FPVspeed™

AI Recognition and Tracking

FPV AI Module

FSA02C

AIZD Module V2.0

KEY FEATURES

- The Drone AI Autopilot is designed with AI Recognition and Target Tracking capabilities, enabling the drone to lock onto both stationary and moving targets using advanced sensors and image recognition techniques.
- ATK：
  Phase 1：Prepare
  Combining AI and Stabilization, it reduces the difficulty of operation and improves recognition efficiency.
  Phase 2：Locking
  challenge of target tracking in traditional drones when operating in areas with signal interference, significantly enhancing mission execution efficiency
- Camera Support:
  Visible light and Thermal imaging
- Camera Switch: (Version 2.0 AIZD Module is support)

APPLICATIONS

- FPV Drone Racing
- UAV Communication Systems
- Remote Vehicle Monitoring
- Wireless Video Transmission Systems

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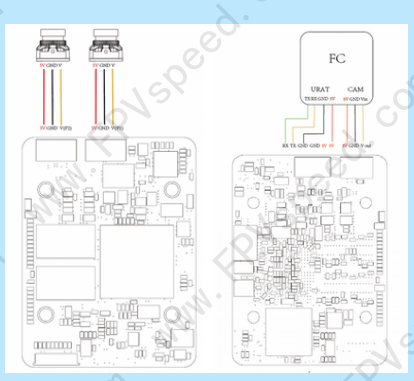
A. PRODUCT USAGE PROCESS

Refer to the wiring diagram to complete the connection between the flight controller and the modules.



Flight Control

- Backup Entire System Configuration
- Identify Flight Control Chipset
- Update AI Firmware on Flight Control Board Select

Ground Station

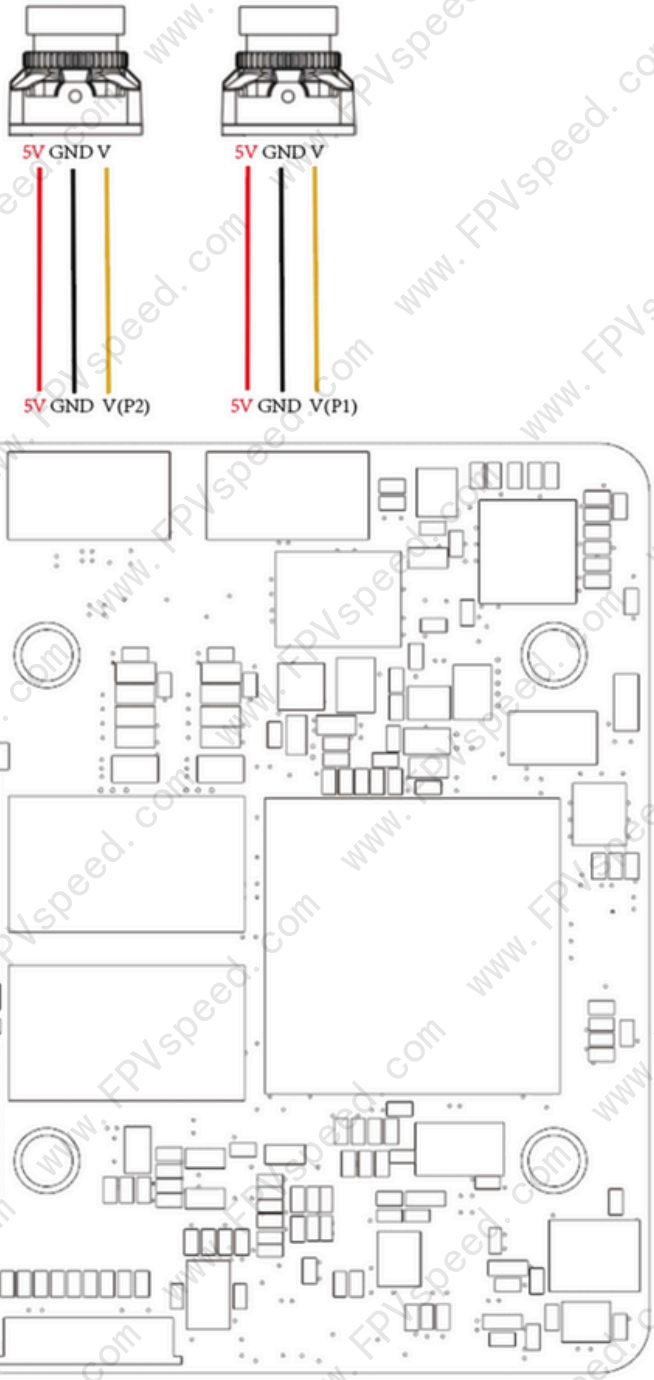
- Connect to Flight Control Restore Full
- Establish AI Module Communication
- Customize OSD Elements and Configure Flight Modes

