

Notes:

- 1.The receiver signal will be unstable while the MSP(Connect to Betaflight) Connection established
- 2.The PID loop frequency must be 2kHz at this firmware version, will update soon .

8 kHz	Gyro update frequency
2 kHz	PID loop frequency

Specifications

Brand Name: HappyModel
Mode Name: Mobula7
Item Name: 2S brushless whoop Racing Drone DSM2/DSMX version
Wheelbase: 75mm
Size: 98mm*98mm*36mm
Weight: 27g(without battery)

VTX Bands and Channels setup

Blue LED1 and Red LED1 light on,indicating frequency 5865MHZ(BAND1 and CH1)
 Blue LED1 and Red LED2 light on,indicating frequency 5845MHZ(BAND1 and CH2)

Frequency and channel frequency table:

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

There are 3 ways to switch the vtx channels:

- 1.Short press to choose the VTX channel, press and holding the button to choose the VTX Band (Can't save , it will lost the channel while power off)
- 2.Go to Betaflight CLI ,type the command:
 Set vtx_band=3
 Set vtx_channel=1
 Set vtx_freq=5705
 save
 Notes: The vtx_freq should match the vtx_band and vtx_channel as the VTX Channel list shows.
 For example, if you set vtx_freq=5732, you should set vtx_band=5 and vtx_channel=3
- 3.Enable Smartaudio for UART2, 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

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200	Disabled	Disabled	Disabled	Disabled
UART2	115200	Disabled	Disabled	Disabled	TBS SmartAud
UART3	115200	Enabled	Disabled	Disabled	Disabled



Binding procedure

- 1)Connect Crazybee F3 PRO 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
- 2)Type "save" and after Flight controller reboot remove USB cable (=Power off the board)
- 3)Wait a second and reconnect the USB cable. After cold start satellite led combo on the backside of the board (2 red led +2 white led) should start blinking and transmitter should be turned on while pressing the bind button
- 4)After binding satellite LED combo should be solid. Connect Betaflight and use receiver tab to test that satellite is working correctly.
- 5)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.



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Entering CLI Mode, type 'exit' to return, or 'help'

# Set spektrum_sat_bind=9
spektrum_sat_bind set to 9
# save
For DSMX

Entering CLI Mode, type 'exit' to return, or 'help'

# Set spektrum_sat_bind=5
spektrum_sat_bind set to 5
# save
For DSM2

Entering CLI Mode, type 'exit' to return, or 'help'

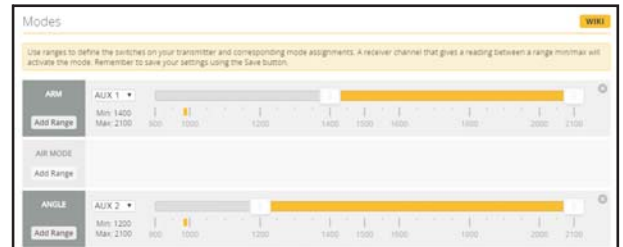
# Set spektrum_sat_bind=0
spektrum_sat_bind set to 0
# save
Close Binding
    
