This user manual is for Lite brushed V2 board with the new firmware since 2020 September. If you use the original Silverware firmware, please use the old manual named "Lite Brushed FC User Manual.pdf".

You could download the manuals in BETAFPV website Manual for Lite Brushed FC V2.

Introduction

BETAFPV Lite brushed V2 FC is a brushed flight controller with Silverware firmware. It is with build-in Bayang protocol receiver, and it also supports external receiver with SBUS protocol and DSMX protocol.

The stock firmware in the V2 board is upgraded since 2020 September . This new firmware is also used on Starter Kit 2 and Beta65S Lite drones at the same time. Here is the notes for this new firmware.

1. Support upgrading firmware via the USB port and PC Configurator easily.
2. Include a new mode named STARTER, it is the default mode for this board out of factory.
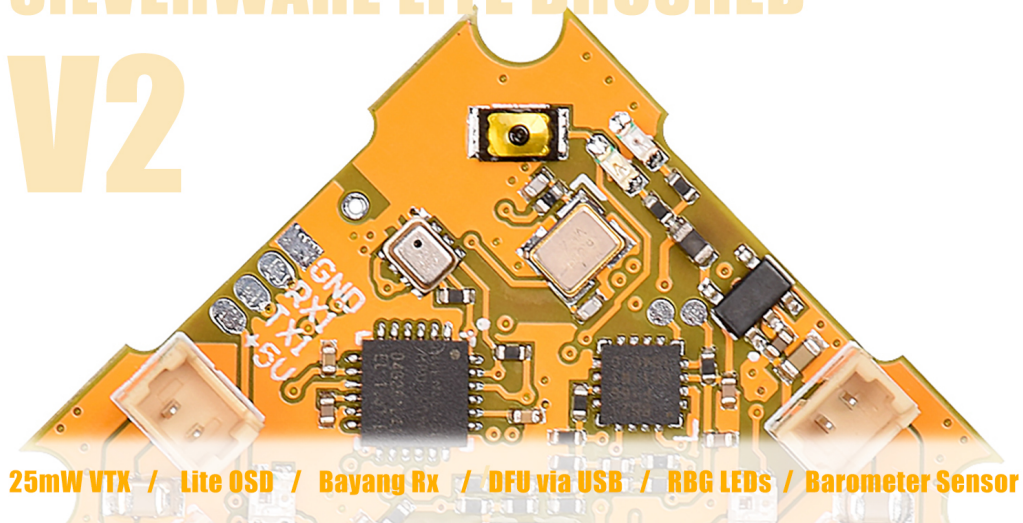
Specification

SPECIFICATIONS OF FC
CPU: STM32F042G6U6
Six-Axis: MPU6050
Size: 26mm x 26mm, whoop mounting pattern