Pre-flight Preparatio

- Configure Remote Controller
- Validate Aiming Mode Operation

B. WIRING DIAGRAM

AI Module Version V2.0:



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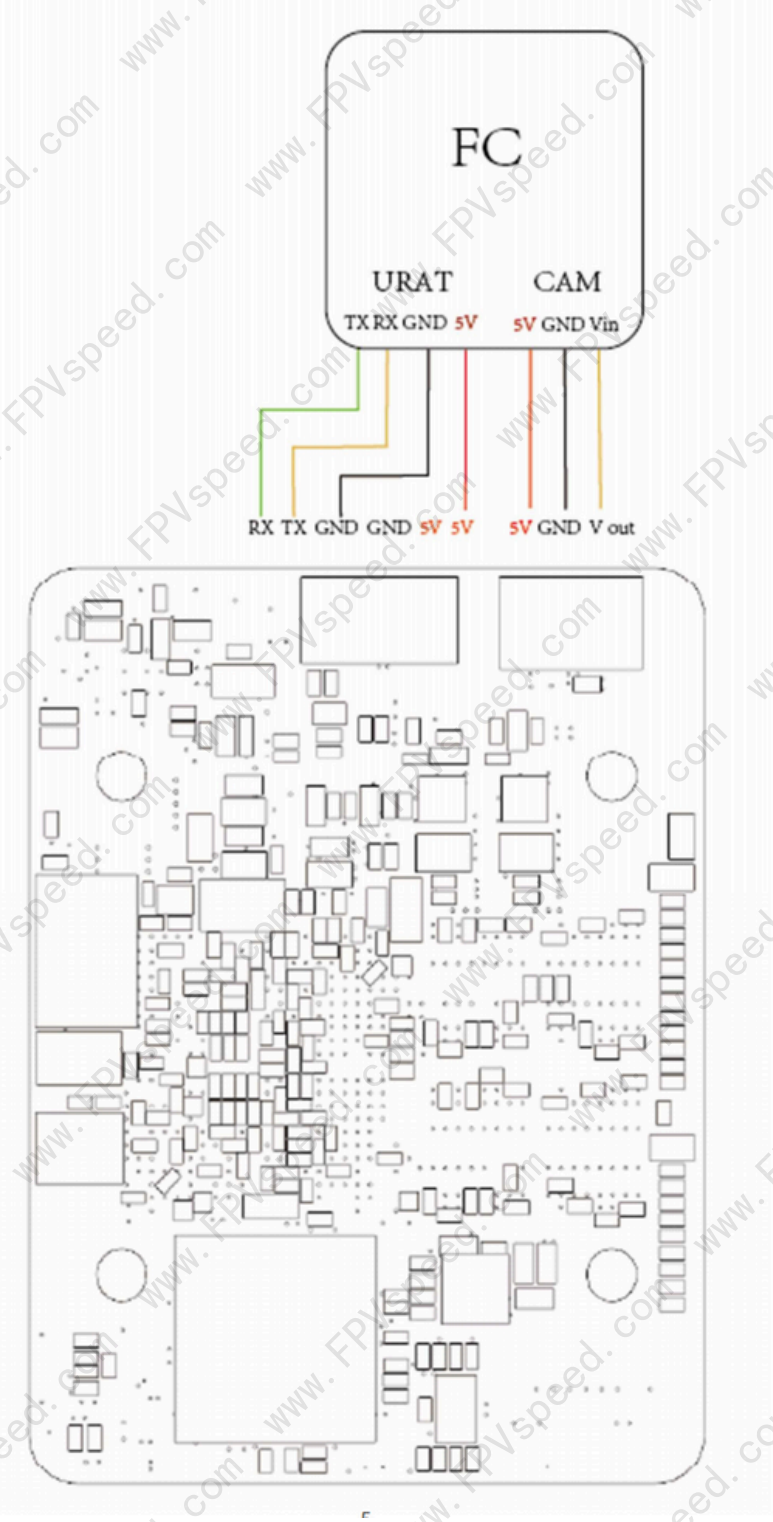
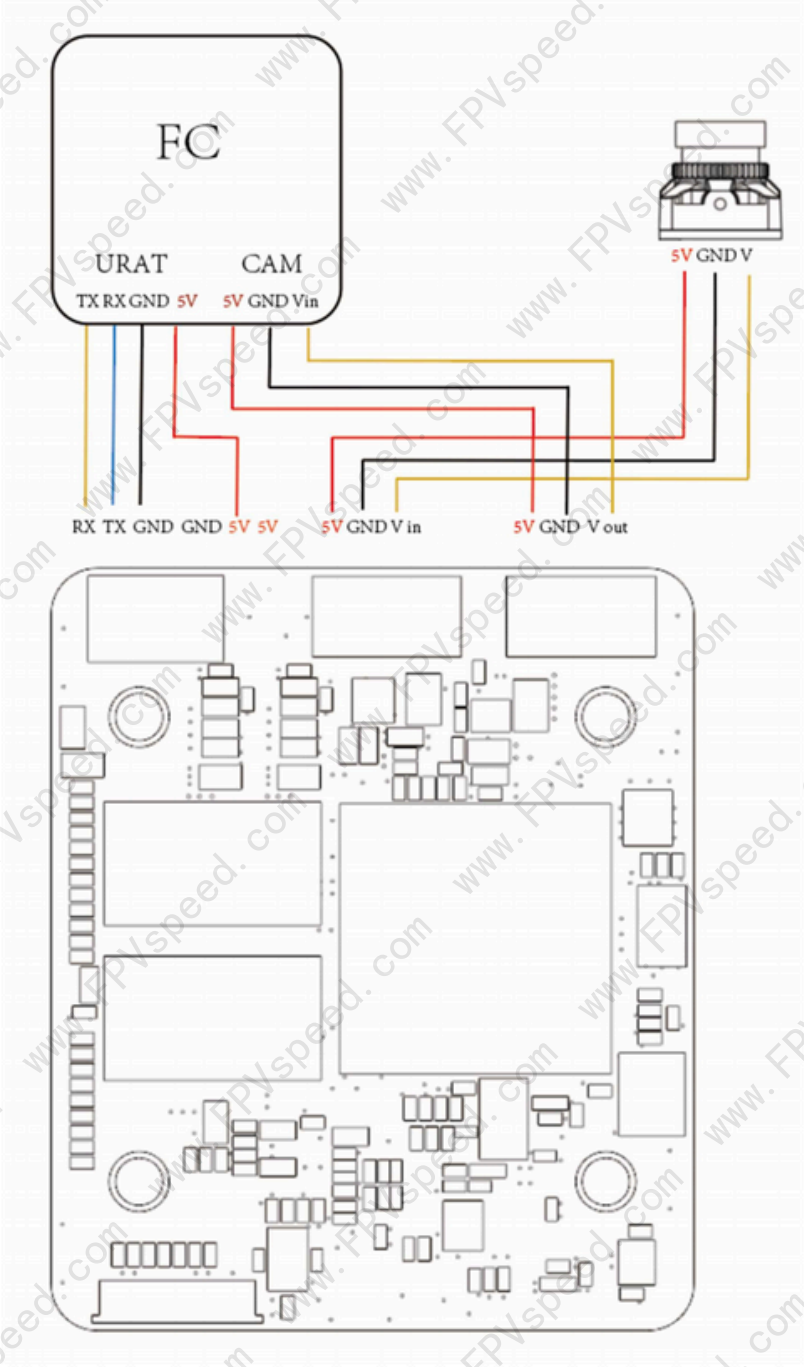


