E5000 STANDARD

Tuned Propulsion System
多旋翼动力系统

User Manual
用户手册

V1.0 2016.12

Disclaimer

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Legend

Important

Warning

When powered on, the motors and propellers will rotate very quickly and can cause serious damage or injuries if used improperly. Always maintain caution and make safety your top priority.

AGES 18+

The E5000 Standard generates powerful thrust. Be sure to operate it with caution to avoid potential safety risks. DO NOT use the E5000 Standard if you are not an experienced user or you are under the age of 18.

1. The maximum allowable voltage of the E5000 Standard is 52.2 V. Operate with care.
2. Always fly your aircraft in areas free of people, animals, power lines, and other obstacles.
3. DO NOT approach or touch the motors or propellers when the unit is powered on.
4. Before takeoff, ensure that the propellers and motors are installed correctly and the propellers are unfolded.
5. Ensure that all parts of the aircraft are in good condition. DO NOT fly with worn or damaged parts.
6. Ensure that all parts are firmly in place and all screws are tight before each flight.
7. Only use compatible, authorized DJI parts.

Introduction

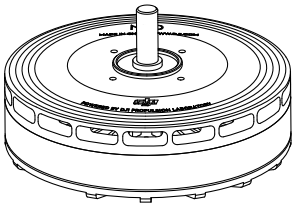
The E5000 Standard Tuned Propulsion System is designed for multirotor aircraft with a payload of 4.5 - 7.0 kg/rotor. Water-proof and dust-proof features (the 1280S ESC is IP66 rated and IEC 60529 compliant) allow the system to be washed, making it ideal for industrial applications and professional photography in demanding environments.

The brand new M10 motor features an integrated centrifugal cooling system and annular array of cooling fins to enhance heat dissipation. A lighter M10 Air motor is also designed for selection. Reinforced blades and a perfected aerodynamic design minimize rotational inertia on the foldable 28-inch Z-Blade propellers to equip large platforms with sharp response.

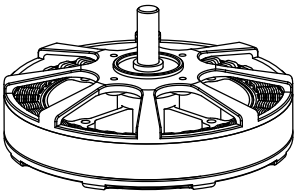
The 1280S ESC uses FOC (Field-Oriented Control) algorithms to allow for more motor responsiveness and precision control. Additional protection functions extend the life of the ESC. When used with the DJI N3 or A3 flight controllers, the ESC data cable handles communication with the flight controller and also acts as a backup throttle signal transmission cable for increased reliability and a safer flight.

1. Parts

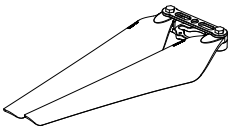
Foldable Propellers (CW or CCW, accessories included), Motor (accessories included), ESC and other items can be purchased separately on the DJI Online Store.



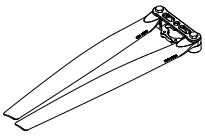
M10 Motor



M10 Air Motor



2880 Foldable Propeller
(Clockwise)



2880 Foldable Propeller
(Counterclockwise)

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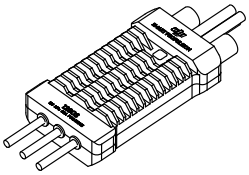
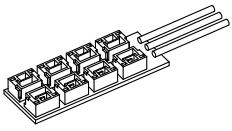


1280S ESC

Updater



Smart ESC Communication Cable

Motor Accessories:
Motor Screws (M4×16 Hex Socket)
Propeller Adapter Screws
(M3×11 Hex Cap)

Propeller Accessories:
Propeller Adapter Screws
(M3×11 Hex Cap)

2. Flight Controller Settings

The E5000 ESC features a DJI optimized FOC algorithm to offer improved performance during rotor acceleration and deceleration. The gain values and power bandwidth must be adjusted according to your flight control system and airframe. The table below shows typical parameters when using the E5000 Standard with a DJI A3 flight control system, a six-rotor frame with a diagonal distance of 1600 mm, and at a takeoff weight of 35 kg:

Basic Gain				Sensitivity Gain		Power Bandwidth
Pitch	Roll	Yaw	Throttle	Brake	Attitude	
110%	110%	100%	100%	50%	100%	80%

3. Connecting the ESCs

Tools Required: Power distribution board (PDB)*, electric soldering iron and soldering tin

* Use a PDB which has sufficient trace spacing and current capacity, according to the number of ESCs and the battery voltage.

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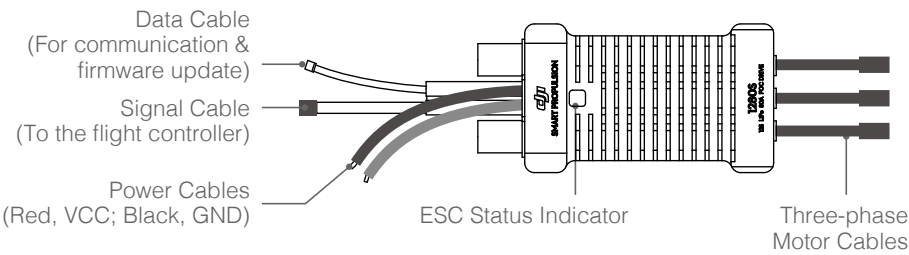
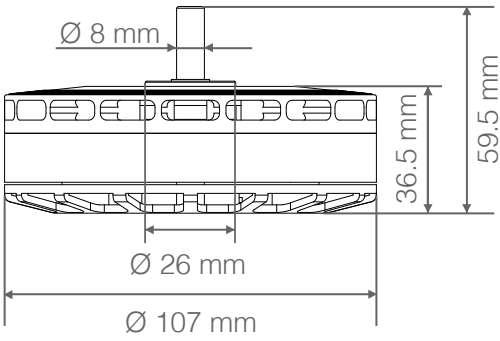
1) Solder the ESC's black GND cable and red VCC cable to the pads on the PDB. Ensure that there are no open circuits or short circuits.
2) Connect the signal cable to your flight controller. The signal cable's red wire transmits the control signal; the black wire is for GND.
3) When using the ESC together with the DJI N3 or A3 flight controller, connect the data cable to the iESC port on the flight controller via the smart ESC communication cable for real-time communication with the flight controller and redundant throttle signal transmission. Arrange the cable properly if not used, so that it will not interfere with other on-board devices.
4) Connect the motor to the ESC. Test the motors and ensure that the rotation direction of each motor is correct. You can reverse the rotation direction by swapping the positions of any two cables.
5) Mount the ESC at a well-ventilated place with the ESC Status Indicator clearly visible. Placement under the frame arm is recommended. DO NOT cover the cooling fins on the top of the ESC to avoid overheating.



