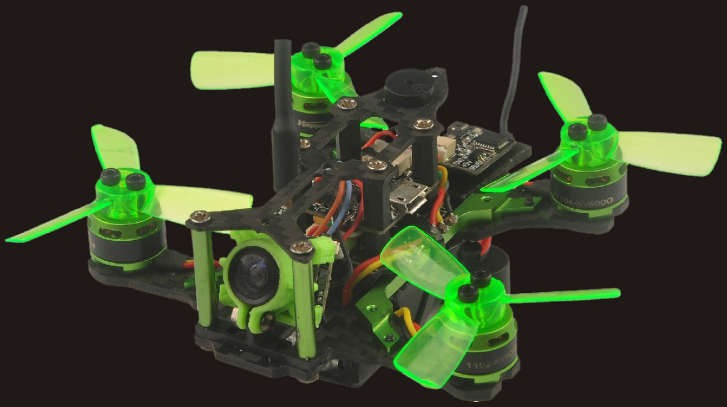
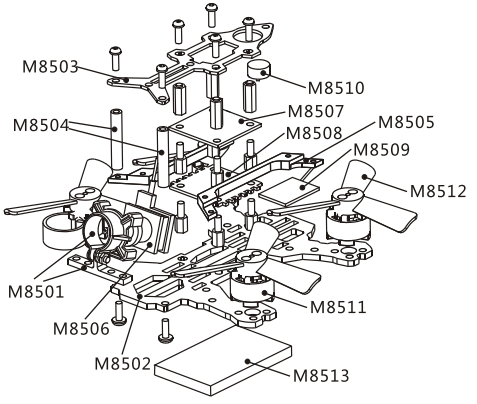
Happymodel

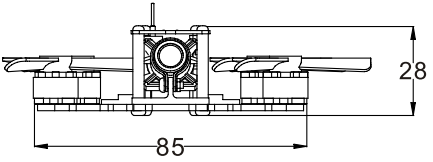


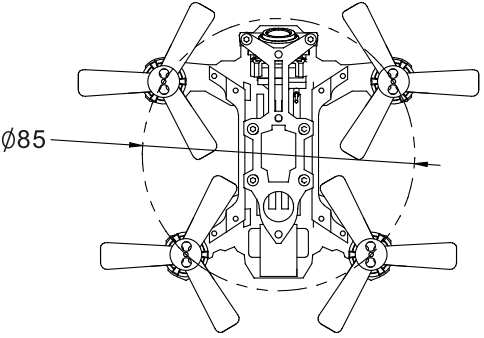
MANTIS 85



Item	Qty	Part No.	Option
Camera mount	1	M8501	
3K Carbon Main Plate	1	M8502	
3K Carbon top Plate	1	M8503	
CNC Alloy Pillar	2	M8504	
CNC Alloy Fixed Plate	2	M8505	
5.8G VTX+Camera	1	M8506	
Flight controller	1	M8507	
BS06D 4IN1 ESC	1	M8508	
2.4G Receiver	1	M8509	M8509FR: FRSKY
			M8509FL: FLSKY
			M8509DX: DXM2/X
Buzzer	1	M8510	
1102 KV9000 Motor	4	M8511	
1935 3leaf propeller	8	M8512	4CW+4CCW
7.4V 400MAH battery	1	M8513	

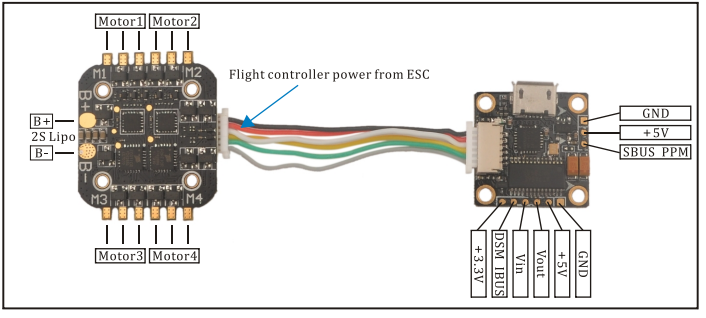
1. Specification
Brand Name: Happymodel
Item Name: Mantis 85 Frame
Wheelbase:85mm
Size:85mm*85mm*28mm
Weight: 49g(battery not include)
Flight controller: Super_S F4 Flight controller
Motor: Happymodel SE1102 KV9000
Propeller: 1935 3leaf propeller
Camera: 5.8G VTX+Camera
Battery: 7.4V 400MAH battery
Firmware of Flight controller :Betaflight 3.2.0
Flight time : 4minutes
Buzzer





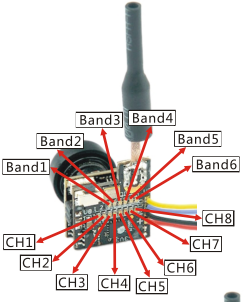
2. Components	QTY	Part NO.
Mantis 85 Frame	1	M85F
Super_S F4 Flight controller	1	M8507
BS06D 4IN1 ESC	1	M8508
2.4G Receiver (Option: Frsky/Flysky/DSMX)	1	M8509(FR/FL/DX)
1102 KV9000 Motor	4	M8511
1935 3leaf propeller	8	M8512(R/L)
HC48D VTX&Camera	1	M8506
7.4V 400MAH 30C Lipo battery	1	M8513
Buzzer	1	M8510

