BW600-DK WiFi Series Battery tester

--User Manual--

2.4-inch high-definition color screen WiFi/Bluetooth digital transmission curve version

Multi functional Charging and discharging tester for battery capacity/DC power supply

☐ BW600-DK-150W ☐ BW600-DK-300W

☐ BW600-DK-450W ☐ BW600-DK-600W

(This product will be updated at any time, please pay attention to the web page description for detailed update details)

1.Product parameters:

Test voltage:1~200V

Working current:☐0.02~30A/150W/ ☐0.02~50A/300W/ ☐0.02~50A/450W/ ☐0.02~50A/600W

BW600 Discharge power: voltage * current < 150 W & < 300 W & < 450 W & < 600 W

Maximum support for 1200W power (requires 7 150W expansion power modules 24V/50A/1200W)

(The actual running current is limited by the maximum power, please adjust the current according to the law of energy conservation)

The built-in over-current, over-temperature, over-power safety protection functions, if the protection interface is popped up, please pay attention to the parameter adjustment, shall adjust to the maximum power, and then discharge, you can first slowly and smoothly adjust the preset value in the start and discharge, in order to adjust up to the maximum power for discharging

Supports WiFi and Bluetooth

Phone APP download: Search in google play or apple app store: "tuya" or "smart life" app

Support PC software, data cable directly connected, please download the software for online operation!

Download website:

http://en.atorch.cn/NewsDetail.aspx?ID=96

Computer online software manual download:

http://en.atorch.cn/upload/file/20250830/6389217582483042597381115.pdf

2.Product application:

1.1 Battery capacity test

The Load tester is designed for the discharge of various batteries,18650 battery,car battery including NiMH, NiCd, LiPo, LiFe and Pb, as well as capacity testing.

1.2 Mobile power test

This tester supports discharging of mobile power supply and capacity test.

1.3 Power performance test

The tester supports performance and aging tests of various DC power supplies.

2:Parameter Description

2.1.1 Power supply: DC12V/1A

2.1.2 Voltage range: 001.000-200.000V,

2.1.3 Current range: 0.020-30.000A/50.000A, step 0.001A (the current is automatically adjusted according to the power limit)

2.1.4 Discharge method:

CC: Constant current discharge of the battery, which supports testing of battery capacity or power supply current.

CP: Discharge the battery with constant power for use or test power such as constant power equipment.

2.1.5 Discharge power:150W/300W/450W/600W(**Need to purchase the corresponding discharge power**)

2.1.6 Four wires: voltage and current channels are separated, with high test accuracy

2.1.7 IPS display: voltage, current, time, capacity, power, electric energy, etc.

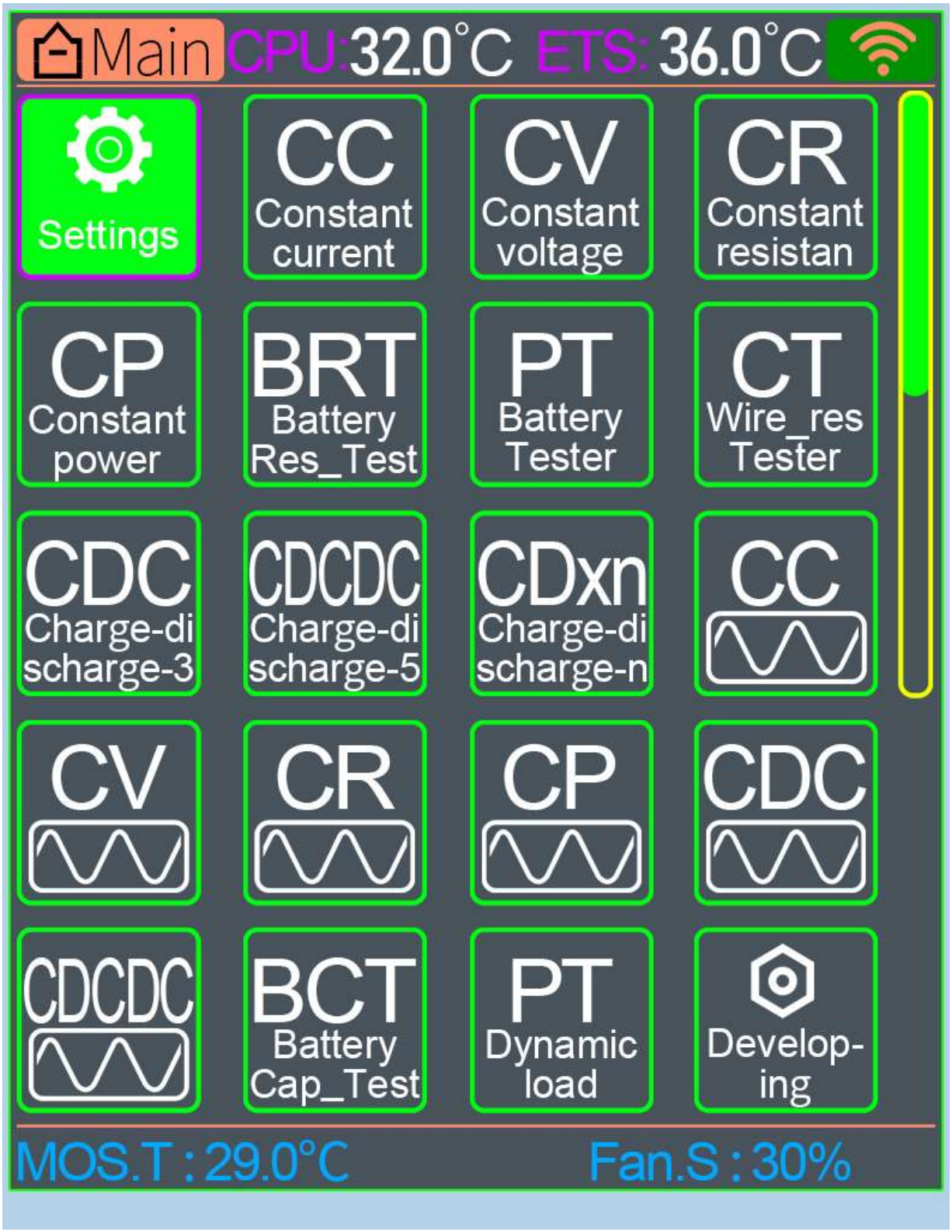
2.1.8 PC connection: The tester can be connected to the computer through Bluetooth to achieve more functions, such as graphics, calibration, firmware upgrades, and test cycles.