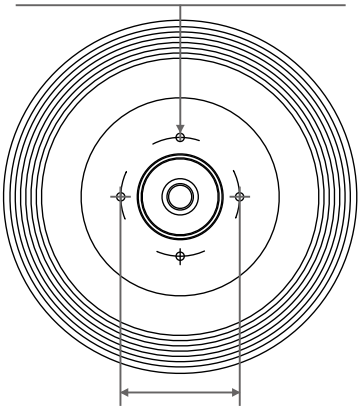
4. Mounting the Motors

The dimensions and thread sizes of the motor are illustrated below. Ensure they are compatible with your frame arm before mounting the motors.

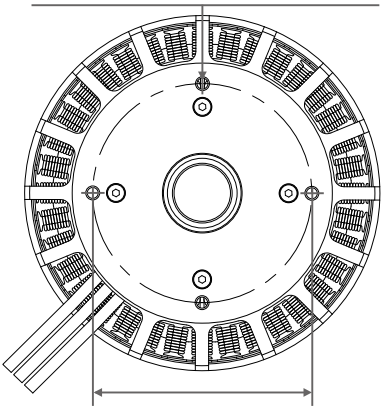
M10 Motor



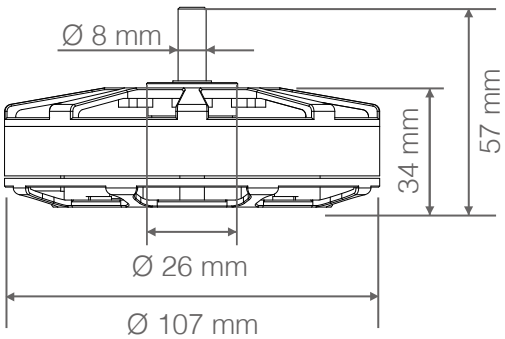
4×M3 Thread Depth 6 mm



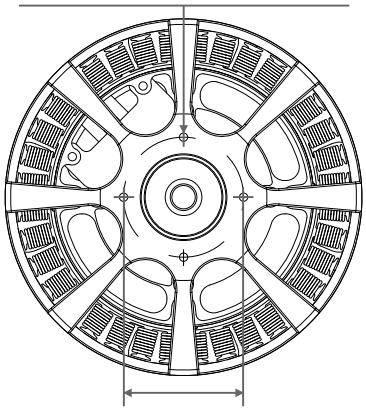
4×M4 Thread Depth 20 mm



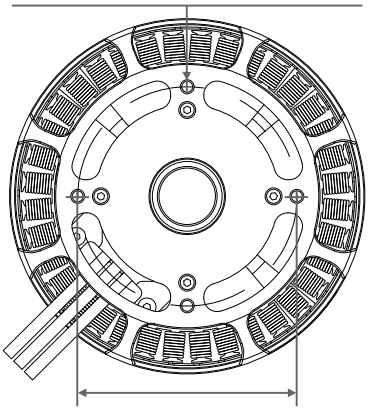
M10 Air Motor



4×M3 Thread Depth 6 mm



4×M4 Thread Depth 20 mm



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- Use a suitable motor mounting plate and airframe that can withstand the large thrust delivered by the E5000 Propulsion System.
- Choose the appropriate screw length and screw size according to the depth of the assembly hole and thickness of the motor mounting plate. Using screws that are too long or too large may damage the motor.
- When mounting or removing the motors, be careful to prevent foreign articles from entering the motor.

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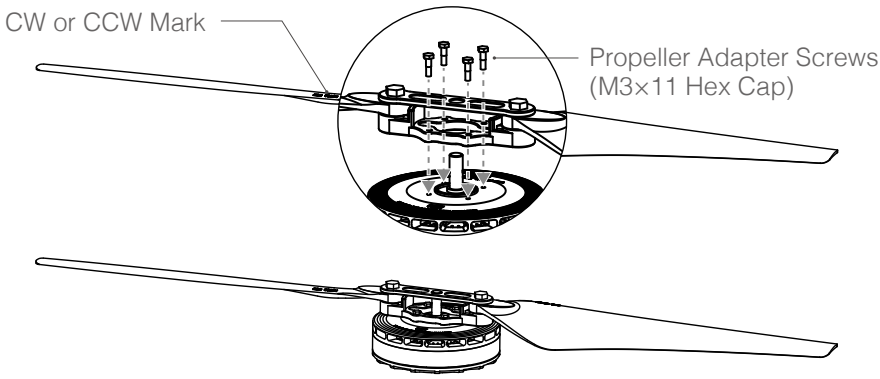
5. Assembling the Propellers

Threadlocker and a wrench for propeller adapter screws (M3×11 hex cap) are required.

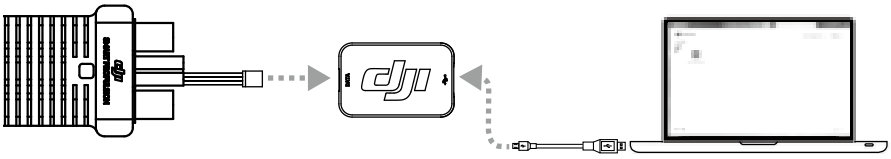
1) Pair the propellers marked CW with the clockwise rotating motors; pair the propellers marked CCW with the counterclockwise rotating motors.
2) Apply threadlocker to the four screw holes on the motor.
3) Mount the propeller onto the motor, and use four propeller adapter screws (M3×11 hex cap) to secure the propeller.



- Ensure the screw is secured tightly for the threadlocker to be effective.
- Ensure the threadlocker is completely dry and solid before flight to prevent the propeller from flying off the motor.

6. Using DJI Assistant 2

The DJI ASSISTANT™ 2 is used to update the ESC firmware.※ Be sure to remove the propellers before using DJI Assistant 2.



ESC Updater Computer

Before using the Updater, unplug any other serial devices that are connected to your computer, then follow the instructions below:

1) Download and install DJI Assistant 2 from the official DJI website. (http://www.dji.com/e5000/info#downloads)
2) Connect the Updater to the ESC with the data cable and to your computer with a Micro USB cable.
3) Connect a 12S LiPo battery to the ESC to supply power to the system. Do not disconnect the ESC from the computer or power supply until the configuration is complete.
4) Launch DJI Assistant 2. When a connection is established, the software will display the connected devices.
5) Click ESC under “Connected Devices” to enter the firmware update page. Check the current firmware version and ensure the installed firmware is up to date. If not, login with your DJI account and click the Upgrade button.

