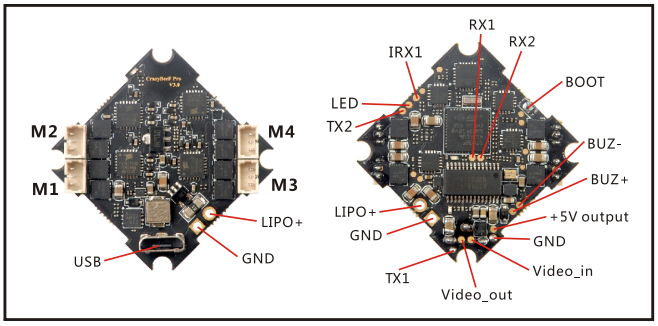
Specifications

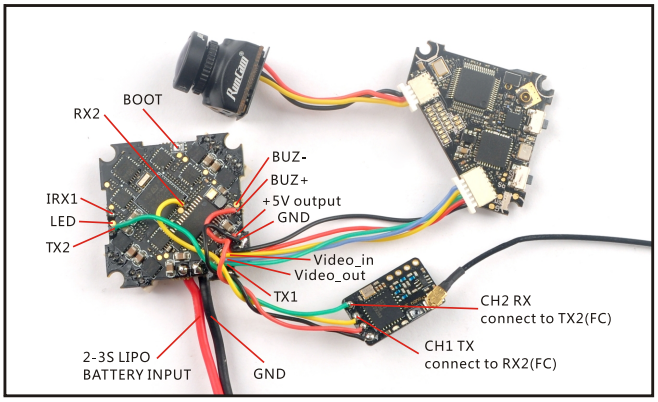
Brand Name:Happymodel
Item Name: Larva X 2-3S 2.5inch Brushless FPV drone
Wheelbase: 100mm
Size: 88mm*88mm*45mm(without propellers)
Weight: 50g(without battery)
Recommended Battery:
3S 300mah/350mah 2S 450mah

Package includes

Item Name	Qty
Larva X frame	1
Option1: Crazybee F4FR V3.0 PRO FC built-in Frsky NON-EU RX	1
Option2: Crazybee F4FS V3.0 PRO FC built-in Flysky RX	
Option3: Crazybee F4 V3.0 PRO FC with external DSM2/DSMX RX	
Option4: Crazybee F4 V3.0 PRO FC with external Frsky RXSR receiver	
Option5: Crazybee F4 V3.0 PRO FC with external TBS Crossfire Nano RX	
1103 KV7000 motor	4
2.5inch tri-blades propeller (4cw+4ccw)	1
Camera : Runcam Nano2	1
VTX: 5.8g 25mw~200mw switchable with 720p DVR (Diamond_vtx)	1
Propeller disassemble tool	1
Screwdriver	1

