
Product Manual

Product Name : 16S-30AH Smart Battery

File Version: V1.0

Reading Tips

This product is a high rate special intelligent battery pack for powering drones, which has certain special characteristics and requires a period of familiarity before it can be used safely and requires a certain amount of professional knowledge before it can be operated. Without a strong sense of safety, improper operation may result in product damage and property loss, or even injury to yourself or others. This product is strictly prohibited for use by persons under sixteen years of age. Please read this manual carefully before operating and using.

I. Introduction

This battery is a high rate smart battery with a capacity of 30,000mAh and a voltage of 59.2V designed for UAVs. This battery adopts advanced battery management system to provide safety guarantee and data application service for power supply of UAV.

II. Technical parameters

Serial number	Projects	Parameters	Remarks
1	Battery type	18650 lithium battery	
2	Nominal voltage	59.2V	
3	Nominal capacity	30000mAh	
4	Combination method	16S 10P	
5	Continuous discharge current	Max. 150A	
6	Maximum charging voltage	67.2V (4.2V/Cell)	
7	Continuous charging current	Max. 35A	

8	Overvoltage alarm value /recovery value	TYP. 4.30V/ TYP. 4.25V	
9	Charging overcurrent alarm value	TYP. 50A	
10	Over-temperature alarm value / recovery value	TYP. 75°C/ TYP. 65°C	
11	Low voltage alarm value / recovery value	TYP. 3.00V/ TYP. 3.05V	
12	Operating voltage range	48.0V~67.2V	
13	Working environment temperature	Charge: 0~45°C; Discharge: -10~60°C	
14	Batter weight	TYP. 9.0kg	
15	Size	207*85*365mm	

III. Function Description

1. Intelligent battery level display: The battery is designed with four LED lights that intuitively indicate the current battery level.

2. Power-on self-test function: The battery performs a self-test every time it is turned on. When the voltage difference between the battery cells is greater than 200mV, all four red LEDs will flash 10 times, accompanied by a buzzer alarm to remind the user of the battery's imbalance and the need for balancing maintenance.

3. Automatic sleep function: When the battery is turned on but not in use, it will automatically enter shutdown mode after 3 minutes without the need for manual operation.

4. Intelligent maintenance function: When the battery is severely imbalanced due to special reasons, the user can manually activate the intelligent maintenance function to balance and maintain the battery, achieving good balance performance.

5. Intelligent alarm prompt: The battery uses a combination of buzzer and LED alarms to alert the user of abnormal battery conditions, such as overvoltage, undervoltage, overcurrent during charging, and over-temperature.

6. Data communication function: This battery has both serial communication and Bluetooth wireless communication capabilities. Both communication methods can provide information on individual cell voltage, total voltage, current, state of charge (SOC), temperature, cycle count, and abnormal status count. It can also establish a data connection with the flight controller via serial port. Bluetooth can communicate with a mobile app to display battery information.

7. Intelligent log recording: The management system has a unique log data recording function, continuously monitoring and recording battery information, including individual cell voltage, current, battery temperature, balancing records, cycle count, and abnormal status count. Users can query the information by date and time using the upper computer software, or export historical data records in Excel format.

IV. Instructions for use

1. Battery level inquiry

When the battery is in shutdown mode, a short press of the button will cause the green LED to indicate the battery level for 3 seconds before turning off. The battery level indicators are as follows:

LED1	LED2	LED3	LED4	Current power
⊙	●	●	●	0% to 12%
●	●	●	●	13% to 25%
●	⊙	●	●	26% to 37%
●	●	●	●	38% to 50%
●	●	⊙	●	51% to 62%
●	●	●	●	63% to 75%
●	●	●	⊙	76% to 87%
●	●	●	●	88% to 100%

Note: ● means the green light is always on; ● means it is off; ⊙ means the green light is flashing;

2. Battery on

To turn on the battery from shutdown mode, first, press the button shortly to display the battery level with LEDs. Then, press and hold the button

until all four green LEDs light up, accompanied by a "beep" from the buzzer to indicate that the startup process has begun. Release the button, and the buzzer will make a long "beep" for 1 second, followed by LED indicators showing the current battery level. The battery is now turned on and ready for use.

3. Battery shutdown

To turn off the battery from the startup mode, first, short press the button, and then, within 3 seconds, press and hold the button until all four green LEDs turn off one by one, accompanied by a "beep" from the buzzer to indicate that the shutdown process has begun. Release the button, and the buzzer will make another "beep" to indicate that the shutdown is complete.

4. Charging instructions

Connect the battery interface to the charging port of the matching charger. Once communication is established between the two, the charger will begin normal charging of the battery, and the LED will turn yellow to indicate the current battery level.

