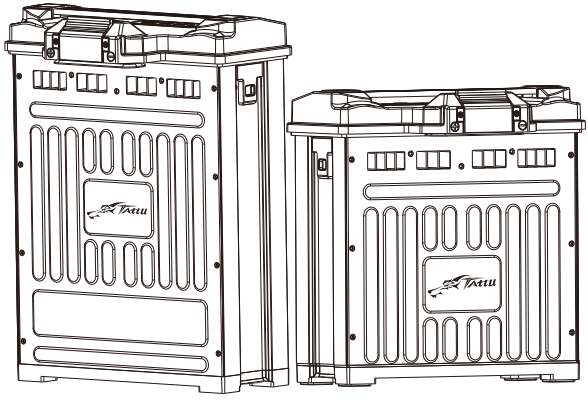
智能电池使用说明书
Intelligent Battery User Manual



TATTU-4.0

感谢您购买本产品，请严格遵守本手册的使用要求。

Thanks for purchasing the product, and please strictly follow the usage requirements in this manual.

深圳市格瑞普电池有限公司
SHENZHEN GREPOW BATTERY CO.LTD

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Disclaimer Agreement

Thank you for purchasing GREPOW's TATTU series products. Before using this product, please read and follow all safety and compliance guidelines provided in this document and by the TATTU battery. Failure to do so may result in harm to yourself and others, damage to this product, or damage to surrounding items.

By using this product, you are deemed to have carefully read this document, understood, acknowledged, and accepted all the terms and content of this document and all related documents of this product. You agree to use this product only for legitimate purposes. You agree to take full responsibility for the use of this product and any consequences that may arise. GREPOW shall not be liable for any damage, injury, or legal liability caused directly or indirectly by the use of this product.

If you do not agree to the above terms, please do not use this product and contact after-sales service to return the product.

Reading Instructions

This product uses the following terms to classify potential hazards that may arise from improper operation:

Note: **Failure to follow the instructions may result in property damage and minor injuries.**

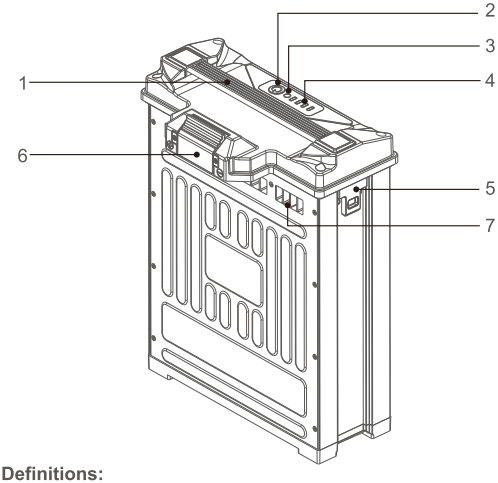
Warning: **Failure to follow the instructions may result in property damage, major accidents, and serious injuries.**

Warning

This product is relatively complex and requires a period of familiarization before it can be used safely. It also requires a certain level of professional knowledge to operate. Without a strong sense of safety awareness, improper operation may lead to product damage, property loss, and even serious injury to yourself or others. This product is strictly prohibited for use by individuals under the age of 18. Do not use parts not provided or recommended by the original manufacturer. Strictly follow the original manufacturer's guidelines for installation and use. This manual contains safety, operation, and maintenance instructions. Please read all instructions and warnings in this manual carefully before assembling, setting up, and using the product.

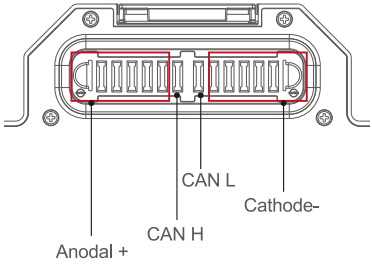
Introduction

The TATTU 4.0 intelligent battery (hereinafter referred to as the battery) adopts a new high-energy-density cell and an advanced battery management system. It is mainly used in agricultural plant protection, security mapping, power line inspection, and other fields. The system includes data collection, safety reminders, current calculation, automatic balancing, charging reminders, abnormal state alarms, human-computer interaction, historical query, parameter configuration, and other functions. It can provide sufficient power for drone systems. The nominal voltage of the battery is 53.2V.

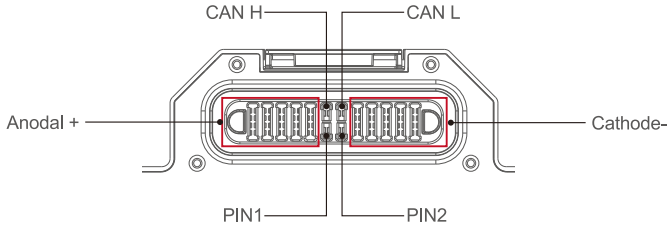


Connector Definitions:

MOLEX Connector Definition:



ACES Connector Definition (PIN1 and PIN2 shorted means "in position"):



1: Handle
Use this handle to lift the battery.