OSD： BETAFPV LiteOSD

OSD firmware： LiteOSD_f042_1s_brushed_v1.0.HEX

Build-in Receiver: Bayang protocol

Supported Receiver:SBUS protocol or DSMX protocol

USB Port for firmware upgrade in DFU mode

2 controllable RGB LEDs

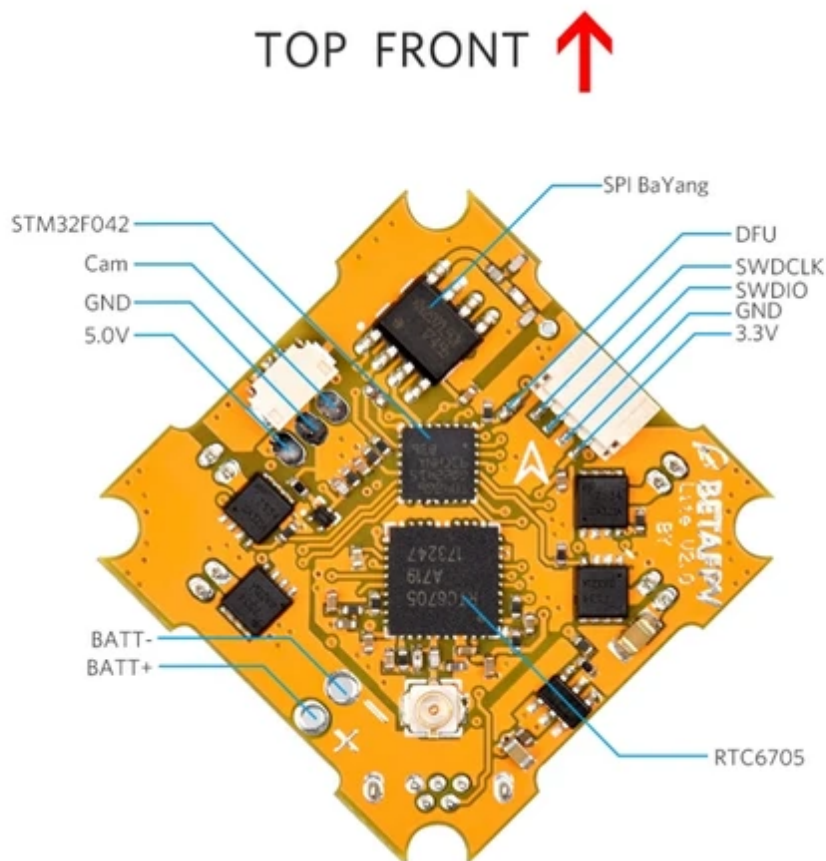Integrate an altitude sensor (altitude hold function is NOT available now)
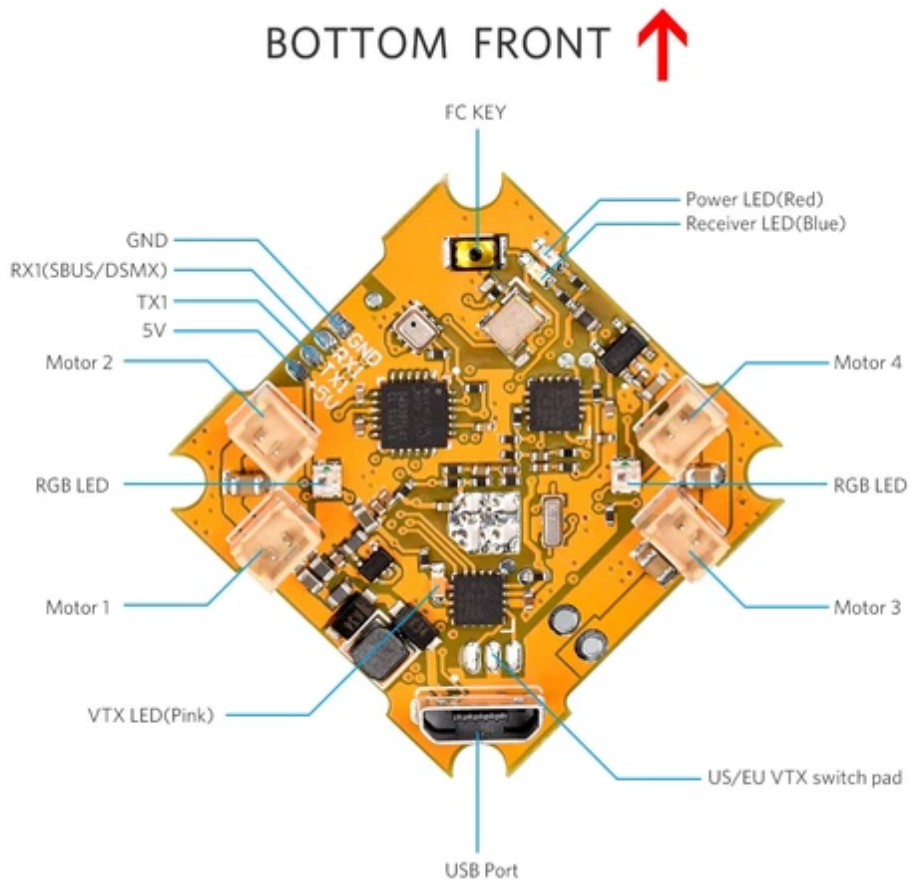
FC Firmware:

SPECIFICATIONS OF VTX

Built-in 25mW video transmitter

Controllable via OSD menu to change the brand and channels

Camera connector JST0.8, comapitable with C01 Pro camera or Newbeedrone camera.