AI Module Version V1.0:

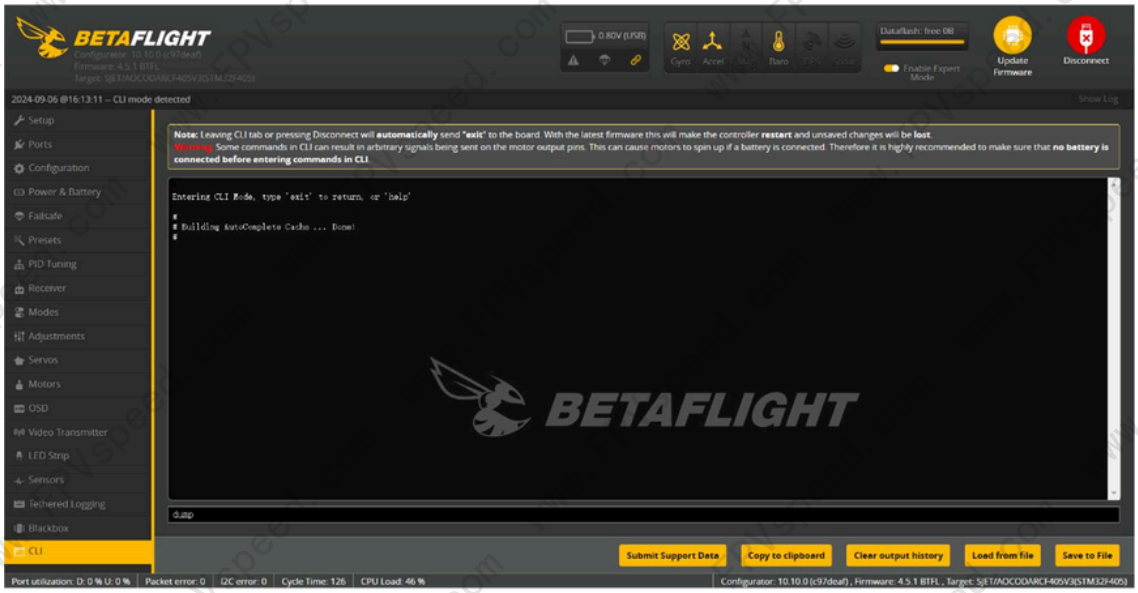


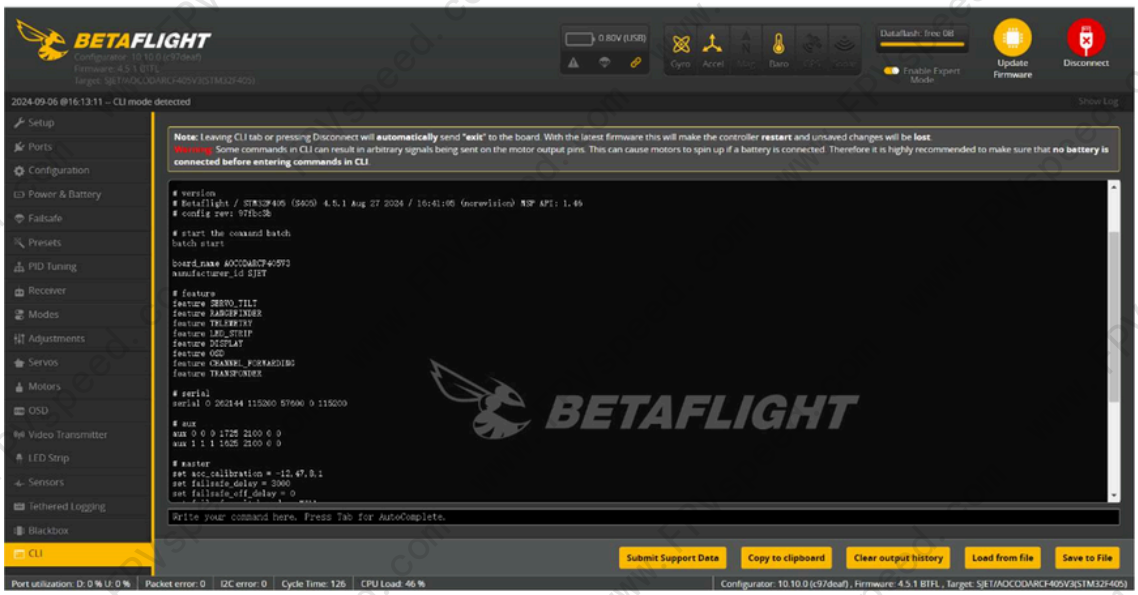
C. FIRMWARE BURNING FOR FLIGHT CONTROLLERS

- The firmware currently supports STM F405, F7xx, and H7xx series flight controllers.

Configuration Verification:

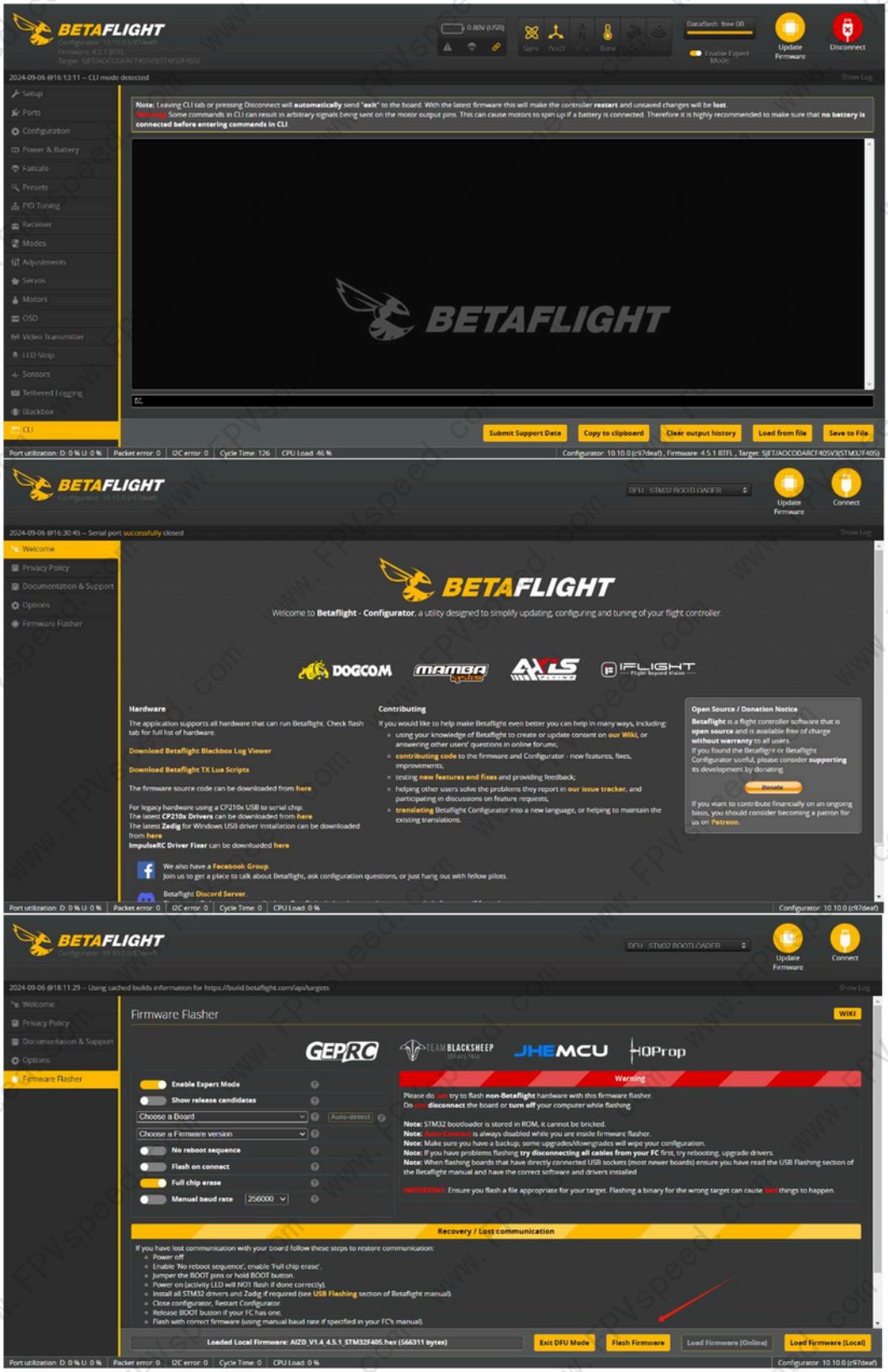
- Confirm the configuration file of BF firmware (version 4.5/4.4 is supported). Perform parameter tuning and debugging of the UAV using BF 4.5.1 firmware. Use the BF ground station CLI to input the "dump" command to save the UAV's global settings to a file.





Firmware Installation:

1. Access the ground station CLI and input "BL" to enter DFU mode.



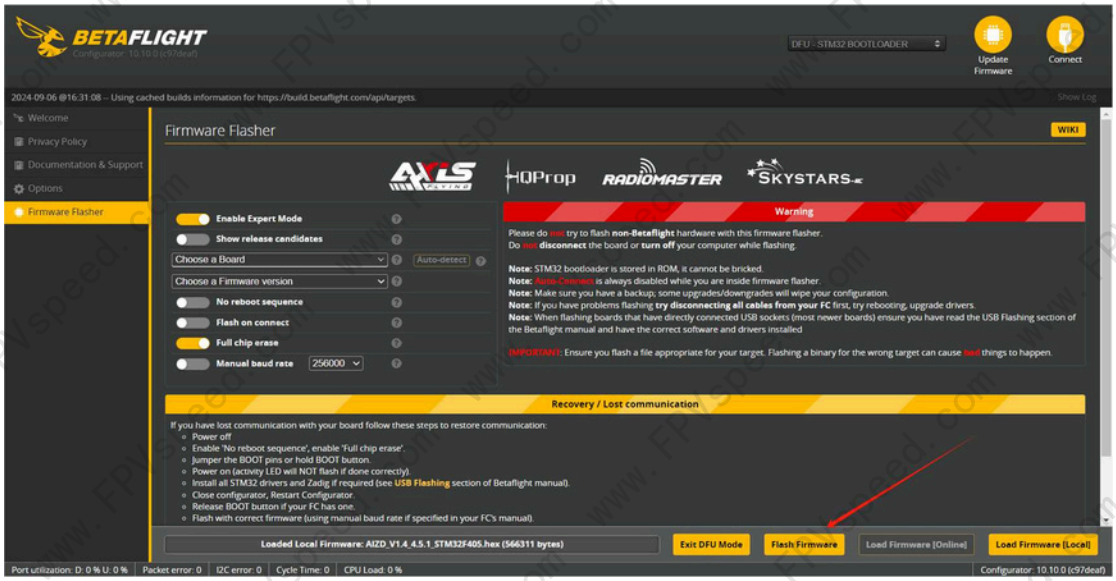
2. Load firmware from the local computer.