2: Power Button
① Short press to check the battery level. When the battery is in communication sleep, standby, charging, discharging, balancing, or storage mode, short press the button once, and the 4 battery level indicators will show the current battery level (SOC), which will turn off after 5 seconds.
② When connected to a load, short press + long press for 1 second to turn on the MOS output.

3: Status Indicator/RGB Light
After a short press, the RGB light will display the battery status in green, yellow, white, red, and blue.

4: LED Indicator
Indicates the battery level.

5: Battery Slot Limit Block
This limiting block secures the battery in place within the cabin, ensuring a stable connection with the connector.

6: Power Interface + Communication Interface + Fixing Buckle
Used to connect to the drone or charger. The fixing buckle is used to secure the battery to the drone. Ensure that the battery is firmly fixed to the drone via this buckle. When removing the battery from the drone, press this buckle.

7: Heat Dissipation Window
During flight, the heat dissipation window can expel internal heat, significantly reducing the battery temperature rise. Ensure the air duct is unobstructed.

Button Functions

Light definition		
State	**Color**	**Description**
Normal State	Green	Normal State
Battery protection mode	Yellow	The battery is automatically disabled. Please check TATTU APP to find out the reason, which will be helpful to check battery status and restore when the conditions are met.
Battery warning mode	White	The battery is at risk and not recommended for use. Please check TATTU APP to find out the reason, which will be helpful to check battery status and restore it when the conditions are met.
Battery failure	Red	The battery is unusable. Please contact TATTU after-sales and maintenance. The battery is unusable. Please contact TATTU after-sales service for analysis and maintenance.
Battery self-discharge and balance status	Blue	The battery can be used normally.

Molex Connector Power On/Off Logic

Power Off → Power On: Short press once, the LED lights up to display SOC. Within 5 seconds, long press the button, and the LED running light will light up until the status light turns green, indicating that the battery is powered on.

Power On → Power Off: Short press once, the SOC flashes. Within 5 seconds, long press the button, and the LED running light will turn off, and the status light will turn off, indicating that the battery is powered off.

ACES Connector Power On/Off Logic

Power Off → Power On: When the position detection pin is shorted, short press once, the LED lights up to display SOC. Within 5 seconds, long press the button, and the LED running light will light up until the status light turns green, indicating that the battery is powered on.

Power On → Power Off: When the position detection pin is shorted, short press once, the SOC flashes. Within 5 seconds, long press the button, and the LED running light will turn off, and the status light will turn off, indicating that the battery is powered off. When the position detection pin is disconnected, if no current or communication is detected, the battery will automatically power off within 3 seconds.

	Note: **Note: The battery must be powered off before removing it from the drone.**

Battery Functions

The TATTU 4.0 14S intelligent drone battery has the following functions:

1. Battery Level Display: The battery has built-in indicators. Quickly press the power button to check the remaining battery level.
2. Smart Communication: Through the communication interface, you can monitor the battery status in real-time, including voltage, battery level, temperature, etc., to ensure flight safety.
3. Smart Binding: The battery automatically matches the communication protocol with the drone. If a non-custom protocol drone device is used, the battery cannot be powered on for communication, and the battery will have no power output.
4. Multiple Protections: The battery has protection functions for undervoltage, overvoltage, low temperature, over-temperature, charging overcurrent, and other abnormalities to ensure the safety of the battery and the drone.
5. Log Recording: Automatically records battery logs for fault analysis and troubleshooting. When the data storage space is full, the earliest data records will be overwritten.
6. Automatic Balancing: Under specific conditions, the BMS will automatically balance the cell voltage faster, extending the battery life.
7. Smart Warning System: This product is equipped with an advanced battery health monitoring system that can analyze the battery usage status in real-time and provide warnings before potential battery abnormalities are detected. This function helps prevent accidental losses caused by battery performance degradation, ensuring the safety of your equipment and data integrity.

8. Temperature Monitoring: The BMS provides 24/7 battery temperature monitoring to ensure you are fully aware of the battery's temperature status. Once a temperature abnormality is detected, the system will immediately issue a warning (light display, Bluetooth, host computer, flight control connection interaction mode), ensuring you can take timely measures.
9. Smart Storage: Automatically discharges to a safe voltage after full charge to prevent damage from long-term storage. The battery temperature may slightly increase during the discharge process, which is normal.
10. Cycle Statistics: Records the number of charge and discharge cycles to understand the battery usage status.
11. Fault Statistics: Counts the number of battery faults and allows you to view detailed information through the APP.
12. Bluetooth Connection: Connect to the battery via the APP to achieve data monitoring and wireless upgrades.
13. Software Upgrade: Supports Bluetooth online upgrades or upgrades using the company's host computer with the BD300 module. Both upgrade methods require a short press of the battery button to wake up the battery for communication connection before upgrading.
14. Replaceable Plug: Reduces user maintenance costs.
15. Automatic Charging Current Adjustment: When using the TATTU smart industry charger, the battery BMS will automatically provide the charger with the optimal charging current suggestion based on the current battery temperature and battery level. The charger will execute the charging management strategy with appropriate charging current and full charge voltage based on these parameters, ensuring battery safety. Please note that this smart function is unique to TATTU chargers and cannot be implemented on other brand chargers.

