Single Channel 50A 5V

Battery Capacity Tester User Manual

(HT-BCT50A)

Heltec Energy

1. Introduction

The contents of this manual have fulfilled the obligation of reminding and warning according to the safety production law! Before using this product, you must read and understand the contents of the manual carefully! This product is only for professional use, you must know Any operation on the lithium battery is extremely dangerous! Therefore, you must set the machine correctly and reasonably according to the specifications provided by the battery manufacturer. All direct or indirect consequences caused by the use of this product have nothing to do with our company! This product and accessories will be upgraded from time to time without notice.

2. Product Parameters

Model	HT-BCT50A5V
Charging range	0.3-5V/0.3-50A Adj, CC-CV
Discharge range	0.3-5V/0.3-50A Adj,CC
Work step	Charge/Discharge/Rest time/Cycle 9999 times
Auxiliary functions	Voltage balancing(CV Discharge)
Protective function	Battery overvoltage/Battery reverse connection/ Battery disconnection/Fan not running
Calibration equipment	V: Fluke 8845A , A: Gwinstek PCS-1000I
Accuracy	V±0.1%,A±0.1%,(The accuracy guarantee time is within one year from the date of purchase)
Cooling	Cooling fans open at 40°C, protected at 83°C (please check and maintain the fans regularly)
Working environment	0-40°C, air circulation, do not allow heat to accumulate around the machine
Warning	It is forbidden to test batteries over 5V
Power	AC200-240V 50/60HZ (If you need 110V, please inform us in advance)
Size and weight	Product Size 167*165*240mm,Weight 2.6Kg

3. Appearance introduction

① Power switch:If the power is suddenly cut off during the test, the test data will not be saved.

② Display screens: Display charging and discharging parameters and discharge curve

③ Coding switches:Rotate to adjust working mode, press to set parameters

④ Start/Stop button:any operation in running state must be paused first.

⑤ Battery positive input:1-2-3 pin through current, 4 pin voltage detection.

⑥ Battery negative input:1-2-3 pin through current, 4 pin voltage detection.

Reminder: 99% of the failures are caused by too small contact area between the battery clamp and the battery pole ear/bad contact/too large charge and discharge current/cell damage. Although the battery clamp has clamped the battery, but if the contact area is not large enough, it will lead to various failures, it is recommended that you make your own battery clamp!

4. Use method

1. Start up first, and then clip the battery. Press the setting knob to enter the setting page, rotate left and right to adjust the parameters, press to determine, Set the parameters correctly and save the exit.

Parameters to be set in Charging mode:

Charging End voltage: lithium titan ate 2.7-2.8V, 18650/ternary/polymer 4.1-4.2V, lithium iron phosphate 3.6-3.65V (You must set this parameter correctly and reasonably).

Charging current: set to 10-20% of the cell capacity (Please set it correctly and reasonably) It is recommended to set a current that makes the cell heat less as much as possible.

Judging full current: that is when the charging current is less than this value, it is judged to be fully charged. It is recommended that the battery cell below 5Ah be set to 0.2A, the battery cell of 5-50Ah should be set to 0.5A, and the battery cell above 50Ah should be set to 0.8A.

Parameters to be set in Discharge mode:

Discharge End voltage: lithium titan ate 1.6-1.7V, 18650/ternary/polymer 2.75-2.8V, lithium iron phosphate 2.4-2.5V (You must set this parameter correctly and reasonably).

Discharge current: set to 10-50% of the cell capacity (Please set it correctly and reasonably)

It is recommended to set a current that makes the cell heat less as much as possible.

Parameters to be set in Cycle mode:

Charge and discharge mode parameters need to be set simultaneously

Keep voltage: The cut-off voltage of the last charge in cyclic mode ,can be the same as the cut-off voltage of the charge or discharge.

Resting time: In cycle mode, after the battery is fully filled or discharged (let the battery cool down for a period of time), usually set for 5 minutes.