3.Regarding Charging Instructions(Built in charging control module)

This discharge tester has been upgraded to support battery charging parameter testing, with a maximum support of 100V voltage and 20A current charging testing. Please do not exceed this parameter testing, and an additional charging control module needs to be purchased to activate this function

4.Function interface introduction(18 Major Operating Modes):

This product adopts the high-end and cost-intensive "2.4-inch high-definition large color Chinese and English display screen", designed a variety of functional interface content,
Various parameters are displayed on one screen, and different function interfaces can be switched by short pressing the button. The interface diagram and introduction are as follows

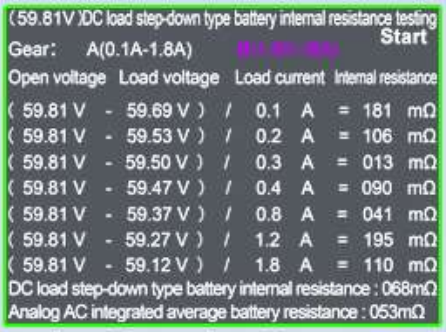


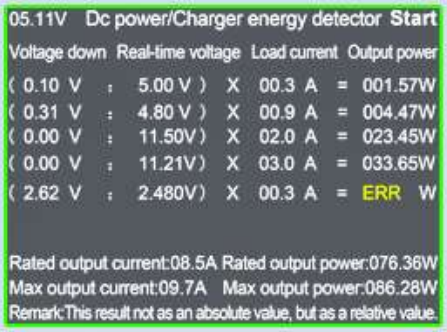

CC Vs=20.0000A
Vol:029.989V
Cur:020.000A
Pwr:0599.78W
Res:0001.49Ω
Ene:2.92635Wh
Cap:000102mAh
BAT01 000:15:59
Run Stop:
<003.0V >0150W
>100°C
Limit time:
09:59H
CPU.T : 029.0°C
MOS.T : 035.0°C
FAN.Speed
30%
ON

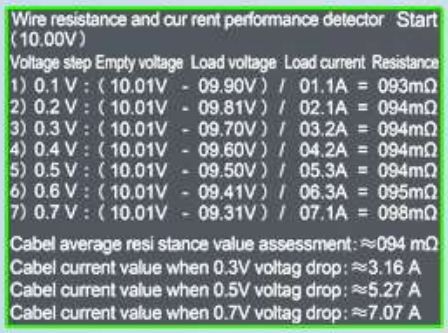

CV Vs=020.00V
Vol:020.000V
Cur:005.026A
Pwr:0100.52W
Res:0003.97Ω
Ene:0.01025Wh
Cap:000022mAh
BAT01 000:25:59
Run Stop:
<003.0V >0150W
>120°C
Limit time:
09:59H
CPU.T : 029.0°C
MOS.T : 030.0°C
FAN.Speed
30%
ON


CR Rs=0005.00Ω
Vol:035.000V
Cur:005.000A
Pwr:0175.00W
Res:0007.00Ω
Ene:0.02055Wh
Cap:000095mAh
BAT01 000:59:39
Run Stop:
<003.0V >0150W
>120°C
Limit time:
09:59H
CPU.T : 029.0°C
MOS.T : 030.0°C
FAN.Speed
1200RPM
ON


CP Ps=0140.0W
Vol:028.000V
Cur:005.000A
Pwr:0140.00W
Res:0005.60Ω
Ene:1.02521Wh
Cap:001025mAh
BAT01 00:59:59
Run Stop:
<003.0V >0150W
>120°C
Limit time:
09:59H
CPU.T : 029.0°C
MOS.T : 030.0°C
FAN.Speed
1200RPM
ON


(59.81V)DC load step-down type battery internal resistance testing
Start
Gear: A(0.1A-1.8A)
Open voltage Load voltage Load current Internal resistance
(59.81 V - 59.69 V) / 0.1 A = 181 mΩ
(59.81 V - 59.53 V) / 0.2 A = 106 mΩ
(59.81 V - 59.50 V) / 0.3 A = 013 mΩ
(59.81 V - 59.47 V) / 0.4 A = 090 mΩ
(59.81 V - 59.37 V) / 0.8 A = 041 mΩ
(59.81 V - 59.27 V) / 1.2 A = 195 mΩ
(59.81 V - 59.12 V) / 1.8 A = 110 mΩ
DC load step-down type battery internal resistance : 068mΩ
Analog AC integrated average battery resistance : 053mΩ

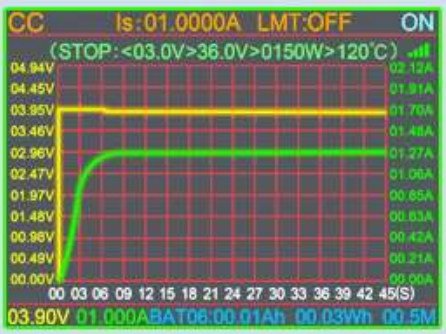

05.11V Dc power/Charger energy detector Start
Voltage down Real-time voltage Load current Output power
(0.10 V : 5.00 V) X 00.3 A = 001.57W
(0.31 V : 4.80 V) X 00.9 A = 004.47W
(0.00 V : 11.50V) X 02.0 A = 023.45W
(0.00 V : 11.21V) X 03.0 A = 033.65W
(2.62 V : 2.480V) X 00.3 A = ERR W
Rated output current:08.5A Rated output power:076.36W
Max output current:09.7A Max output power:086.28W
Remark:This result not as an absolute value, but as a relative value.


Wire resistance and cur rent performance detector Start
(10.00V)
Voltage step Empty voltage Load voltage Load current Resistance
1) 0.1 V : (10.01V - 09.90V) / 01.1A = 093mΩ
2) 0.2 V : (10.01V - 09.81V) / 02.1A = 094mΩ
3) 0.3 V : (10.01V - 09.70V) / 03.2A = 094mΩ
4) 0.4 V : (10.01V - 09.60V) / 04.2A = 094mΩ
5) 0.5 V : (10.01V - 09.50V) / 05.3A = 094mΩ
6) 0.6 V : (10.01V - 09.41V) / 06.3A = 095mΩ
7) 0.7 V : (10.01V - 09.31V) / 07.1A = 098mΩ
Cabel average resi stance value assessment: ≈094 mΩ
Cabel current value when 0.3V voltag drop: ≈3.16 A
Cabel current value when 0.5V voltag drop: ≈5.27 A
Cabel current value when 0.7V voltag drop: ≈7.07 A


CDC Is=18.8000A
Vol:015.800V
Cur:018.800A
Pwr:0297.04W
Res:0000.84Ω
Ene:30.3512Wh
Cap:000216mAh
BAT01 000:38:59
Run Stop:
<003.0V >0150W
>120°C
Limit time:
09:59H
CPU.T : 029.0°C
MOS.T : 030.0°C
FAN.Speed
30%
ON


CDCDC Is=03.0000A
Vol:020.000V
Cur:003.000A
Pwr:0060.00W
Res:0006.66Ω
Ene:26.0229Wh
Cap:000326mAh
BAT01 001:19:36
Run Stop:
<003.0V >0150W
>120°C
Limit time:
09:59H
CPU.T : 028.0°C
MOS.T : 026.5°C
FAN.Speed
30%
ON

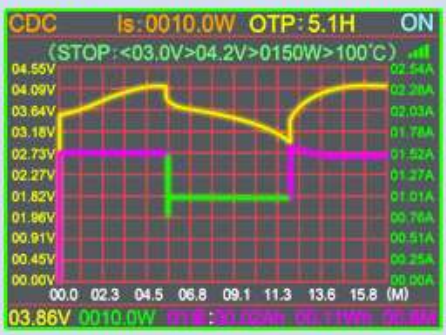

CD-Cyclic Number:10 ON
IS:01.0000A (STOP:<003.4V>003.8V>00.05A)
GROUP GAP(mAh) ELE(Wh) TIME(h)
01 D 24.92437 0.08532 0.0247
02 D 649.9165 2.29402 0.6488
03 D 641.8388 2.26631 0.6411
04 D 633.0434 2.23456 0.6316
05 D 634.9077 2.24106 0.6341
03.79V MOS.T:023.9°C FAN S:30%


CC Is:01.0000A LMT:OFF ON
(STOP:<03.0V>36.0V>0150W>120°C)
00 03 06 09 12 15 18 21 24 27 30 33 36 39 42 45(S)
03.90V 01.000ABAT06:00.01Ah 00.03Wh 00.5M

