Features

AIO 4IN1 Crazybee F4 Lite flight controller built-in 5.8G VTX
Extreme light 1S 65mm Brushless whoop only 20g
Runcam Nano3 The lightest 1/3 CMOS 800TVL Camera
Smooth and powerful
Compatible for 1S Lipo/LIHV
Camera Angle adjustable

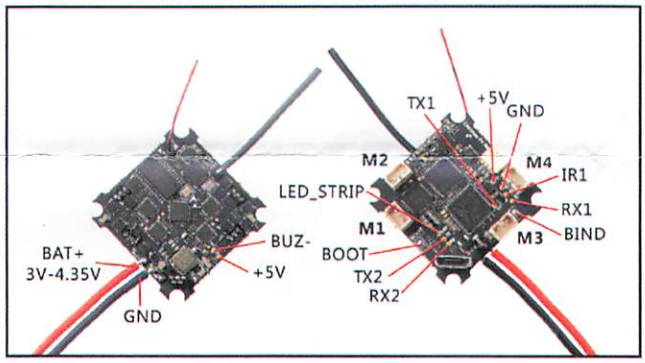
Specifications

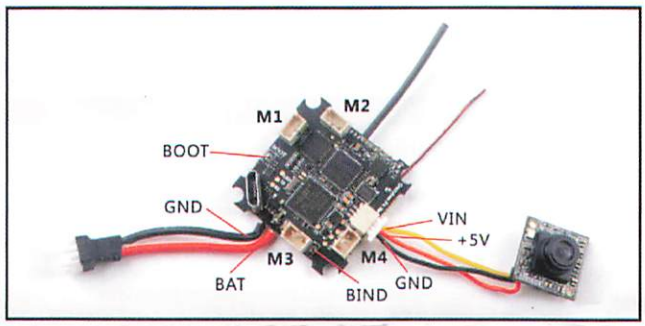
Brand Name: Happymodel
Item Name: Mobula6 1S 65mm Brushless whoop drone BNF version
Wheelbase: 65mm
Size: 80mm*80mm*37mm
Weight: 20g
Receiver option:
Internal SPI Frsky version (Compatible with ACCST D8/D16, Recommend D8 mode)
Internal SPI Flysky version(Compatible with AFHDS and AFHDS-2A Flysky transmitter)
Motor speed option:
SE0802 KV25000(Race Edition)
SE0802 KV19000(Regular Edition)

Package includes

Item Name	Qty
Mobula6 1S 65mm whoop Drone Frame	1
SPI Receiver Option1: Crazybee F4 Lite FC built-in Frsky SPI D8 RX SPI Receiver Option2: Crazybee F4 Lite FC built-in Flysky SPI RX	1
SE0802 KV19000 or KV25000 brushless motor	4
Gemfan 1219-3 Propellers(4cw+4ccw)	1
Runcam Nano3 1/3 CMOS 800TVL camera	1
5.8G 25mw 40ch vtx (Flight controller built-in)	1
1S 300mah 30C LiHV Battery	4
1S Lipo/LIHV USB Charger	1
Propeller disassemble tool	1

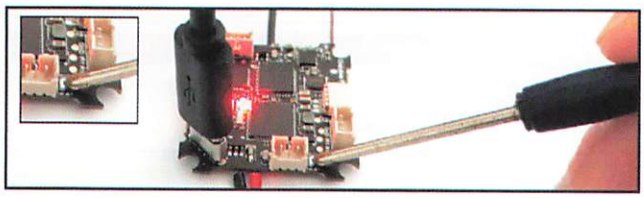
Flight controller connection diagram



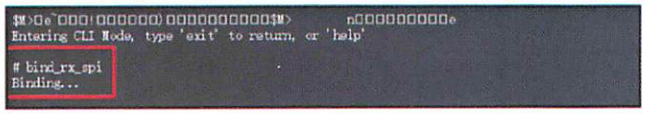


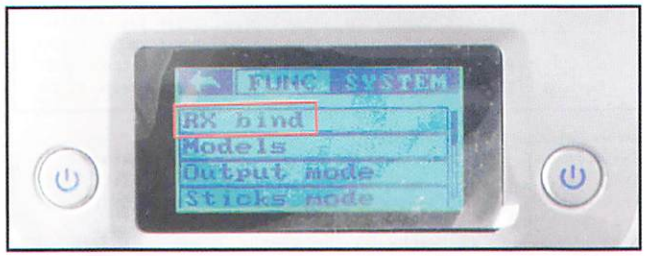
Binding procedure

1. Betaflight 3.5.7 version(Original firmware out of box) binding procedure: Press and hold the bind button then powering the Mobula6 , the Red LED at the bottom of the flight controller will blinking fast , this indicate the receiver is in bind mode .
Betaflight firmware later than 4.0.1(include)binding procedure: Powering the Mobula6 first, then Press the bind button for 1 second ,the red Led at the bottom of the flight controller will blinking fast, this indicate the receiver is in bind mode.