Diagram

BOTTOM FRONT ↑

FC KEY

Power LED(Red)
Receiver LED(Blue)

GND
RX1(SBUS/DSMX)
TX1
5V

Motor 2

Motor 4

RGB LED

RGB LED

Motor 1

Motor 3

VTX LED(Pink)

US/EU VTX switch pad

USB Port

The following chapters below is just for the new STARTER mode. STARTER mode is the default status for this FC board out of factory since September 2020. This mode is used on Starter Kit 2 and Beta65S Lite drones at the same time, to ignore the complex operation as Silverware firmware.

Receiver Connection and Binding Method

The FC integrates Bayang protocol receiver, and also supports external receivers.

Bulit-in Bayang Receiver

Lite 1S brushed FC V2 integrated Bayang protocol receiver. The FC board is flashed with the firmware that support built-in Bayang protocol out of factory.

Once "BY" shown on OSD information interface, FC will receive the built-in Bayang receiver data.

How to bind

- Power on the FC board and wait for its system to load completely.
- Press the bind button (AKA FC key) on board with a screwdriver. Two RGB LEDs will turn green and flash 3 times in a cycle.
- Power on the radio transmitter make it enter binding status.
- If re-binding is successful, two RGB LEDs light will change to solid blue.
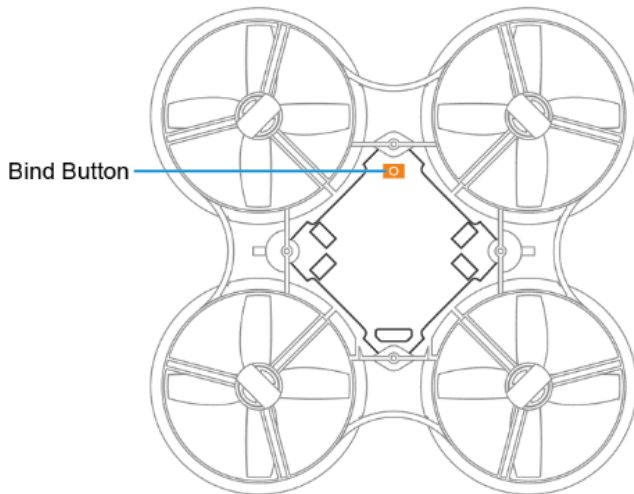
Bind Button

DO NOT press and hold the button before inserting the battery. It will erase the firmware and need to re-flash the firmware according to the manual above.

SBUS Protocol

If you want to use external SBUS receiver, you should re-flash the firmware that support SBUS protocol. The stock firmware out of factory do not support external SBUS receiver.

External DSMX protocol is not supported in the new firmware.

LED Light Status Codes

There are red Power LED and two RGB Status LEDs on the bottom of the FC board.

- Red Power LED indicates whether FC is normally powered on.
- RGB Status LED indicates the status of FC according to the table below.
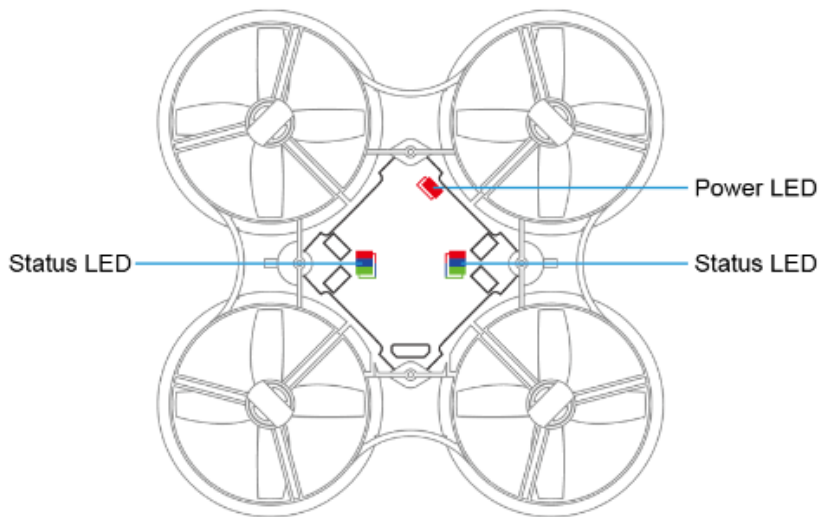
Power LED Color	Power LED Status	Status Explanation
RED	Keep on	Quad Power on
RED	off	Quad Power Abnormal

