Firefly hex nano Manual

Analog INAV Version

1/ drone introduction

Firefly Hex nano inav hexacopter , the world's first hex smallest inav platform developed by FLYWOO .
If you expect to have a smart drone? If you are looking forward to trying a new operating system (INAV) but don't know how to start? Then Firefly hex nano inav will be your best experience platform.
The Firefly using inav can do some smart action such as altitude hold , position hold , and return to home. As our slogn says " Use your imagination and have fun with your first 1.6inch Hexacopter.

The Hex nao is equipped with GOKU HEX 13A STACK and 6pcs ROBO 1202.5 5500KV motors, to bring the Firefly a quiet, stable, flexible and long flight time characteristics. Perfect for the indoor and outdoor recording every beautiful flying moment!

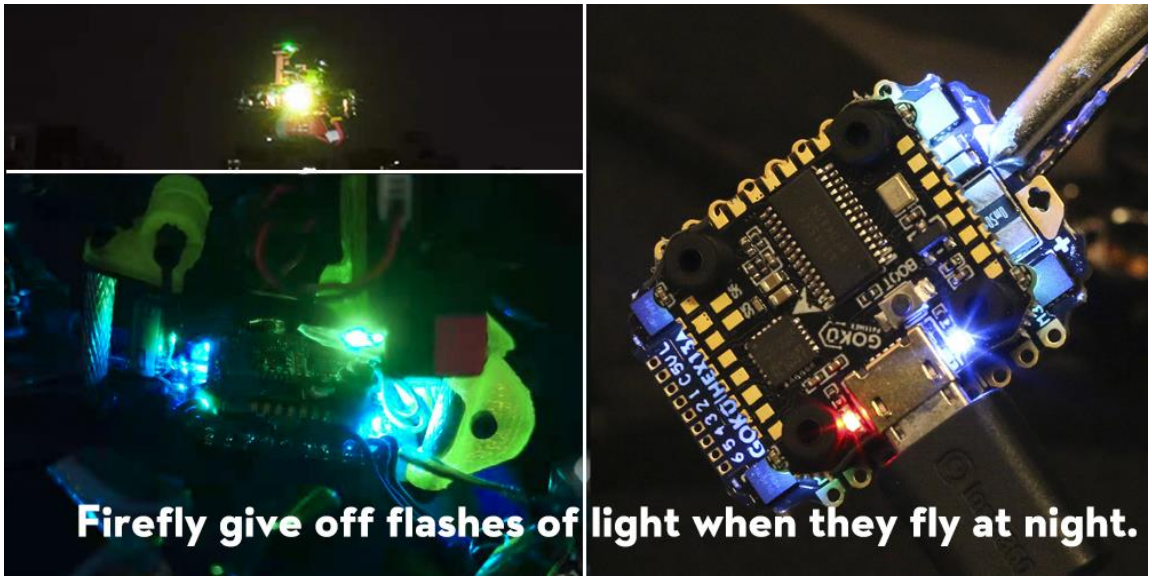
Battery recommend
Flight time:
About 6 min flight with Explorer 450mAh 4S battery
About 4 min flight with Explorer 300mAh 4S battery

2/ Configuration and wiring diagram description

Specifications

Item: Firefly hex nano hexacopter
Weight: 57.9g (without battery)
Wheelbase: 90mm
FC & ESC : GOKU HEX F4 16*16 STACK - (FC+13A ESC)
Frame: Firefly hex nano Frame
Motors: Robo 1202.5 5500KV
Props: HQ 40mm 4-Blades Props
Receiver Option: Frsky XM+ / TBS Crossfire
Camera Degree: 15°-90°
VTX: Goku VTX625 450mw
Antenna: Atomic 5.8GHz Antenna Length 30mm (RHCP)
Battery: 4S 450mAh / 4S 300mAh battery (Not including)

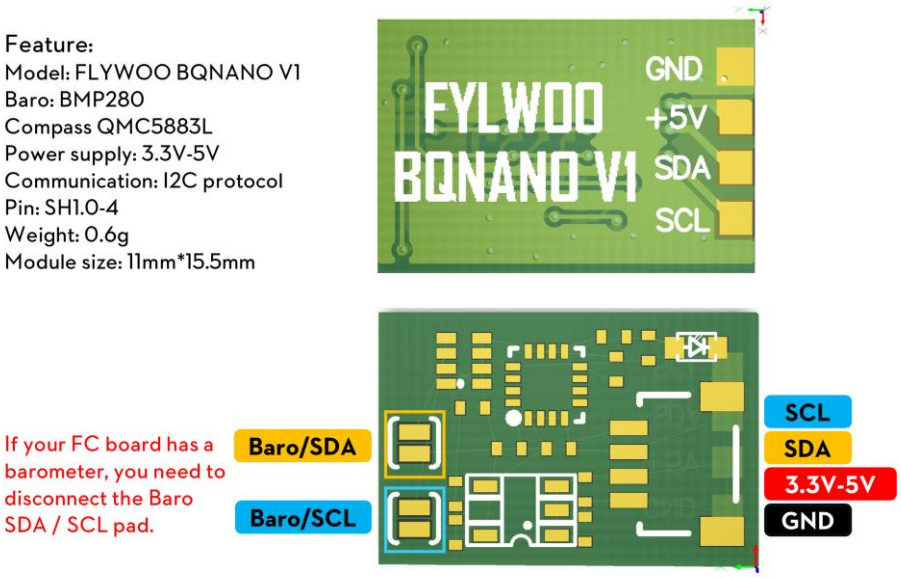
GOKU HEX F411 16X16 STACK, support 4s battery. Use powerful STM32F411 chip,5V/2A BEC, black box, WS2812LED,
support 2 complete uarts, 1 soft serial port, 1 I2C port and other functions are all open! Enough to meet all FPV needs.