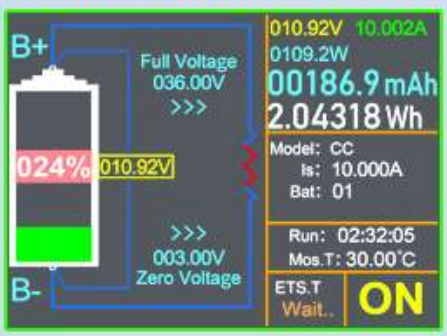

CV Vs:003.90V LMT:OFF ON
(STOP:<03.0V>36.0V>0150W>120°C)
00 02 04 06 08 10 12 14 16 18 20 22 24 26 28 30(S)
03.90V 01.000ABAT06:00.01Ah 00.03Wh 00.5M

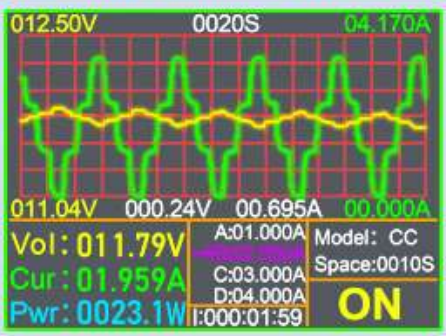

CR Rs:0005.00Ω LMT:OFF ON
(STOP:<03.0V>36.0V>0150W>120°C)
00 02 04 06 08 10 12 14 16 18 20 22 24 26 28 30(S)
03.91V 0005.0ΩBAT06:00.01Ah 00.03Wh 00.5M


CP Ps:0005.0W LMT:OFF ON
(STOP:<03.0V>36.0V>0150W>120°C)
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15(S)
03.88V 0005.0WBAT06:00.01Ah 00.03Wh 00.5M


CDC Is:0010.0W OTP:5.1H ON
(STOP:<03.0V>04.2V>0150W>100°C)
00.0 02.3 04.5 06.8 09.1 11.3 13.6 15.8 (M)
03.86V 0010.0W

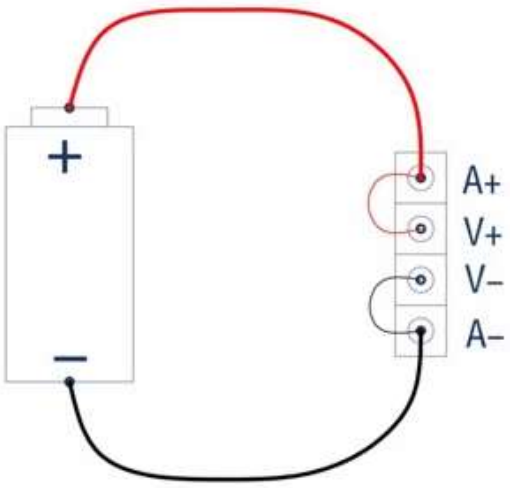

CDCDC Is:04.500A OTP:OFF ON
(STOP:<03.0V>04.3V>0150W>100°C)
00.0 03.1 06.2 09.4 12.5 15.6 18.7 21.9 (H)
13.77V 04.500A 02窗:11.88Ah 37.01Wh 02.6H


B+
Full Voltage
036.00V
024%
010.92V
003.00V
Zero Voltage
B-
010.92V 10.002A
0109.2W
00186.9 mAh
2.04318 Wh
Model: CC
Is: 10.000A
Bat: 01
Run: 02:32:05
Mos.T: 30.00°C
ETS.T
Wait..
ON

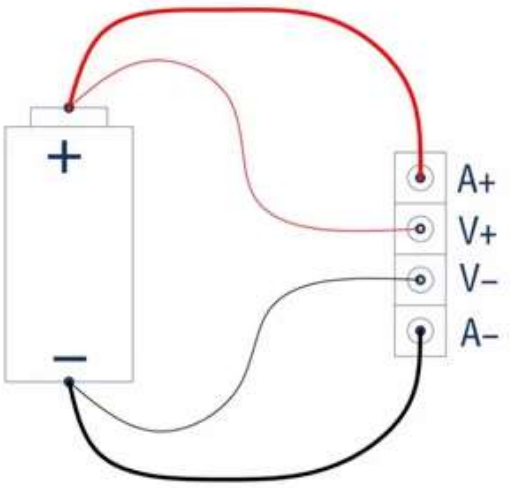

012.50V 0020S 04.170A
011.04V 000.24V 00.695A 00.000A
Vol: 011.79V
Cur: 01.959A
Pwr: 0023.1W
A:01.000A
C:03.000A
D:04.000A
I:000:01:59
Model: CC
Space:0010S
ON

5.The wiring method of the product should be tested according to the following diagram, tighten the four screws, and maintain good contact!

Electronic load wiring diagram

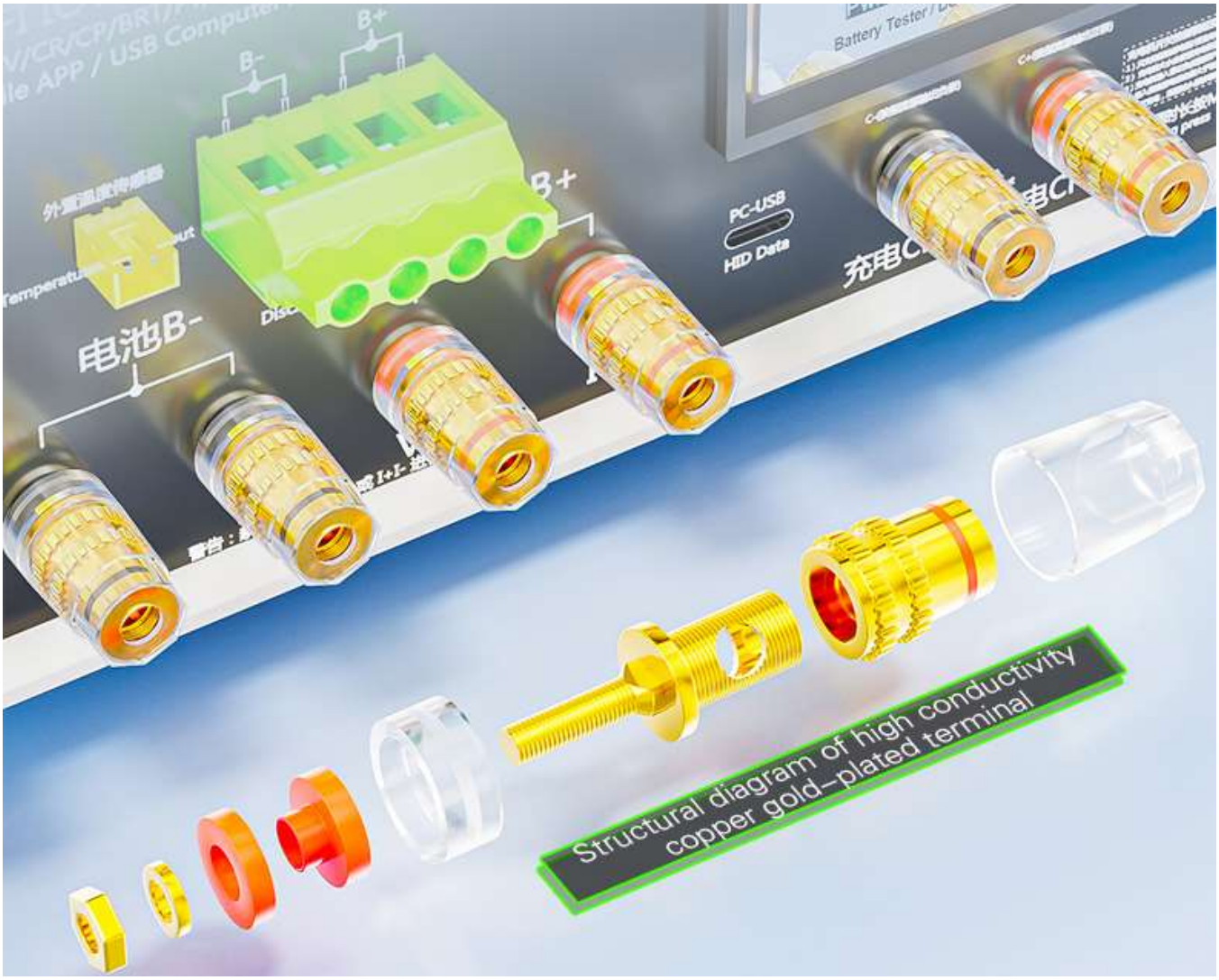


(1) Two-wire wiring method:
This method is relatively simple and convenient.
Note: It must be connected to the 2 terminals [A+] and [A-].



