

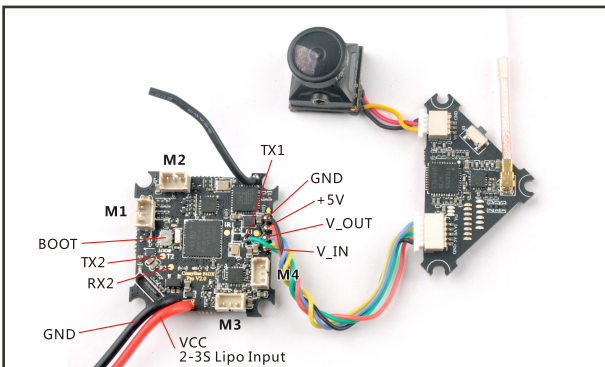
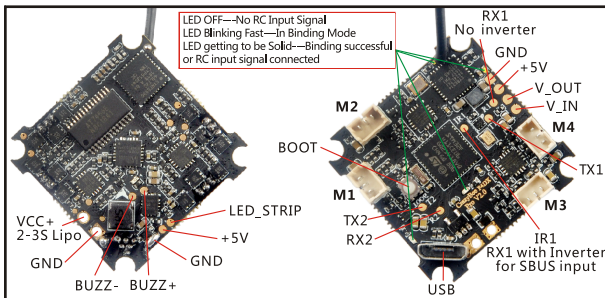
Specifications

Brand Name: URUAV
Item Name: UR85 2-3S 85mm Brushless whoop drone
Wheelbase: 85mm
Size: 112mm*112mm*60mm
Weight: 43g(without battery)
Weight:68g(with Original 3s 300mah Lipo battery)

Package includes:

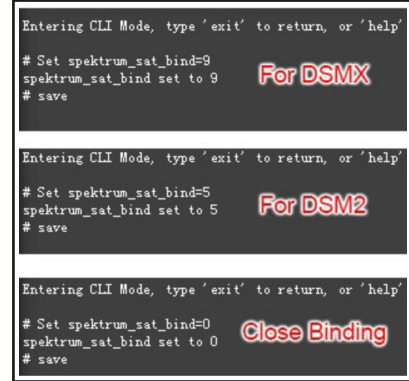
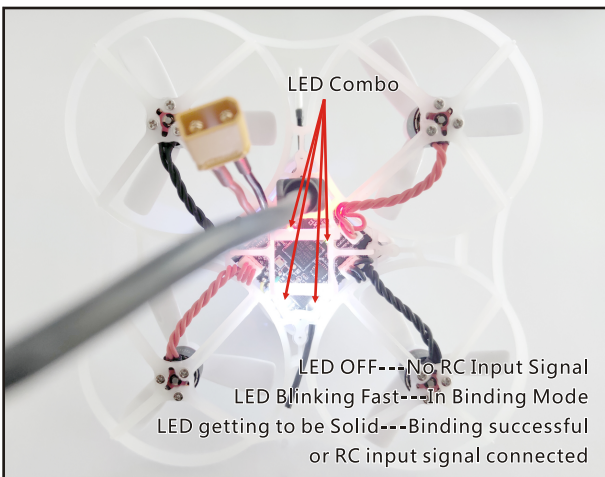
Item Name	Qty
UR85 85mm Frame	1
Option1: Crazybee F4FR V2.0 PRO FC built-in Frsky NON-EU RX	1
Option2: Crazybee F4FS V2.0 PRO FC built-in Flysky RX	
Option3: Crazybee F4DX PRO FC built-in Serial-bus DSM2/DSMX RX	
Option4: Crazybee F4 V2.0 PRO FC no RX verion	
0805 KV9000 Motor	4
1.9inch propeller(4cw+4ccw)	1
Caddx EOS2	1
5.8G 40ch 25mw-200mw VTX	1
3S 11.4v 300mah 40C/80C battery	1
Propeller disassemble tool	1
Screwdriver	1