⚠ Caution	• **Before using the battery, please read and strictly follow the requirements on the battery label and in this manual. The user is responsible for any consequences caused by not following the requirements.** • **Batteries with abnormal records caused by improper use will not be covered by the warranty.**

Using the Battery

1. Before using the battery, please press the button to check the battery level and ensure that the battery output port is not blocked by foreign objects.
2. Connect the battery to the drone correctly before operation.
3. Ensure the battery is powered off before mounting it on the drone.
4. Only use GREPOW's matching charger to charge the battery. Do not use chargers from other brands to charge the battery. The company is not responsible for any consequences caused by using incompatible chargers.
5. Do not block the heat dissipation window during flight.
6. Do not use the battery near heat sources, such as in a hot car, near a fire, or near a heating furnace.
7. Do not immerse the battery in water.
8. Do not use swollen, leaking, or damaged batteries. If any of these conditions occur, do not use the battery and contact the manufacturer for further processing.
9. Before installing the battery on the drone, ensure that the drone is equipped with an anti-spark module to avoid damaging the battery power interface due to sparks.
10. The battery should be used in an environment with a temperature between 10°C and 50°C. If the temperature is too high (above 60°C), there is a risk of swelling, which may cause the battery to catch fire or even explode. If the temperature is too low (below 10°C), the battery performance will be severely reduced and will not meet normal usage requirements. It can be used normally after returning to room temperature.
11. Do not use the battery in a strong electrostatic or magnetic field environment. Otherwise, it may cause the battery protection board to malfunction, leading to serious drone failures.
12. Do not disassemble the battery in any way or puncture it with sharp objects. This may cause the battery to catch fire or even explode. Batteries that have been disassembled privately will not be covered by the warranty.
13. Do not assemble the battery privately. Disassembling the battery cells and reassembling them or combining disassembled cells with another set of batteries is extremely dangerous and may cause short circuits, fires, and endanger personal safety.
14. Do not disassemble and replace the plug privately. If replacement is needed, contact customer service to discuss the replacement requirements. The company is not responsible for safety accidents caused by private replacement.

15. The liquid inside the battery is highly corrosive. If it leaks, stay away. If the liquid splashes on the skin or eyes, rinse immediately with clean water and seek medical attention immediately.
16. If the battery is dropped from the drone or subjected to external impact, causing deformation or damage, do not use it again.
17. If the battery accidentally falls into water during drone flight or under other circumstances, immediately remove the battery and place it in a safe, open area. Stay away from the battery until it is completely dry. Contact the manufacturer for confirmation and processing. If the battery catches fire, it is recommended to use the following fire extinguishers: water or water mist, sand, fire blanket, dry powder, or carbon dioxide fire extinguisher.
18. Do not place the battery in a microwave oven or pressure cooker.
19. Do not short-circuit the battery's positive and negative terminals with wires or other metal objects.
20. Do not hit the battery. Do not place heavy objects on the battery or charging equipment.
21. If the battery interface is dirty, wipe it clean with a dry cloth. Otherwise, poor contact may cause energy loss or failure to charge.
22. Avoid continuing to fly when the battery level is below 20%, as this may cause battery damage or flight accidents.
23. Do not reverse the battery's positive and negative terminals. Otherwise, abnormal charging may cause overcharging, explosion, or fire.
24. Do not use counterfeit batteries. If replacement is needed, contact the manufacturer. The company is not responsible for battery accidents or flight accidents caused by using counterfeit batteries.
25. When handling the battery, always hold the battery handle.
26. When placing the battery, ensure the ground is flat to prevent sharp objects from puncturing the bottom of the battery.
27. The battery is a hazardous item. Do not stack other items on the battery or use the battery or its packaging as a seat cushion, as this may cause battery damage or even danger.
28. The battery is heavy. Please handle it with care, avoid throwing it, and prevent it from tipping over, which may cause damage to the side of the battery. If the battery tips over and is damaged, immediately place it in an open area away from flammable materials and people. Wait for half an hour, then soak the battery in water for more than 48 hours. Ensure the battery is completely discharged before disposal.

29. Before each flight, ensure the battery has sufficient power.
30. If the drone enters low battery warning mode, land and stop flying as soon as possible, and replace the battery.
31. In low-temperature environments, it is recommended to preheat the battery to above 10°C before flying, and preheating to 20°C is even better.

SOC Display

SOC Display

The BMS is designed with 4 white LEDs, which can display the battery level in 8 levels.

Note: ● Indicates steady on; ○ indicates off; ⊙ indicates flashing;

SOC in Standby Mode and Battery Level Indication in Discharge Mode:

Current Voltage/Cell	Current Capacity	LED1	LED2	LED3	LED4
3.2~3.49V	0%~12%	⊙	○	○	○
3.5~3.58V	13%~24%	●	○	○	○
3.59~3.64V	25%~37%	●	⊙	○	○
3.65~3.70V	38%~49%	●	●	○	○
3.71~3.85V	50%~62%	●	●	⊙	○
3.86~3.98V	63%~74%	●	●	●	○
3.99~4.13V	75%~87%	●	●	●	⊙
4.14~4.3V	88%~100%	●	●	●	●

Note: SOC does not have a fixed corresponding voltage value. SOC is adjusted in real-time based on the battery status. The voltage value is only for static SOC reference.