⚠ If your ESC is not recognized by DJI Assistant 2 (no connected devices):

- Check if there is more than one FTDI device connected such as another DJI Updater, an FTDI USB adapter or development board (e.g. a BeagleBone, Raspberry or Arduino board). Unplug the other FTDI devices, restart the ESC and DJI Assistant 2, and try again.
- Re-connect the ESC and the power supply in the following order: Connect the ESC to your computer, connect the power supply to the ESC, and then launch DJI Assistant 2.

※ When using the ESC together with the DJI N3 or A3 flight controller, connect the data cable to the iESC port on the flight controller via the smart ESC communication cable to update all the connected ESCs' firmware together in the flight controller page of DJI Assistant 2: Connect the flight controller to DJI Assistant 2 -> N3 or A3 icon -> Firmware Update -> ESC Firmware List.

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7. ESC Status Description

The 1280S smart ESC's protection and alarm functions prevent damage and extend its lifespan. ESCs status is displayed by the ESC Status Indicator and notification sounds.

Status	LED	Sound	ESC Output	Cause	Resolution
Normal Operation	Slow Pulsing Green	♪1356	Normal	System Ready	/
	Solid Green	/	Normal	Motor Started	/
	Solid Yellow	/	Normal	Motors are rotating at full throttle.	/
Open-circuit Protection	Blinking Red, Yellow and Green	/	Stop	Motor phase break or abnormal connection with the ESC when powered on.	Fix problem then restart ESC.
Short-circuit Protection				Motor cable short-circuiting, ESC output short-circuiting, or short-circuit inside the ESC.	
Stall Protection	Blinking Red Rapidly	/	Stop	Motor Stalled	Fix problem then restart ESC.
Overheated Protection	Blinks Red Twice	/	Normal	ESC internal temperature > 100°C.	ESC internal temperature < 80°C.
Throttle Backup*	Blinking Yellow Slowly	/	Normal	Main throttle signal lost during flight, i.e. the ESC signal cable is disconnected. The system will switch to backup throttle automatically.	The aircraft can fly with the backup throttle. However, it is recommended to land the aircraft and re-connect the signal cable as soon as possible.
Abnormal Throttle Warning	Blinking Yellow Slowly	Slow Beep	Stop	1. Both the main throttle and backup throttle signal were lost during flight, i.e. the ESC signal cable and data cable are disconnected. 2. Main throttle signal lost before the motor started.	1. Land the aircraft immediately and re-connect the cables. 2. The system will not switch to backup throttle. Re-connect the signal cable.
	Blinking Yellow Rapidly	Single Beep	Stop	Starting input signal is not at the minimum.	Throttle input is smaller than 1120 μs.
Abnormal Voltage Warning	Blinking Red and Yellow Alternately	Double Beep	Stop	Starting input voltage is out of the range of the 12S LiPo battery, i.e. input voltage > 52.2 V or input voltage < 43.2 V.	Adjust input voltage.
Low Voltage Warning		/	Normal	Input voltage lower than 42 V when operating.	Voltage higher than 43.2 V.

* DJI N3 or A3 flight controller required

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8. Specifications

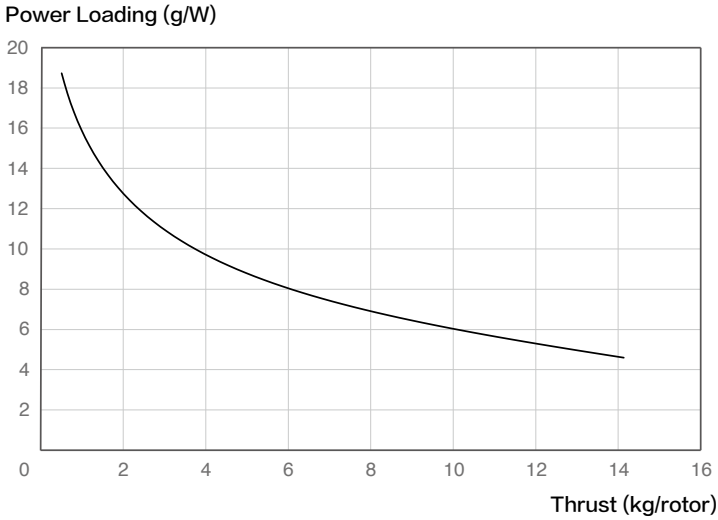
Max Thrust	14 kg/rotor (44.4 V, Sea Level)
Recommended Battery	12S LiPo
Recommended Takeoff Weight	4.5 - 7.0 kg/rotor (Sea Level)
Operating Temperature	14° to 122° F (-10° to 50° C)
ESC	
Max Allowable Voltage	52.2 V
Max Allowable Current (Continuous)	80 A
Max Peak Current (< 3 sec)	120 A
PWM Input Signal Level	3.3 V / 5 V Compatible
Operating Pulse Width	1120 to 1920 μs
Signal Frequency	30 Hz to 500 Hz
Battery	12S LiPo
Dimensions	86 mm × 46 mm × 21 mm
Cable Length	Power cables: 720 mm Three-phase motor cables: 150 mm Signal cable & data cable: 900 mm
Weight (With Cables)	189 g
Motor	
Stator Size	100×10 mm
KV	120 rpm/V
Weight	M10: 520 g, M10 Air: 420 g
Propeller	
Diameter×Thread Pitch	28×8 in (711×203 mm)
Weight (Single Propeller)	161 g

9. Performance and Parameters

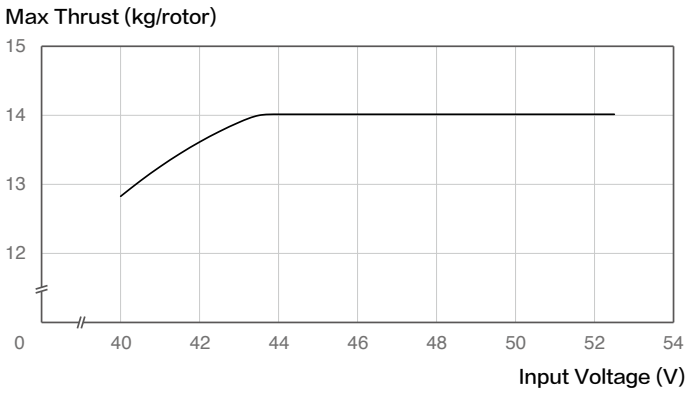
Use the data below to facilitate the proper use of the propulsion system.

