

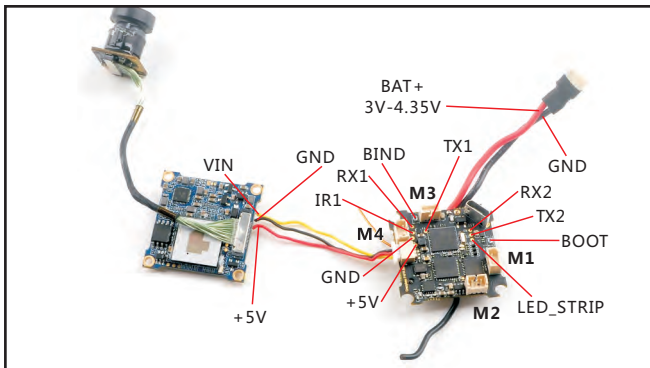
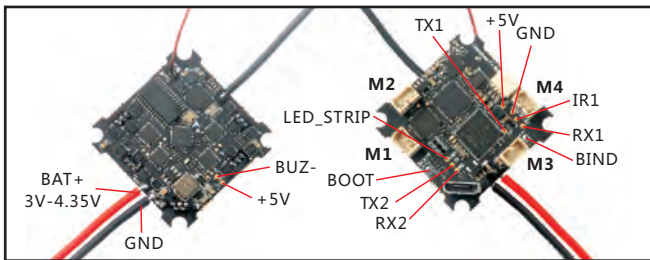
Features
AIO 4IN1 Crazybee F4 Lite flight controller built-in 5.8G VTX
Extreme light 1S 65mm Brushless HD whoop only 27g
Come with Runcam Split3-lite 1080P HD DVR
Smooth and agile
Compatible for 1S Lipo/LiHV
Camera Angle adjustable

Specifications
Brand Name: HappyModel
Item Name: Mobula6 HD 1S 65mm Brushless whoop HD drone BNF version
Wheelbase: 65mm
Size: 80mm*80mm*40mm
Weight: 27g
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)
External DSM2/DSMX version (Compatible with Spektrum DSM2/X transmitters)
External TBS CRSF NANO version (Compatible with TBS ransmitters)

**Package includes**

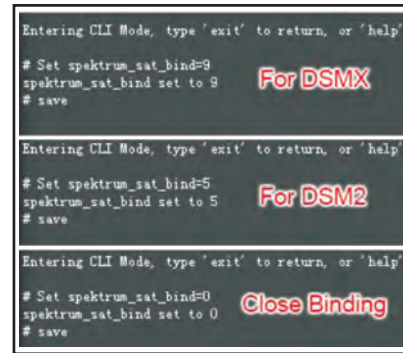
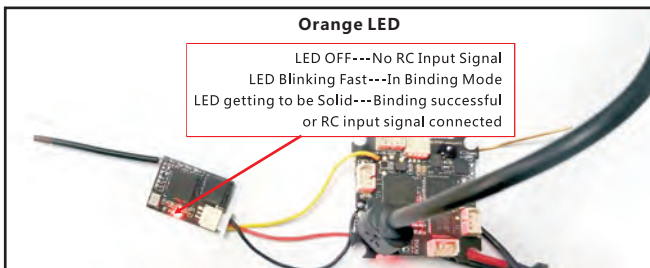
Item Name	Qty
Mobula6 1S 65mm whoop Drone Frame	1
SPI Receiver Option1: Crazybee F4 Lite FC built-in Frsky SPI D8 RX	1
SPI Receiver Option2: Crazybee F4 Lite FC built-in Flysky SPI RX	
External receiver option1: DSM2/DSMX compatible satellite receiver	1
External receiver option2: TBS CRSF NANO receiver	
EX0802 KV19000 brushless motor	4
Gemfan 1219-3 Propellers(4cw+4ccw)	1
Runcam Split3-lite 1080P HD Camera + DVR	1
5.8G 25mw 40ch vtx (Flight controller built-in)	1
1S 250mah 30C LiHV Battery	4
1S Lipo/LiHV USB Charger	1
Propeller disassemble tool	1

