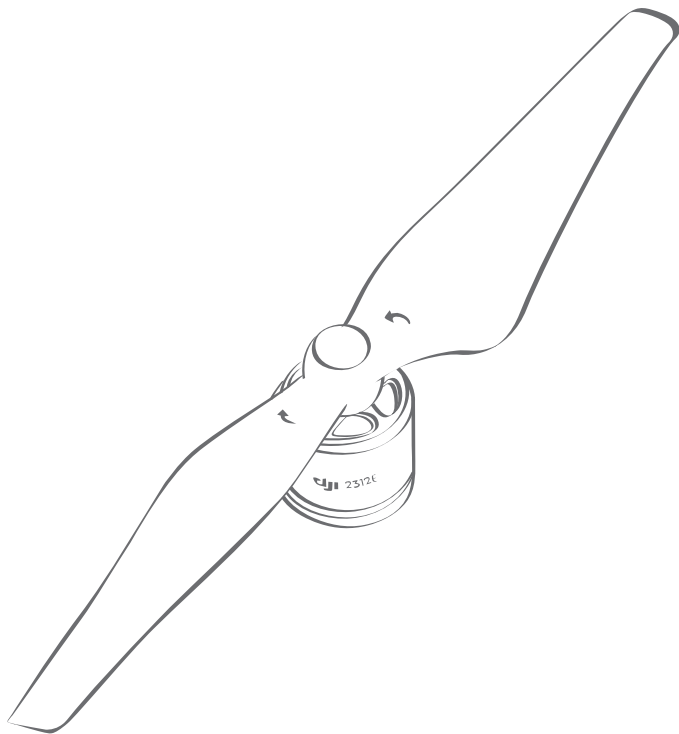


# DJI E305

## Tuned Propulsion System

### User Manual

V1.0 2015.5



## Disclaimer

Thank you for purchasing the E305 Tuned Propulsion System (hereinafter referred to as “product”). Read this disclaimer carefully before using this product. By using this product, you hereby agree to this disclaimer and signify that you have read it fully. Please install and use this product in strict accordance with the User Manual. SZ DJI Technology Co., Ltd. and its affiliated companies assume no liability for damage(s) or injuries incurred directly or indirectly from using, installing or refitting this product improperly, including but not limited to using non-designated accessories.

This device complies with part 15 of the FCC Rules.

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This disclaimer is produced in various languages. In the event of variance among different versions, the Chinese version shall prevail when the product in question is purchased in Mainland China, and the English version shall prevail when the product in question is purchased in any other region.

## Warnings

When powered on, the motors and propellers will rotate very quickly and can cause serious damage or injury. Always be vigilant and make safety your top priority.

1. Always attempt to fly your aircraft in areas free of people, animals, power lines, and other obstacles.
2. Do not approach or touch the motors or propellers when the unit is powered on.
3. Ensure that there are no open circuits or exposed wires that can cause short circuits.
4. Before flying, ensure that the propellers and motors are installed correctly and that the propellers are unfolded.
5. Check to ensure that all parts of the aircraft are in good condition before flying. Do not fly with worn or damaged parts.
6. Only use compatible, authorized DJI parts.

## Legend



Important



Hints and Tips

If you encounter any problems or if you have any questions, please contact your local DJI authorized dealer or DJI Support.

DJI Support Website:

**[www.dji.com/support](http://www.dji.com/support)**



## About

The E305 Tuned Propulsion System is a multirotor propulsion system designed for multi-rotor aircrafts weighing 1 ~ 2.5 kg. The upgraded 2312E motor features an optimized electromagnetic design, which improves power efficiency, torque stability at low speeds, and heat dissipation at the base of the motor. The Z-Blade 9450 propeller has high thrust, low noise and excellent dynamic balance. The compact and lightweight 420LITE ESC uses a square wave drive supporting simple functionalities, intended to meet the specific needs of its users.

## 1. In the Box

The E305 is available in two different package configurations. The descriptions below correspond with the Quad-rotor and Hexa-rotor packages, respectively. Please ensure that you have the correct quantities of each part before beginning the installation process or using the product.

E.g. "9450 Propeller Pair x3 or x4" indicates that there are three pairs of propellers included in the configuration for Quad-rotors and four pairs of propellers included in the configuration for Hexa-rotors.



2312E Motor  
(Clockwise rotation) x2 or x3



2312E Motor  
(Counter-clockwise rotation) x2 or x3



9450 Propeller Pair x3 or x4



420LITE ESC x4 or x6



Power Hub x1



Propeller Removal Clamp x1



Screws (M3x8, M3x5.5)

## 2. Gain Value Settings

The E305 ESC features a square wave drive. To achieve optimal sensitivity, adjust the gain values according to your flight control system and frame before use. The table below shows typical gain values for the E305 used with the DJI NAZA-M V2 flight control system and the DJI F450 multirotor flying platform, at a takeoff weight of 1.2 kg:

Basic				Attitude	
Pitch	Roll	Yaw	Vertical	Pitch	Roll
110%	110%	70%	100%	170%	170%

## 3. Connecting the ESCs

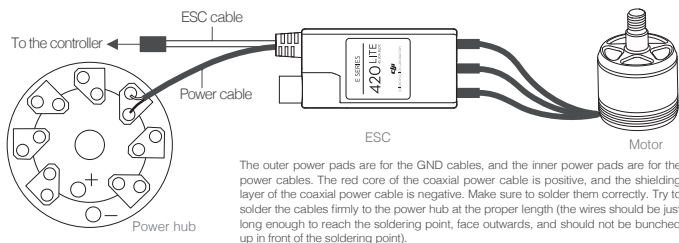
### Tools Required

**Tools:** Electric soldering iron & soldering tin    **Use:** Soldering each ESC's power cables to the power hub

1) Please solder each ESC to the power pads on the power hub as shown in the figure below.