Status LED Color	Indicator LED Status	Status Explanation	Solution
RED	Intermittent Flashing Twice	Quad Battery Low	Need to Replace The Battery
BLUE	Keep on	Quad & Remote control radio transmitter Connection-Successful	
GREEN	Intermittent Flashing 3 Times	Quad Enter Frequency Matching Model（Binding）	
WHITE	Slowly Flashing	Throttle Joystick not at Lowest Position When Arming	Re-Disarming & Place Throttle Joystick to Lowest Position then Arming Again

AMBER	Slowly Flashing	Quad Lost Remote Control Radio Transmitter Signal	Re-Connect Quad & Remote Control Radio Transmitter

The Receiver LED(blue) next to Power LED(red) is not used in the new firmware.

OSD Menu

AETR is the default channel mapping of Lite brushed FC.

The STARTER mode has a separate OSD menu which is used for quadcopter configuration.

- Turning on/off the RGB LED Lights.
- Adding/Removing Information on OSD Flight Interface.
- Change between STARTER mode and Silverware Firmware mode (AKA ADVANCED mode).
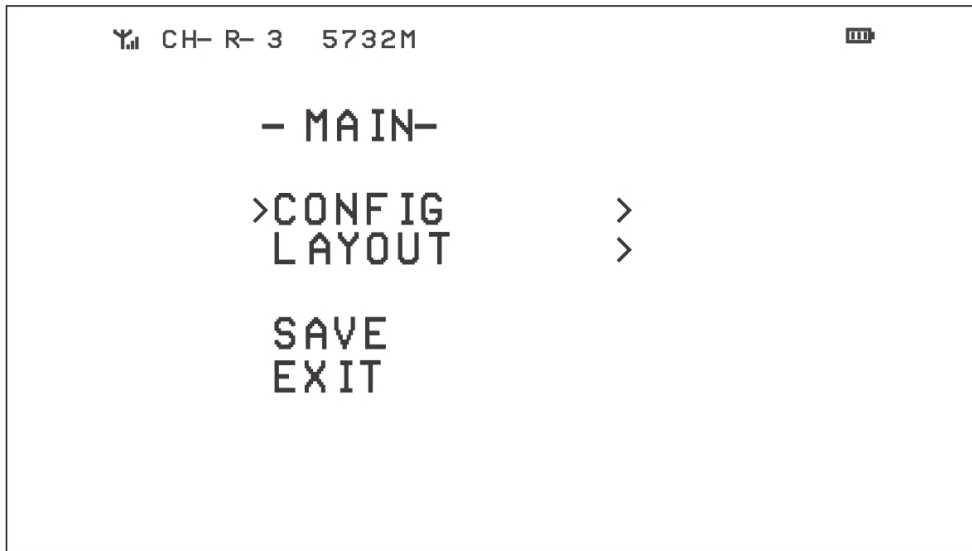
How to Access/Operate OSD Setting Menu

To access the OSD Setting Menu, disarm the quadcopter. Then place the joysticks in the positions as shown below. The throttle joystick is moved to left center and direction joystick towards the upward center.

