使用说明书

OPERATING MANUAL

VAC8810F
Radio voltage ammeter Voltage Meter

In February, 2022

Zhengzhou Qinglan Electronic Technology Co., LTD

contact way

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OOBA

When you get a new VAC8810F multi-function voltage ammeter, it is recommended that you follow the following steps to check the instrument.

1. Check for damage due to transportation.

If the packaging carton or bubble bag protective pad is seriously damaged, please keep it until the whole machine and accessories pass the test.

2. Check whether the items in the packaging box are complete.

The contents of the packing boxes are as described below.If the content is inconsistent or the instrument is damaged, please contact the dealer or the company.

Host: 1 unit of VAC8810F (including display head and measuring board)

Attachment: 1 copy of the user manual (pdf version)

3. Check the whole machine.

For damaged damage, abnormal, or performance tests, contact the dealer or the company.

Chapter 1 Overview

1. Introduction to instruments

VAC8810F is a multi-function instrument based on 2.4G wireless data transmission technology, which can display various physical parameters such as voltage, current, power, capacity, energy, temperature, running time, etc. in real time. Battery charge and discharge management and over-voltage, under-voltage, over-current protection accompanied by buzzer alarm. Moreover, the instrument uses a 2.4-inch color LCD as a display, which displays more comprehensive, clear, and easy-to-observe data. A communication interface is reserved for secondary development.

2. key property

1. Wireless transmission of data to avoid interference caused by complex wiring between the display and the detection module;

2. The Hall sensor is used to realize non-contact detection of current, without breaking the line, safe, reliable and convenient;

3. Voltage, current, power, temperature (optional), capacity, percentage of remaining capacity, and running time are displayed at the same time;

4. Charge and discharge double relay interface, 5 relay working modes can realize automatic disconnection and automatic closing of charge and discharge;

5. With charge overvoltage, discharge undervoltage, charge overcurrent, discharge overcurrent protection, with buzzer alarm prompt function;

6. With power-off memory function, it can record the number of AH and WH before power-off;

7. When charging, the percentage progress bar is switched to the color running water light display, and the display screen shows the breathing light flashing effect, which enhances the prompt;

8. With voltage, current, temperature waveform curve display function;

9. Comes with TTL serial communication function, which is convenient for secondary development;

10. Chinese and English language selection, two display colors can be switched, suitable for different customer needs;

3. Qualification

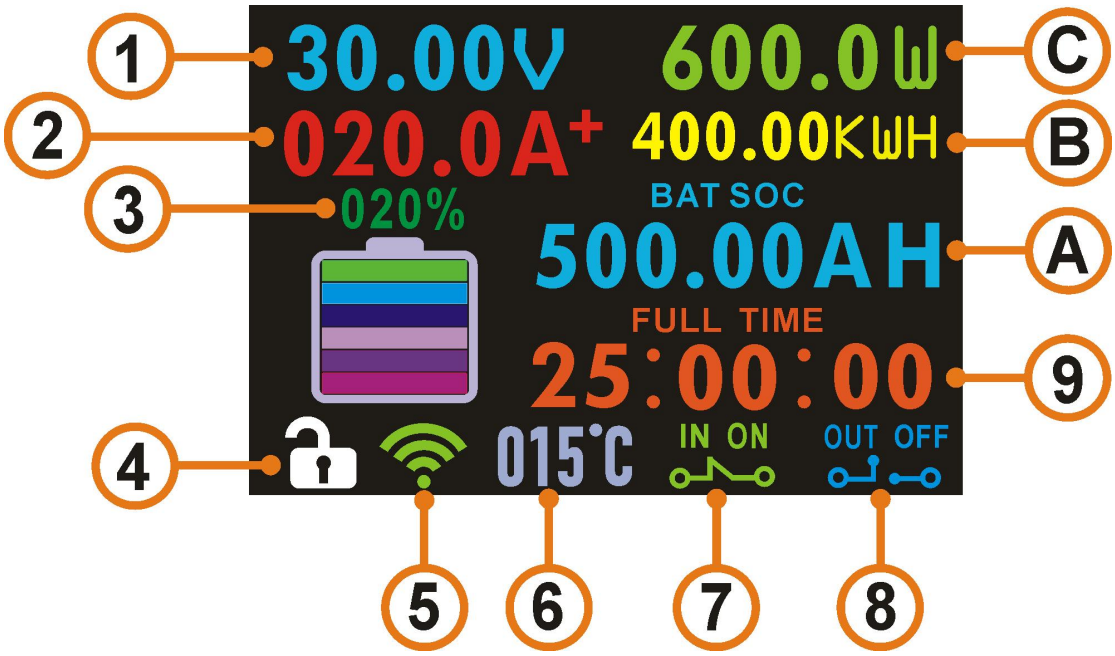
project		parameter	
input voltage	measurement range	8V~120V	
	measurement range during the external power supply	120V series	0-120V
		500V series	0-500V
input current measurement range		50A series	0.1-50A
		100A series	0.2-100A
		200A series	0.3-200A
		300A series	0.4-300A
		500A series	0.5-500A
external power supply voltage		8-120V	
display language		In / English	
communication channel		0-40	
display mode		2.4 inch color LCD	
display power supply		USB supply electricity	5V
		Independent power supply	8-12V
measuring range	capacity	0.000Ah ~99999.9 Ah	
	energy	000.00KWH~5999KWH	
	time	for 0~100 hours	
	magnitude of power	000.0~999KW	
	temperature	000~150℃	
definition	voltage	± (1% + 2) per word	
	current	± (1% + 5) per word	
	temperature	±2℃	
measurement rate		20 tests / s	
relay delay time		(0-100)s	
serial port communication port		9600bps	
wireless communication distance		ordinary version	open ground in a single group of 10 meters
		enhanced version	open ground single group of 50 meters
protection type and setting scope		OVP	0.1~500V

