Happymodel

Features

| |
|---|
| Toothpick HD and Whoop HD 2 in 1 combo (Default Comes in Toothpick HD style) |
| Toothpick style compatible both 2.5inch or 3inch propellers |
| New design EX1203 High efficiency brushless motors |
| Caddx baby Turtle provide 1080P 60FPS DVR video |
| Camera Angle adjustable |
| Full range receiver options |
| Buzzer ready |
| Smooth and powerful |
| Compatible both for 2s-3s Lipo/LIHV |

Specifications

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|---|
| Brand Name: Happymodel |
| Item Name: Larva-X HD Micro FPV brushless Drone |
| Wheelbase: 125mm |
| Size: 105mm*105mm*35mm(without propellers) |
| Weight: Toothpick style ductless 63g (without battery) |
| Whoop style ducted 79g (without battery) |
| Receiver options: |
| Frsky SPI receiver |
| Flysky SPI receiver |
| DSM2/DSMX compatible receiver |
| Frsky XM+ receiver |
| Frsky R-XSR receiver |
| TBS Nano CRSF receiver |

Package includes

Item Name	Qty
Larva-X HD frame (with Toothpick style canopy and Whoop style canopy)	1
Whoop duct for Larva-X HD	4
SPI Receiver Option1: Crazybee F4FR V3.0 PRO FC built-in Frsky SPI D8 RX	1
SPI Receiver Option2: Crazybee F4FS V3.0 PRO FC built-in Flysky SPI RX	
Receiver Option3: Crazybee F4 V3.0 PRO FC with external DSM2/DSMX RX	
Receiver Option4: Crazybee F4 V3.0 PRO FC with external Frsky XM+ receiver	
Receiver Option5: Crazybee F4 V3.0 PRO FC with external Frsky RXSR receiver	
Receiver Option6: Crazybee F4 V3.0 PRO FC with external TBS Crossfire Nano RX	
EX1203 KV6200 brushless motors	4
Propeller sets	1
CADDX Baby turtle	1
VTX 5.8g 25mw~200mw switchable	1
3S 11.1v 450mah 75c Li-po battery	2
5.8g Micro UXII antenna	1
Propeller disassemble tool	1

Flight controller connection diagram
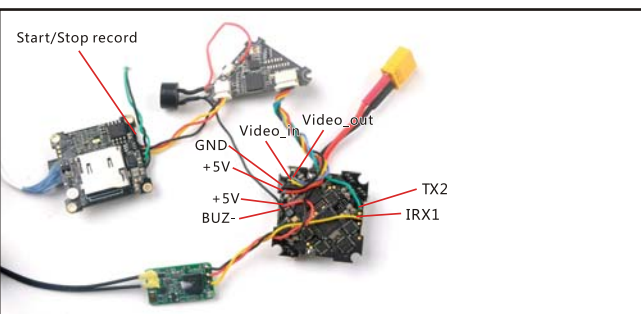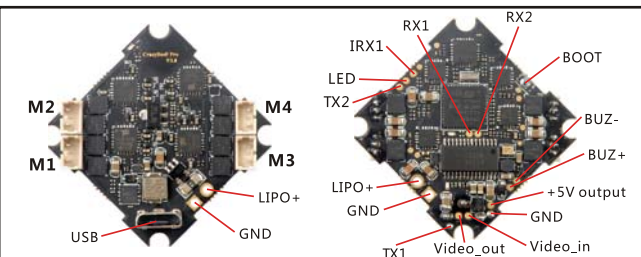

Binding procedure

1.Press and hold the bind button then plug the USB, the, Red and Green LED will getting to be solid , this indicate the XM+ receiver is in bind mode .
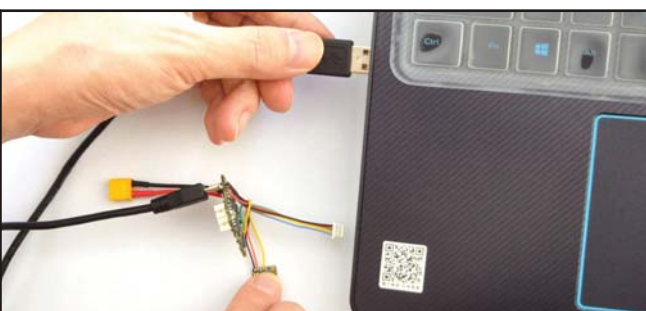
2.Then Turn on your Frsky transmitter and move to bind option from SETUP MENU, choose receiver mode "D16"

