

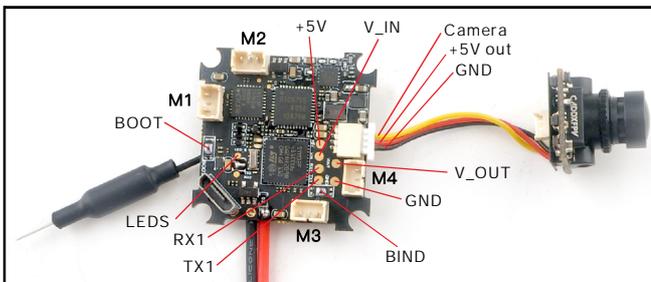
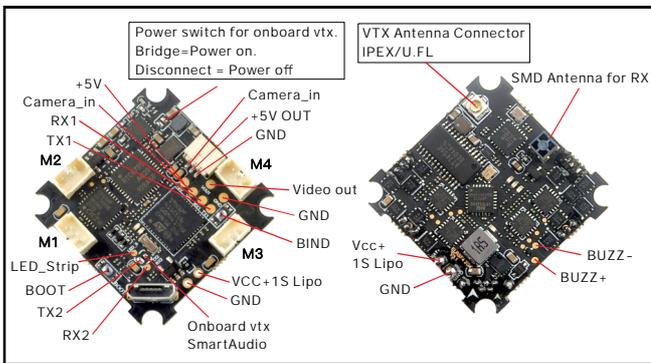
Features
40gram 1s brushless Toothpick drone
AIO Flight controller with ELRS Receiver and 5.8G VTX
CADDX ANT Camera
New 1202.5 KV11500 brushless motor
Recommend to use 1s 450mah/650mah/660mah/720mah battery
Compatible with CaddxFPV Peanut and Insta360 GO2
Carrying Caddxfpv peanut Got 4.5 minutes flying time with 1s 650mah battery

Specifications
Brand Name: Happymodel
Item Name: Crux3 1S ELRS
Wheelbase: 115mm
Size: 97mmx97mmx35mm (without propellers)
Weight: 40g(without battery)

Package includes

Item Name	Qty
Crux3 Frame and canopy	1
ELRS F4 2G4 flight controller built-in SPI ExpressLRS 2.4G receiver	1
Happymodel EX1202.5 KV11500 brushless motor	4
Gemfan 75mm bi-blade Propellers(4cw+4ccw)	1
Caddx Ant 1200TVL Global WDR with OSD 2g Ultra Light Nano FPV Camera	1
5.8G 25mw-400mw 48ch vtx (Flight controller built-in)	1
Screw Driver	1
Propeller disassemble tool	1
3D Printed canopy for Insta360 GO2 and CaddxFPV Peanut	
Happymodel Handbag	1

Flight controller connection diagram



Binding procedure

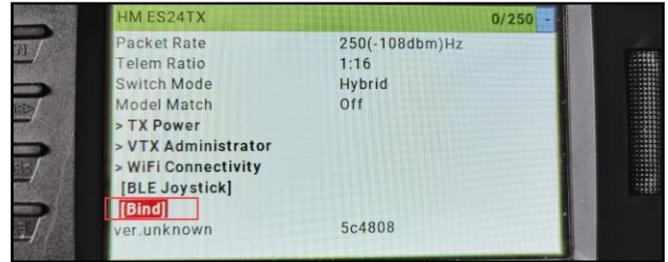
1.Plug USB to the flight controller and connect to Betaflight configurator.
Go to the CLI command tab from Betaflight configurator then type "bind_rx" or
Go to Receiver tab from Betaflight configurator then hit "Bind Receiver",
the red LED on the flight controller will blinking fast ,that means the receiver is in bind mode.

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Entering CLI Mode, type 'exit' to return, or 'help'
#
# Building AutoComplete Cache ... Done!
#
# bind_rx
Binding...
    
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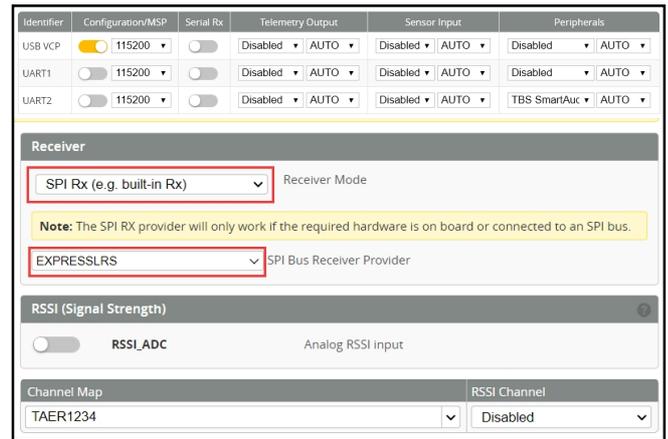
Threshold	Stick Center	'Stick High' Threshold
1050	1500	1900
nd	Yaw Deadband	3D Throttle Deadband
0	0	50
<input type="button" value="Bind Receiver"/> <input type="button" value="Refresh"/> <input type="button" value="Save"/>		

2. Turn on your radio transmitter and running ELRS.LUA v2 version, scroll down the menu and hit [Bind]. The Red LED on the flight controller would get to be solid first and then start to blinking slowly. It means bind successfully. Reconnect the USB and then you will find link was established.



