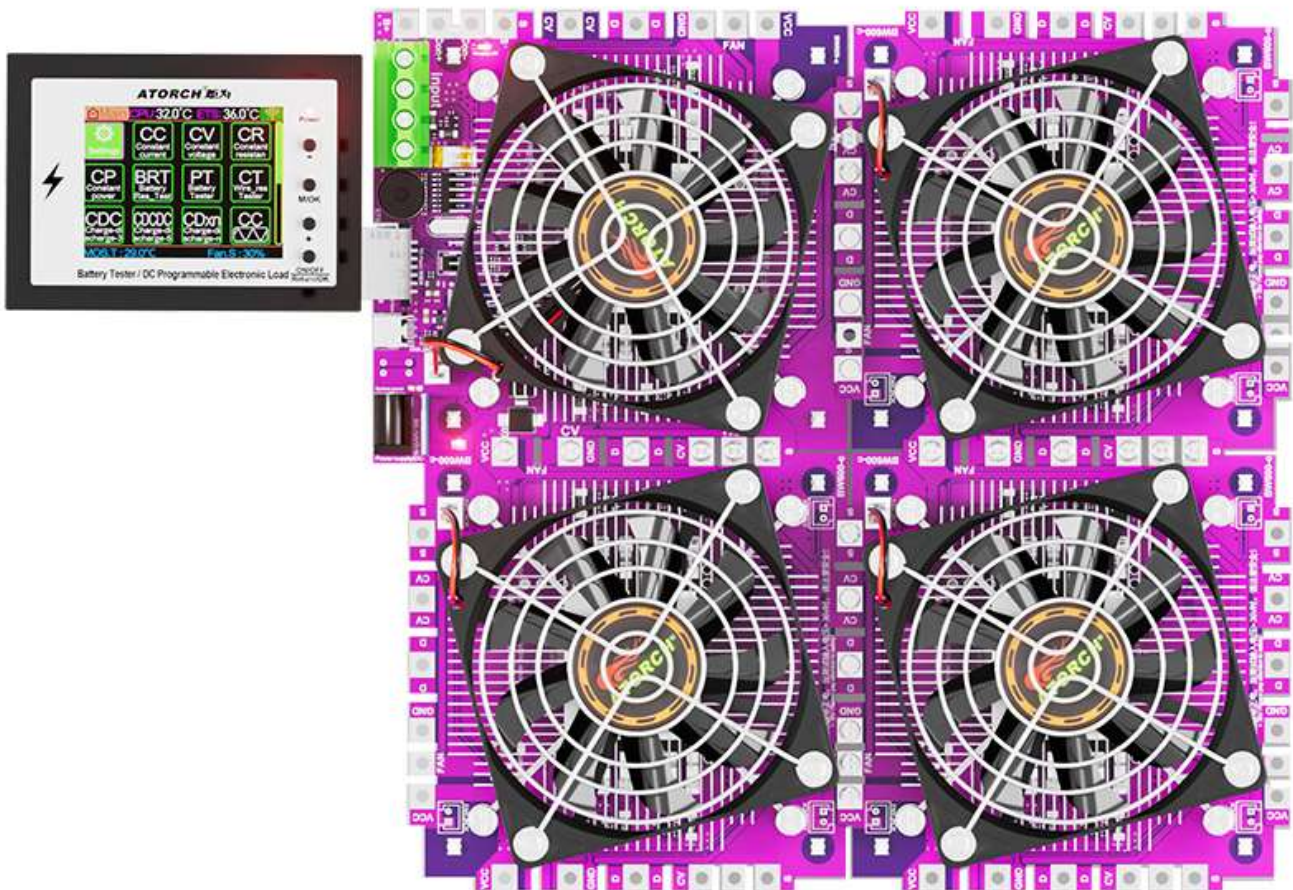


BW600 WiFi Series Battery tester

--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

□ 150W □ 300W □ 450W □ 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=92>

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, 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

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

18 Major Operating Modes

This design adopts a menu style layout function page, which returns to the menu background by long pressing the "ON/OFF" keys. Click "+" or "-" to select function, and then click "ON/OFF" keys to enter the testing page!



Wire resistance and current performance detector Start (05.20V)

Voltage step Empty voltage Load voltage Load current Resistance

1) 0.1 V : (05.20V - 05.07V) / 0.22A = 336mΩ

2) 0.2 V : (05.20V - 04.99V) / 0.37A = 511mΩ

3) 0.3 V : (05.20V - 04.89V) / 0.53A = 560mΩ

4) 0.4 V : (05.20V - 04.79V) / 0.75A = 529mΩ

5) 0.5 V : (05.20V - 04.70V) / 0.99A = 502mΩ

6) 0.6 V : (05.20V - 04.60V) / 1.25A = 478mΩ

7) 0.7 V : (05.20V - 04.50V) / 1.52A = 459mΩ

Cable average resistance value assessment: ≈482mΩ

Cable current value when 0.3V voltage drop: ≈0.53 A

Cable current value when 0.5V voltage drop: ≈0.99 A

Cable current value when 0.7V voltage drop: ≈1.52 A

Line resistance test mode

CD-Cyclic Number:10 ON

IS:01.0000A (STOP:<003.4V>003.8V>00.05A)

GROUP	D	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	2.24108	0.6341

03.79V MOS.T:023.9°C FAN.S:30%

Cycle charging mode



Constant resistance curves mode



Battery charging/discharging/charging/discharging curves mode

CDC Is=18.8000A

Vol:015.800V Run Stop:<003.0V>0150W>120°C

Cur:018.800A

Pwr:0297.04W Limit time:09:59H

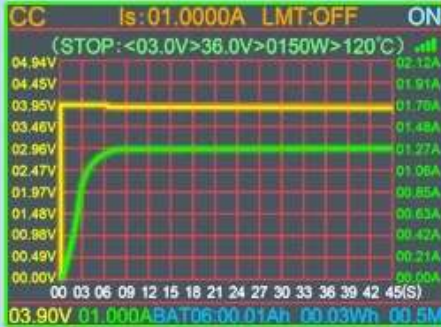
Res:0000.84Ω CPU.T:029.0°C

Ene:30.3512Wh MOS.T:030.0°C

Cap:000216mAh FAN.Speed 30%

BAT01 000:38:59 ON

Battery charging and discharging and charging mode



Constant current curves mode



Constant Power curves mode



Battery capacity detection mode

CDCDC Is=03.0000A

Vol:020.000V Run Stop:<003.0V>0150W>120°C

Cur:003.000A

Pwr:0060.00W Limit time:09:59H

Res:0006.66Ω CPU.T:028.0°C

Ene:26.0229Wh MOS.T:026.5°C

Cap:000326mAh FAN.Speed 30%

BAT01 001:19:36 ON

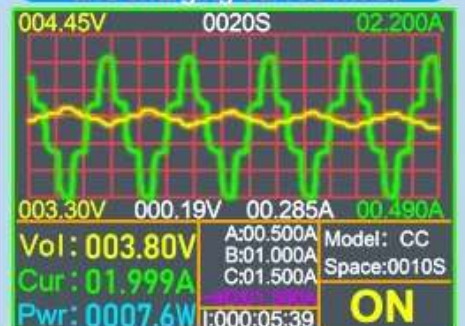
Battery charging/discharging/charging/discharging/charging mode



Constant voltage curves mode



Battery charging and discharging and charging curves mode



Dynamic Load Aging Test Mode

The BW600 series has upgraded to the latest feature, which supports battery charging mode measurement!

Need to purchase BW600 charging module separately!

The maximum charging current is 20A!



