HELTEC HT-ED50AC8 Lithium Battery Charge User Manual

Contents

HT-ED50AC8 Lithium Battery Charge

Chengdu Heltec Energy Technology Co., Ltd

Lithium Battery Charge/Discharge & Equalization Repair Instrument User Manual V2.0 (HT-ED50AC8) Heltec Energy

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1. Introduction
1.1 Product Characters

- Each channel is equipped with a dedicated processor to ensure that the capacity calculation, timing, voltage and current control are at a perfect level.
- Full channel isolation test can directly test the battery cells of the entire battery pack
- Single channel 5V/50A charging and discharging power
- Fully compatible with lithium iron phosphate, ternary lithium, lithium cobalt oxide, nickel metal hydride, nickel cadmium and other types of batteries@18650, 26650, soft pack batteries, block batteries and other physical specifications of batteries are fully compatible and installed.
- Independent heat source air duct, temperature-controlled speed-adjustable fan.
- The battery test probe is height-adjustable, and the scale is convenient for leveling.
- LED indication of operation detection status, grouping status, and alarm status.
- Computer online equipment testing, detailed and rich test settings and results.
- With CC constant current discharge, CP constant power discharge, CR constant resistance discharge, CC constant current charging, CV constant voltage charging, CCCV constant current constant voltage charging, shelving and other test steps available for call
- Can customize various charging or discharging parameters; such as chargingvoltage;
- With step jump capability
- Can realize group matching function, test results are grouped according to custom standards and marked and displayed on the device.
- With test process data recording function.
- With 3 Y axes (voltage, current, capacity) and a time axis curve drawing ability, and also with data report function.

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- Test status pane color customization, when the number of tests is large, it is easy to visually check the detection status of all devices.

1.2 Technical Parameters and Environmental Requirements

Input power	AC200V~245V @50HZ/60HZ 50A
Input power	standby power 80W; full load power 3200W
Allowable temperature and	humidity ambient temperature <35 degrees; humidity <90%
Number of channels	8 channels

1.3 Parameters of Each Channel

Inter-channel voltage resistance	AC1000V/2min without abnormality
Output maximum voltage 5V	
Minimum voltage 1V	
Maximum charging current 50A	
Maximum discharge current 50A	
Measurement voltage accuracy	±0.02V
Measurement current accuracy	±0.02A
Upper computer software applicable system and configuration	Windows XP and above systems have port configuration network

1.4 Precautions for Use

- Please maintain the ambient temperature and humidity when using the device.
- The air inlet at the rear of the device cannot be blocked and a ventilation space of more than 5CM must be ensured
- The air outlets on the left and right sides of the device must be kept unobstructed to ensure a ventilation space of more than 5CM; there is an air inlet on the top of the device, and the bottom air inlet must be kept unobstructed and not blocked by debris.

2. Preparation for Device Connection

Step 1: Connect the AC 220V socket to the power input socket of the device, turn on the power switch, and observe that the indicator light on the front of the whole machine is initialized and finally shows the stop state.

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Step 2: Set the device number 1 to 16 on the back panel of the device (in the stand-alone device connection, one computer is allowed to connect 8* HT-ED50AC8devices). When multiple devices are used at the same time, the device numbers must be set to be different from each other.

Table 1. Relationship between setting gear and device number

When the device is normal, the Link Run light flashes continuously; the

Linkup light flashes once per second; the Error light is off;

Gear		0	1	2	3	4	5	6	7	8
Device Number		1	2	3	4	5	6	7	8	9

Table 2. Indicator Light Status and Meaning

Indicator	Status	Meaning
Link Run	Continuous fast flas h	Internal sampling is normal
Link_Run	Intermittent fast flash	Data bus contact is poor
Link_UP1S	Flash once	Sampling data is uploaded
Link_UP	Off	No data is uploaded or setting error
Error	Flash	Device has an error, please refer tothesoftware interface prompt for details
Error	Off	Device is working normally

3. Software Installation and Connection

Step 1. Find the installation software and open it.

Step 2. You can choose the installation location. Please do not install the C drive. Some systems do not have an installation location and choose the D drive by default.

Step 3. After the installation is complete, open the first run to select the network (when the network firewall is normally turned on). Please be sure to check the public network.

Step 4. Click Connect. Select the device to be connected in the window that appears. After it turns blue, click Connect Device. The IP window that has been set will appear. Just click OK by default.

Notes:

- If it is installed in the C drive, it will cause an error when entering the username and password or adding a work step solution. The solution is to run it as an administrator. If it doesn't work, please reinstall other disks.
- If the public network is not checked during the first run, it may cause the device to be connected to the status of being connected.
  The solution is:
  ①Turn off the public network firewall.
  ② Modify the network connection mode of the software. If it cannot be modified, you can reset the firewall default value. Restart the software and check the network connection again.

