

6 Channels with Display Multi-function Battery Repair Instrument Manual

Heltec Energy

1. Product introduction

HT-ED10AC6V20D multifunctional battery repair instrument is widely used in battery testing, battery maintenance and other fields, used for charging and discharging test and maintenance of electric vehicle batteries, energy storage batteries, solar cells, etc. The equipment can provide comprehensive battery testing and maintenance services for battery manufacturers and users.



2. Technical indicators

Machine weight:	10KG	Maximum number of charge and discharge cycles:	50times
Machine size:	Length:66 cm Width:28 cm Height:16 cm	Current and voltage adjustment mode:	knob adjustment
Warranty period:	1year	Single discharge maximum power:	138W
Input voltage:	220V	Single charge and discharge maximum timing:	90 hours
Charging voltage range:	7~23V adjustable, voltage 0.1V adjustable	Single standby power consumption:	20W
Charging current range:	0.5 ~ 6A adjustable, current 0.1V adjustable	Single discharge maximum power:	200W
Charging current accuracy:	$\pm 0.03A/\pm 0.3\%$	Screen display language:	Chinese/English
Discharge voltage range:	2~20V adjustable, voltage 0.1V adjustable	Number of charging and discharging circuit	circuit 6
Discharge current range:	0.5~10A adjustable, current 0.1V adjustable	Discharge current accuracy	$\pm 0.03A/\pm 0.3\%$
Machine temperature adjustment:	real-time monitoring of the temperature in the body during charging and discharging and adjusting the times of fan revolutions		

3. Mode Overview

Pattern coding	Function
0	Historical circular data query mode
1	Capacity test
2	Standard charging
3	Start with discharge and end ofcharge,1-50cycles
4	Start charging and end charging with 1-50 cycles
5	Start with discharge and end with 1-50 cycles
6	Start charging and end discharging,cycletimes 1-50
7	Networking mode
8	Pulse Repair Mode
9	Charge→Pulse Repair→Discharge→Charge

4. Usage Method

Connect the machine to the 220V power supply and turn on the corresponding power switch. Then,you will hear a

"ticking" sound and see the LCD screen light up. Then enter the instrument into the correct chain to receive the test battery (red clip to the positive battery, black clip to the negative battery), and the LCD screen will display the current battery voltage.

- **Simple mode and professional mode switching method**

The default setting interface mode is simple when the instrument is powered on. The current battery is displayed in the voltage selection bar on the LCD screen, and battery selection options are provided in the simple mode. Just select the battery from 6V/12V/16V and charging current and discharge current. The rest discharge parameters are automatically set according to the battery characteristics. The simple mode is good for beginner users who do not know much about the battery characteristics.

If you are a professional user, you can switch the operation mode to professional one when there is a higher demand. The switching method is: In the stopped state, press the "set" knob for 3 seconds and then release. After hearing

the long "ticking" sound alarm, to the mode into professional one. In the professional mode, the battery charging voltage, charging current, discharge voltage, discharge current can be arbitrarily set.

- **The difference between simple mode and professional mode**

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



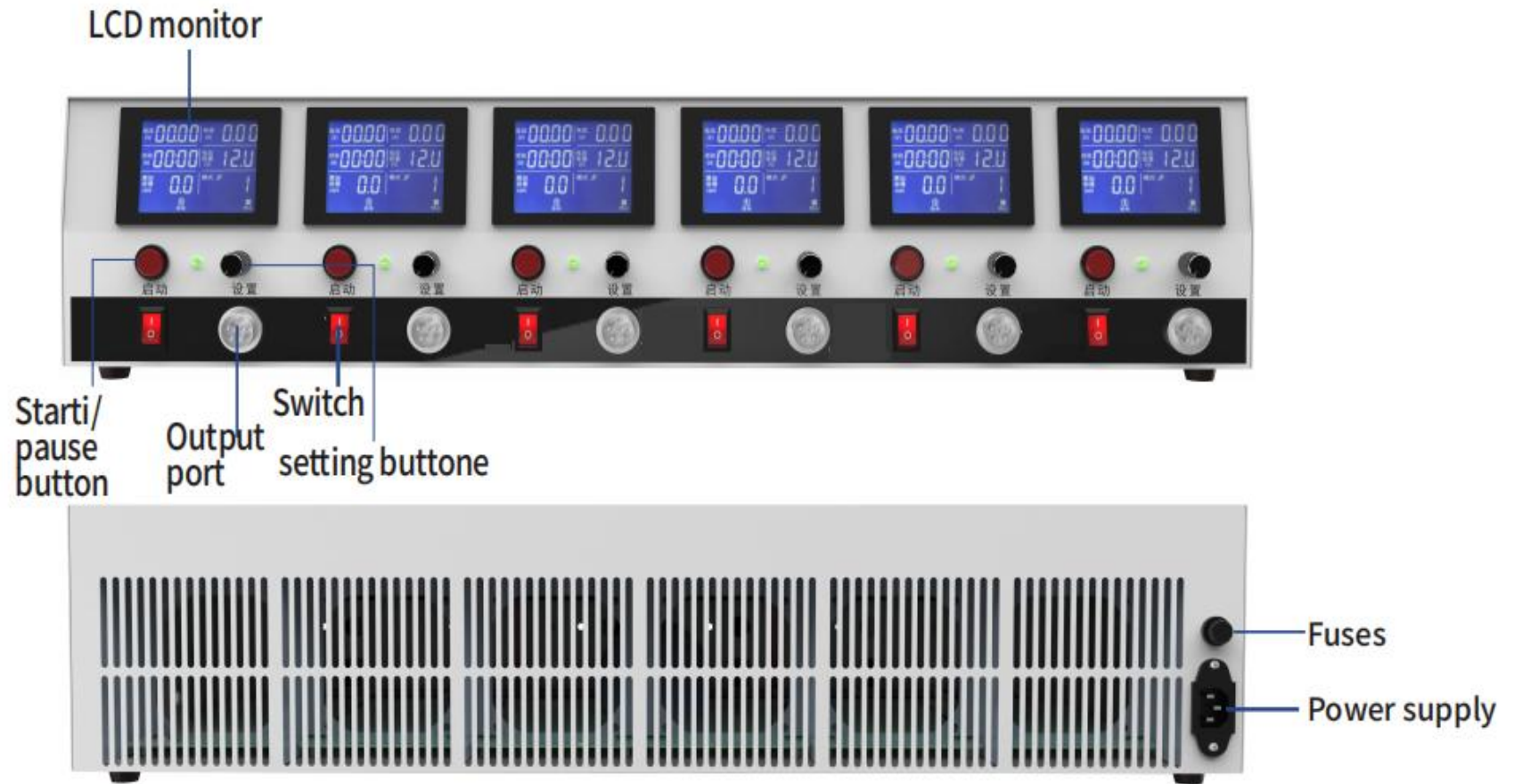
Charge and discharge current can be arbitrarily adjusted
 Charging current adjustment range 0.5-6A
 Discharge current adjustment range 0.5-10A
 Mode code

