

Smart Battery User Manual

1. Preface

Thank you for purchasing the CIFIV smart battery. This manual is intended to help you better using, please read the instructions carefully before using, and keep it in a safe place. The safety matters mentioned in these instructions are only intended as a supplement to local safety policy.

2. Precautions

- The battery protection board is not equipped with anti-sparking function. If anti-sparking function is required, please use a connector with anti-spark function;
- When using the charger to charge the battery, the balancing current shall not be above 1A;
- The battery does not have the overcharge or over discharge protection function, and it is necessary to set the charge/discharge limit voltage on the charger or the device;
- Do not short-circuit the connector, otherwise there is a safety risk;
- The discharge cables shall be soldered well with connector, otherwise the power supply may be poor, and causing the aircraft to crash during the flight;
- Do not pull on the battery cables under any circumstances;

△ Statement

- Lithium polymer batteries are active substances and it is easy to cause fire without proper use. If improper use without reading the instructions and cause personal injury or property damage, CIFIV manufacturers, distributors and dealers will not be responsible for any liability;
- To purchase CIFIV related products, the buyer must bear all risks related to the product;
- If you do not agree to this clause, please return the battery to us immediately before use;

Precautions for use

- Before using the battery, please check the battery's power and health status;
- Please check if the battery is damaged, bulging or leaking. If any of the above, do not use it;
- Do not let the battery contact metal and carbon fiber products to prevent short circuit;
- Do not short or reverse the positive and negative electrode;
- Do not pull the battery charge / discharge cables;
- Do not assemble the battery by your own, Reassemble the old battery cell or reorganize one of the disassembled cells to another pack is dangerous (It's easy to cause short-circuit and cause fire);

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- In the low temperature environment (below 5 °C), it is recommended to preheat the battery by charging or discharging the battery with small current to above 5 °C before use, 20 °C is best, do not do heavy duty operations when first starting use of a cold pack. Allow the battery to reach normal operating temperatures before hard use;
- Do not over-discharge the battery (single-cell voltage should not be lower than 3.3V), over-discharge will damage the battery easily, such as puffing, etc;
- Do not splash the electrolyte on your eyes or skin. If this occurs flush with water and seek medical advice immediately;

Charging precautions

- ONLY use a Li-Po battery type smart charger to charge;
- It is recommended to charge in the temperature range of 10 °C to 45 °C;
- When charging, only use a table or platform that is heat-resistant. It is recommended to use an explosion-proof LIPO battery bag;
- Do not leave LiPo batteries unattended while charging;

Storage considerations

- Do not keep battery near liquid as well as store them in a humid place;
- Do not place the battery near heat sources such as open flames or heaters;
- Please Keep the battery out of the reach of children;
- Store the battery in a temperature controlled environment of approximately 25°C;
- Make sure that the battery has enough storage space (do not stack batteries in storage);
- If the battery is not used for a long time, it is recommended to do a charge cycle. Charge and discharge the battery to storage level(3.6-3.9v for single cell) every 3 months. This will ensure the best service life of the Battery;

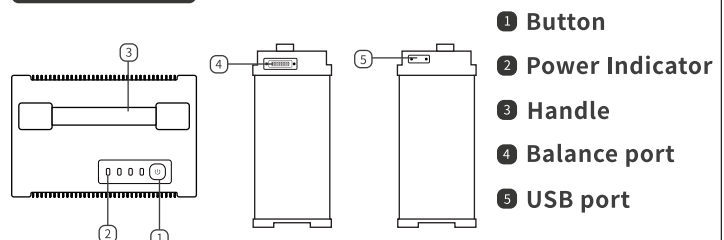
3. Product Description

The CIFIV smart battery 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, history check and more.

4. Product parameters

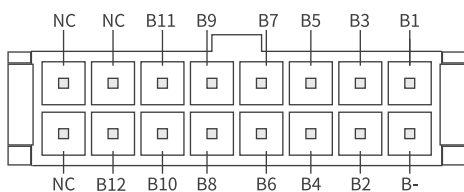
Battery Type	Rechargeable lithium polymer battery pack	
Model	BTM2-14S1P	
Battery Capacity	20000mAh	22000mAh
Nominal Voltage	53.2V	51.8V
Maximum Charging Voltage	60.9V (4.35V/cell)	58.8V (4.2V/cell)
Power	1064Wh	1139.6Wh
Recommended Charging Temperature	+10°C~+45°C	
Recommended Discharge Temperature	+10°C~+60°C	
Net Weight	≈6600g	
Size	241*163*106mm	