Version 4.5/4.4 is supported

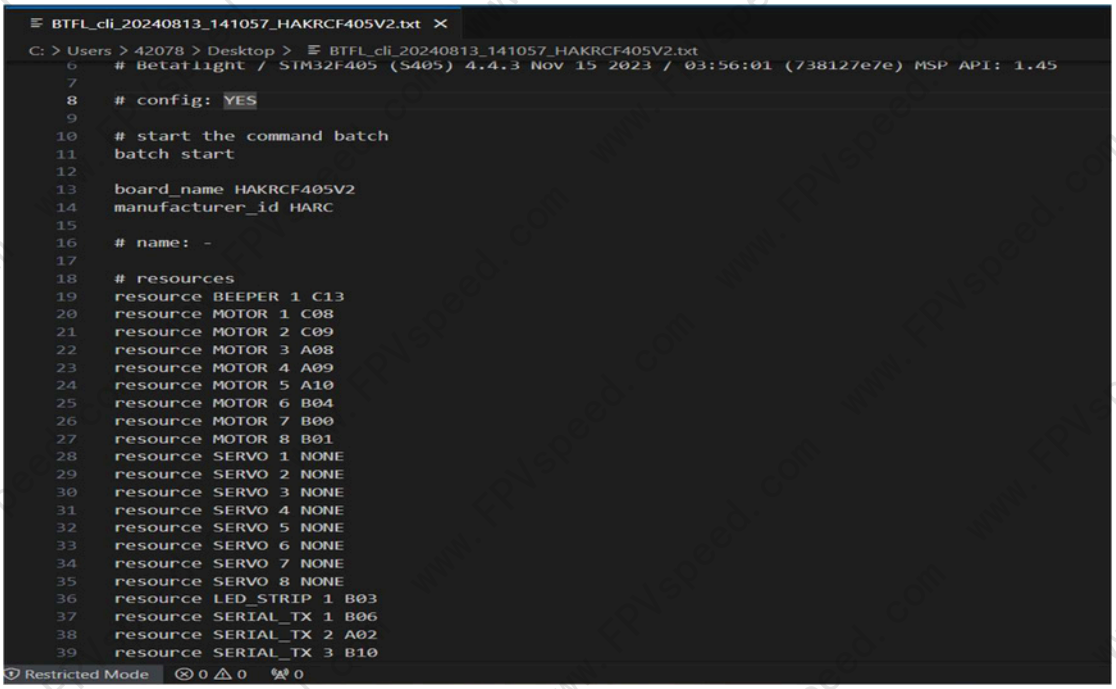
Version 4.4

Version 4.5

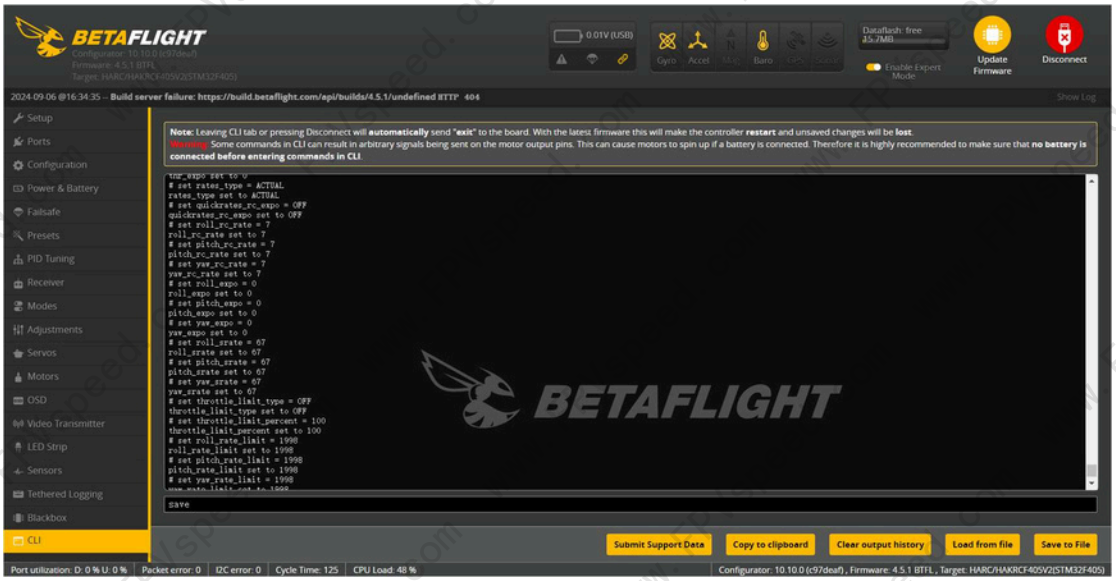
3. Based on the type of flight controller chip, select the corresponding flight controller firmware version. (The image above shows the F405 chip flight controller.)



4. Execute "burn firmware" until the progress bar turns green, indicating completion.
5. Import Configuration File (to finish the configuration of the flight controller's hardware IO):
6. Import the saved configuration fire from step one and copy all of its contents.



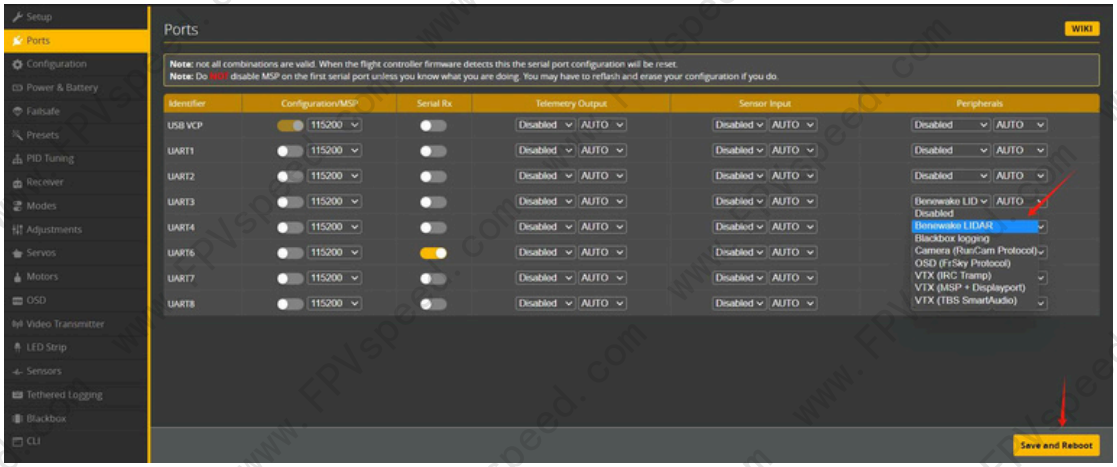