Name: BW600 Charging Control Module

Function:

Implement Charging/Cycling Charging test function

Maximum switch voltage: 100V

Maximum switch current: 20A

Notes:

1. This is not a charger, this is a charging control module, which is a bridge and a switch component connecting the charger and battery.
2. Only supports constant current power supplies/constant current chargers/dedicated chargers, etc
3. The charging current is controlled by setting the constant current source size of the charger, and this charging control module will not adjust the size!
4. The charger input has positive and negative reverse connection protection. Do not reverse the connection, as there is no current or indicator light when connected in reverse!
5. Two input methods: wiring and DC5.5 interface. Please do not connect them for testing at the same time

The following functions require the purchase of a charging control module to take effect!



Battery charging and discharging and charging mode



Battery charging/discharging/charging/discharging/charging mode



Cycle charging mode



Battery charging and discharging and charging curves mode



Battery charging/discharging/charging/discharging/charging curves mode

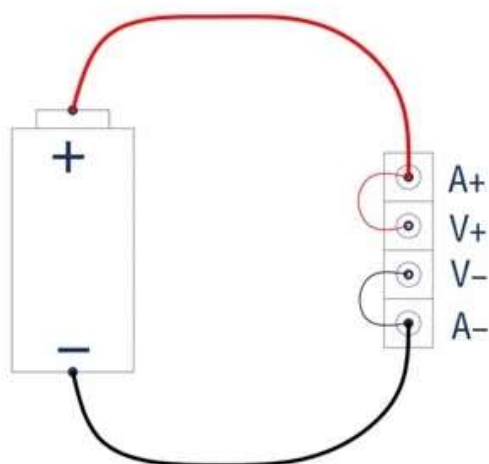


Battery capacity detection mode

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

Support two wiring methods for testing

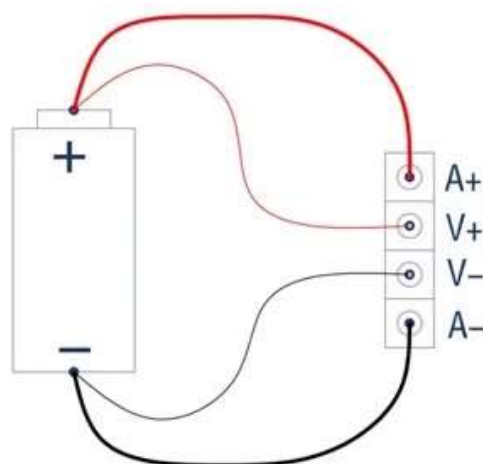
Electronic load wiring diagram



(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 is more accurate, and it is recommended that buyers with a certain circuit basis use this method!

2-wire wiring method



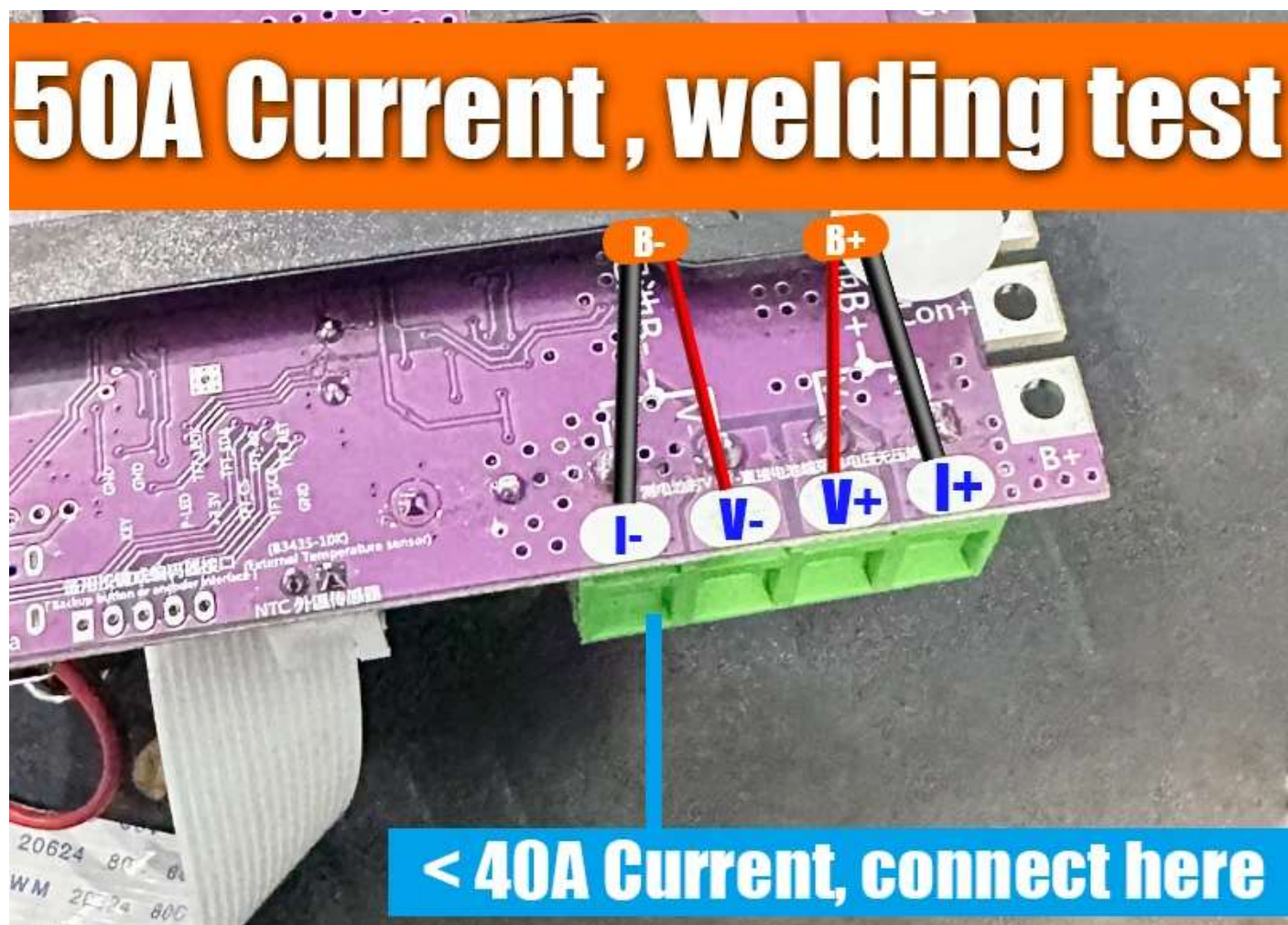
Be sure to tighten the four screws

4-wire wiring method



Be sure to tighten the four screws

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!

Mobile APP Online Function Display

Smart life APP or Tuya APP

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

27



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

0.00W

Capacity

0mAh

Current electricity

0.00Wh

CPU temperature

31.0°C

Fan temperature

29.6°C

External tempera...

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

1.20

0.80



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!

Computer online backend synchronization setting function

1. PC computer upper online functions (Connect through HID data cable)
2. Bluetooth APP functions
3. WiFi Smart life APP functions

The PC computers can read device current, voltage, power, capacity and other data, and export XLS table data
The Bluetooth app can read device current, voltage, power, capacity and other data, and export XLS table data
The WiFi app can only view data, curve data, and cannot export data!

Currently only supports Win7 and Win10 systems



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!



Operation method:

When the menu is set to work in the constant voltage discharge mode of "CV", the tested power supply needs to be Constant current power supply, at which point BW150 will operate at the set voltage value Constant voltage discharge!

Attention:

During use, do not disconnect the power for testing, otherwise the data will need to be retested!



