4-Channel Battery Capacity Tester
Single channel below 5V 50A
HT-BCT50A4C

User Manual

Heltec-Energy

Thank you for choosing the HELTEC ENERGY series products.It is designed to provide convenience and improve efficiency in battery capacity testing.For optimal user experience,please read the manual carefully before using and store it properly for future reference.

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

1.Product Introduction

HT-BCT50A4C Multi-Channel Battery Capacity Tester, with single channels suitable for batteries operating within a voltage range of 0.3-5V. The device offers voltage and current accuracy of ±0.001V/A. It features four functionalities: charge, discharge, cycle, and equalization, catering to diverse testing requirements. Capable of real-time, precise acquisition of battery voltage signals, it performs data storage and computational processing. Characterised by high precision, strong timeliness, straightforward operation, and practical reliability.

2.Product Features

① Four channels operate independently without requiring disassembly of battery connectors.

② Automatically acquires battery voltage for analysis, accommodating diverse testing requirements.

③ Adjustable charge/discharge currents, with peak discharge currents reaching 50A.

④ Protection against reverse polarity, overvoltage, overcurrent, battery overheating, and internal overheating ensures battery and equipment safety.

⑤ Simplified user interface displays real-time voltage, capacity, current, and other parameters, supporting both Chinese and English languages.

***Product application range:**

Suitable for various battery manufacturers, small electric equipment, and lithium battery distributors for battery charging/discharging or capacity testing, etc.

3.Product Parameters

Product Name	HT-BCT50A4C
Scope of Application	Batteries within the range of 0.3–5 V and 1–2000 Ah
Charge range	0.3 - 5V / 0.5 - 50A, with 0.1A adjustable range
Discharge range	0.3 - 5V / 0.5 - 50A, with 0.1A adjustable range
Work Mode	Charge/Discharge/Equalization/Cycle
Communication mode	USB,Windows XP or above operating system, Chinese or

	English
Extended function	Four channels may operate in parallel (with all positive clamps connected to the battery's main positive terminal and all negative clamps connected to the main negative terminal), enabling 200A charging and discharging (provided parameter settings are consistent). Channels are isolated, eliminating the need to disconnect inter-cell connectors.
Secondary function	Voltage equalization (CV discharge)
Protective function	Battery overvoltage / reverse connection / connection disconnection / fan not operating
Calibration equipment	Voltage standard source: Fluke 8845A Current standard source: Guwen PCS-1000I
Equipment accuracy	Voltage ± 0.1%, current ± 0.1% (The accuracy guarantee period is within one year from the date of purchase)
Work environment	0 - 40℃, with air circulation, to prevent heat from accumulating around the machine
Warning	During the battery testing process, there must be someone present to supervise.
Power supply for equipment	AC200-240V 50/60HZ（If you need 110V, please inform us in advance.）
Size and weight	620 * 105 * 230mm, net weight: 7Kg

Product application scope: Suitable for various battery manufacturers, small electric equipment, and lithium battery distributors for battery charging, discharging, or capacity testing, etc.

4.Attention

1)For batteries with a capacity of less than 10AH, considering the safety of the battery, it is required that the operation setting charging current should be less than or equal to 5A.
2)Only the battery clamps and connection wires that are compatible with the capacity tester must be used. It is strictly prohibited to extend or modify the matching connection devices. Otherwise, any accidents caused will be borne by the user themselves.
3)During the charging and discharging process of the battery, there must be personnel to monitor the instrument and the battery. It is strictly prohibited to use it when no one is on duty.
4)There are multiple circuits and components inside the capacity tester. It is strictly forbidden to disassemble or modify it by yourself. Otherwise, if any accident occurs as a result, the user will be

held responsible.

5)The interior of the instrument is composed of precision components. Water or water mist must not enter the instrument, otherwise it will cause damage to the instrument.The result data will only be available after the machine has finished running.

6)Data will not be recorded if the operation lasts less than 2 minutes. Data recording will only start after 2 minutes of operation (overwriting the previous data).

5.General Tips

1)The effect of capacity testing is related to time and speed. The faster the speed, the more likely it is to cause a decrease in capacity (Peukert effect). It is recommended to set a smaller discharge current value to improve the test accuracy.

2)No capacity tester can test a damaged battery. Battery damage includes but is not limited to the following aspects: a. The internal resistance of the battery increases; b. The terminal voltage of the battery is lower than the discharge termination voltage; c. Internal short circuit or open circuit of the battery.

3)Please read the instrument's user manual carefully. If you have any difficult problems, please contact the customer service hotline immediately.

6.Product appearance schematic diagram



①The device's power-on switch. If the power is suddenly cut off during the testing process, the test data will not be saved.

②Display screen: Displays charging and discharging parameters as well as the discharge curve

③Setting knob: Rotate to adjust the working mode, press to set the parameters

④Start/Stop Button: Any operation that is currently in progress must first be paused before proceeding.

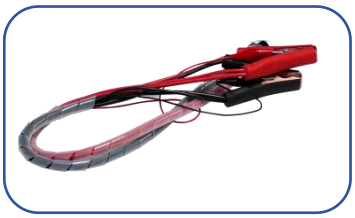
⑤Positive terminal input of the battery: The 1st, 2nd and 3rd pins are for current input, and the 4th pin is the voltage detection port.

⑥Battery negative terminal input: The 1st, 2nd and 3rd pins are for current input, and the 4th pin is the voltage detection port.

7. Product list



Tester *1



Clamping line*8



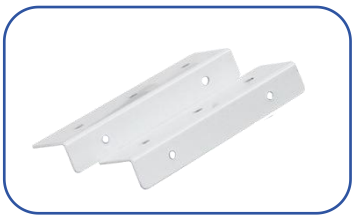
Power cord *1



Data line *1



Manual *1



Fixed angle code *2

8.Basic Operation Instructions (Please note to turn on the machine first and then clamp the battery)

Start up	Rotate the button to adjust the mode	Set parameters
Connect the power cord to the back of the machine and press the power switch button on the front of the machine	Press the Settings knob to enter the Settings page	Rotate left and right to adjust the parameters. Press to confirm. After correctly setting all parameters, save and exit







*Detailed parameter Settings

1) Charge mode Settings

Charge cut-off voltage: 2.7-2.8V for lithium titanate, 4.1-4.2V for 18650/ ternary/polymer, 3.6-3.65V for lithium iron phosphate.

Charge current: Set it to 10-20% of the battery cell capacity. It is recommended to set a current that causes the battery cell to heat up less (please refer to the battery specification sheet first for correct and reasonable Sets).