3. Flight controller connection diagram

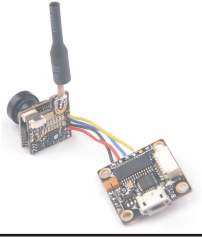


4. 5.8G VTX channels list

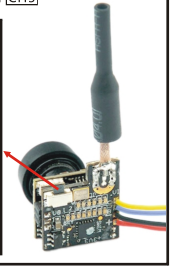
CH \ FR		FR					
		Band 1	Band 2	Band 3	Band 4	Band 5	Band 6
CH	CH1	5865MHz	5733MHz	5705MHz	5740MHz	5658MHz	5474MHz
	CH2	5845MHz	5752MHz	5685MHz	5760MHz	5695MHz	5492MHz
	CH3	5825MHz	5771MHz	5665MHz	5780MHz	5732MHz	5510MHz
	CH4	5805MHz	5790MHz	5645MHz	5800MHz	5769MHz	5528MHz
	CH5	5785MHz	5809MHz	5885MHz	5820MHz	5806MHz	5546MHz
	CH6	5765MHz	5828MHz	5905MHz	5840MHz	5843MHz	5564MHz
	CH7	5745MHz	5847MHz	5925MHz	5860MHz	5880MHz	5582MHz
	CH8	5725MHz	5866MHz	5945MHz	5880MHz	5917MHz	5600MHz



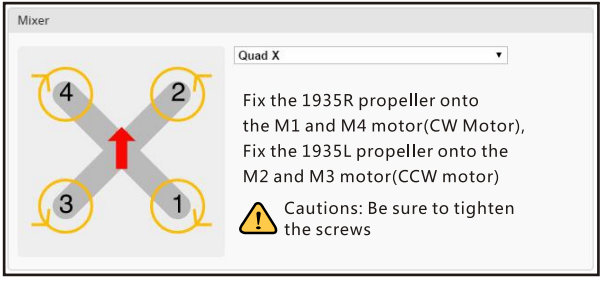
Yellow:Camera video signal
Green:Video out
Red:+5V
Black:GND

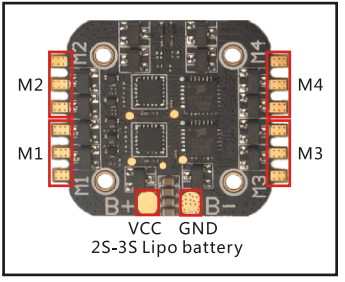


Frequency switching:
By one button, Short press the button to change channel, 1-8 adjustable.
Press and hold the button for 2s to change bands, 1-6 adjustable
Two groups of LEDs :
Group 1:6 BLUE LED stand for bands.
Group 2:8 RED LED stand for channels.



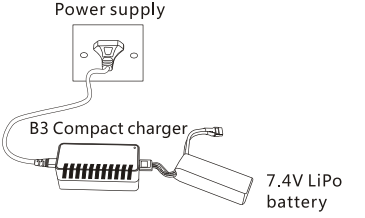
5. Frame type and ESC Connection diagram



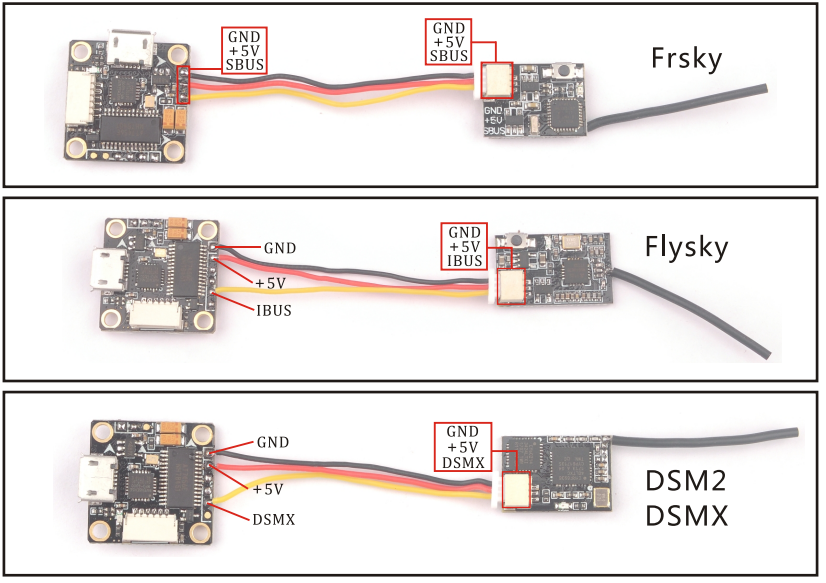


6. Charge the Battery

- First insert the LiPo battery balance plug into the B3 Compact charger.
- Connect the power-cable to the wall-outlet,the B3 Compact charger accept volage from 110v to 240v. When correctly powred the charger LED will be flashing orange
- During charging the LED will be solid RED. When charging is completed, the charger will display asolid GREEN LED
  Note:B3 Compact Charger is not include .