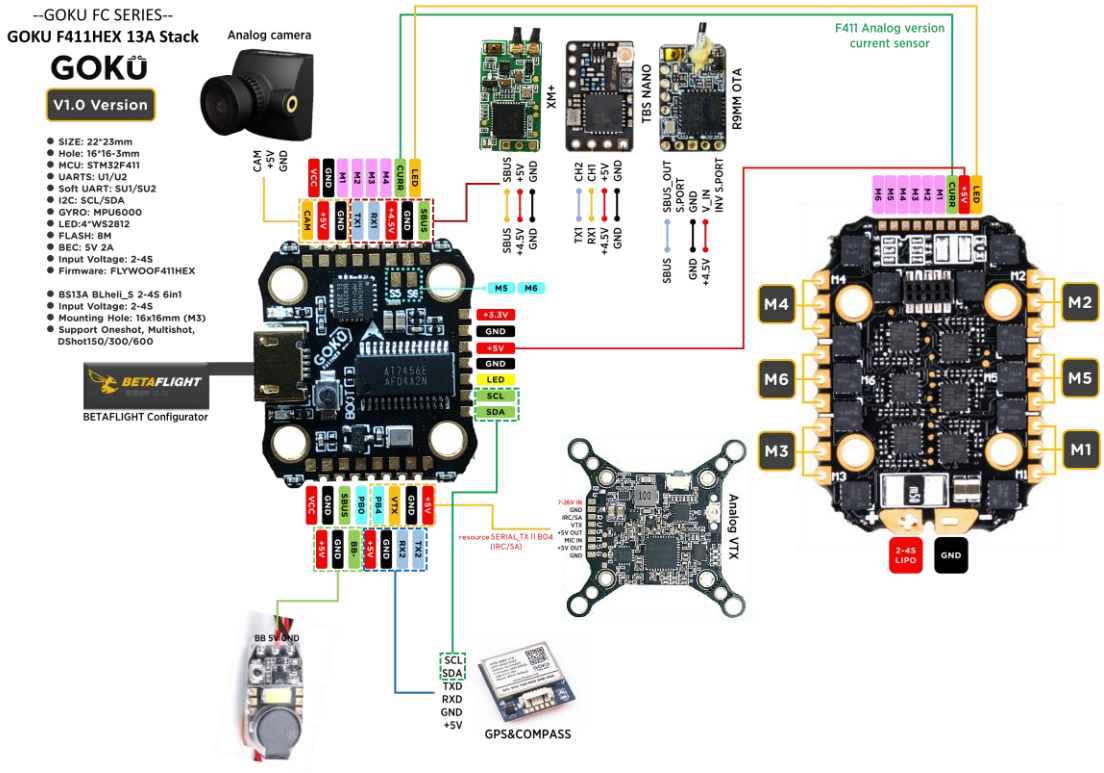


Firefly inav device

Equipped with GOKU GM8 MIN GPS V2.0 and Flywoo BQNANO V1.0 to meet the needs of INAV. BQNANO V.10 is the latest module developed by Flywoo, with a built-in compass and barometer, and weighs only 0.6g, which is perfect for Ultralight INAV drones.

Includes
1 x Prebuilt and tested Firefly hex nano hexacopter
2 x HQ 40mm 4-Blades Props
2 x Lipo Strap
1x Goku mini gps v2.0
1x Flywoo BQNANO V1.0





Target firmware：FLYWOOF411HEX INAV 3.0.0

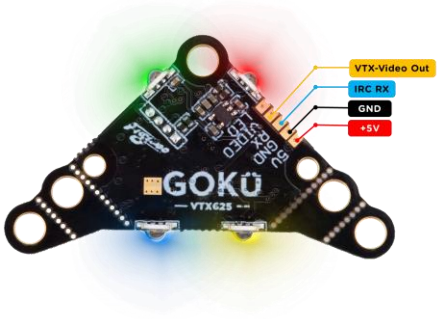
Identifier	Data	Telemetry	RX	Sensors	Peripherals
USB VCP	MSP 115200	Disabled AUTO	Serial RX	Disabled 115200	Disabled 115200
UART1	MSP 115200	Disabled AUTO	Serial RX	Disabled 115200	Disabled 115200
UART2	MSP 115200	Disabled AUTO	Serial RX	GPS 9600	Disabled 115200
SOFTSERIAL1	MSP 115200	Disabled AUTO	Serial RX	Disabled 115200	IRC Tramp 115200

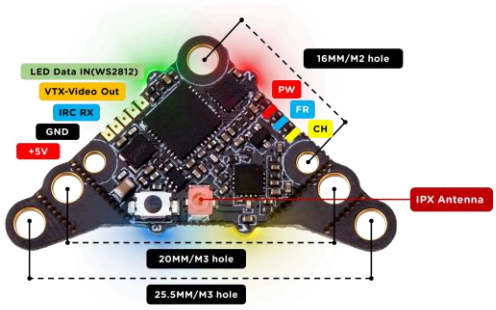
SOFTSERIAL1 TX is mapped to PIN B04
CLI: RESOURCE SERIAL_TX 11 B04