5. 3D Diagram

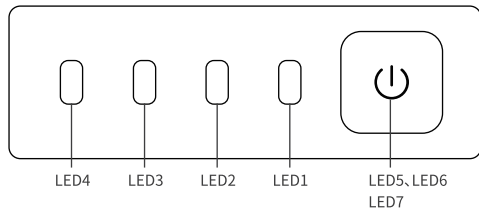


6 .Operation Description

1. Balance port definition



2. LED Indicator Description



LED1, LED2, LED3, LED4 are white lights and show the battery SOC and lifespan(SOH)
LED5, LED6, LED7 are red, orange, and white lights to show the working status and warning information

3. Button Function Description

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

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4. Check Battery Remaining Power(SOC)

SOC	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

5. Check Battery Lifespan(SOH)

SOH	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
12%以下	Blink	Off	Off	Off

6. Charging

Capacity	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

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;

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7. Status LED Indication

Red LED: Indicates that the battery is currently in storage mode;

Error: red LED and white LED light up at the same time;

RED LED5	Orange LED6	WHITE LED7	Description
On	/	/	battery is currently in storage mode
On	/	On	Error or Warning

8. Warning LED Indication

RED LED5	Orange LED6	WHITE LED7	Description
Blink	/	/	Over Temperature warning Level 2, please stop charge or discharge till the temperature down to safe
/	/	Blink	Over temperature warning Level 1, please stop charge or discharge till the temperature down to safe
/	On	/	Voltage difference $\geq 300mV$, please check your battery cell voltage
/	/	On	Voltage difference $\geq 100mV$, please check your battery cell voltage

7. Sleeping

When the battery is powered on for 10 minutes, the BMS will automatically enter into system hibernation to reduce self-consumption. the BMS carries out system self-test every 20 seconds interval, after the self-test is completed within 3 seconds, the battery enters into hibernation again; charging or discharging can be activated to the normal working state.

When the voltage of any single cell is lower than 3.65V, in order to ensure the safety of the battery, the BMS will enter the second level energy-saving mode (deep hibernation), which can only be woken up by pressing the key. In the secondary energy-saving mode, the power consumption of BMS can be reduced to 400uAh. In this mode, the battery pack can standby safely for 3~4 months; if it exceeds this time, the user must scrap the battery or return it to the original factory for safety check!

If the battery will enter the deep sleep mode due to the serious insufficiency of battery power and long idle time, it is necessary to manually switch on the power to wake up and charge the battery immediately.

8. Self-balancing function

When the battery rests for >6 hours, if the BMS detects that the voltage difference of each unit cell reaches the preset value, the equalization function is triggered.

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9. Smart storage function

If the battery is not used for more than 5 days, please discharge the battery to 40~70% capacity and store it to extend the service life of the battery. If the battery is stored in a fully charged state, the battery will automatically turn on the smart storage function: leave it alone for >6 days, the lowest single cell voltage is >3.95V, and the temperature is <60°C (the battery temperature may increase during the discharge process, this is normal); Stop conditions: minimum single cell voltage $\leq 3.95V$, temperature $\geq 60^\circ C$, or entering charging and discharging state. It is recommended to store the battery in a dedicated battery box. Do not store the battery for a long time after it is completely discharged, to avoid the battery entering an over-discharge state, causing damage to the battery core and making it impossible to resume use.

10. After-sales and warranty

Thank you for purchasing our battery. Hetai Energy Technology Co., Ltd. will do its best to provide you with complete after-sales service and fully safeguard your rights and interests. If your product fails, please contact the after-sales personnel of Hetai Energy Technology Co., Ltd.

- The warranty expiration date after product failure shall be subject to delivery to the Heti Company after-sales service center.
- All warranties due to product quality issues within one year from the date of purchase are free. If the customer cannot provide a valid purchase certificate, the internal date code will prevail.
- If the period exceeds one year from the date of purchase, cost will be charged as appropriate, and the user must bear the round-trip transportation costs.
- When you send it for repair, please be sure to leave your contact information so that you can be notified in time after repair.

If the product is damaged and cannot be used normally due to the following reasons, it is not covered by the warranty:

- Failure to use it correctly according to the instructions causes damage.
- All product damage caused by man-made, accidental impact or other force majeure.
- Modification, disassembly or modification of this product without the approval of the company.
- Damage caused by water immersion, moisture or other foreign matter entering the interior of the product.
- Aging, bumps and scratches on the surface of the product.

Please pay attention to correct use: the user is responsible for any consequences caused by the operation. The company is not responsible for expenses beyond the cost of the product and reserves the right to modify these terms; any modifications will be made without prior notice.



CIFIV

DONGGUAN HETAI ENERGY TECHNOLOGY CO.,LTD

<https://www.cifivtech.com/>

The product specifications and information mentioned in this instruction manual are for reference only. The content may be updated without prior notice.



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