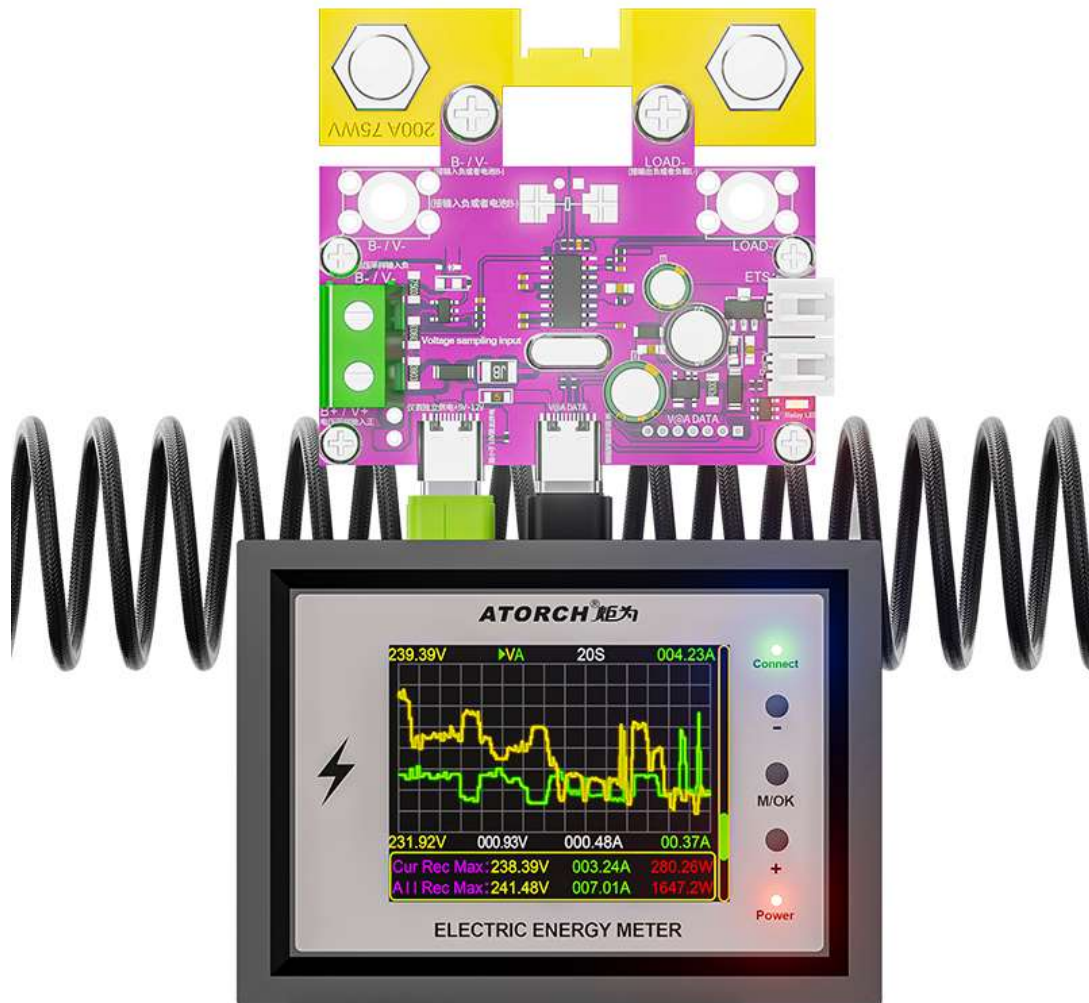


CW24 WIFI Networked Intelligent Battery Coulomb Meter

--User Manual--

Voltage measurement range:DC0~420V

Current measurement range:□30A □100A □200A □500A □1000A



This device is used to measure and display parameters such as voltage, current, power, true capacity, battery temperature, low capacity alarm, low voltage alarm, Current voltage curve, Electricity statistics,as well as remaining discharge time and remaining charging time of the battery pack. It accurately displays various working states of the battery pack at any time.

1. Scope of application and electrical measurement specifications

*This instrument is suitable for electric vehicles, RVs, cars, emergency power supplies, energy storage power supplies, measuring equipment, medical equipment, various instruments and other products that use battery equipment.

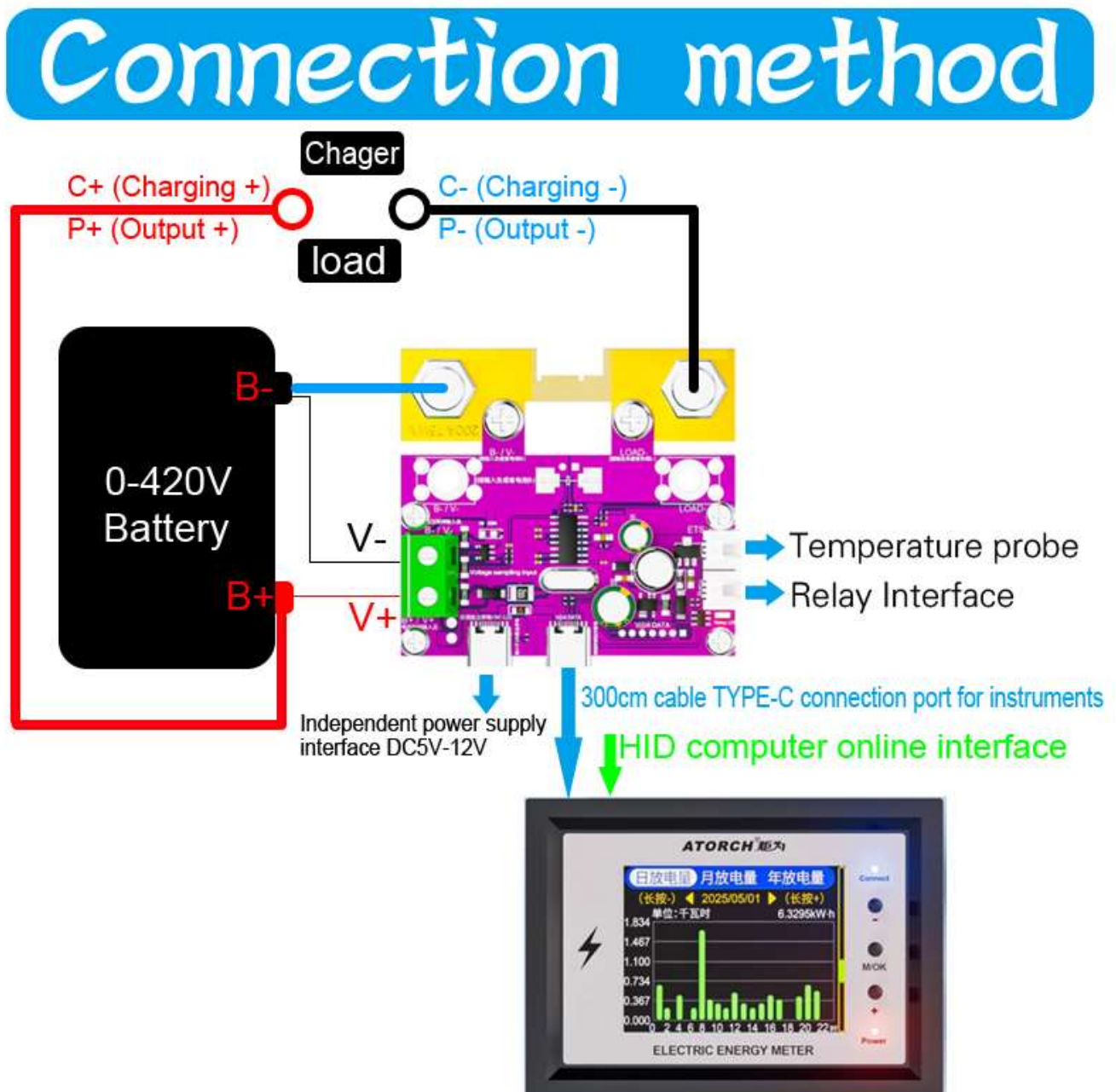
*Suitable for all types of battery packs, including lithium batteries, lithium iron phosphate, lead-acid batteries, nickel hydrogen batteries, etc., with operating voltages ranging DC 0~420V.

*Less than 10V, DC5V power supply is required for independent power supply!

*Built in WiFi module:Remote Control:Connect the DT20 meter Wi-Fi to 2.4GHz Wi-Fi, then you can monitor or adjust on your phone through the app at any time anywhere.