8.3.CR(Constant Resistance) Mode Description

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

🏠Main CPU:30.0°C ETS:26.0°C

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-di scharge-3	CDCDC Charge-di scharge-5	CDxn Charge-di scharge-n	CC

MOS.T:25°C Fan.S:0720RPM

Operation method:

When the menu is set to work in "CR" constant resistance discharge mode, regardless of the input voltage Whether the current has changed or not, BW150 will automatically calculate according to the set resistance value The ratio of voltage to current equals a constant resistance value for discharging!

Attention:
During use, do not disconnect the power for testing, otherwise the data will need to be retested!

8.4.CP(Constant power) Mode Description

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

🏠 Main CPU: 30.0°C ETS: 26.0°C

⚙️ Settings	CC Constant current	CV Constant voltage	CR Constant resistance
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: 25°C Fan.S: 0720RPM

Operation method:

When menu is set to work in "CP" constant power discharge mode, regardless of whether the input voltage changes, BW150 automatically calculates the current to voltage ratio and works at set power value for constant power discharge! Combined with a high-voltage trigger, the maximum power of the charger can be tested.

Attention:

During use, do not disconnect the power for testing, otherwise the data will need to be retested!

Must be powered by DC12V power supply

8.5.BRT(Battery internal resistance) Mode Description

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

⌂ Main

CPU: 30.0°C

ETS: 26.0°C

📶

⚙️ Settings

CC Constant current

CV Constant voltage

CR Constant resistance

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

📶


MOS.T: 25°C

Fan.S: 0720RPM

Operation method:

Select the "BRT" internal resistance measurement function on the menu interface, and short press to directly enter the internal resistance measurement Automatic detector mode, simply follow the wiring method shown in the diagram, then press the start button to complete the entire process Automatic detection of battery internal resistance, simple and professional.

Attention:
During use, do not disconnect the power for testing, otherwise the data will need to be retested!



00.06V DC load step-down type battery internal resistance testing

Gear: A(0.1A-1.8A)

Open voltage 59.81 V

Load voltage 59.69 V

Load current 0.1 A

Internal resistance = 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

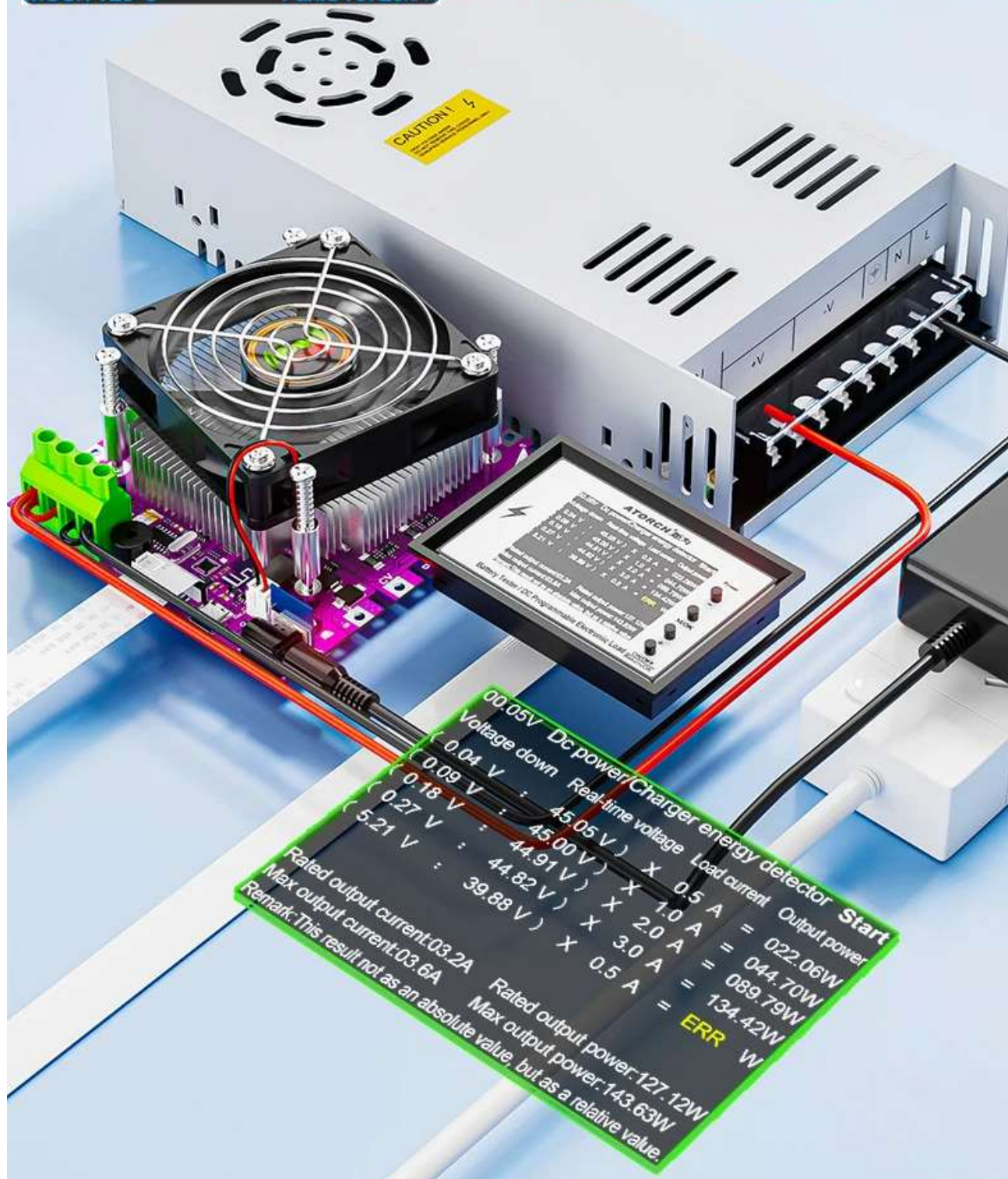
DC load step-down type battery internal resistance : 068mΩ

Analog AC integrated average battery resistance : 053mΩ

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

Select the **PT** power measurement function on the menu interface, short press to enter the automatic detection mode of the power measurement and charger, follow the wiring reference in the following figure, and then press "**Ok/start**" button to automatically detect 4 important numerical results throughout the process, which is simple convenient and fast.

During use, do not disconnect the power for testing, otherwise the data will need to be retested!



8.7.CT Mode Description

Fully automatic testing of wire internal resistance and current performance



Operation method:

Select the **CT** line resistance measurement function on the menu interface, short press to enter the automatic detection mode of line resistance and current value performance.

Connect the wires as shown in the figure below, and then press "OK/start" button to automatically detect 7 important numerical results throughout the process.

Attention:

During use, do not disconnect the power for testing, otherwise the data will need to be retested!



8.8.CDC Mode Description

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

🏠 Main CPU 30.0°C ETS 26.0°C

⚙️ 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-di charge-3	CDCDC Charge-di charge-5	CDxn Charge-di charge-n	CC

MOS.T : 25°C Fan.S : 0720RPM

Operation method:

When selecting the CDC function on the menu interface , simply follow the wiring instructions in the following diagram, Press the “OK/Start” button again to perform a fully automatic charge and discharge .

(CDC) cycle test.

Attention:

During use, do not disconnect the power for testing, otherwise the data will need to be retested!

8.9.CDxn Mode Description

Battery full automatic charging and discharging cycle testing function



Operation method:

Select the **CDxn** charge and discharge cycle test function on the menu interface, press briefly to enter this function, follow the wiring diagram as shown in the figure, and then press the start button. The entire process will automatically cycle and detect 1–99 group sets of values. The discharge aging detection performance is simple and convenient.