*Note: Make sure quadcopter is disarmed before entering OSD menu.*

Throttle Stick Left   Direction Stick Up
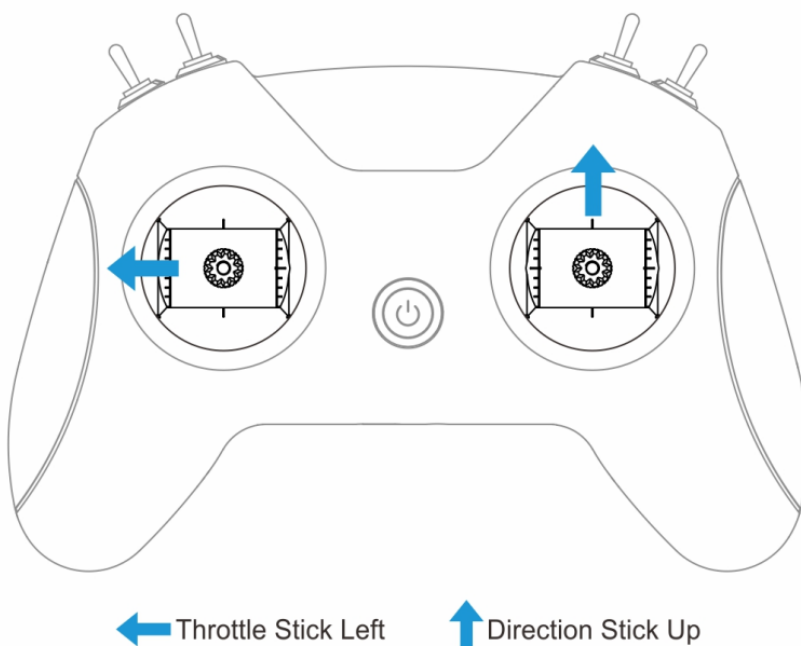
After accessing the OSD menu, the user will see the following menu interface on the FPV screen.

```
Y.ıl CH- R- 3   5732M                    ▥

            – MAIN–

           >CONFIG          >
            LAYOUT          >

            SAVE
            EXIT
```

Control the OSD using the right joystick to adjust the cursor and confirm or modify settings.

- Up: the cursor will move up
- Down: the cursor will move down
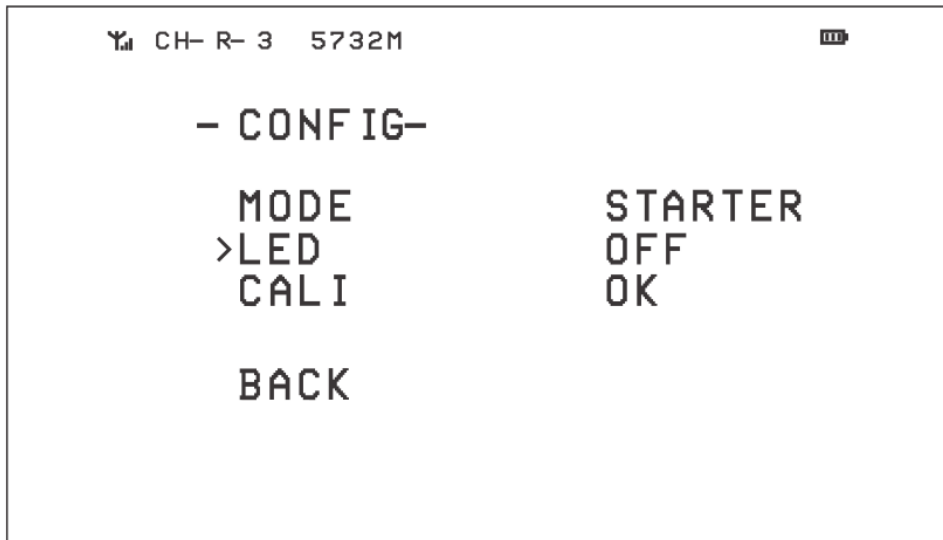- Right: confirm/modify selection
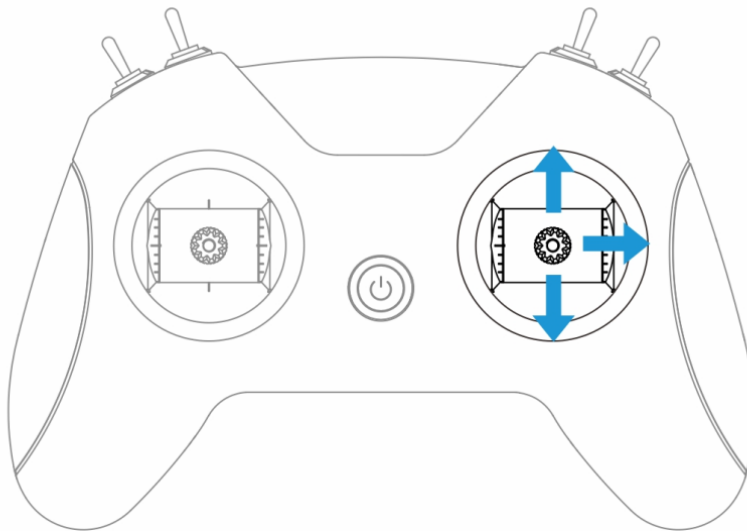
↑ Joystick up:
  Cursor Move up