Battery Level Indication in Charging Mode (Flashing Lights in Running Light Form):

Current Capacity	LED1	LED2	LED3	LED4
0%~12%	⊙	⊙	⊙	⊙
13%~37%	●	⊙	⊙	⊙
38%~62%	●	●	⊙	⊙
63%~94%	●	●	●	⊙
95%~100%	●	●	●	●

Note: When entering charging in sleep/non-sleep mode, the indicator lights will turn off 3 seconds after the charger is disconnected.

Charging

1. The battery must be charged using the charger recommended by the manufacturer. The company is not responsible for any consequences caused by using chargers that do not meet the requirements.
2. When charging, place the battery and charging equipment on cement or other non-flammable, non-explosive, and non-combustible ground. Stay present during charging to prevent accidents. To ensure charging safety, the distance between batteries should be more than 30cm to avoid charger or battery failure due to concentrated heat, which may cause serious consequences such as fire.
3. After the drone flight, the battery is in a high-temperature state. It is recommended to wait until the battery temperature drops below 55℃ before charging. Otherwise, a high-temperature charging warning may occur.
4. Using GREPOW's dedicated charger can automatically adjust the charging current based on the battery temperature. Charging within the specified environment and according to the requirements can extend the battery life.
5. Do not charge the battery near heat sources, such as in direct sunlight, in a hot car, near a fire, or near a heating furnace.
6. Regularly check the battery interface, plug, and other components. Do not use alcohol or other flammable agents to clean the charging equipment. Do not use damaged charging equipment.
7. Ensure the battery is dry before charging.
8. If the battery voltage is below 49.0V and has not been charged for more than 24 hours, you need to press the power button briefly before charging.

Battery Storage and Transportation

1. After each use, disconnect the battery from the drone and check the battery power interface for any foreign objects. If any, clean them promptly. When transporting the battery, use the original packaging and inner tray provided by the manufacturer. Otherwise, battery collision may cause danger.
2. Store the battery out of reach of children. If a child accidentally swallows any part, seek medical attention immediately.
3. If the battery prompts low power after flight, charge it to 40%-60% for storage. If there is no need to use the battery for a long time, it is recommended to fully charge the battery before storage. The BMS will enter balancing and storage mode for self-maintenance to the best state. Otherwise, long-term storage may cause battery damage.

4. Do not store the battery near heat sources, such as in direct sunlight, in a hot car, near a fire, or near a heating furnace.
5. The storage environment should be dry. Do not place the battery in water or where it may leak.
6. Do not store or transport the battery with glasses, watches, metal necklaces, hairpins, or other metal objects.
7. Do not transport damaged batteries or batteries with a charge level above 70%.
8. When placing the battery, ensure the ground is flat to prevent sharp objects from puncturing the bottom of the battery.
9. If the battery is to be stored for a long time (more than 3 months), it must be stored in an environment with a temperature between -20°C and 35°C, and it is recommended to use a dedicated explosion-proof box for storage.
10. Do not store the battery after it has been completely discharged for a long time, as this may cause the battery to enter an over-discharged state, damaging the cells and making it unusable.
11. If the battery is severely undercharged and left idle for too long, it will enter deep sleep mode. To wake the battery from deep sleep, perform a charge and discharge cycle.
12. If the battery is to be stored for a long time, disconnect it from the drone.

Disposal

Soak the battery in water for more than 48 hours to ensure it is completely discharged before placing it in a designated battery recycling bin. The battery is a hazardous chemical and must not be disposed of in ordinary trash bins. Follow local laws and regulations for battery recycling and disposal.

Maintenance

- Do not store the battery in an environment with a temperature above 45℃ or below -20°C.
- Long-term idle storage will affect the battery's performance.
- Recharge and discharge the battery every 3 months to maintain its activity.
- Batteries that have not been maintained (charged and discharged) for more than 5 months will not be covered by the warranty.
- It is recommended to replace the connectors on the battery and drone every 300 cycles. Long-term use of the plug may cause increased impedance due to wear, which may lead to poor contact, overheating of the connector, and potential safety hazards.