Cut-off current: When the charge current is less than this value, it is judged as fully charged. It is recommended to set it at 0.2 -1A.

2) Discharge mode settings

Discharge cut-off voltage: Lithium titanate 1.6-1.7V, 18650/ ternary/polymer 2.75-2.8V, lithium iron phosphate 2.4-2.5V.

Discharge current: Set it to 10-50% of the cell capacity. It is recommended to set a current that causes the cell to heat up less (please refer to the battery specification sheet first for correct and reasonable Sets).

3) Cycle mode Settings

First, set the above charge and discharge mode parameters, and then set the following parameters:

Keep voltage: The cut-off voltage for the last charge in cycle mode, which can be set between the charge and discharge cut-off voltages.

Cycle: 1 time：charge - discharge - charge,2 times：charge - discharge - discharge - charge,3 times：charge - discharge - discharge - discharge - charge.

Standing time: The cooling time of the battery cell in the cycle mode, generally set to 10 minutes.

4) Equalization mode settings

1. Discharge cut-off voltage: Set the voltage to the desired level (which should be 10mv higher than the battery voltage) until it reaches that value.

2.Discharge current setting reference: It is recommended to set it to 0.5-10A,The smaller the cell capacity or voltage difference, the smaller the current setting

3.Cut-off current: If the discharge current is less than this value, it is considered that the equalization has ended. The default value is 0.01A.

8.2 After returning to the main page, rotate the Settings buttons left and right to switch to the working mode you need. Press the start/stop button to enter the working state. Press it again to pause.

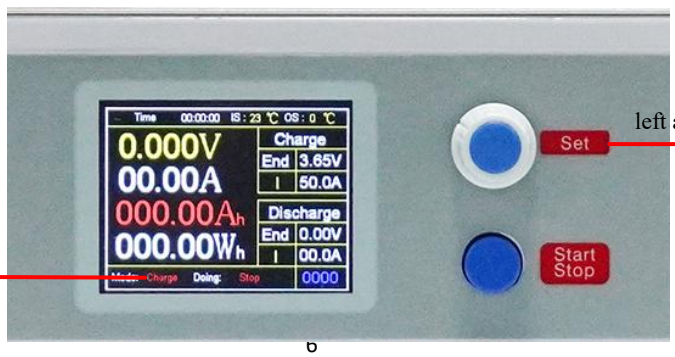
Charge mode **Discharge mode** **Cycle mode**



Rotation setting button

Can switch to

1) result page
2) charging mode
3) discharge mode
4) cycle mode
5) equalization Mode



left and right rotation

8.3 After the test is completed (with an alarm prompt), the result page will pop up automatically (press any key to stop the alarm). Manually record the test results and then proceed to test the next battery.



If the cycle is repeated twice, press the start/stop button four times to view the result pages for each of the four cycles separately

Display the changes in the voltage and current curves during charging and discharging. The yellow curve represents the variation of voltage over time, and the green curve represents the variation of current over time

1)Test result 1 indicates the first cycle, which is represented as AH/WH per minute for charging and discharging.

2)The yellow numbers represent the voltage axis, and the yellow curve is the voltage curve.

3)The green numbers represent the current axis, and the green curve is the current curve.

4)When the battery performance is good, the voltage and current should form a relatively smooth curve.

5)When the voltage-current curve shows a sharp rise or fall, it may be due to a pause during the test or excessive charging and discharging currents, or the battery's internal resistance is too high and it is close to being scrapped.

6)If the test result is empty, it indicates that the working time of this step is less than 2 minutes, so no data will be recorded.

9.Software Usage Instructions

*Battery testing can be conducted through the host computer software

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. For some systems without an installation location, the default selection is the D drive.

Step 3: After installation is complete, when you run the software for the first time, select the network (public network) option.

Step 4: Click "Connect". In the window that appears, select the device you need to connect to. After it turns blue, click "Connect Device". A window for "IP Settings" will show up. Just click "OK" by default.

Important Notes::

1. If it is installed on the C drive, it will cause errors when entering the username and password

or adding the processing step plan. The solution is to run it as an administrator. If it doesn't work, please reinstall it on another drive.

2. If the public network is not selected during the first run, it may cause the connection status to always show as "connected" when connecting devices.

Solution:

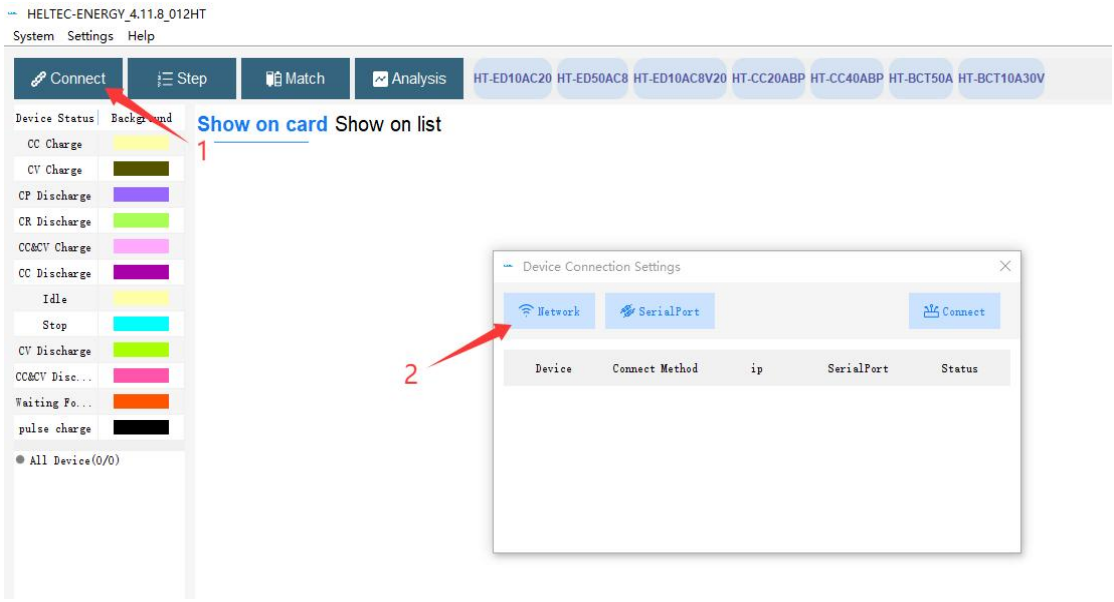
1. Disable the public network firewall;
2. Modify the network connection mode for software operation. If it cannot be modified, reset the default value of the firewall. Restart the software and check the network connection again.