3.ENT [bind] to binding with the XM+ receiver , then the red LED on the XM+ receiver starting to blinking slowly ,this indicates the bind is successfully . Exit the bind mode for the transmitter and repower for the XM+ receiver . Then the green LED getting to solid ,this indicates the receiver and the transmitter works normal
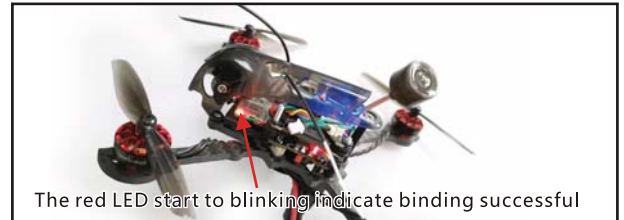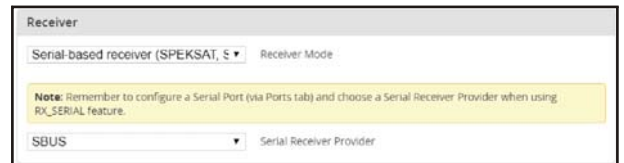

The red LED start to blinking indicate binding successful

Receiver configuration

1.Soldering the SBUS_OUT pad of the XM+ receiver to IRX1 pad of the Crazybee F4 PRO V3.0 Flight controller . Enable Serial RX for UART1
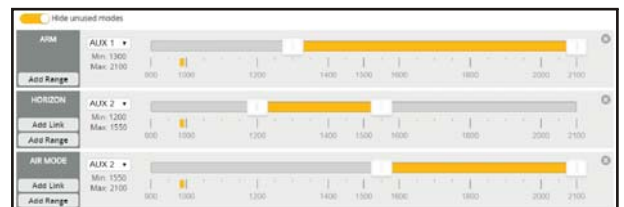

2.Select Serial-based receiver for the receiver mode and SBUS for the Serial Receiver provider

Arm/Disarm the Motor

1. The Default Arm/Disarm switch for Larva X HD 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 Larva X HD Frsky 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 Larva X HD level before arming .Be careful and enjoy your flight now !

Toggle the AUX1 Switch, the Green LED on the Flight controller will getting to be solid

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)

100MW
25MW
BUZZ+
Switch Button
GND
Cam_IN
+5V out put
GND
200MW
Blue Video_out

U.FL
Band LED
1,2,3,4,5
8,7,6,5,4,3,2,1
Channel LED
Black GND
Red +5V Input
Green smare Audio
Yellow Video_IN
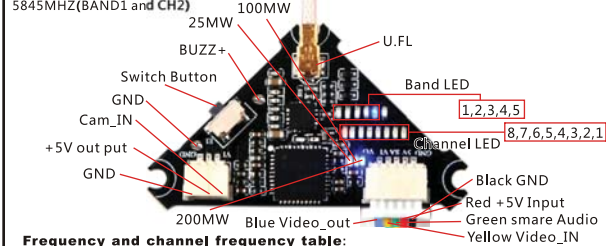
Frequency and channel frequency table:

FR \ CH	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Band1	5865M	5845M	5825M	5805M	5785M	5765M	5745M	5725M
Band2	5733M	5752M	5771M	5790M	5809M	5828M	5847M	5866M
Band3	5705M	5685M	5665M	5665M	5885M	5905M	5905M	5905M
Band4	5740M	5760M	5780M	5800M	5820M	5840M	5860M	5880M
Band5	5658M	5695M	5732M	5769M	5806M	5843M	5880M	5917M

