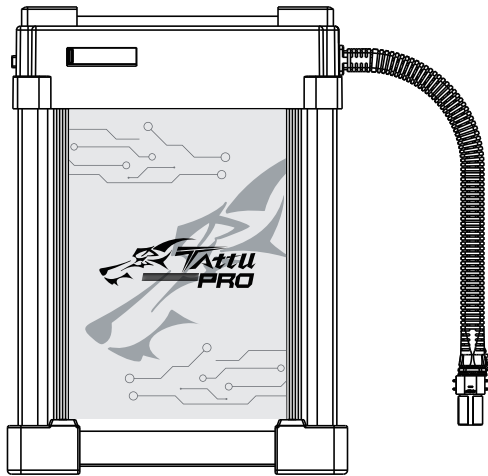




Smart Battery User Manual

Tattu PRO

The following instructions in this manual should be read carefully before using the product.



SHENZHEN GREPOW BATTERY CO.,LTD

※Lithium polymer batteries contain active substances that can easily cause fires without proper usage. TATTU manufacturer, distributors and dealers will not be held responsible or liable for any personal injury or property damage caused from improper usage of TATTU products without reading the instructions.

Telephone:
CN: +86 0755-88376372
DE: +49 (0)211 93670190
USA: +1 (925) 364-7166

Official E-mail:
info@grepow.com
info@gensace.de
info@genstattu.com

Product Description

Introduction:

The TATTU Pro is suitable for multiple drone systems. There are many smart features, which include data collection, safety reminder, power calculation, automatic balancing, charging reminder, abnormal-status alarm, data transmission and more.

Product Parameters

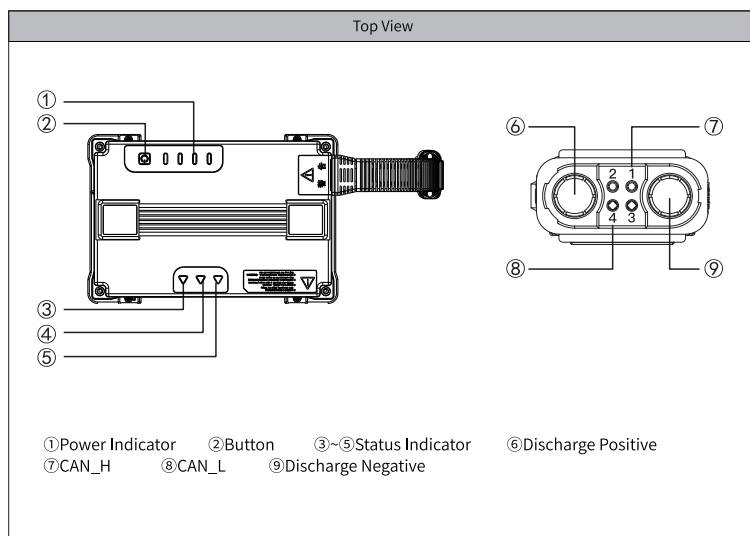
| Battery Type | | Rechargeable lithium-ion polymer battery pack | |
|-------------------------------------|--------------------|---|--|
| Model | TAPRAS22K1225X | TAPRAS22K1425X | |
| Nominal Capacity | 22Ah | | |
| Battery Configuration | 12S1P | 14S1P | |
| Typical Voltage | 44.4V | 51.8V | |
| Size (L*W*H) | 238* 174*117mm | | |
| Battery Weight (±100g) | 6400g | 7200g | |
| Power (Wh) | 976.8Wh | 1139.6Wh | |
| Max Continuous Discharge Current | 100A | | |
| Peak Discharge Current | 150A (<3S) | | |
| Max Fast Charging Current | 66A | | |
| Recommended Charging Temperature | +10°C to +45°C | | |
| Recommended Discharging Temperature | +10°C to +60°C | | |
| Max Charging Voltage | 50.4V (4.2V/cell) | 58.8V (4.2V/cell) | |
| Recommended Landing Voltage | 43.2V (3.6V/cell) | 50.4V (3.6V/cell) | |
| Recommended Forced Landing Voltage | 42.6V (3.55V/cell) | 49.7V (3.55V/cell) | |

