

# **6 channels Lead-acid/NIMH Battery Tester Single channel 7-23V 10A**

## **HT-ED10AC6V20D**

## **User Manual**

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 HT-ED10AC6V20D is a six-channel capacity testing and maintenance instrument. Each channel is suitable for lead-acid or nickel-metal hydride batteries operating at voltages between 7 and 23 volts. The device features a current accuracy of  $\pm 0.03A$  and can test individual batteries or battery packs within this voltage range. Featuring battery capacity testing, charge/discharge cycles, and pulse repair functionality, it offers high precision, strong timeliness, straightforward operation, and practical reliability. This instrument provides comprehensive battery testing and maintenance services for both manufacturers and end-users.

## 2.Product Features

- ① Features both simple and professional modes, catering to both novices and experts.
- ② Incorporates pulse repair functionality to activate the chemical activity within the battery's internal materials.
- ③ Pulse charge-discharge capability enables capacity testing while simultaneously performing gradual battery restoration.
- ④ Supports up to 50 charge-discharge cycles, meeting the requirements of most application scenarios.
- ⑤ The device continuously monitors the unit's temperature during charging and discharging, adjusting fan speed accordingly.

## 3.Product model parameters

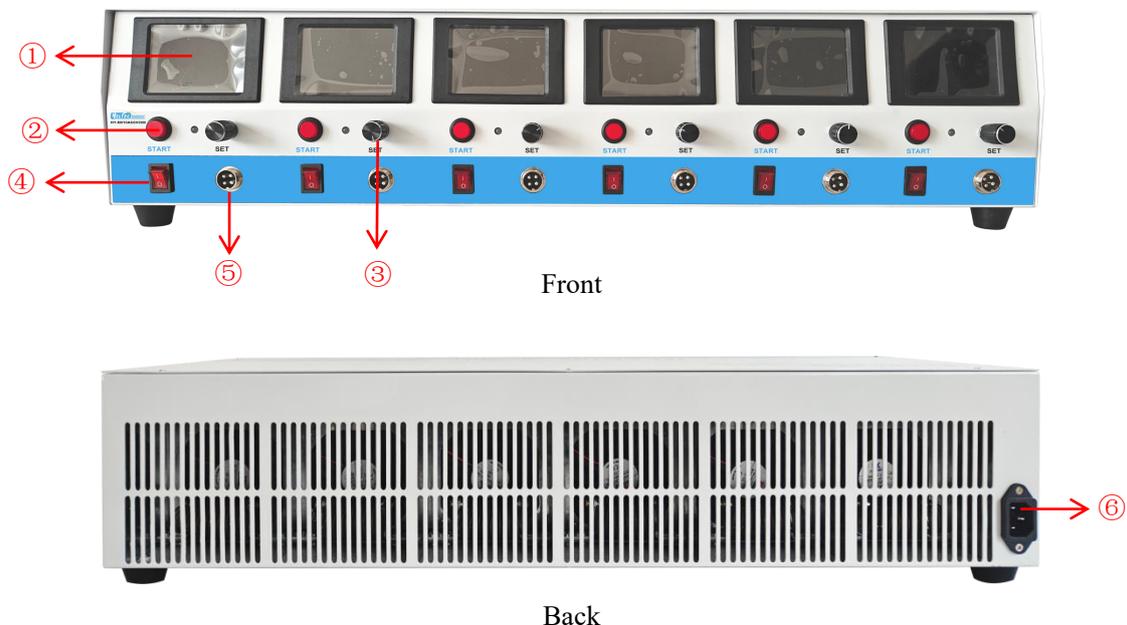
<b>Machine weight</b>	10kg	Maximum charge-discharge cycle count	50
<b>Machine dimensions</b>	Length 66cm, width 28cm, height 16cm	Current and Voltage Regulation Methods	Knob adjustment
<b>Warranty period</b>	1 year	Maximum power per charge	138w
<b>Input voltage</b>	220V	Maximum duration per charge/discharge cycle	90 hours
<b>Charge voltage range</b>	Adjustable from 7 to 23 volts, with 0.1-volt increments	Single-time standby power consumption	20w

<b>Charge current range</b>	Adjustable from 0.5 to 6 amperes, with current adjustable in increments of 0.1 amperes.	Maximum power of a single discharge	200w
<b>Charge current accuracy</b>	±0.03A	Display language	Chinese/English
<b>Discharge voltage range</b>	Adjustable from 2 to 20 volts, with 0.1-volt increments	Number of charge and discharge channels	6
<b>Discharge current range</b>	Adjustable from 0.5 to 10 amperes, with 0.1-ampere increments	Discharge current accuracy	±0.03A
<b>Machine temperature adjustment method</b>	Continuously monitor the internal temperature during charging and discharging and adjust the fan speed accordingly.		