(2) Four-wire wiring method:
The voltage measurement is not affected by the voltage drop of the wire, so that the voltage measurement.The quantity is more accurate, and it is recommended that buyers witha certain circuit basis use this method!

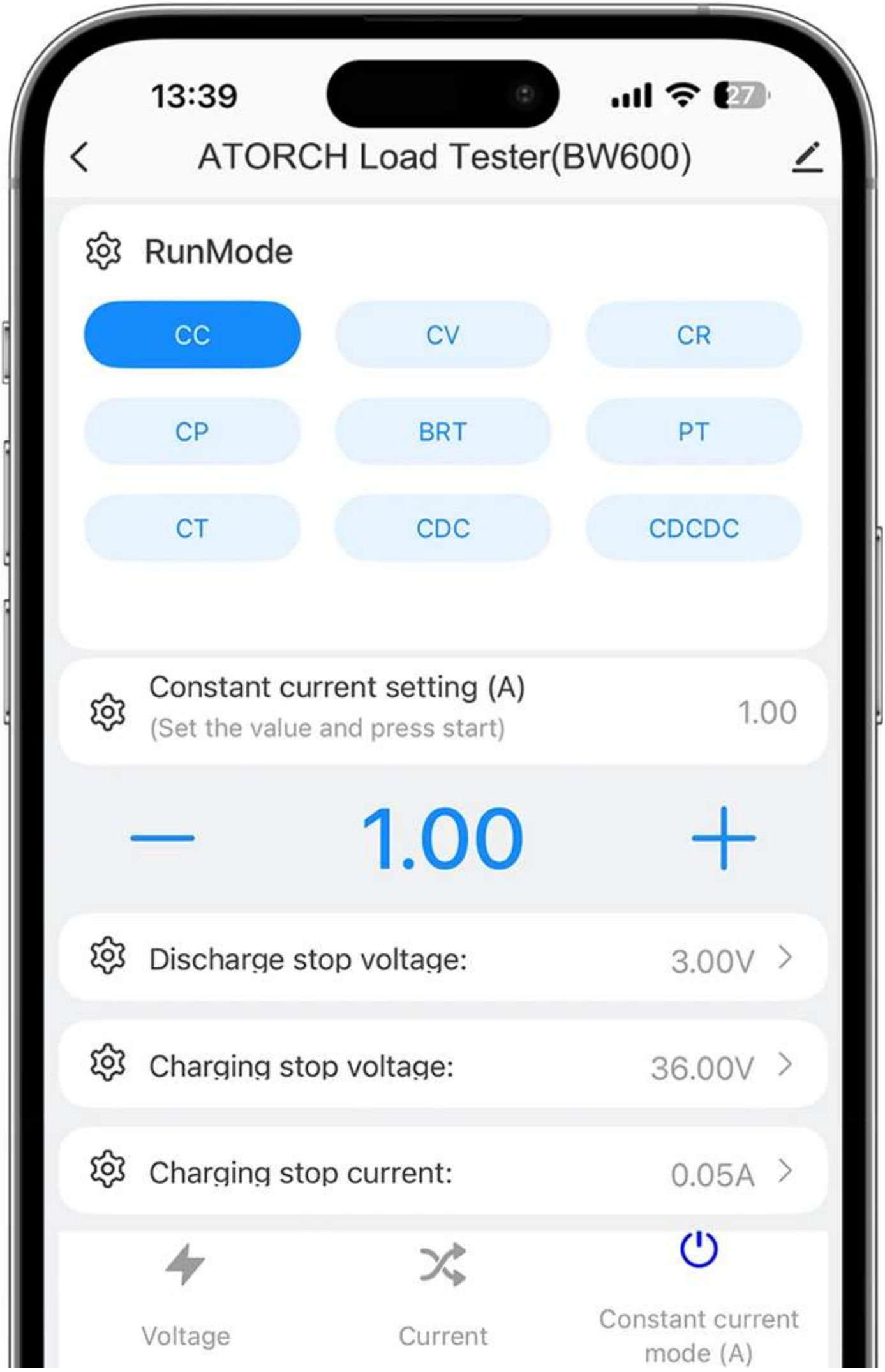
6.Maximum 50A test, wiring test required, terminal post can only withstand a maximum current of 40A



7.Support Tuya or Smart Life APP online testing to detect test data!

Download the smart life app and install it on your phone to achieve rich remote control and testing functions for networking. Almost all host functions can be remotely covered on the mobile app for functional control, data detection, charging and discharging curve statistics, etc

Bluetooth distribution network | WiFi networking | Bluetooth data transmission


13:39
ATORCH Load Tester(BW600)
RunMode
CC
CV
CR
CP
BRT
PT
CT
CDC
CDCDC
Constant current setting (A)
(Set the value and press start)
1.00
1.00
Discharge stop voltage:
3.00V
Charging stop voltage:
36.00V
Charging stop current:
0.05A
Voltage
Current
Constant current mode (A)

0.00V	0.863A	OFF

Power	Capacity	Current electricity
0.00W	0mAh	0.00Wh

CPU temperature	Fan temperature	External tempera...
31.0°C	29.6°C	Not connected

Current battery capacity group
(It is forbidden to set this item when the discharge switch is turned on)
Bat01 >

Clear Zero mAh and Wh
(Clear the current battery accumulative capacity and other values)

Real time data refresh switch
(Real time reporting of data for 2 minutes after opening)

Voltage, current and power statistics (cloud h...