↓ Joystick down:
  Cursor Move down

→ Joystick right:
  Modification/Confirmation

Turn on/off Quadcopter RGB LED

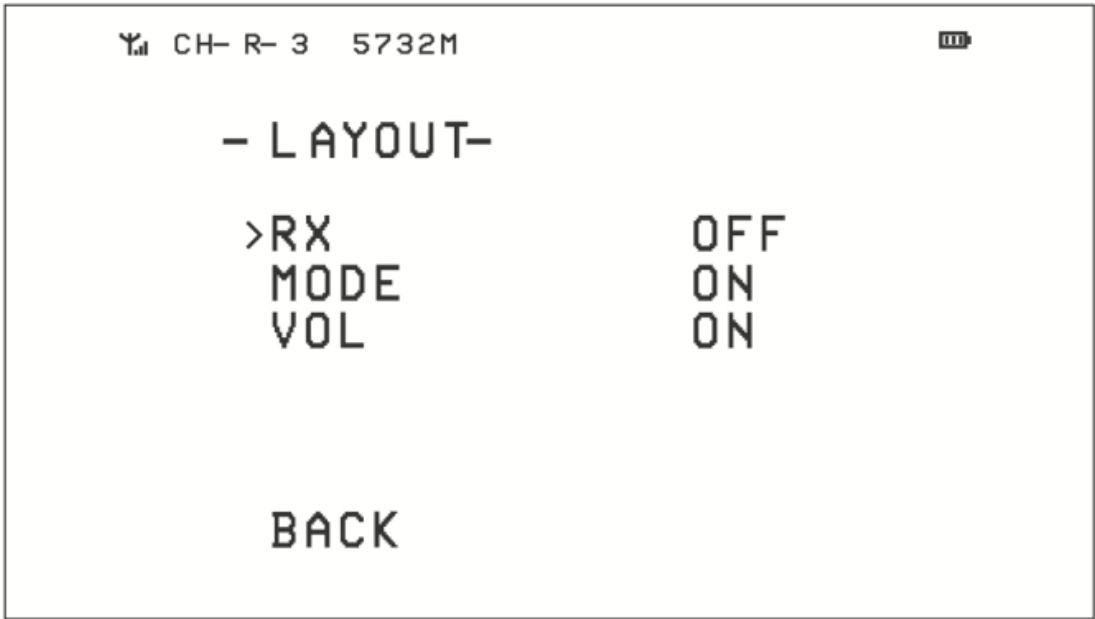The quadcopter Status LED light is normally solid blue when flying. This can be changed to color cycling.