#### \*Product application scope

It is widely applied in fields such as battery testing and maintenance, and is used for charging and discharging tests and maintenance of electric vehicle batteries, energy storage batteries, and solar batteries, etc.

## 4.Product Appearance Diagram



- ① Display screen: Displays various parameters such as current, voltage, capacity, and time.
- ② Start/Stop button: Pressing it starts the operation. Pressing it again while the machine is running will pause the operation (any operation in the running state must be paused first).
- ③ Switch/Settings button: Rotate to switch the working mode, and press to set parameters.

- ④ Channel On/Off button
- ⑤ Single-channel fixture connection port
- ⑥ Machine power cord interface

## 5. Operating Mode Descriptions

Note: This product features both Simple and Professional modes, with Simple mode activated by default upon start-up. Simply select the battery type from 6V/12V/16V, along with the charging and discharging currents. All other discharge parameters are automatically configured according to the battery's characteristics. Simple mode is suitable for novice users unfamiliar with battery specifications. Professional users may switch to Professional mode when higher precision is required. To switch modes: whilst the unit is inactive, press and hold the 'set' knob for 3 seconds, then release. Upon hearing a prolonged 'beep' alarm, the unit will enter Professional mode. In Professional mode, battery charging voltage, charging current, discharging voltage, and discharging current can be freely configured.

**Simple mode**

Get battery voltage

Select the battery voltage specification 6V, 12V, 16V the charge and discharge cut-off voltage will be set up automatically

Charge and discharge current can be arbitrarily adjusted

Charging current adjustment range 0.5-6A

Discharge current adjustment range 0.5-10A

Mode code

**Professional Mode**

Charge and discharge voltage can be adjusted arbitrarily

Charge voltage adjustment range 7-23V

Discharge voltage regulation range 2-20V

Charge and discharge current range can be arbitrarily adjusted

Charge current adjustment range 0.5-6A

Discharge current adjustment range 0.5-10A

Mode code

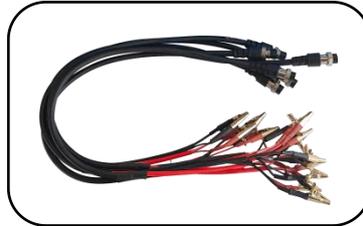
Pattern code	Mode function
00	Historical data query
01	Capacity test (discharge mode)
02	Charge mode
03	Start with discharge and end with charge, with a cycle count of 1-50 times
04	Start with charge and end with charge, with a cycle count of 1-50 times
05	Start with discharge and end with discharge, with a cycle count of 1-50 times
06	Start with charge and end with discharge, with a cycle count of 1-50 times
07	Network mode: When the computer starts up, it will automatically switch to this mode.

08	Pulse Repair Mode
09	Charge—>Pulse repair—>Discharge—>Charge

**\*Product List:**



Tester



Testing clip



Power cord

## 6. Basic Operating Instructions

After connecting the power supply, select one or several channels to connect the battery, then press the start button. The current battery voltage will be displayed. Rotate the settings button to select the desired working mode and charging/discharging parameters. After setting, click "Start Working" to begin.

## Mode 0 Query Mode

Press the black rotary knob, the mode selection bar at the bottom right flashes, rotate the black setting knob to set to "00" mode and press the button

1

After the mode is set, continue to press the current setting column "A .01" of the setting knob to flash (the address of the lower channel of the networking equipment)

2

Continue to press the setting knob and the time setting column "on" flashes (turn on or off the fan detection function, normally on by default)

3

Continue to press the setting knob, the screen flashes again to the right to turn the black knob to see the record of historical data

4

## Mode 1 Discharge Mode

Press the black rotary knob, the mode selection bar at the button right flashes, and turn the black setting knob to set it to "01" mode.

1

After the mode is set, press the voltage setting column of the setting knob to flash, and turn the black setting knob to set the discharge cut-off voltage.

