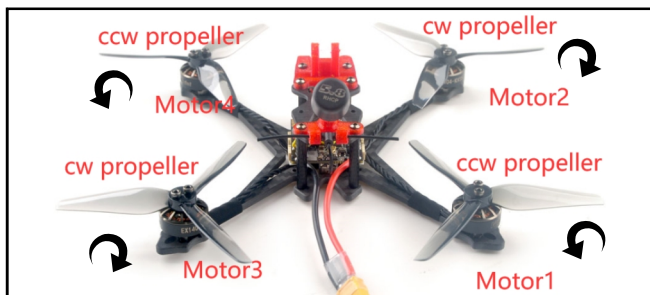


Features			
Ultra-lightweight 3.5-inch BNF FPV Freestyle Drone			
HD video transmission and analog video transmission are optional			
Integrated ExpressLRS UART receiver or Frsky SPI D8/D16 receiver			
High efficiency EX1404 power system			
Can be equipped with Naked Gopro or SMO4K			
Support 3-4S battery 4S 750mah battery is recommended, maximum support 4S 1100mah			
Specifications			
Brand: HappyModel			
Product name: Crux35 / Crux35 HDZERO / Crux35 HD			
Wheelbase: 150mm			
Weight: Crux35 87gram Crux35 HD 108gram			
Size: 130mmx130mmx45mm(without propellers)			
Receiver option: UART ExpressLRS 2.4GHz			
SPI Frsky D8/D16 (S-FHSS compatible)			
Camera and VTX option:			
HD DJI version Nebula+Vista or Runcam Link Wasp Nano			
HDZERO version RunCam Nano HDZero Camera + HDZERO WHOOP VTX			
Analog version Ant+OVX303 or OVX306 VTX			
Flying time: 9min-15min 4s 750mah battery			

Package Includes			
Item Name	Crux35	Crux35 HDZERO	Crux35 HD DJI
Crux35 Frame	1	1	1
Option1: ELRS X1 FC with SPI ELRS (Discontinued)	1	1	1
Option2:CrazyF411 ELRS FC with UART ELRS			
Option3: CrazyF411 FRSKY FC SPI Frsky			
CaddxFPV Nebula Nano Kit Or Runcam Link Wasp Nano	0	0	1
HDZERO Whoop VTX+ Rucam HDZERO Camera	0	1	0
Analog FPV Camera Caddx Ant	1	0	0
OVX303/OVX306 5.8G analog VTX	1	0	0
HappyModel EX1404 Kv3500	4	4	4
HQProp T3.5X2X3Grey (4cw+4ccw)	1	1	1
Screw Driver	1	1	1
Buckle Velcro for battery	1	1	1

1.Install propeller and mount the antenna holder

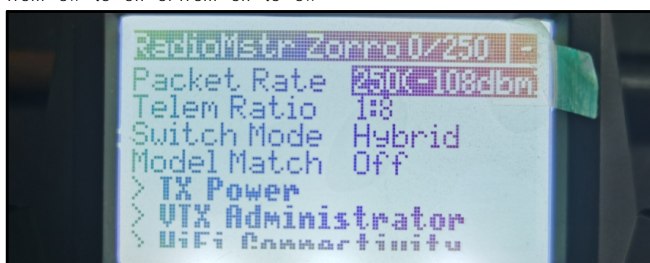
Default Propeller installation of Crux35 was set to be "Prop Out", please install CCW propeller to Motor1 and Motor4 and install CW propeller to Motor2 and Motor3, make sure you have mounted the screws tightly for the propellers.



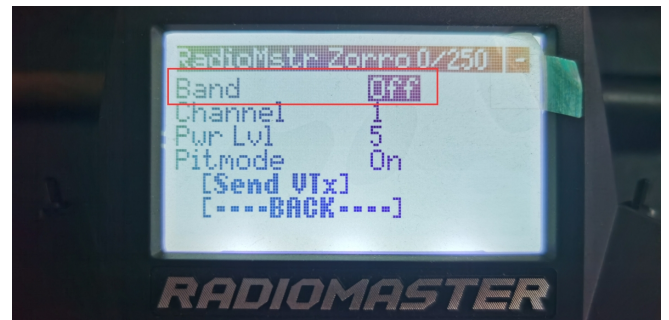
2. Bind procedure

Bind procedure video for your refrence <http://bit.ly/40Kr4H8>

- Supply power to the flight controller by plug USB, wait until the green LED on the FC is off, immediately turn off the power, and then repeat again the above steps. When the FC is powered on for the third time, the green LED light will start to double-flash, which means that the RX enters the binding mode
- Please make sure your ExpressLRS tx module firmware is v3.x.x. And go to ExpressLRS.lua from "TOOLS" menu of your radio transmitter. Then hit [Bind] to binding with the onboard ExpressLRS receiver. The green LED should blinking slowly first then turn to solid, that means binding was successfully. If the green LED still keep double flash after binding ,please change Model Match tab value from "off" to "on" or from "on" to "off"



- Check the receiver channel map and channel value is correct after bind successful.