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

UART2: GPS module, the default baud rate is 9600

SOFTSERIAL1: VTX IRC/SA Control





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

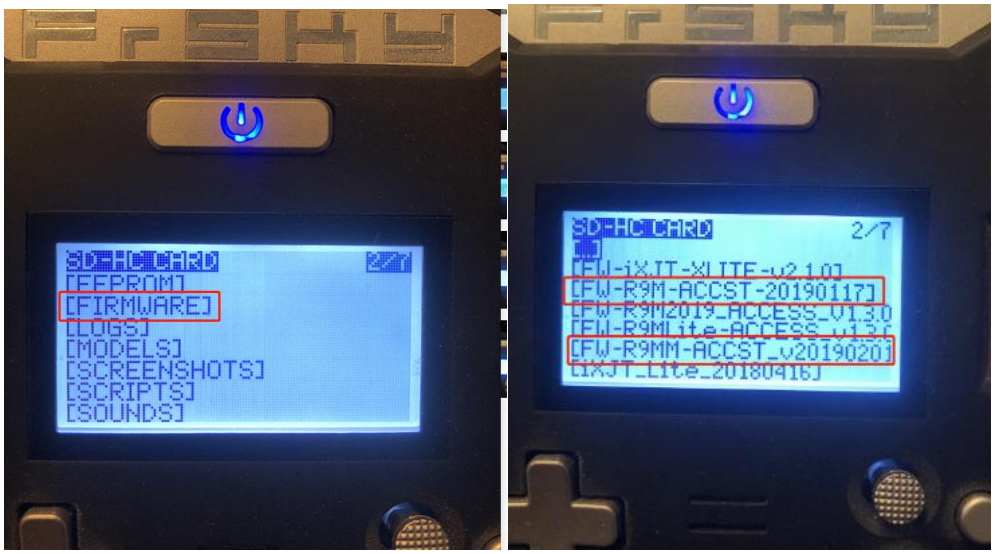
R9MM FCC ACCESS OTA：

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

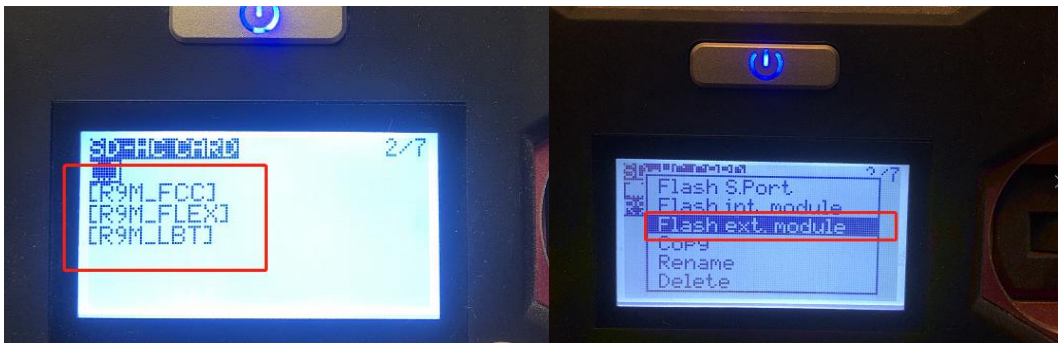
https://www.youtube.com/watch?v=az5hDdNBcjg&t=9s&ab_channel=FrSkyRC

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



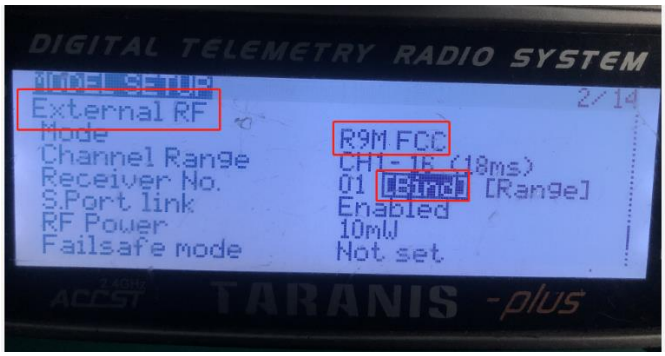
2/ Insert the R9M TX module and write the firmware you need



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

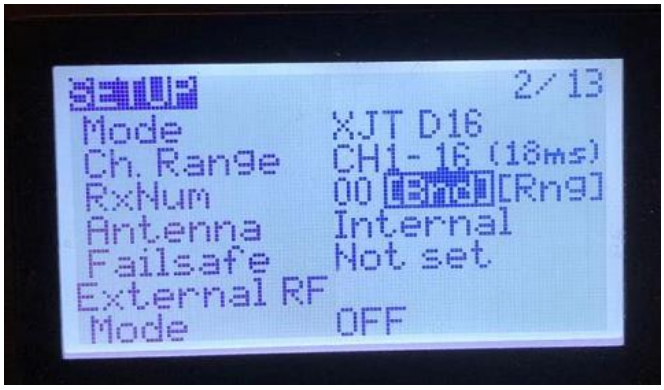
successful.



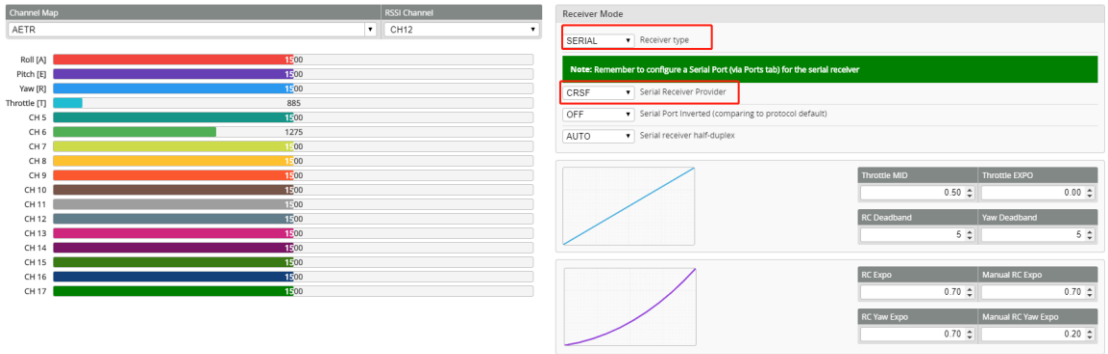
XM+ receiver:

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

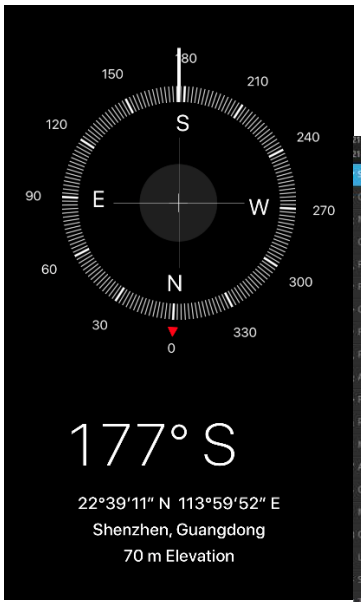


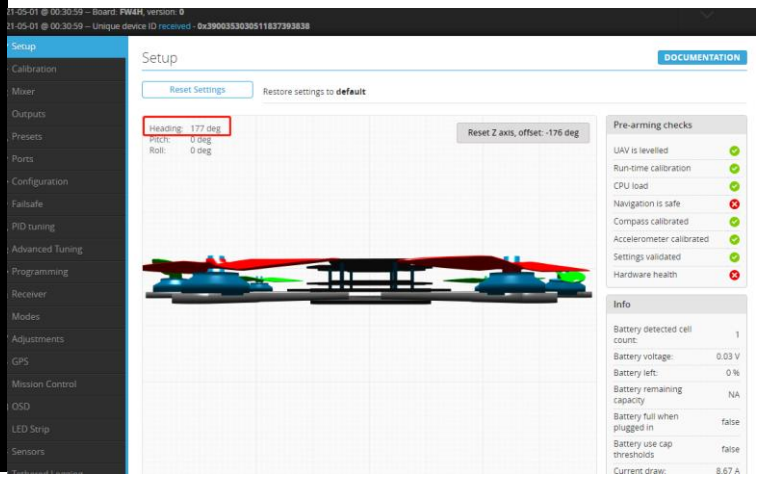
3-1/ Then set the corresponding serial port and receiver protocol to ensure the normal output of each channel of the receiver.

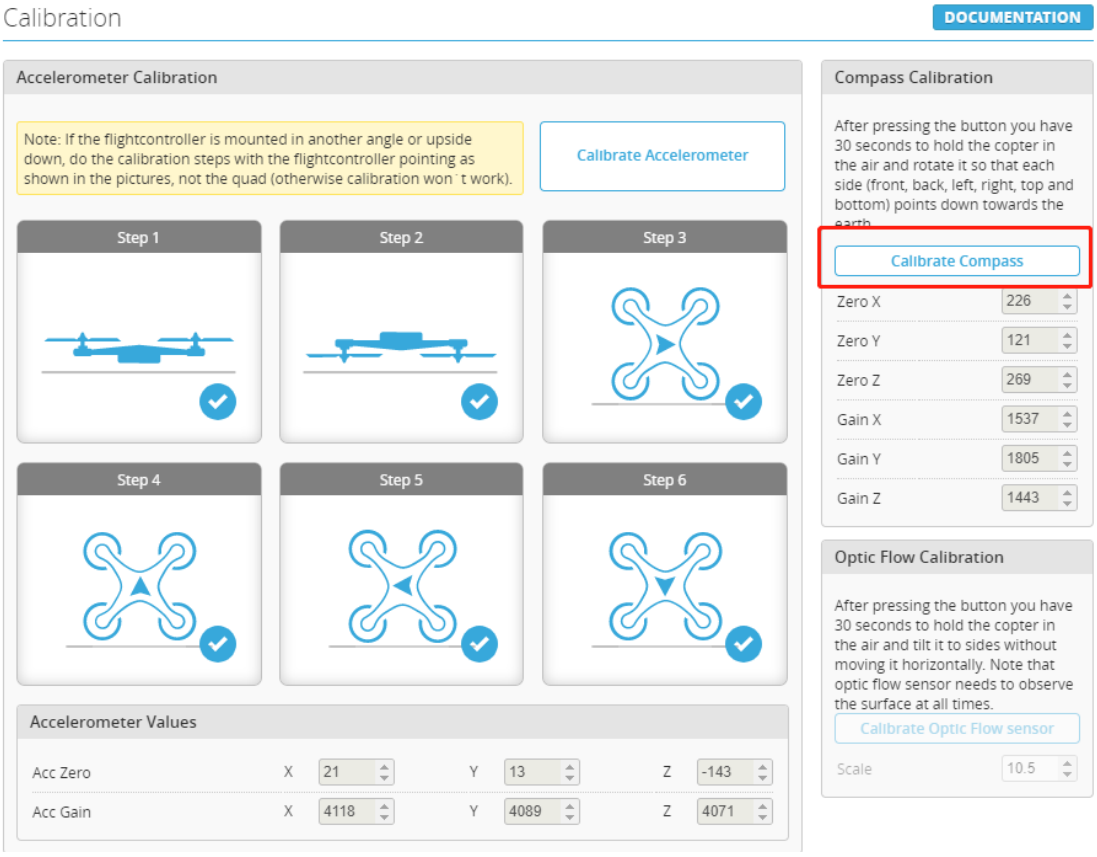


4/Compass check and calibration：

Make sure that the direction of the compass is consistent with the direction of the compass app on the phone. If it is not the same, click the calibration compass again and rotate it for 30 seconds. (The accuracy of the compass determines whether the NAV POSHOLD/NAV RTH mode works normally)

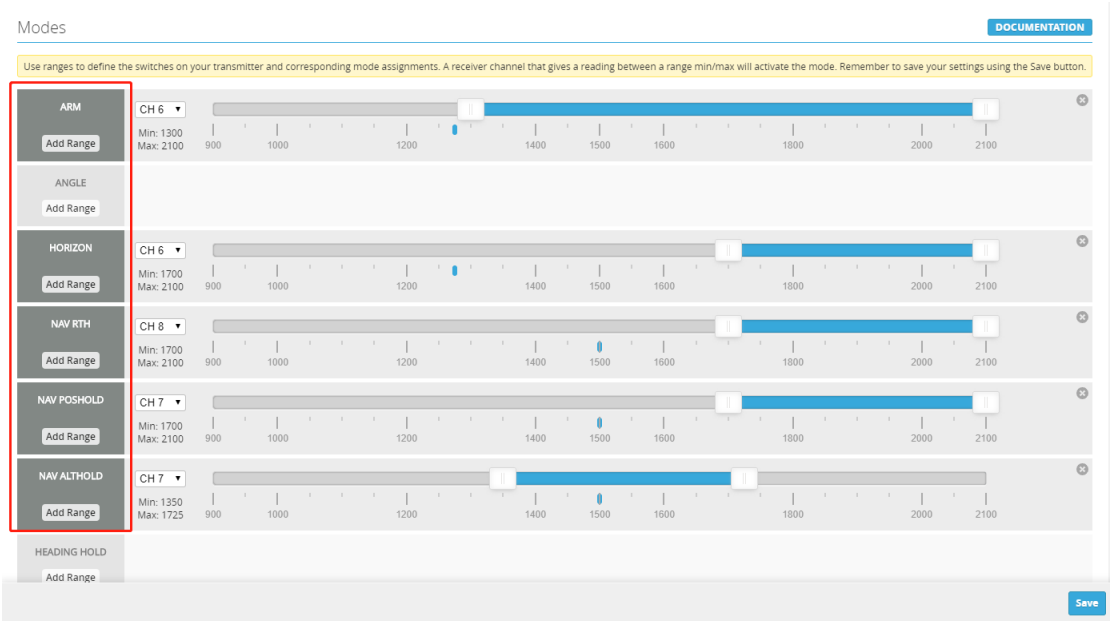






5/ Mode setting:

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



ARM mode:

When GPS satellites search for more than 6 satellites, drone can be unlocked.
HORIZON mode: The flight control will remain in the horizontal mode, and it can also perform rolling flight maneuvers.

NAV ALTHOLD mode:

The current altitude is detected by the air pressure sensor and the flying altitude is maintained.

NAV POSHOLD mode:

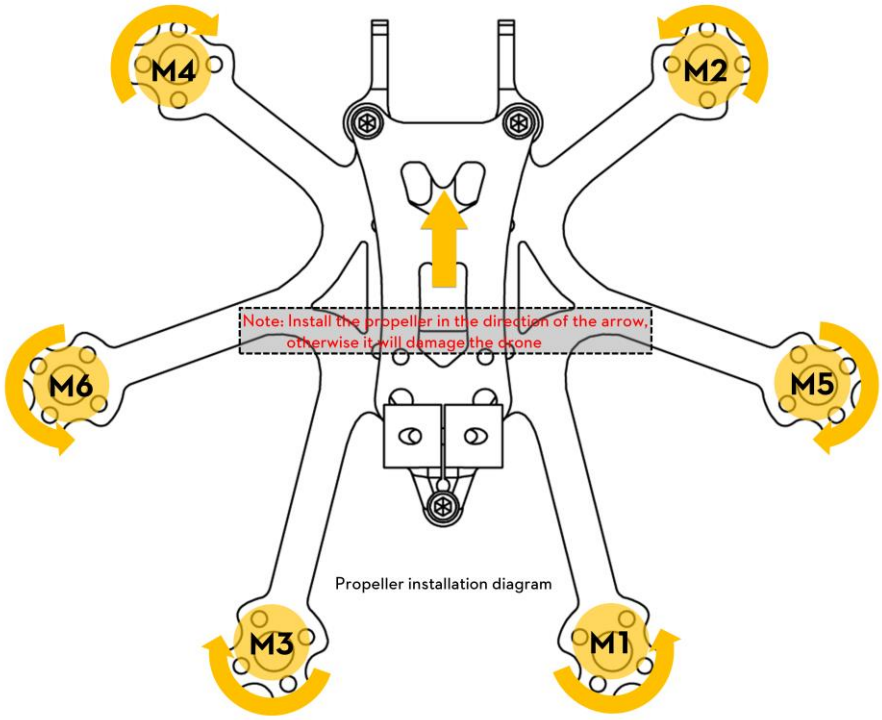
When the compass/barometer/GPS is working normally, the current flight position can be kept unchanged, suitable for beginners. (Be careful to stay away from the magnetic interference environment to prevent interference with the compass direction)

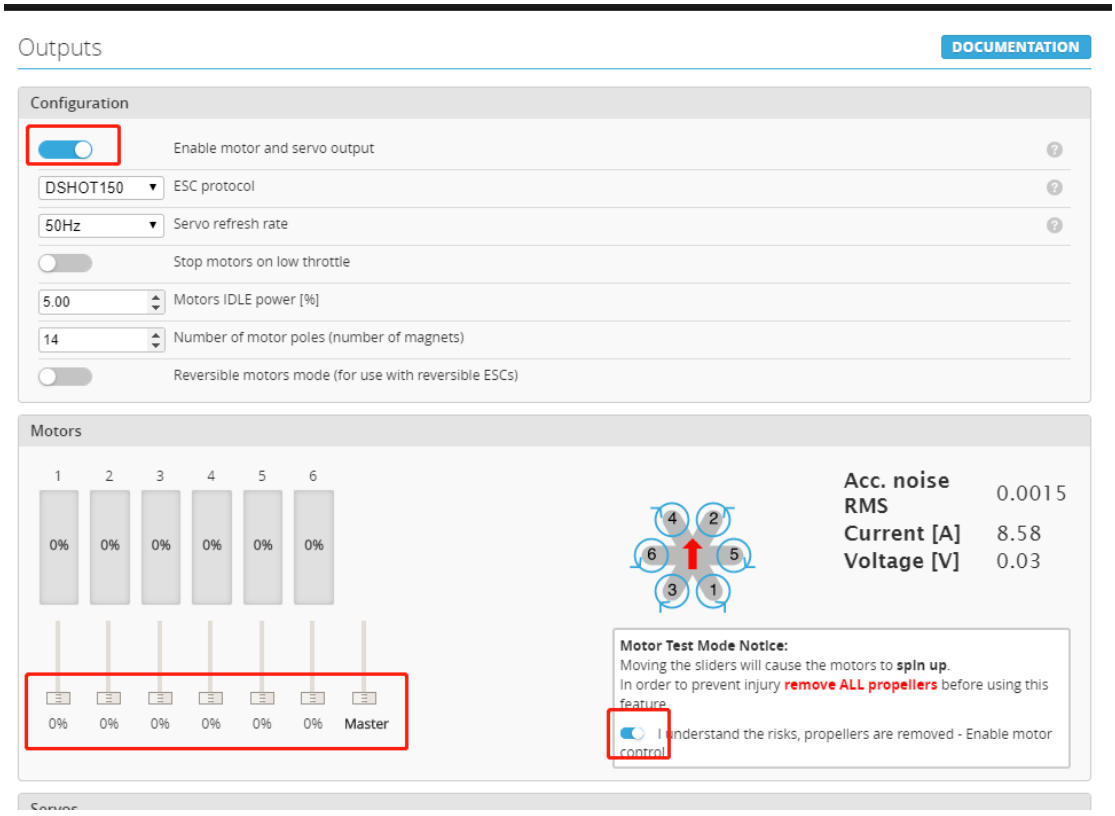
NAV RTH mode:

also known as return to home. When the mode is activated, the drone will rise, then reverse direction, fly toward the unlocked position, and then automatically land vertically. (Be careful to stay away from the magnetic interference environment to prevent interference with the compass direction)