2

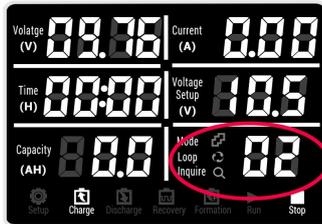
After the mode is set, continue to press the black setting knob, the current bar flashes, and turn the black setting knob to set the discharge current.

3

After setting the discharge current, continue to press the black setting knob, and press the red starting knob after the current display 00.0 is set.

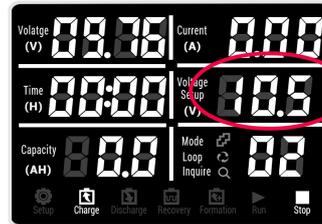
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## Mode 2 Charging Mode



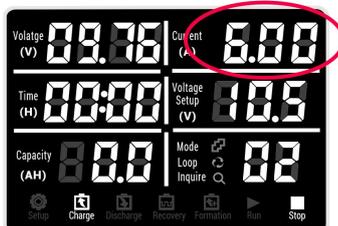
Press the black rotary knob, the mode selection bar at the button right flashes, and turn the black setting knob to set it to "02" mode.

1



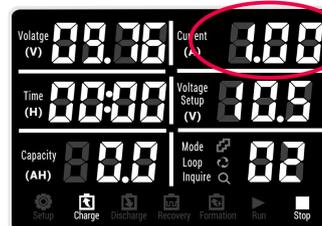
After the mode is set, press the voltage setting column of the setting knob on flash, and turn the black setting knob to set the charging cut-off voltage.

2



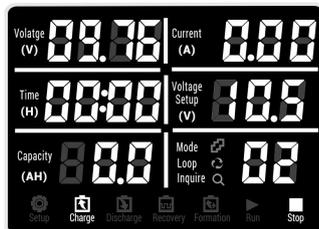
After the voltage is set, continue to press the black setting knob, the current bar flashes, and turn the black setting knob to set the charging current.

3



After setting the charging current, continue to press the black setting knob, the current bar display 1.00, and rotate the setting knob to select the cut-off current.

4



After the cut-off current is set, press the black setting knob again, wait for the setting bar to stop flashes, when the current display 0.00 setting is completed, press the red starting knob.

5

## Mode 3 Cycle Test Discharg-Charge

Press the black setting knob,the mode selection bar at the button right flashes,and turn the black setting knob to set it to “03”mode.

1

After the mode is set,press the cycle number at the button right of the setting knob to flash and rotate the black setting knob to select the number of cycles(0-50times)

2

Press the voltage setting column of the black setting knob to flash,and turn the black setting knob to set the discharge cut-off voltage.

3

After the voltage is set,press the black setting knob,the current bar flashes,and turn the black setting knob to set the discharge current.

4

Press the black setting knob,the voltage column flashes,and turn the black knob to set the cut-off voltage for the second step of charging.

5

After the charging cut-off voltage is set,press the black setting knob,and the current bar flashes and rotates the black setting knob to set the charging current.

6

After setting the charging current, press the black setting knob to display “1.00” and turn the black setting knob to select the charging cut-off current.

7

After the charging cut-off current is set, the accumulated capacity display “00.0” and rotates the black setting knob to set the charging capacity in the second step to keep “00.0” as no setting. If the charging capacity needs to be set, the capacity must be less than the normal capacity.

8

After setting the charging capacity, press the black setting knob, and the time display “00.00” sets the rest time in the charging and discharging interval.

9

After the setting is completed, press the red start knob, set automatic jump work to complete discharge---charging.

10

## Mode 4 Charge - Discharge- Charge

Press the black setting knob, the mode selection bar at the button right flashes, and turn the black setting knob to set it to "04" mode.

1

After the mode is set, press the cycle number at the button right of the setting knob to flash and rotate the black setting knob to select the number of cycle (1-50 times).

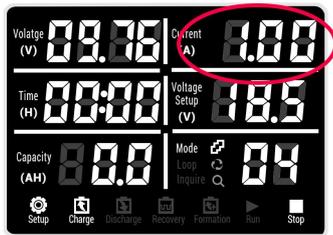
2

Press the voltage setting column of the black setting knob to flash, and turn the black setting knob to set the charging cut-off voltage.