2. Wiring Instructions

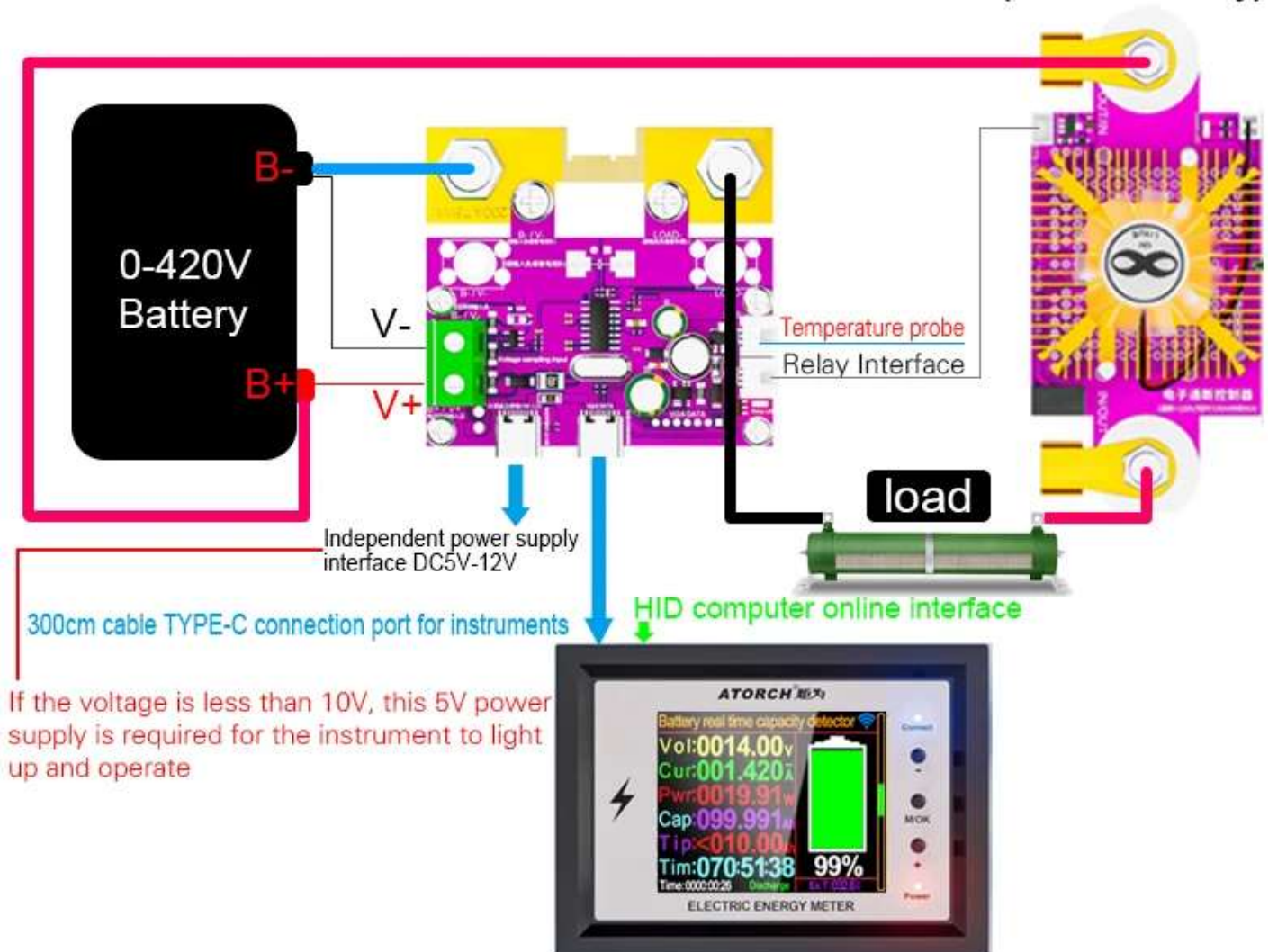
1.>Excluding relay connection method



2.>Excluding relay connection method

Relay wiring method

(100V 80A Relay)



3. Two ways to test battery percentage

You can choose one of the appropriate ways to test your battery!

1.C+D-Mode:Capacity Percentage test Mode,Charging(C+)Capacity Add and Discharging(D-)Capacity Reduce.

2.C+D+ Mode: Cumulative Capacity Calculation Mode,Charging(C+)Capacity Add and Discharging(D-)Capacity Add not reduce Two values are cumulative!

Operation method: Please long press M key to enter background, select: Capacity metering mode,and choose testing mode you need!

ATORCH® 炬为

本产品内含两种容量计量模式：

- 1、充加放减：此模式需要把被测电池容量值设置到产品内，容量计量按充电时加值放电时减值得显示的是被测电池当前实际容量值；
- 2、充加放加：此模式无需设置电池容量值，只需每次测试前将容量清零即可，容量计量按无论是充电还是放电都是累加容量值。

当前容量计量模式：充加放加（后台可自定义选择）

Two types of Capacity testing methods:

- 1.C+D- Mode:Capacity Percentage test Mode,Charging (C+)Capacity Add and Discharging(D-)Capacity Reduce.
- 2.C+D+ Mode:Cumulative Capacity Calculation Mode, Charging(C+)Capacity Add and Discharging(D-)Capacity Add not reduce Two values are cumulative!

[OK!] 15

ELECTRIC ENERGY METER

Connect



-



M/OK



+

Power

Capacity Metering Mode

C+D+

C+D-

(In this mode the charging capacity increases and the discharging capacity increases)



Capacity Metering Mode

C+D+

C+D-

Settings

Bat_Capacity: 00100.00Ah

Alarm_Capacity: 00010.00Ah

(In this mode the charging capacity increases and the discharging capacity increases)



Voltage percentage mode **Capacity percentage mode**

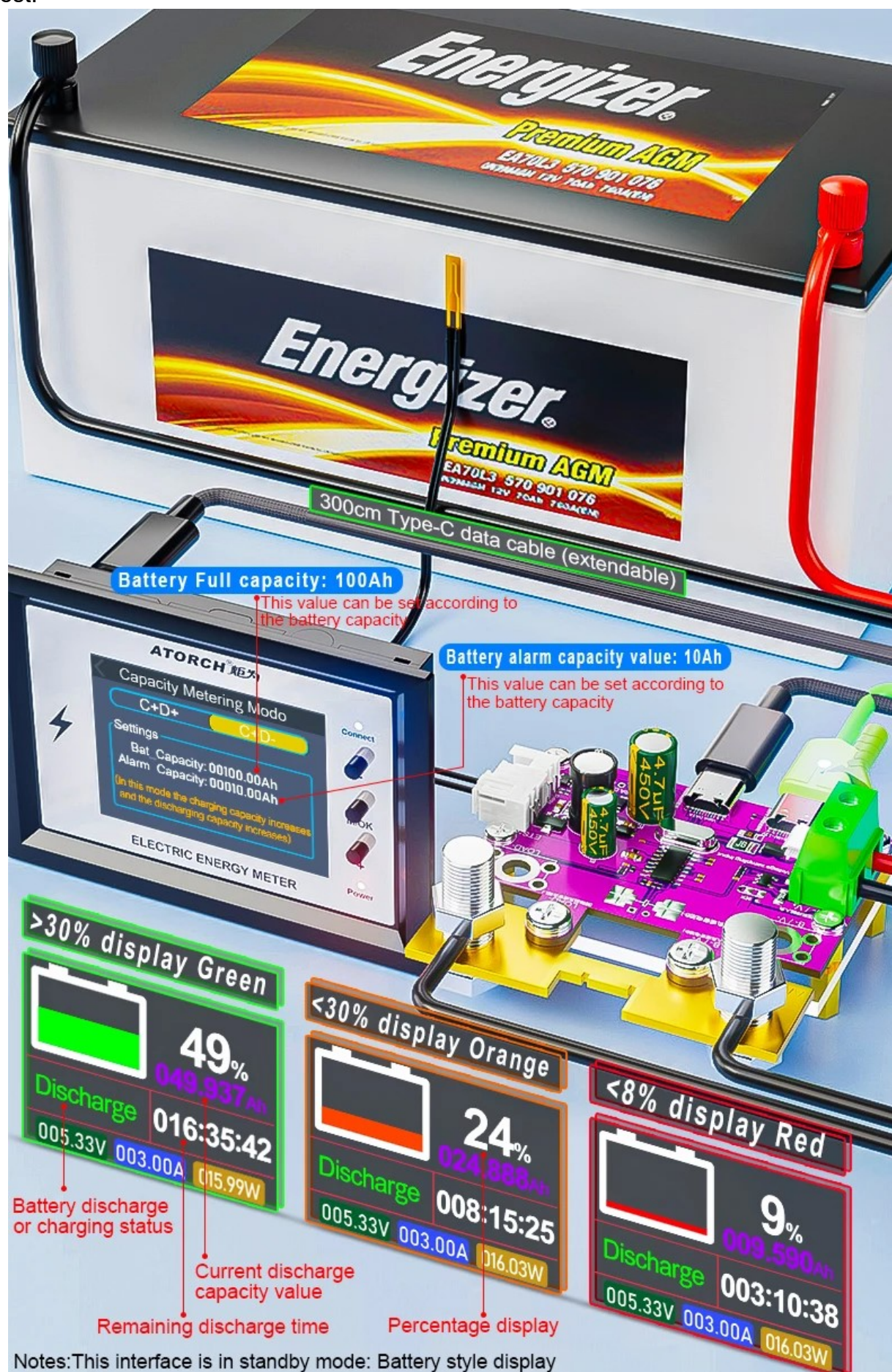
Calculate the percentage of battery energy based on voltage

Calculate the percentage of battery energy based on capacity

1. >Capacity percentage mode

Operation method:

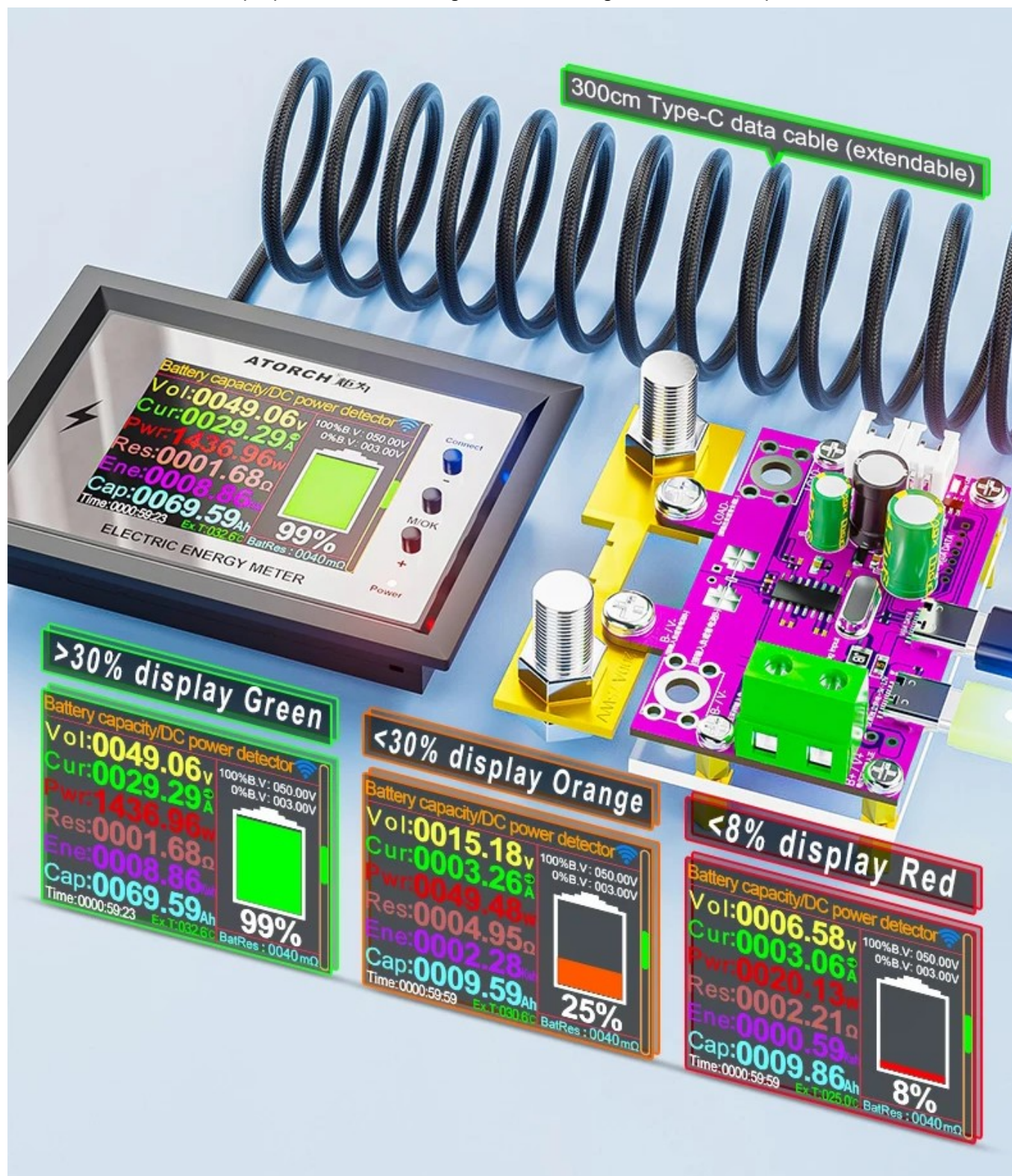
Please press and hold the M key to enter the background,select: Capacity metering mode (C+D -) mode test!