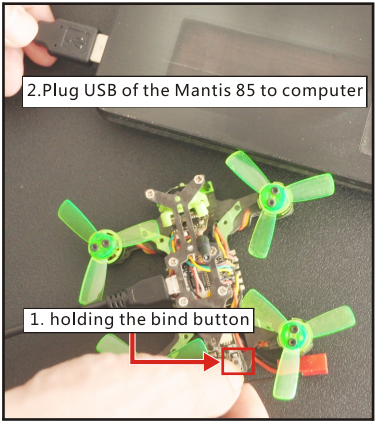


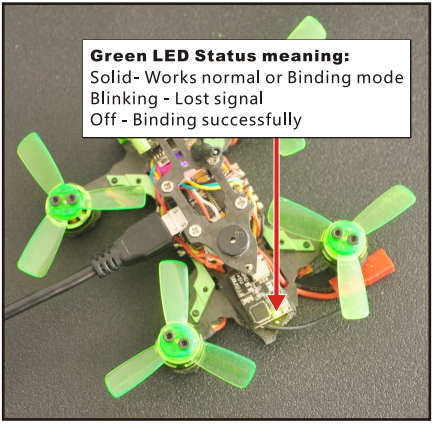
7. 2.4G Receiver connection diagram



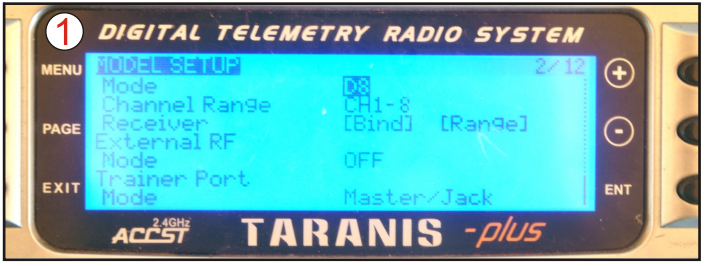
8. Mantis 85 Frsky BNF Version binding procedue

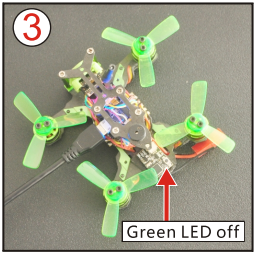
1.Plug USB of the Mantis 85 to computer while holding the bind button in the Frsky receiver, the green LED on the receiver will getting to be solid, this indicates the Mantis 85 is ready to bind to the transmitter, then release the bind button.



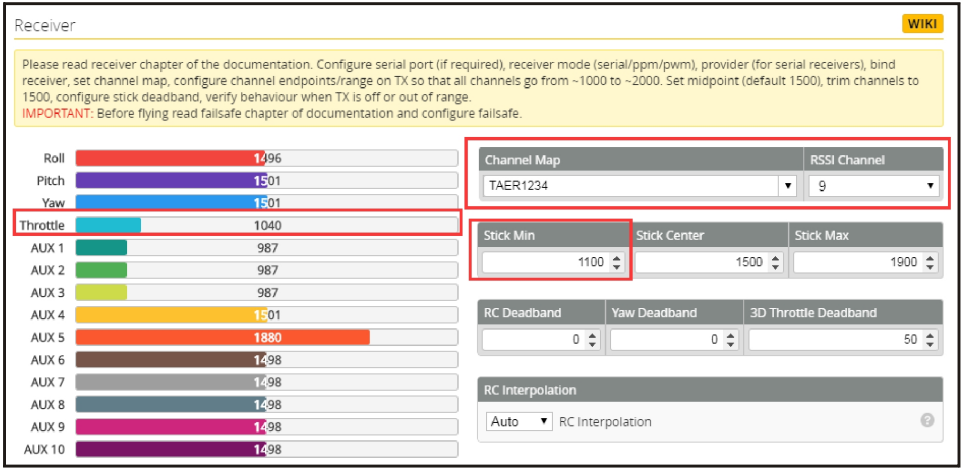


2.Turn on the transmitter and select D8 mode from the Model SETUP Tab, then go to the Receiver [Bind] tab and Enter to binding with the Mantis 85. The Green LED on the receiver should turning off ,this indicates binding successful.