3

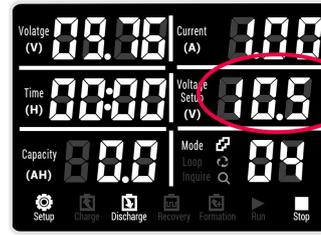
After the voltage is set, press the black setting knob, the current bar flashes, and turn the black setting knob to set the charging current.

4



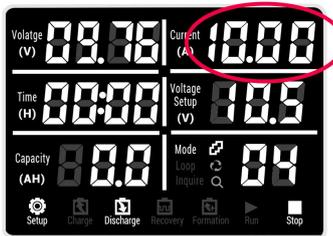
After setting the charging current,press the black setting knob to display “1.00”and turn the black setting knob to select the charging cut-off current.

5



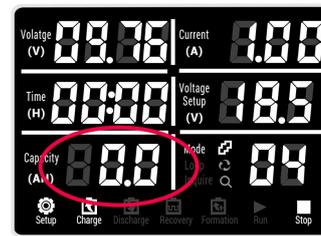
After the cut-off current is set,press the black setting knob,the voltage bar will flash,and turn the black knob to set the cut-off voltage of the second step discharge.

6



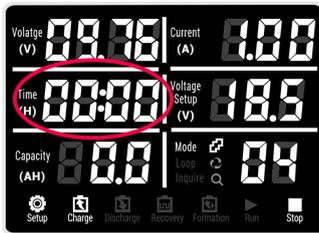
After the discharge cut-off voltage is set,press the black setting knob,and the current bar flashes and rotates the black setting knob to set the discharge current.

7



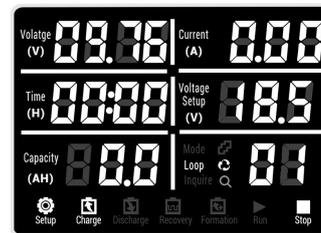
After setting the discharge current,the accumulated capacity display “00.0”and rotates the black setting knob to set the third step charging capacity to keep “00.0”as to setting,if the charging capacity needs to be set,the capacity must be less than the normal capacity.

8



After setting the charging capacity,press the black setting knob,and the time display “00.0”setting the rest time in the charging and discharging interval.

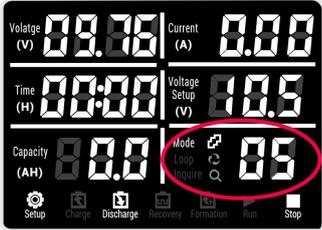
9



After the setting is completed,press the red start knob,set automatic jump work to complete charging--discharging--charging.

10

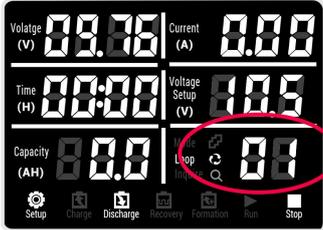
## Mode 5 Cycle Test Discharge-Charge



The digital display shows the following values: Voltage (V) 09.76, Current (A) 0.00, Time (H) 00:00, Voltage Setup (V) 10.5, Capacity (AH) 0.0, and Mode 05. The Mode 05 display is circled in red. Below the display are icons for Setup, Charge, Discharge, Recovery, Formation, Run, and Stop.

Press the black setting knob, the mode selection bar at the bottom right flashes, and turn the black setting knob to set it to "05" mode.

1



The digital display shows the following values: Voltage (V) 09.76, Current (A) 0.00, Time (H) 00:00, Voltage Setup (V) 10.5, Capacity (AH) 0.0, and Loop 05. The Loop 05 display is circled in red. Below the display are icons for Setup, Charge, Discharge, Recovery, Formation, Run, and Stop.

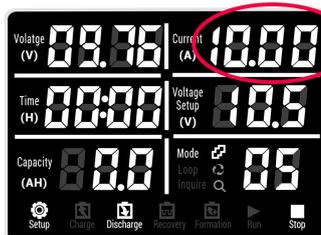
After the mode is set, press the cycle number at the bottom right of the setting knob to flash and rotate the black setting knob to select the number of cycles (1-50 times).

2



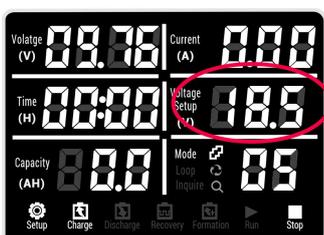
Press the voltage setting column of the black setting knob to flash, and turn the black setting knob to set the discharge cut-off voltage.