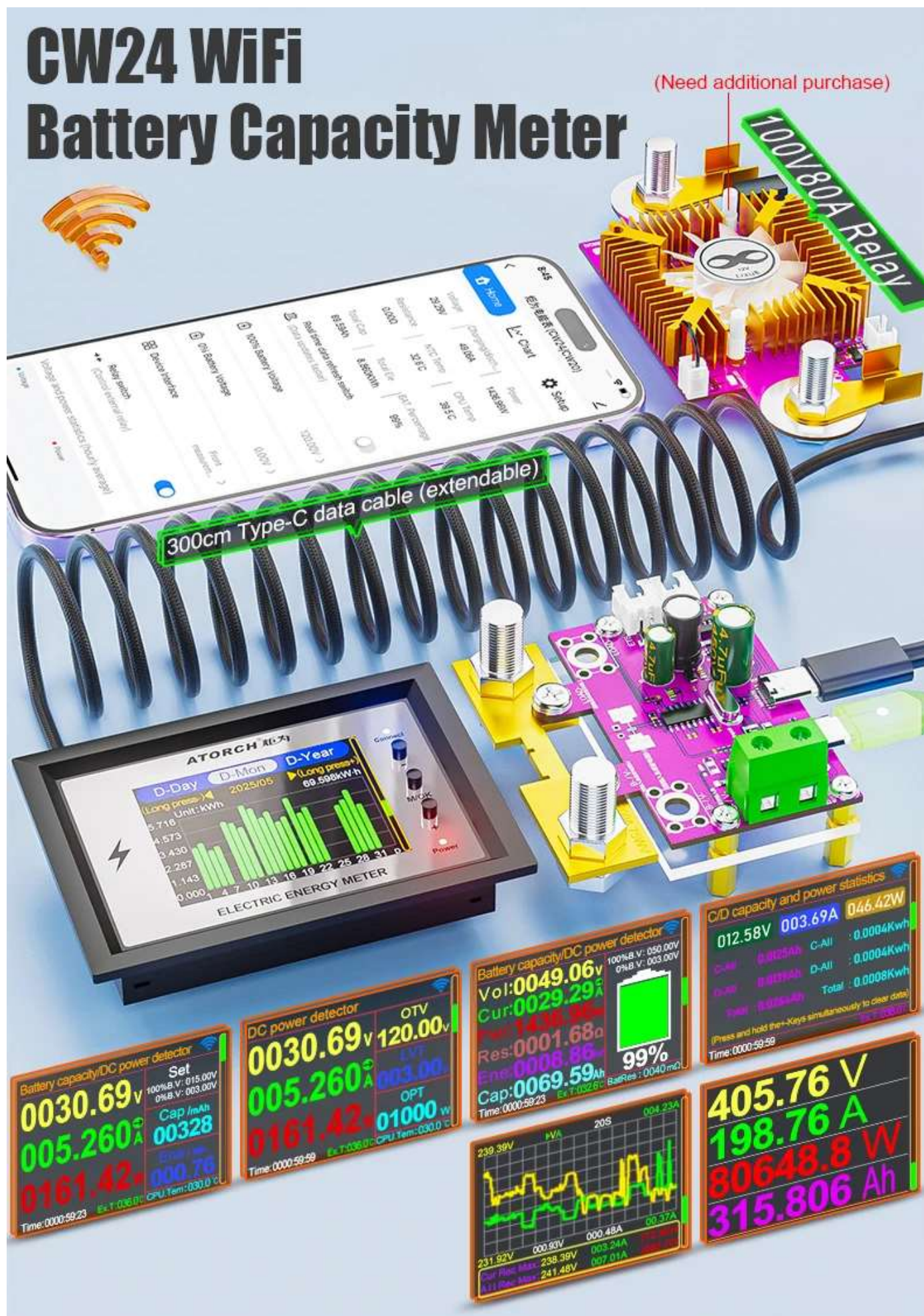
2. >Battery level percentage color change display

High and low threshold free setting for real-time detection of charging and discharging control output

This meter allows users to freely set the corresponding full charge voltage value and minimum discharge voltage value for battery types in the background, After calculating the percentage based on the threshold set by the user, the system displays the percentage color change through the battery symbol (green >30% yellow < 30%, red < 10%); When the display is within the range of 1% to 100%, the red light on the Power panel lights up, and the relay output interface outputs a high level to control the relay to connect the current path. When it exceeds the range of 1% to 100%, the red light goes out and the relay outputs a low level to disconnect the current path, ensuring safe charging and discharging protection for the battery, avoiding the risk of battery damage due to over-charging and discharging. It can also be used for other purposes of over-voltage and low-voltage disconnection protection.