	LVP	0.1~500V
	OCP	0.1-500A
	NCP	0.1-500A
displays the board size	80*48*17（mm）	
measuring plate size	114*54*28（mm）	

Notes: OVP（Overvoltage protection） LVP（Undervoltage protection） OCP（Charge overcurrent protection） NCP（Discharge overcurrent protection）

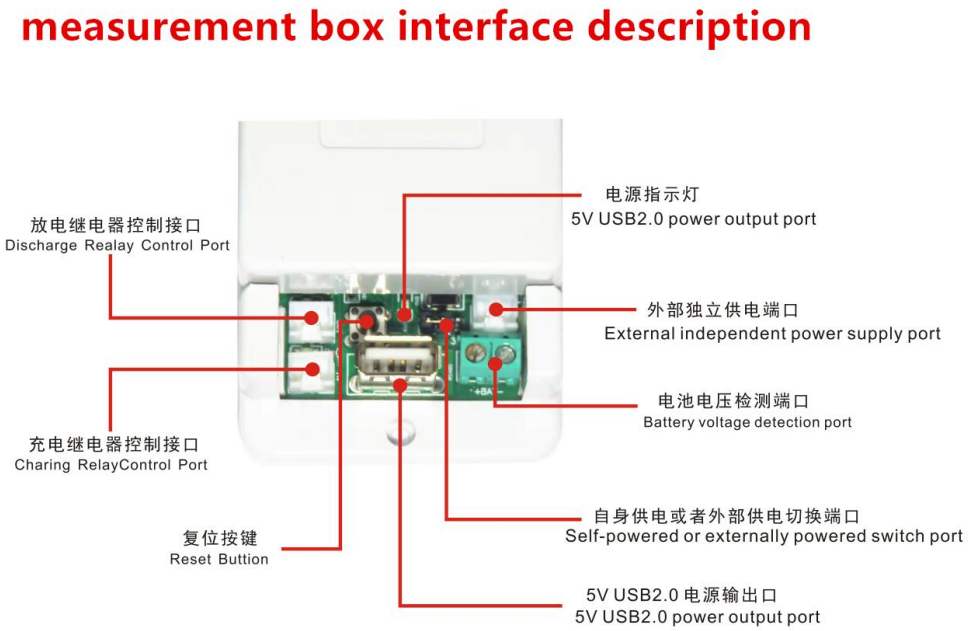
Chapter 2: Instrument Description

1. Show instructions



1	actual voltage value	7	charging relay working status
2	actual current value (+ charge-discharge)	8	operating state of the discharge relay
3	Percentage of residual capacity	9	full of time time
4	key lock prompt	A	residual capacity
5	wireless signal indication	B	accumulative total WH
6	measure the temperature value in real-time	C	real power