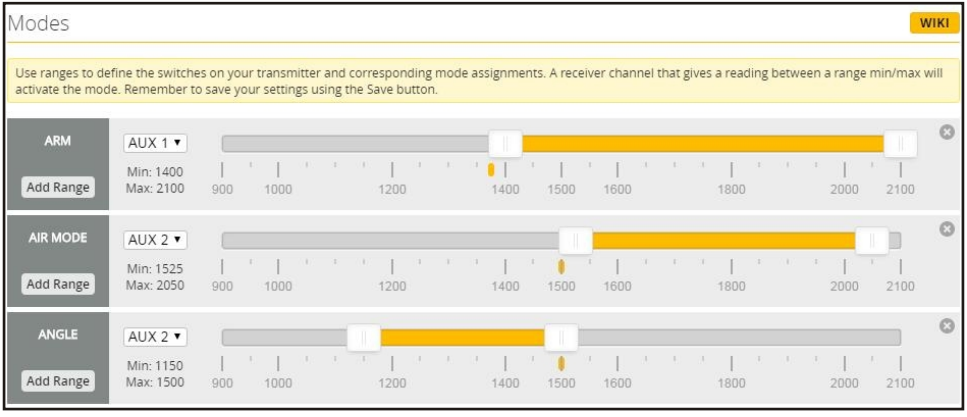


3.The Default channel map for Mantis 85 Frsky version is “TAER1234”, Please ensure your transmitter is matched with it ,otherwise it can't be armed. And the Channel9 was set for RSSI Output.
Notes: Please pay attention to the min Throttle of your transmitter, it should be less than the “Stick min”, so that you can arm the Quadcopter (For Example 1040<1100)



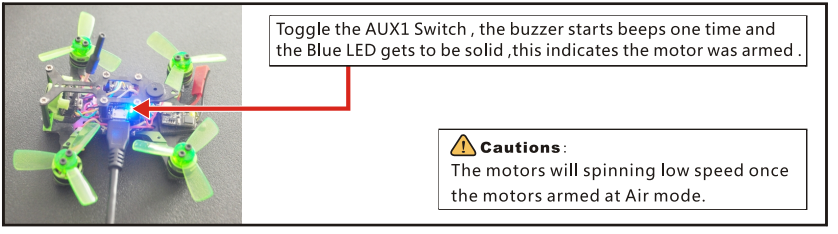
9. Arm/Disarm Mantis 85 Frsky BNF

1. The Default Arm/Disarm switch for Mantis 85 is AUX1(Channel 5),and you can also customize it with Betaflight Configurator. We also set the AUX2(Channel 6) for change flight mode and AUX3(Channel 7) for activate the buzzer which you can customize them too .



2. Set Arm/Disarm switch for your TARANIS X9D: Move to the MIXER interface, Set "SA" or "SB" switch etc. for Ch5 to ARM/DISARM the motor. Suggest use a 3-steps switch to change flight mode.

3. Toggle the AUX1 Switch , the buzzer starts beeps for one time and the Blue LED in the flight controller gets to be solid ,this indicates the motor was armed . And also you can found "Armed" shows on your FPV Goggles or the FPV Monitor. Be careful and enjoy your flight now !

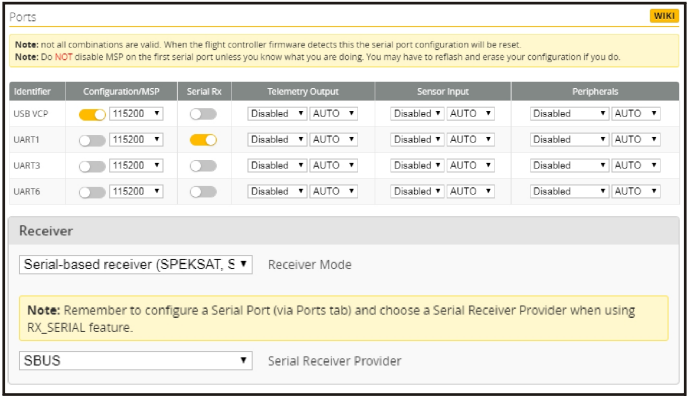


10. Mantis 85 Frsky BNF version receiver configuration

We have configured the frsky receiver before shipping. If you flashed the new firmware , please set up as the following steps: Enable Serial RX for UART1 , then choose Serial_based receiver from the Receiver Mode tab ,and set the Serial Receiver Provider to SBUS Mode in Betaflight Configurator

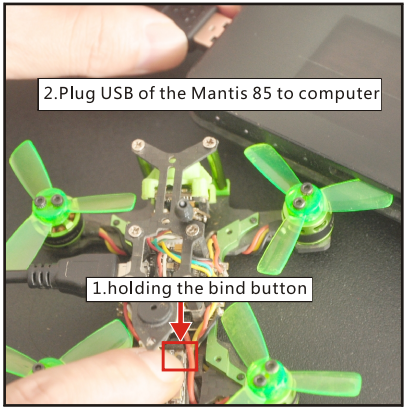
Cautions:

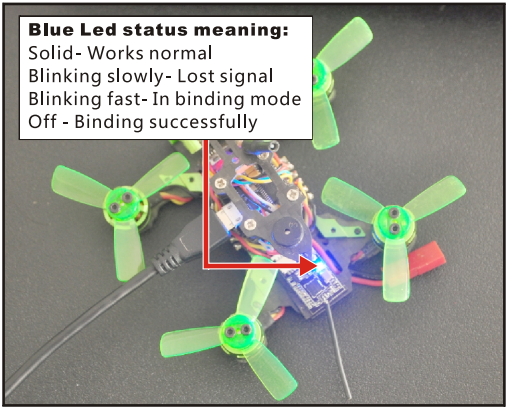
Because of the Dual way transmission, please keep the Mantis 85 away from the radio more than 50cm, otherwise it will lost telemetry signal



