# CineRace20 ANALOG Base

Manual

1/ drone introduction

CineRace20 a new concept and more than a cinewhoop . Inspired by RaceWhoop designed by Free Zillion.   This is a combinathion of CineWhoop and RaceWhoop! CineRace is double duct design , not a simple guard anymore. . It can fly as flexible as a racing drone, and as stable as Cinewhoop. Pilots can quietly enjoy the fun of shooting a video without jelly and up to 12 minutes Super long flight time with Flywoo's latest 4S HV 900mah Battery !

All in all, this is an all-round drone that can not only Racing , but also shooting a video stably , and at the same time achieve a super long flight time!
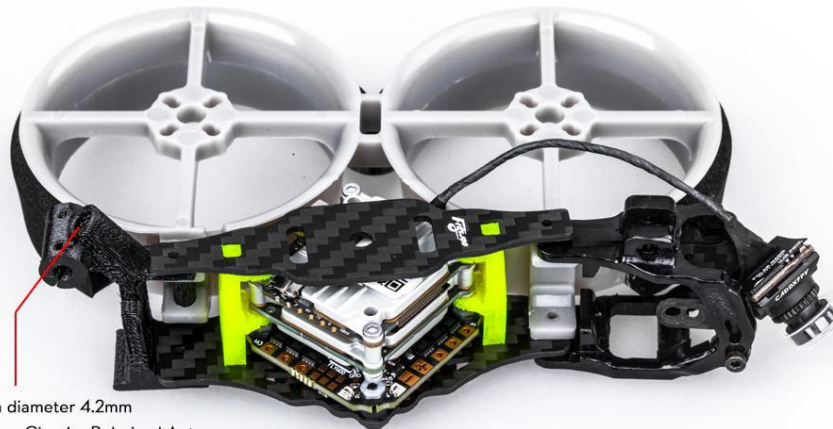
Antenna diameter 4.2mm
eg: Flywoo Circular Polarized Antenna
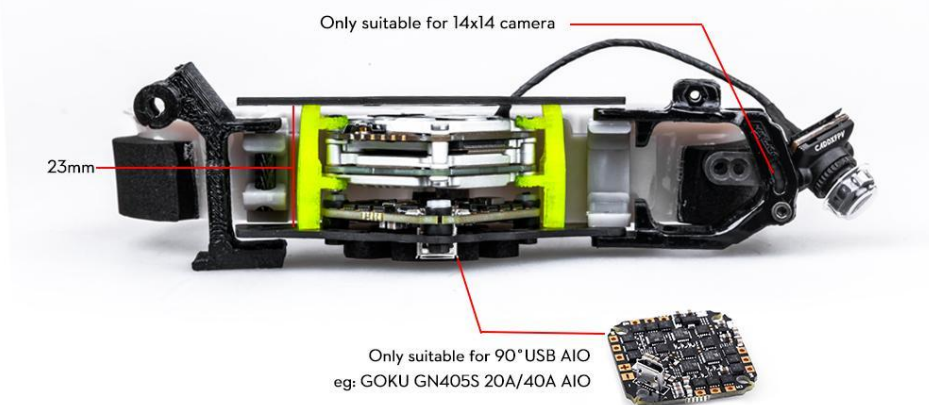
Only suitable for 14x14 camera

23mm

Only suitable for 90°USB AIO
eg: GOKU GN405S 20A/40A AIO

Features

1. Almost all parts are injection molded. ABS\PC material. More sturdy and durable.
2. Very easy to disassemble and install, only fixed by two aluminum columns.
3. Pilots can freely combine their favorite colors to be more individual
4. Efficient power configuration and reasonable structural design ensure CineRace20 flight stability, low noise, and super long flight time up to 12mins
5. No Propellers in view, NO Jello flight Footage, stable flight picture
6. With its own power cable output to the SMO camera (If you are using a gopro 6/7/8 camera, you need to buy an adapter cable)
7. Add Flywoo Bt-nano Bluetooth Module
You can use mobile devices to set the parameters of the flight controller.

Personalization Frame Kit

You can freely combine the color frame you like!（Please note ：you need to replace the Ducts yourself , all Pre-build Drone colors are determined.）
Link: CineRace Frame kit Parts