- In -MAIN- menu, select CONFIG and enter the -CONFIG- menu.
- Select LED, select OFF(for solid blue) or ON(for RGB color cycling effect).
- Select BACK to exit CONFIG sub-menu.
- Select SAVE in the MAIN menu to save changes and exit the OSD.

```
Y CH- R- 3   5732M                    ▥

      - CONFIG-

        MODE           STARTER
       >LED            OFF
        CALI           OK

        BACK
```

OSD Flight Interface Information

You can customize the information displayed on the in-flight OSD including receiver mode, flight mode and battery voltage.
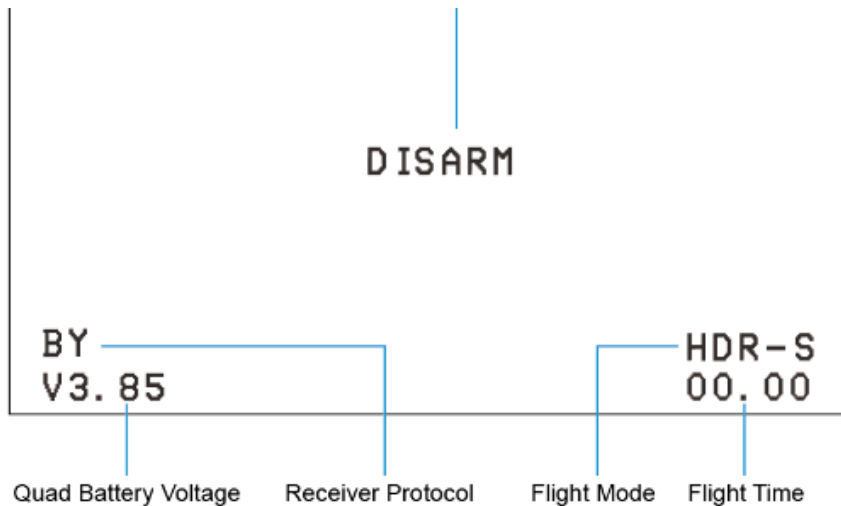
- In the -MAIN- menu, select LAYOUT and enter the -LAYOUT- menu.
- Select the desired item to change, OFF will make the item invisible and, ON will show the item on the OSD.
- Select SAVE in the MAIN menu to save changes and exit the OSD.

```
Y CH- R- 3  5732M                    (battery)

        - LAYOUT-

         >RX            OFF
          MODE          ON
          VOL           ON



          BACK
```

Arm & Switch Flight Mode

On-Screen Display (OSD) Menu

After band search, the images and flight information are shown on the display. This information is called the On-screen Display (OSD).


```
                    DISARM




BY —————————————————————————— HDR-S
V3.85                          00.00
```

Quad Battery Voltage   Receiver Protocol   Flight Mode   Flight Time

OSD Information:
- "Disarmed" is shown in the middle of screen if the quadcopter is disarmed.
- Receiver protocol and RSSI (signal strength), quadcopter battery voltage, flight mode and time are

shown at the bottom of the screen.

Flight Modes

The flight mode is displayed at the bottom right of the display, corresponding to the current flight mode of the quadcopter. Choose from 4 different flight modes based on your current needs, environment and flight skill.

1. ACRO-S / Acro mode (Acrobatic mode) : The radio transmitter sticks control the speed of the quadcopter's rotation. When the stick is centered, the quadcopter will maintain its current angle.
2. LEVL-S / Level mode: The radio transmitter sticks control the quadcopter's current angle. When the stick is centered, the quadcopter will return the level flight. Recommended for beginners.
3. HOR-S / Horizon mode: The quadcopter flies like it is in Level mode while the sticks are close to the center. When the sticks are pushed further to the sides, the quadcopter flies like it is in Acro mode.

Flight modes can be changed by switches SB. Ensure the switches are in the desired position before flight. See "Switch Functions".