⚠
- Use the system at the recommended takeoff weight for optimal performance.
- DO NOT overload the system. A takeoff weight more than 1.2 times of the maximum recommended value will severely compromise safety and performance.

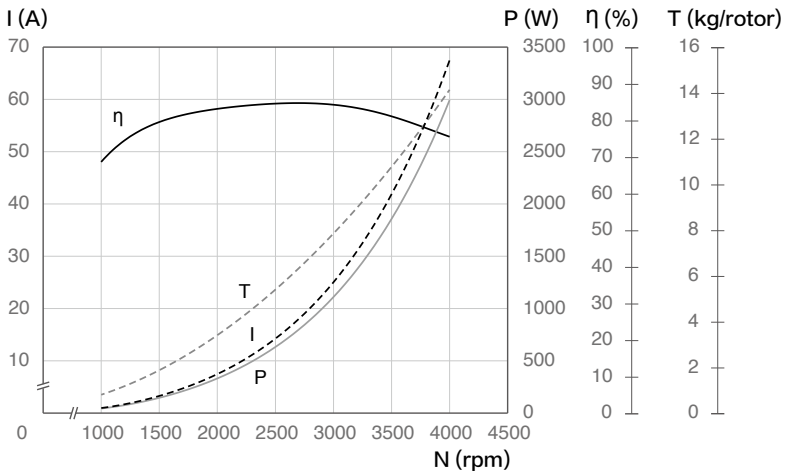
E5000 Propulsion System Performance



The data above was measured with an input voltage of 44.4 V, at a temperature of 25°C and sea level. The thrust was adjusted by the throttle.



The data above was measured at full throttle, at a temperature of 25°C and sea level.



I – Current, P – Input Power, η – Electrical Efficiency, T – Thrust, N – Rotational Speed

The data above was measured with an input voltage of 44.4 V, at a temperature of 25°C and sea level. The rotational speed was adjusted by the throttle.

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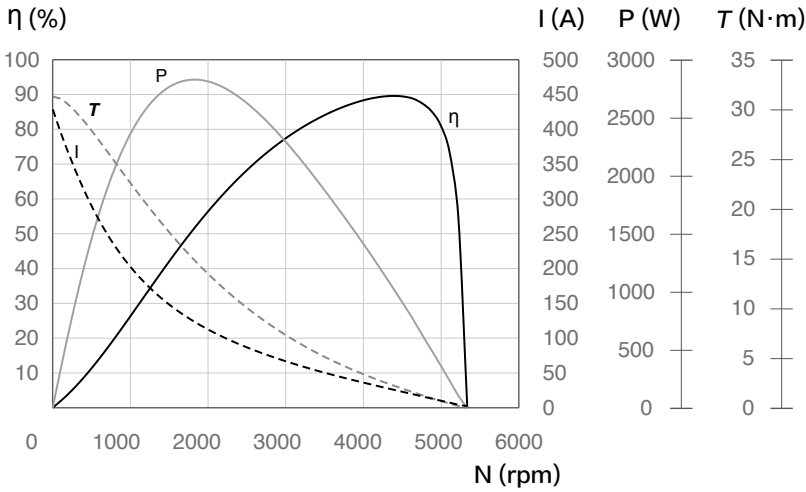
M10 / M10 Air Motor Performance

Performance Diagram



η – Efficiency, I – Current, P – Output Power, *T* – Torque, N – Rotational Speed

The data above contain theoretical values measured with an input voltage of 44.4 V, for reference only. When operating at a temperature of 25°C with no additional cooling devices, the motor cannot operate with a current more than 70 A. It can support short term operation (about 10 to 30 sec) with a current between 40 A and 70 A, and continuous operation with a current under 40 A. The motor run time should depend on the actual environmental temperature and cooling conditions.

Characteristic Parameters

Speed Constant	120 rpm/V
Back-Electromotive Force Constant*	0.0796 V·s/rad
Mechanical Time Constant	288 ms
Motor Rotor Inertia	M10: 302 kg·mm^2 M10 Air: 208 kg·mm^2
Total Rotor Inertia (Propeller Included)	M10: 3408 kg·mm^2 M10 Air: 3314 kg·mm^2
Torque Constant*	0.0790 N·m/A
Line-to-Line Inductance**	41 - 50 μH
Line-to-Line Resistance	60 mΩ
Thermal Time Constant	600 s

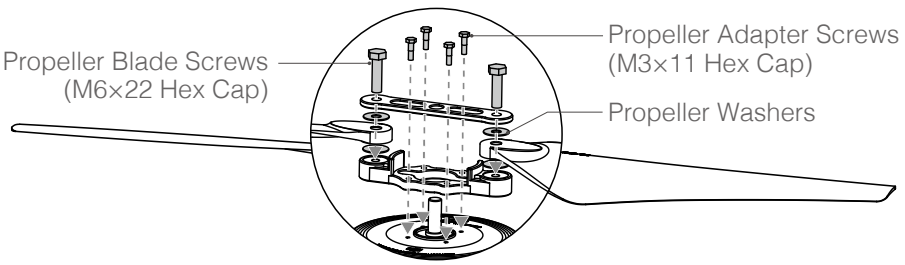
* The Back-Electromotive Force Constant and Torque Constant may vary when the motor current is strong. The values provided mainly apply to when the motor current is under 20 A.

** The Line-to-Line Inductance was measured with a current frequency of 1 kHz in an RLC circuit. It varies periodically as a function of the rotor position.

10. FAQ

How do I replace the propeller blades or propeller adapters if they are damaged?

1) Prepare two propeller blade screws (M6×22 hex cap), four propeller adapter screws (M3×11 hex cap), and four propeller washers.
2) Apply threadlocker to the screw holes on the motor and the propeller adapter.
3) Assemble the propeller and tighten with two propeller blade screws (M6×22 hex cap) so that the blades can fold smoothly. Mount the propeller onto the motor and use four propeller adapter screws (M3×11 hex cap) to secure the propeller.



⚠
- Ensure the screw is secured tightly for the threadlocker to be effective.
- Ensure the threadlocker is completely dry and solid before flight to prevent the propeller from flying off the motor.

This content is subject to change.

