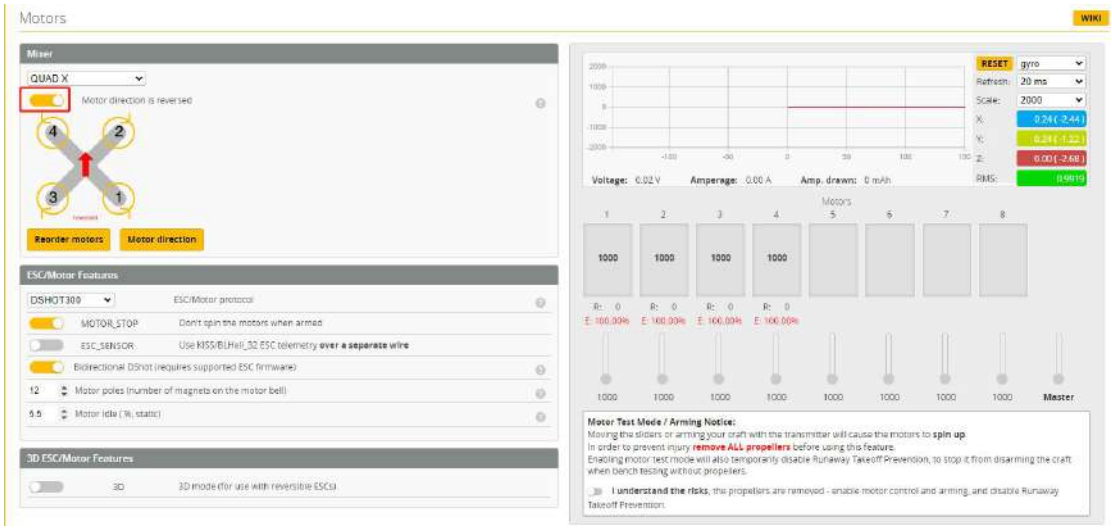
Use tweezers or a toothpick to press the O3 UNIT binding button, when the red light flashes, then press the goggles binding button to complete the binding. A video guide can be viewed

5/ 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.

6/ Motor test:

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

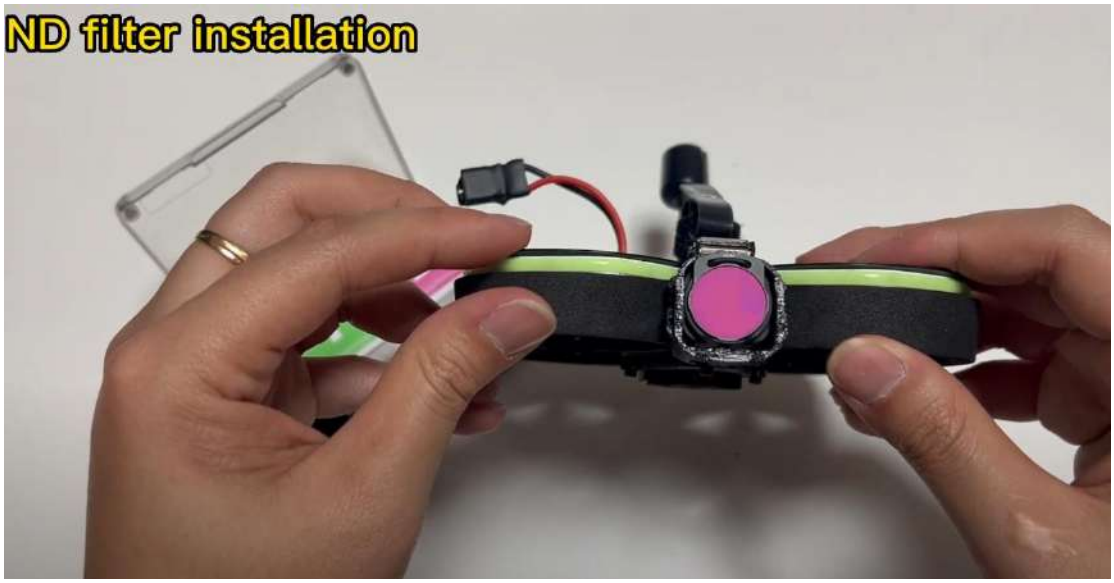


7/ Install propeller

Install the propeller in the correct direction, otherwise you will not be able to fly and damage the device, and finally fix the propeller with M2*6 screws