When the battery is fully charged, all four battery level indicator LEDs will turn green. The battery level indicators during the charging process are as follows:

LED1	LED2	LED3	LED4	Current power
⦿	●	●	●	0% to 12%
●	●	●	●	13% to 25%
●	⦿	●	●	26% to 37%
●	●	●	●	38% to 50%
●	●	⦿	●	51% to 62%
●	●	●	●	63% to 75%
●	●	●	⦿	76% to 87%
●	●	●	●	88% to 100%
●	●	●	●	Charging completed

Note: ● and ● indicate that the light is always on; ⦿ indicates that the light is flashing; ● indicates that the light is off;

⚠ Warning:

1. This battery is a specialized battery for unmanned aerial vehicles and does not have any charging protection functions such as overcharging protection, overcurrent protection, and charging temperature protection. The charging safety of the battery is achieved through the use of a matching charger.

2. The charger automatically stops charging when the battery is fully charged. It is recommended to disconnect the battery from the charger when charging is complete.
3. When the abnormal indicator flashes, stop charging immediately and investigate the abnormal situation until the abnormal situation is eliminated before continuing to use the battery.

5. Charging abnormality prompt

When charging is abnormal, the battery LED will trigger the corresponding alert message, as shown in the following table:

LED1	LED2	LED3	LED4	Instruction method	Alarm Type
◉	●	●	●	Blinking	Battery overvoltage alarm
●	◉	●	●	Blinking	Battery low voltage alarm
●	●	◉	●	Blinking	Battery overcurrent alarm
●	●	●	◉	Blinking	Battery over-temperature alarm

Note: ● means off; ◉ means red light is flashing

Alarm description:

(1) **Battery over-voltage alarm:** (1) Battery overvoltage alarm: when the voltage of a single cell exceeds 4.30V, the buzzer will sound an alarm and the corresponding LED will flash (pressing the button will stop the buzzer alarm). The alarm will automatically be released when the voltage drops below 4.25V.

(2) **Battery low-voltage alarm:** when the voltage of a single cell drops below 3.00V, the buzzer will sound an alarm and the corresponding LED will flash (pressing the button will stop the buzzer alarm). The alarm will automatically be released when the voltage rises above 3.05V.

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- (3) **Over-current alarm during charging:** When the charging current is greater than 50A, the buzzer will sound and the corresponding LED will blink.
- (4) **Battery over-temperature alarm (charging/discharge):** When the temperature reaches 75° C, the buzzer will sound and the corresponding LED will blink. (Press the button to stop the buzzer alarm) The alarm will be automatically cancelled when the temperature drops below 65° C.

6. Description of power supply

After connecting the power output cable of the battery to the power input interface of the drone, the drone can take off normally. If there is communication between the battery and the flight controller, you must perform a startup operation and wait for the data communication to be normal before taking off.

⚠ Warning:

1. **This battery is designed exclusively for use with unmanned aerial vehicles and does not have any discharge protection functions such as over-discharge protection, over-current protection, over-temperature protection, and short circuit protection. When using the battery, please pay close attention to the low battery warning information provided by the unmanned aerial vehicle and return in time to avoid damaging the battery or other losses caused by excessive use.**

V. Safety Tips

To ensure maximum safety in use, please follow these guidelines and use the battery correctly according to the operating instructions. Failure to do so may result in permanent damage to the battery and its surrounding environment, and may even cause personal injury.

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1. Please use the original matching drone battery special charger for charging and keep away from high temperature environment;
 2. Do not charge without supervision. If any abnormalities are found, immediately stop charging and disconnect the battery from the charger;
 3. Do not discharge the battery beyond its maximum discharge current, otherwise it may cause permanent damage to the battery or even fire;
 4. If the battery deforms, emits an odor, or becomes abnormally hot (temperature exceeding 75 °C) during use, immediately stop using it and transfer the battery to a ventilated and safe area;
 5. Please perform timely cleaning and maintenance on the battery after use to prevent drug corrosion of the plug and battery;
 6. It is forbidden to connect the battery to power-consuming equipment for a long time. After using the battery, please separate it from the electrical equipment in a timely manner;
 7. After use, please charge the battery in a timely manner to avoid over-discharge and damage to the battery caused by long-term storage;
 8. The battery should be stored in a dry and ventilated place, and away from open flames, heat sources, flammable and explosive, corrosive substances, etc. When not in use for a long time, it should be charged and maintained regularly (recommended not to exceed 3 months);
 9. Please safely manage the battery and prohibit minors from touching, playing, or using the battery to prevent accidents;
 10. It is strictly prohibited to expose the battery to direct sunlight. The battery is moisture-proof and dust-proof, but not waterproof or fireproof. Under no circumstances should the battery be thrown into water or fire;
 11. Do not squeeze, collide, puncture, disassemble, or short-circuit the battery to avoid danger and unnecessary losses.