You may download the host computer software via the QR code or contact customer service for the software link.

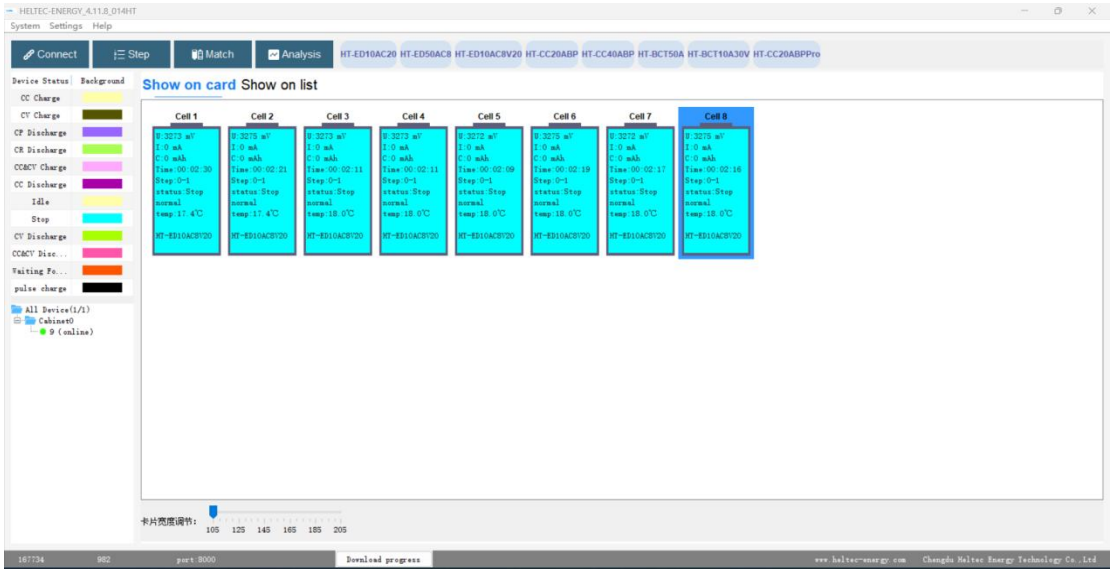
Note: If the software interface is in Chinese, go to the top-left corner, select "Settings" (设置), then click "Language Settings" (语言设置) to switch to English.

1) **Main software interface:** After installing the software, connect the instrument to the computer using a communication cable. Click the "Connect" button on the top left corner of the interface, then click "Search". The IP address of the device will appear. Click "Connect" to control the instrument.

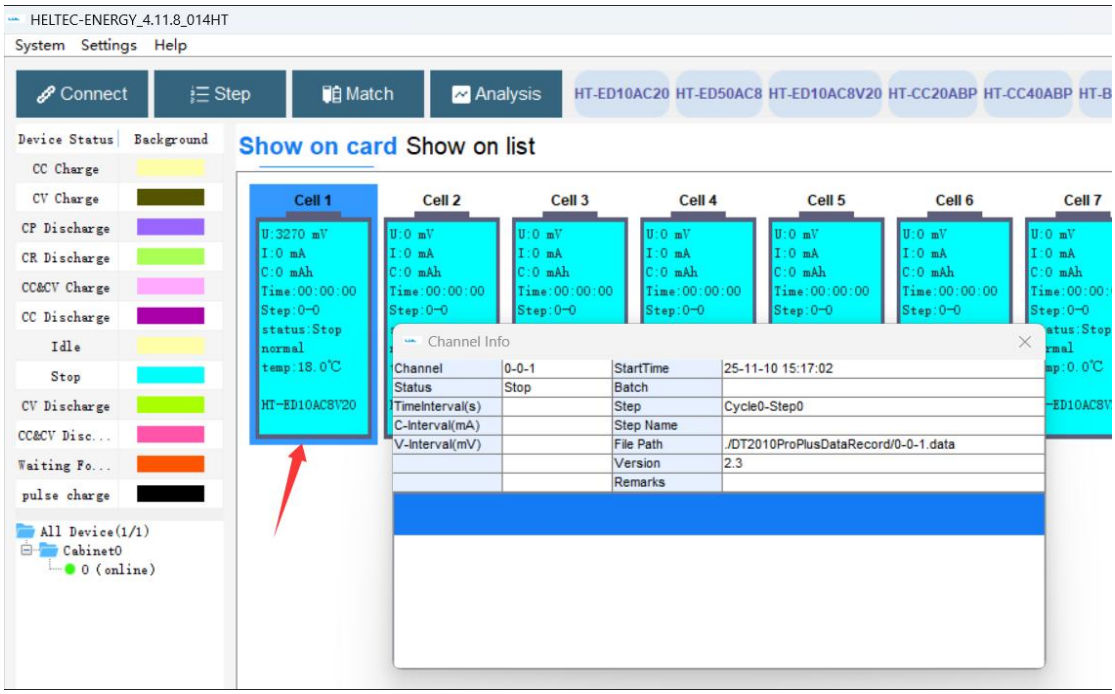
2)



After successful connection, battery information will be displayed, including current voltage, operating current, test capacity, test time, step sequence number, operating status, test status, temperature, and device model.

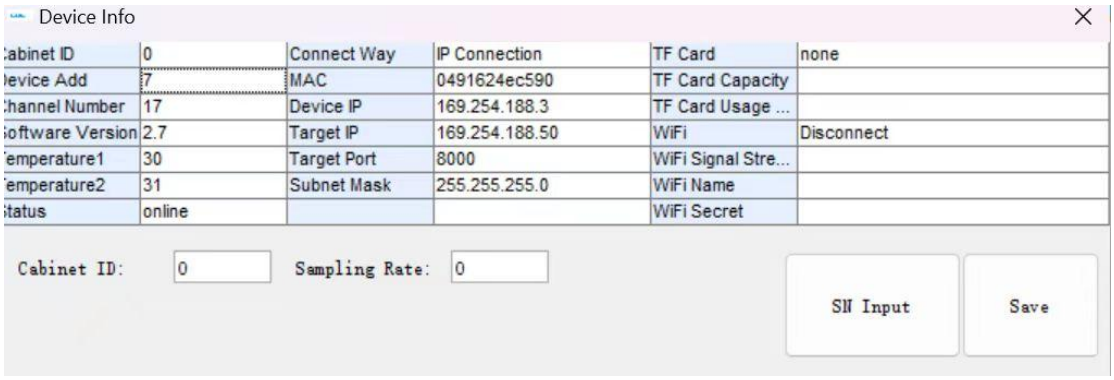


The device information displays a list of devices, indicating the connection status and connection number of the devices connected to the software. By double-clicking a device, you can view detailed device settings information.