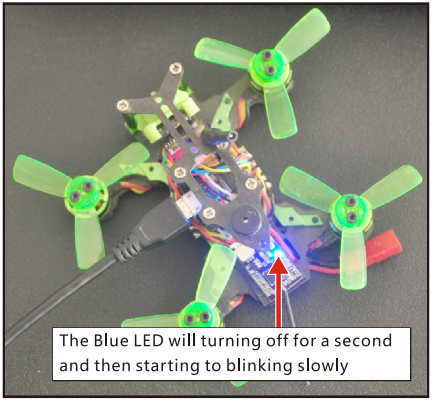
11. Mantis 85 Flysky BNF Version binding procedue

1.Plug USB of the Mantis 85 to computer while holding the bind button on the Flysky receiver, the Blue LED on the receiver will getting to be blinking fast, this indicates the Mantis 85 is ready to bind to the transmitter, then release the bind button.



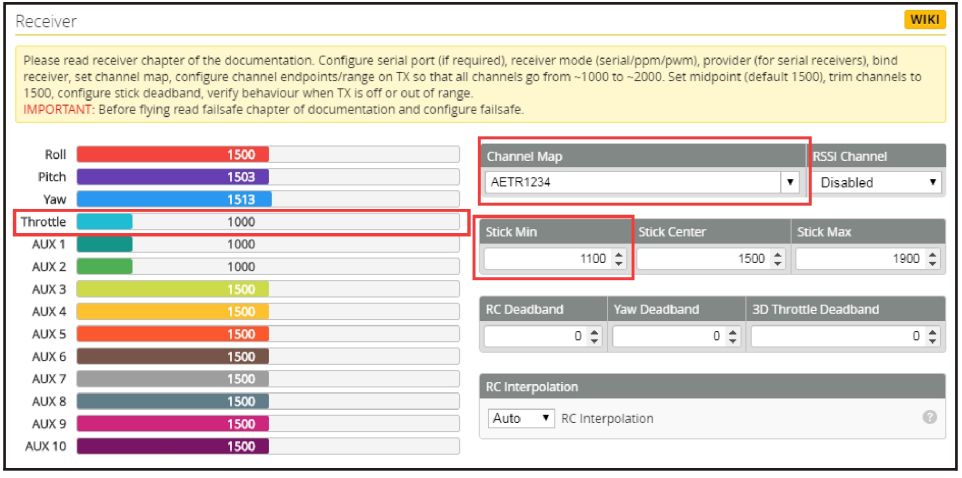


2.Please Ensure the RX setup of your transmitter is in AFHDS 2A Mode. Then get your transmitter into binding mode, Use Flysky I6 for an example: Turn on the transmitter while holding the bind button. The Blue LED in the receiver will turning off for a second and then starting to blinking slowly, this indicates binding successfully. Now you need to exit binding mode of the transmitter and re-connect the Mantis 85 to the computer, then the Blue LED should be solid , this indicates the connection was established between the Mantis 85 and your transmitter.



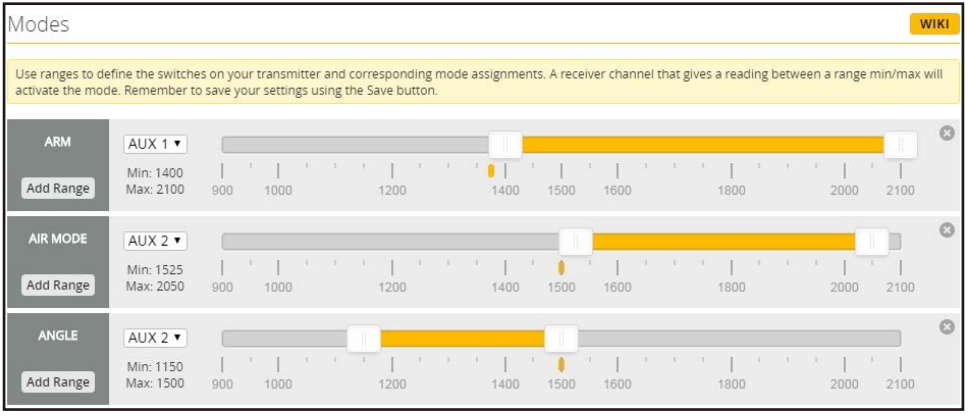
3.The Default channel map for Mantis 85 Flysky version is “AETR1234”, Please ensure your transmitter is matched with it ,otherwise it can't be armed.