4. Battery Connection

- Supported batteries: The device supports battery voltages within 5Vandcapacities of any size. Physical specifications support: 18650, 26650 lithium iron phosphate, No. 5 nickel-metal hydride batteries, soft-pack batteries, block batteries, large monomers and other battery connections.
- The minimum height of the probe can be adjusted to 32mm, and the maximum height can be adjusted to 130mm.
- No. 5 AA NiMH battery, 18650 lithium battery, 26650 lithium iron phosphate battery: If you need to adjust the height of the fixture, refer to the scales on both sides to adjust it (cylindrical brackets can be customized separately)

Note:

- After installing the battery, check whether the battery pole piece is in good contact with the probe housing. There will be no current when only the middle needle is in contact with the test.
- 3.7V 240mAH soft pack battery and the 3.2V/10Ah lithium iron phosphate soft pack battery: Install the output line that comes with the battery and connect the battery with the alligator clip or flat clip according to the positive and negative poles.
- To ensure the sampling accuracy, the output line is made with the sampling four-wire connection method. After the alligator clip or flat clip is connected to the battery pole piece, check whether the alligator clip or flat clip on the signal sampling side is in reliable contact.

5. Software Instructions

5.1 Software main interface

The device information displays a list of devices, which is used to indicate the connection status and connection number of the device to which the software is connected. Double-click a device to view the detailed settings of the device.

The cabinet number, device number, and device path number are the basic information of the device.

Software version: the firmware version of the device.

Connection mode, IP, port, etc.: indicate the port and IP address of the device andcomputer.

Temperature 1/2: indicates the measurement value of the two temperaturesensors inside the device. When the temperature exceeds 30℃, the fan will automatically run to dissipate heat;

Status: the connection relationship between the device and the computer. Cabinet number: set the cabinet number where the device is located, whichis convenient for the on-site wiring of cabinet-type equipment, and the cabinet sequencenumber can be randomly arranged.

Sampling rate: indicates the frequency of data collection and upload of thedevice.

After selecting list display, the device status is displayed in list format. All operating functions are not affected.

5.2 Status Color Setting

All states supported by the device are displayed in color, so that users can easily understand the current operating status or find the test channel with abnormal status when applying the device in large quantities.

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5.3 Step Setting

5.3.1 Data Saving Conditions

1. When you need to save the test data to the computer, please check this item, otherwise the data will not be stored in the computer. There are 3 conditions to choosefrom for storage rules.

2. Time interval: Set the minimum time interval for data saving. After the systemexceeds this time, the software system automatically stores the data in the recordfileof each channel every time. This value should not be set too small, so as to avoid frequent data actions causing the computer to run slowly.

3. Voltage interval: Set the voltage difference condition for data saving. If it is set to 100, it means that when the voltage changes from 3700mv to 3800mv, the systemautomatically stores the data in the channel record file once. If the voltage changes from 3700mv to 3600mv, the storage action can also be triggered. This value shouldnot be set too small, so as to avoid frequent data actions causing the computer torunslowly.

4. Current interval: Set the current difference condition for data saving. If it is set to 100, it means that when the current changes from 500mA to 400mA, the systemautomatically stores the data in the channel record file once. If the current changes from 500mA to 600mA, the storage action can also be triggered. This value shouldnot be set too small to avoid frequent data actions causing the computer to run slowly.

5.3.2 Step Details

Steps can set multiple test step schemes and save vivid names for easy memory, such as “Panasonic 18650 standard test”; click New Step Scheme to add a new scheme; right-click to delete or modify the scheme name. The name will appear in the menu of the operation interface. See the device setting step for details; each step scheme supports the storage and setting of up to 64 steps. Step editing can mix and edit the step execution order. After the step editing is completed, please add a stop step at the end to prepare for the device to stop working to avoid abnormalities.

Add a step: Click Add to add a step; after adding a step, you must set the step supporting execution parameters, otherwise the wrong parameters will cause the risk of damaging the battery.

Modify step: Click the Edit button to reset the parameters in the selected step, or you can directly double-click the step to open it. Delete step: Click the Delete buttonto delete a selected step.

Move step: Click the Up or Down button to move the selected step. Save step: After editing the step, you must click the Save button to save thecurrent step to the software system.

5.3.3 Supported Steps

@Constant current charging: Maximum voltage limit, constant current, andvoltage hysteresis must be set. Nickel-chromium batteries are used, not lithiumbatteries;

@Constant voltage charging: Constant voltage and maximumcurrent must beset;

@Constant power discharge: Cut-off voltage, maximum current, and simulatedpower must be set;

@Constant resistance discharge: Cut-off voltage, maximumcurrent, andsimulated resistance must be set;

@Cycle setting: Jump step (jump within the valid step), number of cycles (<64times) must be set;

@Constant current and constant voltage charging: Constant voltage, constant current, and cut-off current must be set;

@Constant current discharge: Cut-off voltage, constant current, and capacitysetting must be set;

@Put: Step time must be set / Stop: No parameters need to be set. 5.3.4 Matching Conditions

The matching scheme can set a set of qualified standards with multipleconditions. If all conditions are met, they will be checked. For details, see 2.5 QuickMatching Diagram. The configuration conditions support capacity, time, and voltageresults as judgment conditions. Each condition can only fill in one range. It cansupport specifying the result of a certain step as the judgment condition.