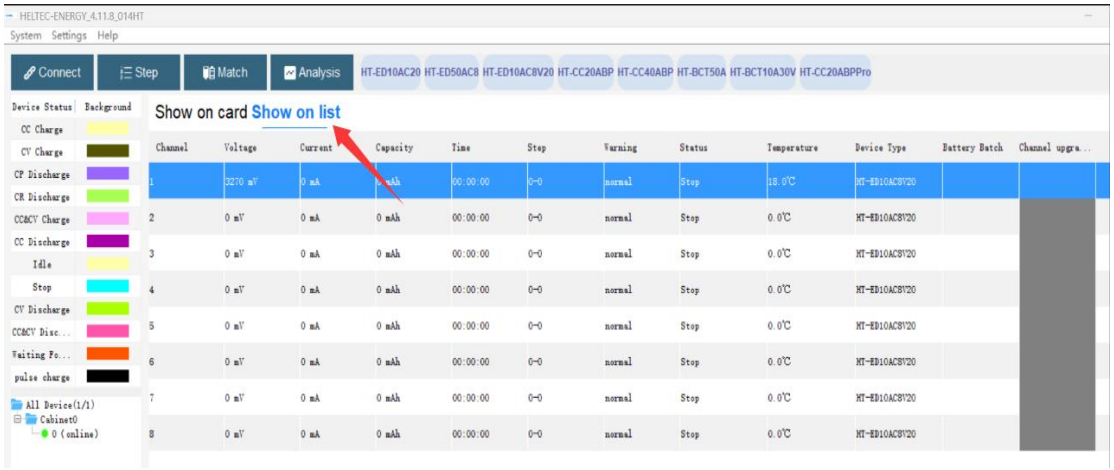


Cabinet number, equipment number, and equipment path number constitute the basic information of the equipment.

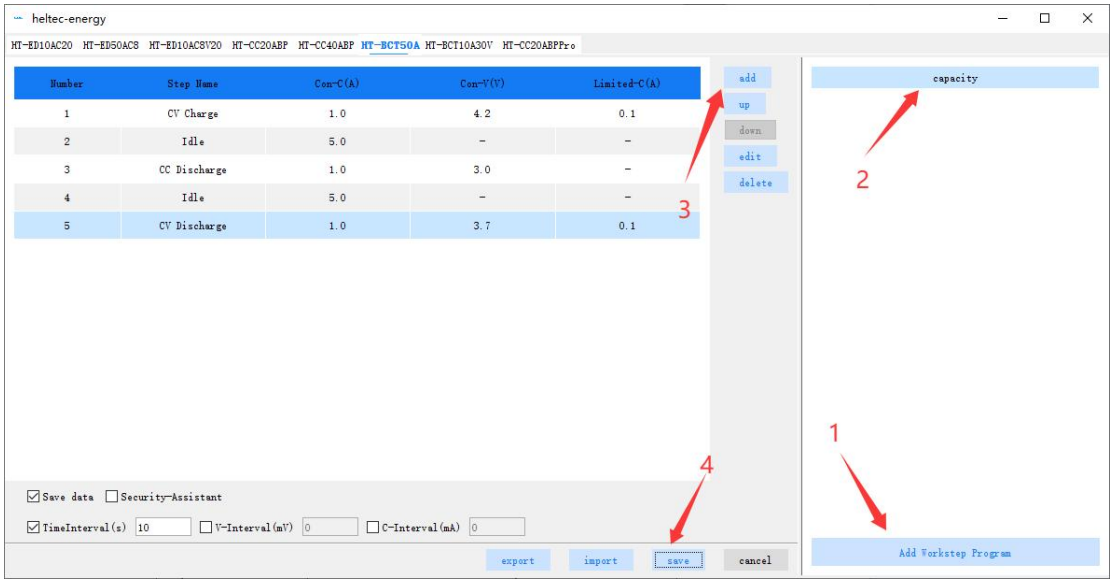
3) **Software version:** refers to the firmware version of the device; Connection method, IP, port, etc.: indicates the port and IP address information for connecting the device to the computer. Temperature 1/2: indicates the measured values of the two temperature sensors inside the device. When the temperature exceeds 30℃, the fan automatically operates for heat dissipation; Status: indicates the connection relationship between the device and the computer. Cabinet number: sets the cabinet number where the device is located, facilitating the random arrangement of cabinet sequence numbers during on-site wiring of cabinet-type devices. Sampling rate: indicates the frequency of data collection and upload by the device.



If the selection list is clicked and displayed, the status of the device will be listed out. All operational functions remain unaffected.



Click the "Step Sets" button in the top left corner to enter the step sets interface. First, create a new step by naming it. After creation, click on the name of the newly created step to edit it. Then, click "Add Step" to set charge and discharge parameters, cycles, etc. Note that you need to set the desired work steps according to the specific type of battery.