Day Month Year

Voltage Current Power

2025/06/27

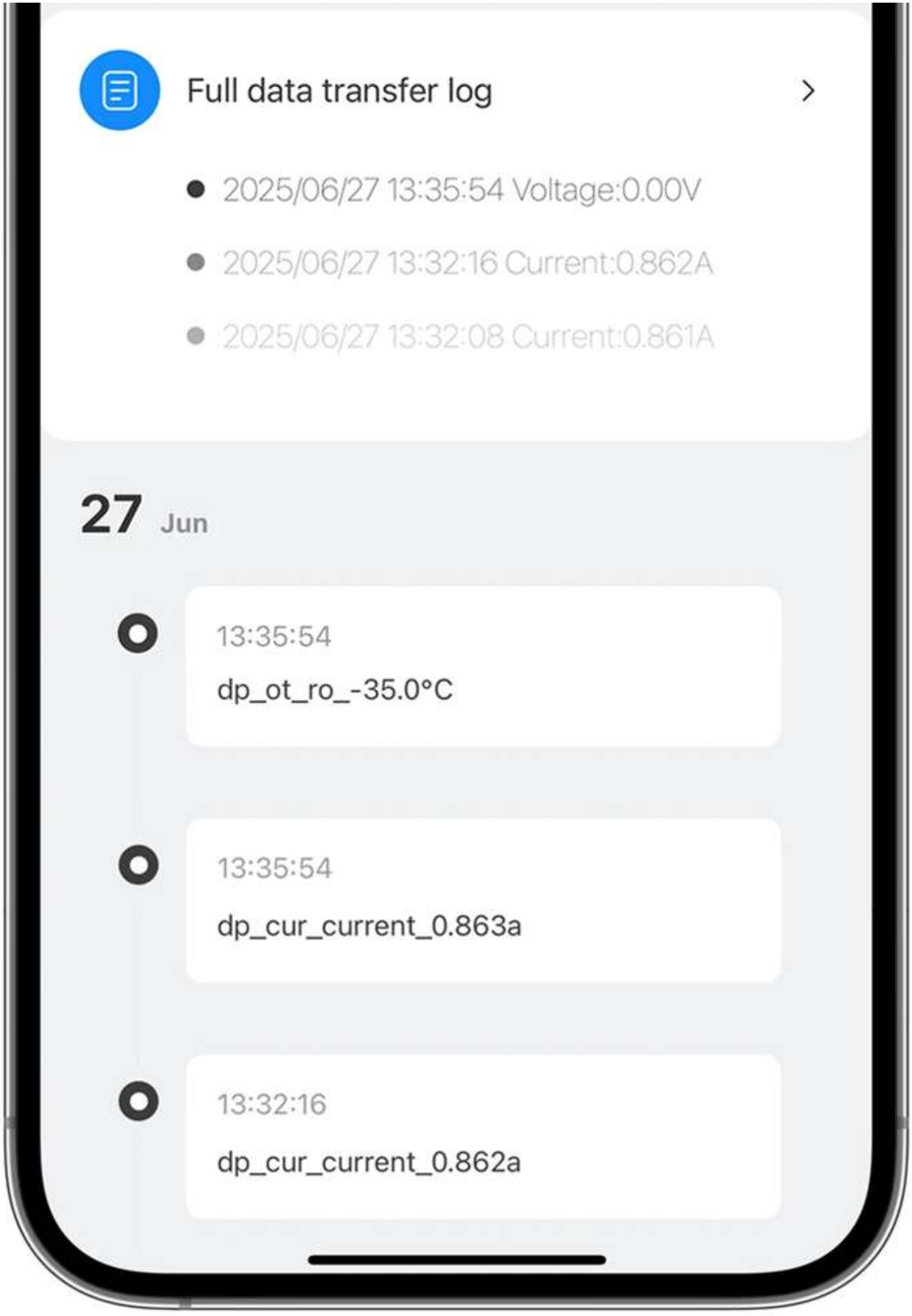
Time limited discharge
(Press the countdown to discharge after start) 0.00H >

Screen brightness:
(Set the working screen backlight brightness level 0-9) 9级 >

Fan over_temperature protection:
(The discharge tube is overheated to stop discharging 40~150°C) 120°C >

Probe over_temperature protection:
(Probe temperature over temperature protection 0~150°C) 75°C >

ATORCH official store
Purchase other and contact to download software and manuals, etc. >


Full data transfer log
2025/06/27 13:35:54 Voltage:0.00V
2025/06/27 13:32:16 Current:0.862A
2025/06/27 13:32:08 Current:0.861A
27 Jun
13:35:54
dp_ot_ro_-35.0°C
13:35:54
dp_cur_current_0.863a
13:32:16
dp_cur_current_0.862a

8. Support HID data cable and computer online communication software testing!

8. Introduction to Main Function Testing

8.1.CC（Constant current） Mode Description：

Mainly tests: Battery constant current or DC power constant current test

8.2.CV（Constant voltage） Mode Description

Mainly tests the constant voltage of DC constant current source power supply

Attention: CV mode, do not test with batteries as it may damage the device or battery!

8.3. CR(Constant Resistance) Mode Description

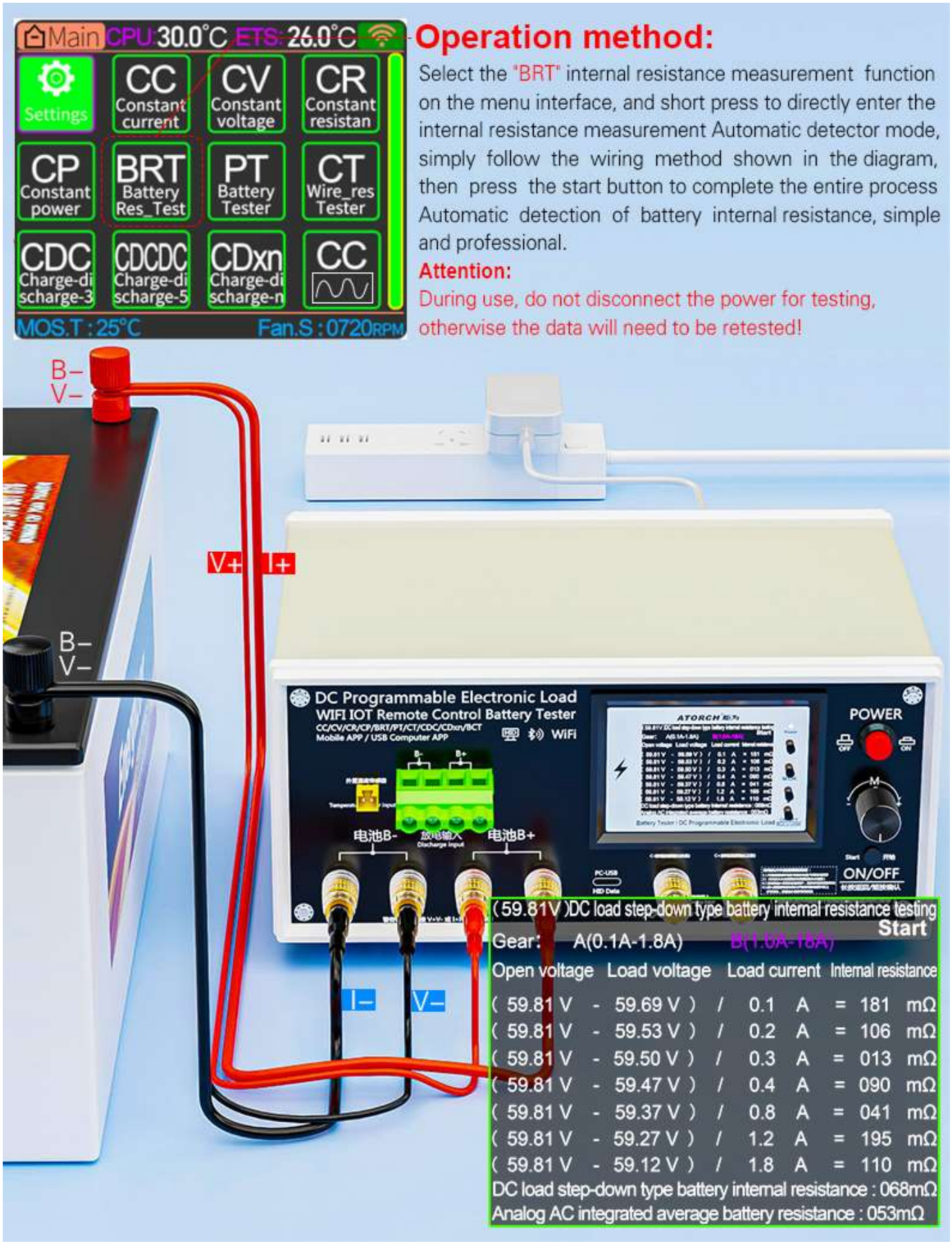
Mainly tests the discharge of fixed resistors from batteries or DC power sources