Download the latest version from
http://www.dji.com/e5000

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符号说明

重要注意事项

产品使用注意事项

若使用不当，高速旋转的螺旋桨可能会对人身财产造成严重伤害和破坏。因此在使用时，请务必注意安全。

E5000 标准版拉力较大，为避免潜在的安全风险，务必谨慎操作。非专业用户及未满 18 岁的人士请勿使用。

1. E5000 标准版最大允许电压高达 52.2 V，务必遵守相关安全规范进行操作。
2. 使用时请远离不安全因素，如障碍物、人群、高压线等。
3. 切勿贴近或接触旋转中的电机或螺旋桨，避免被旋转中的螺旋桨割伤。
4. 使用前请检查螺旋桨和电机是否安装正确，折叠桨是否已展开。
5. 使用前请检查各零部件是否完好。如有部件老化或损坏，请更换新部件。
6. 每次飞行前，检查飞行器各部分结构及螺丝是否松动。
7. 请使用 DJI 提供的零配件。

简 介

E5000 标准版是一款单轴负载 4.5 - 7.0 kg 的多旋翼动力系统，适合行业应用及专业航拍，全系统可进行冲洗维护（其中 1280S 电调防尘防水等级可达 IP66，参照 IEC 60529 标准）。M10 电机配备上升式离心风冷系统，配合中心环形散热阵列，全面提升冷却效率；用户亦可选用轻量级的 M10 Air 电机。Z-Blade 28 寸折叠桨采用新一代翼型和优秀的气动设计，低惯量特性有效帮助大型机架保持灵敏控制。1280S 智能电调采用磁场定向控制（FOC，Field-Oriented Control）算法，实现精准敏捷的电机驱动控制；主动保护功能可延长使用寿命；适配 DJI N3 及 A3 飞控系统，特有的数据线可实现与飞控的实时通信及备份油门信号的传输。

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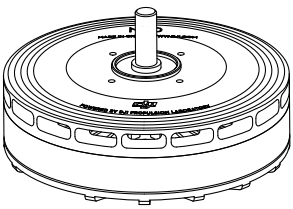
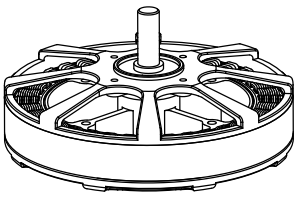
1. 相关物品

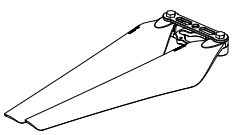
E5000 标准版的电机（含配件）、螺旋桨（含 CW 或 CCW 桨一只以及配件）、电调等物品均为独立包装，用户可分别购买。



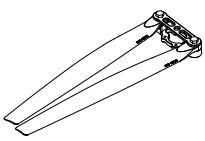
M10 电机



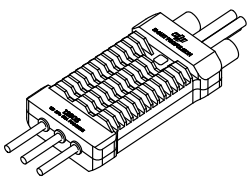
M10 Air 电机



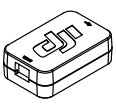
2880 可折叠螺旋桨（CW）



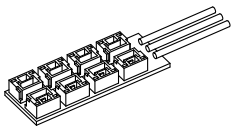
2880 可折叠螺旋桨（CCW）



1280S 电调



升级器



智能电调通信转接线

电机配件：
电机固定螺丝
（M4×16，内六角）
桨夹螺丝（M3×11，外六角）

螺旋桨配件：
桨夹螺丝（M3×11，外六角）

2. 飞控参数调节

E5000 动力系统电调采用 DJI 优化的 FOC 算法，提升了加减速性能。使用前，用户需要根据所使用的机架及飞控系统适当调节感度参数及动力带宽。下表是配合 A3 飞控系统和轴距为 1600 mm 的六轴机架使用，起飞重量为 35 kg 时的一组典型参数：

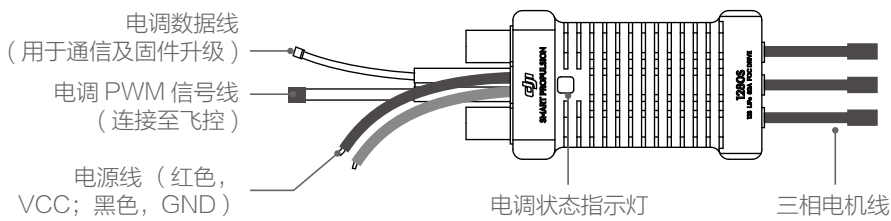
基础感度				灵敏感度		动力带宽
俯仰	横滚	航向	油门	刹车	姿态	
110%	110%	100%	100%	50%	100%	80%

3. 安装电调

工具和材料（自备）：分电板 *、电烙铁和焊锡

* 根据实际使用电调数量及电池电压选择具备安全布线间距和足够通流能力的分电板

1) 将电调电源线焊到分电板上，注意焊点牢固并且不会出现短路。电源线红色为电源 VCC，黑色为地 GND。
2) 将电调 PWM（脉宽调制）信号线连接至飞控。其中红色线为控制信号线，黑色线为地线。
3) 若使用 DJI N3 或 A3 飞控系统，将电调数据线通过智能电调通信转接线连接至主控器的 iESC 接口，可实现与飞控的实时通信及油门信号冗余传输。不使用时请注意将线材收好，避免影响飞行。
4) 将电机的三根线分别连到电调上。调试使电机按照需求方向旋转。如果不一致，交换该电机的任意两根连线。

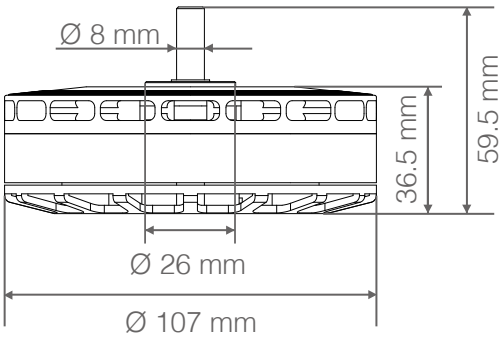


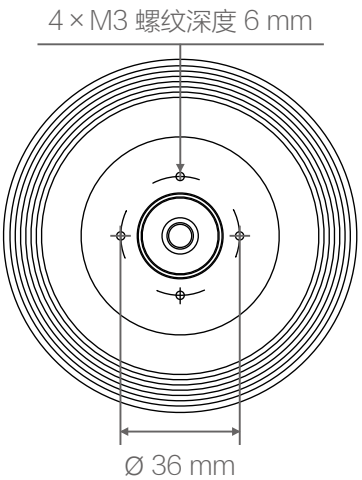
5) 将电调固定至通风良好且电调状态指示灯明显的位置，推荐安装至机臂下方。切勿遮挡电调正面的散热片，否则可能导致电调温度过高，影响飞行安全。