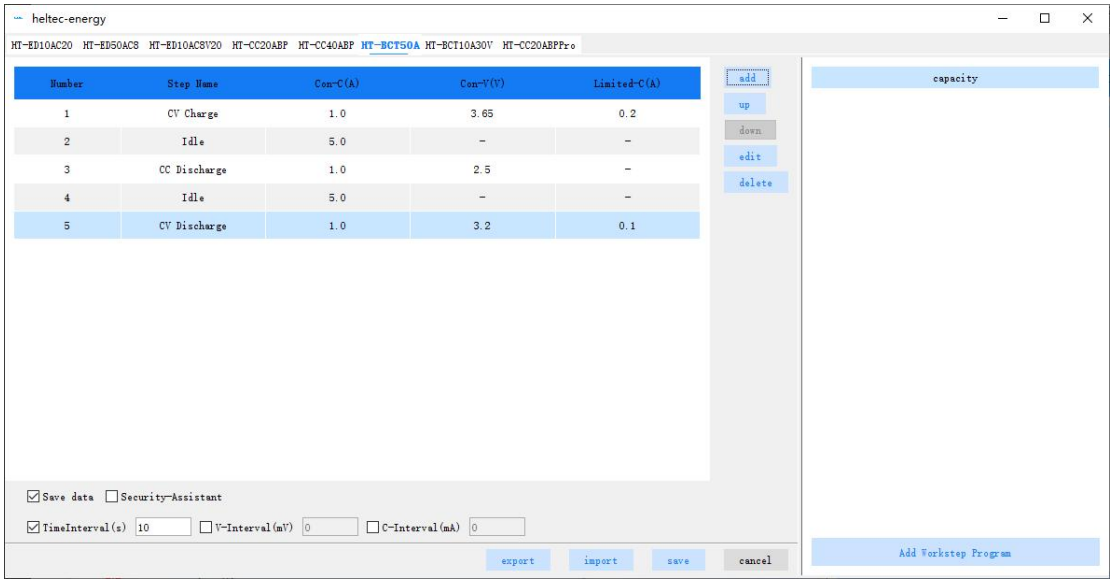


After setting, click the "Save" button at the bottom of the page to save the work step. After exiting, select one or multiple batteries for testing. Click and select the battery, right-click and choose "Start" to use the saved work step (to select multiple batteries, hold down Ctrl and left-click the battery icons you want to select consecutively). During the test, you can judge the working status of the battery by its color, or right-click the battery icon to view the curve change diagram of the battery's operation. The battery data after the test can also be exported and saved for analysis and comparison.

4) **Step setting:** It is necessary to consider the battery as a whole, and set it according to the type of battery, number of cells in series, total voltage, and total capacity. For example, for a 1s lithium-ion battery with a total capacity of 3AH and a nominal voltage of 3.7V, the charging and discharging current should generally be less than half of the total capacity, which is 1A. The cut-off current should be 0.02 times the total capacity, which is 0.1A. The maximum charging cut-off voltage is 4.2V, and the minimum discharging cut-off voltage is 3V. Note that after each charge or discharge, it is necessary to let the battery rest for a period of time to allow it to dissipate

heat. If one measurement is not accurate, multiple measurements can be taken to ensure correctness.

Battery Type	Nominal voltage	Recommended Voltage Settings	Recommended Current Settings
ternary lithium battery	3.7V	Vmax：4.2V x Number of cells in series，Vmin：3V x Number of cells in series	Charge and discharge current：Total battery capacity x 0.5 Charge/Discharge Cut-off Current：Total battery capacity x 0.02
Lithium iron phosphate battery	3.2V	Vmax：3.65V x Number of cells in series，Vmin：2.7V x Number of cells in series	
Lead-acid battery	12V	Vmax：14.4V，Vmin：10.5V	



Multiple test step schemes can be set for the work steps, and vivid names can be saved for easy memory, such as "Panasonic 18650 Standard Test"; clicking "New Step Scheme" can add a new scheme; right-clicking can delete or modify the scheme name. This name will appear in the menu of the operation interface. See "Device Settings Work Steps" for details; each step scheme supports the storage and setting of up to 64 steps. Step editing allows for mixed editing of step execution order. After step editing is completed, please add a stop step at the end to allow the device to stop working in case of abnormalities.

Add work step: Click "Add" to add a new work step. After adding a work step, it is necessary to set the corresponding execution parameters for the work step, otherwise incorrect parameters may pose a risk of damaging the battery.

Operation step modification: Click the "Edit" button to reset the parameters in the selected operation step, or double-click the step to open it directly.

Operation step deletion: Click the "Delete" button to delete a selected operation step.

Step movement: Click the up or down button to move the selected step.

Operation step saving: After editing the operation step, you must click the save button to save the current operation step to the software system.

Supporting steps:

@Constant current charging: Maximum voltage limit, constant current, and voltage return difference must be set. It is designed for Ni-Cd batteries and is not applicable to lithium batteries;

@Constant Voltage Charging: Constant voltage and maximum current must be set;

@Constant power discharge: The cut-off voltage, maximum current, and simulated power must be set;

@Constant resistance discharge: The cut-off voltage, maximum current, and simulated resistance must be set;

@Cycle Settings: Jump step (jump within valid steps) and cycle count (<64 times) must be set

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

@Constant current discharge: The cut-off voltage, constant current, and capacity settings must be set;

@Hold: The work step time must be set

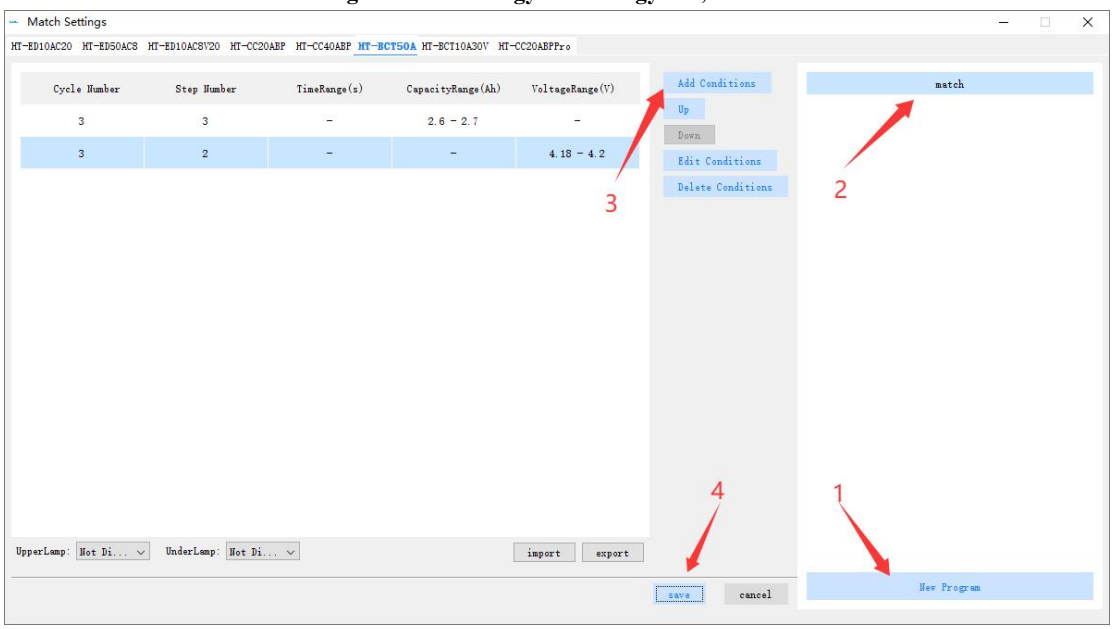
@Stop: No need to set parameters

Pairing conditions:

The matching scheme enables you to set multiple filtering criteria. If all the conditions are met, they will be marked with a tick. For details, please refer to the 2.5 Quick Assembly diagram. The support for configuration conditions is based on capacity, time, and voltage results as judgment conditions. However, only one range of each condition can be filled in. It can support specifying the result of a certain work step as the judgment condition.