8.4. CP(Constant power) Mode Description

Mainly tests the maximum power constant test of chargers and DC power supplies

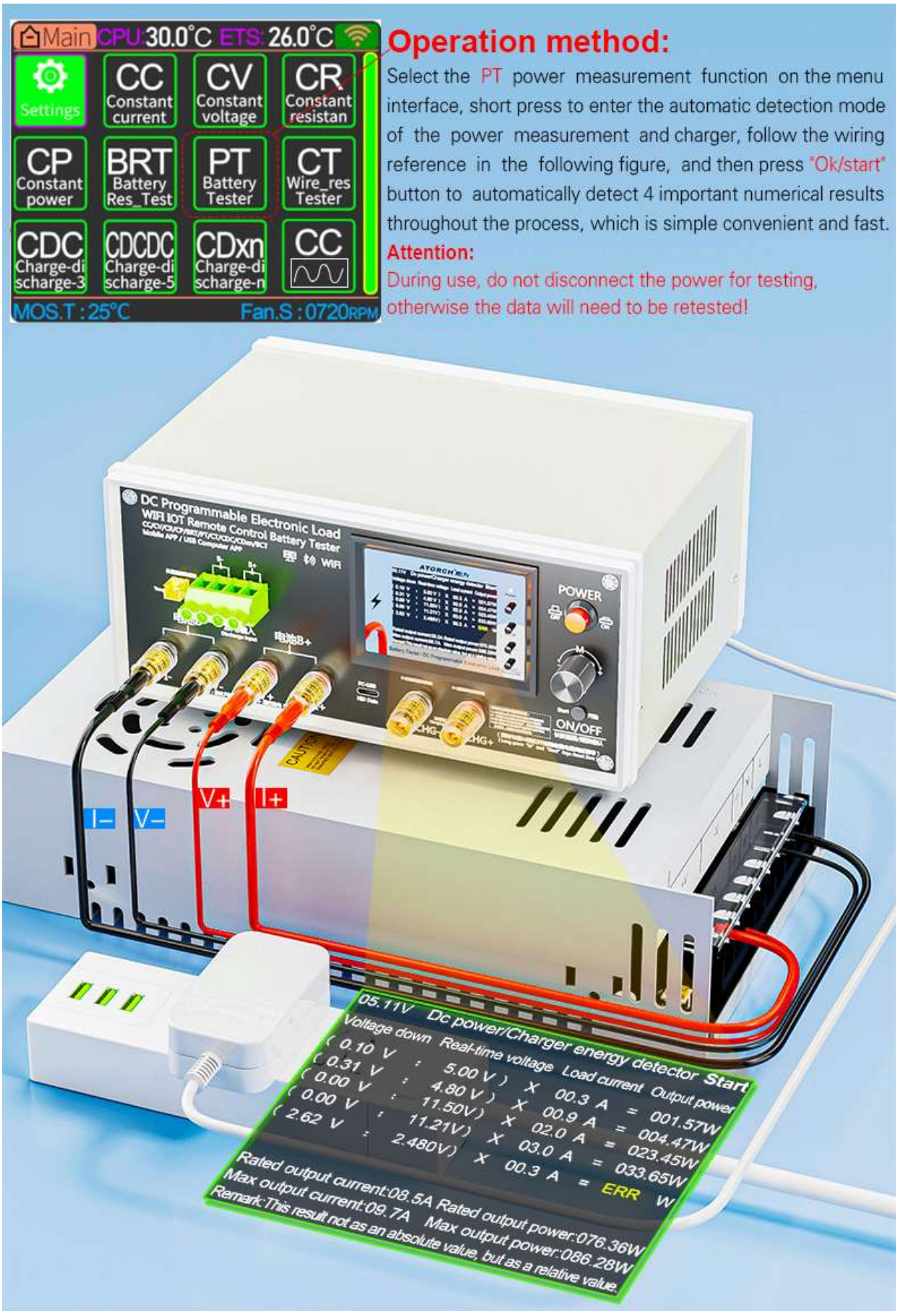
8.5.BRT(Battery internal resistance) Mode Description

Mainly testing internal resistance of the battery, smaller internal resistance, the better!



8.6.PT Mode Description

Automatic detection of charger/DC power supply power, current, and performance throughout the process



8.7.CT Mode Description

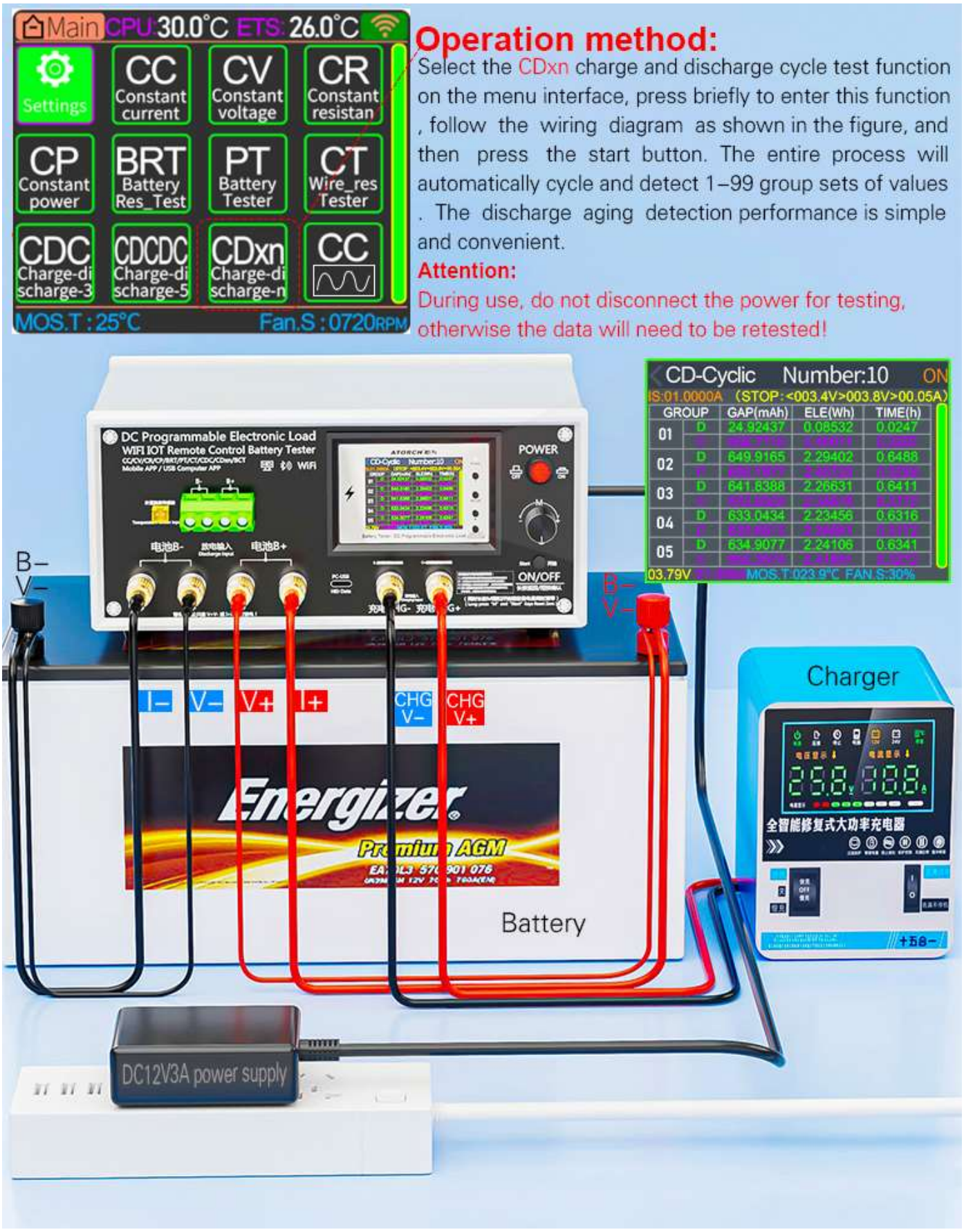
Fully automatic testing of wire internal resistance and current performance