6/ Motor test:

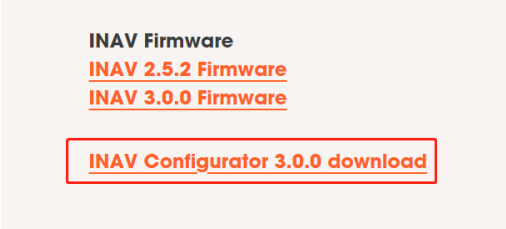
Unload the propeller, test the rotation direction of the motor, turn on the safety switch, and test the rotation of the motors one by one.



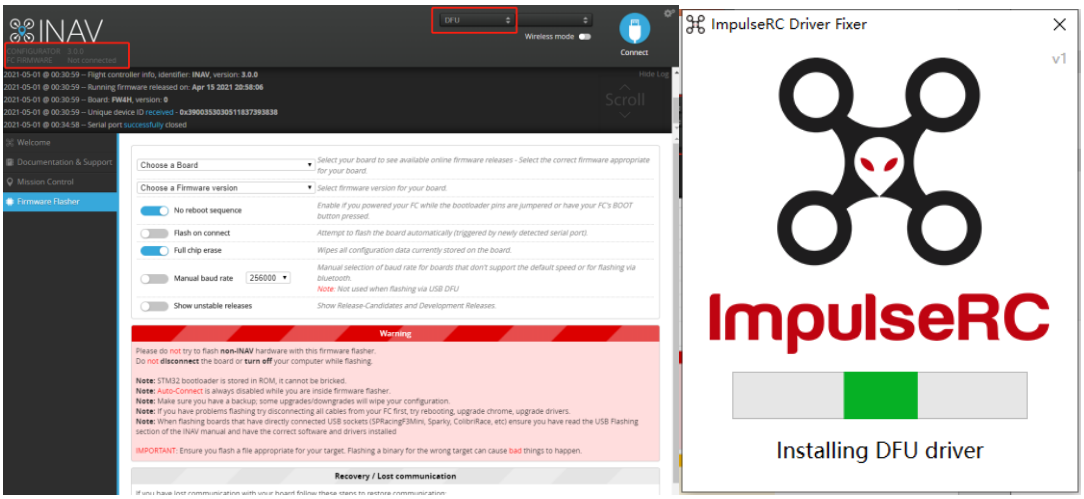


7/ Flight firmware upgrade and write default CLI

1/ Activate DFU mode, make sure the INAV configurator is the latest version 3.0.0
Download link: https://flywoo.net/pages/manual