For example, the qualified standard for the 2650mAh nominal 18650 battery is : Condition 1: The test capacity of the third work step (discharge) in the third cycle reaches 2600 to 2700mAH. Condition 2: The voltage (full and static) of the second working step in the third cycle is within the range of 4180 to 4200mV. The two conditions are concurrent.

Then the Settings should be as shown in the figure



After the Settings are completed, you must click the Save button to save the configuration conditions.

4) Data storage conditions:

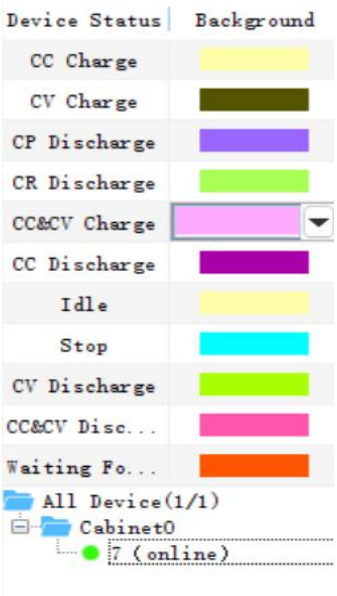
(1) When you need to save test data to your computer, please check this item; otherwise, the data will not be stored. There are 3 conditions to choose from for the storage rules on the computer.

(2) Time interval: Set the minimum time interval for data saving. After exceeding this time, the software system will automatically store data into the record file of each channel every time interval. This value should not be set too small, so as to avoid frequent data actions causing slow computer operation.

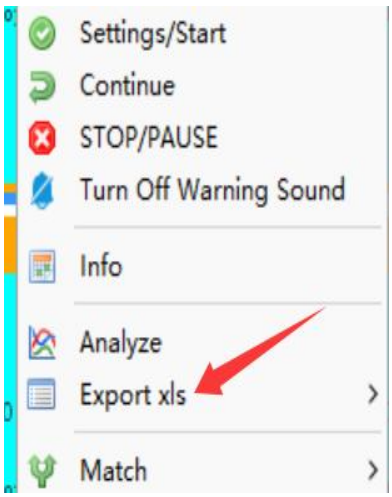
(3) Voltage Interval: Set the voltage difference condition for data saving. If set to 100, it indicates that the system will automatically store data once in the channel record file when the voltage changes from 3700mv to 3800mv. If the voltage changes from 3700mv to 3600mv, the storage action can also be triggered. This value should not be set too small, as frequent data actions may cause the computer to run slowly.

(4) Current interval: Set the condition for current difference values for data storage. If set to 100, it indicates that the system automatically stores data once in the channel record file when the current changes from 500mA to 400mA. If the current changes from 500mA to 600mA, the storage action can also be triggered. This value should not be set too small, as frequent data actions may slow down the computer.

***Status color setting：**



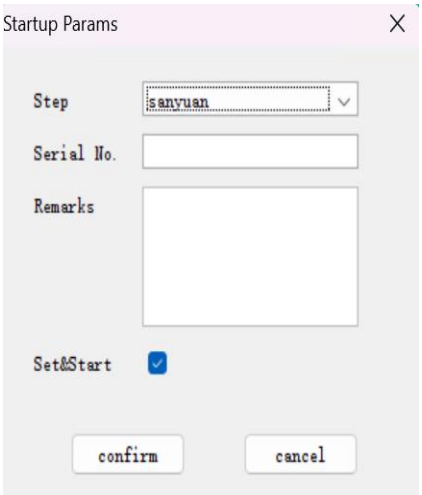
All the states supported by the device are displayed in color blocks, making it convenient for users to understand the current operating status or locate the test channel for abnormal states when applying the device in large quantities.



Export and import of configuration files: After the above configuration is completed, the configuration project file can be exported and saved. This file can be directly copied to other computers via a USB flash drive for import, facilitating one-time editing and use on multiple computers.

*Right mouse button function:

1) Setup/Startup



Right-click Settings/Start is an option to select and start the work steps. Before all channels are officially operated, it is necessary to ensure that the work steps you need to run are included in the work step settings. The setting method is detailed in the figure:

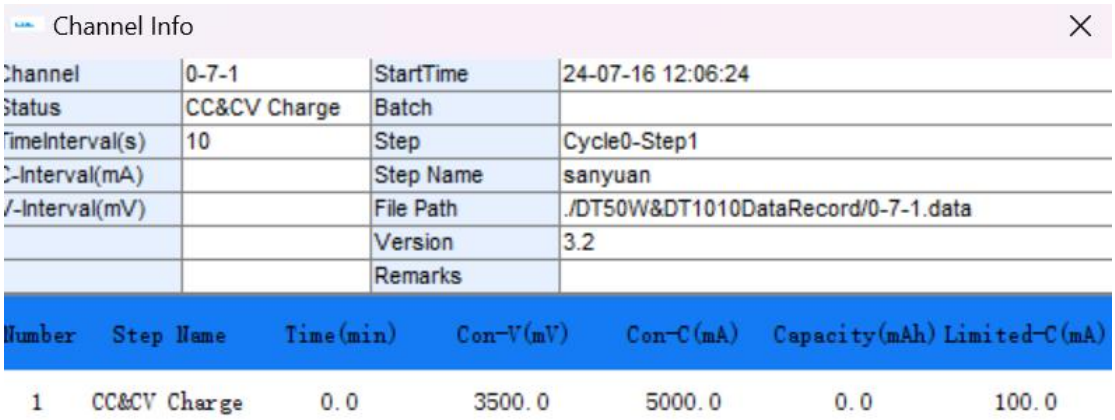
Select the name of the work step plan and click "Confirm"; for battery batch number and remarks, you can fill in some necessary test information here for easy reference and identification.

2)Restore, stop

(1) Restore (when connected to the host computer): When in battery detachment warning state or manual stop state, selecting the restore function will cause the device to continue running the next step along the last stopped step number. Previous information is saved on the computer. If there was no previous start step, or if the machine was powered off and restarted, this function will be disabled.

(2) Stop: If you want to temporarily stop the operation (for example, if you need to leave the device unattended), you can click the stop button to halt the operation. To resume the operation, click the resume button.

3)Information



Right-click to select information to view detailed setup information for this channel, including the currently set work step details and the currently running work step.

Channel: Indicates the channel number of the currently displayed information.

Start time: The time when the last step of this channel was initiated.

Current status: The current operational status of the channel.

Work step and work step scheme name: indicates the name and serial number of the work step currently being executed on this channel.