9mm/ m2
12mm / m2
20x20mm/m2
16x16mm/m2
25.5x25.5mm/m2
90mm
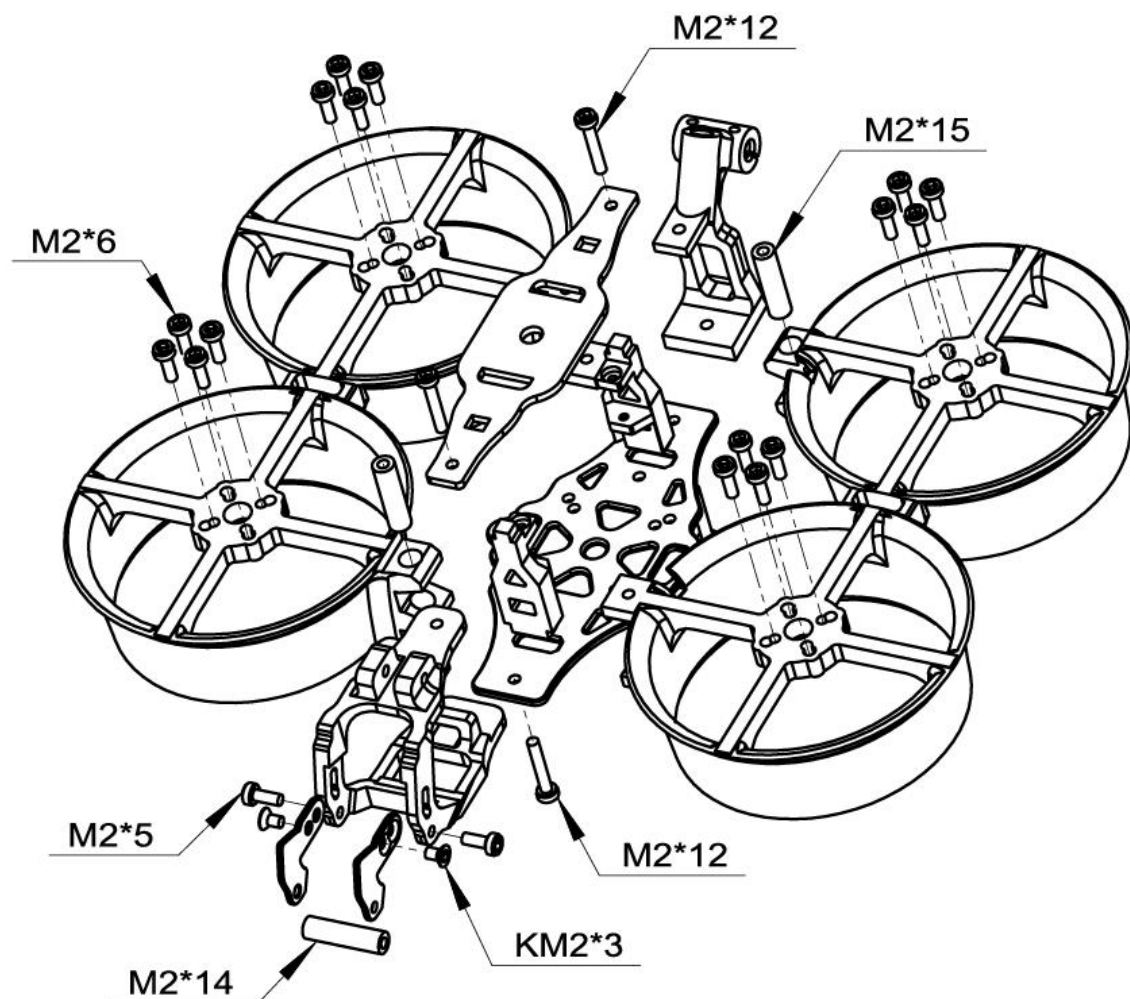
Specification

Item: CineRace20 Analog w/ Caddx Ant
Weight: 93g (without battery)
FC & ESC : GOKU GN 413 13A AIO
Frame: CineRace20 Frame Kit
Motors: NIN V2 1203PRO 3400Kv
Props: Gemfan D51 -5
VTX: vtx625 450mw
Antenna: Flywoo Circular RHCP 5.8Ghz Ant (UFL-Length: 115mm \ Tube 45mm)
Battery: Explorer 4S HV 300mAh / Explorer 4S HV 900mAh battery (Not including)

Highly recommended battery

Explorer 4S HV 300mah Battery (You will get good flight time and fly quite flexible)
Explorer 4S HV 900mah Battery (You will get a super long flight time, and the flight will be more stable)

Includes

1x Prebuilt and tested CineRace20 Quadcopter
4x D51-5 Props (Pairs)
2x Battery Strap
1x Hardware Set