Technical Specifications

Product Parameters		
Battery Type	Rechargeable Lithium-ion Polymer Battery Pack	
Model	TA4TCG30K1435X	TA4TCG20K1425X
Battery Configuration	14S1P	14S1P
Nominal Capacity	30000mAh	20000mAh
Energy	1596Wh	1064Wh
Maximum Continuous Discharge Current	270A	180A
Peak Discharge Current	350A(＜3S)	300A(＜3S)
Nominal Voltage	53.2V	53.2V
Charging Environment Temperature	5°C to 60°C	5°C to 60°C
Discharging Environment Temperature	10°C to 50°C	10°C to 50°C
Charging Upper Limit Voltage	60.2V(4.3V/cell)	60.2V(4.3V/cell)
Recommended Alarm Voltage	48.3V(3.45V/cell)	48.3V(3.45V/cell)
Recommended Forced Landing Voltage	46.9V(3.35V/cell)	46.9V(3.35V/cell)
Dimensions (T*W*H)	145.5*251*333mm	145.5*251*261mm
Battery Weight	11500g±300g	8200g±300g
Warranty Usage Time Limit	12 months	12 months
Low Battery Safe Storage Time	15 months	15 months
Cycle Life	650 cycles	650 cycles
Compatible Charger	TA7200Pro / TA9000Plus	TA7200Pro / TA9000Plus
Charging Reference Time	10 minutes (30%~90%)	8 minutes (30%~90%)

Note: The charging time is measured in a laboratory environment at 25°C and is for reference only.

TATTU APP Download Methods

1. For Android version, please scan the code to download:

Scan the code to download APP

2. For iOS, search for "TATTU" in the App Store to download.

For technical support and the latest information

Technical Support

If there are any updates internally, you can contact the supplier to obtain the latest version of the manual. We will not notify you separately.

If you have any questions or suggestions about the manual, please contact us via the following:

Contact us:

Official Website: www.tattuworld.com
Official Email: info@tattuworld.com

Local Service:

United States:
Official Website: www.genstattu.com
Official Email: info@genstattu.com
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免责协议

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如您不同意上述条款，请勿使用本产品，并联系售后服务以退回产品。

阅读提示

本产品使用以下词条对因操作不当可能带来的潜在危险加以分级说明!

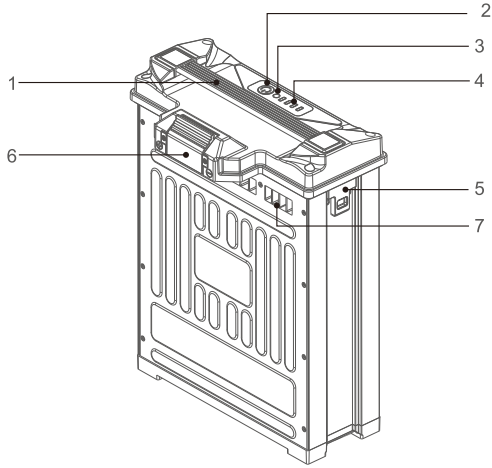
	**注意：如果不遵循说明进行操作，可能会导致财产损失或轻微伤害。**
	**警告：如果不遵循说明进行操作，可能会导致财产损失、重大事故和严重伤害。**

警　告

本产品较为复杂，需要经过一段时间熟悉后才能安全使用，并且需要具备一定专业知识后才能进行操作。如果没有强烈的安全意识，不恰当的操作可能会导致产品损坏和财产损失，甚至对自身或他人造成严重伤害。本产品严禁十八周岁以下人士使用。切勿使用非原厂提供或建议的部件，必须严格遵守原厂的指引安装和使用产品。本说明包含安全、操作和维护等说明，在进行组装、设置和使用之前务必仔细阅读本说明中的所有说明和警告。

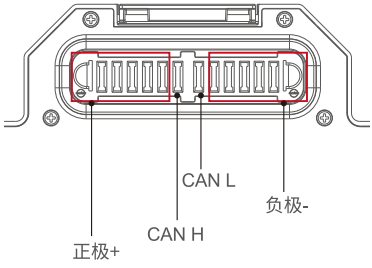
简　介

TATTU 4.0 智能电池（以下简称电池）采用全新的高能量密度电芯和先进的电池管理系统。主要用于农业植保、安防测绘、电力巡检等领域。全系统包含数据采集、安全提醒、电流计算、自动均衡、充电提醒、异常状态报警、人机交互、历史查询、参数配置等功能。能够为无人机系统提供充足电力,电池的标称电压为53.2V。

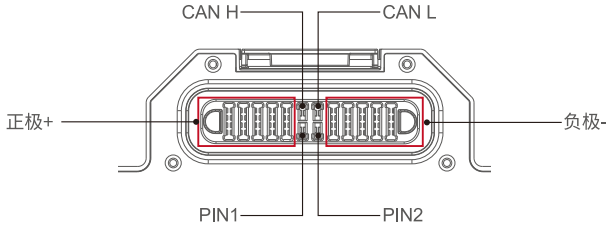


连接器定义

MOLEX连接器定义:



ACES连接器定义（PIN1与PIN2短接即为“在位”）：



1：提手

可通过此提手提起电池。

2: 电源按钮

①短按可查看电池电量，在电池通讯休眠、静置、充放电、均衡、存储模式下，短按按键一次，4个电量指示灯可指示电池当前电量（SOC），5S后熄灭。

②连接到负载，短按+长按1秒开启MOS输出。

3: 状态指示灯/RGB灯

短按按键后可通过RGB显示电池状态，颜色分别为绿色、黄色、白色、红色、蓝色、

4：LED指示灯

可指示电池电量。

5：电池滑槽限位块

通过此限位块将电池限制在机舱内的位置，确保与连接器的连接稳固。

6：电源接口+通讯接口+固定卡扣

用于连接无人飞机或充电器，固定卡扣用于固定电池到无人机，务必确认电池已通过此卡扣牢固固定于无人机。从无人飞机上取下该电池时，需按住此卡扣。

7：散热窗口

飞行状态下通过散热窗口可以将电池内部温度导出，能极大降低电池温度上升，保证风道畅通。

按键功能

RGB灯定义		
状态	颜色	说明
正常状态	绿色	正常状态
电池保护模式	黄色	电池自动禁用，查看APP了解原因，满足条件后可恢复正常。
电池告警模式	白色	电池存在风险，不建议使用，查看APP了解原因，满足条件后可恢复正常。
电池永久失效	红色	电池不可用，请联系TATTU售后进行分析和维护。
电池自放电与均衡状态	蓝色	电池可正常使用。

Molex连接器开关机逻辑

关机→开机状态： 短按1次，LED亮起显示SOC，在5s内长按按键 LED跑马灯亮起直到状态灯绿灯亮起表示已开机；

开机→关机状态： 短按1次，SOC闪烁，在5s内长按按键，LED跑马灯熄灭，状态灯熄灭即关机。

ACES连接器开关机逻辑

关机→开机状态： 在位检测针短接时，短按1次，LED亮起显示SOC，在5s内长按按键 LED跑马灯亮起直到状态灯绿灯亮起表示已开机；

开机→关机状态： 在位检测针短接时，短按1次，SOC闪烁，在5s内长按按键，LED跑马灯熄灭，状态灯熄灭即关机，在位检测针断开时，检测到电池无电流、无通讯，3S内自动关机。

注意：电池组关机后才能从飞行器上移除。

电池功能

TATTU 4.0 14S智能无人机电池具有以下功能:

1. **电量显示:** 电池自带指示灯,快速按下电源键即可查看剩余电量。
2. **智能通讯:** 通过通讯接口,可以实时监控电池状态,包括电压、电量、温度等,确保飞行安全。
3. **智能绑定:** 电池与无人机自动匹配通讯协议,使用非定制协议的无人机设备,无法对电池进行通讯开机,电池无动力输出。
4. **多重保护:** 电池具备欠压、过压、低温、过温、充电过流等异常保护功能,保障电池和无人机安全。
5. **日志记录:** 自动记录电池日志,便于故障分析和排查,数据存储器空间满后,会循环覆盖最早的数据记录。
6. **自动均衡:** 电池在特定条件下,BMS会自动更快平衡电芯电压,延长电池寿命。
7. **智能预警系统:** 本产品配备先进的电池健康监测系统,能够实时分析电池使用状况,并在检测到潜在的电池异常前提供预警。这一功能有助于预防因电池性能下降而导致的意外损失,确保您的设备安全和数据完整。
8. **温度智能监控:** BMS提供全天候的电池温度监测功能,确保您对电池的温度状态了如指掌。一旦检测到温度异常,系统将立即发出告警提示(灯显、蓝牙、上位机、飞控连接的交互模式下),确保您能够及时采取措施。
9. **智能存储:** 满电后自动放电至安全电压,防止长时间存储损害电池。放电过程电池温度可能会略微升高,属于正常现象。
10. **循环统计:** 记录电池充放电次数,了解电池使用状况。
11. **故障统计:** 统计电池故障次数,并通过APP查看详细信息。
12. **蓝牙连接:** 通过APP连接电池,实现数据监控和无线升级等操作。
13. **软件升级:** 支持蓝牙在线升级,或使用我司配套的上位机搭配BD300模块进行升级,两种升级方式都需要先短按电池按键,将电池唤醒进行通讯连接后才能升级。
14. **插头可更换:** 降低用户维修成本。
15. **自动调节充电电流:** 使用TATTU智能行业充电器时,电池BMS将基于当前电池的温度与电量状态,自动向充电器提供最优化的充电电流建议。充电器会根据这些参数,以适当的充电电流和满电电压执行充电管理策略,从而确保电池的安全性。需特别注意的是,此智能功能仅为TATTU充电器所独有,无法在其他品牌充电器上实现。

注 意	• 使用电池前请详细阅读并严格遵守电池表面贴纸上及本说明书中的要求。未按要求使用造成的后果由用户承担。 • 对于非正常使用导致产生电池异常记录的电池不予保修。