4. CW24 WiFi Battery Capacity Meter view

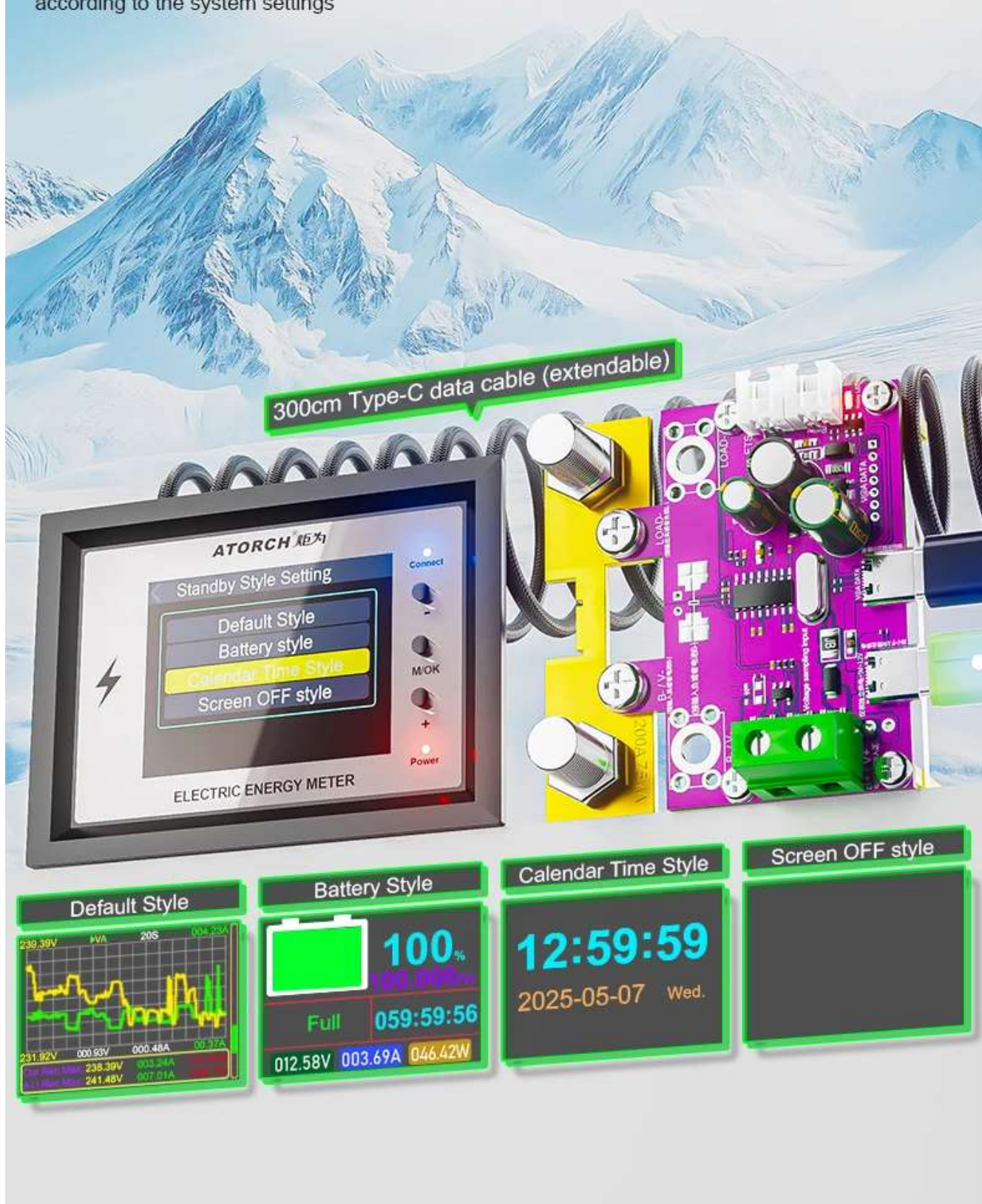


5. Four Standby Display modes

Four standby display modes

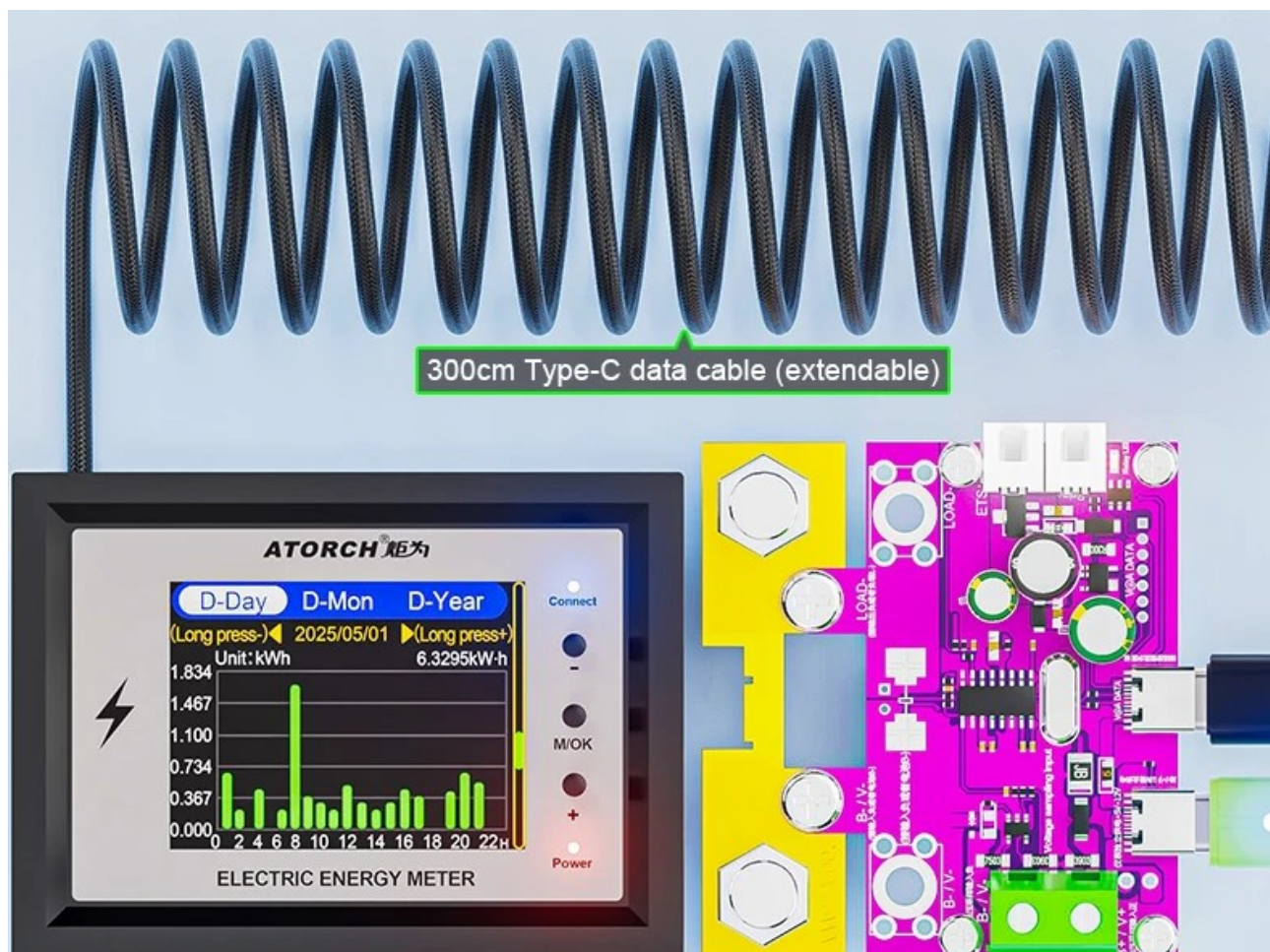
WiFi networking automatic calibration time+offline manual calibration time

This function is the standby interface, which can be entered by counting down the standby time according to the system settings

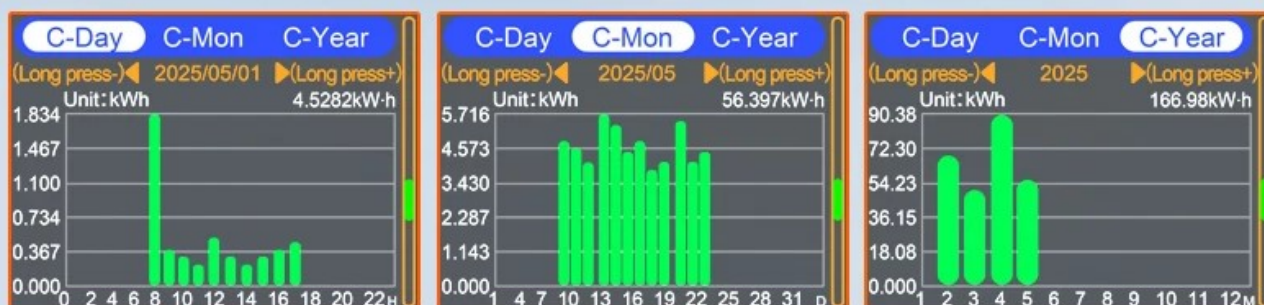


6. Measurement data of charging and discharging capacity statistics table

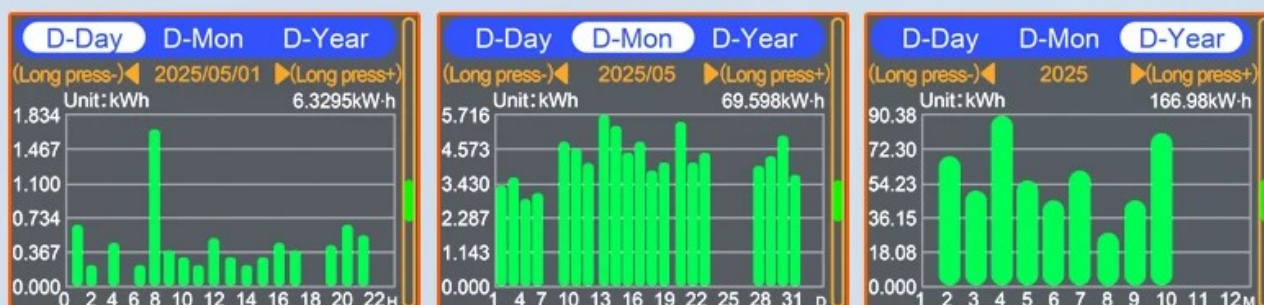
View charging and discharging capacity/daily report/monthly report/annual report Real time management of efficient charging and discharging power, statistics of daily charging and power consumption, real-time viewing of charging and discharging operation power through the host interface, real-time recording of daily, monthly, and annual charging and discharging power data, simple operation, and high measurement and statistical accuracy.



Display of charging column interface Daily report/monthly report/annual report



Display of Discharging column interface Daily report/monthly report/annual report



7. CW24 Multi HD Color Screen Interface Design

The CW24 true color screen brings you a different color visual experience, with multiple functional interface contents designed, multiple parameters displayed on one screen, and switching between different functional interfaces through short button presses ..



8. Latest backend settings

Long press the “M” key to enter the background, then short press the “+”/ “-”keys to select the column and enter the parameters under the corresponding function settings.



9. Independent statistical function for charging and discharging capacity and energy

After summarizing the urgent needs of numerous photovoltaic power generation users for engineers, ATORCH designed an independent statistical interface page for charging and discharging capacity and electricity. The page includes the total charging capacity value, total discharging capacity value, total charging and discharging capacity value, total charging energy value, total discharging energy value, total charging and discharging energy value, etc., which makes the data more detailed and clear at a glance.



10.Four fold alarm prompt

Dual alarm with sound and display for

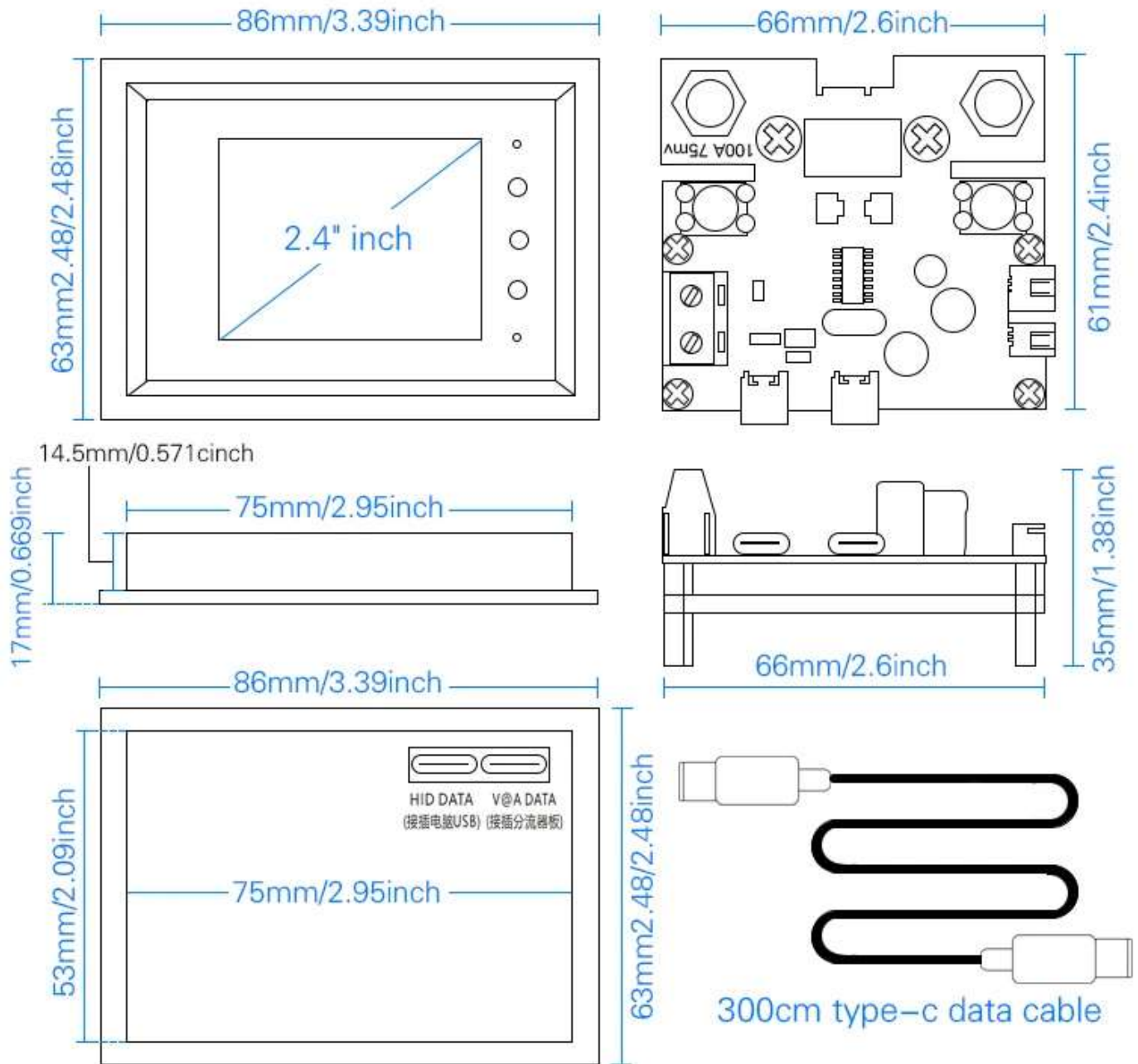
Over-voltage/ Low-voltage/ Over-power/ Over-temperature!