Four switches are provided on the front of the remote control radio transmitter: switch SA, switch SB, switch SC, switch SD. The user can change the different modes and parameters of the quadcopter with these switches. Please note that switches do not function unless the remote control radio transmitter is connected successfully with the quadcopter.
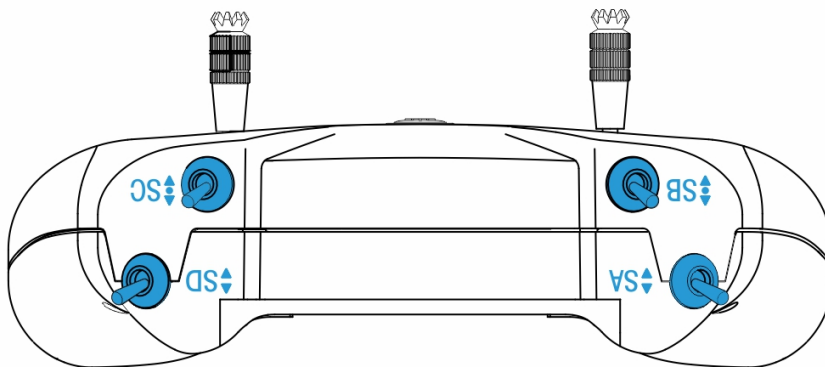
Switch SA: Arm/ Disarm of Quadcopter
- Quadcopter will be disarmed if SA is down.
- Quadcopter attempts to arm if the user moves switch SA up. (Arming may fail if throttle is not at lowest position)

Switch SB: Flight Mode of Quadcopter

- The flight mode is "Level mode" if switch SB is down (LEVL-S).
- The flight mode is "Horizon mode" if switch SB is in the middle (HOR-S).
- The flight mode is "Acro mode" if switch SB is up (ACRO-S).

Switch SC: VTX Channels of Quadcopter

Change VTX frequency through switch SC. 8 frequency points available. When it goes to the last frequency point (5866), then it goes to the first frequency point (5733) and restarts again.

Available channels follow this sequence: 5733/5752/5771/5790/5809/5828/5847/5866 which corresponds to band B.

Switch Back to Silverware Firmware

With the new firmware, if you want use the original Silverware firmware, like the stick sequences, change the PID value etc, please change to the ADVANCED mode and follow this old manual: Lite Brushed FC User Manual.

Go to the OSD menu CONFIG page, select the MODE. The right stick gimbal, pull left twice and right twice, the STARTER mode will change to ADVANCED mode. Then save and exit.
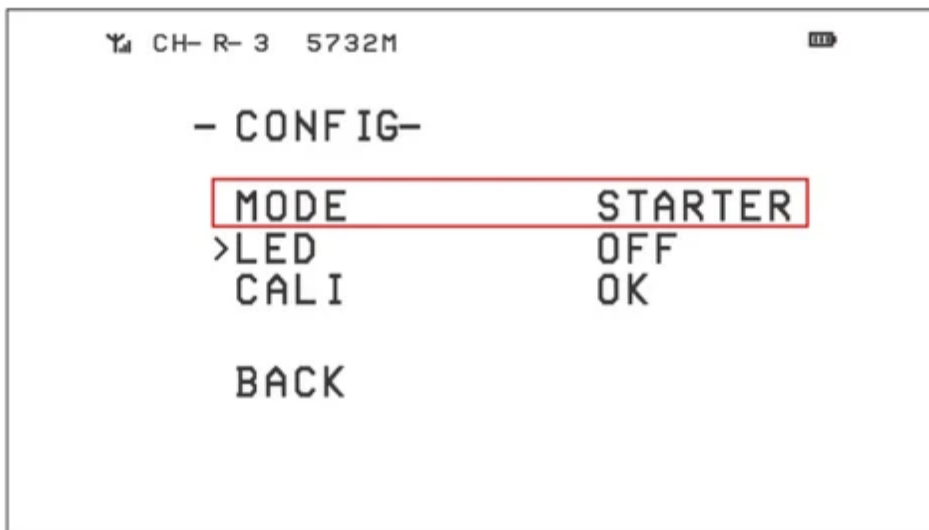
 If you use the original Silverware firmware, please use the old manual named "Lite Brushed FC User Manual.pdf".

You could download the manuals in BETAFPV website Manual for Lite Brushed FC V2.

How to Upgrade the Firmware

If you have a Lite brushed V2 FC board, no matter which firmware it is, or whether firmware inside or not, you could upgrade the new firmware easily.

[How to flash firmware of Lite FC](#)

DO NOT press and hold the button before inserting the battery. It will erase the firmware and need to re-flash the firmware according to the manual above.