Product List

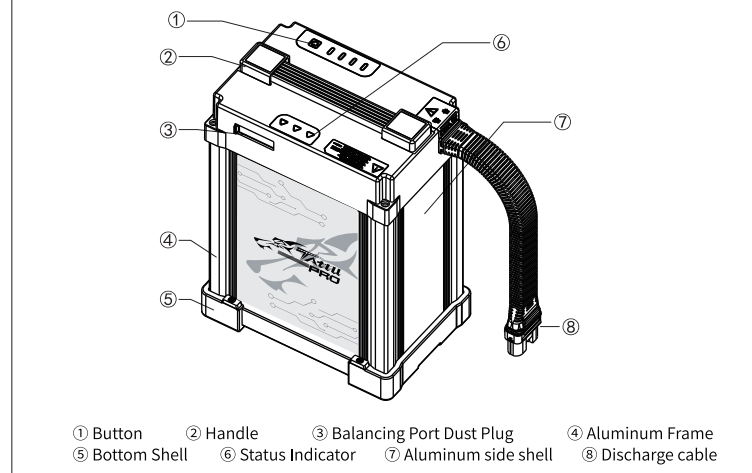
| Battery Pack(1 PC) | Molex charging balance Adapter (1PC) | User Manual(1 PC) |
|--------------------|--------------------------------------|-------------------|
| | | |

Product Operational Guide

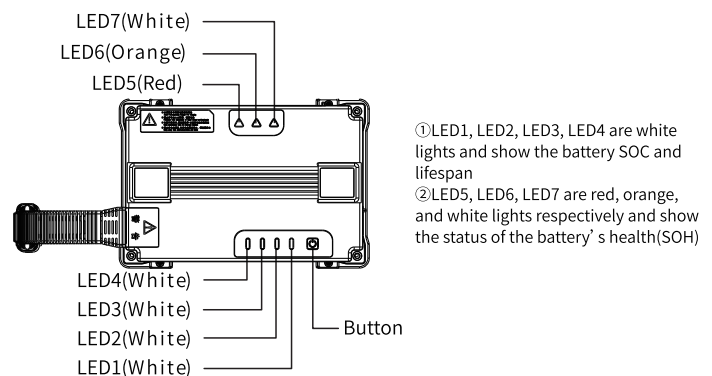
1. Overview



3D Diagram



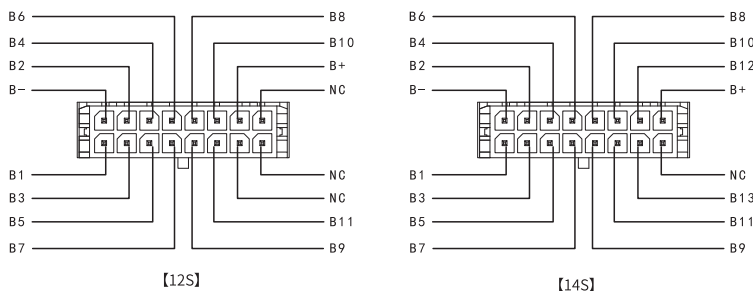
2. Definition of Indicator, Button and Balancing Port



③ Description of Button Function

| Battery Status | Button Operation | Function |
|----------------|-------------------------------------|---------------------------------------|
| LED Off | Short press | Check remaining power |
| LED Off | Short press+long press($\geq 2s$) | LED on, LED shows the remaining power |
| LED On | Short press+long press($\geq 2s$) | LED off |
| LED Off | long press($\geq 5s$) | Shows battery lifetime |

④ Definition of Balancing Port



3. Operation Guide

① Check Battery's Remaining Power

The LED lights will indicate the battery's remaining power

| Remaining Power | LED1 | LED2 | LED3 | LED4 |
|-----------------|-------|-------|-------|-------|
| 0% ~ 12% | Blink | Off | Off | Off |
| 13% ~ 24% | On | Off | Off | Off |
| 25% ~ 37% | On | Blink | Off | Off |
| 38% ~ 49% | On | On | Off | Off |
| 50% ~ 62% | On | On | Blink | Off |
| 63% ~ 74% | On | On | On | Off |
| 75% ~ 94% | On | On | On | Blink |
| 95% ~ 100% | On | On | On | On |

4. Sleeping Mode

① Sleeping mode reduces self-consumption and starts when the battery is inactive for 10 minutes after powering on. The battery can be activated again by charging and discharging.

② When any cell voltage is lower than 3.65V, the BMS will enter a second-class low-power consumption mode to ensure battery safety. If this ever occurs, you must charge the battery immediately in order to avoid irreversible damage.

5. Self-balancing Function

The self-balancing function is activated when the battery is left alone for more than 6 hours. In this mode, the voltage difference of each cell will meet the preset value.

6. Smart Storage Mode

The battery can be stored if the SOC LEDs show the modes below:

| Remaining Power | Red LED1 | White LED2 | White LED3 | White LED4 |
|-----------------|----------|------------|------------|------------|
| 50%~62% | On | On | Blink | Off |
| 63%~74% | On | On | On | Off |

The smart storage mode starts if the battery is left alone >6 days and/or if any cell voltages are >3.95V and the temperature is <60°C (It's normal if the temperature rises during discharge). The smart storage mode stops once any cell voltages are $\leq 3.95V$, the temperature is $\geq 60^\circ C$, or with any charge and discharge action. Store the battery in a battery box, and do not store the battery for a long period of time after it has been completely discharged. This is to prevent the battery from an over-discharged state, which will cause cell damage. If the battery is left alone for more than 5 days, discharge the battery to 40-70% capacity for storage.