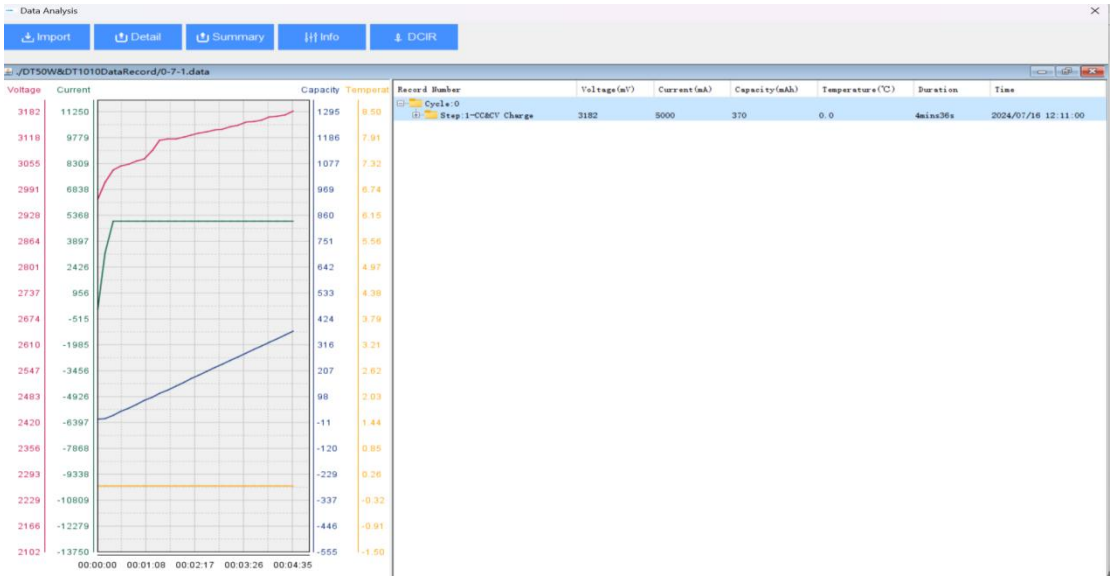
Time interval, voltage interval, current interval: These indicate the parameter settings for saving data in this channel.

Data file path: Refers to the absolute path of the data record file for this channel.

Firmware version:version number. Remarks: indicates the information entered when the work step settings were issued.

4) Data analysis

When the channel has been running for a period of time or has completed running, under normal circumstances, the test records from startup to the present have already been recorded. After selecting the analysis function, the record file can be automatically retrieved and the data curve analyzer can be launched. For the curve analysis software, please refer to the data analysis section.

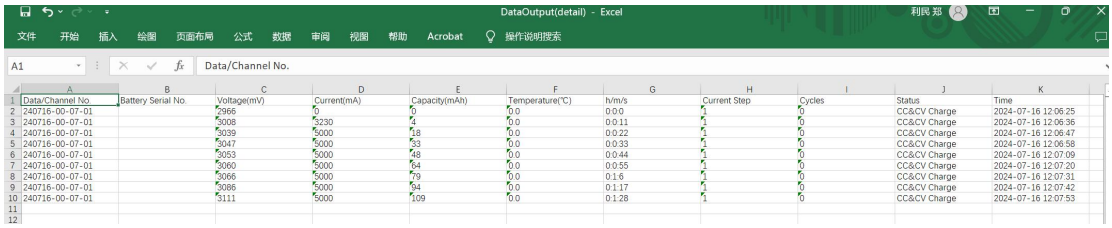


Data analysis software support functions:

Supports 3Y axes and a single timeline; all curves support up/down and left/right panning and zooming; holding the left button and moving the mouse up/down along a Y axis allows for up/down panning; holding the left button and moving the mouse left/right along the X axis allows for left/right panning of the curve; holding the right button and moving the mouse up/down along a Y axis allows for zooming in on the curve amplitude; holding the right button and moving the mouse left/right along the X axis allows for left/right zooming of the time curve.

5) Export

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



6) Data import:

There are two ways to import data:

First:Right-click on the main menu grid, click the "Analysis" button, and the data will be automatically imported into the curve analysis software and opened.

Second: After starting the analysis software, click the "Import Data" button to enter the "Data Records" folder under the program's installation directory. Select the data record file you want to view, with a suffix format of *.dat

7) Data export

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

When using, 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 for the save location and the input of a save name. Tip: When setting the grouping parameters, if you are not sure about the exact step number of the step you want to specify, you can first test a complete set of data and

export it as an xls table. Find the position you want to determine in the table, locate the corresponding step, and record the cycle number and step number. Enter these values in the grouping parameters.

8) Multi-curve comparison

Multiple curve comparison allows for the comparison of differences between multiple data record files or a single data file.

9) Usage steps

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

Step 2: Select the cells you want to initiate the test on. You can hold down the Ctrl key to select multiple cells, or hold down the Shift key to select a batch of cells.

Step 3: Right-click on a selected cell, choose "Set Operation Step", and select the operation step you have previously set. You can choose to start immediately after setting.

Step 4: The device emits a startup test prompt tone, and the software interface status changes. By double-clicking a running single cell, you can view the actual operating step status and data of the device.

Step 5: During the testing process, you can choose to stop and resume to pause and resume the test. The previously tested data will not be cleared. If you choose to start, the device will start running the work steps again.

Step 6: After the test is completed, you can use the grouping function to perform grouping or utilize analysis tools for data analysis.

10. Common Troubleshooting Methods:

Reminder: 90% of failures stem from insufficient contact area between clamps and battery tabs, poor contact, excessive charge/discharge currents, or defective cells.

Never assume clamps will work simply by attaching them to the battery. Inadequate contact area leads to various issues.Therefore, we strongly recommend custom-making clamps tailored to your cell tabs!

1. Why does the voltage displayed on this machine differ from your multimeter?

Cause 1: Our factory calibrates voltage and current using Fluke 8845A and GuwenPCS-1000I calibrators. We also commission third-party authoritative institutions annually to conduct random inspections of our equipment. Your multimeter may not achieve this level of precision.

Solution : Measure and compare using instruments of the same or higher grade as those in our factory.

Cause 2: Inconsistent voltage measurement points.

Solution : If measuring voltage while current is present, you must measure at the voltage sampling point of the clamp (small clamp position). Otherwise, voltage inconsistencies will occur due to voltage drop.

2. Why does the machine trigger an alarm?

Cause: Reversed battery polarity/overheating/over-voltage.

Solution: Check if the clamps are reversed, verify proper machine cooling, and ensure battery voltage does not exceed 5V.