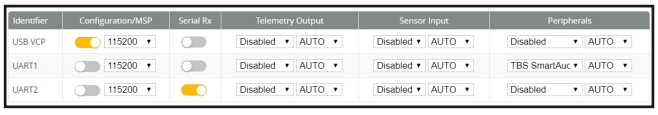
Flight controller connection diagram



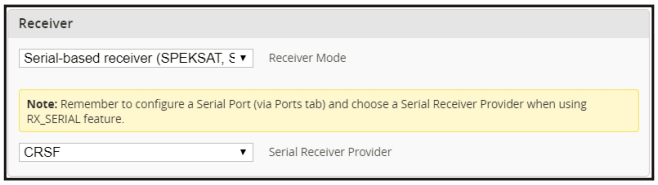


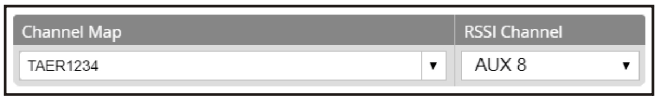
Receiver configuration

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



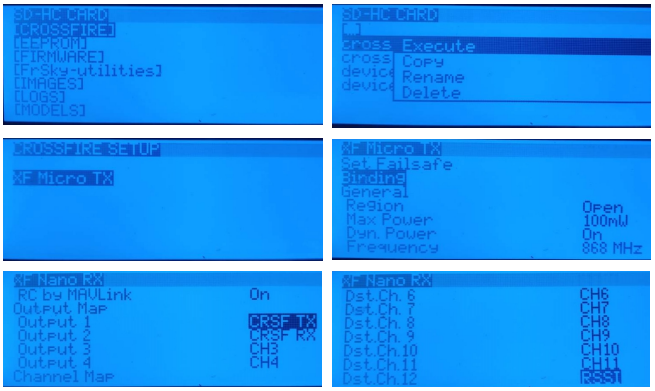
2. Choose the receiver mode to Serial-Based receiver and the Serial Receiver Provider is CRSF. Enable telemetry in the Betaflight configurator and set AUX8 for RSSI





TBS Micro TX configuration

Some TBS TX and RX setting screen shot



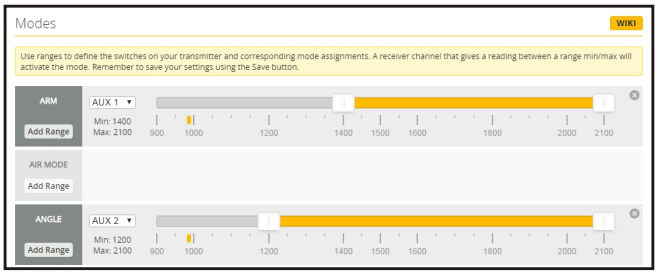
TBS CRSF NANO Bind and Setup video https://www.youtube.com/watch?v=ioDzyV2vGb0

Binding procedure

Binding the transmitter and receiver is super simple.
1. Just power up the TBS CROSSFIRE transmitter
2. 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.
3. 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.
4. 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.

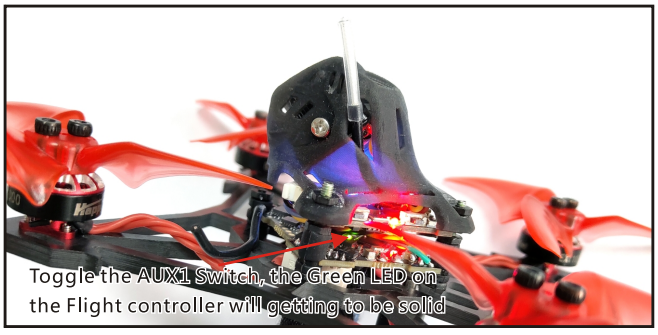
Arm/Disarm the Motor Use frsky x9d as an example

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



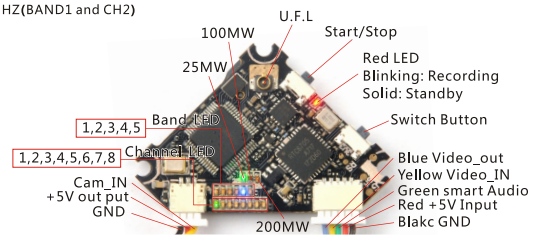
2.Turn on the Frsky transmitter (Use X9D+ as an example) and move to the MIXER interface, Set "SA" or "SB" switch etc. for Ch5 to ARM/DISARM the motor.

3.The default channel map for Larva X 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 level before arming .Be careful and enjoy your flight now !



VTX Bands and Channels setup

Blue LED5 and Green LED8 light on,indicating frequency 5917MHZ(BAND5 and CH8)
Blue LED1 and Green 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	5665M	5885M	5905M	5905M	5905M
Band4(F)	5740M	5760M	5780M	5800M	5820M	5840M	5860M	5880M
Band5(R)	5658M	5695M	5732M	5769M	5806M	5843M	5880M	5917M

The DVR will recording automatically when power on.
Press the start/stop to start or stop recording.