Package List

2/ Configuration and wiring diagram description

Flight control wiring diagram

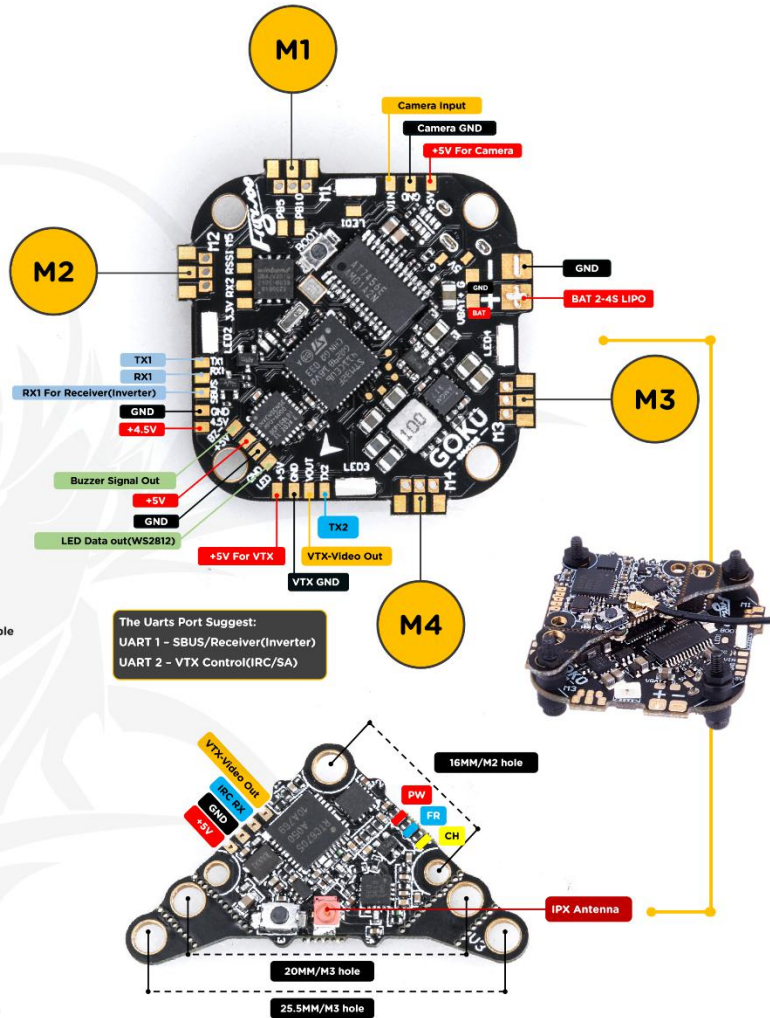--GOKU FC SERIES—
GOKU F413S Toothpick Stack

GOKU

F411 FC PARAMETER

- SIZE: 33*33mm
- Hole: 25.5*25.5-3mm
- Weight: 6g
- MCU: STM32F411CEU6
- GYRO: MPU6000
- FLASH: 8M
- BEC: 5V 2A
- LED: WS2812 LED*4
- Camera control: YES
- Input Voltage: 2-4S
- BS13A BLheli_S 2-4S 4in1
- Peak Current: 15A
- Input Voltage: 2-4S
- Firmware: BLheli_S
- Support Oneshot, Multishot, DShot150/300/600
- Firmware: FLYWOOF411

GOKU VTX625 FEATURES

- Frequency: 5.8GHz 6 bands 40 channels
- Raceband: 5362-5945 MHZ
- Power: PIT/25/50/100/200/450mW switchable
- Control Mode:IRC(RX)/Button
- BAT: +5V Input
- Video System: NTSC/PAL
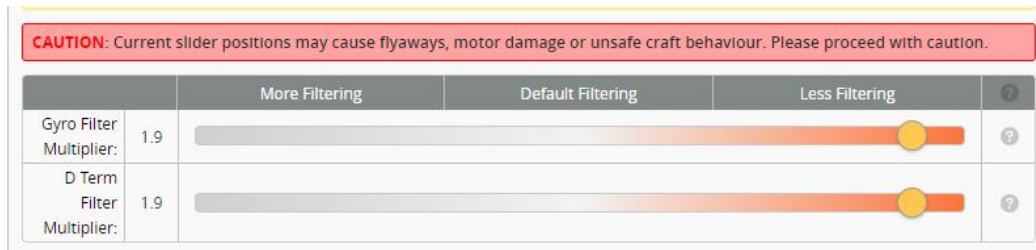- Antenna: IPX
- Size: 30mm×30mm×4mm
- Weight: 1.3g

M1
Camera Input
Camera GND
+5V For Camera

M2
GND
BAT 2-4S LIPO

TX1
RX1
RX1 For Receiver(Inverter)
GND
+4.5V

M3

Buzzer Signal Out
+5V
GND
LED Data out(WS2812)
+5V For VTX
VTX GND
VTX-Video Out
TX2

M4

The Uarts Port Suggest:
UART 1 – SBUS/Receiver(Inverter)
UART 2 – VTX Control(IRC/SA)

VTX-Video Out
IRC RX
GND
+5V
16MM/M2 hole
PW
FR
CH
IPX Antenna
20MM/M3 hole
25.5MM/M3 hole

PID and filter settings

PID Profile Settings	Rateprofile Settings	Filter Settings

CAUTION: Current slider positions may cause flyaways, motor damage or unsafe craft behaviour. Please proceed with caution.

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

		Low	Default	High	
Master Multiplier:	1.4				
PD Balance:	1.2				
P and D Gain:	1.7				
Stick Response Gain:	0.9				

CAUTION: Current slider positions may cause flyaways, motor damage or unsafe craft behaviour. Please proceed with caution.

		More Filtering	Default Filtering	Less Filtering	
Gyro Filter Multiplier:	1.9			●	?
D Term Filter Multiplier:	1.9			●	?

