

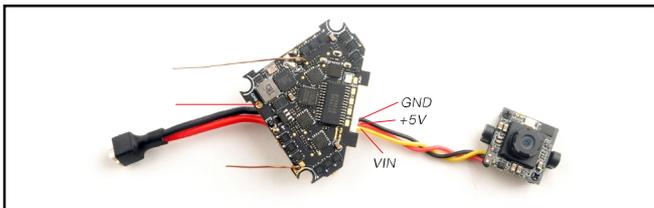
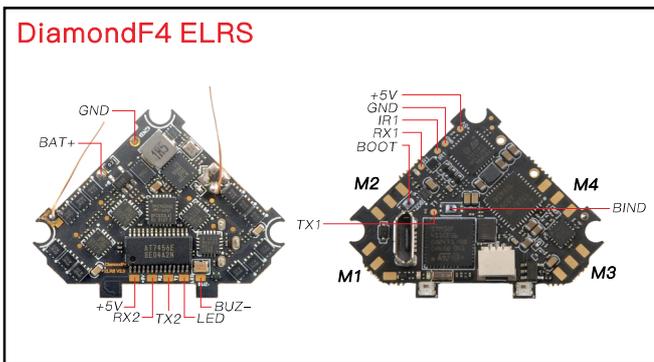
Features
The lightest 1S Whoop and Toothpick 2-IN-1 fpv drone
Comes with toothpick frame for convert
Powerful and efficiency
The lightest 1s AIO 5IN1 F4 flight controller
New Unibell SE0702 brushless motors with pcb wire board
Built-in OPENVTX up to 400mw
Low profile Canopy design

Specifications
Brand Name: Happymodel
Item Name: Mobeetle6 whoop and toothpick 2-IN-1 FPV Racer Drone
Wheelbase: 65mm
Size: 80mm*80mm*30mm
Weight: 17.5g (without battery)

**Package Includes**

Item Name	Qty
65mm whoop Frame (Mobula6 frame)	1
65mm toothpick frame(Mobeetle6 frame)	1
Option1: DiamondF4 ELRS built-in SPI ELRS receiver	1
Option2: DiamondF4 FR built-in SPI FRSKY receiver	
SE0702 KV23000 Unibell brushless motor	4
Gemfan 1210 31mm propeller(4cw+4ccw)	1
Runcam Nano3	1
Built-in 5.8G 48ch 25mw - 400mw OPENVTX	1
1S 300mah Lipo battery	2
Mobula6 canopy	1
Propeller disassemble tool	1
Screwdriver	1
1S USB charger	1

**Flight controller connection diagram**



**Binding procedure**

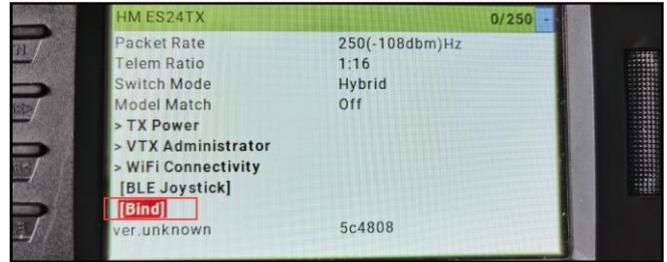
1.Plug USB to the flight controller and connect to Betaflight configurator. Go to the CLI command tab from Betaflight configurator then type "bind\_rx" or Go to Receiver tab from Betaflight configurator then hit "Bind Receiver", the red LED on the flight controller will be blinking fast ,that means the 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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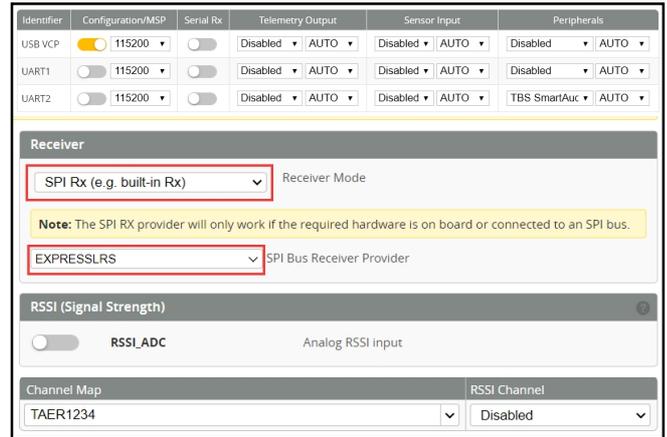
Threshold	Stick Center	'Stick High' Threshold
1050	1500	1900
bind	Yaw Deadband	3D Throttle Deadband
0	0	50
<input type="button" value="Bind Receiver"/> <input type="button" value="Refresh"/> <input type="button" value="Save"/>		

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.



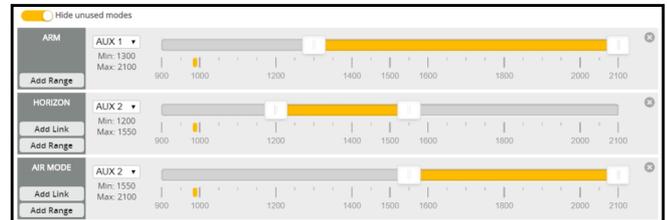
**Receiver configuration**

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 DiamondF4 Flight controller is integrated SPI BUS Receiver.

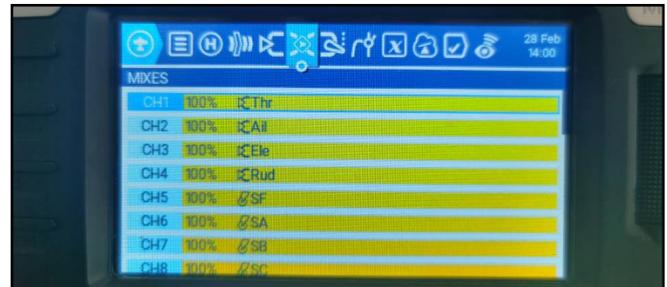


**Arm/Disarm the Motor**

1. The Default Arm/Disarm switch for Mobeetle6 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 Mobeetle6 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 Mobeetle6 level before arming . Be careful and Happy flying !



**VTX Bands and Channels setup**

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 Mobeul6 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 type and ESC/motor protocol**
**Default PID settings for Betaflight 4.3.0**
**ESC Check and Flash firmware**

1.Download New release BLHeli suite from:

<https://www.mediafire.com/folder/dx6kfaasyo24l/BLHeliSuite>

2.Plug the usb and connect the flight controller to computer then plug 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 "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 choose firmware target "CRAZYBEEF4SX1280",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.

**"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.

The default Switch for Activate "Flip" is AUX3(Channel7)

