

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

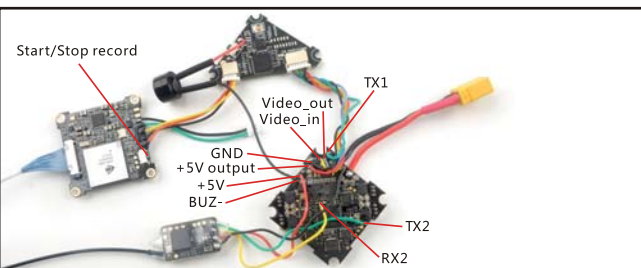
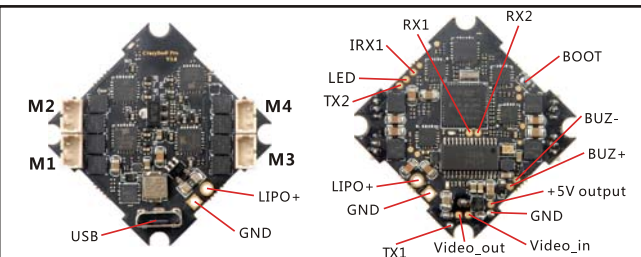
Specifications

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 UXXII antenna	1
Propeller disassemble tool	1

Flight controller connection diagram



Receiver configuration

1. Connect CH1(TX) of the XF Nano receiver to RX2 pad of the Crazybee FC, Connect CH2(RX) of the XF Nano receiver to TX2 pad of the Crazybee FC. Enable Serial RX for Uart2 and Smart audio for UART1

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

2. Choose the receiver mode to Serial-Based receiver and the Serial Receiver Provider is CRSF. Enable telemetry in the Betaflight configurator and set AUX8 for RSSI

Receiver

Serial-based receiver (SPEKSAT, S) Receiver Mode

Note: Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX_SERIAL feature.

CRSF Serial Receiver Provider

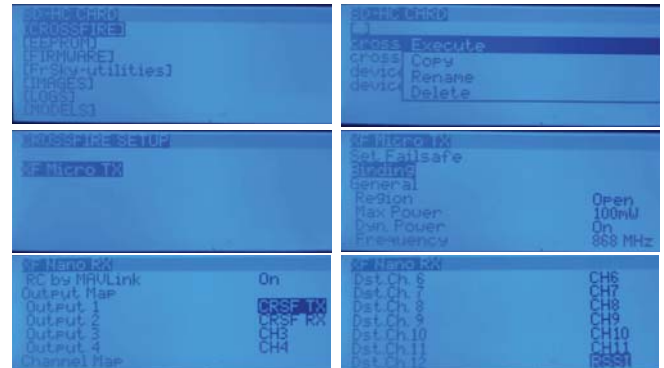
Channel Map RSSI Channel

TAER1234 AUX 8

TELEMETRY Telemetry output

TBS Micro TX configuration

Some TBS TX and RX setting screen shot



TBS CRSF NANO Bind and Setup video <https://www.youtube.com/watch?v=ioDzyV2vGb0>

Binding procedure

Binding the transmitter and receiver is super simple.

- Just power up the TBS CROSSFIRE transmitter
- On the standard transmitter, enter the configuration menu by pressing and holding the joystick for 3 seconds, select "General" and "Binding" - a message "Binding" will start blinking, waiting for the receiver. On the micro transmitter, a short press on the button will initiate binding mode.
- Now, power up the receiver (without pressing the Bind button!), if your receiver has not been previously bound, it will automatically bind. Otherwise, press and release the "BIND" button on the receiver to initiate binding. On the receiver is a timeout of one minute for after power up to enter bind mode. If the status LED will start blinking slowly the receiver has switched successfully to bind mode.
- Within a few seconds the process will finish with a "Binding complete" message on the standard transmitter, or a solid green LED on the micro transmitter. The receiver has now stored the unique serial number of that particular CROSSFIRE transmitter. If it doesn't bind, please verify that your firmware is to the newest version on both the receiver and the transmitter.

Arm/Disarm the Motor Use frsky x9d as an example

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

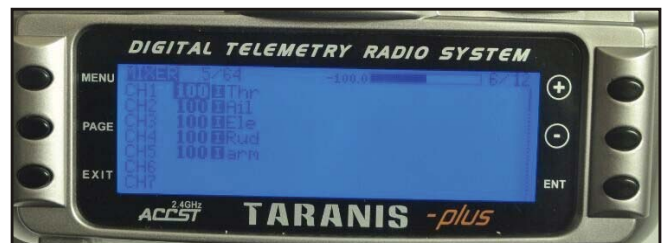
Modes

Use ranges to define the switches on your transmitter and corresponding mode assignments. A receiver channel that gives a reading between a range minimum will activate the mode. Remember to save your settings using the Save button.