7. Connect the flight controller to the BF ground station, enter the CLI interface, and manually input "save".



D. BASIC SETTINGS

FC Settings（Betaflight Configurator）

1. Ports UART settings: eg :



UART X-Peripherals- “Benewake LIDAR”
Save and Reboot

2. Operation Mode Settings: ARM and Stabilized mode (CH5 and CH6);

3. AUX 4 Position Trigger (only the RC channel needs to be set), which will enter target ATK mode;

4. Control force adjustment:

Camera FOV:

6.0 mm : 85
2.1 mm : 100

Camera 1 "T_CONTROL_G" (0~100,default"85") Camera 2 "T_CONTROL_G2" (0~100,default"85")
cli: " set T_CONTROL_G=85 save "

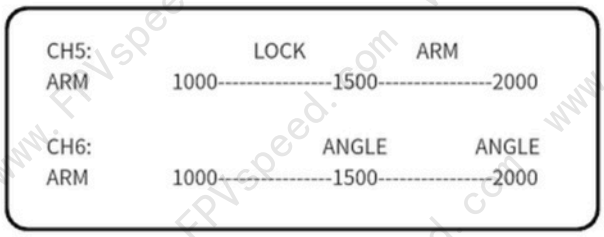
5. Version 1.0 AIZD for V2.0 Firmware!