Notes: Please pay attention to the min Throttle of your transmitter, it should be less than the “Stick min”, so that you can arm the Quadcopter (For Example 1000<1100)



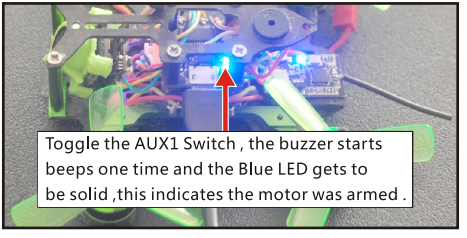
12. Arm/Disarm Mantis 85 Flysky BNF Version

1.The Default Arm/Disarm switch for Mantis 85 is AUX1(Channel 5),and you can also customize it with Betaflight Configurator. We also set the AUX2(Channel 6) for change flight mode and AUX3(Channel 7) for activate the buzzer which you can customize them too .



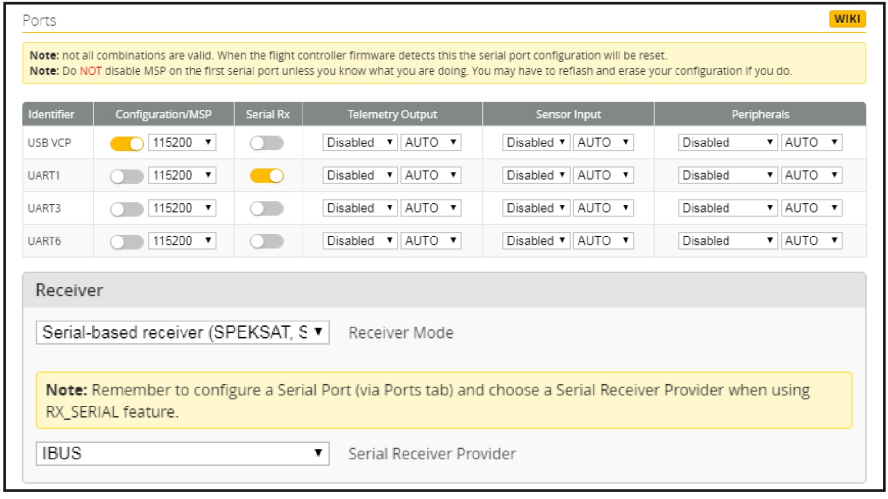
2. Set Arm/Disarm switch for your Flysky Radio: Move to the Aux.channels interface, Set "SWA" or "SWB" or "SWC" switch etc. for Ch5 to ARM/DISARM the motor. Suggest use a 3-steps switch (like "SWC" of the Flysky I6) to change flight mode .

3.Toggle the AUX1 Switch , the buzzer starts beeps one time and the Blue LED in the flight controller gets to be solid , this indicates the motor was armed . And also you can found "Armed" shows on your FPV Goggles or the FPV Monitor. Be careful and enjoy your flight now !



13. Mantis 85 Flysky version receiver configuration

We have configured the Flysky receiver before shipping. If you flashed the new firmware , please set up as the following steps: Enable Serial RX for UART1 , then choose Serial_based receiver from the Receiver Mode tab ,and set the Serial Receiver Provider to IBUS Mode in Betaflight Configurator



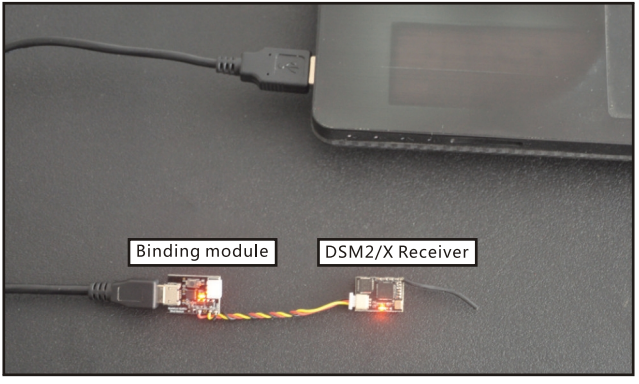
14. Mantis 85 DSM2/DSMX BNF Version binding procedure and Satellite receiver setup

The Mantis 85 DSM2/X version comes with a BM01 binding module, the binding step is:

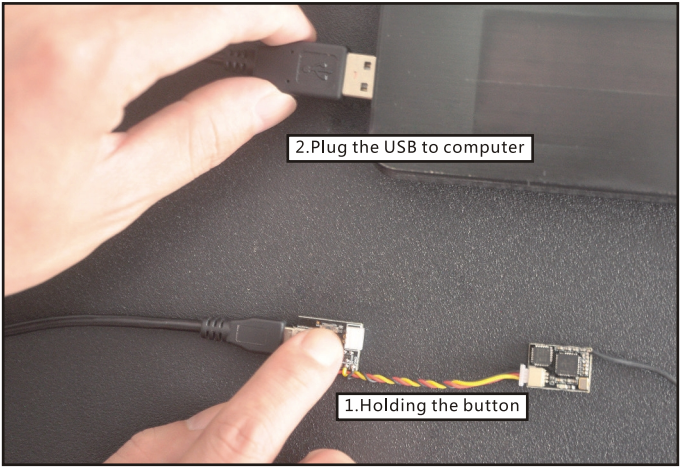
1.First remove the Receiver from Mantis 85