For example: The qualified standard of 18650 battery with a nominal value of 2650mA is (see 3.1 Step Setting Diagram for detailed steps): Condition 1: The test capacity of the third step (discharge) of the third cycle reaches 2600~2700mAH; Condition 2: The voltage of the second step of the third cycle (full and static) is between 4180~4200mV, and the two conditions are in an AND relationship.

The setting should be as shown in the figure:

After the settings are completed, you must click the Save button to save theconfiguration conditions.

After saving, when the device completes the battery test, right-click all channels and select the corresponding grouping solution.

5.3.5 Export and Import of Configuration Files

After the above configuration is completed, the configuration project file can be exported and saved. The file can be directly copied to other computers via a USB flash drive for import, which is convenient for one-time editing and use on multiple computers.

5.4 Right-click Function

5.4.1 Set / Start

Right-click Set/Start is an option to select and start a process step. Before all channels are officially running, you must ensure that the process step you need torunis in the process step setting. See the figure for details on the setting method.

Select the name of the work step plan and click OK; Battery batch number, remarks: You can fill in some necessary test information here for easy memoryandquery.

5.4.2 Resume / Stop

Resume: When the battery is off warning or manually stopped, when the restorefunction is selected, the device will continue to run the next step along the last stopped step number, and the previous information is saved in the computer. If there is no start step before, or the machine is powered off and restarted, this functionis invalid, and the number of points to resume operation is 5A discharge.

Stop: If you want to stop running temporarily (such as people leaving andnot assured), you can click the stop button to stop running, and click the resume buttonif you want to continue running.

5.4.3 Information

Right-click and select “Information” to view detailed setting information of this channel, and you can view the details of the currently set work steps and the currently running work steps.

Channel: Indicates the channel number of the currently displayed information. Start time: The time when the last work step of this channel was started. Current status: The current running status of this channel.

Work step and work step scheme name: Indicates the name and serial number of the work step being executed in this channel.

Time Interval, Voltage Interval, and Current Interval: indicates the parameter settings for saving data in this channel.

Data file path: indicates the absolute path of the data recording file of this channel.

Lower computer version: hardware version. Remarks: indicates the informationentered when the step setting is issued.

5.4.4 Analysis

When the channel has been running for a period of time or has been completed, the test records from startup to the current state are normally recorded. After selectingthe analysis function, the record file can be automatically retrieved and the data curveanalyzer can be started. For curve analysis software, please refer to the data analysis section.

5.4.5 Export

Export the relevant data of the selected channel test in a table format.

5.4.6 Data Analysis

Data analysis software supports functions:

Supports 3Y axis, single time axis; all curves support up and down, left and right translation, zooming; left-click on a Y axis and move the mouse up and down to translate up and down; left-click on the X axis and move the mouse left and right to translate the curve left and right; right-click on a Y axis and move the mouse up and down to adjust

the curve amplitude; right-click on the X axis and move the mouse left and right to zoom in on the time curve.

5.4.7 Data Import

There are two ways to import data:

1. Right-click on a single cell in the main menu, click the analysis button, and the data will be automatically imported into the curve analysis software and opened. 2. After starting the analysis software, click the import data button to enter the data record folder in the installation directory of this program, and select the data record file you want to view, with the suffix format of *.dat.

5.4.8 Data Export

The data export function is used to output the imported data in the form of anxls report.

When using it, you must import the data record file you need to view and be able to view it in the window. After selecting the save data function, the software prompts the save location and enter the save name. Tips: When you set the matching parameters, if you are not sure about the exact step number you want to specify, you can first test a complete data and export the data into an xls table. Find the position you want to judge in the table and record the cycle number and step number after finding the corresponding step. Enter the cycle number and step number in the matching parameters.

5.4.9 Multi-curve Comparison

Multi-curve comparison can compare the differences between multiple data record files or a single data file.

5.4.10 Cyclic Comparison

Cycle comparison is used to compare the imported data, with the test differences from the beginning of the cycle to the end of the cycle.

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5.4.11 Usage Steps

Step 1: Set the data recording settings, process step settings, and group settings for the battery you need to test and save them.

Step 2: Select the cells you need to start the test. You can hold down the ctrl key to select multiple singles or hold down the shift key to select in batches.

Step 3: Right-click a selected cell, select Set process step, and select the process step you set before. You can choose to start immediately after setting.

Step 4: The device emits a start test prompt sound, and the software interface status changes. Double-click a running cell to see the actual process step status anddata of the device.

Step 5: During the test process, you can choose to stop and resume to pause and resume the test. The data of the previous test will not be cleared. If you choose tostart, the device will start running the process again.

Step 6: After the test is completed, you can use the grouping function to groupor use the analysis tool for data analysis.

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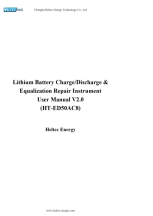
Documents / Resources

 Lithium Battery Charge/Discharge & Equalization Repair Instrument User Manual V2.0 (HT-ED50AC8) Heltec Energy	HELTEC HT-ED50AC8 Lithium Battery Charge [pdf] User Manual HT-ED50AC8, HT-ED50AC8 Lithium Battery Charge, Lithium Battery Charge, Battery Charge

References

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- User Manual