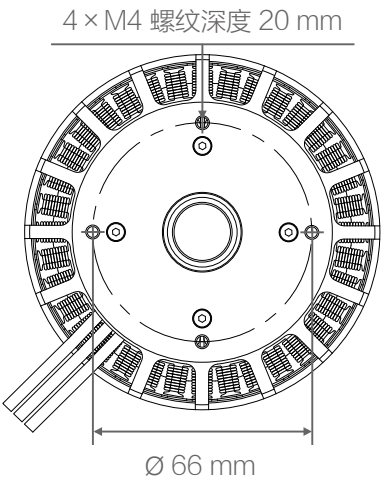
4. 安装电机

参考电机尺寸将电机安装到合适的力臂上。

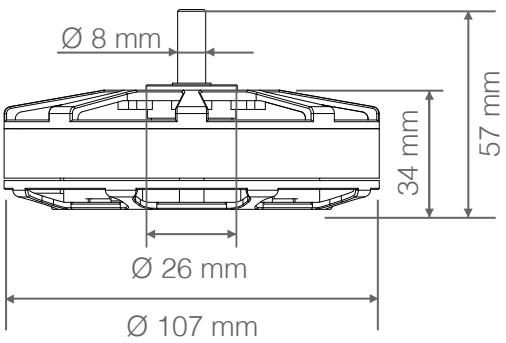
M10 电机







M10 Air 电机



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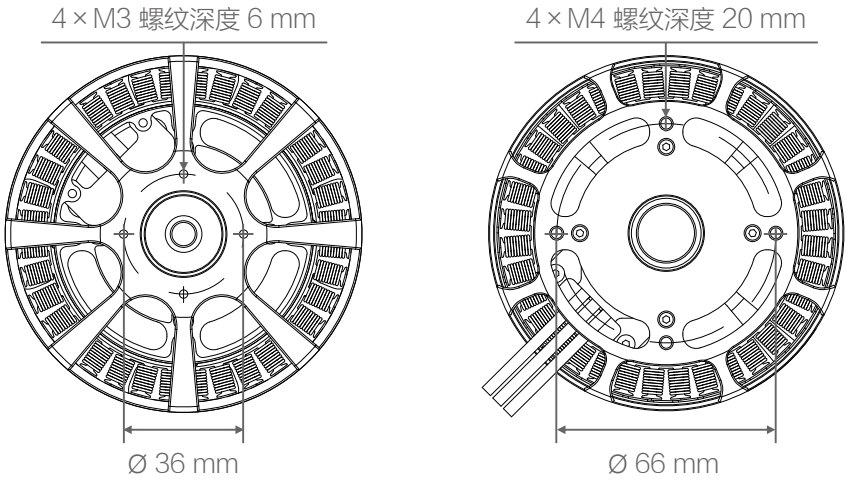

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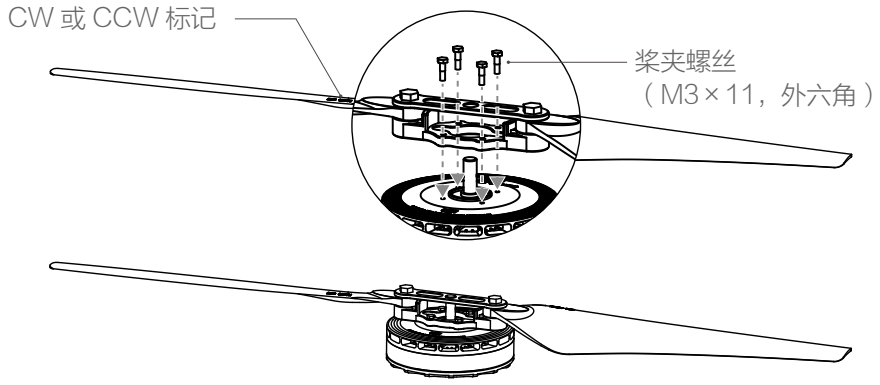
⚠
- E5000 动力系统的拉力较大，务必确保您所选用的电机固定座及机架的结构强度与动力系统提供的拉力匹配。
- 请注意螺纹孔尺寸和螺纹深度。安装电机时，请根据螺纹深度和您使用的电机固定座厚度，选择合适的螺丝。若使用过长的螺丝，拧入后可能损坏电机内部结构。
- 安装及拆卸电机时，切勿使异物进入电机内部。

5. 安装螺旋桨

安装时请自备螺丝胶和适用于桨夹螺丝(M3 × 11 , 外六角)的扳手。

1) 带 CW 标记的螺旋桨对应顺时针旋转电机，带 CCW 标记的螺旋桨对应逆时针旋转电机。
2) 在电机上方的安装孔螺纹内使用螺丝胶。
3) 使用 4 颗桨夹螺丝（ M3 × 11，外六角 ）安装螺旋桨至电机。

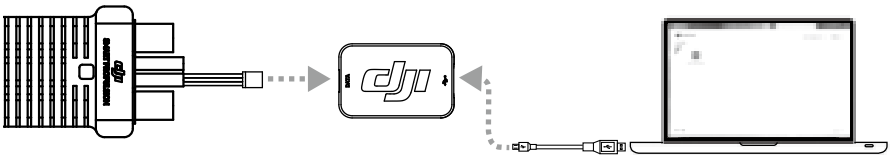


⚠
- 确保拧紧螺丝。螺丝过松可能会导致螺丝胶无法完全干燥固化。

- 务必在螺丝胶完全干燥固化后再进行飞行，否则可能导致射桨。

6. 使用 DJI Assistant 2

用户可通过 DJI ASSISTANT™ 2 调参软件进行电调固件升级 ※ 等。连接至 DJI Assistant 2 前，务必确保螺旋桨已拆下。



电调　　升级器　　计算机

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使用升级器前，请移除计算机上的其他串口设备，然后按以下步骤操作：

1) 从 DJI 官方网站下载并运行 DJI Assistant 2 安装程序，按照提示完成软件安装。(http://www.dji.com/e5000/info#downloads)
2) 将电调数据线接入升级器一端的接口，使用 Micro USB 线连接升级器与计算机。
3) 连接 12S LiPo 电池为电调供电，设置完成前请勿切断电源或断开连接。
4) 运行 DJI Assistant 2。软件界面显示已连接设备，表示电调与软件连接上并能正常通信。
5) 点击已连接设备中的 ESC 进入固件升级界面，查看固件版本。如果服务器上的固件较新于您的当前版本，注册 DJI 帐号或使用已有帐号登录，点击相应的链接按照提示进行升级。