Flight controller connection diagram



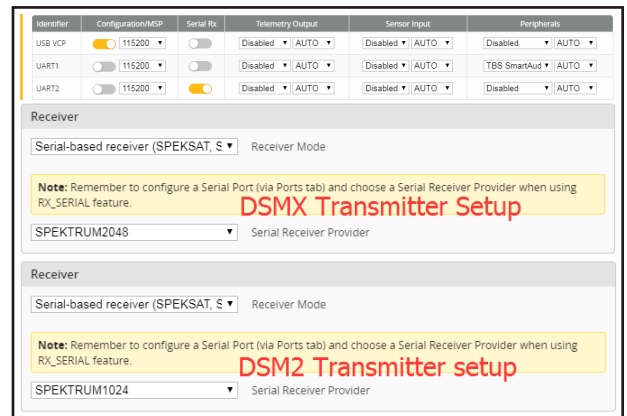
Binding procedure

- (1)Connect Crazybee F4 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.



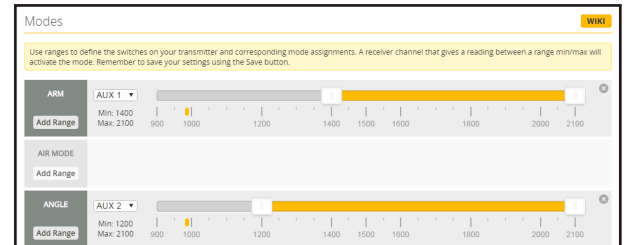
Receiver configuration

We have configured the DSM2/DSMX receiver for the UR85 before shipping. If you flashed the firmware ,Please setup as the following steps: Enable Serial_RX for UART2, 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 UR85 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.

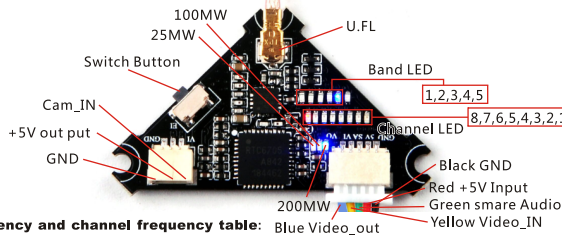


- 3.The default channel map for UR85 DSM2/X version is TAER1234, please make sure your transmitter is matched, otherwise it will can't be armed. Toggle the AUX1 Switch ,the Green LED on the flight controller will getting to be solid, this indicates the motor was armed . And also you can found "Armed" displayed on your FPV Goggles or the FPV Monitor. Please make sure keep the UR85 level before arming .Be careful and enjoy your flight now !



VTX Bands and Channels setup

Blue LED5 and Red LED8 light on, indicating frequency
5917MHZ (BAND5 and CH8)
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(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 3 ways to switch the vtx channels:

1. Long press the switch button to change the Band of the VTX, shorter press the switch button to change the channels of the VTX.

(Can't save it, it will lost the channel while re-power for the UR85 since the Smartaudio function enabled)

2. Go to Betaflight CLI, type the command:

Set vtx_band=3

Set vtx_channel=1

Set vtx_freq=5705

save

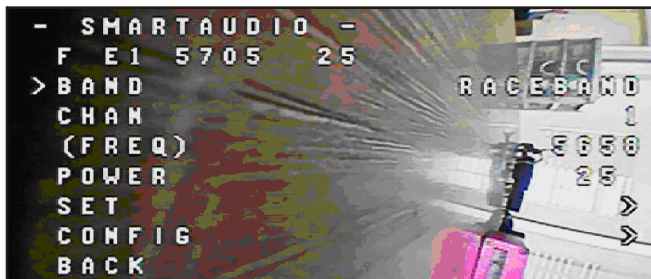
Notes: The vtx_freq should match the vtx_band and vtx_channel as the VTX Channel list shows.

