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› Battery Equaliser Battery Equalizer LCD Batteries Voltage Balance Lead Acid Battery Connected Parallel Series for 12V/ 24/36/48V/96V  
HT-10C User Manual

## HELTEC BMS HT-10C

# HELTEC BMS HT-10C Battery Equalizer User Manual

Model: HT-10C

## 1. PRODUCT OVERVIEW

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The HELTEC BMS HT-10C Battery Equalizer is a practical and multi-functional device designed to maintain voltage balance across batteries connected in series or parallel. It prevents overcharge and over-discharge, extending the lifespan of lead-acid, nickel-cadmium, and nickel-metal hydride batteries. The equalizer actively works to balance battery voltages when differences exceed 50 millivolts, transferring current from higher voltage batteries to lower voltage ones.



Figure 1: HELTEC BMS HT-10C Battery Equalizer with included cables and packaging.

## 2. KEY FEATURES

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- **Battery Energy Transfer:** Functions as an energy transfer equalizer for both overcharge and over-discharge protection.
- **Voltage Balancing:** Ensures equal voltage across batteries connected in series.
- **Automatic Operation:** The equalizer activates when the voltage difference between two batteries exceeds a specified threshold.
- **Wide Application:** Compatible with lead-acid, nickel-cadmium, and nickel-metal hydride batteries.
- **Durable Design:** Features a robust shell for long-serving life.
- **LCD Display:** Provides real-time voltage and balance status.



Figure 2: Close-up of the HT-10C LCD display, showing battery voltage and charge status indicators.

### 3. SPECIFICATIONS

| Specification                    | Value                              |
|----------------------------------|------------------------------------|
| Model No.                        | HT-10C                             |
| LCD Display                      | Yes                                |
| Rated Voltage Scope              | 7-18V                              |
| Optimizing Current               | 0-10A                              |
| Quiescent Current                | 10mA                               |
| Connection method                | Parallel Connect or Series Connect |
| Multi-module parallel connection | Support                            |
| Product Size                     | 85*75*30mm                         |
| Product Weight                   | 160g                               |
| Packing Quantity                 | 50pcs/Ctn                          |
| Carton Size                      | 56*35*27cm                         |

Table 1: Technical Specifications for the HT-10C Battery Equalizer.

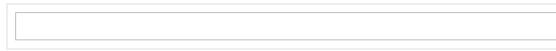


Figure 3: Visual representation of the HT-10C specification table.

## 4. SETUP AND INSTALLATION

The HT-10C Battery Equalizer is designed for easy installation. Ensure all power sources are disconnected before beginning the installation process to prevent electrical hazards.

### 4.1. Connection Diagram

The equalizer can be connected to batteries in either series or parallel configurations. Refer to the diagram below for proper wiring.