8.8.CDC Mode Description

Fully automatic cyclic charging-discharging-charging Simultaneously selectable Chinese and curve display interface

8.9.CDxn Mode Description

Battery full automatic charging and discharging cycle testing function



9.Accurate comparison between products and large instruments

Accuracy evaluation of current and voltage Comparison of Precision of Professional Instruments

The precision is strictly calibrated by our engineers before leaving the factory, using innovative soft calibration technology. The precision is learned through software on large instruments, and small errors caused by hardware are repaired through software to achieve measurement precision that is exactly the same as that of large instruments.

Voltage accuracy comparison

Professional instrument voltage: 30.000V

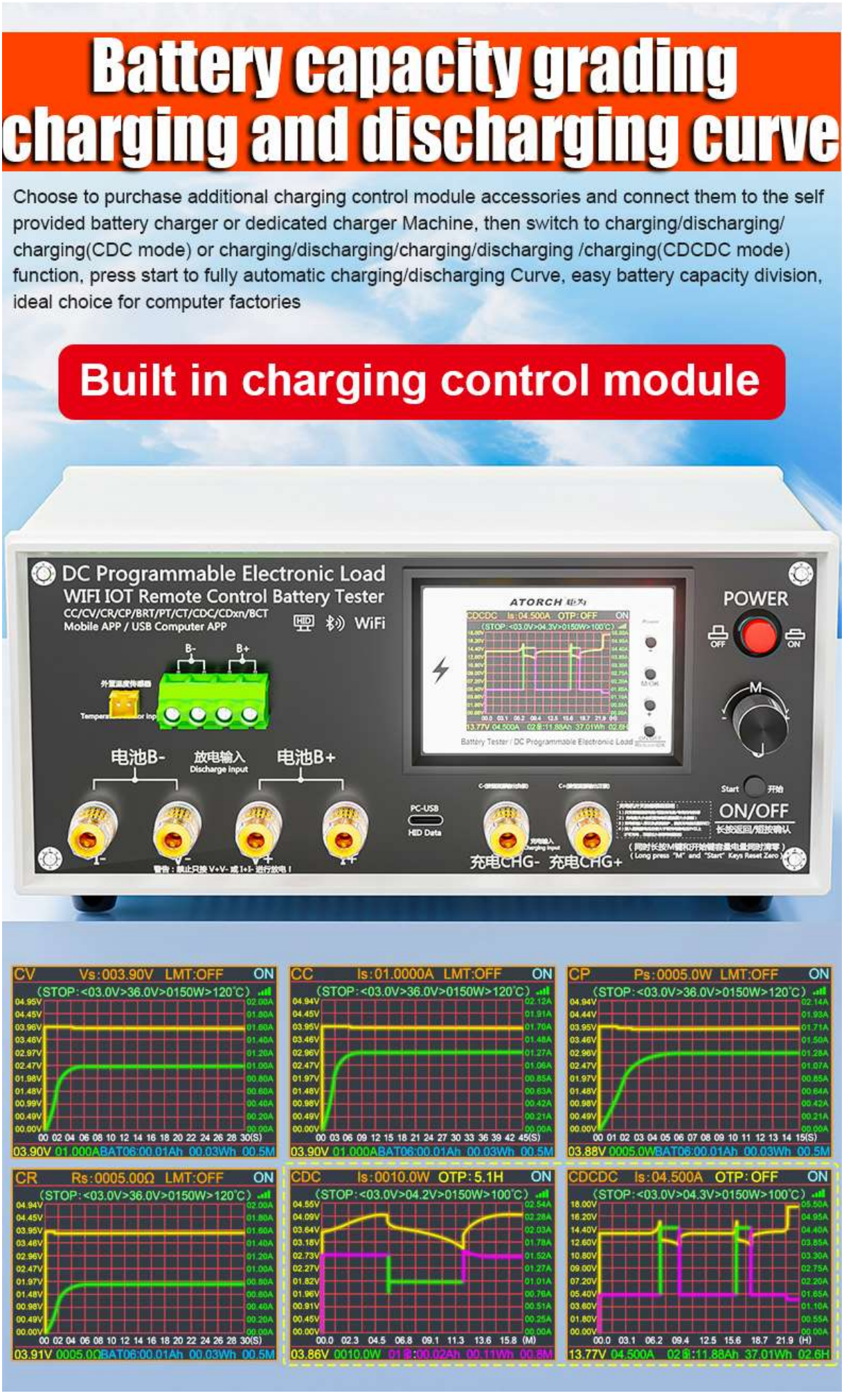
BW600-DK voltage: 30.000V

Current accuracy comparison

Professional instrument current: 2.000A

BW600-DK current: 2.000A

10.Battery capacity grading charging and discharging curve



11.Battery capacity animation Measurement display

ATORCH has set up a separate animation display interface for calculating battery capacity percentage, with power-off memory and data storage functions. When removing the battery, it can store charging capacity data for future viewing, facilitating capacity testing of the battery. When the battery is powered off, the current capacity is temporarily stored, and restarting will accumulate the current used capacity. If not needed, it can be manually cleared to accurately measure and calculate the battery capacity value.

12.Dynamic aging test

The innovative feature of conducting cyclic aging tests with four different currents (ABCD) through new dynamic settings,

BW600 can simulate the peak, valley, rated value, and average of the current required by the equipment during operation for cyclic discharge aging, which can make the device The stability of quality performance of aging power supplies in simulated equipment scenarios is an important means and basis for factories and individual users to conduct aging tests to identify the stability of power supply performance and quality.

13.WIFI pairing and connection method

WiFI Voltmeter Distribution Network Description

WiFi connection to the network only requires three steps

*For voltmeters with WiFi modules

Download the Smart Life APP Smart Connection Meter "BW600"

01

- Smart life APP Tuya APP
- Can be downloaded from the mobile app market (Google Play Market, Apple APP Store)

Add "ATorch as WiFi Connected Electricity Meter "(BW600)"

02

After being powered on, the device's red light flashes and remains on to enter the distribution network mode; Waiting for WiFi connection.