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 ▾	VTX (IRC Tran ▾	AUTO ▾

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

UART2: VTX IRX TX

Frequency table:

FR/CH	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
A	5865	5845	5825	5805	5785	5765	5745	5725
b	5733	5752	5771	5790	5809	5828	5847	5866
E	5705	5685	5665	5645	5885	5905	5925	5945
F	5740	5760	5780	5800	5820	5840	5860	5880
r	5658	5695	5732	5769	5806	5843	5880	5917

- The selections in [XXXX] requires HAM license to operate .legally. [XXXX] Selections are only available on special request.

- **Button function**
- FR (blue light), short press the button, the blue light flashing times represent CH1-CH8
- CH (yellow light), long press the button 2S until the yellow light flashes,
  and then press the button shortly, the number of flashes of the yellow light represents A-r
- PW (power), long press the button 6S until the red light flashes, and then press the button shortly,
  the number of flashes of the red light represents 5 levels of power
- Long press 10S to unlock 40 channels. (three color led flashes)
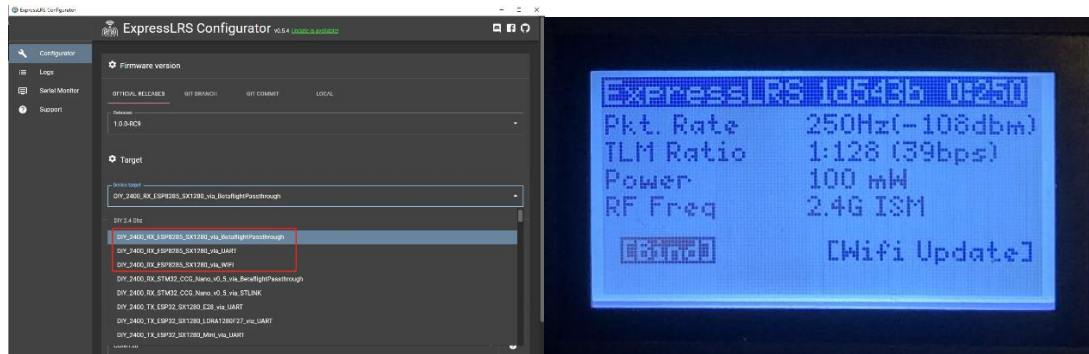
3/ Receiver binding

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

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)

R9MM FCC ACCESS OTA：

Make sure your remote control supports ACCESS protocol, then follow the link to register and bind
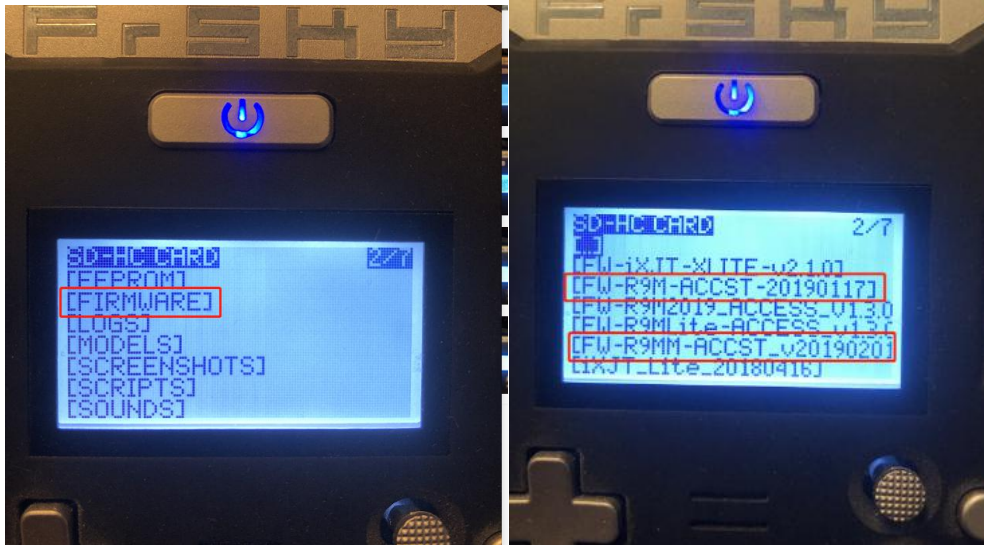
https://www.youtube.com/watch?v=az5hDdNBcjg&t=9s&ab_channel=FrSkyRC