3



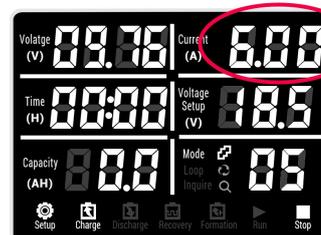
After the voltage is set, press the black setting knob, the current bar flashes, and turn the black setting knob to set the discharge current.

4



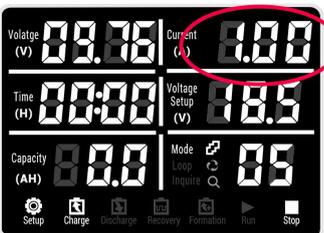
Press the black setting knob, the voltage column flashes, and turn the black knob to set the cut-off voltage for the second step of charging.

5



After the charging cut-off voltage is set, press the black setting knob, and the current bar will flash and rotate the black setting knob to set the charging current.

6



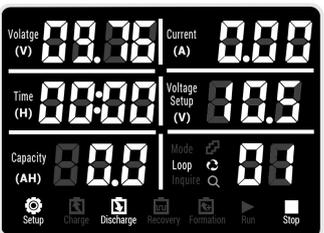
After setting the charging current, press the black setting knob to display "1.00" and turn the black setting knob to select the charging cut-off current.

7



After setting the charging cut-off current, press the black setting knob, and the time display "00:00" sets the rest time in the charging and discharging interval.

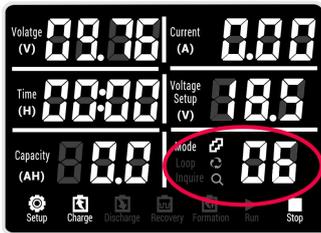
8



After the setting is completed, press the red start knob, set automatic jump step discharge--charge--discharge.

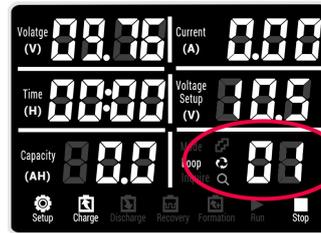
9

## Mode 6 Cycle Test Charge-Discharge



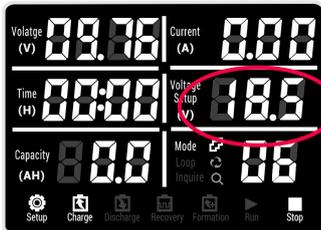
Press the black setting knob, the mode selection bar at the bottom right flashes, and turn the black setting knob to set it to :06" mode.

1



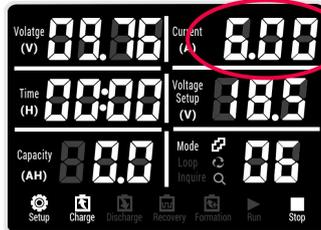
After the mode is set, press the cycle number at the bottom right of the setting knob to flash and rotate the black setting knob to select the number of cycles (1-50 times).

2



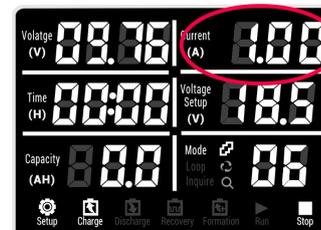
Press the voltage setting column of the black setting knob to flash, and turn the black setting knob to set the charging cut-off voltage.

3



After the voltage is set, press the black setting knob, the current bar flashes, and turn the black setting knob to set the charging current.

4



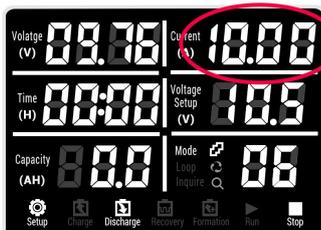
After setting the charging current, press the black setting knob to display "1.00" and turn the black setting knob to select the charging cut-off current.

5



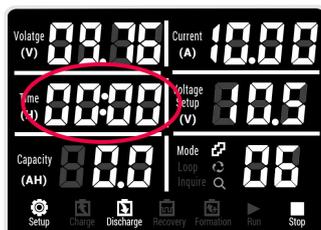
After the cut-off current is set, press the black setting knob, the voltage bar will flash, and turn the black setting knob to set the cut-off voltage of the second discharge.