```

Receiver configuration

We have configured the DSM2/DSMX receiver for the Mobula7 before shipping. If you flashed the firmware, Please setup as the following steps: Enable Serial_RX for UART3, 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

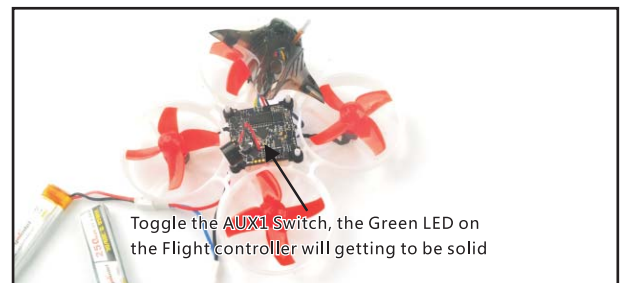
1. The Default Arm/Disarm switch for Mobula7 is AUX1(Channel 5),and you can also customize it with Betaflight Configurator.



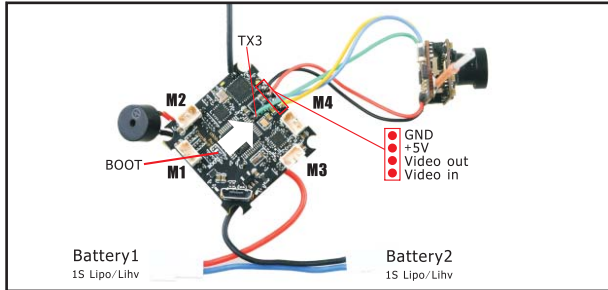
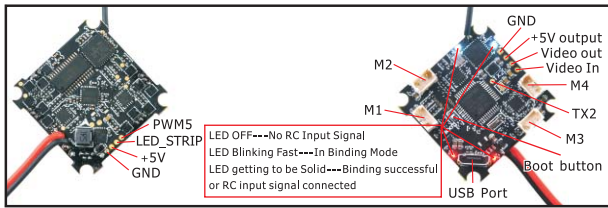
2. For most of Spektrum radio the default channel 5 is Gear switch and you can also customize it. Use DX9 for example, Go to menu and select System setup ,then choose Channel sign.



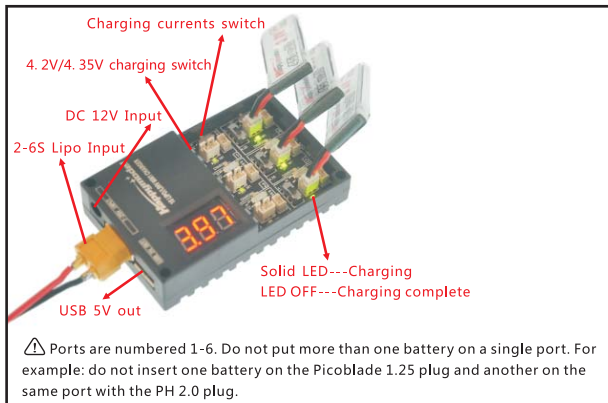
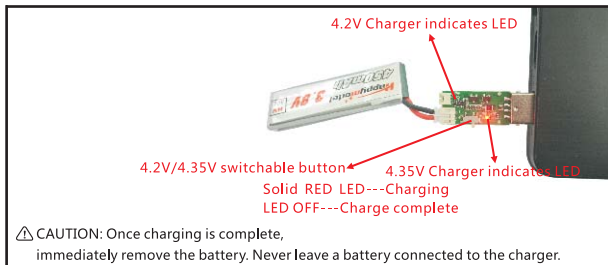
3. The default channel map for Mobula7 DSM2/X version is TAER1234, please make sure your transmitter is matched, otherwise it will can't be armed. Toggle the AUX1 Switch ,the Green LED on the flight controller will getting to be solid, this indicates the motor was armed . And also you can found "Armed" displayed on your FPV Goggles or the FPV Monitor. Please make sure keep the Mobula7 level before arming .Be careful and enjoy your flight now !



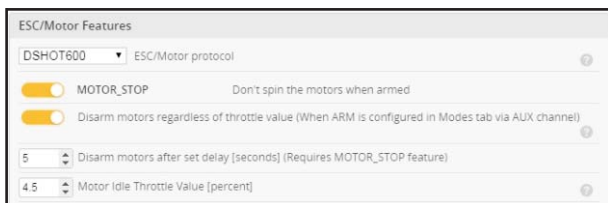
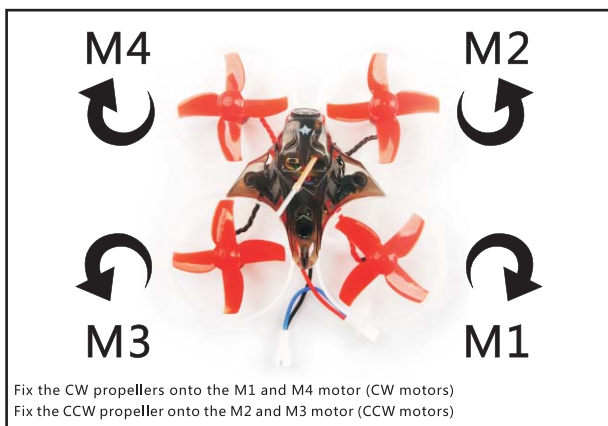
Flight controller connection diagram



Charger the Lipo Battery

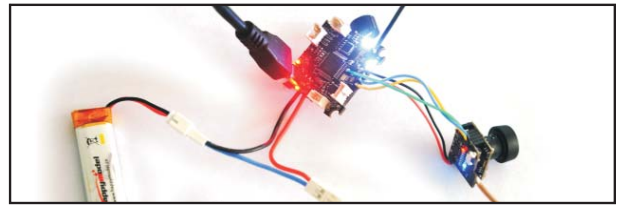


Mixer type and ESC/motor protocol

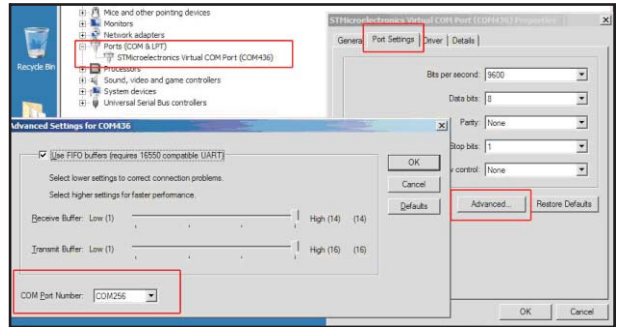


ESC Check and Flash firmware

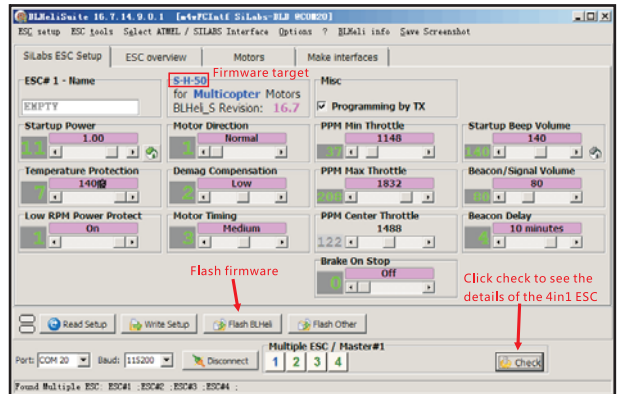
1. Download New release BLHeliSuite from: <https://www.mediafire.com/folder/dx6kfaasyo241/BLHeliSuite>
2. Connect the Crazybee F3 PRO flight controller to computer and power for it with battery



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 :

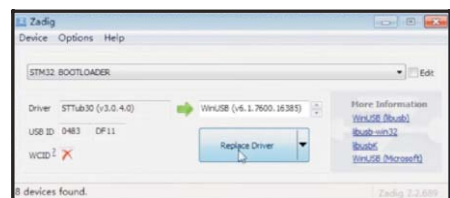


4. Open the BLHELISUITE, Select SILABS BLHeli Bootloader (Cleanflight) from the third tab on the top side. Then Select the right Serial com port and Click connect. You can also Flash the new release BLHeli_s firmware via the BLHELISUITE, the firmware Target is "S-H-50"



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 "CrazybeeF3 DX" , 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.



*We will update the firmware for Crazybee F3 PRO and release to our website in time.

"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.