使用电池

1. 使用电池前请短按按键检查电池电量，并且确认电池输出端口无异物堵塞。
2. 电池正确连接至无人飞机后再进行作业。
3. 上飞机前必须确保电池处于关机状态。
4. 必须匹配格瑞普配套充电器给电池充电。禁止使用其他品牌充电器给电池充电，否则因使用不匹配充电器造成一切后果，本公司概不负责。
5. 飞行时禁止有遮挡物遮挡散热窗口。
6. 禁止在靠近热源的地方使用电池，比如热天的车内、火源或加热炉。
7. 请勿将电池浸入水中；
8. 严禁使用鼓包的、漏液的、包装破损的电池。如有以上情况发生，请不要使用电池并联系厂商做进一步处理。
9. 在将电池安装在无人飞机前，请确认无人机上安装了防打火模块，避免电池因火花损坏电池电源接口。
10. 电池应在环境温度为10-50°C之间使用。温度过高（高于60°C），有胀气鼓包的风险，可能会引起电池着火，甚至爆炸。温度过低（低于10°C），电池性能将会严重降低，不能满足正常使用要求。恢复常温后可以正常使用。
11. 禁止在强静电或者磁场环境中使用电池。否则可能导致电池保护板异常，从而导致无人飞机发生严重故障。
12. 禁止以任何方式拆解或使用尖利物体刺破电池。否则将会引起电池起火甚至爆炸。私自拆解后的电池厂商将不予以保修。
13. 禁止私自组装电池。将电池电芯拆开后重组、或者将拆开后的电芯与另外一组电池重组的行为的是极其危险的，容易引起电池短路、燃烧，危及人身安全。

14. 禁止私自拆解更换插头，如需更换必须联系客服对接更换要求后进行拆解，私自更换引发的安全事故我司概不负责。

15. 电池内部液体有强腐蚀性，如有泄露，请远离。如果内部液体溅射到人体皮肤或者眼睛，请立即用清水冲洗干净，并立即就医。

16. 电池如从无人飞机摔落或受外力撞击导致电池变形、破损，不得再次使用。

17. 如果电池在无人飞机飞行过程中或其他情况下意外坠入水中，请立即拔出电池并将其置于安全的开阔区域，这时应远离电池直至电池完全晾干。同时联系厂商进行确认处理。若电池发生起火，推荐使用以下灭火器材进行灭火：水或水雾、沙、灭火毯、干粉、二氧化碳灭火器。

18. 请勿将电池放置于微波炉或压力锅中。

19. 禁止用导线或其他金属物体致使电池正负极短路。

20. 请勿撞击电池。请勿在电池或充电设备上放置重物。

21. 如果电池接口有污物，请使用干布擦干净。否则会造成接触不良，从而引起能量损耗或无法充电。

22. 请避免在电池电量低于20%的情况下继续飞行，否则将会造成电池损坏或者引发飞行事故。

23. 禁止反接电池正负极，否则电池被异常充电可能会导致过充、爆炸或起火。

24. 严禁使用盗版电池，如需更换，请联系厂商。因使用盗版电池而引发的电池事故、飞行事故，本公司概不负责。

25. 拿取电池时，请务必握住电池提手。

26. 放置电池时需要确认电池地面平整，防止尖锐物品戳坏电池底部。

27. 电池属于危险物品。禁止在电池上堆放其他物品，或将电池以及含有电池的包装当坐垫使用，否则可能导致电池损坏，甚至发生危险。

28. 电池较重，请小心放置，轻拿轻放，避免重掷，以防电池倾倒，导致电池侧面损坏。若发生电池倾倒并损坏的情况，请立即将电池放置于开阔区域，远离可燃物及人群。等待半小时后，将电池于水中浸泡48小时以上。确保电池电量已完全耗尽后方可进行报废处理。

29. 每次飞行前，请确保电池有足够的电量。

30. 若无人飞机进入低电量报警模式，应尽快降落并停止飞行，更换电池。

31. 在低温环境下，建议在飞行前将电池预热至10°C以上，预热至20°C更佳。

SOC显示

BMS共设计了4个白色LED，可分8个等级显示电池电量。

注： ●表示常亮；○表示熄灭；⊙表示闪烁；

静止模式SOC和放电模式下的电量指示：

当前电压	当前容量	LED1	LED2	LED3	LED4
3.2~3.49V	0%~12%	⊙	○	○	○
3.5~3.58V	13%~24%	●	○	○	○
3.59~3.64V	25%~37%	●	⊙	○	○
3.65~3.70V	38%~49%	●	●	○	○
3.71~3.85V	50%~62%	●	●	⊙	○
3.86~3.98V	63%~74%	●	●	●	○
3.99~4.13V	75%~87%	●	●	●	⊙
4.14~4.3V	88%~100%	●	●	●	●

注：SOC无固定对应的电压值，SOC随电池状态实时调整，电压值仅作为静态SOC参考。

充电模式下的电量指示（闪烁的灯为跑马灯的形式）：

当前容量	LED1	LED2	LED3	LED4
0%~12%	⊙	⊙	⊙	⊙
13%~37%	●	⊙	⊙	⊙
38%~62%	●	●	⊙	⊙
63%~94%	●	●	●	⊙
95%~100%	●	●	●	●

注：在休眠\非休眠模式下进入充电，充电满后断开充电器指示灯亮3秒后全部熄灭。

充 电

1. 电池必须使用厂商推荐的充电器进行充电。对于因使用不符合要求的充电器进行充电所造成的一切后果，将不予负责。
2. 充电时请将电池和充电设备放置在水泥地等周围无易燃、易爆、可燃物的地面。电池充电时请在场看管，以防止意外发生。为保证充电安全，充电时，电池与电池之间的距离需大于30cm，以免因为发热集中而导致的充电器或电池故障，甚至造成火灾等严重后果。