3. Why do the clamps or battery tabs burn out?

Cause: Insufficient contact area between clamps and battery tabs or severe contact failure.

Solution: Increase contact area to ensure proper connection.

4. Why is there no result data after testing?

Cause: One of the operational steps did not run for at least 2 minutes.

Solution: Perform a single charge/discharge for 5 minutes before proceeding with the normal testing process.

5. Why does charging exceed the set cut-off voltage?

Cause 1: Insufficient contact area or poor contact between the fixture and battery tab.

Solution: Increase contact area and ensure proper contact.

Cause 2: The set charging current significantly exceeds the cell's tolerance range.

Solution: Set parameters correctly and reasonably according to the cell specification sheet.

6. Why are there significant deviations in test result data?

Cause 1: Incorrect settings for charge cut-off voltage/charge current/cut-off current.

Solution: Set parameters correctly and reasonably according to the cell specification sheet.

Cause 2: Incorrect settings for discharge cut-off voltage/discharge current.

Solution: Set parameters correctly and reasonably according to the cell specification sheet.

Cause 3: Insufficient contact area between fixture and cell tab / Alligator clip not properly attached to cell tab.

Solution: Increase contact area; ensure alligator clip grips the base of the cell tab.

7. Why does the cell overheat during testing?

Cause 1: Charge/discharge current exceeds the cell's tolerance range.

Solution: Set parameters correctly and appropriately according to the cell specification sheet.

Cause 2: Excessive internal resistance or cell damage.

Solution: Recommend discarding the cell.

8: Why do multiple tests yield different results for the same battery?

Cause 1: Testing conditions were not identical.

Solution: Ensure consistency in environmental temperature, charge cut-off voltage/current/cut-off current, discharge cut-off voltage/current/idle time.

Cause 2: Clamp interference.

Solution: Ensure consistent contact area for large alligator clips and precise positioning for small alligator clips during each test.

Cause 3: Chemical characteristics.

Solution: Lithium battery charging/discharging involves chemical reactions susceptible to subtle external variations.

9: Why does the test process automatically interrupt?

Cause 1: Insufficient contact area between fixture and tab causes excessive voltage drop or poor contact, triggering device protection.

Solution: Increase contact area between fixture and tab while ensuring proper contact.

Cause 2: Set charge/discharge current exceeds cell tolerance, triggering device protection.

Solution: Reduce charge/discharge current and set parameters correctly.

Cause 3: Increased or unstable cell internal resistance triggers device protection.

Solution: Recommend discarding the affected cell.

10: Why can't the set discharge cut-off voltage be reached?

Cause 1: Excessive discharge current rapidly pulls the voltage down to the cut-off voltage. After the unit stops discharging, the voltage gradually recovers.

Solution: Reduce the discharge current.

Cause 2: Insufficient contact area or poor contact between the fixture and the tab.

Solution: Increase the contact area and ensure good contact.

11: Why can't the set charge cut-off voltage be reached?

Cause 1: The set full-charge current is too high, preventing complete charging.

Solution: Reduce the full-charge current.

Cause 2: Excessive charge current rapidly pulls the voltage to the cut-off voltage. After the device stops charging, the voltage gradually decreases.

Solution: Reduce the charging current.

Cause 3: Defective cell (excessive self-discharge).

Solution: Recommend replacing the cell.

Cause 4: Poor contact between the clamp and the tab.

Solution: Increase the contact area and ensure good contact.

12: Why does it charge/discharge so quickly?

Cause 1: Excessive charge/discharge current rapidly pulls the voltage to the set cut-off point, causing the device to stop working.

Solution: Set parameters correctly and appropriately.

Cause 2: The cell's internal resistance has increased significantly, approaching end-of-life.

Solution: Recommend replacing the cell.

Cause 3: Insufficient contact area or poor contact between the fixture and the cell tab.

Solution: Increase contact area to ensure proper connection.

13: Why does voltage rise/fall several hours after testing/balancing completes?

Cause 1: Physical characteristics of the cell. Voltage naturally decreases after full charge when left idle.

Solution: Physical characteristic; cannot be altered.

Cause 2: Physical characteristics of the cell. Voltage naturally recovers after full discharge when left idle.

Solution: Physical characteristic; cannot be altered.

14: Why is the charging time excessively long?

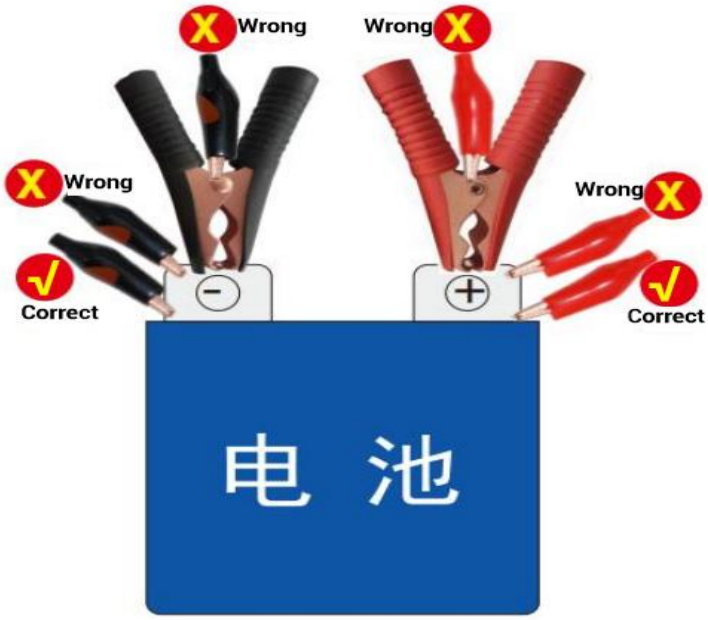
Cause: Insufficient contact area between the fixture and cell tab causes excessive voltage drop, causing the machine to prematurely switch to constant-voltage charging mode.

Solution: Increase contact area. Ensure small clamps grip the base of the cell tab (never use with large clamps).

1) Both the small and large alligator clips should be clamped onto the battery tabs. The small alligator clip is for voltage sampling, while the large alligator clip is for main current!

2) The contact area between the large crocodile clamp and the TAB must be large enough. It is strictly prohibited to clamp screws, nickel sheets or wires, otherwise it may cause overheating and damage or abnormal interruption of the testing process!

3) The small crocodile clip must be clamped at the root of the battery terminals; otherwise, it will cause inaccurate voltage sampling and lead to inaccurate capacity testing!



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.