OSD Function activation: "T_OSD_EN"
(0/1) CLI:" set T_OSD_EN=1 save "

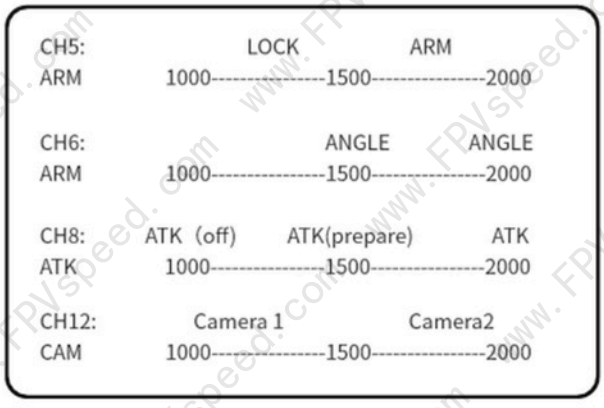
Remote Control Channel Settings:

Joystick: CH1~CH4
ARM: AUX1/CH5
Stabilization: AUX2/CH6
ATK: AUX4/CH8 (**Three positions!**)
Low Medium Off
High Prepare
Locking
Camera Switch: AUX8/CH12 (**AI Module Version 2.0 is support !**)
Low P1
High P2

FC Modes Setting

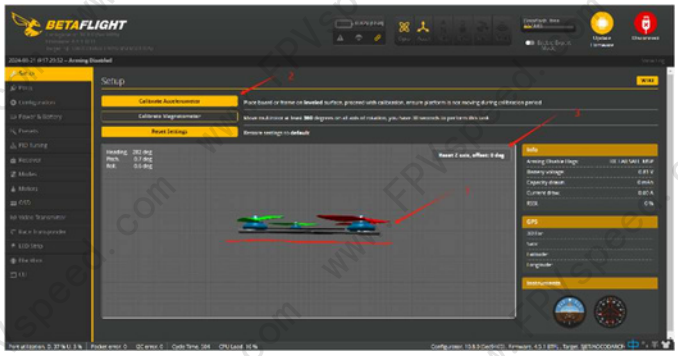


RC Setting



E. FLIGHT OPERATIONS:

Flight Pre-calibration:



Flight Operation:

1. ARM unlock, take off;
2. Switch flight mode to ANGLE (stabilized);
3. Aim cursor at the target;
4. Switch CH8 (AUX 4) medium (1300-1700) for ATK(prepare) mode.
5. Switch CH8 (AUX 4) high (1700-2000) for ATK(Locking) mode.
6. Switch CH8 (AUX 4) low (1000-1500) for non-ATK mode.

Note!

！ In lock mode, if the target is lost, the UAV maintains its current attitude and throttle value.

F. ADDITIONAL FEATURES: (Default Not Activated):

1. Set the flight to be controlled by the tracking board after loss of control (default not activated) Modify the original loss of control protection parameters, expand the parameter range

failsafe_delay
CLI: " set failsafe_delay = 5000 save "

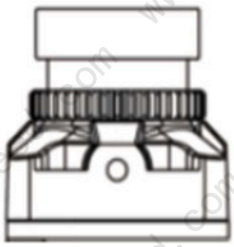
// set the remote-control loss of connection protection time to 500 seconds, need to set 1-4 channels first stage protection to AUTO, other channels to HOLD Used for continued （ATK）control of the UAV after remote control loss.

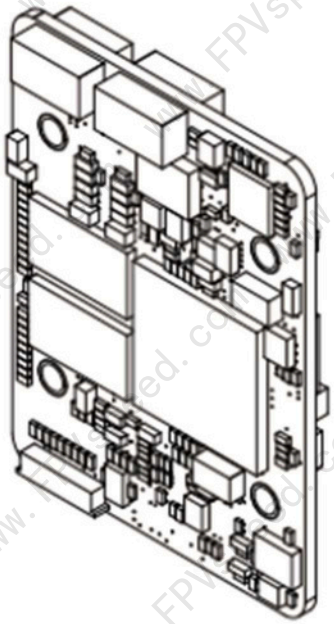
G. INVENTORY

1 * Camera(1500TVL 6mm)

1 * AI Module

1 * Accessory





DISCLAIMER

This product is intended for civilian and commercial use only. It is strictly prohibited from being used for any military purposes or activities.