VTX power set
Go to Betaflight configurator CLI tab,type"set vtx_power=1"to choose
25mw,"set vtx_power=2"to choose 100mw,"set vtx_power=3"to choose
200mw,need to type"save"
There are 3 ways to switch the vtx channels:
1.Short press the switch button to choose the VTX channel,Press and hold the butoon for 2
seconds and release to choose the VTX band(Can't save,it will lost the channel while power off)
2.If we need to use Channel 5705 then we should Go to Betaflight CLI,type the command:
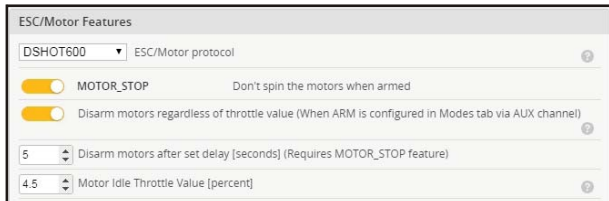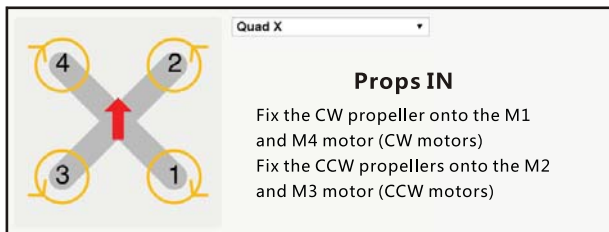Set VTX_band=3
Set VTX_channel=1
save
3.Enable Smaraudio for UART2,then move the stick of the transmitter(THR MID+YAW LEFT
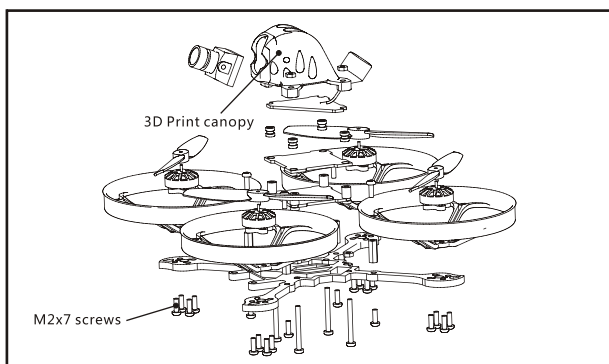+PITCH UP)to enter OSD Menu,Enter to Features,then enter to VTX SA to set VTX Band and channel

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200		Disabled · AUTO ·	Disabled · AUTO ·	Disabled · AUTO ·
UART1	115200		Disabled · AUTO ·	Disabled · AUTO ·	Disabled · AUTO ·
UART2	115200		Disabled · AUTO ·	Disabled · AUTO ·	VTX (TBS Sm · AUTO ·

```
- SMARTAUDIO -
F  E1  5705  25        RACEBAND
>BAND                          1
 CHAN
 (FREQ)                    5658
 POWER                       25
 SET
 CONFIG
 BACK
```

Mixer type and ESC/motor protocol

Quad X

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

ESC/Motor Features

DSHOT600 ▼ ESC/Motor protocol

MOTOR_STOP   Don't spin the motors when armed

Disarm motors regardless of throttle value (When ARM is configured in Modes tab via AUX channel)

5   Disarm motors after set delay [seconds] (Requires MOTOR_STOP feature)

4.5   Motor Idle Throttle Value [percent]

Whoop mode assemble

3D Print canopy

M2x7 screws

Default PID setting

PID Settings		Filter Settings						
	Proportional	Integral	Derivative	Feedforward	RC Rate	Super Rate	Max Vel [deg/s]	RC Expo
BasicAcro								
ROLL	42	60	40	70	1.00	0.70	667	0.10
PITCH	46	70	38	75		0.70	667	
YAW	60	70	0	0	1.00	0.70	667	0.00

ESC Check and Flash firmware

1.Download New release Blhelisuite from:
https://www.mediafire.com/folder/dx6kfaasyo24l/BLHeliSuite
2.Plug the usb and connect the flight controller to computer

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 bellowing step :
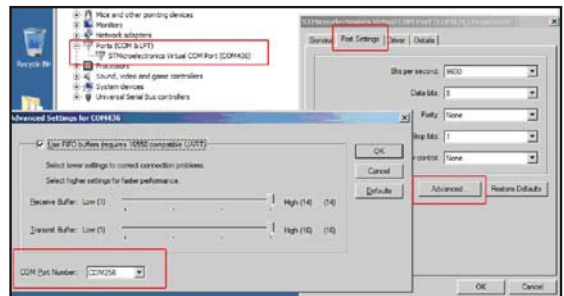
4.Open the BLHELISUITE, Select SILABS BLHeli Bootloader (Cleanflight) from the third tab on
the top side. Then Select the right Serial com port and Click connect. You can also Flash the
new release BLHeli_s firmware via the BLHEILISUITE, the firmware Target is "F-H-40"
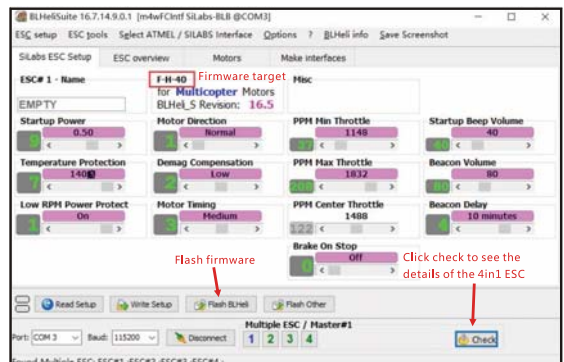
Flight controller firmware update

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 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.