⚠ 若 DJI Assistant 2 无法识别电调（未显示已连接设备）：

- 请检查计算机是否接有多个升级器、FTDI USB 适配器或其他可能使用到 FTDI 芯片组的开发工具（包括但不限于：BeagleBone、Raspberry、Arduino 等）。如果是，请断开其他 FTDI 设备，仅保留一个升级器，然后重新为电调供电，再重启软件，即可恢复正常。
- 请注意是否按照以下顺序进行连接和供电：首先将电调连接至计算机，然后为电调供电，最后运行 DJI Assistant 2。

※ 若使用 DJI N3 或 A3 飞控系统，将电调数据线通过智能电调通信转接线连接至主控器的 iESC 接口，可在飞控调参界面同时升级所有已连接电调的固件：将飞控连接至 DJI Assistant 2 -> N3 或 A3 图标 -> 固件升级 -> ESC 固件列表。

7. 电调工作状态描述

1280S 智能电调具备主动保护及报警功能，可减少电调损坏，延长使用寿命。用户可通过电调状态指示灯或提示音了解电调工作状态。

工作状态	指示灯	提示音	电调输出	触发的条件	解除的条件
正常工作	绿灯呼吸点亮	♪ 1356	正常	系统就绪	/
	绿灯常亮	/	正常	电机已启动	/
	黄灯常亮	/	正常	满油门旋转	/
断路保护	红黄绿灯交替闪烁	/	关闭	上电时电机相线断路、与电调连线异常	修复后重启电调
短路保护				上电时电机相线短路、电调输出短路、电调内部短路	
堵转保护	红灯快闪	/	关闭	电机堵转	修复后重启电调
过温报警	红灯双闪	/	正常	电调内部温度超过 100℃	电调内部温度低于 80℃
油门备份 *	黄灯慢闪	/	正常	飞行过程中主油门丢失，即电调 PWM 信号线连接断开，自动切换至备份油门	使用备份油门可以正常飞行至降落，但仍建议用户尽快降落并重新连接 PWM 信号线
油门异常报警	黄灯慢闪	B---B···	关闭	1. 飞行过程中主油门及备份油门均丢失，即电调 PWM 信号线和数据线均断开 2. 电机未启动时主油门丢失	1. 立即降落并重新连线 2. 此时不可切换至备份油门，请重新连线
	黄灯快闪	BBB···	关闭	上电时油门不在最小值	油门恢复到 1120 μs 以下
电压异常保护	红黄灯交替闪烁	BB---BB···	关闭	上电时输入电压不在 12S 锂电池正常工作范围内，即大于 52.2 V 或小于 43.2 V	调整输入电压
低电压报警		/	正常	运行过程中输入电压低于 42 V	电压恢复至 43.2 V 以上

* 需配合 DJI N3 / A3 飞控

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8. 规格参数

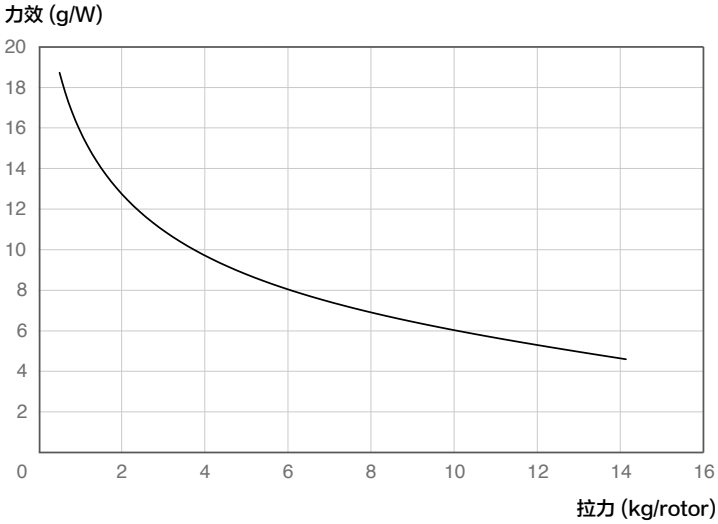
最大拉力	14 千克 / 轴（44.4 V，海平面）
推荐电池	12S LiPo
推荐起飞重量	4.5 - 7.0 千克 / 轴（海平面）
使用环境温度	-10 至 50℃
电 调	
最大允许电压	52.2 V
最大允许电流（持续）	80 A
最大允许峰值电流（3 秒）	120 A
PWM 输入信号电平	3.3 V / 5 V 兼容
工作脉宽	1120 - 1920 μs
兼容信号频率	30 - 500 Hz
电 池	12S LiPo
尺 寸	86 mm × 46 mm × 21 mm
线 长	三相电机线：150 mm 电源线：720 mm 信号线及数据线：900 mm
重量（含线）	189 g
电 机	
定子尺寸	100 × 10 mm
KV 值	120 rpm/V
重 量	M10：520 g，M10 Air：420 g
螺旋桨	
直径 × 螺距	711 × 203 mm（28 × 8 inch）
重量（单个螺旋桨）	161 g