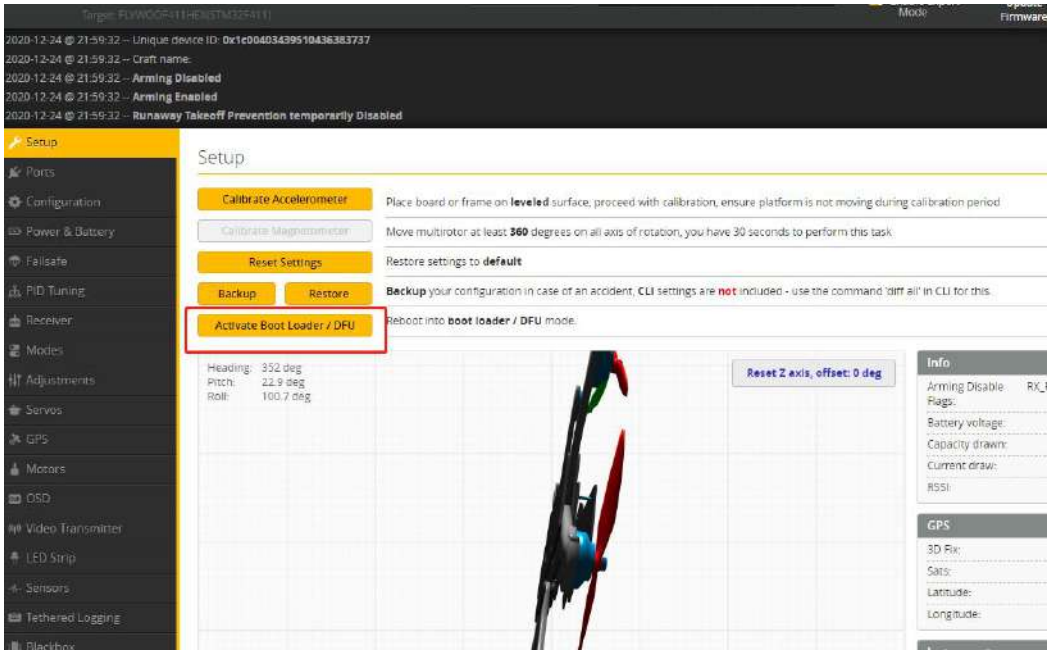
8/ USB upgrade O3 UNIT and export DVR video (built-in 128G SD card)

8/ Filter installation (optional purchase)

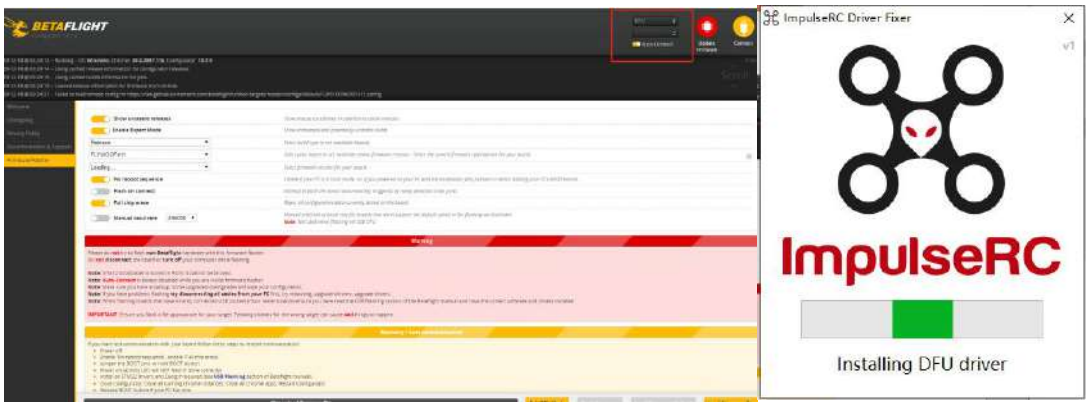


8/ Flight firmware upgrade and write default CLI

1/ Activate DFU mode



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/ Factory CLI settings
https://flywoo.tawk.help/article/cinerace20-o3-cli-configuration