

# **24S Lithium Battery Intelligent Equalizer**

**Single channel 2~4.5V 3~4A/7A**

**User Manual**

**(HTB-J24S04A/HTB-J24S07A)**

**Heltec Energy**

Thanks for choosing  series produces.It will bring you convenience and efficiency for battery capacity testing work.For optimal user experience,please read the manual carefully before using and store it properly for future reference.

 has the right to upgrade the machine and modify the manual without prior notice.Thanks for understanding!

## 1. Product Overview

The HTB-J24S04/7A is a 24-cell lithium battery intelligent equalizer. Each cell is suitable for lithium batteries with a voltage range of 2-4.5V. The instrument features a maximum discharge current of 3~4/7A. It offers real-time battery parameter display, fault alarms, automatic recognition of battery pack cell count, and simple operation. It provides precise battery testing and maintenance services for battery manufacturers and users.

## 2. Product Features

- 1) The equalization voltage is the lowest cell voltage automatically detected.
- 2) Battery reverse connection, over-voltage (4.5V), and under-voltage (2V) alarms.
- 3) Automatically stops and triggers an alarm upon completion of equalization.
- 4) The HT-J24S07A equalizer employs PWM pulse discharge mode with adjustable maximum current from 1A to 7A and 1A adjustment increments.
- 5) Comprehensive display includes: Balancing current、Voltage per battery string、Total voltage、Average voltage、Highest voltage、Lowest voltage、Maximum voltage difference、Balancing voltage、Number of battery strings and Temperature
- 6) Single-string input interface withstand voltage: (-100V to +100V)

## 3. Product model parameters

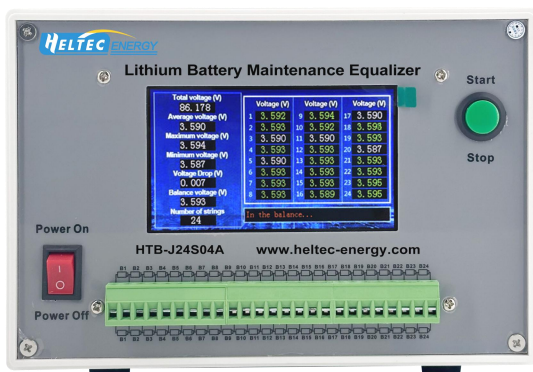
|                                             |                                                                                                                                                                                                                                       |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product model                               | HTB-J24S04/7A                                                                                                                                                                                                                         |
| Applicable battery Pack                     | 2-24S                                                                                                                                                                                                                                 |
| Applicable battery types                    | LFP/NMC/LTO                                                                                                                                                                                                                           |
| Power supply method                         | DC12V 4A (Simply purchase power adapters for each country.)                                                                                                                                                                           |
| Applicable battery voltage range            | 2-4.5V                                                                                                                                                                                                                                |
| Instrument voltage measurement range        | 1-4.5V                                                                                                                                                                                                                                |
| Single-channel voltage display accuracy     | 0.001V                                                                                                                                                                                                                                |
| Single-channel voltage measurement accuracy | ± (0.08%+0.06%FS)                                                                                                                                                                                                                     |
| Balance current                             | The HT-J24S04A has a maximum equalization current of 3A (LFP) / 4A (NCM), which is dependent on battery voltage difference and cannot be adjusted. The HT-J24S07A has an equalization current range of 1A to 7A, which is adjustable. |
| Balance mode                                | Auto-Balance                                                                                                                                                                                                                          |
| Balance voltage                             | Automatic recognition                                                                                                                                                                                                                 |
| Balance method                              | HT-J24S04A features 1Ω constant-resistance discharge, while HT-J24S07A employs PWM pulse discharge balance.                                                                                                                           |
| Screen size                                 | 4.3-inch display                                                                                                                                                                                                                      |
| Chinese-English display conversion          | After power on, press and hold the equalizer                                                                                                                                                                                          |

|                               |                                                                 |
|-------------------------------|-----------------------------------------------------------------|
|                               | button for 10 seconds to switch between Chinese and English.    |
| Work humidity and temperature | Temperature: 0°C to 50°C, Humidity: 20% to 80%                  |
| Work environment              | Non-corrosive, non-explosive gases or non-conductive dust, etc. |
| External dimensions (mm)      | L207*W205*T145                                                  |
| Weight                        | HT-J24S04A weighs 3.2 kg HT-J24S07A weighs 3.5 kg               |

