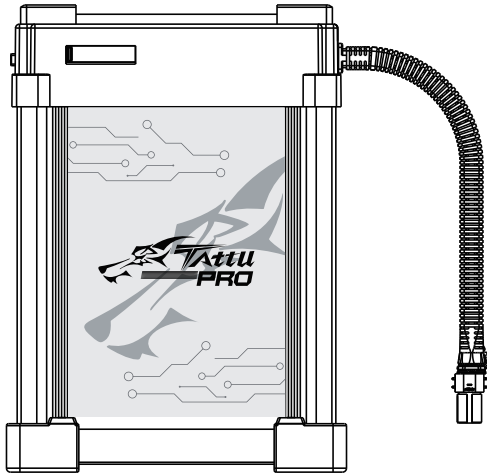




22000 HV Smart Battery User Manual

Tattu PRO

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



※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.



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배터리 사용 주의사항

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 HV lithium-ion polymer battery pack
Model	TAPRCG22K1425X
Nominal Capacity	22Ah
Battery Configuration	14S1P
Typical Voltage	53.2V
Size (L*W*H)	238* 174*117mm
Battery Weight (±100g)	7200g
Power (Wh)	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	60.9V(4.35V/cell)
Recommended Landing Voltage	50.4V (3.6V/cell)
Recommended Forced Landing Voltage	49.7V (3.55V/cell)

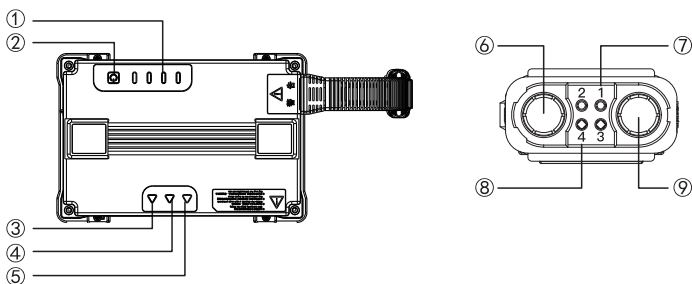
Product List

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

Product Operational Guide

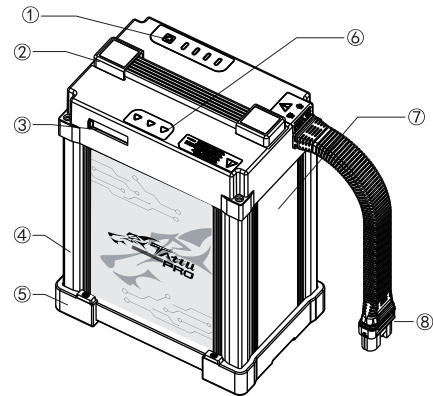
1. Overview

Top View



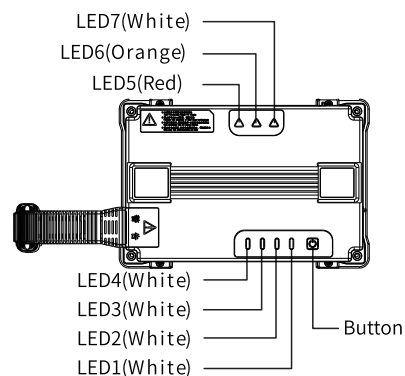
- ①Power Indicator ②Button ③~⑤Status Indicator ⑥Discharge Positive
- ⑦CAN_H ⑧CAN_L ⑨Discharge Negative

3D Diagram



- ① Button ② Handle ③ Balancing Port Dust Plug ④ Aluminum Frame
- ⑤ Bottom Shell ⑥ Status Indicator ⑦ Aluminum side shell ⑧ Discharge cable

2. Definition of Indicator, Button and Balancing Port

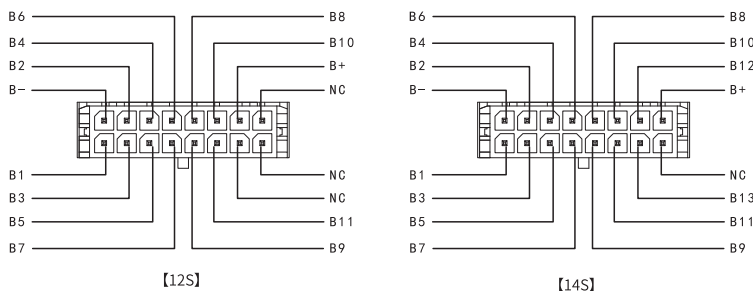


①LED1, LED2, LED3, LED4 are white lights and show the battery SOC and lifespan
②LED5, LED6, LED7 are red, orange, and white lights respectively and show the status of the battery's health(SOH)

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

- ① When charging the battery, do NOT set the balancing current over 1A.
- ② 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.
- ③ Do NOT short-circuit the connector as this is a safety risk.
- ④ The discharge cables must be soldered well with the connector, or the power supply may weaken and cause a crash.
- ⑤ Do NOT pull on the battery cables under any circumstances.

1. Using

- ① 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).
- ② 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.
- ③ Do NOT place the battery along with any metal and carbon-fiber products as this may cause a short circuit.
- ④ Do NOT short or reverse the positive and negative electrode.
- ⑤ Do NOT disassemble or reassemble the battery packs as it has a high risk of short-circuiting and/or causing a fire.
- ⑥ Warm up the battery by charging and discharging with a small current before using the battery in low-temperature environments.
- ⑦ Do NOT over-discharge the battery.
- ⑧ 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

- ① ONLY use a Li-Po battery smart charger to charge the battery.
- ② Do NOT leave LiPo batteries unattended while charging.
- ③ Charge in an environment with a temperature range of 10°C to 45°C.
- ④ Reverse charging is prohibited.
- ⑤ The charging current and voltage should be less than the maximum charge current specified in the manual.

3. Storage

- ① Do NOT place the battery close to any liquid or water, and do not store the battery in a humid environment.
- ② Do NOT place the battery near heated sources, such as open flames or heaters.
- ③ Keep the battery out of the reach of children.
- ④ Store the battery in a temperature-controlled environment of approximately 25°C.
- ⑤ Ensure that you have ample storage space for the battery. Do NOT stack batteries in storage.
- ⑥ 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.