Attention:

During use, do not disconnect the power for testing, otherwise the data will need to be retested!



9.0 Introduction to the interface of accessories

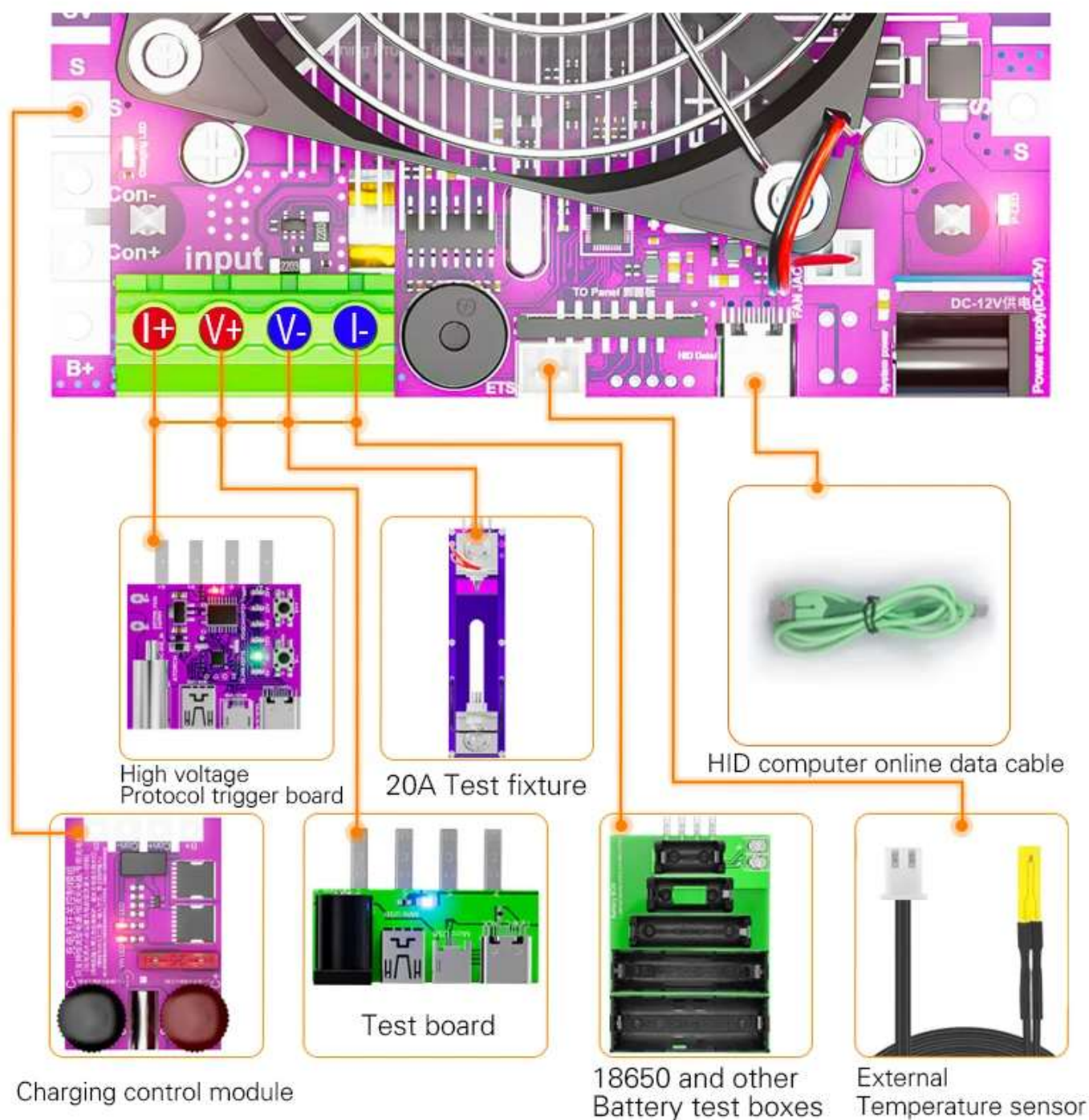
Method for setting up software and hardware with different power levels for splicing

Standard accessories:

HID computer online data cable, Test board, external temperature probe.

Additional accessories that need to be ordered:

High voltage Protocol Triiger board; 20A high current Test Fixture
Charging control module; 18650 and other Battery test Boxes



10.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 voltage: 30.000V



Current accuracy comparison

Professional
instrument current: 2.000A

BW600 current: 2.000A



11. Test various types of Batteries

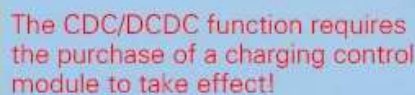
Test various types of Batteries

In conjunction with the battery testing rack below, the following types of batteries can be tested

- 【1】 .18650, 26650, 14500, 16340, 26850, 18350, 32650, 46950
and all other lithium batteries;
- 【2】 .All dry batteries, including A, AA, AAA, etc
- 【3】 .All button batteries such as 2032, GPA76, LR44, etc.



(This function needs to be used in conjunction with the charging control module, and an additional charging control module needs to be purchased!)



13. 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.



It will display the percentage change of charging or discharging!

