

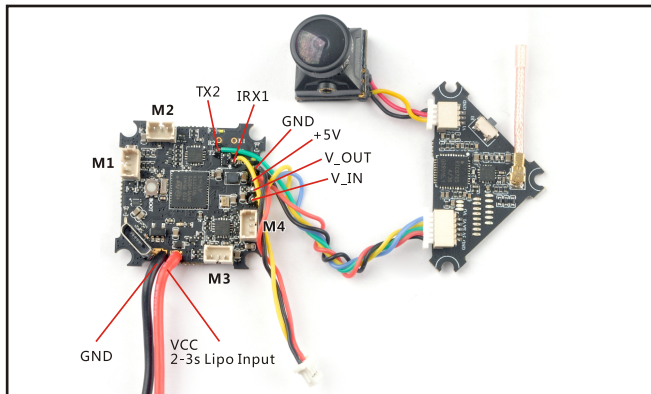
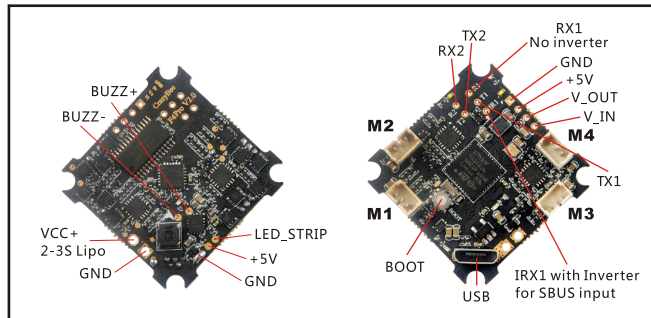
## Specifications

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 version	
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



## Receiver configuration

1.Connect your Serial-based receiver to the Crazybee F4 PRO flight controller according to the following connection diagram table

	XM/XM+ /FHSS/FD800 RX	Fli10/Flit14/Flit14+/SP09X RX	TBS Crossfire Nano
Crazybee F4 PRO			
R1(RX1 No inverter)		IBUS/DSM2/DSMX	
IR1(RX1 With inverter)	SBUS		
+5V	+5V	+5V	+5V
GND	GND	GND	GND
TX1			Smart audio control (VTX support)
TX2	Smart audio control (VTX support)	Smart audio control (VTX support)	RX
RX2			TX

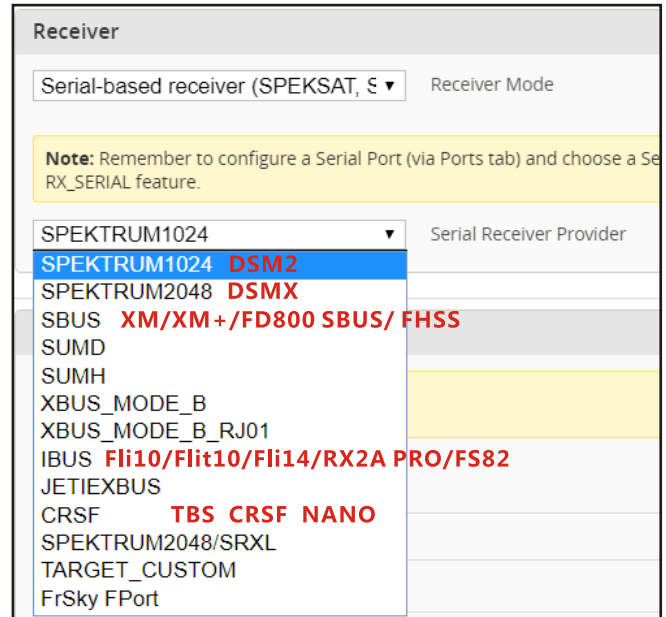
2.Enable Serial RX for UART1 ( Sbus/IBUS/DSM2/DSMX receiver ) or Serial RX for UART2(TBS crossfire Nano receiver) , then choose the correct serial Receiver provider based on the protocol of your receiver

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200	Disabled	Disabled	Disabled	Disabled
UART1	115200	Disabled	Disabled	Disabled	TBS SmartAuc
UART2	115200	Disabled	Disabled	Disabled	Disabled

SBUS signal connect to IR1 pad and enable Serial\_RX for UART1  
IBUS/DSM2/DSMX signal connect to R1 pad and enable Serial\_RX for UART1

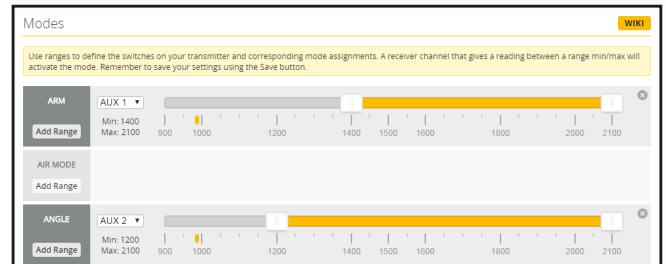
Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200	Disabled	Disabled	Disabled	Disabled
UART1	115200	Disabled	Disabled	Disabled	TBS SmartAuc
UART2	115200	Disabled	Disabled	Disabled	Disabled

TBS CRSF NANO connect CH1(TX) to RX2 and CH2(RX) TO TX2 (Make sure telemetry in the configure is enable)



## Arm/Disarm the Motor Use frsky x9d as an example

1. The Default Arm/Disarm switch for UR85 is AUX1(Channel 5),and you can also customize it with Betaflight Configurator.



2.Turn on the Frsky transmitter (Use X9D+ as an example) and move to the MIXER interface, Set "SA" or "SB" switch etc. for Ch5 to ARM/DISARM the motor.