Make sure the VTX band is "OFF" from the vtx administrator, sometimes it would affect VTX or RX quality .

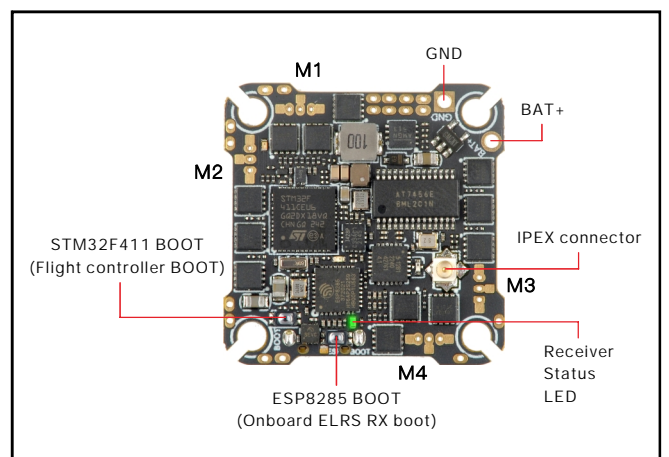
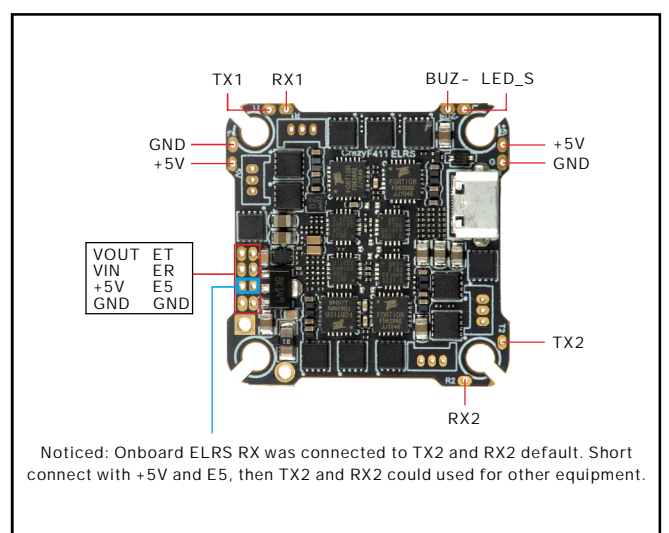
3. Arm/Disarm the Motor

- Turn on your radio transmitter and connect the battery to the Crux35. Then place Crux35 horizontally on the ground. We recommend 4S 750mah or 4S 850mah Li-po battery for Crux35 and Crux35 HD
- Prepare your goggles, and match the channel with the VTX_table

VTX Table		Number of bands 8		Number of channels by band															
Name	Letter	Factory	1	2	3	4	5	6	7	8									
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	5685	5905	5925	5945	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								