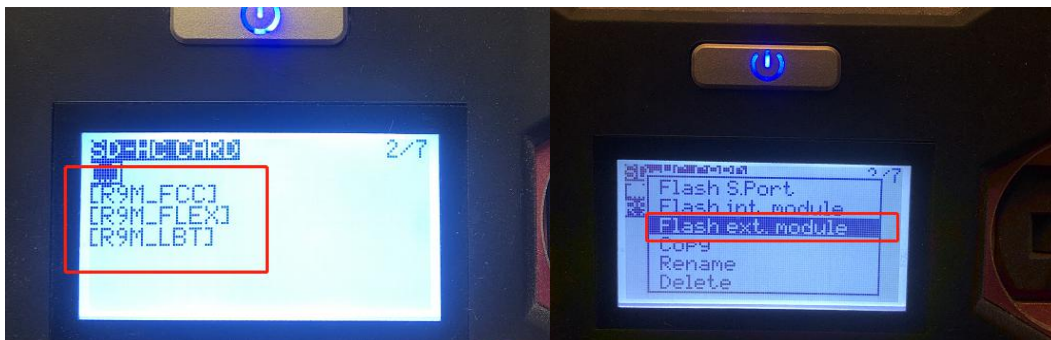*If the remote control is ACCST protocol, please bind as follows:*

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.
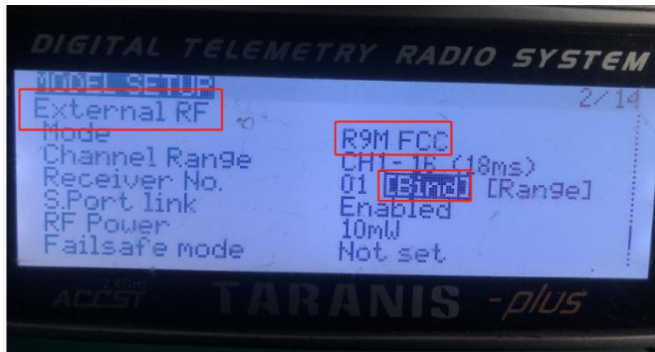
XM+ receiver:

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
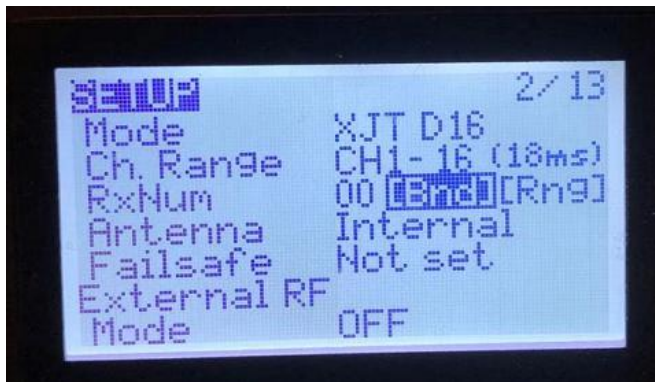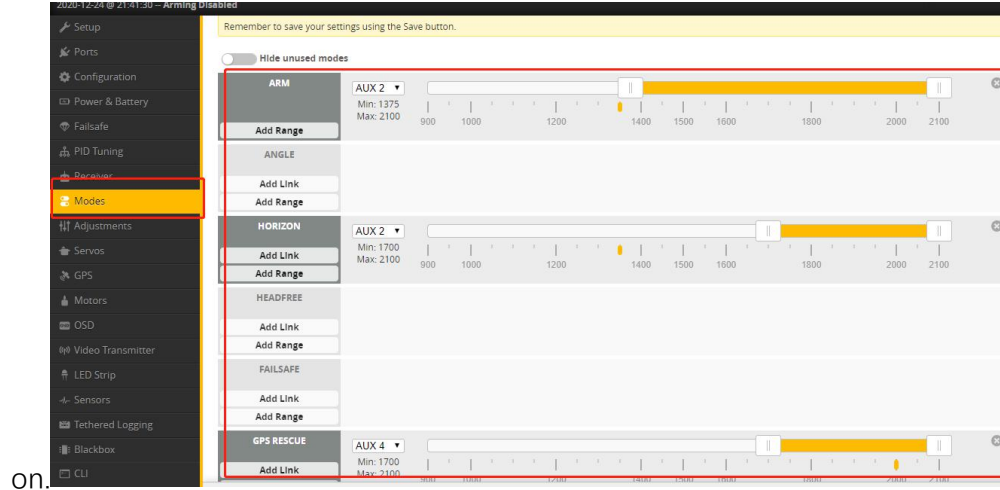