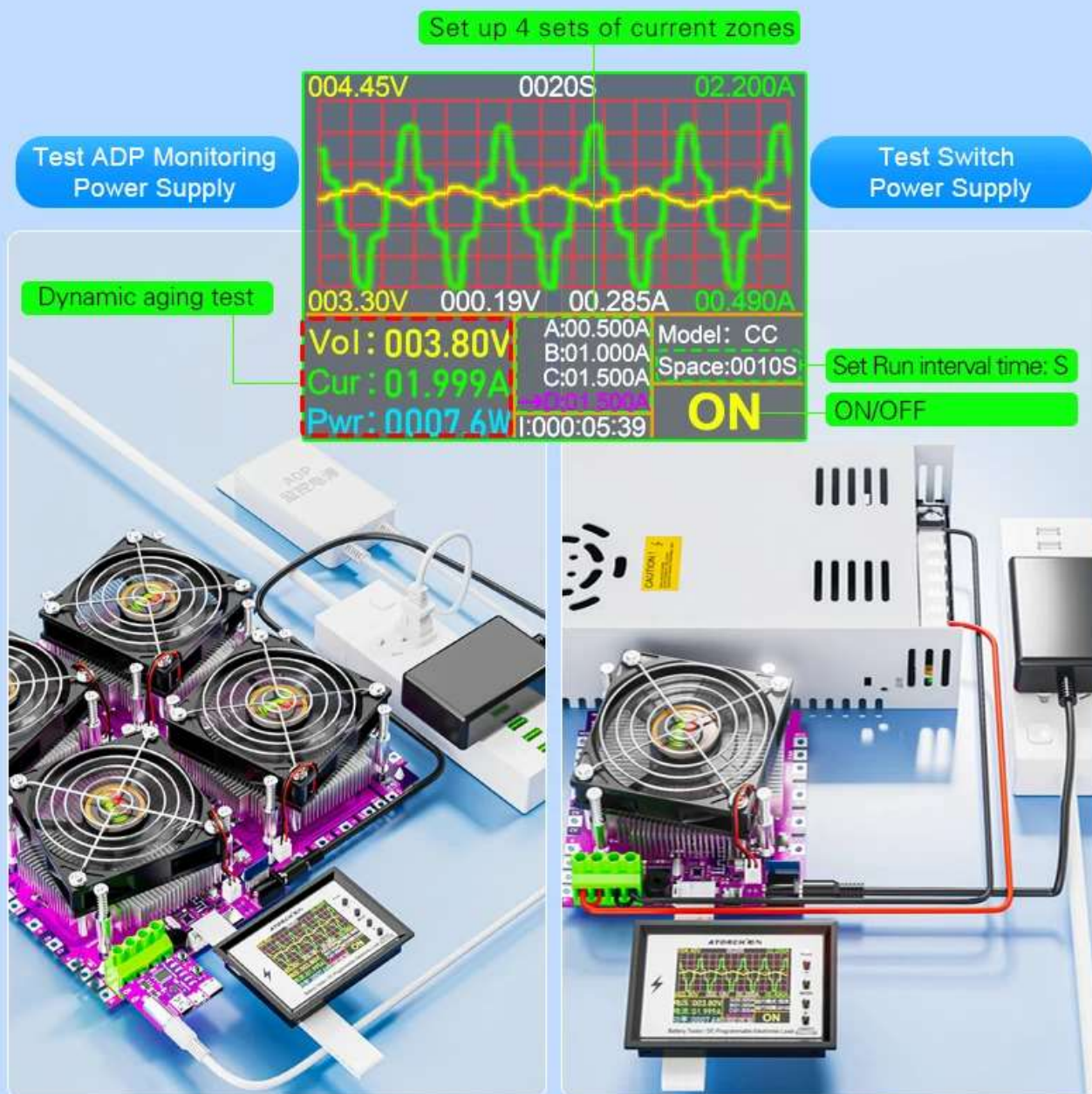
14. Dynamic aging test

New Function

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.



15. Splicing methods for products with different power levels

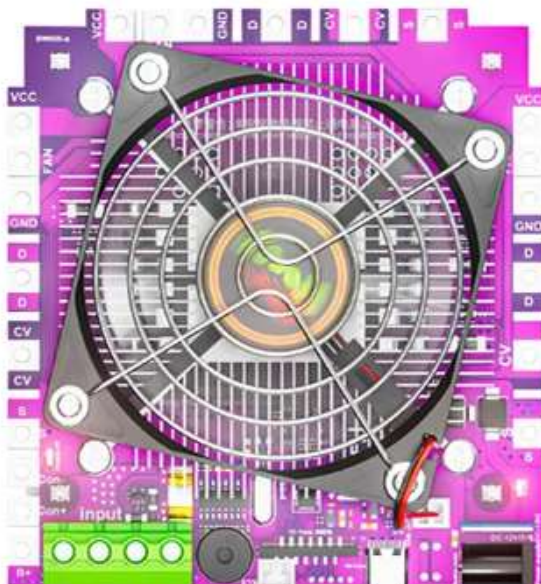
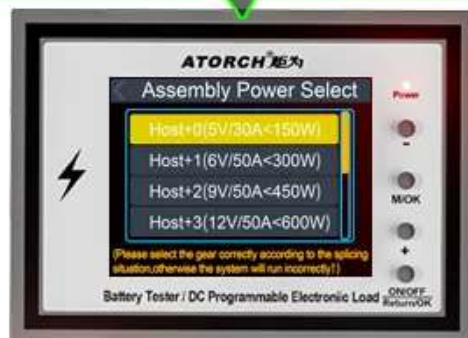
(150W/300W/450W/600W/1200W)

Method for setting up software and hardware with different power levels for splicing

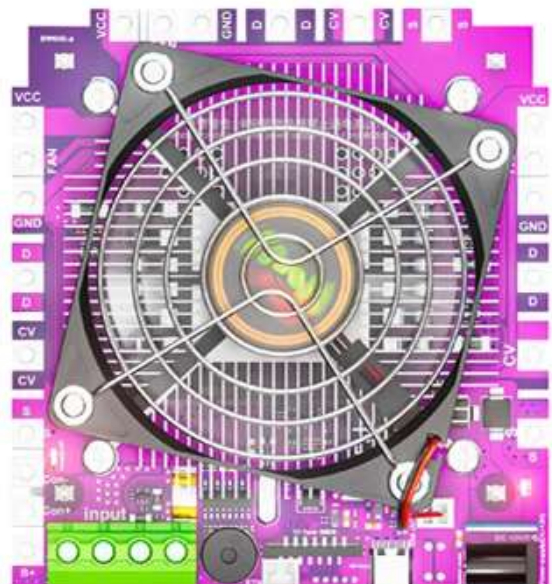
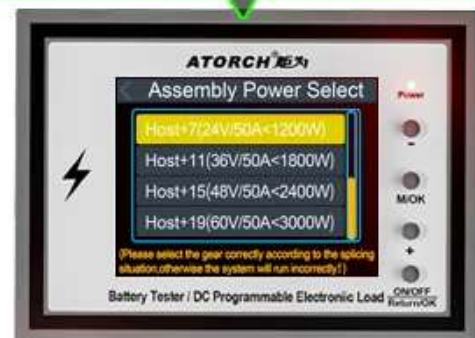
Short press "+" / "-" keys on the homepage interface to switch to the "Settings"  icon, short press "Return/OK" key to enter the system background, short press "+" / "-" keys to switch to "24. Assembly Power Select" and then short press "Return/OK" key to enter assembly power selection, corresponding to the splicing purchased by oneself. Select the corresponding power for the module, and then press and hold "Return/OK" keys to confirm. Long press "Return/OK" keys to exit measurement interface.

According to the instructions and hardware, 150W/300W/450W/600W/1200W Power can be assembled. 1500W–3000W power is reserved, please do not attempt, thank you!

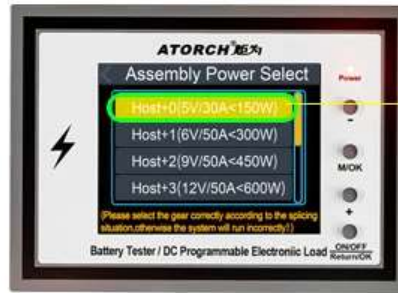
150W~600W Software Gear Setting



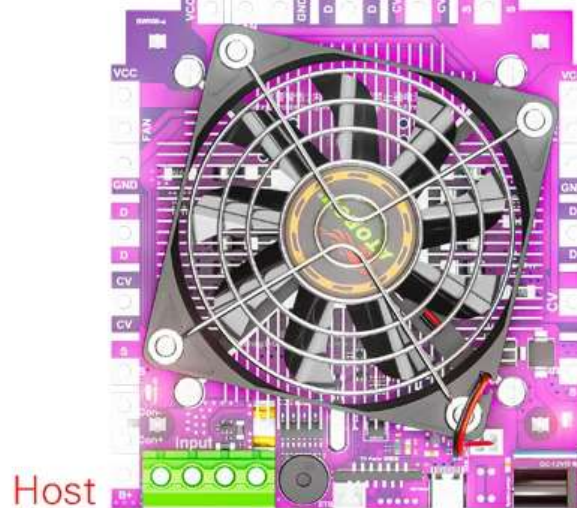
Above 1200W Software Gear Setting



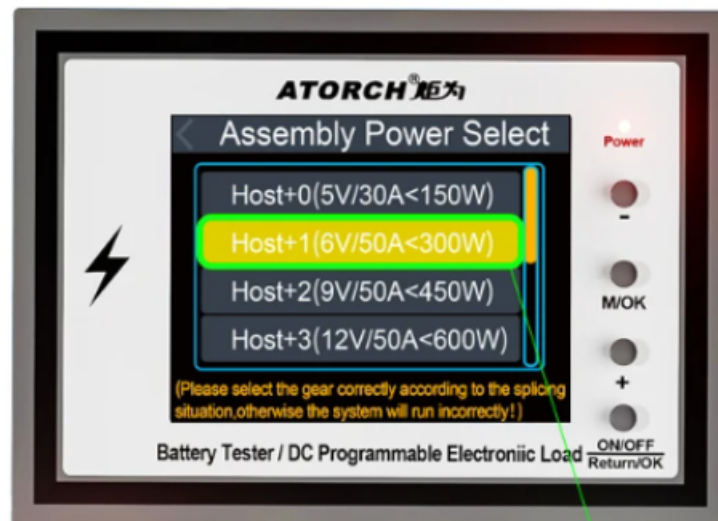
150W Power



Software selection:
150W gear (default)