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"

*NOTES:

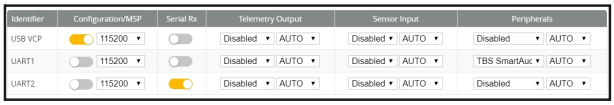
Default VTX setting is 200mw but the VTX power LED indicate will always show 25mw when the quad was disarmed, because we have"set VTX_low_power_disarm=on"

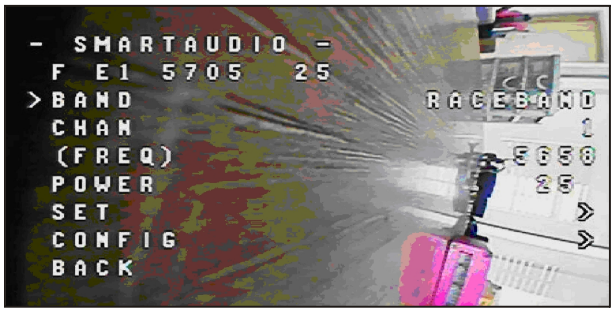
There are 3 ways to switch the vtx channels:

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 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

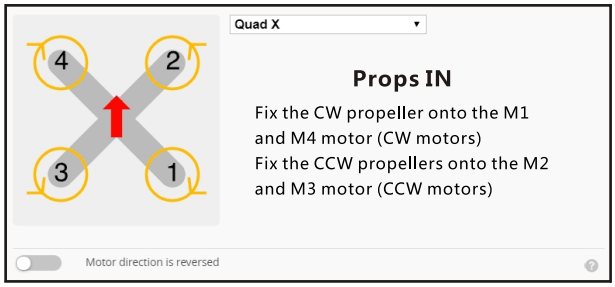


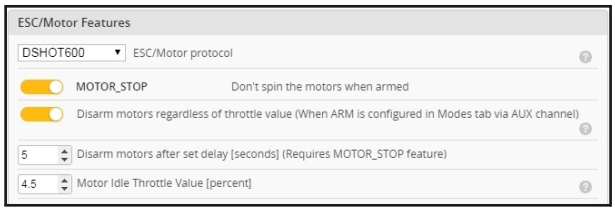


DVR firmware update

Step 1,Download the latest firmware from www.happymodel.cn,extract the CRESFW.BIN to an empty TF-SD card
Step 2,Put the TF-SD card into Diamond VTX,and power on for it,the red LED will starting to flashing,Then waiting to the red LED turn off,this indicates firmware upgrading successfully
Step 3,Important!!!You must power off.the Diamond VTX immediately once the red LED turn off. Don't turn off the power during firmware upgrading,And remember to remove the CRESFW.BIN firmware from TF-SD card after upgrading.

Mixer type and ESC/motor protocol





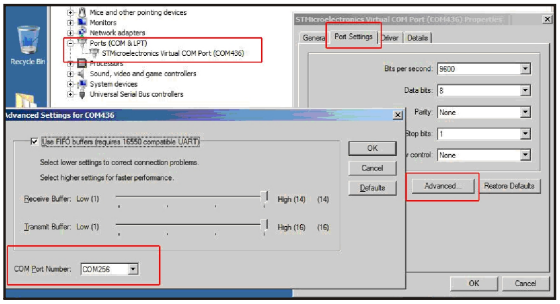
Default PID setting

	Proporti...	Integral	Derivative	Feedfor...	RC Rate	Super Rate	Max Vel [deg/s]	RC Expo
Basic/Acro								
ROLL	40	50	32	60	1.00	0.75	800	0.10
PITCH	42	50	37	60	1.00	0.75	800	0.10
YAW	65	55	0	100	1.00	0.70	667	0.10

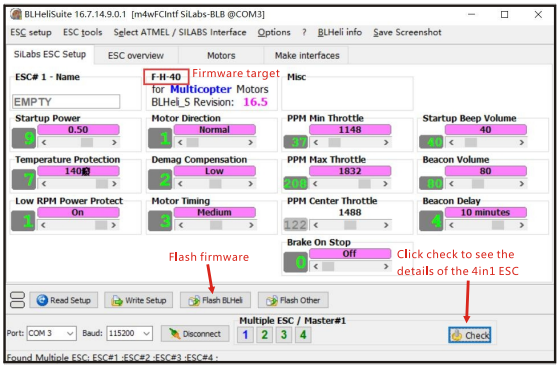
ESC Check and Flash firmware

1.Download New release Blhelisuite from:
https://www.mediafire.com/folder/dx6kfaasyo24l/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 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.