6



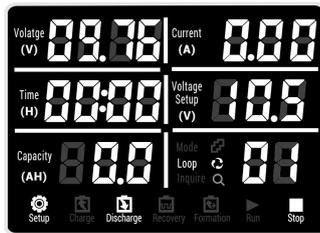
After the discharge cut-off voltage is set, press the black setting knob, and the current bar flashes and rotate the black setting knob to set the discharge current.

7



After setting the discharge current, press the black setting knob, and the time display "00:00" sets the time in the charge and discharge interval.

8



After the setting is completed, press the red start knob, set automatic jump step charging--discharging.

9

## Mode 8 Pulse Repair



Press the black setting knob, the mode selection bar at the bottom right flashes, and rotate the black setting knob to set it to "08" mode.

1



Press the voltage setting column of the black setting knob to flash, and turn the black setting knob to set the charging cut-off voltage.

2



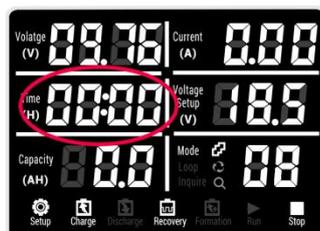
After the voltage is set, press the black setting knob, the current bar flashes, and turn the black setting knob to set the pulse charging current.

3



After setting the charging current, press the black setting knob to display "00:00" and turn the black setting knob to set the pulse repair time.

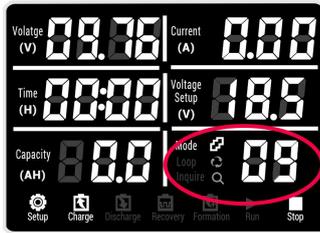
4



After the setting is completed, press the red start knob, set automatic jump work to completed pulse repair.

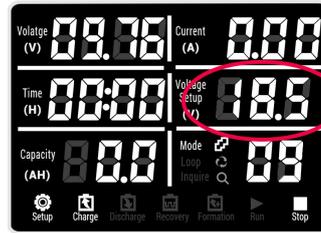
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## Mode 9 Charge-Pulse Repair-Discharge-Charge



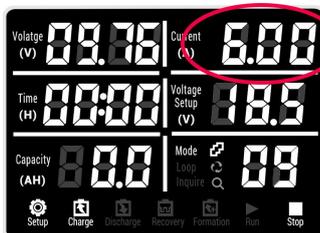
Press the black setting knob, the mode selection bar at the bottom right flashes, and turn the black setting knob to set it to "09" mode.

1



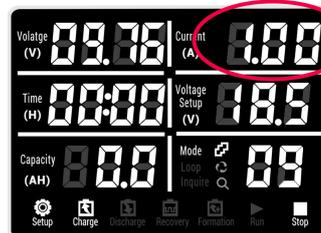
Press the voltage setting column of the black setting knob to flash, and turn the black setting knob to set the charging cut-off voltage.

2



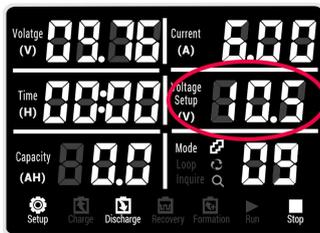
After the voltage is set, press the black setting knob, the current bar flashes, and turn the black setting knob to set the charging current.

3



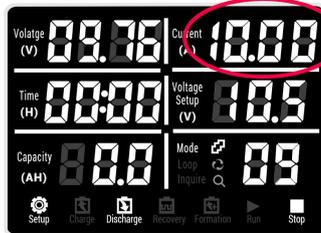
After setting the charging current, press the black setting knob display "1.00" and turn the black setting knob to select the charging cut-off current.

4



After the cut-off current is set, press the black setting knob, the voltage bar will flash, and turn the black setting knob to set the cut-off voltage of the second discharge.

5



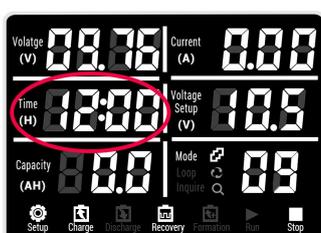
After the discharge cut-off voltage is set, press the black setting knob, and the current bar flashes and rotates the black setting knob to set the discharge current.