Make sure that the solder is firmly attached to the power pads and that there is no possibility for a short circuit. The power cable is a coaxial power cable. Do not damage the protector on the red cable to avoid short circuits.

- 2) Connect the signal cable to your controller. The signal cable's orange wire is for the control signal, and the signal cable's brown wire is for the GND.
- 3) Connect the motor to the ESC. Test the motor and ensure that the rotation direction of each motor is correct. If not, switch the position of any two cables connecting the motor to the ESC to change the rotation direction.

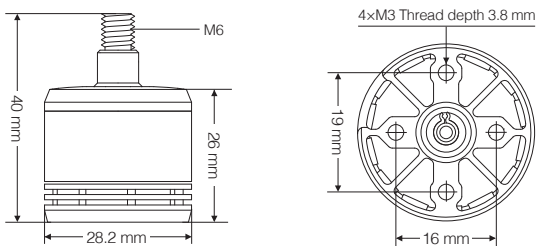


**⚠** Make sure that there are no open circuits or exposed wires that can cause short circuits.

**💡** It is recommended that you solder a power connector onto the power hub.

#### 4. Mounting the Motors

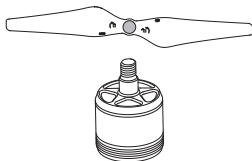
Mount each motor to a frame arm according to the motor dimensions and the size of the assembly hole.



**⚠** Note the thread depth and the size of the screws. Mount the motors using the appropriate screws, according to the thread depth of the assembly hole and the thickness of your motor mounting plate. Using screws that are too long or too large may damage the motor.

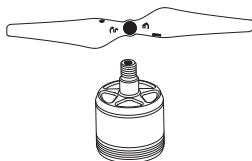
## 5. Assembling the Propellers

Silver nut (9450)



Attach the propeller with a silver nut onto the counter-clockwise motor.

Black nut (9450 cw)





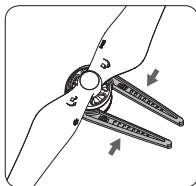
Attach the propeller with a black nut onto the clockwise motor which has an indent on the screw.



**Lock:** Tighten the propeller by rotating it in this direction.

**Unlock:** Remove the propeller by rotating it in this direction.

- 1) **Tighten** the propellers by hand in the lock  direction.
- 2) Remove the propellers by hand or using the propeller removal clamp if needed. Put the propeller removal clamp around the motor, and pinch both sides as shown below to hold the motor in place. Then rotate the propeller in the unlock  direction.



- Do NOT use any thread locker on the propeller or motor threads.
- When using the propeller removal clamp, pinch both sides of the clamp just enough so that the propeller can be removed. Applying excessive force may damage the clamp.

## 6. ESC Sound Description

Normal	Description
♪1234	Ready
Abnormal	Description
BBBBBB...	No signal input, or throttle stick is not in the bottom position



You can instantly tell what the unit's status is by listening to the sounds emitted from the ESC.

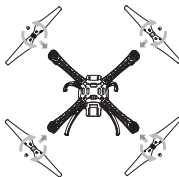
## 7. Specifications

Battery (Recommended)	4S LiPo
Max. Thrust	850 g/rotor (14.8 V, Sea Level)
Takeoff Weight (Recommended)	350 ~ 400 g/rotor (Sea Level)
Working Temperature	-10 ~ 40°C
<b>ESC</b>	
Max. Allowable Voltage	17.4 V
Max. Allowable Current (Persistent)	20 A
Max. Allowable Peak Current (3 seconds)	30 A
PWM Input Signal Level	3.3 V / 5 V Compatible
Signal Frequency	30 ~ 450 Hz
Battery	3S ~ 4S LiPo
Weight (without cable)	12.5 g
Weight (with cable)	27 g
<b>Motor</b>	
Stator Size	23×12 mm
KV	800 rpm/V
Weight	56 g
<b>Propeller</b>	
Diameter / Thread Pitch	24×12.7 cm (9.4×5.0 inch)
Weight (Single)	13 g

## 8. Compatible DJI Products

Flying platforms: DJI F450, DJI F550

Flight controllers: DJI Naza-M V2, DJI Naza-M Lite, DJI WooKong-M, DJI A2



Used Together with the DJI F450



Use the E305 with the DJI products in the list above for the best flight experience.

The content is subject to change.

Download the latest version from  
<http://www.dji.com/product/e305>



If you have any questions about this document, please contact DJI by sending a message to **DocSupport@dji.com**.

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