Long press the "M/OK" button to enter the backend system settings for the Over-voltage threshold, Low-voltage threshold, and Over-power threshold of the tested battery. After the probe exceeds the temperature threshold, the device will display an alarm message and the internal buzzer will beep to remind users to charge the battery in a timely manner due to low battery voltage and low battery capacity, in order to avoid situations where the battery runs out of battery.



11.Product size:

Product size:

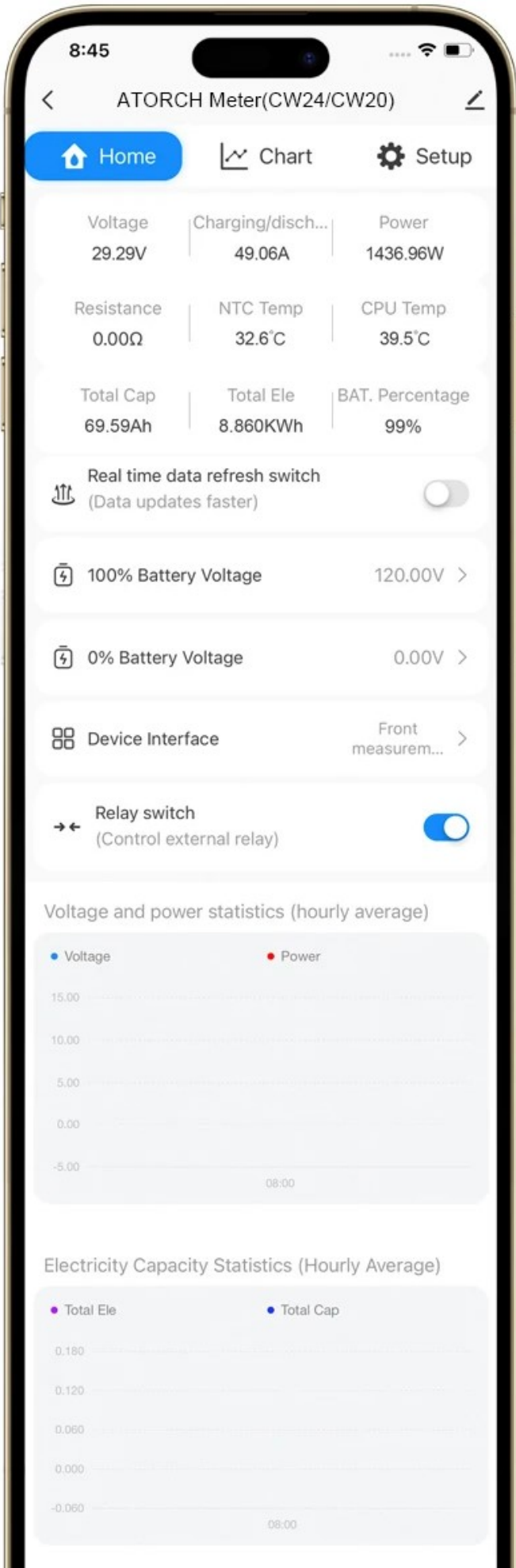


12.Powerful IoT intelligent APP control software

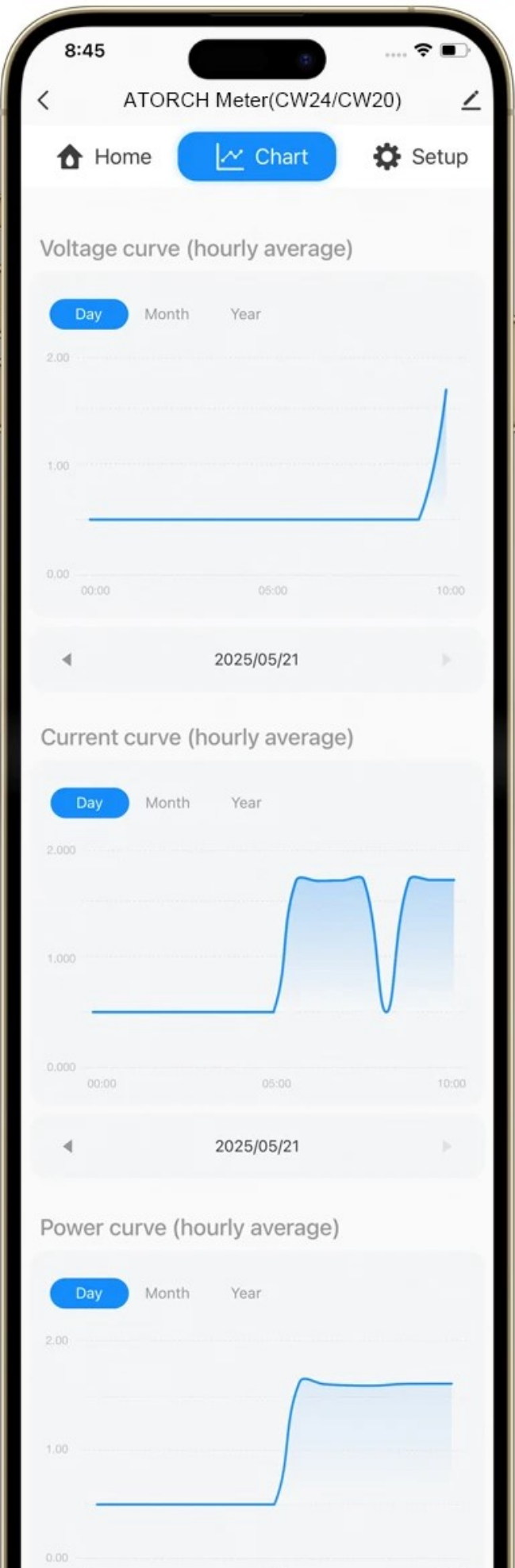
WiFi connected DC meter (CW24) can be downloaded from the smart life app and installed on your mobile phone to achieve remote control and testing, with rich functions. It almost covers all the functions of the host remotely on the mobile app for functional control, battery power data detection, charging and discharging curves, and charging Daily/monthly/annual electricity column statistics, etc

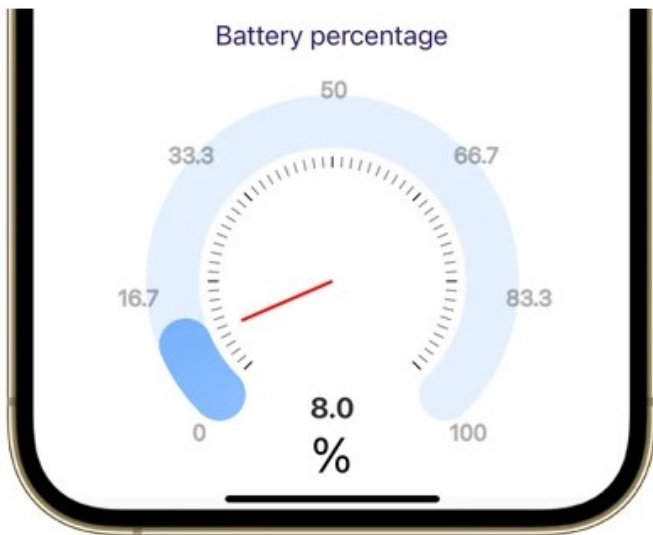
Note: Supports 2.4G WiFi network, requires Bluetooth device and WiFi signal to be turned on!