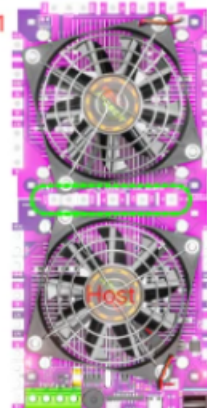
300W Power



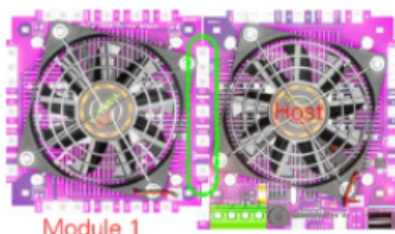
1. Software selection: 300W Gear
2. Three assembly methods, tighten the screws of the delivery according to the schematic diagram

Method 2

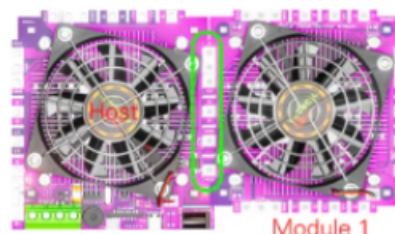
Module 1



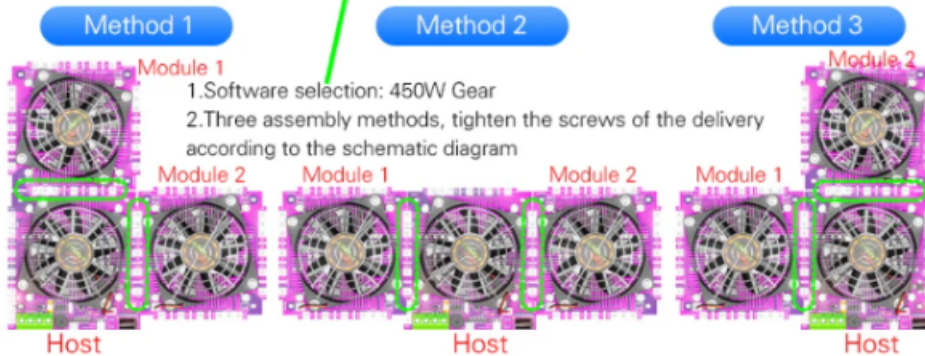
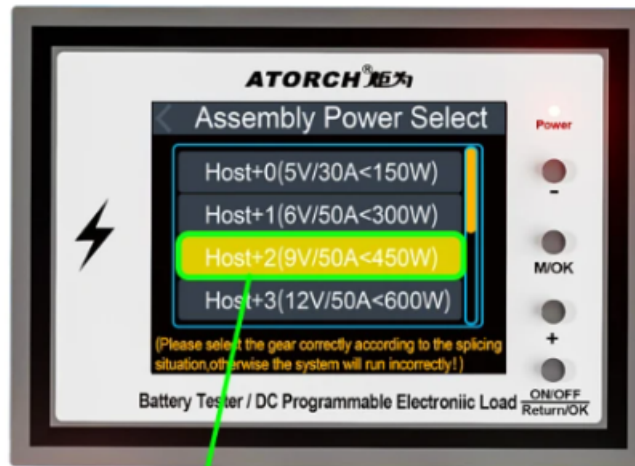
Method 1



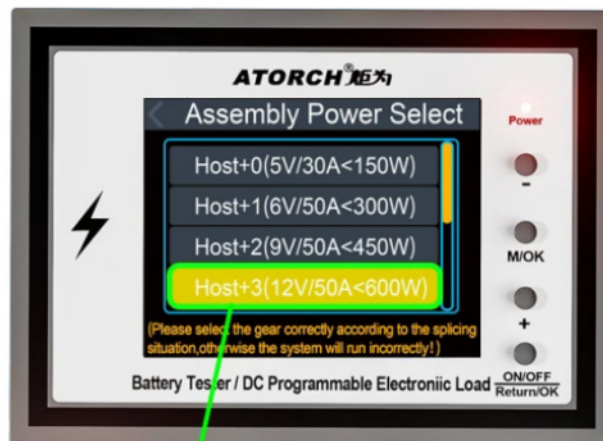
Method 3



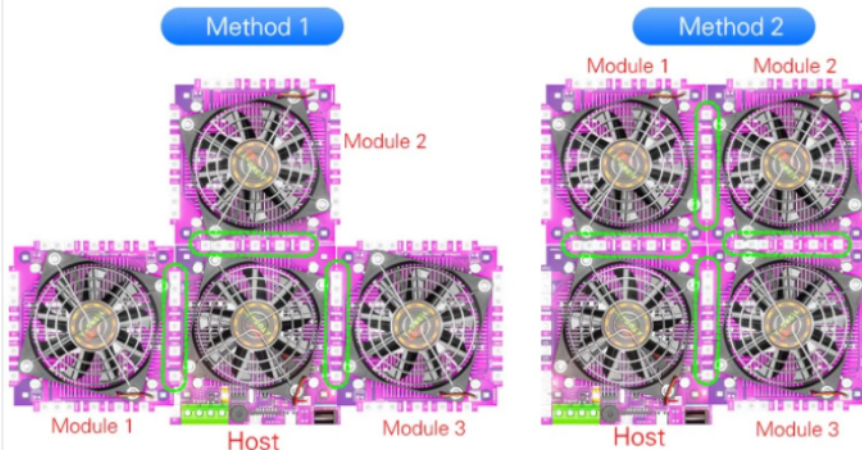
450W Power



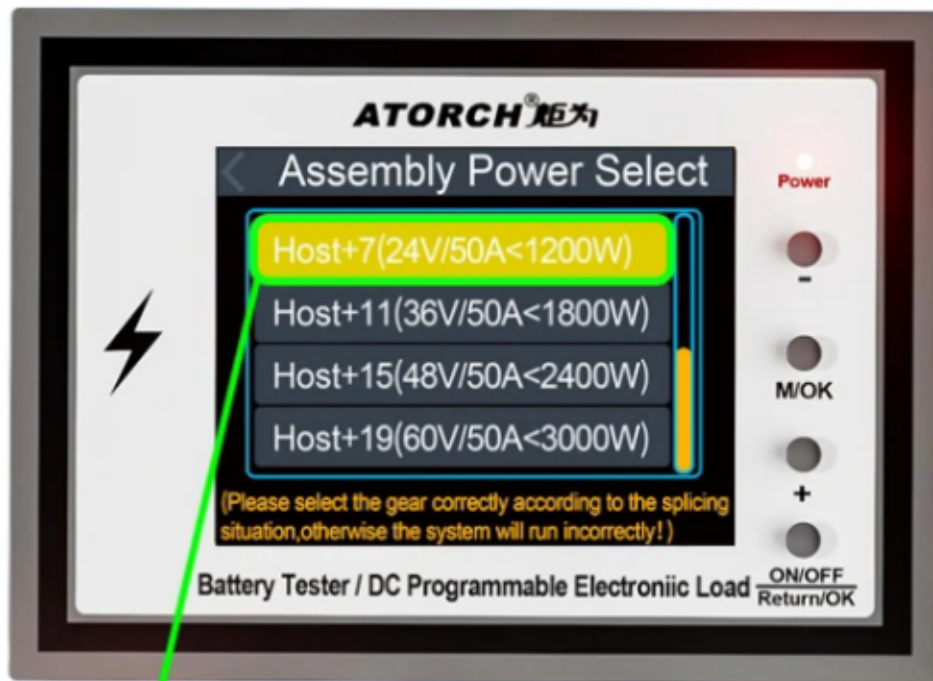
600W Power



1. Software selection: 600W Gear
2. Three assembly methods, tighten the screws of the delivery according to the schematic diagram