3-1/ Then set the corresponding serial port and receiver protocol to ensure the normal output of each channel of the receiver.
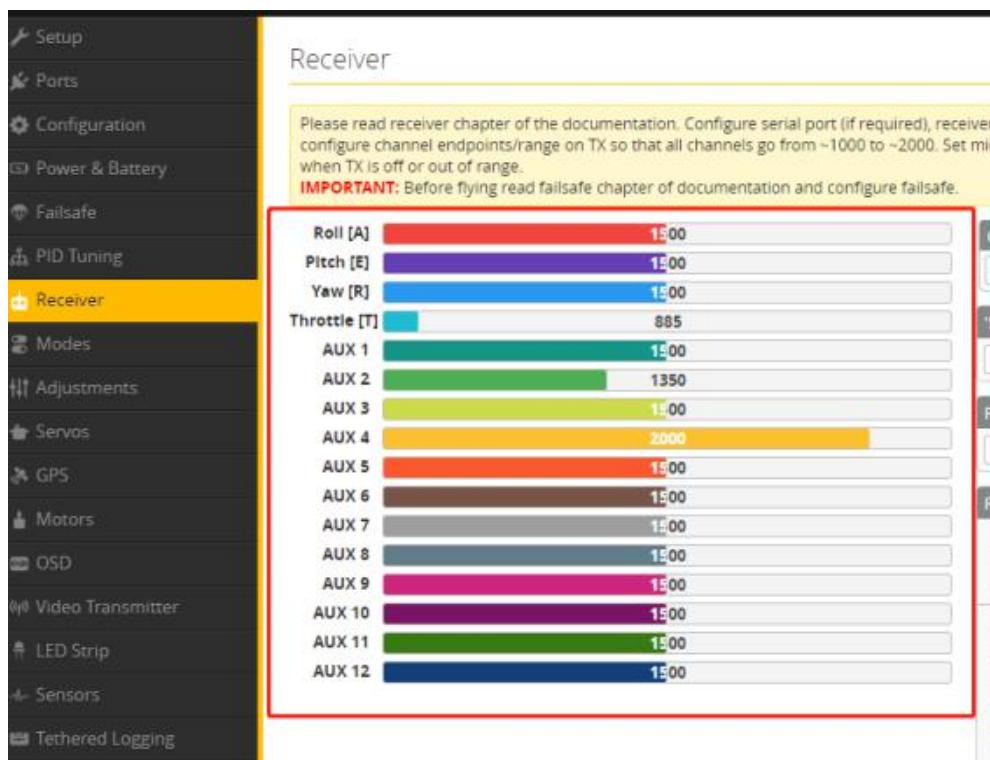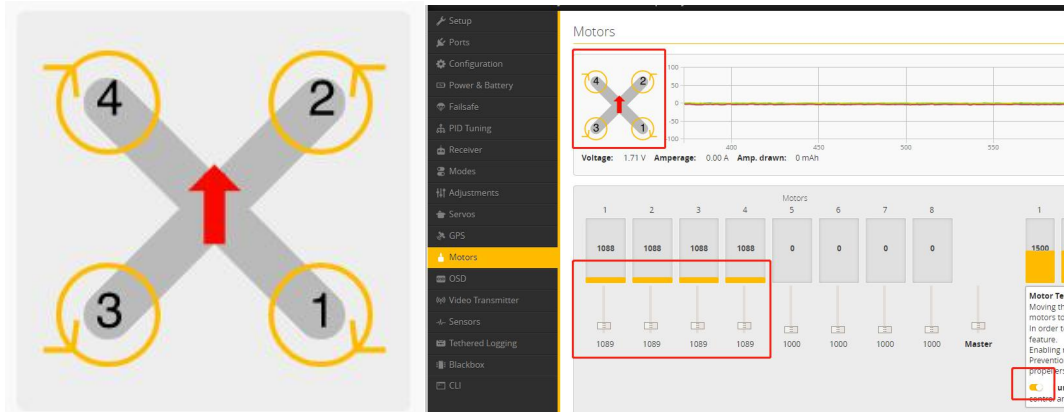
4/ Mode setting:

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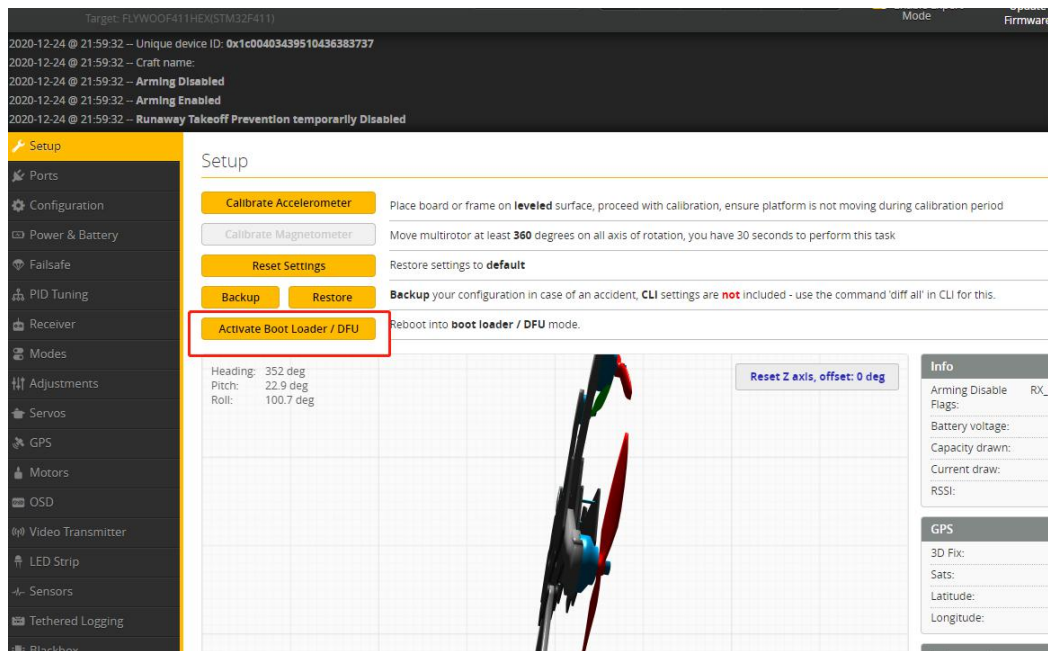

on.