ARM AUX 1 Min: 1400 Max: 2100

AIR MODE AUX 2 Min: 1200 Max: 2100

- 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.

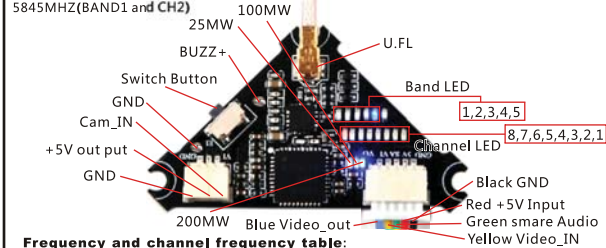


- The default channel map for Larva X HD Crossfire version is TAER1234, please make sure your transmitter is matched, otherwise it will can't be armed. Toggle the AUX1 Switch, the Green LED on the flight controller will getting to be solid, this indicates the motor was armed. And also you can found "Armed" 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!



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		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 button for 2 seconds and release to choose the VTX band (Can't save it, it will be 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

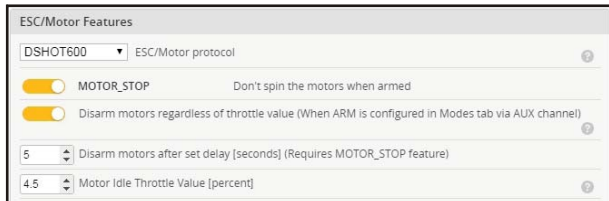
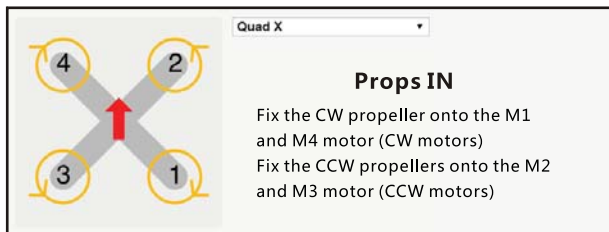
Set VTX_channel=1
save

3. Enable Smaraudio for 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

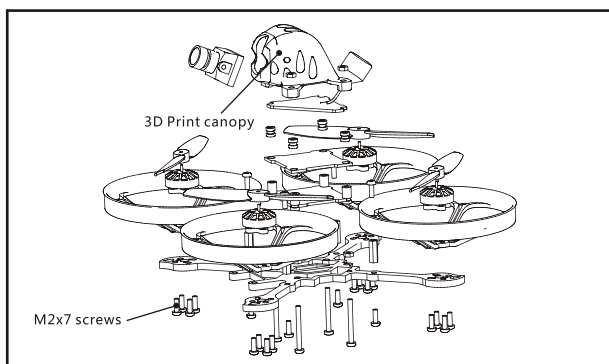
Motor	Configuration/MP	Serial ID	Motor Output	Sensor Input	Peripherals
USB VCP	115200	Disabled	AUTO	Disabled	AUTO
UART1	115200	Disabled	AUTO	Disabled	AUTO
UART2	115200	Disabled	AUTO	Disabled	AUTO



Mixer type and ESC/motor protocol



Whoop mode assemble



Default PID setting

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

ESC Check and Flash firmware

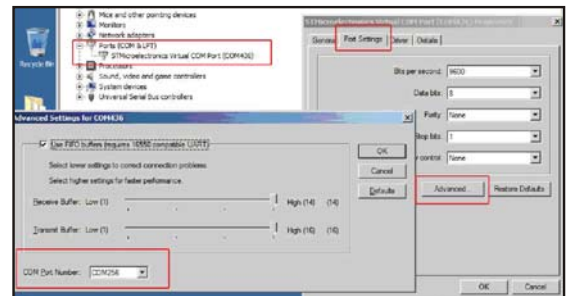
1. Download New release BLHeliSuite from:

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

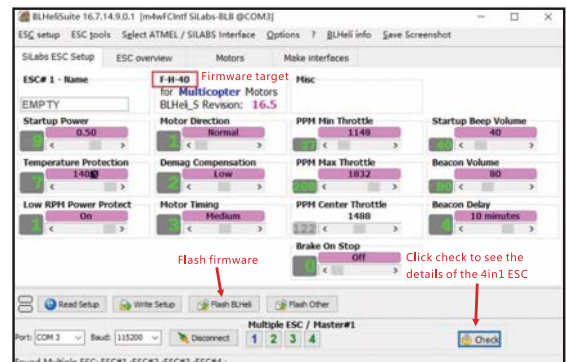
2. Connect the Crazybee F4 PRO flight controller to computer and power for it with battery



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 "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 betafight firmware and hit "flash", then it will get 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.