9. 性能参数

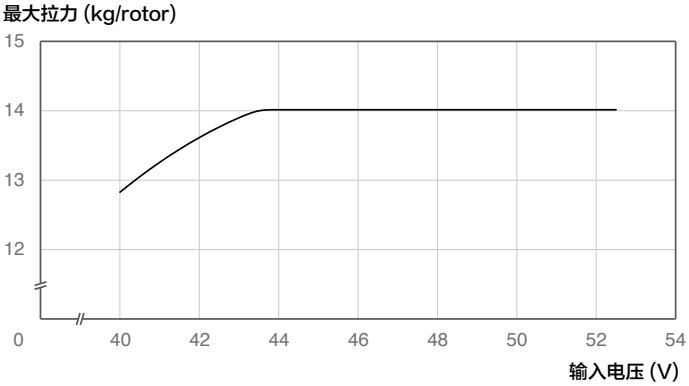
请根据以下性能参数合理使用动力系统。

⚠
- 建议在推荐起飞重量下飞行，以获得最佳性能。
- 请勿超重飞行，起飞重量超过最大推荐值的 1.2 倍会严重影响性能以及安全性。

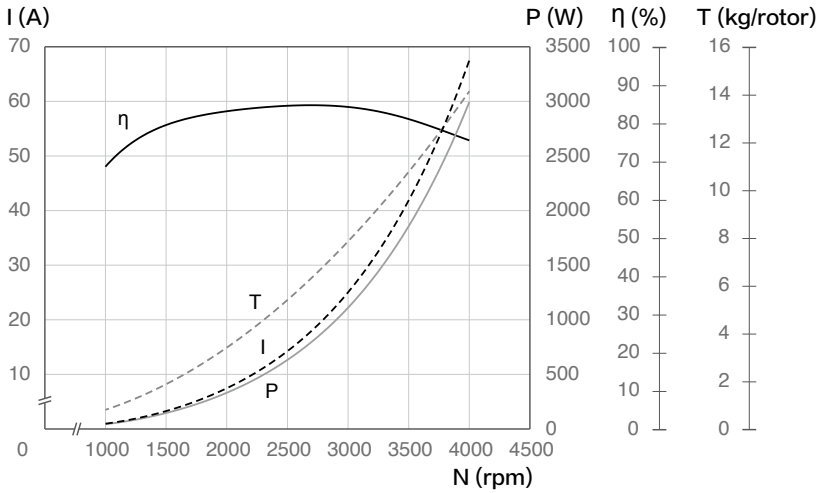
E5000 动力系统性能



以上数据为输入电压 44.4 V、室温 25℃、海平面高度的环境下，变化油门输入调节拉力测得。



以上数据为室温 25℃、海平面高度的环境下，满油门，调节输入电压测得。

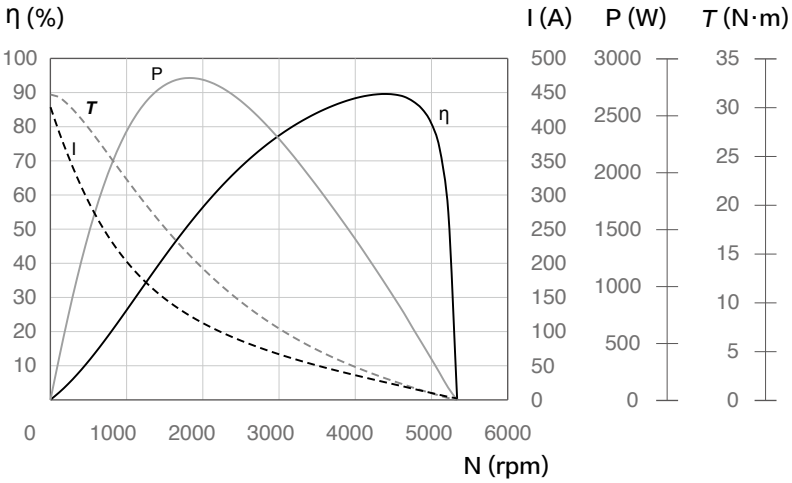


I- 电流，P- 输出功率， η - 电效率，T- 拉力，N- 转速

以上数据均为输入电压 44.4 V、室温 25℃、海平面高度的环境下，变化油门输入调节转速测得。

M10 / M10 Air 电机性能

性能曲线



η - 效率，I- 电流，P- 输出功率，*T*- 扭矩，N- 转速

以上数据均为输入电压 44.4 V 时的理论值，仅供参考。在室温 25℃、无额外冷却装置的情况下，电流超过 70 A 为不可工作区域，40 - 70 A 为短时（约 10 - 30 s）工作区域，40 A 以下为可持续工作区域。实际使用时，请根据工作环境温度和散热条件控制电机运行时间。

特征参数

速度常数	120 rpm/V
反电动势常数 *	0.0796 V·s/rad
机械时间常数	288 ms

电机转子惯量	M10: 302 kg·mm^2 M10 Air: 208 kg·mm^2
转子总惯量（含桨）	M10: 3408 kg·mm^2 M10 Air: 3314 kg·mm^2
扭矩常数 *	0.0790 N·m/A
线电感 **	41 - 50 μH
线电阻	60 mΩ
热时间常数	600 s

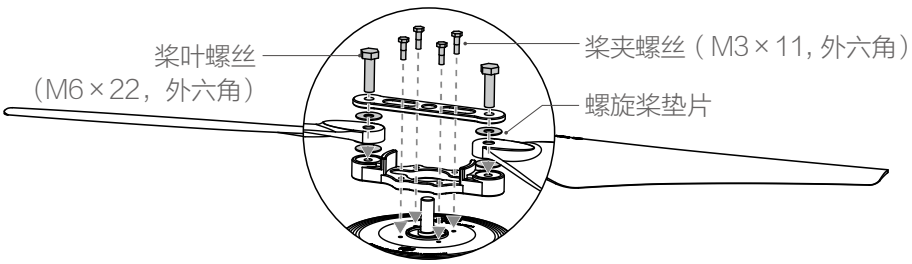
* 反电动势常数和扭矩常数在电机电流较大时会有所变化，以上数据主要适用于 20 A 以下工况。

** 线电感是在电流频率 1 kHz 的 RLC 电路中测得，其值随转子位置周期性变化。

10. 常见问题

如何更换桨叶或桨夹?

1) 使用 2 颗桨叶螺丝（M6 × 22，外六角）、4 颗桨夹螺丝（M3 × 11，外六角）和 4 个螺旋桨垫片重新安装螺旋桨。
2) 在桨夹和电机上方的安装孔螺纹内使用螺丝胶。
3) 安装桨叶螺丝（M6 × 22，外六角）至桨叶被夹紧且可自由旋转，然后安装 4 颗桨夹螺丝（M3 × 11，外六角）并拧紧。



⚠
- 确保拧紧螺丝。螺丝过松可能会导致螺丝胶无法完全干燥固化。
- 务必在螺丝胶完全干燥固化后再进行飞行，否则可能导致射桨。

内容如有更新，恕不另行通知。

您可以在 DJI 官方网站查询最新版本《用户手册》
http://www.dji.com/e5000

微信扫一扫
关注 DJI 公众号

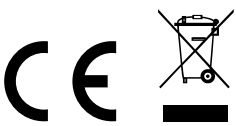
Compliance Information

FCC Compliance

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

EU Compliance Statement

SZ DJI TECHNOLOGY CO., LTD. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of the EMC Directive.
A copy of the EU Declaration of Conformity is available online at www.dji.com/euro-compliance



EU contact address: DJI GmbH, Industrie Strasse. 12, 97618, Niederlauer, Germany

DJI Support
DJI 技术支持

www.dji.com/support

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