2.Connect the binding module and the receiver of the Mantis 85

3.For the DSMX Protocol Transmitter like DX9/DX8/DX7S/DX6, please just plug the USB of the binding module to computer or 5V power bank, the orange LED on the receiver will blinking fast, this indicates the receiver is in the DSMX protocol bind mode, turn on your transmitter and enter into binding mode , the orange LED should be solid once binding successful. If failed ,please Repeat the above steps



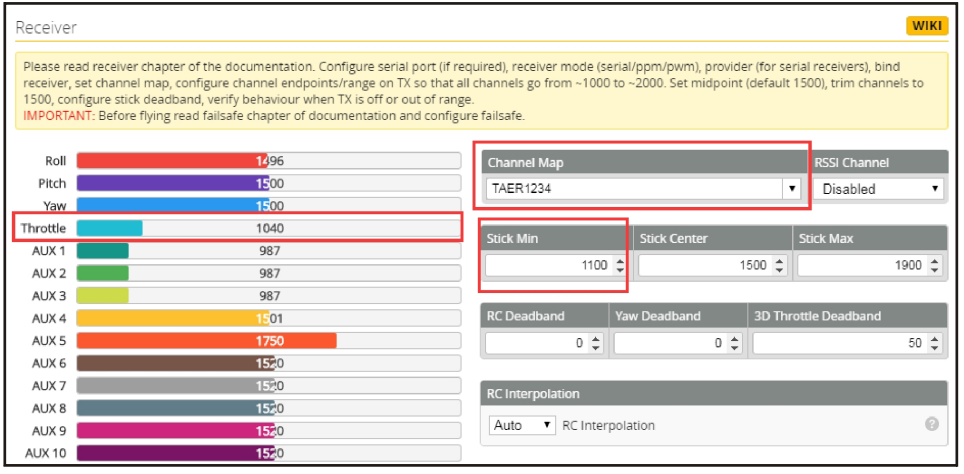
4.For the DSM2 Protocol Transmitter like DX7/DX6I, please plug the USB of the binding module to computer or 5V power bank while holding the button, the orange LED on the receiver will blinking fast, this indicates the receiver is in the DSM2 protocol bind mode, then release the button and turn on your transmitter and enter into binding mode, the orange LED should be solid once binding successful. If failed ,please Repeat the above steps



5.Reconnect the receiver to Mantis 85 after binding successfully

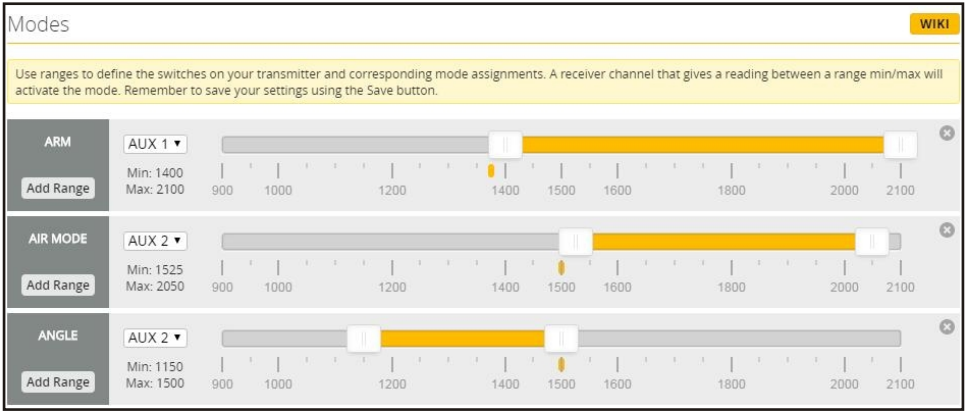
6.The Default channel map for Mantis 85 DSMX version is "TAER1234", Please ensure your transmitter is matched with it ,otherwise it can't be armed.

Notes: Please pay attention to the min Throttle of your transmitter, it should be less than the "Stick min", so that you can arm the Quadcopter (For Example 1040<1100)



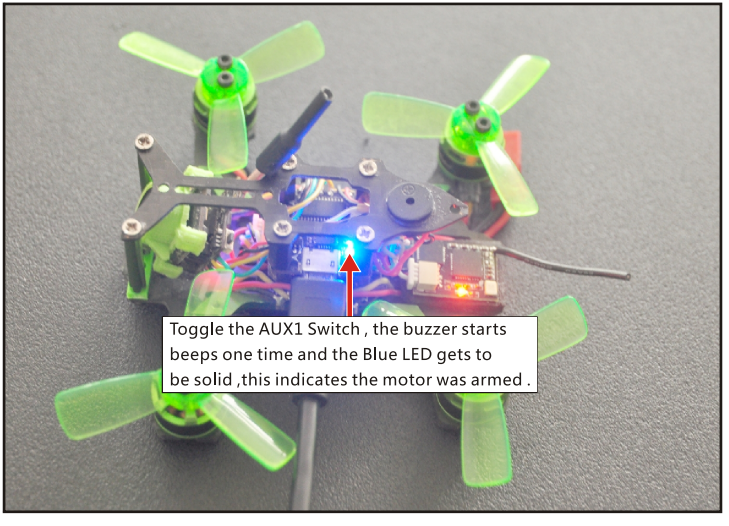
15. Arm/Disarm Mantis 85 DSM2/DSMX BNF version