For example, if you set vtx_freq=5732, you should set vtx_band=5 and vtx_channel=3

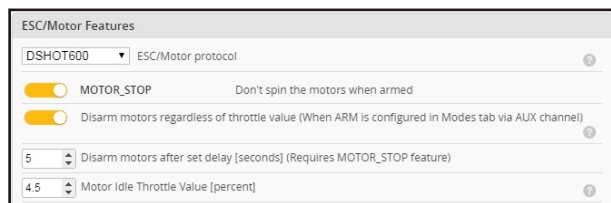
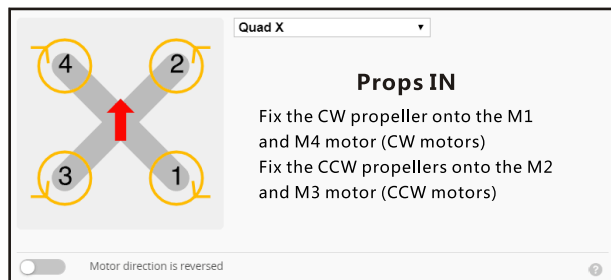
3. Enable Smartaudio for UART1, then move the stick of the transmitter (THR MID+YAW LEFT

+ PITCH UP) to enter OSD Menu, Enter to Features, then enter to VTX SA to set VTX Band and channel

Identifier	Configurations/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200	Disabled	AUTO	Disabled	AUTO
UART1	115200	Disabled	AUTO	Disabled	TBS SmartAud
UART2	115200	Enabled	Disabled	AUTO	Disabled



Mixer type and ESC/motor protocol



Default PID setting

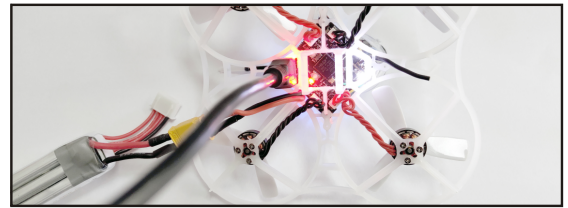
	Proportion	Integral	Derivative	Feedforward	RC Rate	Super Rate	Max Vel [deg/s]	RC Expo
Basic/Acro								
ROLL	50	45	27	60	1.00	0.75	800	0.23
PITCH	50	50	30	60	1.00	0.75	800	0.23
YAW	72	55	0	100	1.00	0.70	667	0.00

ESC Check and Flash firmware

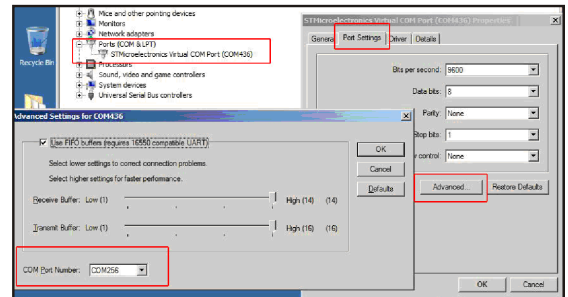
1. Download New release BLHeliSuite from:

<https://www.mediafire.com/folder/dx6kfaasyo241/BLHeliSuite>

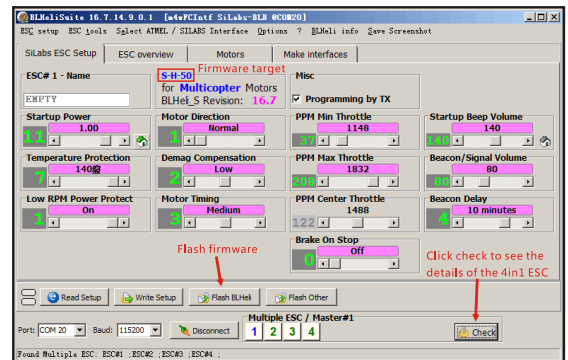
2. Connect the Crazybee F4 PRO flight controller to computer and power for it with battery



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>

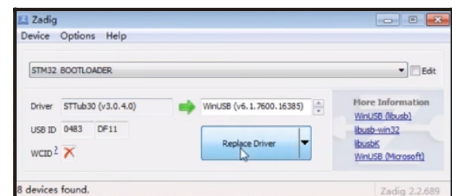
2. Install STM BOOTLOAD Driver (STM Device in DFU MODE)

3. Open Betaflight configurator and choose firmware target "CrazybeeF4DX", 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 betafight 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.



Notes:

1. Add external Sbus RX, Disable serial_rx for UART2 --- Connect SBUS wire to the IRX1 pad --- Enable Serial RX for UART1 --- Choose serial_based receiver and Sbus protocol --- TX2 could use for Smartaudio if Serial_rx was disabled for UART2