Beta85X Instruction

1. Instruction of Components and Accessories

①Frame
②FPV Blade
③Motor
④Flight Controller
⑤Camera
⑥Canopy
⑦LED Board
⑧antenna

Thanks for purchasing the Beta FPV. Designed in China, assembled in China.

Disclaimer

Once using this product, you will be deemed to have understood and approved all the contents of this disclaimer. This product is not suitable for people under 18 years old. Kids under the age of 18 must use this product under recognized guardianship.

BETAFPV accepts no liability for damage or injuries incurred directly or indirectly from the use of the product.

Warnings

- Ensure that all power connection are secure and the aircraft is in safe condition before every flight.

- Please store the battery in the safe condition.

- Please fly in a safe area away from the crowd.

- Please assemble the product according to the factory configuration, using other brand parts or private assembly may lead to some risks, which BETAFPV will not undertake.

- Do not use this product if you have physical or mental illness, dizziness, fatigued, or use while under the influence of alcohol or drugs.

- Do not use this product to damage the public environment or for illegal activities.

- Flight in illegal areas is not permitted under the local laws.

1 Specification

Diagonal wheelbase (without paddles)	85mm
Motor	1105 5000KV with connector
Propeller	Blue
Flight Controller	F405 V2 Flight Controller
ESC	16A BLHeli_32 ESC
Receiver	RX
Props	2" 4-Blades Props
Antenna	5.8G FPV antenna
Recommend battery	4S 450mAh Battery (Not including)
Flight time	4min - 6min with 450mAh 4S battery
Camera	Caddx Tarsier 4K@30fps
VTX	A01
Weight	88.6g

2 Characteristics

- Beta85X pushes the new era of brushless whoop drones to a higher level. With the new power system, you could fly real acro even with HD camera on 4S power.

- With the high performance STM32F051 processor FC boards and tuned Betaflight OMNIBUSF4SD (OBSD) , faster input signals with lower latency and higher update rate are reachable, give you much more power.

- Comes with upgraded F4 V2 4S FC, this FC is equipped with ports which support to plug the receiver, ESC, led board and VTX directly, no need to solder, convenient for installation.

- Durable and light enough frame is customized for the Beta85X. To increase its stability, we specially add an extra stiffener brace of carbon fiber. Whole drone no soldering or tinkering necessary.

- Upgraded 1105 motor from 6000KV to 5000KV, with a light weight but definitely will give you extreme power and speed to support 4S. Motor comes with cable connectors. Just plug and play. EMAX Avan 2" prop is the best combo in this Beta85X drone.

- 450mAh 4S high rate battery is recommended by default. But pilot could also use their own batteries with battery strap. Optional and affordable.

3 Composition

3.1   FC SPECIFICATIONS

CPU: STM32F411CEU6 (100MHZ)

Six-Axis: MPU6000 (SPI connection)

Size: 26mm x 26mm, whoop mounting pattern

Firmware version: Betaflight MATEKF411 (MK41)

OSD: Built-in BetaFlight OSD (STM32 controls OSD chip over SPI in DMA mode)

Receiver: Support Frsky XM/XM+ Receiver/ Futaba Receiver/ Flysky Receiver/ TBS Crossfire Receiver. Add Frsky R9M Receiver and BETAFPV Micro DSMX Receiver (Don't support DSMX RX with 3.3V solder pad) since V1.2.

3.2   SPECIFICATIONS OF ESC

Support BLheli/BLHELI_S suite Pass-through ready

Support PWM, Oneshot125, Oneshot42, Multishot, Dshot150, Dshot300, Dshot600

Input voltage: 2S-4S Lipo

Continue current: 12A

Peak current: 13A
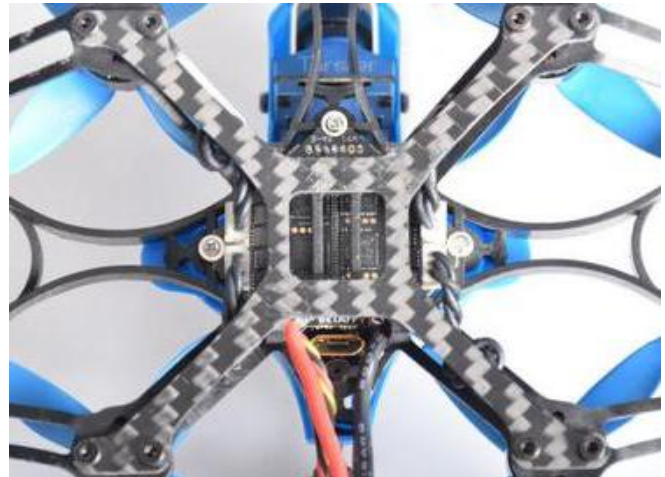
Firmware: BLHELI_S

Processor: SILABS EFM8BB21F16G

Motor Connectors: 1.25mm header pins connector

Factory firmware: G-H-30-16.7

3.3   Material: PP plastic

The stiffener brace of carbon fiber can reinforce the Beta85X frame, avoid unstability caused by too strong power when Beta85x is flying.

Last Version: No stiffener brace included, which would result in seriously vibration on 4S power.

For solving the adverse vibration reactions.

25V/220uf Electrolytic Capacitor
Protect the circuit board, for reducing the defective rate caused by the instantaneous high voltage.

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3.4 Camera Specification

Caddx Tarsier 4K@30fps

Find more details about this Caddx Tarsier 4K camera in another page.