6



After setting the discharge current, press the black setting knob to enter the second step, and the pulse repair current display "0.50" to set the pulse current.

7



After setting the pulse current, press the black setting knob, and the time display "12:00" rotates the black setting knob to set the pulse repair time.

8

After setting the pulse repair time, press the black setting knob, the accumulated capacity display "00.0" rotate the black setting knob, and set the third step charging capacity to keep :00.0" as direct charging. If it is necessary to set the charging capacity, the setting capacity must be less than the normal capacity.

9

After setting the charging capacity, press the black setting knob, and the accumulated time "00:00" sets the rest time in the charging and discharging interval.

10

The setting is completed by pressing the red start knob, set automatic jump work to complete charging--pulse repair--discharging--charging.

11

## 7. General advice

- ① The capacity test effect is related to time and speed. The faster the speed, the greater the capacity loss (Pickett effect). It is recommended to set a smaller discharge current value to improve the test accuracy.
- ② Any capacity tester cannot test damaged batteries. Battery damage includes but is not limited to the following aspects: a. Increased internal resistance of the battery; b. Battery terminal voltage lower than the discharge termination voltage; c. Internal short circuit or open circuit of the battery.
- ③ Please read the user manual of the instrument in detail. If you have any difficult questions, please contact the customer service hotline immediately.

### Safety Instructions:

Connect the battery with the correct polarity and maintain a good connection.

Keep away from flammable and explosive items that are in use, and store them in a cool and well-ventilated place. Do not block the air intake and exhaust ports.

Please store, use and transport properly. Avoid vigorous actions such as collisions during use and transportation.

Encounter a problem	Reason	Solution
After the power is turned on, the display does not light up.	<ol style="list-style-type: none"> <li>1. Check if the power plug is properly connected to the socket.</li> <li>2. The fuse of the power socket has blown.</li> <li>3. The fuse of the internal circuit board of the instrument has blown.</li> <li>4. The connection line between the display screen and the mainboard is loose.</li> <li>5. The switching power supply is not working properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reinsert the power plug</li> <li>2. Replace with a 5A fuse</li> <li>3. Replace with a 1.5A fuse</li> <li>4. Secure the connection wires</li> <li>5. Return to the factory for repair or replacement of the motherboard</li> </ol>
After the power is turned on, the display lights up but shows no content.	<ol style="list-style-type: none"> <li>1. The connection line between the display screen and the motherboard is loose.</li> <li>2. The display screen is broken.</li> <li>3. There is a problem with the communication on the circuit board.</li> </ol>	<ol style="list-style-type: none"> <li>1. Secure the connection cables.</li> <li>2. Replace the display screen.</li> <li>3. Return to the factory for repair or replacement of the motherboard.</li> </ol>
The setting knob is malfunctioning.	<ol style="list-style-type: none"> <li>1. Loose connection cable between knob and main board</li> <li>2. Knob pressed too tightly or too deeply, preventing reset</li> <li>3. Encoder damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Reconnect the horizontal cable</li> <li>2. Remove and reinstall it</li> <li>3. Replace the setting knob</li> </ol>
The equipment is making abnormal noises.	<ol style="list-style-type: none"> <li>1. Foreign object present within the fan</li> <li>2. Equipment fan is damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Open the case and remove any foreign objects</li> <li>2. It is advisable to replace the fan</li> </ol>
No voltage displayed after connecting the battery	<ol style="list-style-type: none"> <li>1. Poor contact in the battery connection cable</li> <li>2. Damage to the battery connection cable</li> <li>3. The microcontroller is unable to detect voltage</li> </ol>	<ol style="list-style-type: none"> <li>1. Check whether the connection is securely inserted or properly connected</li> <li>2. Reinsert or replace the connecting cable</li> <li>3. Return to the factory for repair or replace the motherboard</li> </ol>
The charging process cannot be carried out after the start button is pressed.	<ol style="list-style-type: none"> <li>1. Microcontroller fails to detect current or switching power supply is faulty</li> </ol>	<ol style="list-style-type: none"> <li>1. Return to factory for repair or motherboard replacement</li> <li>2. Ensure all cables are</li> </ol>

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<b>Encounter a problem</b>	<b>Reason</b>	<b>Solution</b>
	2. Loose connection cables	securely connected
	3. Start button is damaged	3. Replace the power button

## **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.