Cycle: Max 5 times,

1 time (charge-discharge-charge),

2 times (charge-discharge-charge-discharge-charge),
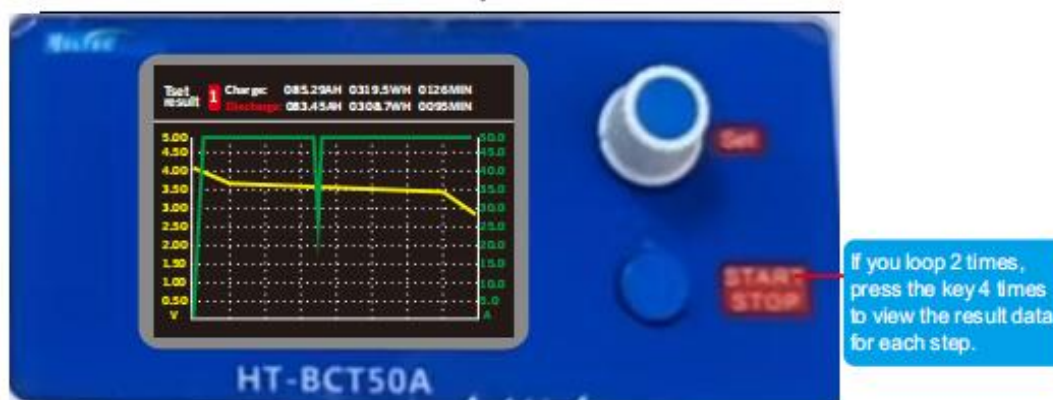3 times (charge-discharge-charge-discharge-charge-discharge-charge).

Parameters to be set in Voltage balancing mode:

Discharge End voltage: How many volts do you plan to balance the cell voltage to?
This value must be higher than 10mv than the battery voltage.
Discharge current setting reference: Less than 10% of the cell capacity is recommended.
End current: It is recommended to set it to 0.01A.

2. Return to the home page, rotate the setting button to the left or right to switch to the working mode you need, press the start / stop button to enter the working state, and press again to pause.

3. After waiting for the test to end, the result page will automatically pop up (press any button to stop the alarm sound) and record it manually. Test the results, and then test the next battery.

Test results: 1 indicates the first cycle, the AH/WH/min of charge and discharge respectively. Press the start / stop button further to show the results and curve of each step in turn.
The yellow numbers represent the voltage axis, and the yellow curve represents the voltage curve.

Green numbers represent the current axis, green numbers represent the current curve. When the battery performance is good, the voltage and current should be a relatively smooth curve. When the voltage and current curve rises and falls sharply, it may be that there is a pause during the test or the charging and discharging current is too large. Or the internal resistance of the battery is too large and it is close to being scrapped.

If the test result is empty, the working step is less than 2 minutes, so the data will not be recorded.

5. Matters need attention

➤ Data must not be generated until the native machine ends the operation automatically.
➤ Do not power off or switch over the working mode during the machine operation, otherwise the data will not be saved.
➤ The machine runs for 2 minutes before starting recording the data (while overwriting the previous data).
➤ Any operation on the running machine must first press the pause key.
➤ Do not test batteries that are not rechargeable or zero voltage or have damaged bulges.
➤ The radiator surface has high temperature and is connected to the positive electrode of the battery, so prohibit short circuit and touch.
➤ Do not test batteries over 5V, otherwise no warranty.
➤ Charging cut-off voltage / current and discharge off voltage / current must be set correctly and reasonably according to the cell specifications.
➤ Testing must be conducted in a supervised open environment, without high temperature flammable and explosive valuables around.
➤ The product shall not be leased / transferred / donated to a third party, otherwise the consequences shall be borne and the after-sales service shall be terminated.
➤ Use a well-grounded socket (otherwise there may be leakage or minor induction).
➤ This product is only a tool, and is entirely used by you, and our company refuses to accept any responsibility.The warranty policy

6. The warranty policy

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.

1. Both the large and small crocodile clamps must be clamped on the battery pole lugs!

2. The contact area between the large crocodile clip and the pole ear should be large enough, and it is prohibited to clip it onto screws/nickel plates/wires, otherwise it will cause abnormal interruption of the testing process!

3. The small crocodile clip must be clamped at the bottom of the battery ear, otherwise it may cause inaccurate capacity testing!