1. The Default Arm/Disarm switch for Mantis 85 DSM2/DSMX BNF Version is AUX1(Channel 5), for most of Spektrum radio the default channel 5 is Gear switch and you can also customize it with Betaflight Configurator. We also set the AUX2(Channel 6) for change flight mode and AUX3(Channel 7) for activate the buzzer which you can customize them too . Suggest use a 3-steps switch to change flight mode.



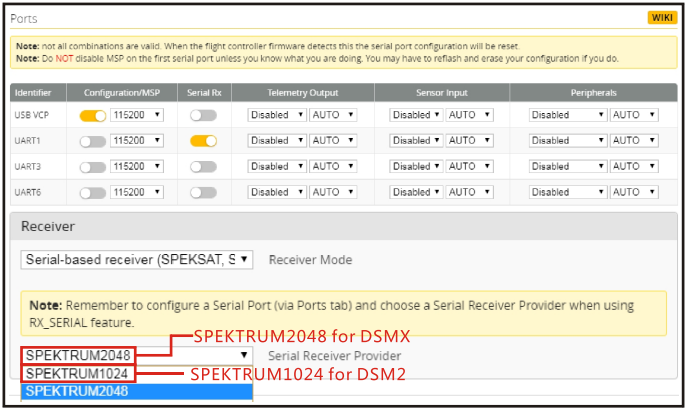
2.Turn on the transmitter and set a switch for Ch5 to ARM/DISARM the motor,some transmitter ink SPECKTRUM DX6/DX6I,the default Ch5 is GEAR Switch.

3.Toggle the AUX1 Switch , the buzzer starts beeps one time and the Blue LED gets to be solid ,this indicates the motor was armed . And also you can found "Armed" shows on your FPV Goggles or the FPV Monitor. Be careful and enjoy your flight now !



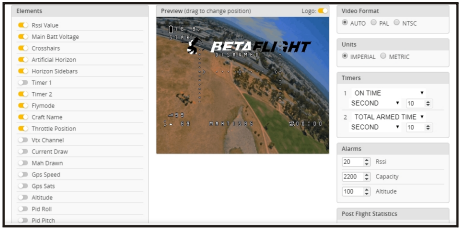
16. Mantis 85 DSM2/DSMX BNF version receiver configuration

We have configured the DSM2/DSMX before shipping. If you flashed the new firmware , please set up as the following steps: Enable Serial RX for UART1 , then choose Serial_based receiver from the Receiver Mode tab ,and set the Serial Receiver Provider to SPEKTRUM2048 for DSMX Protocol and SPEKTRUM1024 for DSM2 Protocol in Betaflight Configurator

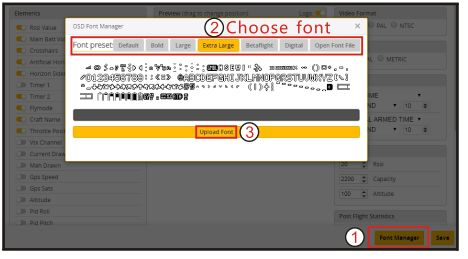


17. OSD configuration

1. Connect the Mantis 85 to the computer , open Betaflight Configurator , move to the OSD option, then you can configure the layout of the OSD.



2. OSD change font layout



18. Flight controller firmware update

Firmware update:

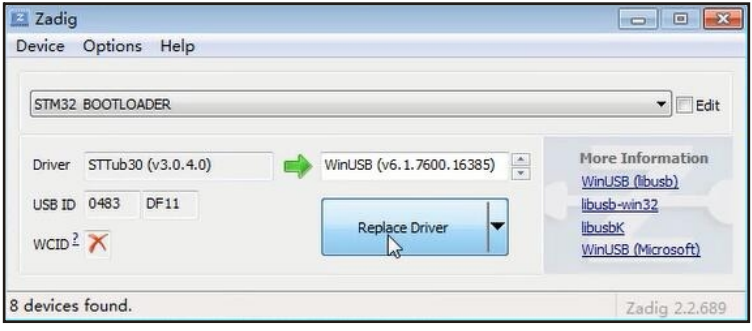
1.Install latest STM32 Virtual COM Port Driverhttp://www.st.com/web/en/catalog/tools/PF2579382

2.Install STM BOOTLOAD Driver (STM Devicein DFU MODE)

3.Open Betaflight configurator and choosefirmware target “OMNIBUS F4SD”,then select thefirmware version.

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

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



6.Reconnect the flight controller to thecomputer after done the driver replacement , and open Betaflight configurator, loading firmware and click flash.

www.happymodel.cn

*User manual is subject to change without prior notice.