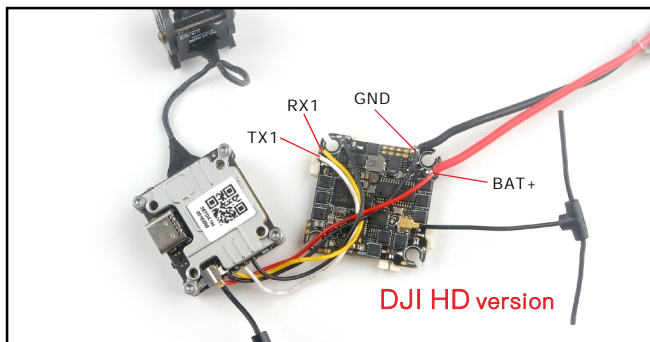
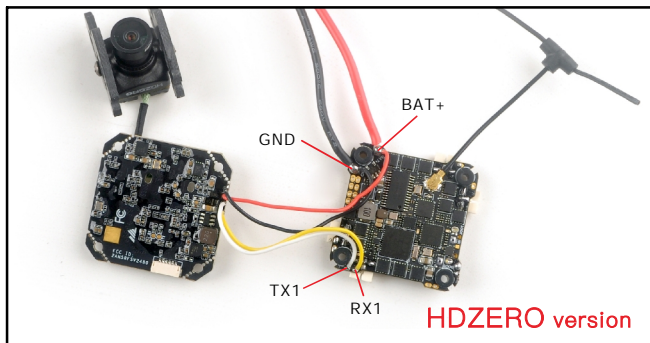
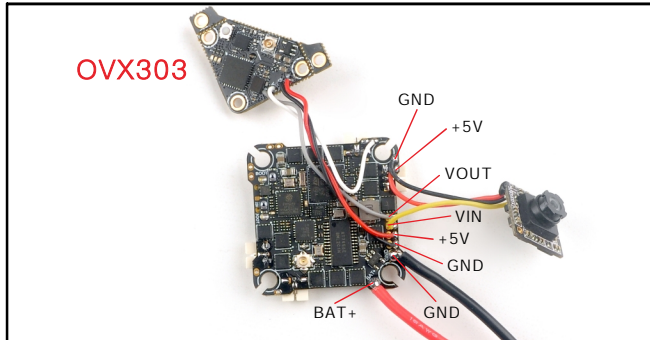
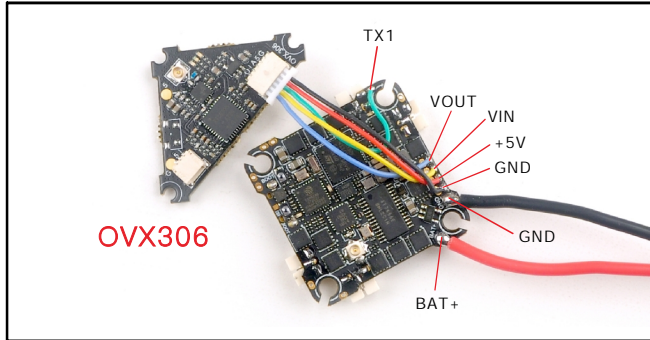
- Toggle Aux1 switch to arm the motors, the Green LED at the bottom of the flight controller would get be solid once armed, happy flying.

4. Flight controller connection diagram



5. Electronic hardware connection diagram

Analog version



6. Port setting and receiver setting

Analog version

Ports					
<p>Note: not all combinations are valid. When the flight controller firmware detects this the serial port configuration will be reset.</p> <p>Note: Do NOT disable MSP on the first serial port unless you know what you are doing. You may have to reflash and erase your configuration if you do.</p>					
Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200		Disabled	Disabled	Disabled
UART1	115200		Disabled	Disabled	VTX (TBS Sm)
UART2	115200		Disabled	Disabled	Disabled

HDZERO and HD DJI version

Ports					
<p>Note: not all combinations are valid. When the flight controller firmware detects this the serial port configuration will be reset.</p> <p>Note: Do NOT disable MSP on the first serial port unless you know what you are doing. You may have to reflash and erase your configuration if you do.</p>					
Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200		Disabled	Disabled	Disabled
UART1	115200		Disabled	Disabled	Disabled
UART2	115200		Disabled	Disabled	Disabled

Receiver

Serial (via UART)

Receiver Mode

The UART for the receiver must be set to 'Serial Rx' (in the Ports tab)

Select the correct data format from the drop-down, below:

CRSF

Serial Receiver Provider

Voltage and Currents meter settings

Voltage Meter

Battery

0.6 V

110

Scale

10

Divider Value

1

Multiplier Value

Amperage Meter

Battery

0.00 A

470

Scale [1/10th mV/A]

0

Offset [mA]

7.PID settings

Analog version

PID Tuning

Profile

Rateprofile

Profile 1

Rateprofile 1

PID Profile Settings

Rateprofile Settings

Filter Settings

	Proportional	Integral	D Max	Derivative	Feedforward
ROLL	65	115	34	26	182
PITCH	68	121	40	29	190
YAW	65	115	0	0	182

HD DJI and HDZERO version

PID Tuning

Profile

Rateprofile

Profile 1

Rateprofile 1

PID Profile Settings

Rateprofile Settings

Filter Settings

	Proportional	Integral	D Max	Derivative	Feedforward
ROLL	65	115	34	26	173
PITCH	68	121	40	29	181
YAW	65	115	0	0	173

8.Analog version VTX Bands and Channels setup

Frequency and channel frequency table:									
FR	CH	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
BOSCAM_A	5865M	5845M	5825M	5805M	5785M	5765M	5745M	5725M	
BOSCAM_B	5733M	5752M	5771M	5790M	5809M	5828M	5847M	5866M	
BOSCAM_E	5705M	5685M	5665M	5645M	5885M	5905M	5925M	5945M	
FATSHARK	5740M	5760M	5780M	5800M	5820M	5840M	5860M	5880M	
RACEBAND	5658M	5695M	5732M	5769M	5806M	5843M	5880M	5917M	
LOWRACE	5333M	5373M	5413M	5453M	5493M	5533M	5573M	5613M	

There are 2 ways to switch the vtx channels:

- 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
- Disarm the Crux35 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