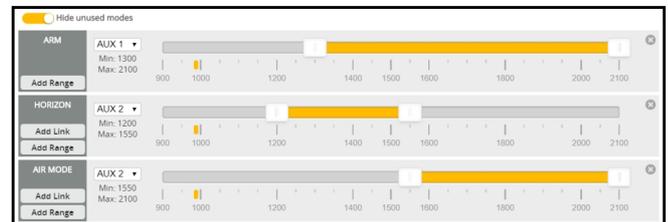
Receiver configuration

Please set Receiver mode to be SPI RX Support from the Configuration tab of the Betaflight Configurator, then select EXPRESSLRS from the SPI Bus Receiver Provider list. Don't enable Serial RX since the CRAZYBEE Flight controller is integrated SPI BUS Receiver.

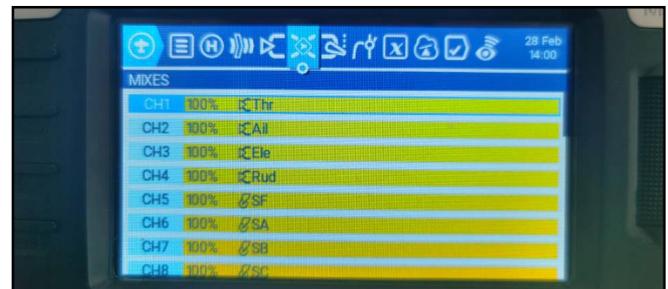


Arm/Disarm the Motor

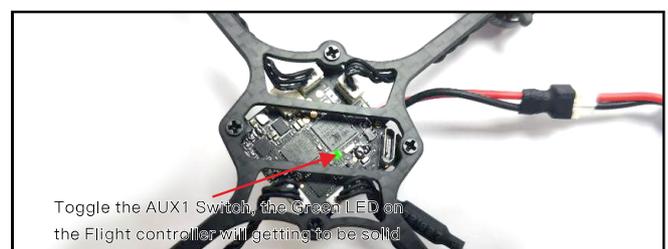
1. The Default Arm/Disarm switch for Crux3 is AUX1(Channel 5),and you can also customize it with Betaflight Configurator.



2. Turn on the Radio transmitter with ELRS TX module installed(Use TX16S as an example) and move to the MIXES interface, Set CH5 channel to "SF" or other aux channel to ARM/DISARM the motor



3.The default channel map for Crux3 ELRS version is TAER1234. Please make sure your transmitter is matched, otherwise it wouldn'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" notice displayed on your FPV Goggles or the FPV Monitor. Please make sure keep the Crux3 level before arming . Be careful and Happy flying !



VTX Bands and Channels setup

Name	Letter	Factory	1	2	3	4	5	6	7	8	Band
BOSCAM_A	A	5865	5845	5825	5805	5785	5765	5745	5725		Band 1
BOSCAM_B	B	5733	5752	5771	5790	5809	5828	5847	5866		Band 2
BOSCAM_E	E	5705	5685	5665	5645	5625	5605	5585	5565		Band 3
FATSHARK	F	5740	5760	5780	5800	5820	5840	5860	5880		Band 4
RACEBAND	R	5658	5695	5732	5769	5806	5843	5880	5917		Band 5
LOWRACE	L	5333	5373	5413	5453	5493	5533	5573	5613		Band 6

1	2	3	4	5	Value
10	2	14	20	26	
0	RCE	25	100	400	Label

There are 2 ways to switch the vtx channels:

- 1.If we need to use Channel 5769 then we should Go to Betaflight CLI,type the command:
Set VTX_band=5
Set VTX_channel=4
save

- 2.Disarm the Crux3 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

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



Mixer

Quad X

Props Out

Fix the CW propeller onto the M2 and M3 motor (CW motors)
Fix the CCW propellers onto the M1 and M4 motor (CCW motors)

Motor direction is reversed:

Current meter settings

Amperage Meter

Warning: Values limited to 63.5A.

Battery: 0.00 A

Scale [1/10th mV/A]: 1175

Offset [mA]: 0

Default PID setting

	Proportional	Integral	D Max	Derivative	Feedforward
ROLL	85	100	85	0	140
PITCH	80	100	85	0	140
YAW	120	100	0	0	140

Mode:	OFF	Low	Default	High
Damping: D Gains	1			
Tracking: P & I Gains	1			
Stick Response: FF Gains	1			
Dynamic Damping: D Max	1			
Drift - Wobble: I Gains	1			
Pitch Damping: Pitch:Roll D	1			
Pitch Tracking: Pitch:Roll P, I & FF	1			
Master Multiplier:	1			

ESC Check and Flash firmware

- 1.Download New release BLHeliSuite from:
<https://www.mediafire.com/folder/dx6kfaa5024/BLHeliSuite>
- 2.Plug the usb and connect the flight controller to computer then connect battery for Crux3 1S ELRS

- 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 :



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- 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 go to Firmware flasher then choose Load firmware[Local]
 4. There are 2 ways to get in DFU Mode: 1). Press boot button 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.
- As Betaflight has not yet released the official version for CRAZYBEEF4SX1280, you can download the firmware from our website , the target CRAZYBEEF4SX1280 would included in the next official release .