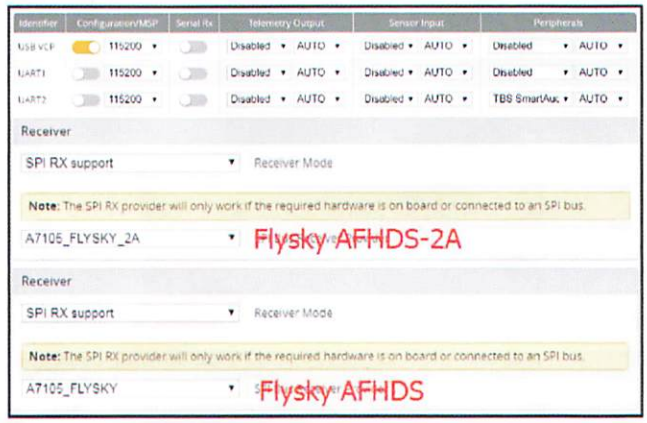
2. Another simple way to bind with the Flysky transmitter is : plug the usb and move to the CLI Command , then type bind code *bind_rx_spi*(for betaflight 4.0.1~4.0.6) or type bind code *bind_rx*(for betaflight 4.1.0~4.1.1), the receiver will getting into bind mode, and then make your Flysky transmitter to bind mode, the LED at the bottom of the flight controller will getting to be solid if bind successfully. (Betaflight 3.5.7 firmware not support these bind code)





Receiver configuration

Please set Receiver mode to be SPI RX Support from the Configuration tab of the Betaflight Configurator, then select A7105_Flysky_2A Provider for AFHDS-2A Protocol Radio transmitter or Select A7105_Flysky Provider for AFHDS Protocol Radio transmitter, don't enable Serial RX since the Crazybee F4 lite Flight controller is integrated SPI BUS Receiver

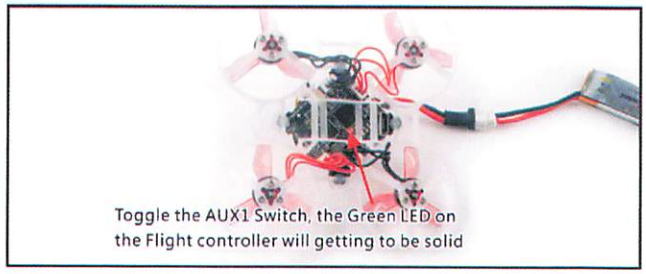


Arm/Disarm the Motor

1. The Default Arm/Disarm switch for Mobula6 is AUX1(Channel 5),and you can also customize it with Betaflight Configurator.

2. Set Arm/Disarm switch for your Flysky Radio: Move to the Aux.channels interface, Set "SWA" or "SWB" or "SWC" switch etc. for Ch5 to ARM/DISARM the motor.

3.The default channel map for Mobula6 Flysky version is AETR1234, please make sure your transmitter is matched , otherwise it will can't be armed. Toggle the AUX1 Switch ,the Green LED on the flight controller will getting to be solid, this indicates the Mobula6 was armed . And also you can found "Armed" displayed on your FPV Goggles or the FPV Monitor. Please make sure keep the Mobula6 level before arming .Be careful and enjoy your flight now!



Toggle the AUX1 Switch, the Green LED on the Flight controller will getting to be solid

VTX Bands and Channels setup

Frequency and channel frequency table:

FR \ CH	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Band1(A)	5865M	5845M	5825M	5805M	5785M	5765M	5745M	5725M
Band2(B)	5733M	5752M	5771M	5790M	5809M	5828M	5847M	5866M
Band3(E)	5705M	5685M	5665M	5665M	5885M	5905M	5905M	5905M
Band4(F)	5740M	5760M	5780M	5800M	5820M	5840M	5860M	5880M
Band5(R)	5658M	5695M	5732M	5769M	5806M	5843M	5880M	5917M

There are 2 ways to switch the vtx channels:

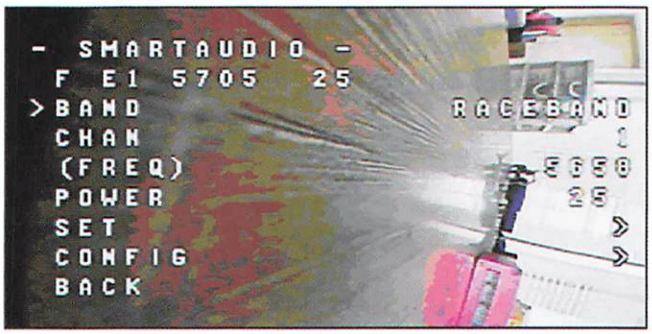
1.If we need to use Channel 5705 then we should Go to Betaflight CLI,type the command:

Set VTX_band=3

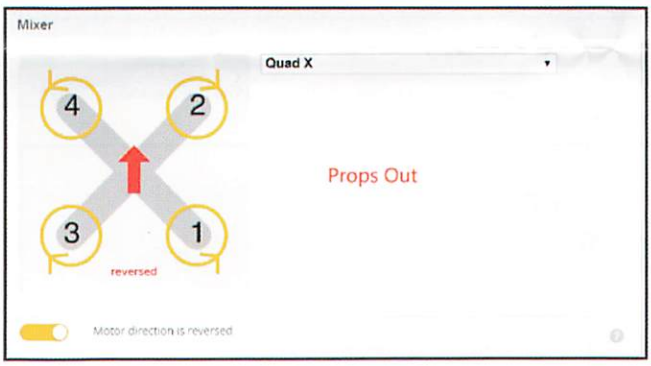
Set VTX_channel=1

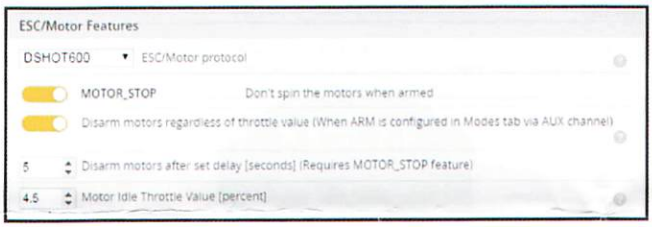
save

2.Disarm the Mobula6 and then move the stick of the transmitter(THR MID+YAW LEFT+PITCH UP)to enter OSD Menu,Enter to Features,then enter to VTX SA to set VTX Band and channel



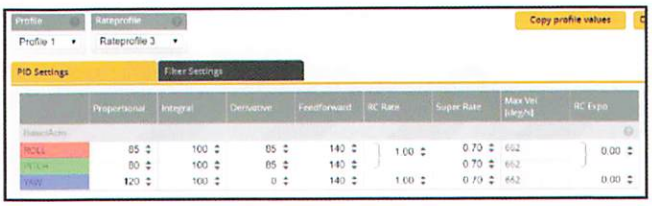
Mixer type and ESC/motor protocol

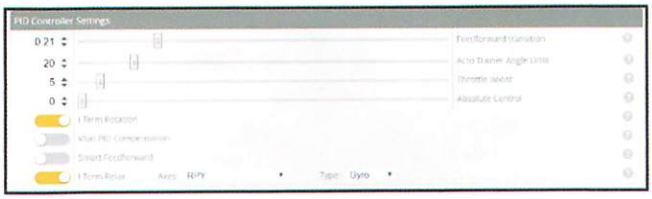




Default PID setting

Betaflight 3.5.7 Default PID settings:



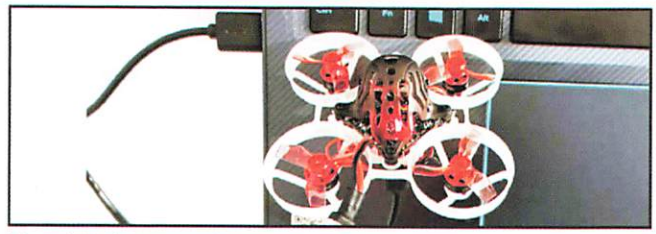


ESC Check and Flash firmware

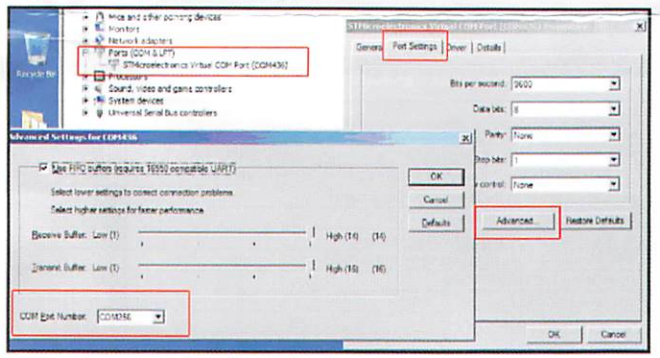
1.Download New release Blhelisuite from:

https://www.mediafire.com/folder/dx6kfaasyo24l/BLHeliSuite

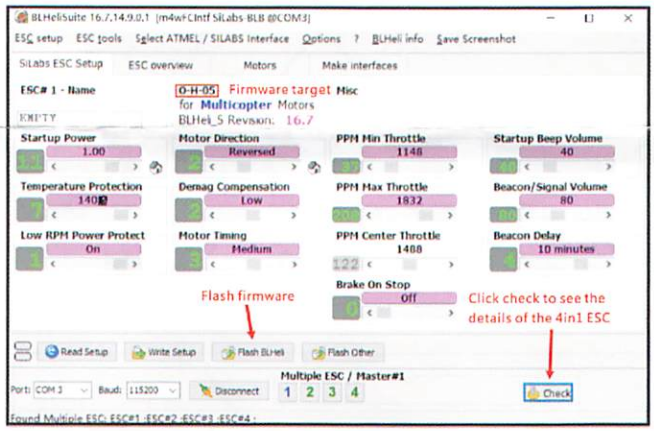
2.Plug the usb and connect the flight controller to computer



3.Open the Device Manager of your computer, find the Ports, please make sure the Com port Serial Number is under 255, otherwise it will can't connect to the BLHELISUITE. You can change the port serial number like the bellowing step :



4.Open the BLHELISUITE, Select SILABS BLHeli Bootloader (Cleanflight) from the third tab on the top side. Then Select the right Serial com port and Click connect. You can also Flash the new release BLHeli_s firmware via the BLHEILISUITE, the firmware Target is "O-H-05"



Flight controller firmware update

1.Install latest STM32 Virtual COM Port Driver

http://www.st.com/web/en/catalog/tools/PF257938

2.Install STM BOOTLOAD Driver (STM Device in DFU MODE)

3.Open Betaflight configurator and choose firmware target "Crazybee F4 FS(Legacy)" ,then select the firmware version.

4.There are 2 ways to get in DFU Mode: 1). solder the boot pad and then plug USB to computer 2). loading betaflight firmware and hit "flash" , then it will getting into DFU Mode automatically.

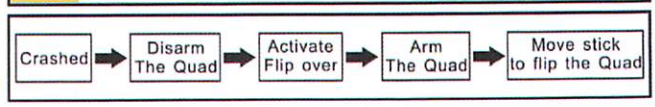
5.Open Zadig tools to replace the drivers from STM32 Bootloader to WINUSB Driver.

6.Reconnect the flight controller to the computer after replace driver done , and open Betaflight Configurator, loading firmware and flash.

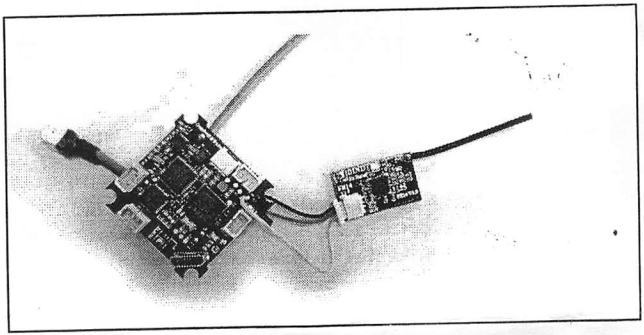
"Flip over after crash" procedure

Set one channel of your radio transmitter to activate the Flip over function in the Mode tab of Betaflight configurator.

The default Switch for Activate "Flip" is AUX4(Channel8)



#If you are not satisfied with the range of the SPI receiver, please use the external receiver.
Plug the pre-solder signal wire to the external receiver



Plug USB and connect to Betaflight configurator, move to CLI command then type the bellowing command :
serial
serial 20 1 115200 57600 0 115200
serial 0 64 115200 57600 0 115200
serial 1 2048 115200 57600 0 115200
feature
feature RX_SERIAL
set serialrx_provider = IBUS
set rssi_channel = 14
save
Bind procedure:
Press and hold the bind button of the receiver, plug the usb for power up , then release the bind button, the led on the receiver board will blinking fast , this means the receiver is in bind mode . Then make your flysky receiver getting into bind mode , if the led getting to solid indicate bind is successful.