Mobile APP homepage display

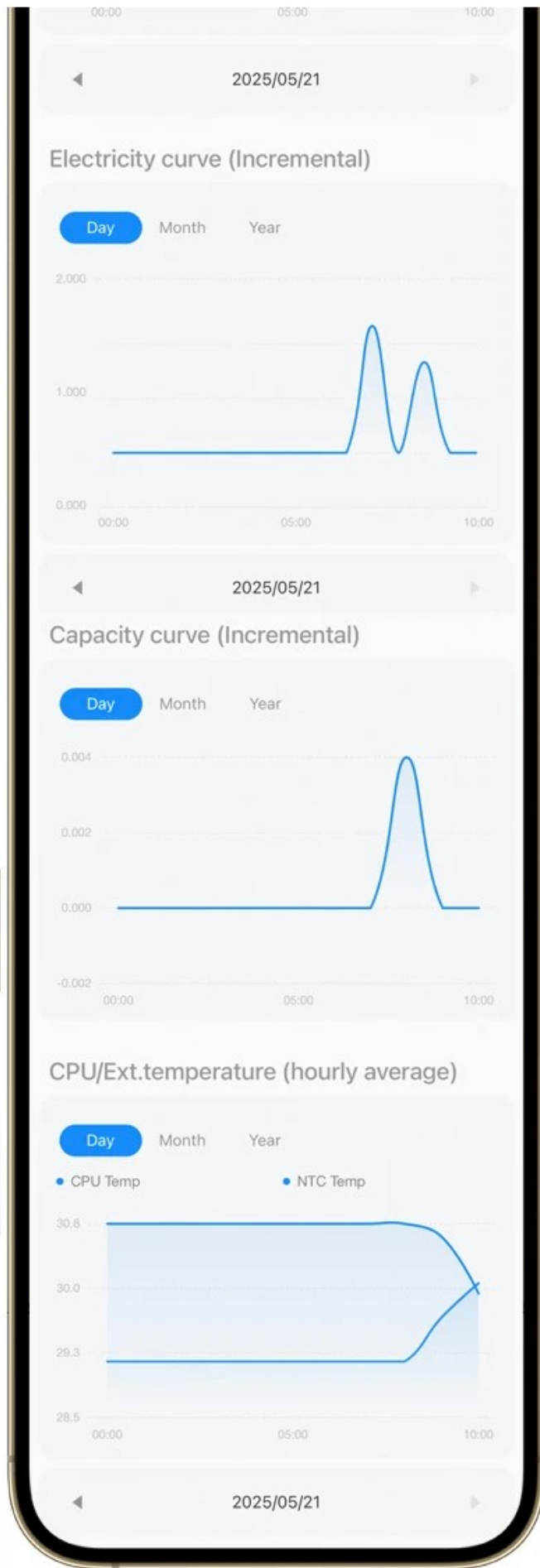
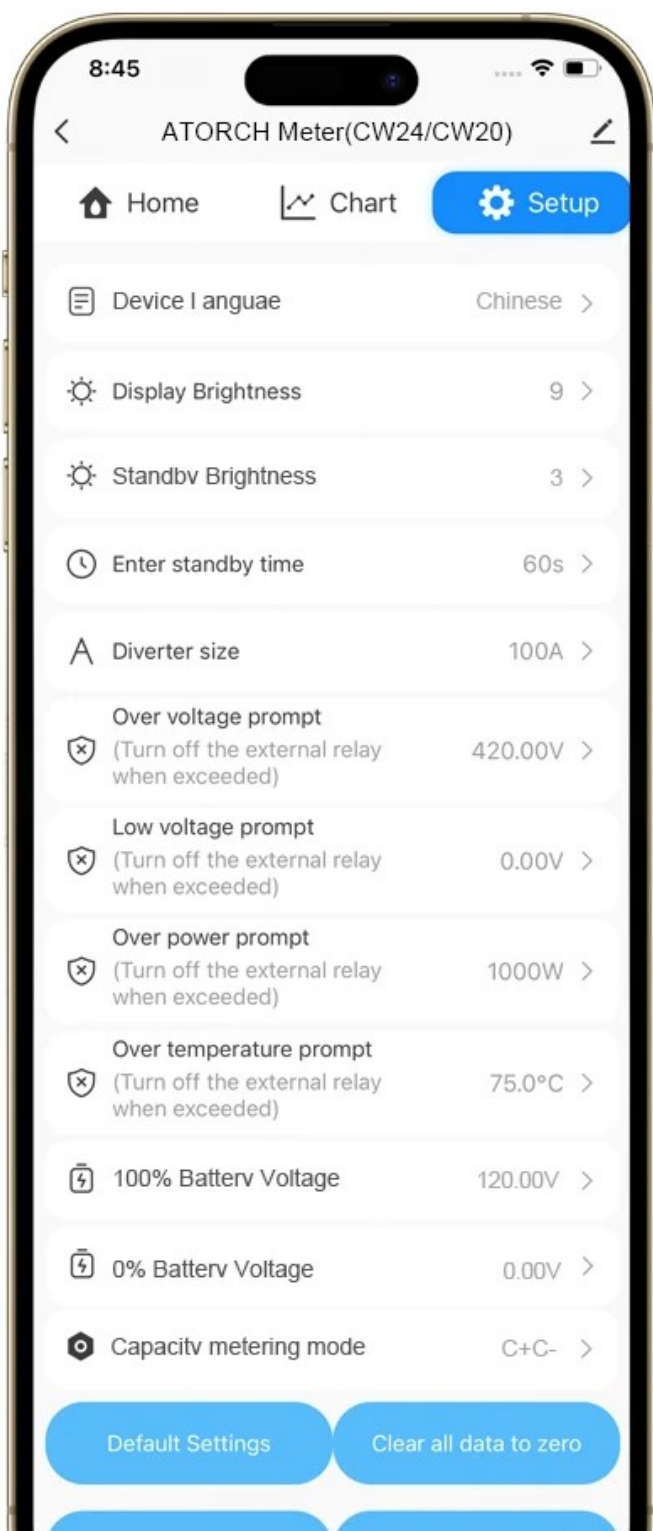


Mobile APP Graph display





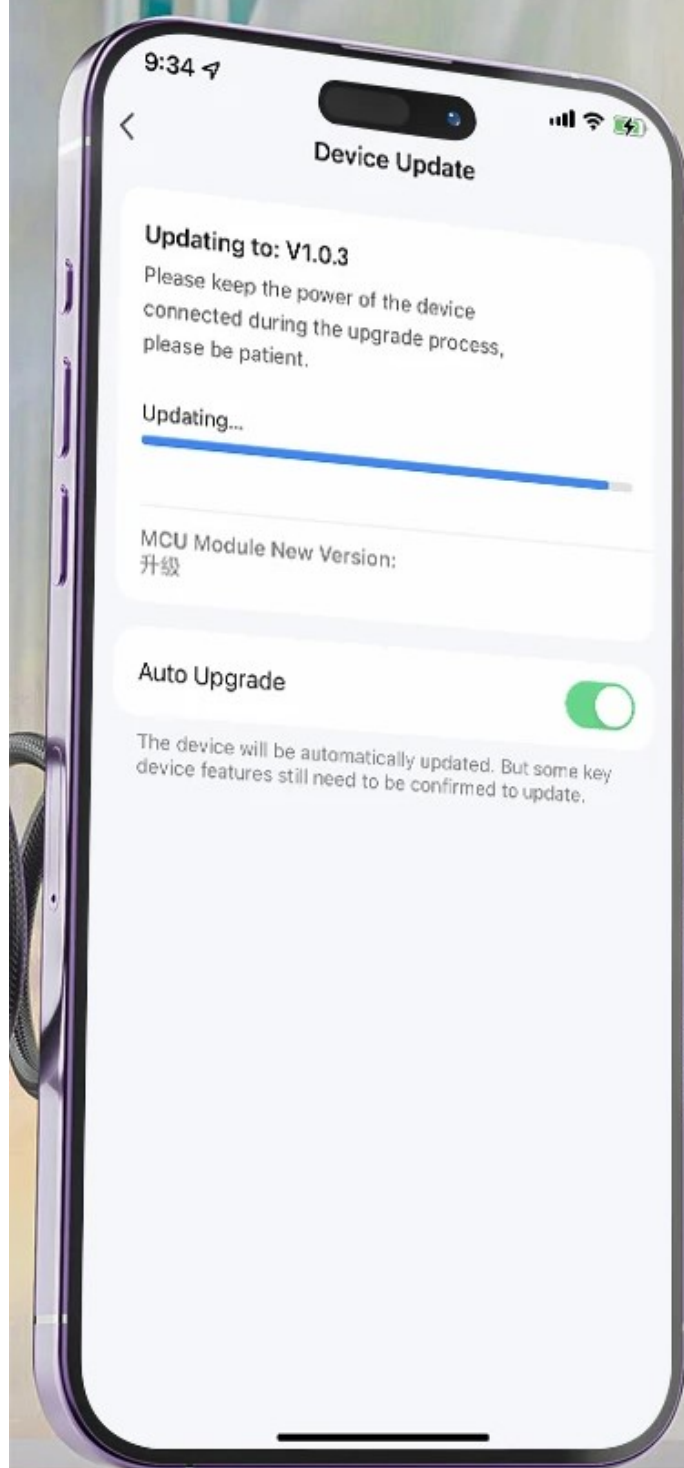
Mobile APP backend settings



13.Support Firmware upgrade

WiFi networking remote

Lifetime free firmware update function



14. Powerful PC software APP

Powerful PC software APP

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!

PC online software testing diagram



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 "CW24"

01



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

★ Add "ATorch as WiFi Connected Electricity Meter "(CW24)"

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



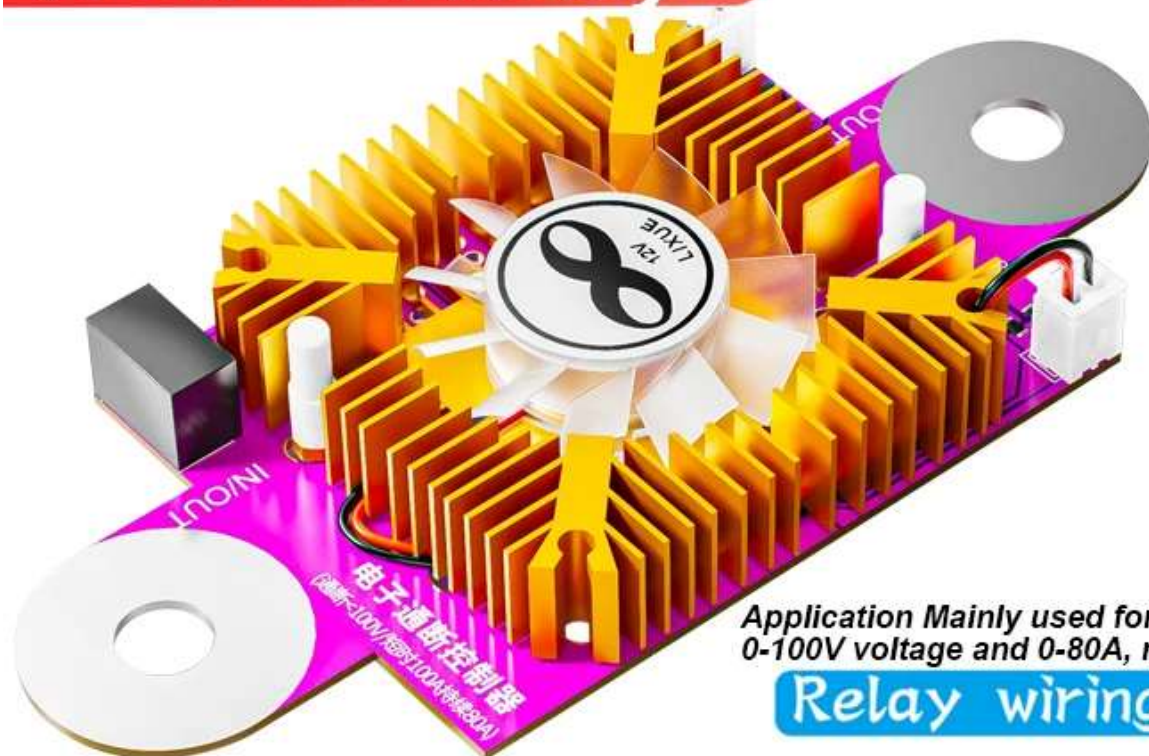
After a successful connection, open the app and automatically connect via WiFi