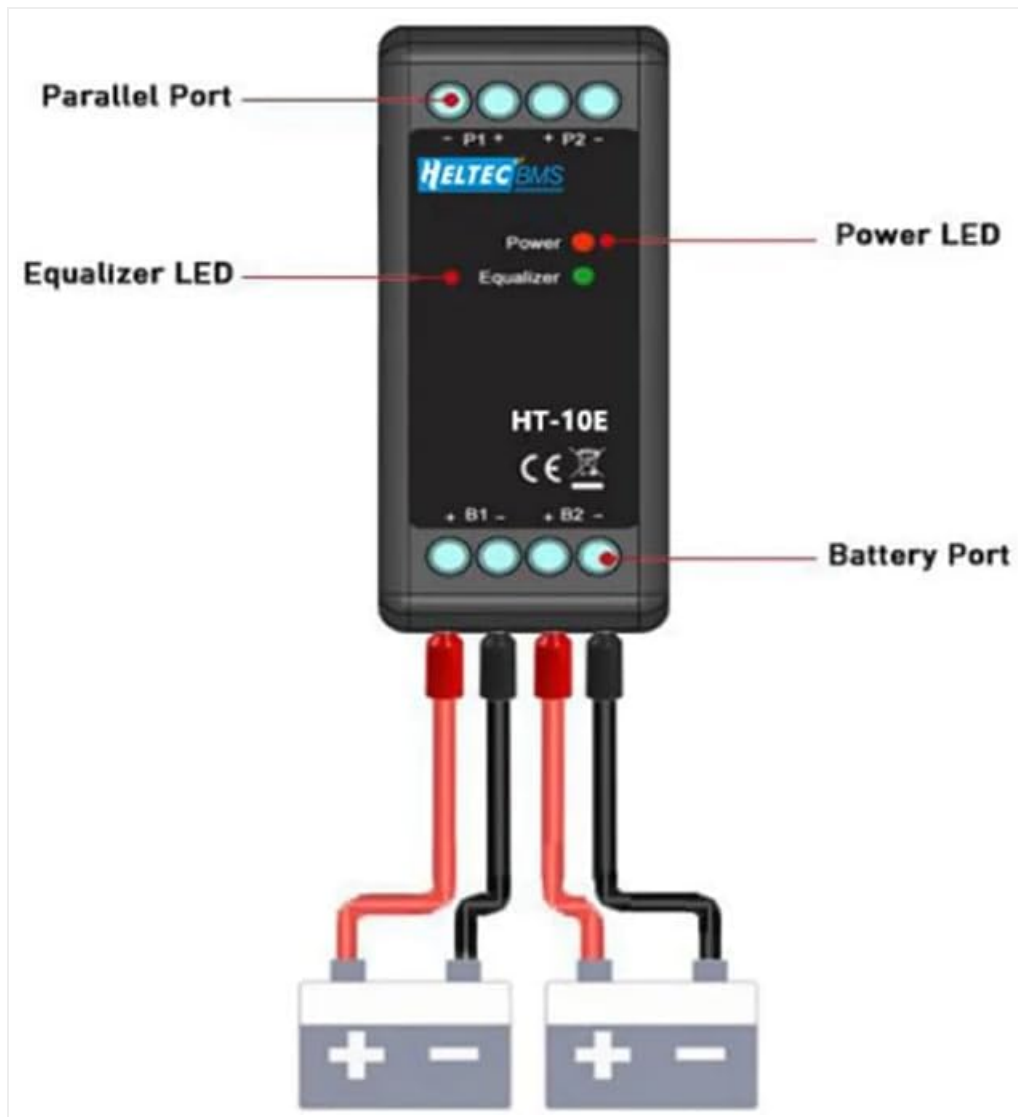


Figure 4: Connection diagram illustrating how to connect the HT-10C Battery Equalizer to batteries in a parallel configuration. Note the P1 and P2 parallel ports, Equalizer LED, Power LED, and Battery Ports B1- and B2-.

### 4.2. Wiring Instructions

1. Identify the positive (+) and negative (-) terminals of your batteries.
2. Connect the provided cables to the corresponding B1- and B2- battery ports on the equalizer.
3. Connect the other end of the cables to the respective battery terminals. Ensure correct polarity.
4. For parallel connection of multiple equalizers, use the P1+ and P2- parallel ports.
5. Once connections are secure, the equalizer will power on and begin monitoring battery voltages.

Video 1: Demonstration of the HT-10C Battery Equalizer in operation, showing its connection to batteries and real-time voltage balancing on the LCD screen.

## 5. OPERATING INSTRUCTIONS

The HT-10C Battery Equalizer operates automatically once connected. The LCD display provides real-time information about the battery status.

### 5.1. Understanding the Display

- The LCD shows the overall battery charge percentage.
- Individual battery icons (Bat.1, Bat.2) display their respective voltage levels.
- The "SET" and "DOWN" buttons allow for navigation through display modes or settings, if applicable (refer to advanced settings for specific functions).
- The Power LED indicates the device is powered on.
- The Equalizer LED illuminates when active balancing is occurring.