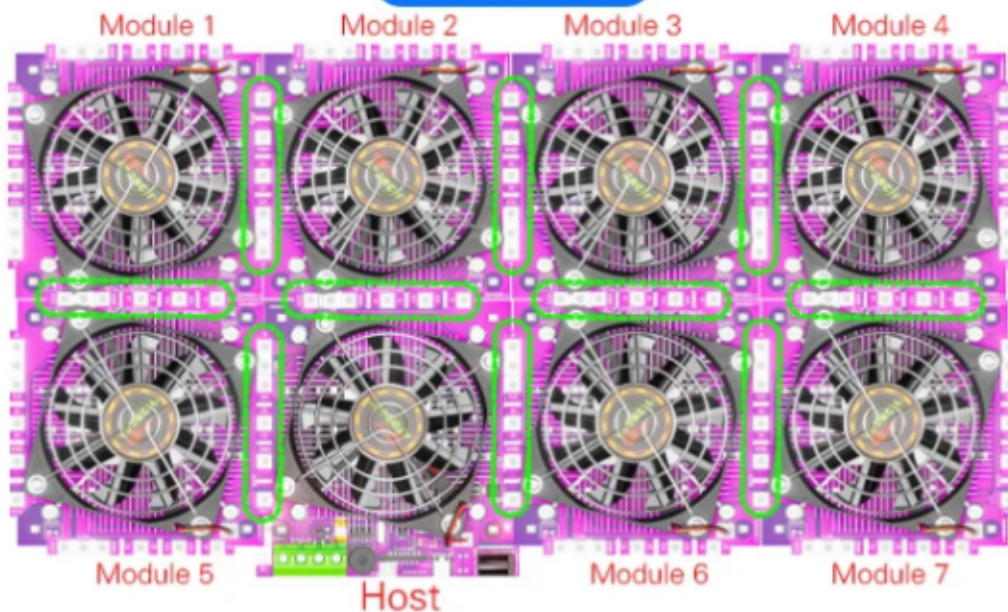
1200W Power



1. Software selection: 1200W Gear

2. Three assembly methods, tighten the screws of the delivery according to the schematic diagram

Method 1



At present, the maximum supported power is 1200W.
Please do not exceed this power for splicing to prevent product damage!



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

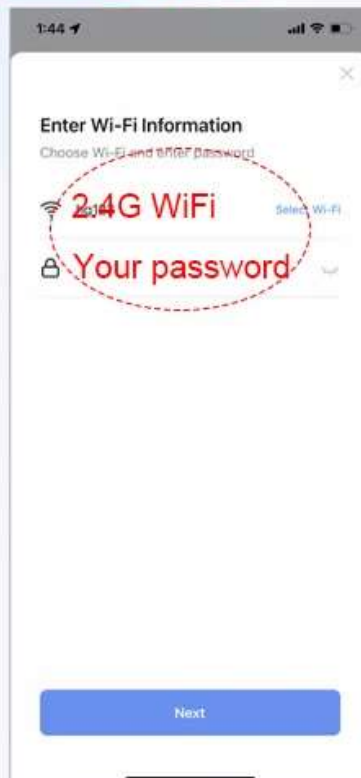
Attention: Be sure to turn on Bluetooth and location permissions when adding devices



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

17. System backend settings function

System backend settings function

Operation method:

Press and hold the "ON/OFF" button on the measurement interface to return to menu options interface,

Short press the "+" / "-" button to jump to the "System Settings" icon when it turns green

Short press again to enter the following system settings interface,

Short press the "+" / "-" buttons again to select the column and enter the parameters under the corresponding function settings.



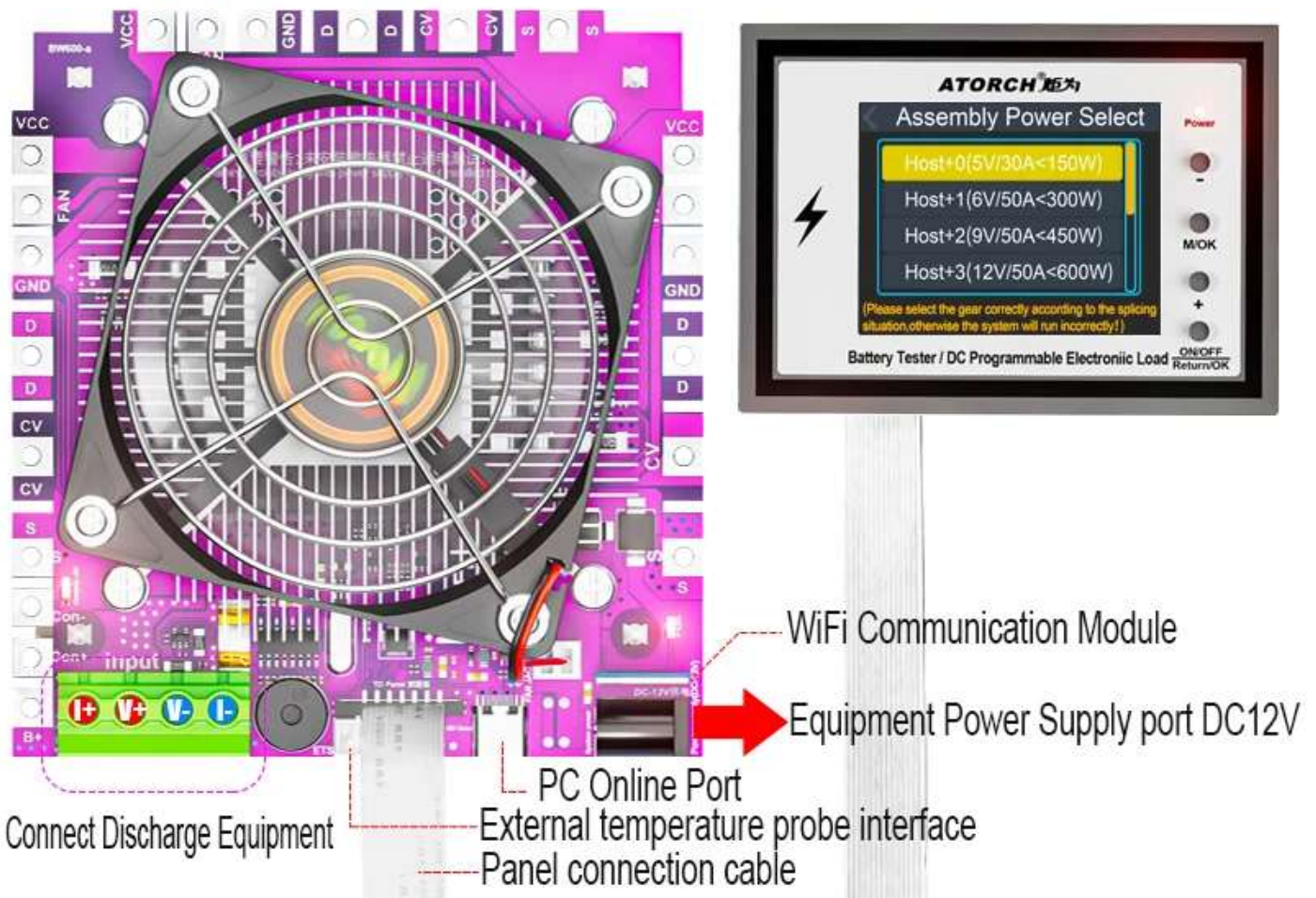


18.150W Product list

- 1.BW600-150W Color Display Bluetooth Digital Control Curve Version Load Tesr x1
- 2.DC12V power supply x1
- 3.PC computer online cable x1
- 4.Temperature probe x1
- 5.Red and black single line crocodile clip line x1
- 6.US to EU adapter x1