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.
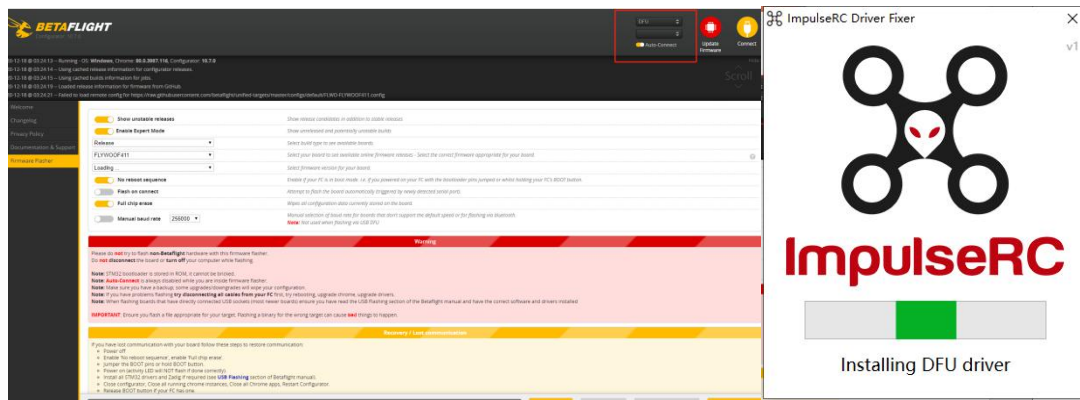

6/ Flight firmware upgrade and write default CLI

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
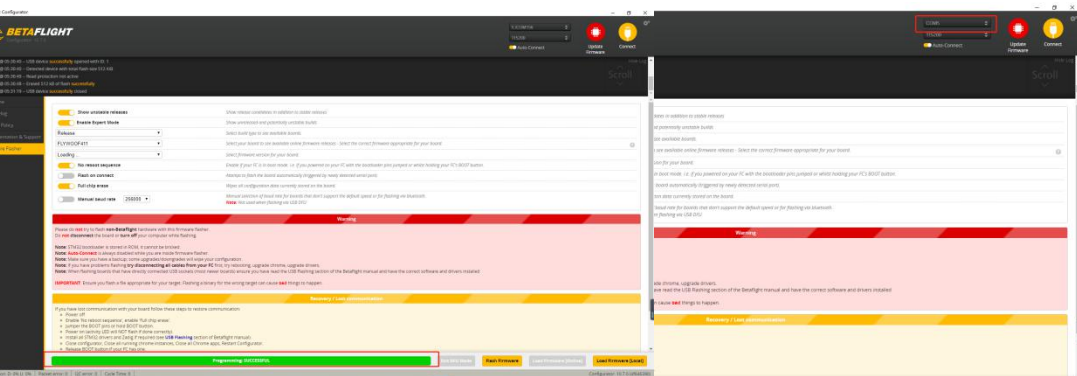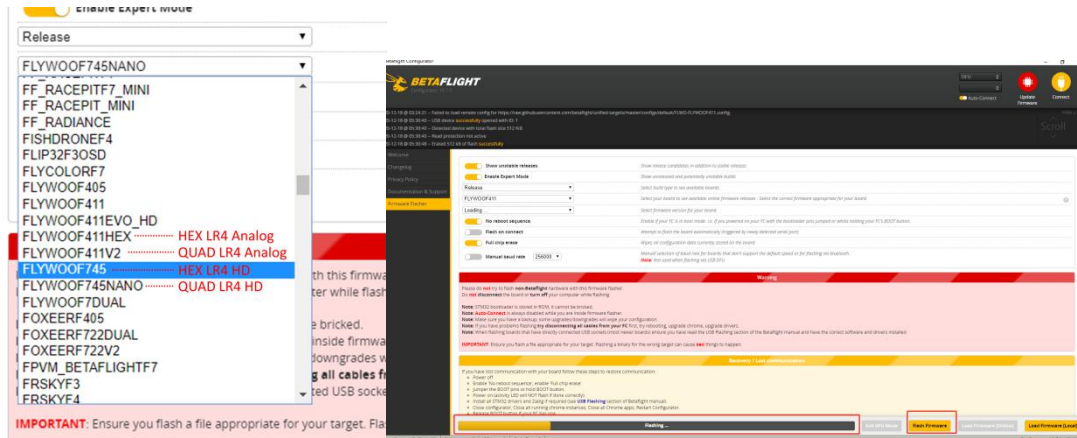
4/ After the connection is entered, it is a blank interface, you need to write CLI commands, Factory CLI LINK: https://flywoo.net/pages/manual
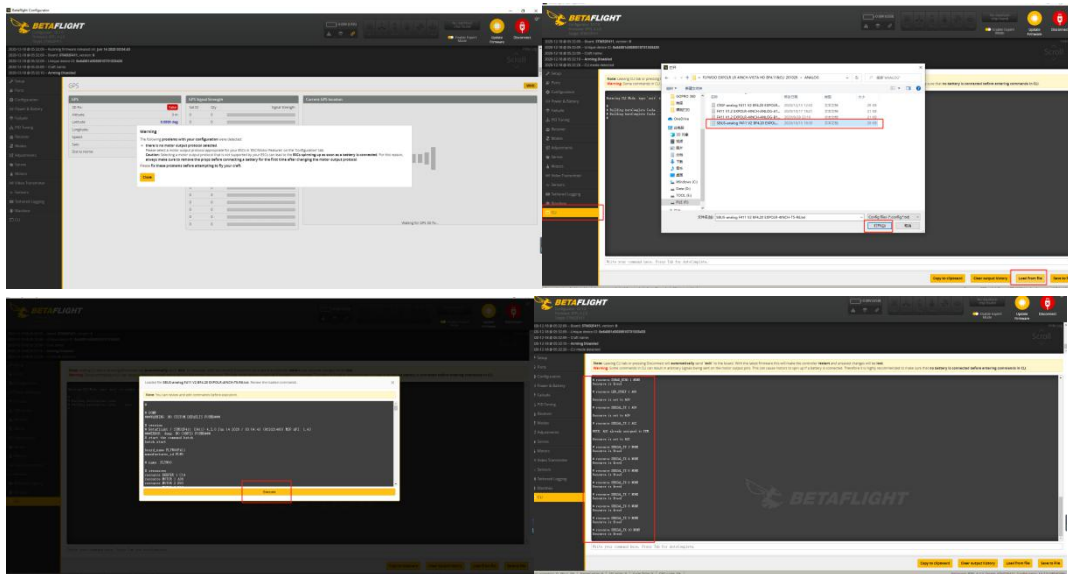
5/ If the command is not restarted after writing the command, please write SAVE and press Enter to save, and the FC will restart