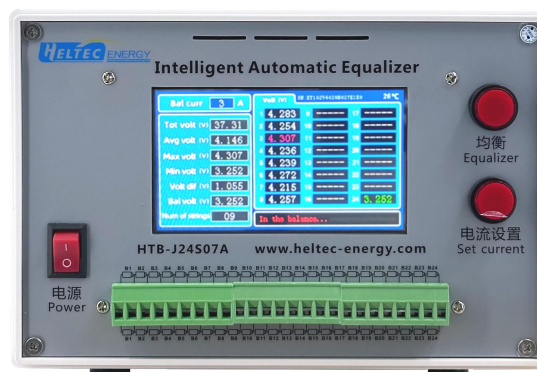
#### \*Product application scope

Battery pack factories, small sightseeing vehicles, mobility scooters, shared vehicles, high-power energy storage systems, base station backup power supplies, solar power stations, and other products requiring battery balancing maintenance and repair. Widely used in battery testing and maintenance fields, suitable for consumer electronics repair, quality inspection, fault diagnosis, and other application scenarios.

## 4.Product Appearance Diagram



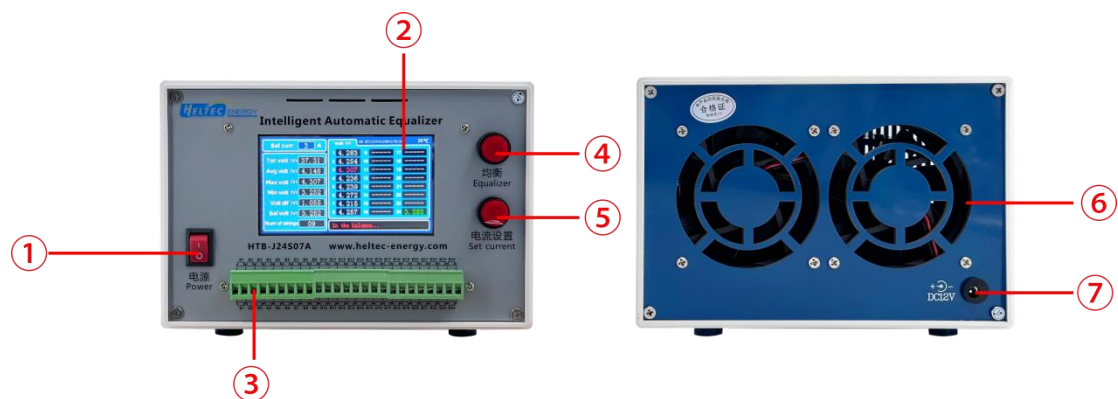
HTB-J24S04A



HTB-J24S07A

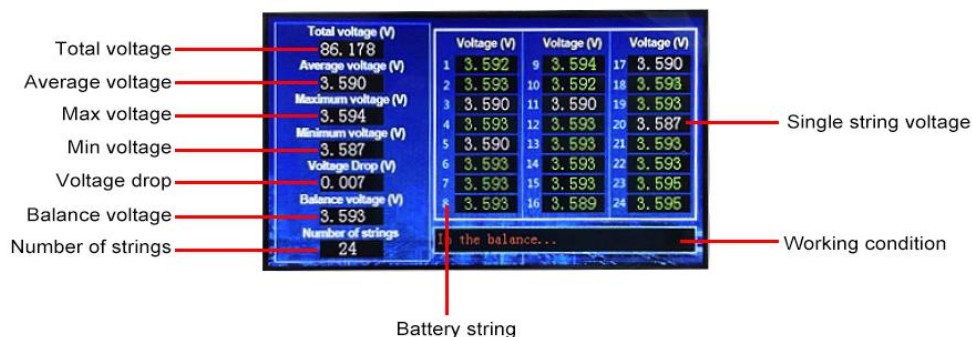


HTB-J24S04A



## HJB-J24S07A

| ①                                                          | ②                     | ③                                        | ④                          |
|------------------------------------------------------------|-----------------------|------------------------------------------|----------------------------|
| Main power switch                                          | display screen        | Battery connection line output interface | Balanced start/stop button |
| ⑤                                                          | ⑥                     | ⑦                                        |                            |
| Balance current adjustment button<br>(Only HT-J24S07A has) | Heat dissipation vent | Adapter connection port                  |                            |