BW600-150W WIFI Version



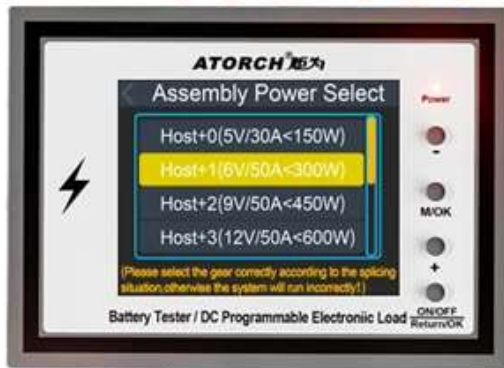
Single Host DC5V×30A ≤ 150W, Maximum 200V ≤ 150W

19.300W product list

- 1.BW600-150W Host Color Display Bluetooth Digital Control Curve Version Load Test x1
- 2.DC12V power supply x1
- 3.Male and female screws X10pcs /sets X1
- 4.Temperature probe x1
- 5.Red and black single line crocodile clip line x1
- 6.US to EU adapter x1
- 7.150W fan accessories X1
- 8.PC computer online cable x1



BW600-300W WIFI Version

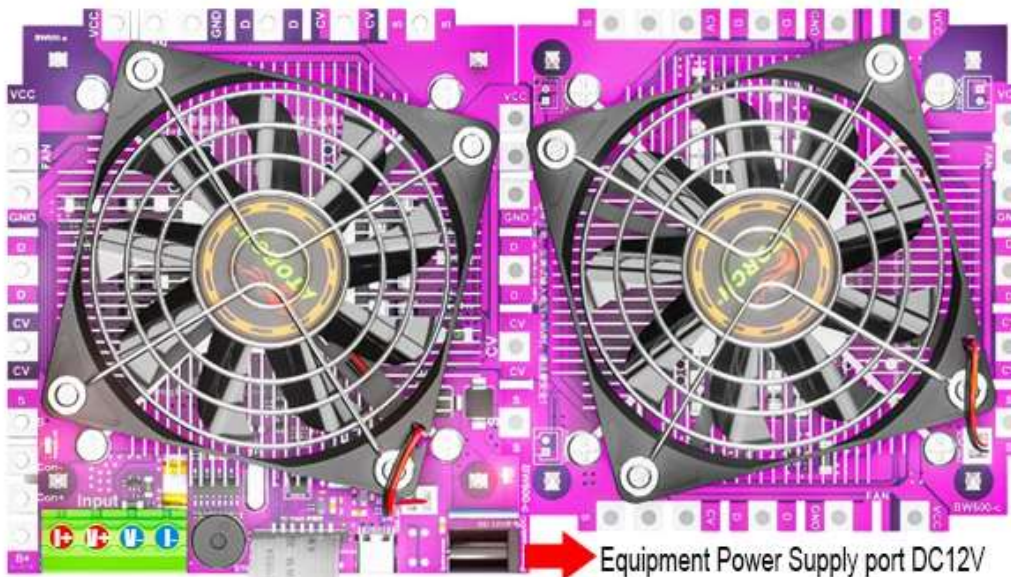


Three splicing methods

Method 2

Method 1

Method 3



Assemble Screws
Gift 10pcs



DC6V×50A ≤ 300W, Maximum 200V ≤ 300W

20.450W product list

- 1.BW600-150W Host Color Display Bluetooth Digital Control Curve Version Load Test x1
- 2.DC12V power supply x1
- 3.Male and female screws X10pcs /sets X2
- 4.Temperature probe x1
- 5.Red and black single line crocodile clip line x1
- 6.US to EU adapter x1
- 7.150W fan accessories X2
- 8.PC computer online cable x1



BW600-450W

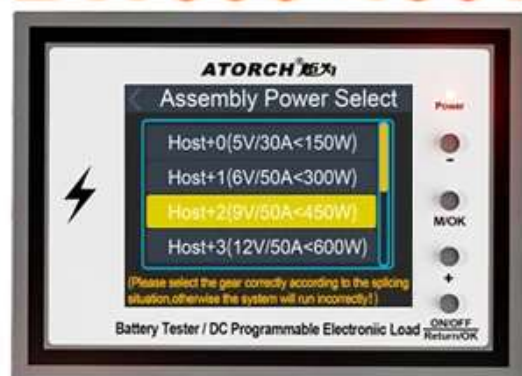


WIFI Version

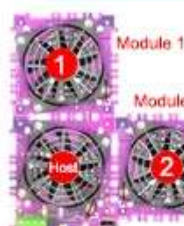
Three splicing methods

Assemble Screws
Gift 10pcs

x2set



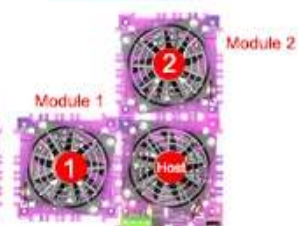
Method 1



Method 2



Method 3



DC9V×50A ≤ 450W, Maximum 200V ≤ 450W

21.600W product list

- 1.BW600-150W Host Color Display Bluetooth Digital Control Curve Version Load Test x1
- 2.DC12V power supply x1
- 3.Male and female screws X10pcs /sets X3
- 4.Temperature probe x1
- 5.Red and black single line crocodile clip line x1
- 6.US to EU adapter x1
- 7.150W fan accessories X3
- 8.PC computer online cable x1



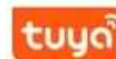
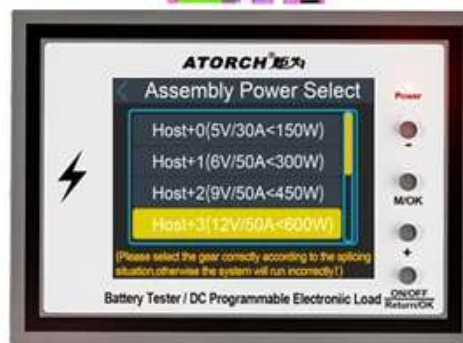
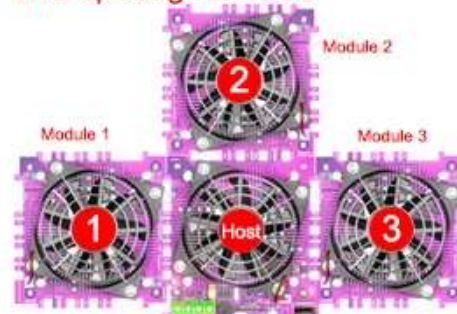
BW600-600W WIFI Version



Connect Discharge Equipment → Equipment Power Supply port DC12V
 PC Online Port
 External temperature probe interface
 Panel connection cable



Two splicing methods



DC12V×50A ≤ 600W, Maximum 200V ≤ 600W