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



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 bottom 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 voltage 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.

4

Mode 2 Charging Mode

Press the black rotary knob, the mode selection bar at the bottom 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 to 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 displays 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 and wait for the setting bar to stop flashing. When the current display 0.00 setting is completed, press the red starting knob.

5

Mode 3 Cycle Test 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 "03" 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 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 displays "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 nominal 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 bottom 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 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 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 displays "00.0" and rotates the black setting knob to set the third step charging capacity to keep "00.0" as no setting. if the charging capacity needs to be set, the capacity must be less than the nominal 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 charging --- discharge --- charging.

10


Mode 5 Cycle Test Discharge-Charge



The digital display shows Voltage (V) at 12.30, Current (A) at 0.00, Time (H) at 00:00, Voltage Setup (V) at 10.5, Capacity (AH) at 0.0, and Mode at 03. The Mode field is circled in red.

Press the black setting knob, the mode selection bar at the bottom right flashes, and turn the black setting knob to set it to "03" mode.


1



The digital display shows Voltage (V) at 12.30, Current (A) at 0.00, Time (H) at 00:00, Voltage Setup (V) at 10.5, Capacity (AH) at 0.0, and Cycle at 01. The Cycle field is circled in red.

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



The digital display shows Voltage (V) at 12.30, Current (A) at 0.00, Time (H) at 00:00, Voltage Setup (V) at 10.5, Capacity (AH) at 0.0, and Mode at 03. The Voltage Setup field is circled in red.

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



The LCD display shows Voltage (V) at 12.30, Current (A) at 0.00, Time (H) at 00:00, Voltage Setup (V) at 14.7, Capacity (AH) at 0.0, and Mode at 06. The Mode '06' is circled in red.

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


1



The LCD display shows Voltage (V) at 12.30, Current (A) at 0.00, Time (H) at 00:00, Voltage Setup (V) at 14.7, Capacity (AH) at 0.0, and Mode at 01. The Mode '01' is circled in red.

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



The LCD display shows Voltage (V) at 12.30, Current (A) at 0.00, Time (H) at 00:00, Voltage Setup (V) at 14.7, Capacity (AH) at 0.0, and Mode at 06. The Voltage Setup '14.7' is circled in red.

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



The LCD display shows Voltage (V) at 12.30, Current (A) at 6.00, Time (H) at 00:00, Voltage Setup (V) at 14.7, Capacity (AH) at 0.0, and Mode at 06. The Current '6.00' is circled in red.

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



The LCD display shows Voltage (V) at 12.30, Current (A) at 1.00, Time (H) at 00:00, Voltage Setup (V) at 14.7, Capacity (AH) at 0.0, and Mode at 06. The Current '1.00' is circled in red.

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



The LCD display shows Voltage (V) at 12.30, Current (A) at 0.00, Time (H) at 00:00, Voltage Setup (V) at 10.5, Capacity (AH) at 0.0, and Mode at 06. The Voltage Setup '10.5' is circled in red.


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

8



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

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 complete pulse repair.

5

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 to 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 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 displays "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 nominal 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 --- discharge --- charging

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