7. Common Failures And Troubleshooting Methods

| Warnings | Description | Solution |
|--------------------------|--|---|
| Charging Over-current | When the battery charging current exceeds the design value | Check if the charger current setting is correct. Disconnect the connector between the charger and the battery, and the warning should disappear |
| Charging Over-voltage | Overcharge alarm will be triggered when the battery is fully charged, but charging will continue | The alarm will stop when the connector between the charger and battery is disconnected and the battery voltage drops to 4.18V/cell |
| Low temperature | The battery temperature is too low for charging | When the battery temperature rises above 15°C, the alarm will stop |
| Battery High Temperature | The battery temperature is too high for charging | The alarm will stop when the battery is cooled below 45°C |

② Check Battery's Lifespan

Press and hold the button for 5 seconds when the battery is powered off

| Remaining Lifetime | LED1 | LED2 | LED3 | LED4 |
|--------------------|-------|-------|-------|-------|
| 88% ~ 100% | On | On | On | On |
| 75% ~ 87% | On | On | On | Blink |
| 63% ~ 74% | On | On | On | Off |
| 50% ~ 62% | On | On | Blink | Off |
| 38% ~ 49% | On | On | Off | Off |
| 25% ~ 37% | On | Blink | Off | Off |
| 13% ~ 24% | On | Off | Off | Off |
| Below 12% | Blink | Off | Off | Off |

③ Charging

Charging when power is on: the battery indicator will turn off 10 minutes after the battery is fully charged
Charging when power is off: the battery indicator will turn off after the battery is fully charged

| Remaining Power | LED1 | LED2 | LED3 | LED4 |
|-----------------|-------|-------|-------|-------|
| 0% ~ 12% | Blink | Blink | Blink | Blink |
| 13% ~ 37% | On | Blink | Blink | Blink |
| 38% ~ 62% | On | On | Blink | Blink |
| 63% ~ 94% | On | On | On | Blink |
| 95% ~ 100% | On | On | On | On |

④ Status LED Indicator

Red LED: Indicates that the battery is currently in storage mode.
Red and white LED: Error Warning indicating that battery needs to be maintained.
If LED lights are still on after maintenance, don't use the battery any further and contact the Tattu team.

| Red LED5 | White LED7 | Description |
|----------|------------|---|
| On | | In storage mode |
| On | On | Error warning: battery needs maintenance. |

Cautions

- When charging the battery, do NOT set the balancing current over 1A.
- The battery does not have overcharge or over discharge protection, so it is necessary to set the charge/discharge limit voltage on the charger or the device.
- Do NOT short-circuit the connector as this is a safety risk.
- The discharge cables must be soldered well with the connector, or the power supply may weaken and cause a crash.
- Do NOT pull on the battery cables under any circumstances.

1. Using

- Before using the battery, check the battery's power and health status (see Product Operational Guide at the beginning of this manual for more details).
- Always check the exterior condition of the battery for any damages, swelling, or leakage. If any of these are noticed, immediately stop using the battery.
- Do NOT place the battery along with any metal and carbon-fiber products as this may cause a short circuit.
- Do NOT short or reverse the positive and negative electrode.
- Do NOT disassemble or reassemble the battery packs as it has a high risk of short-circuiting and/or causing a fire.
- Warm up the battery by charging and discharging with a small current before using the battery in low-temperature environments.
- Do NOT over-discharge the battery.
- Do NOT splash the electrolyte on your eyes or skin. If this occurs, flush the area with water and seek medical advice immediately.

2. Charging

- ONLY use a Li-Po battery smart charger to charge the battery.
- Do NOT leave LiPo batteries unattended while charging.
- Charge in an environment with a temperature range of 10°C to 45°C.
- Reverse charging is prohibited.
- The charging current and voltage should be less than the maximum charge current specified in the manual.

3. Storage

- Do NOT place the battery close to any liquid or water, and do not store the battery in a humid environment.
- Do NOT place the battery near heated sources, such as open flames or heaters.
- Keep the battery out of the reach of children.
- Store the battery in a temperature-controlled environment of approximately 25°C.
- Ensure that you have ample storage space for the battery. Do NOT stack batteries in storage.
- Check on the battery at least every 3 months: Charge the battery at 0.2C to 4.2V/cell, rest 5 min, discharge at 0.2C to 3.46V/cell, rest 5 min, then charge the battery again at 0.2C to 3.85-3.9V/cell for storage.