**Flight controller connection diagram**



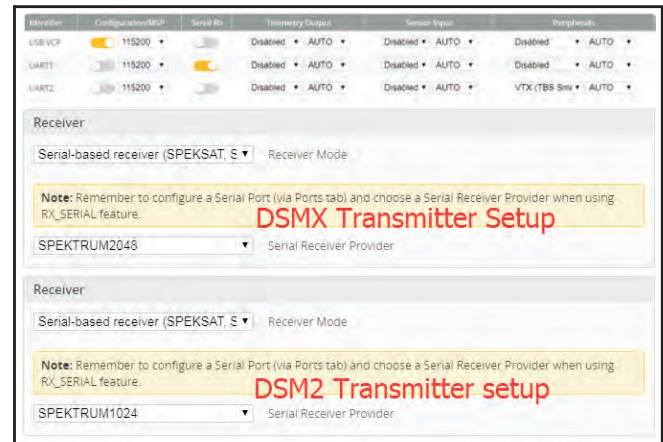
**Binding procedure**

- Connect Crazybee F4 Lite DSM2/DSMX Version to computer and open Betaflight configurator, From CLI tab type: "set spektrum\_sat\_bind = 9" for DSMX radio or "set spektrum\_sat\_bind = 5" for DSM2 radio
- Type "save" and after Flight controller reboot remove USB cable (=Power off the board)
- Wait a second and reconnect the USB cable. After cold start the orange LED on the receiver should start blinking and transmitter should be turned on while pressing the bind button
- After binding the orange LED on the receiver should be solid. Connect Betaflight and use receiver tab to test that satellite is working correctly.
- Final step is to go to CLI tab and type "set spektrum\_sat\_bind = 0" and then type "save". This must be done so that satellite doesn't go back to binding mode when the flight controller is repowered again.



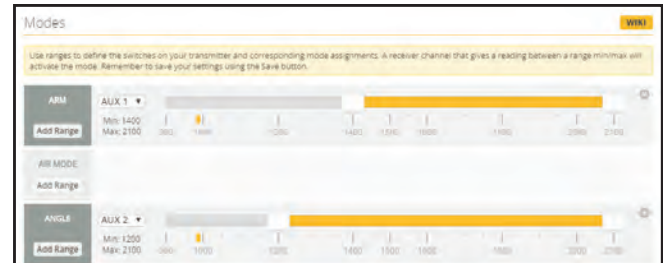
**Receiver configuration**

We have configured the DSM2/DSMX receiver for the Mobula6 HD before shipping. If you flashed the firmware, please setup as the following steps: Enable Serial\_RX for UART1, then select RX\_SERIAL from the RECEIVER Mode and set the Serial Receiver Provider to be Spektrum1024 for DSM2 radio and Spektrum2048 for DSMX Radio in Betaflight Configurator.



**Arm/Disarm the Motor**

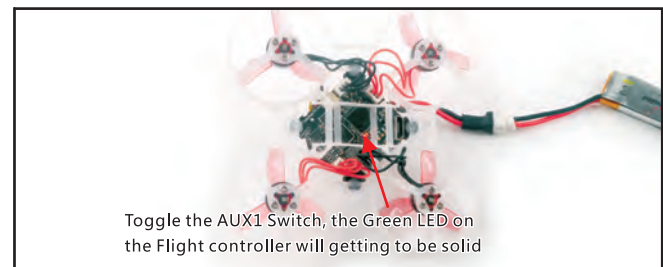
1. The Default Arm/Disarm switch for Mobula6 HD is AUX1(Channel 5), and you can also customize it with Betaflight Configurator.



2. For most of Spektrum radio the default channel 5 is Gear switch and you can also customize it. Use DX9 for example, Go to menu and select System setup, then choose Channel assign.



3. The default channel map for Mobula6 HD DSM2/X version is TAER1234, 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 motor was armed. And also you can found "Armed" displayed on your FPV Goggles or the FPV Monitor. Please make sure keep the Mobula6 HD level before arming. Be careful and enjoy your flight now!



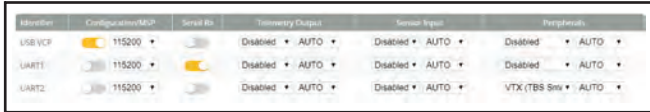
**VTX Bands and Channels setup**

**Frequency and channel frequency table:**

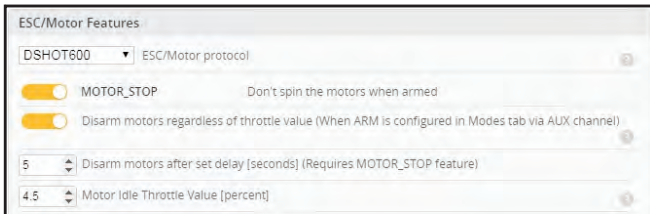
FR \ CH	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Band1(A)	5865M	5845M	5825M	5805M	5785M	5765M	5745M	5725M
Band2(B)	5733M	5752M	5771M	5790M	5809M	5828M	5847M	5866M
Band3(E)	5705M	5685M	5665M	5665M	5885M	5905M	5905M	5905M
Band4(F)	5740M	5760M	5780M	5800M	5820M	5840M	5860M	5880M
Band5(R)	5658M	5695M	5732M	5769M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