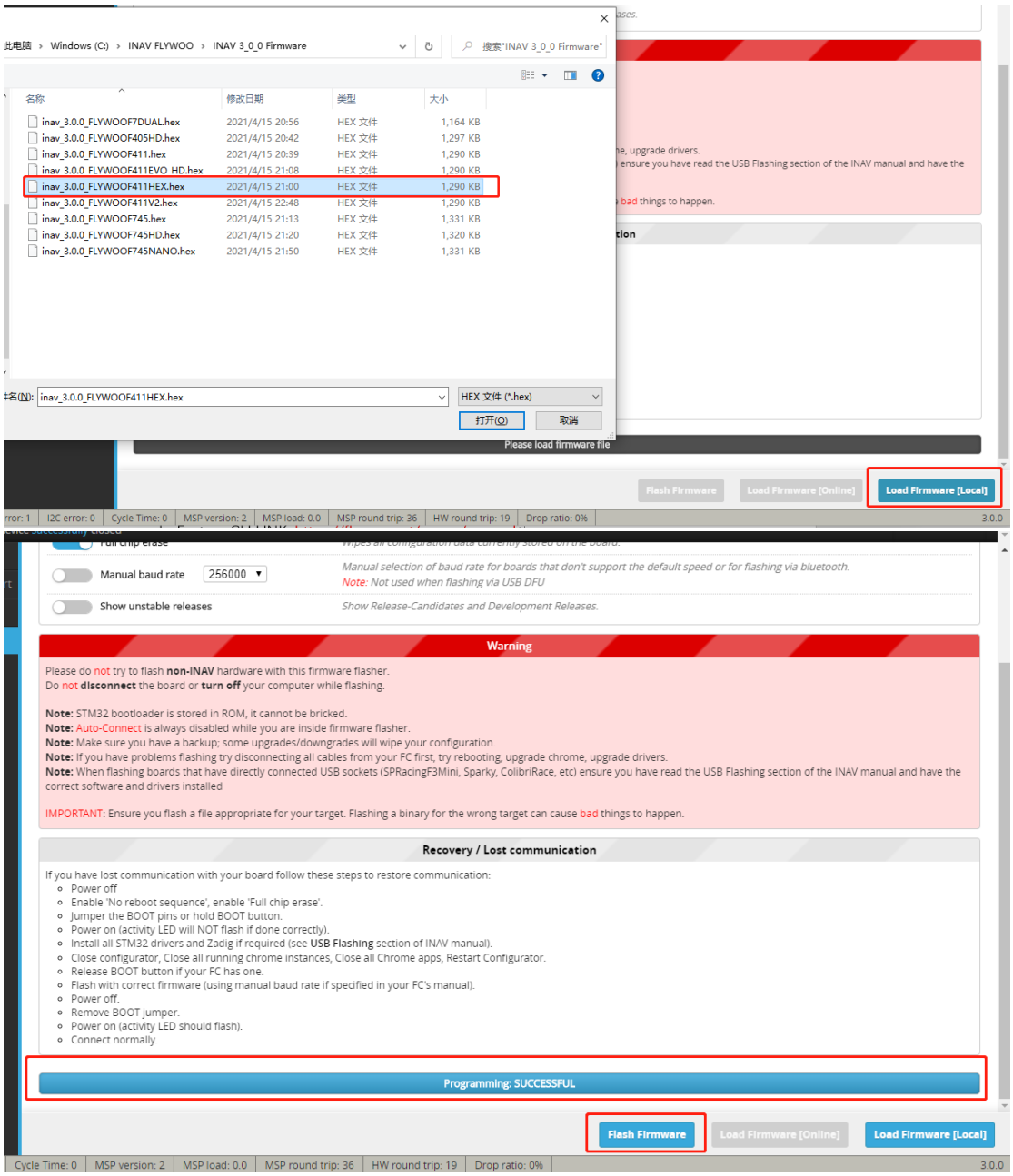


2/ INAV Configurator will display to enter DFU mode. If it does not enter DFU mode, it may be that the driver is not installed. The driver can be installed using IMPULSE RC software

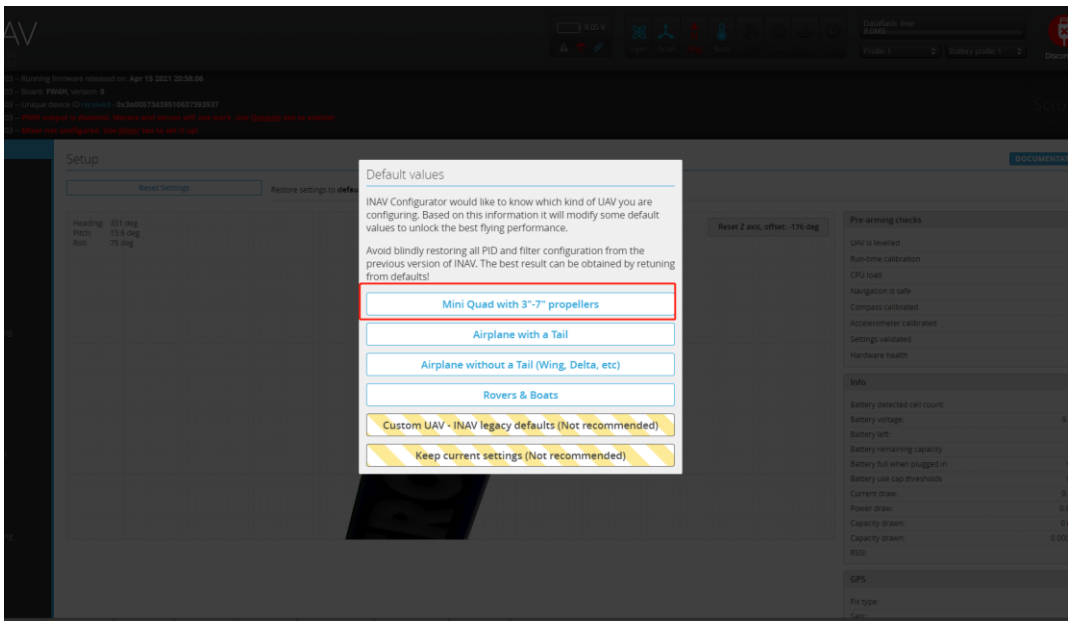


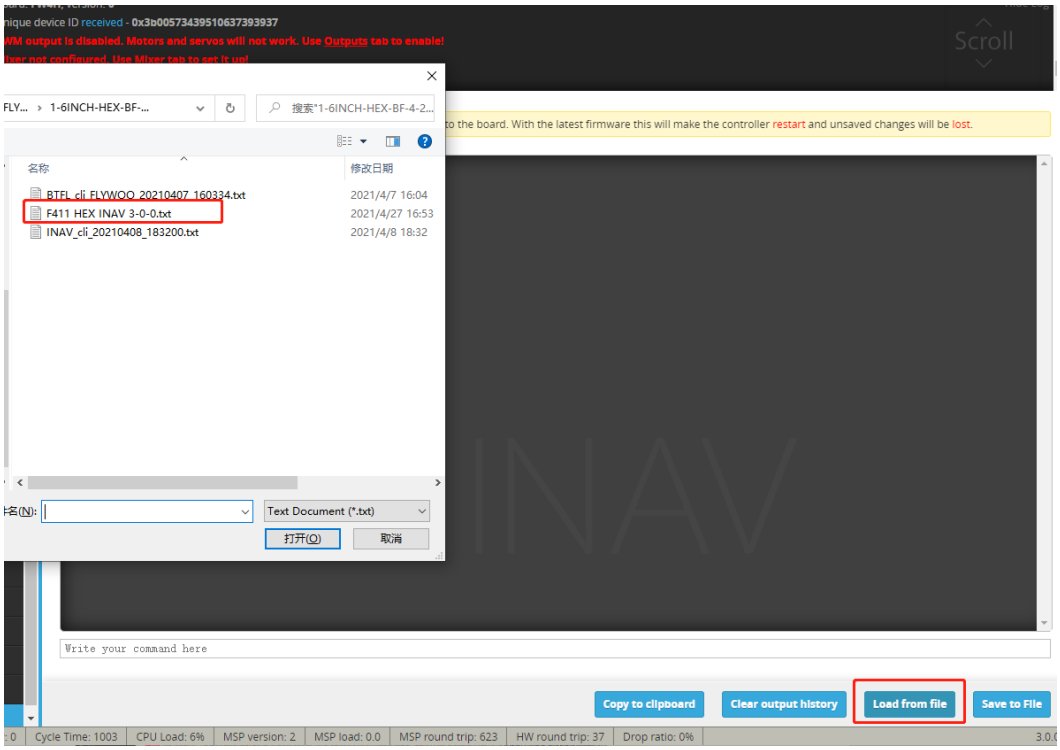
Driver software:
https://impulserc.blob.core.windows.net/utilities/ImpulseRC_Driver_Fixer.exe