Boot interface

Power on distribution network waiting the interface

Power on distribution network to enter the interface

Paired successfully WiFi interface

*For voltmeters with WiFi modules

Smart Life APP Pair Operation Steps

03

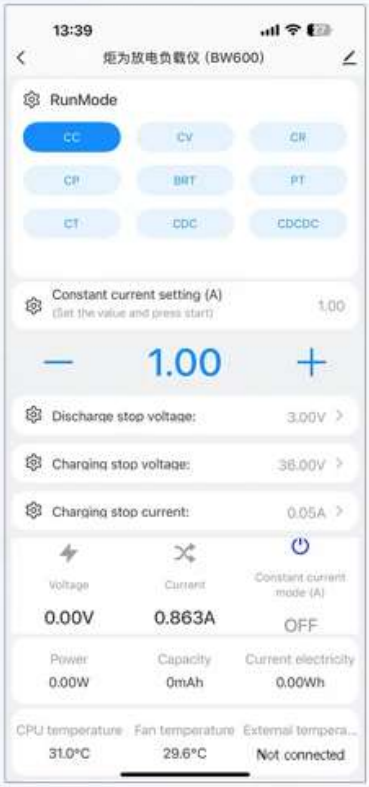
Attention: Be sure to turn on Bluetooth and location permissions when adding devices

Open the Smart Life app and it will automatically pop up
To add a device, click Add to proceed

Select device working WiFi and enter Click to manually enter the password

Enter the WiFi name and Password, and then Click Next to continue

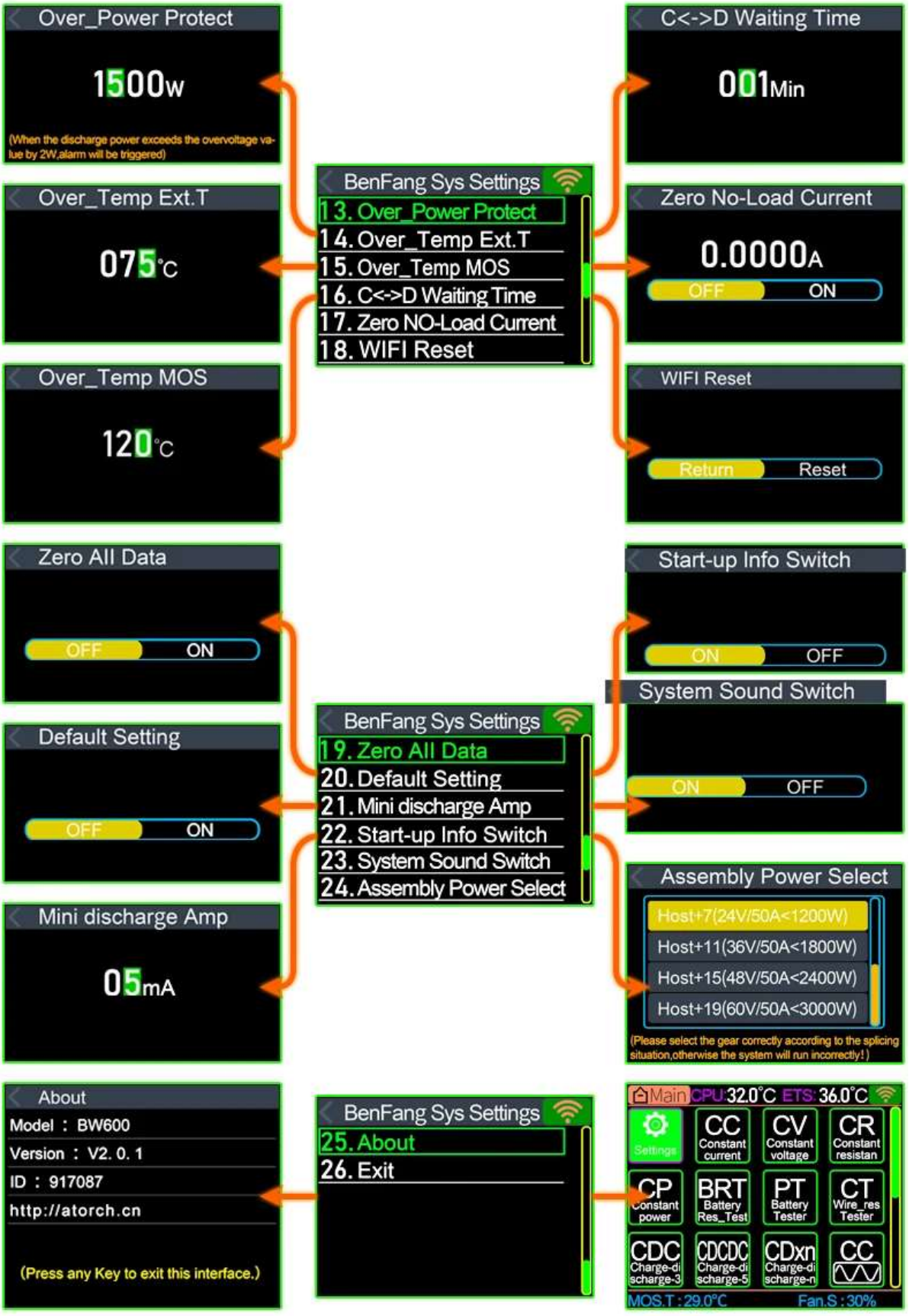
After pairing is completed, Click on Next



After a successful WiFi connection, multiple values can be set for remote control

After a successful connection, open the app and automatically connect via WiFi

14.System backend settings function


Over_Power Protect
1500w
(When the discharge power exceeds the overvoltage value by 2W,alarm will be triggered)
Over_Temp Ext.T
075℃
Over_Temp MOS
120℃
BenFang Sys Settings
13. Over_Power Protect
14. Over_Temp Ext.T
15. Over_Temp MOS
16. C<->D Waiting Time
17. Zero NO-Load Current
18. WIFI Reset
C<->D Waiting Time
001Min
Zero No-Load Current
0.0000A
OFF
ON
WIFI Reset
Return
Reset
Zero All Data
OFF
ON
Default Setting
OFF
ON
Mini discharge Amp
05mA
BenFang Sys Settings
19. Zero All Data
20. Default Setting
21. Mini discharge Amp
22. Start-up Info Switch
23. System Sound Switch
24. Assembly Power Select
Start-up Info Switch
ON
OFF
System Sound Switch
ON
OFF
Assembly Power Select
Host+7(24V/50A<1200W)
Host+11(36V/50A<1800W)
Host+15(48V/50A<2400W)
Host+19(60V/50A<3000W)
(Please select the gear correctly according to the splicing situation,otherwise the system will run incorrectly!)
About
Model : BW600
Version : V2.0.1
ID : 917087
http://atorch.cn
(Press any Key to exit this interface.)
BenFang Sys Settings
25. About
26. Exit
Main
CPU:32.0℃
ETS:36.0℃
Settings
CC
Constant current
CV
Constant voltage
CR
Constant resistan
CP
Constant power
BRT
Battery Res_Test
PT
Battery Tester
CT
Wire_res Tester
CDC
Charge-discharge-3
CDCDC
Charge-discharge-5
CDxn
Charge-discharge-n
CC
MOS.T:29.0℃
Fan.S:30%

15.150W Product list

1.BW-600W-DK 150W Battery tester 1pcs

2.DC12V 3A power supply 1pcs

3.10A red and black alligator clip cable 1set

4. Temperature probe 1pcs

5. Adapter board 1pcs

6.US to EU adapter 1pcs

16.300W product list

1.BW-600W-DK 300W Battery tester 1pcs

2.DC12V 3A power supply 1pcs

3.10A red and black alligator clip cable 1set

4. Temperature probe 1pcs

5. Adapter board 1pcs

6.US to EU adapter 1pcs

17.450W product list

1.BW-600W-DK 450W Battery tester 1pcs

2.DC12V 3A power supply 1pcs

3.10A red and black alligator clip cable 1set

4. Temperature probe 1pcs

5. Adapter board 1pcs

6.US to EU adapter 1pcs

18.600W product list

1.BW-600W-DK 600W Battery tester 1pcs

2.DC12V 3A power supply 1pcs

3.10A red and black alligator clip cable 1set

4. Temperature probe 1pcs

5. Adapter board 1pcs

6.US to EU adapter 1pcs