Weight: 19.5g

FOV: 4KF 2.8, FOV 150°(16/9), FPV FOV 165°（4/3）

Lens: Dual lens 2.8 / 12Mega

Image Sensor: 12M SONY sensor

TV System: NTSC / PAL, can be changed

Anti-Shake: Hardware anti-shake
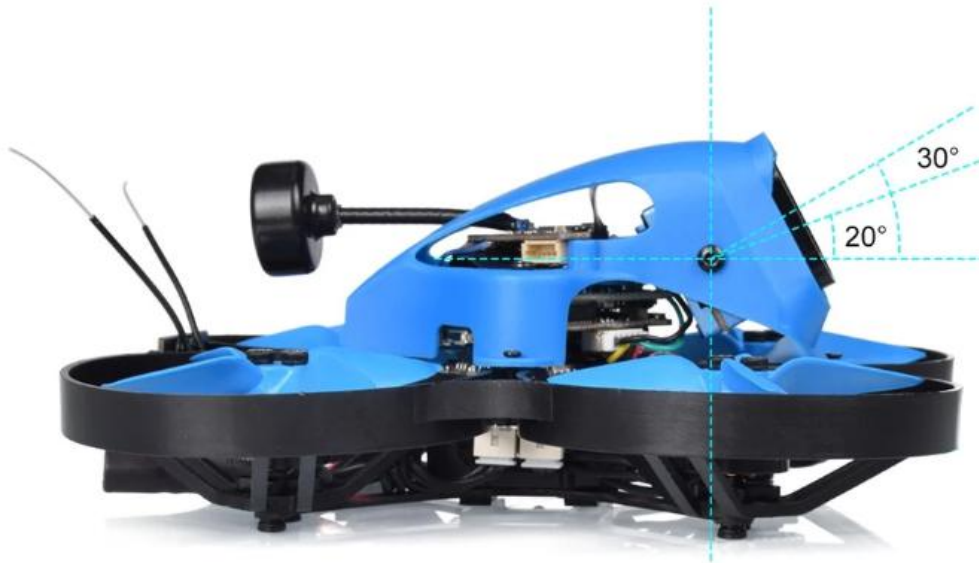
Scene Mode: Auto / Personage / Scenery / Defog

Recording Timing Larm: OFF / 1mins / 3mins / 5mins / 10mins

Horizontal Resolution: 1200TVL

Image: 16:9 / 4: 3 (changeable)

Camera OSD: Seperate OSD

The camera tilt angle is switchable from 20 degree to 30 degree with ND8 fliter.

3.5   1105 5000KV Motor

Height: 14mm

Weight: about 5.2g (1 pc)

Shaft: φ1.5mm

Motor Mount Holes: M2.0 on Dia 9.0mm

KV (rpm/V): 6000 / 5000

Plug and cables:Micro JST-1.25 3-pin connector with 28AWG cables (5000KV)

Lower 5000KV for new Beta85X 4S, which could support 4S power which won't cause the issue of overheat or burn (maybe the ESC).   Also change motor cables from 30AWG to 28AWG.

Last Version: 1105 6000KV motors with 30AWG cables. In 4S power status, the motor will be overheat and damaged. Which may cause the burnt on the ESC.

4 Flight guide

Always use caution when flying and operate in an open and controllable area. Please learn the flight controls first before powering on the aircraft to fly.

4.1   FLY

Beginner Tipas

1.Start flying Line of Sight(LOS)first to familiarize yourself to the controls.

2. When flying BETAFPV,don't try to hover still.Instead,keep flying in a forward direction using Yaw to look around and change direction.This will ensure you are aware of your surroundings.

3. Land your BETAFPV when you see your voltage drop to 3.4 volts.Any lower and you may experience Brown Out and also damage your Lipo Battery.Brown Out is when the craft stalls due to lack of power.

Flight preparation

1. Power on BETAFPV by sliding the battery into the battery tray and plugging it in.

2. Then by powering on your BETAFPV,and bind to your radio and the channel that matches your goggles

3. Once the battery is plugged in, set BETAFPV on a stable surface so it can calibrate. Calibration takes a few seconds then BETAFPV is ready to fly. BETAFPV can fly for 4 minutes on a fully charged battery. Land BETAFPV when the battery is low; flying any longer can severely damage your battery and is not recommended.

4. After completing the above steps, you can start flying your micro whoop quadcopter.

4.2   Radio Stick Controls

The left stick controls throttle and yaw direction of BETAFPV.The right stick controls pitch and roll of the aircraft.

4.3   Flying Modes

There are three flight modes in the true sense: Angle Mode, Horizon Mode,and Acro Mode.Others are the assisted flight modes

Angle Mode

This mode can adjust the level automatically and limit the flight angle, but can not do roll action.When the rocker returns, the BETAFPV returns to the middle position by self. It is recommended to take off in this way, which is also the first choice for beginners.

Horizon mode

Control   the rocker hits a certain proportion, it is "auto-stable mode", The transmitter becomes "Acro mode"when the rocker exceed the   the proportion . That is operate gently is the self-stabilizing mode, and the violent operation is the Acro mode. This mode can be automatic level or tumbling

Acro Mode

In this mode, the aircraft does not return to the neutral position by self in pace with the Roll, Pitch, and Yaw rocker return. For example, after hitting the Roller rocker to the left, the Roller is returned to the middle, but the aircraft continues to roll to the left without returning to the level.It is possible BETAFPV to restore the level only when the Roller rocker is turned to the right . According to the input of the remote control rocker, the corresponding proportion action is performed and hidden in the mode list, the default unselected mode is Acro Mode.

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including   interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However,   there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful   interference to radio or television reception, which can be determined by turning the equipment off and on, the user is   encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.