3. 无人飞机飞行结束后，电池处于高温状态，建议待电池降至55°C后再进行充电，否则可能会出现高温充电告警的情况。
4. 使用格瑞普专用充电器可自动根据电池温度调整充电电流，在规定的环境内按要求充电可延长电池的使用寿命。
5. 禁止于靠近热源的地方对电池进行充电，比如阳光直射处或热天的车内、火源或者加热炉。
6. 经常检查电池接口、插头等各个部件。切勿使用酒精或者其他可燃剂清洁充电设备。切勿使用已有损坏的充电设备。
7. 确保电池在干燥状态下进行充电。
8. 电池电压低于49.0V，超过24小时未充电，再次充电时，需要短按电源按键后才能充电。

电池存储与运输

每次使用完毕，断开无人飞机与电池的连接后，请检查电池电源接口是否有杂物，若有，请及时清理，运输电池时，请使用原厂搭配的包装内托及包装箱进行运输，否则可能因为电池碰撞造成危

1. 请将电池存放在儿童接触不到的地方。如果儿童不小心吞咽零部件，应立即寻求医疗救助。
2. 如果飞行结束后电池提示低电量，需充电到40%-60%存放，如长时间无使用需求，建议将电池充满电后放置，BMS会进入均衡、存储模式自保养至最佳状态，否则长时间存放可能导致电池损坏。
3. 禁止将电池放在靠近热源的地方，比如阳光直射或者热天的车内、火源或加热炉。
4. 存放电池的环境应保持干燥。请勿将电池至于水中或者可能会漏水的地方。
5. 禁止将电池与眼镜、手表、金属项链、发夹或者其他金属物体一起贮存或运输。
6. 切勿运输有破损或电池电量高70%的电池。
7. 放置电池时需要确认地面平整，防止尖锐物品戳坏电池底部。
8. 若长期（超过3个月）存储电池，则必须置于温度为-20°C~35°C的环境中，并建议使用专用防爆箱进行存储。
9. 切勿将电池彻底放完电后长时间存储，以避免电池进入过放状态，造成电芯损坏，将无法恢复使用。
10. 若电池电量严重不足且闲置时间过长，则电池将进入深度睡眠模式，若需要将电池从深度睡眠中唤醒，需要对电池进行一次充放电。
11. 若需要长期存放则需将电池与无人飞机的连接断开。

废 弃

务必将电池在水中浸泡48小时以上，确保电池已经彻底放完电后，再将电池置于特定的电池回收箱中。电池是危险化学品，严禁废置于普通垃圾箱。相关细节，请遵循当地电池回收和弃置的法律法规。

保 养

1. 切勿将电池存储在室温超过45°C或者低于-20°C的环境下。
2. 若长期闲置电池，将会对其性能造成影响。
3. 每隔3个月左右重新充放电一次以保持电池活性。
4. 超过5个月未进行维护（充放电）的电池将不予以保修。
5. 建议每300次循环更换电池端和飞机端的连接器。长期使用插头可能会因磨损导致阻抗增大，严重时可能引发接触不良、连接器过热，从而带来安全隐患。

技术参数

产品参数		
电池类型	可充电锂离子聚合物电池组	
型号	TA4TCG30K1435X	TA4TCG20K1425X
电池串并数	14S1P	14S1P
标称容量	30000mAh	20000mAh
能量	1596Wh	1064Wh
最大持续放电电流	270A	180A
峰值放电电流	350A（<3S）	300A（<3S）
标称电压	53.2V	53.2V
充电环境温度	5°C至60°C	5°C至60°C
放电环境温度	10°C至50°C	10°C至50°C
充电上限电压	60.2V（4.3V/cell）	60.2V（4.3V/cell）
建议报警电压	48.3V（3.45V/cell）	48.3V（3.45V/cell）

产品参数		
建议迫降电压	46.9V (3.35V/cell)	46.9V (3.35V/cell)
外围尺寸 (T*W*H)	145.5*251*333mm	145.5*251*261mm
电池重量	11500g±300g	8200g±300g
保修使用时间限制	12个月	12个月
低电量安全存储时间	15个月	15个月
循环次数	650次	650次
适配充电器	TA7200Pro / TA9000Plus	TA7200Pro / TA9000Plus
充电参考时间	10分钟 (30%~90%)	8分钟 (30%~90%)

充电时间为在25°C的实验环境下测得，仅供参考

智能电池手机APP下载方式

1. 安卓版本请扫码下载

2. IOS版本在应用商店搜索“TATTU”下载。

扫码下载APP

获取技术支持以及最新资讯

技术支持

内部如有更新，您可联系供应商获取最新版本说明书，恕不另行通知。

如果您对说明书有任何疑问或建议，请联系我们：

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官方邮箱：info@tattuworld.cn

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