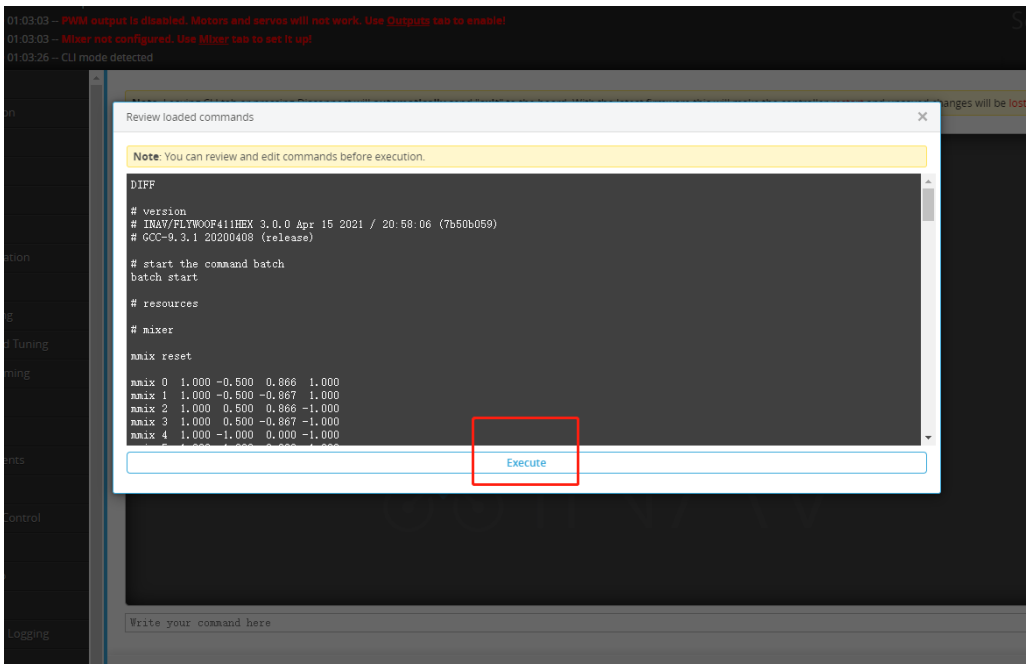
3/ Then load the local HEX firmware and wait for the flashing to complete. A green progress bar is displayed to indicate completion, and DFU will become a COM port



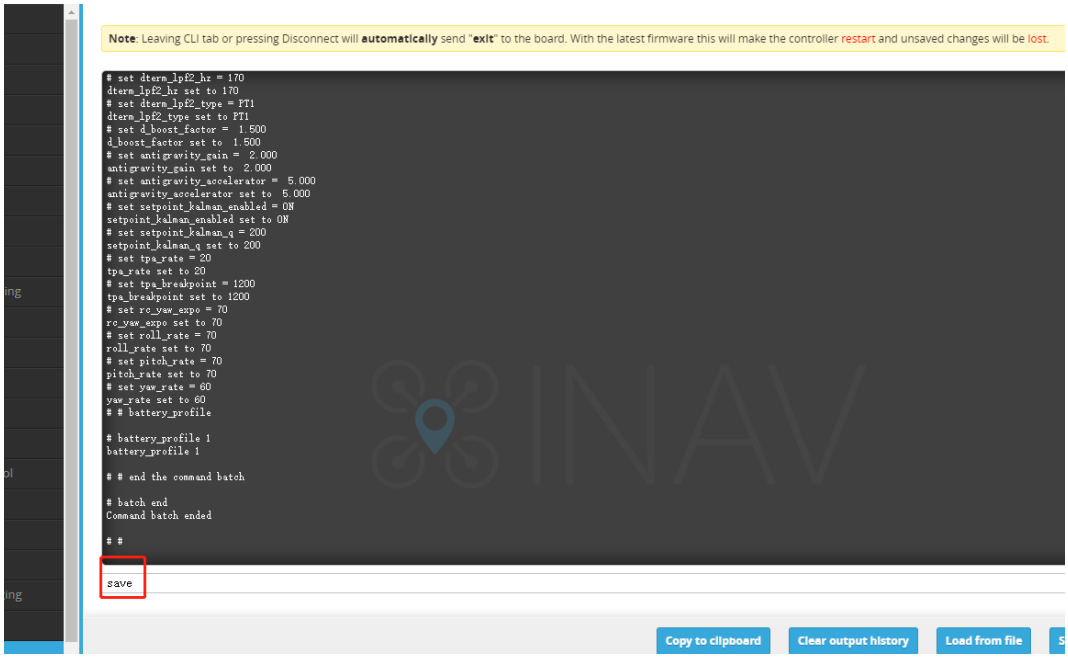
4/ After the connection is entered, it is a blank interface, you need to write CLI commands, Factory CLI LINK: https://flywoo.net/pages/manual


Setup
Default values
INAV Configurator would like to know which kind of UAV you are configuring. Based on this information it will modify some default values to unlock the best flying performance.
Avoid blindly restoring all PID and filter configuration from the previous version of INAV. The best result can be obtained by retuning from defaults!
Mini Quad with 3"-7" propellers
Airplane with a Tail
Airplane without a Tail (Wing, Delta, etc)
Rovers & Boats
Custom UAV - INAV legacy defaults (Not recommended)
Keep current settings (Not recommended)


nique device ID received - 0x3b00573439510637393937
WM output is disabled. Motors and servos will not work. Use Outputs tab to enable!
Scroll
to the board. With the latest firmware this will make the controller restart and unsaved changes will be lost.
名称
修改日期
BTFL_cli_FLYWOO_20210407_160334.txt 2021/4/7 16:04
F411_HEX_INAV_3-0-0.txt 2021/4/27 16:53
INAV_cli_20210408_183200.txt 2021/4/8 18:32
Text Document (*.txt)
打开(O)
取消
Write your command here
Copy to clipboard
Clear output history
Load from file
Save to File
Cycle Time: 1003
CPU Load: 6%
MSP version: 2
MSP load: 0.0
MSP round trip: 623
HW round trip: 37
Drop ratio: 0%



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.