16.CW24 DC0-420V Product Parameter

CW24 detachable WiFi smart voltmeter					
Products Model	30A	100A	200A	500A	1000A
Measure voltage	DC0-420V	DC0-420V	DC0-420V	DC0-420V	DC0-420V
Measure current	0.100-30.000A	0.10-100.00A	0.20-200.00A	0.50-500.00A	1.00-1000.00A
Measure power	12.60KW	42.00KW	84.00KW	210.00KW	420.00KW
Operation type	3 Key button	3 Key button	3 Key button	3 Key button	3 Key button
Capacity range (Ah)	999999Ah	999999Ah	999999Ah	999999Ah	999999Ah
Energy Range (Wh)	999999K*Wh	999999K*Wh	999999K*Wh	999999K*Wh	999999K*Wh
Battery charge	√	√	√	√	√
Battery discharge	√	√	√	√	√
Over-voltage protection reminder function	√	√	√	√	√
Low-voltage protection reminder function	√	√	√	√	√
Over temperature protection reminder function	√	√	√	√	√
Over-power protection reminder function	√	√	√	√	√
Screen color size	Color 2.4 inches	Color 2.4 inches	Color 2.4 inches	Color 2.4 inches	Color 2.4 inches
Firmware update	√	√	√	√	√
Bluetooth	√	√	√	√	√
WiFi	√	√	√	√	√
Computer Online	√	√	√	√	√
Export Data	√	√	√	√	√
Remote control	√	√	√	√	√
Battery Percentage	√	√	√	√	√
Percentage of battery capacity	√	√	√	√	√
Mobile app	Tuya or Smart life app (Free)				
Product size	Panel: 86 * 63 * 17mm Diverter: 66 * 61 * 35mm	Panel: 86 * 63 * 17mm Diverter: 66 * 61 * 35mm	Panel: 86 * 63 * 17mm Diverter: 66 * 61 * 35mm	Panel: 86 * 63 * 17mm Diverter: 66 * 61 * 35mm	Panel: 86 * 63 * 17mm Diverter: 120 * 70 * 48mm

17.100V/80A Relay description

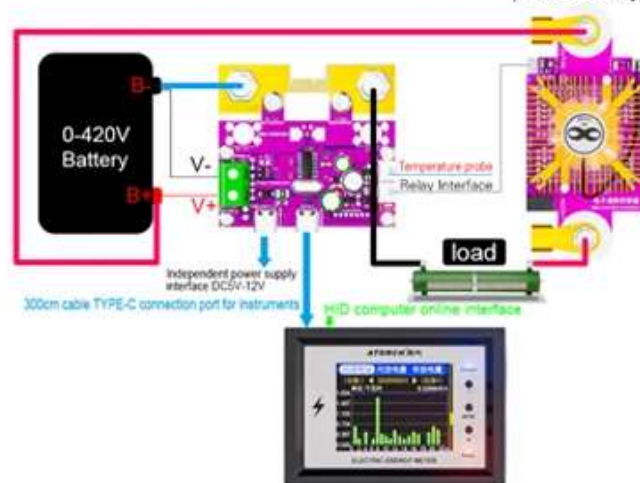
100V/80A Relay



Application Mainly used for on-off testing of 0-100V voltage and 0-80A, related to a switch

Relay wiring method

(100V 80A Relay)



Host*1+signal cable*1+screw+nut*2+100A copper nose*2

18.CW24 DC 0-420V 30A Product list

- 1.30A meter WiFi version x1pcs
- 2.300cm type-c data cables x1pcs
- 3.Temperature probe x1pcs
- 4.USB power supply cables x1pcs

CW24(30A)

 Work With Tuya
  Work With Smart life






239.39V PVA 20S 004.23A



231.92V 000.93V 000.48A 00.37A

Run Power Max 238.39V 003.24A

Run Power Max 241.48V 007.01A



External Shunt

300cm Type-C data cable (extendable)



C/D capacity and power statistics

012.58V 003.69A 046.42W

C-Ah: 0.025Ah C-All: 0.0004Kwh

D-Ah: 0.019Ah D-All: 0.0004Kwh

Total: 0.026Ah Total: 0.0008Kwh

(Press and hold the+Keys simultaneously to clear data)

Time:0000:59:59



Battery capacity/DC power detector

Vol:0049.06V 100%B.V: 050.00V

Cur:029.290A 0%B.V: 003.00V

Power:1436.96W

Res:0001.68Ω

Ehe:0008.86Wh

Cap:0069.59Ah 99%

Time:0000:59:23 ExT:0026°C BatRes: 0040mD



ELECTRIC ENERGY METER

418.18 V

21.985 A

9193.68 W

151.506 Ah

DC0-420V,0.100~30.000A

WiFi Curve Energy meter+300cm cable+Temperature probe

19.CW24 DC 0-420V 100A Product list

- 1.100A meter WiFi version x1pcs
- 2.300cm type-c data cables x1pcs
- 3.Temperature probe x1pcs
- 4.USB power supply cables x1pcs

CW24(100A)

239.39V 20S 004.23A
231.92V 000.93V 000.48A 00.37A
238.39V 003.24A
241.48V 007.01A

C/D capacity and power statistics
012.58V 003.69A 046.42W
C-AI: 0.0125kWh C-All: 0.0004Kwh
D-AI: 0.0135kWh D-All: 0.0004Kwh
Total: 0.0260kWh Total: 0.0008Kwh
(Press and hold the +Keys simultaneously to clear data)
Time: 0000:59:59

Battery capacity/DC power detector
Vol: 0049.06V 100% V: 050.00V
Cur: 0029.29A 0% V: 003.00V
Res: 0001.68Ω
Ehe: 0008.86mV
Cap: 0069.59Ah 99%
Time: 0000:59:23 Ex T: 032.6°C BatRes: 0040mD

412.45 V
99.85 A
41183.1 W
196.902 Ah

External Shunt
300cm Type-C data cable (extendable)

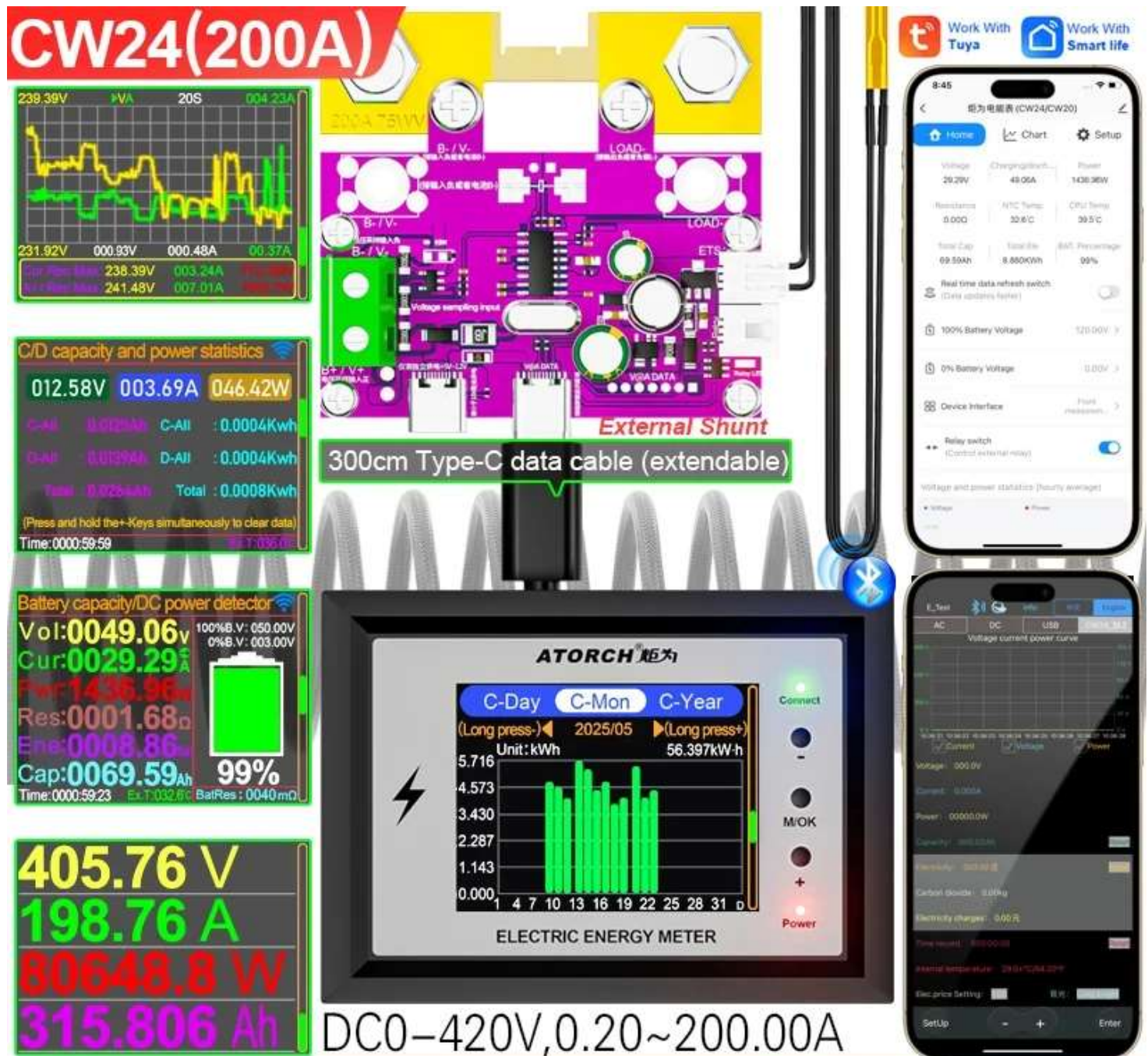
ATORCH 为
C-Day C-Mon C-Year
(Long press-) 2025/05 (Long press+)
Unit: kWh 56.397kWh
5.716
4.573
3.430
2.287
1.143
0.000
1 4 7 10 13 16 19 22 25 28 31 D
ELECTRIC ENERGY METER