6/ Then all functions of FC return to normal.

7/ Configuration table

CineRace20 Analog		CineRace20 Analog Pro		CineRace20 Polar Nano	
Color	Grey	**Color**	Yellow	**Color**	Black
FC\ESC	GOKU 413SAIO 13A AIO	**FC\ESC**	GOKU 405S 20A AIO	**FC\ESC**	GOKU 405S 20A AIO
Camera	Caddx Ant	**Camera**	Caddx Baby Ratel V2	**Camera**	Polar Nano
VTX	VTX625 450mw	**VTX**	HM850 850mw	**VTX**	Vista
Antenna	Flywoo circular RHCP 5.8Ghz Antenna （UFL--Length: 115mm \ Tube 45mm）	**Antenna**	Flywoo circular RHCP 5.8Ghz Antenna （UFL-- Length: 115mm \ Tube 45mm）	**Antenna**	Flywoo circular LHCP 5.8Ghz Antenna （UFL --Length: 115mm \ Tube 45mm）
Motor	Nin V2 1203PRO 3400kv	**Motor**	Nin V2 1203PRO 3400kv	**Motor**	Nin V2 1203PRO 3400kv
Propller	Gemfan D51-5 blade	**Propller**	Gemfan D51-5 blade	**Propller**	Gemfan D51-5 blade
Bluetooth, module	\	**Bluetooth, module**	YES	**Bluetooth, module**	YES
Microphone module	\	**Microphone module**	YES	**Microphone module**	\
Battery	Explorer 4S 300mah HV Explorer 4S 900mah HV	**Battery**	Explorer 4S 300mah HV Explorer 4S 900mah HV	**Battery**	Explorer 4S 300mah HV Explorer 4S 900mah HV
Flight Time (Without Caddx Peanut)	300mAh\7mins 900mAh\15mins 30s	**Flight Time (Without Caddx Peanut)**	300mAh\7mins 900mAh\15mins 30s	**Flight Time (Without Caddx Peanut)**	300mAh\6mins 900mAh\12mins 30s
Flight Time (With CaddxPeanut)	300mAh\4mins 30s 900mAh\12mins	**Flight Time (With CaddxPeanut)**	300mAh\4mins 30s 900mAh\12mins	**Flight Time (With CaddxPeanut)**	300mAh\3mins 30s 900mAh\10mins
Weight	93.2g (Without Battery)	**Weight**	94.7g (Without Battery)	**Weight**	111.7g (Without Battery)