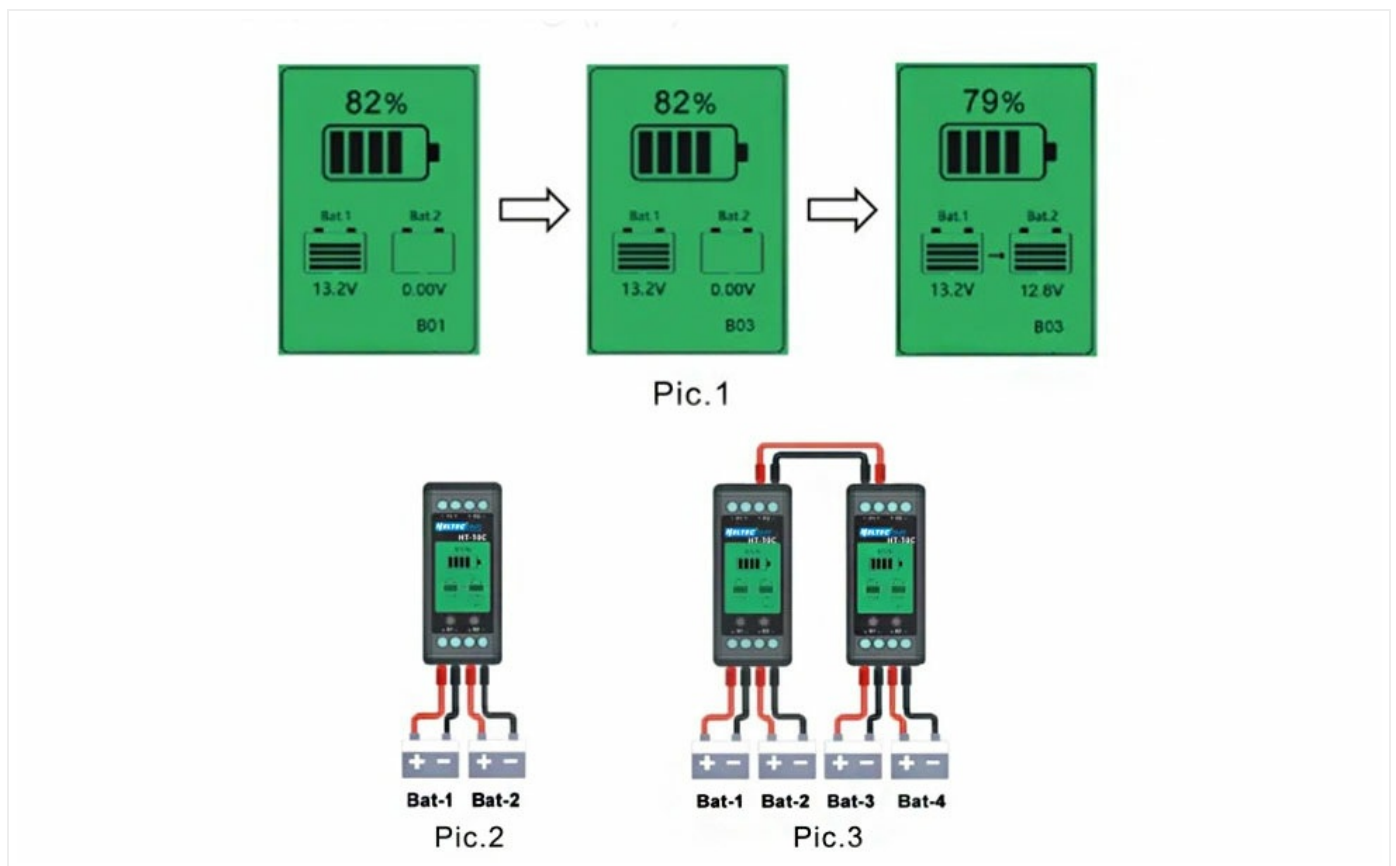


Figure 5: Diagram illustrating the principle of operation for the Heltec battery equalizer, showing how it compensates for voltage differences.

### 5.2. How Balancing Works

The battery equalizer is an energy transfer equalizer that can compensate the battery in both directions. When the voltage difference between the batteries connected in series exceeds 50 millivolts, the battery equalizer starts to work, and the current will flow from the higher voltage battery to the lower voltage. The low battery will eventually balance the battery. It can be connected to the battery connected in series for a long time to automatically maintain the battery balance without maintenance.

## Specification

|                                  |                                    |
|----------------------------------|------------------------------------|
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| Multi-module parallel connection | Support                            |
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Figure 6: Visual sequence demonstrating the battery balancing process. Pic.1 shows initial imbalance, Pic.2 shows balancing in progress, and Pic.3 shows balanced state. Also shows how multiple equalizers can be connected in series for larger battery banks.

## 6. MAINTENANCE

The HT-10C Battery Equalizer is designed for minimal maintenance. Once installed, it automatically maintains battery balance. However, periodic checks are recommended:

- **Visual Inspection:** Periodically inspect all cable connections to ensure they are secure and free from corrosion.
- **Cleanliness:** Keep the equalizer unit clean and free from dust and debris. Use a dry, soft cloth for cleaning.
- **Environmental Conditions:** Ensure the equalizer is operating within its specified temperature and humidity ranges to prevent damage.
- **Battery Health:** While the equalizer helps maintain balance, it does not replace regular battery health checks. Monitor your batteries for signs of wear or damage.

## 7. TROUBLESHOOTING

| Problem                                                       | Possible Cause                                               | Solution                                                                                                           |
|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Equalizer display is off.                                     | No power supply or incorrect wiring.                         | Check all power connections and ensure correct polarity. Verify battery voltage is within the rated scope (7-18V). |
| Equalizer LED not illuminating when batteries are unbalanced. | Voltage difference is less than 50mV or a fault in the unit. | Measure individual battery voltages to confirm difference. If difference is >50mV and LED is off, contact support. |
| Inaccurate voltage readings on display.                       | Loose connections or internal fault.                         | Ensure all connections are tight. If problem persists, contact support.                                            |

Table 2: Common Troubleshooting Steps.

## 8. WARRANTY AND SUPPORT

HELTEC BMS is committed to providing reliable power solutions. For warranty information, technical support, or service inquiries, please contact HELTEC BMS directly through their official channels or the retailer where the product was purchased.

You can visit the official HELTEC BMS store for more information:[HELTEC BMS Store](#)

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