DC0-420V, 0.10~100.00A

WiFi Curve Energy meter+300cm cable+Temperature probe

20.CW24 DC 0-420V 200A Product list

- 1.200A meter WiFi version x1pcs
- 2.300cm type-c data cables x1pcs
- 3.Temperature probe x1pcs
- 4.USB power supply cables x1pcs



21.CW24 DC 0-420V 500A Product list

- 1.500A meter WiFi version x1pcs
- 2.300cm type-c data cables x1pcs
- 3.Temperature probe x1pcs
- 4.USB power supply cables x1pcs

CW24(500A)

239.39V 20S 004.23A
231.92V 000.93V 000.48A 00.37A
238.39V 003.24A
241.48V 007.01A

C/D capacity and power statistics
012.58V 003.69A 046.42W
C-Ah: 0.0025Ah C-All: 0.0004Kwh
D-Ah: 0.0139Ah D-All: 0.0004Kwh
Total: 0.0264Ah Total: 0.0008Kwh
(Press and hold the +Keys simultaneously to clear data)
Time: 0000:59:59

Battery capacity/DC power detector
Vol: 0049.06V 100%B.V: 050.00V
Cur: 0029.29A 0%B.V: 003.00V
Power: 1436.96W
Res: 0001.68Ω
Ene: 0008.86Wh
Cap: 0069.59Ah 99%
Time: 0000:59:23 Ex.T: 032.6°C BatRes: 0040mD

417.50 V
498.57 A
207903 W
523.132 Ah

External Shunt
300cm Type-C data cable (extendable)

ATORCH 炬为
C-Day C-Mon C-Year
(Long press-) 2025/05 (Long press+)
Unit: kWh 56.397kW-h
5.716
4.573
3.430
2.287
1.143
0.000
1 4 7 10 13 16 19 22 25 28 31 0
ELECTRIC ENERGY METER

Work With Tuya Work With Smart life
炬为电能量表 (CW24/CW20)
Home Chart Setup
Voltage: 29.29V Power: 48.06A 1436.96W
Resistance: 0.000 NTC Temp: 30.6°C CPU Temp: 39.5°C
Total Cap: 69.50Ah Total Ene: 8.860KWh BMS Percentage: 99%
Read time data refresh switch: (Click updates feature)
100% Battery Voltage: 520.00V
0% Battery Voltage: 0.00V
Device Interface: Front measurement
Relay switch: (Control external relay)
Voltage and power statistics (hourly average)
Voltage Power

WiFi Curve Energy meter+300cm cable+Temperature probe

22.CW24 DC 0-420V 1000A Product list

- 1.1000A meter WiFi version x1pcs
- 2.300cm type-c data cables x1pcs
- 3.Temperature probe x1pcs
- 4.USB power supply cables x1pcs

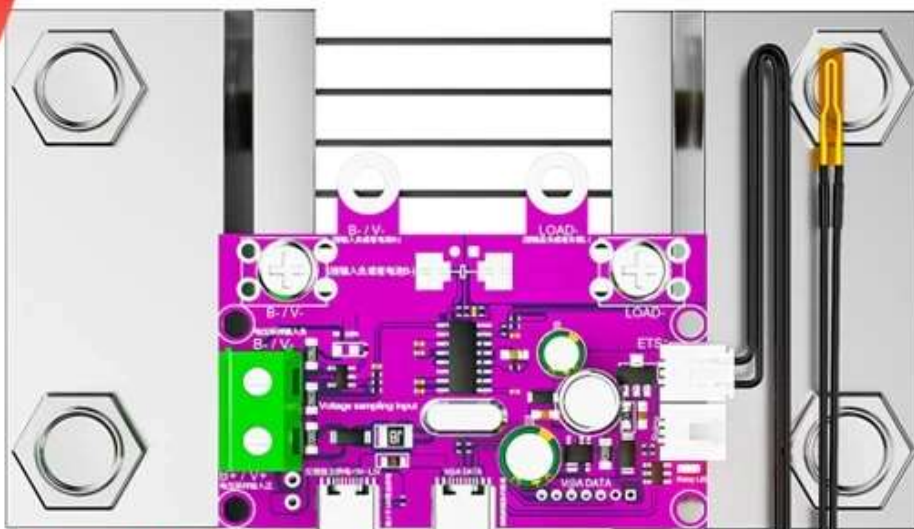
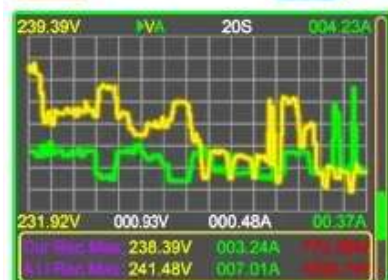
CW24(1000A)



Work With
Tuya

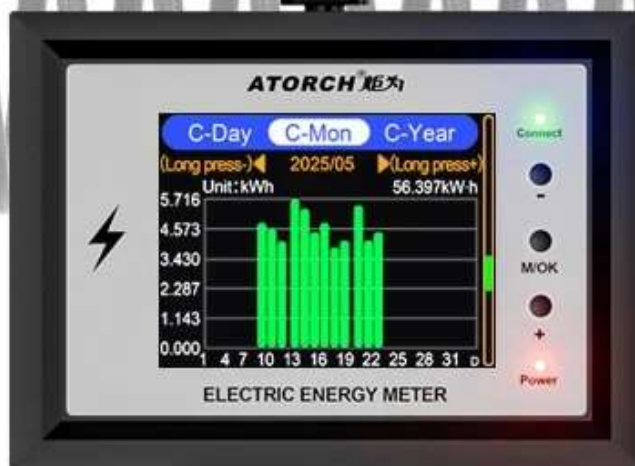


Work With
Smart life



External Shunt

300cm Type-C data cable (extendable)



DC0-420V, 1.00~1000.00A

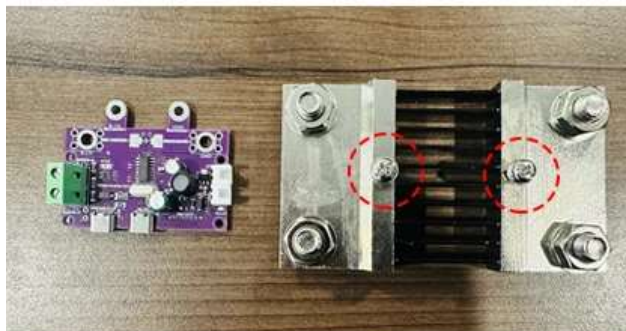
WiFi Curve Energy meter+300cm cable+Temperature probe

23.CW24 1000A Assembly Instructions

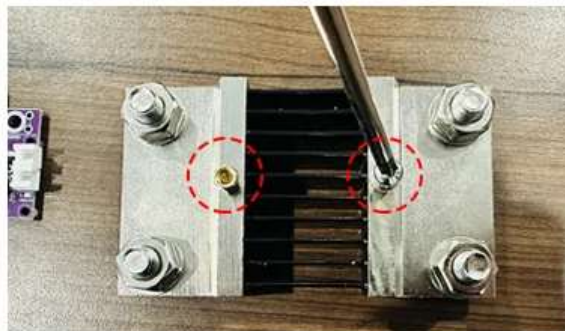
CW24 1000A Installation diagram

Due to the heavy weight of this 1000A shunt, it may cause damage to the control panel.
When you receive it, please install it according to follow below instructions before use!

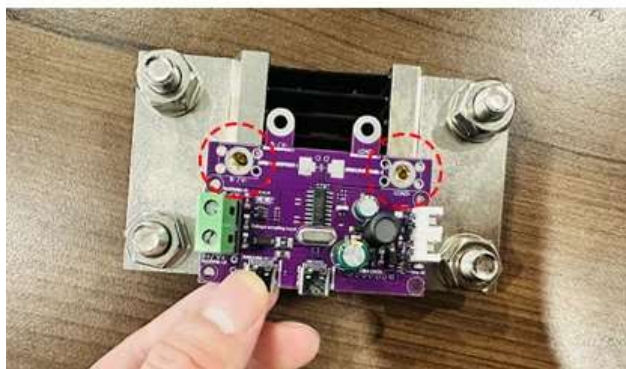
1. Control module and 1000A Shunt



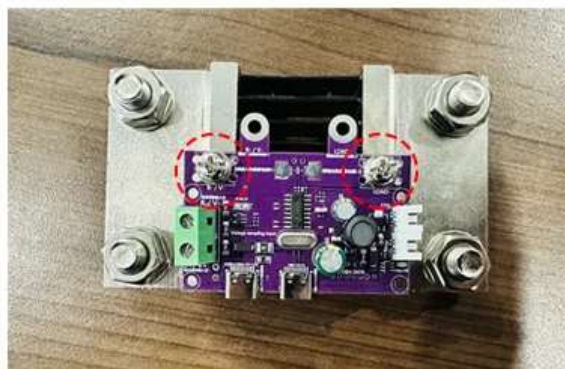
2. Remove the 1000A shunt screws with a screwdriver



3. Align the screw holes of the control board with the screw holes of 1000A shunt



4. Then, according to following diagram, tighten and fix the two screws on the control board. Done!



5. Install the display panel and splitter according to the following diagram