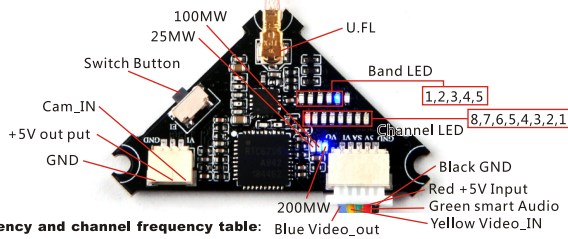


3.The default channel map for UR85 PNP version is TAER1234, please make sure your transmitter is matched, otherwise it will can't be armed. Toggle the AUX1 Switch ,the Green LED on the flight controller will getting to be solid, this indicates the motor was armed . And also you can found "Armed" displayed 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	5645M	5625M	5605M	5585M	5565M	
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:

- 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 will lost the channel while re-power for the UR85 since the Smartaudio function enabled)

- 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.

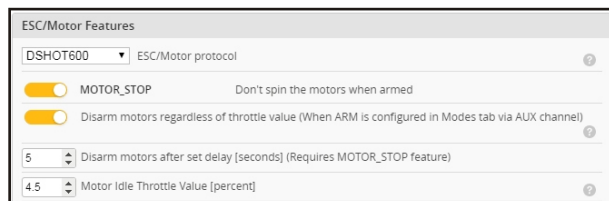
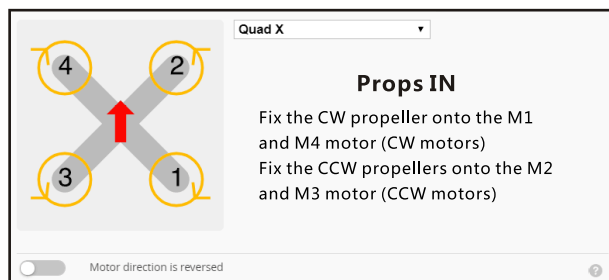
For example, if you set vtx\_freq=5732, you should set vtx\_band=5 and vtx\_channel=3

- 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
UART1	115200	Disabled	Disabled	Disabled	Disabled
UART2	115200	Disabled	Disabled	Disabled	TBS SmartAudio



## Mixer type and ESC/motor protocol



## Default PID setting

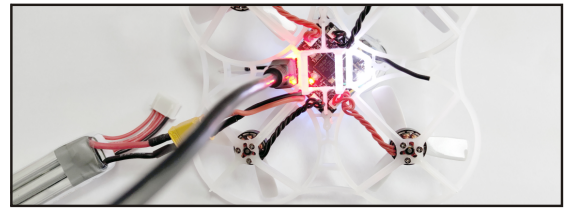
	Proportional	Integral	Derivative	Feedforward	RC Rate	Super Rate	Max Vel [deg/s]	RC Expo
Basic/Acro								
ROLL	50	45	27	60	1.00	0.75	800	0.23
PITCH	50	50	30	60	1.00	0.75	800	0.23
YAW	72	55	0	100	1.00	0.70	667	0.00

## ESC Check and Flash firmware

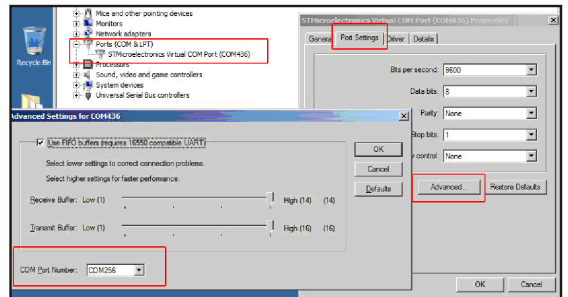
- Download New release BLHeliSuite from:

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

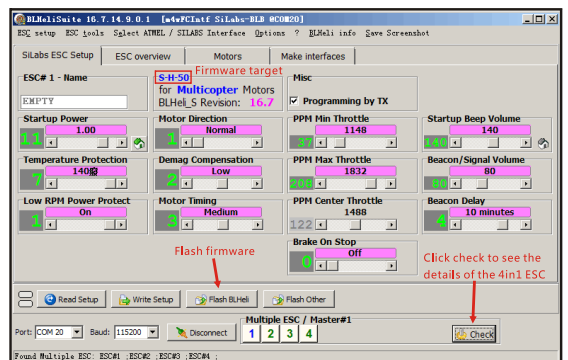
- Connect the Crazybee F4 PRO flight controller to computer and power for it with battery



- 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:

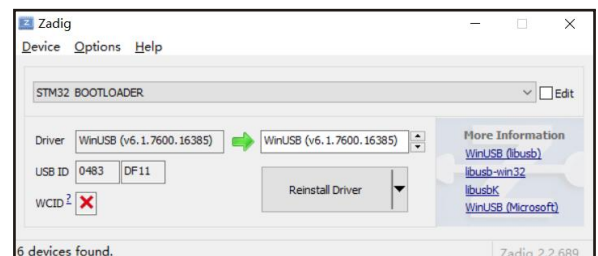


- Open the BLHELISUITE, Select SILABS BLHeli Bootloader (Cleanflight) from the third tab on the top side. Then Select the right Serial com port and Click connect. You can also Flash the new release BLHeli\_s firmware via the BLHELISUITE, the firmware Target is "S-H-50"



## Flight controller firmware update

- Install latest STM32 Virtual COM Port Driver  
<http://www.st.com/web/en/catalog/tools/PF257938>
- Install STM BOOTLOAD Driver (STM Device in DFU MODE)
- Open Betaflight configurator and choose firmware target "CrazybeeF4DX", then select the firmware version.
- 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.
- Open Zadig tools to replace the drivers from STM32 Bootloader to WINUSB Driver.
- 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.