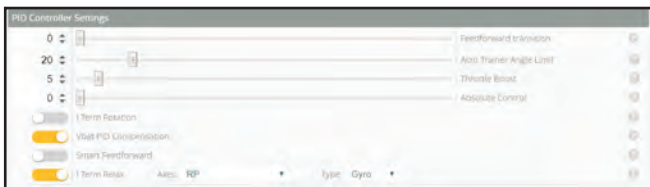


**Mixer type and ESC/motor protocol**



**Default PID setting**

Axis	Proportional	Integral	Derivative	Feedforward	RC Rate	Super Rate	Max Vel (deg/s)	RC Expo
ROLL	80	25	80	100	1.00	0.70	667	0.00
PITCH	80	25	80	100	1.00	0.70	667	0.00
YAW	90	90	0	100	1.00	0.70	667	0.00



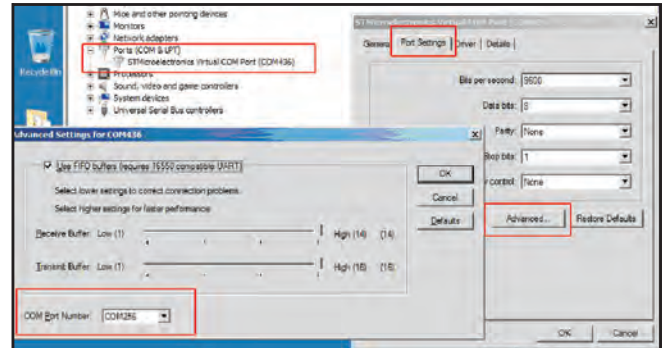
Note: "ESC Check and flash firmware" and "Flight controller firmware update" procedure are not necessary. The procedure at the right side is just a tutorial to show how to do it. We already pre-install firmware and pre-configure the ESC and the flight controller.

**ESC Check and Flash firmware**

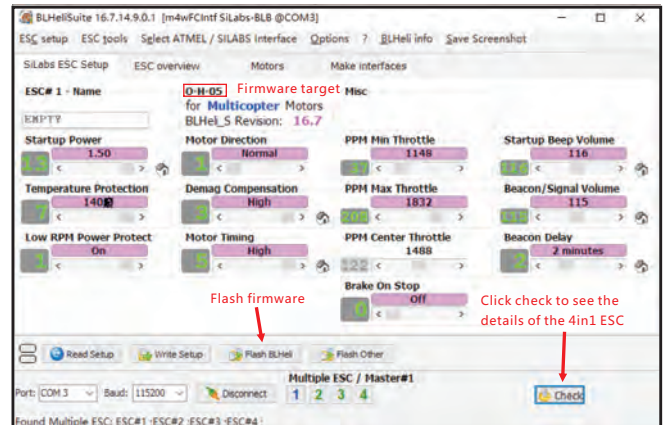
- 1.Download New release Bhlhelisuite from:  
<https://www.mediafire.com/folder/dx6kfaasyo24i/BLHeliSuite>
- 2.Plug the usb and connect the flight controller to computer



- 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 following step:

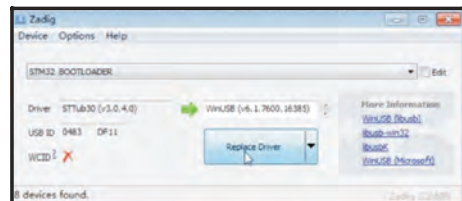


- 4.Open the BLHELISUITE, Select SILABS BLHeli Bootloader (Cleanflight) from the third tab on the top side. Then Select the right Serial com port and Click connect. You can also Flash the new release BLHeli\_s firmware via the BLHELISUITE, the firmware Target is "O-H-05"



**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 "CRAZYBEEF4DX(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)