## HTB-J24S04A Display Screen



## HTB-J24S07A Display Screen

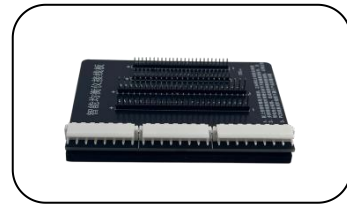
**\*Product List:**



Equalizer \*1



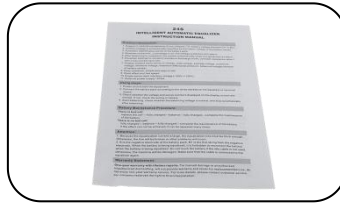
DC Adapt \*1



Equalizer terminal plate\*1



Connecting line \*3



User manual \*1



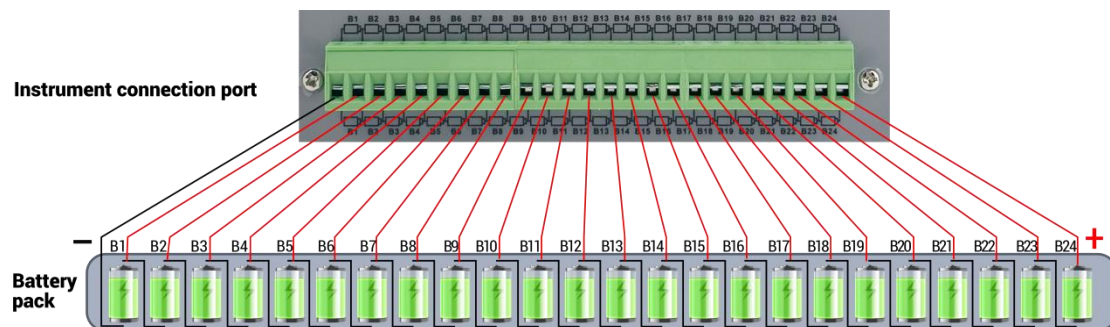
Clamping line\*24(optional)

## 5. Equipment Connection and Usage Instructions

Before use: 1. Please maintain the environmental temperature and humidity when using the equipment;

2. The air intake port at the rear of the equipment must not be blocked and there should be at least 5CM of ventilation space;

3. The air outlets on both sides of the equipment need to remain unobstructed, ensuring a 5CM ventilation space; there is an air intake port at the top of the equipment, and it is necessary to ensure that the bottom air intake is unobstructed and not blocked by debris;



## 6. Important Notice

During battery module balancing operations, the equalizer generates significant internal heat due to energy consumption. Therefore, the device must be operated in a well-ventilated environment. Foreign objects or metal items must never be inserted into the equalizer's heat dissipation vents, as this may cause the device to explode during balancing operations.

Only use the battery pack connection cables supplied with the equalizer. Do not extend or modify these cables. The user assumes full responsibility for any accidents resulting from such modifications.

The internal circuitry of the equalizer contains multiple high-voltage circuits and components. Under no circumstances should you disassemble or attempt to modify the device. The user shall bear full responsibility for any accidents resulting from such actions.

The equalizer's interior consists of precision electronic components. Water ingress or exposure to moisture is strictly prohibited, as it will cause irreparable damage to the instrument.

No equalizer can repair damaged battery packs. Battery damage includes but is not limited to the following conditions:

- a. Increased internal resistance;
- b. Terminal voltage below cut-off voltage;
- c. Internal short circuit or open circuit;
- d. Damage to the battery module's BMS (Battery Management System).

## 7. Battery Maintenance Procedure

For damaged cells: Replace cell → Charge fully → Balance → Charge fully → Maintenance complete

For undamaged cells: Charge fully → Balance → Charge fully → Maintenance complete; If initial balancing is ineffective, repeat multiple times for optimal results.

## 8. Precautions

(1) Due to the high equalization current, the equalization cables must be sufficiently thick. Otherwise, they may burn out or cause other issues.

(2) B- denotes the battery pack's negative terminal. B1 refers to the first series from the negative terminal. Do not connect additional batteries during balancing. When balancing is active, ensure idle channel cables do not contact batteries, as this may damage equipment. Verify connections multiple times before connecting to the balancing device.

(3) Balancing duration depends on battery capacity, voltage difference, and performance. Higher capacity, greater voltage difference, or poorer performance will extend balancing time.

## **Warranty Regulations**

Warranty service period is 1 year.

The warranty service is limited to normal use: man-made damage, self-disassembly, modification and repair, use not in accordance with the instructions, and damage caused by external force majeure factors are not within the scope of free warranty.

Accessories such as test fixtures are consumables without warranty.

When you need warranty service, please contact your dealer for processing. If you cannot contact the dealer, you can contact our company by email or phone.

There are no after-sales service stations in other countries except China. If you need warranty service, please send the product to us for free repair, but you need to pay the freight for the round trip.