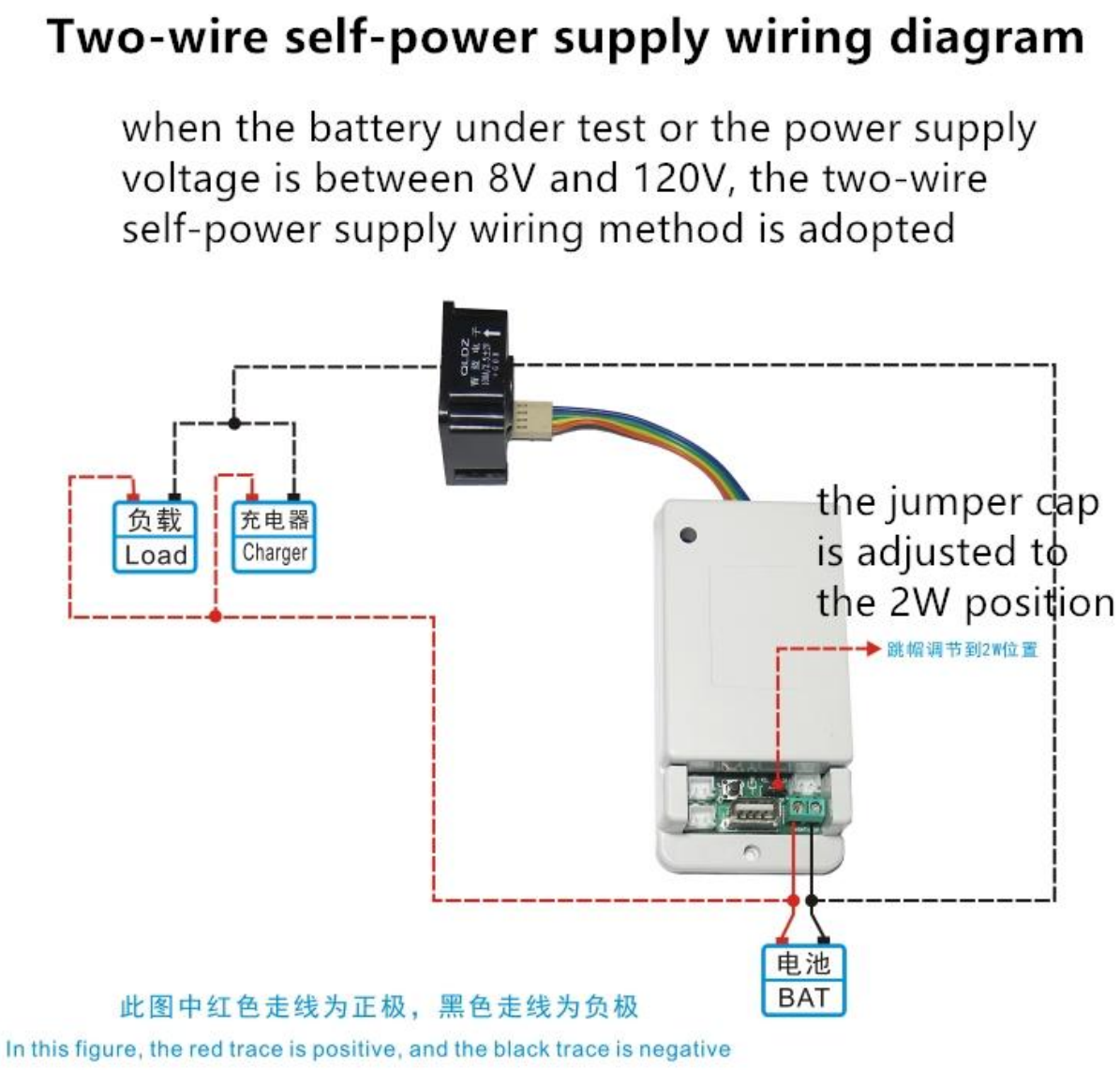
2. Description of the measuring board interface



3. Display interface description

4. Connection mode

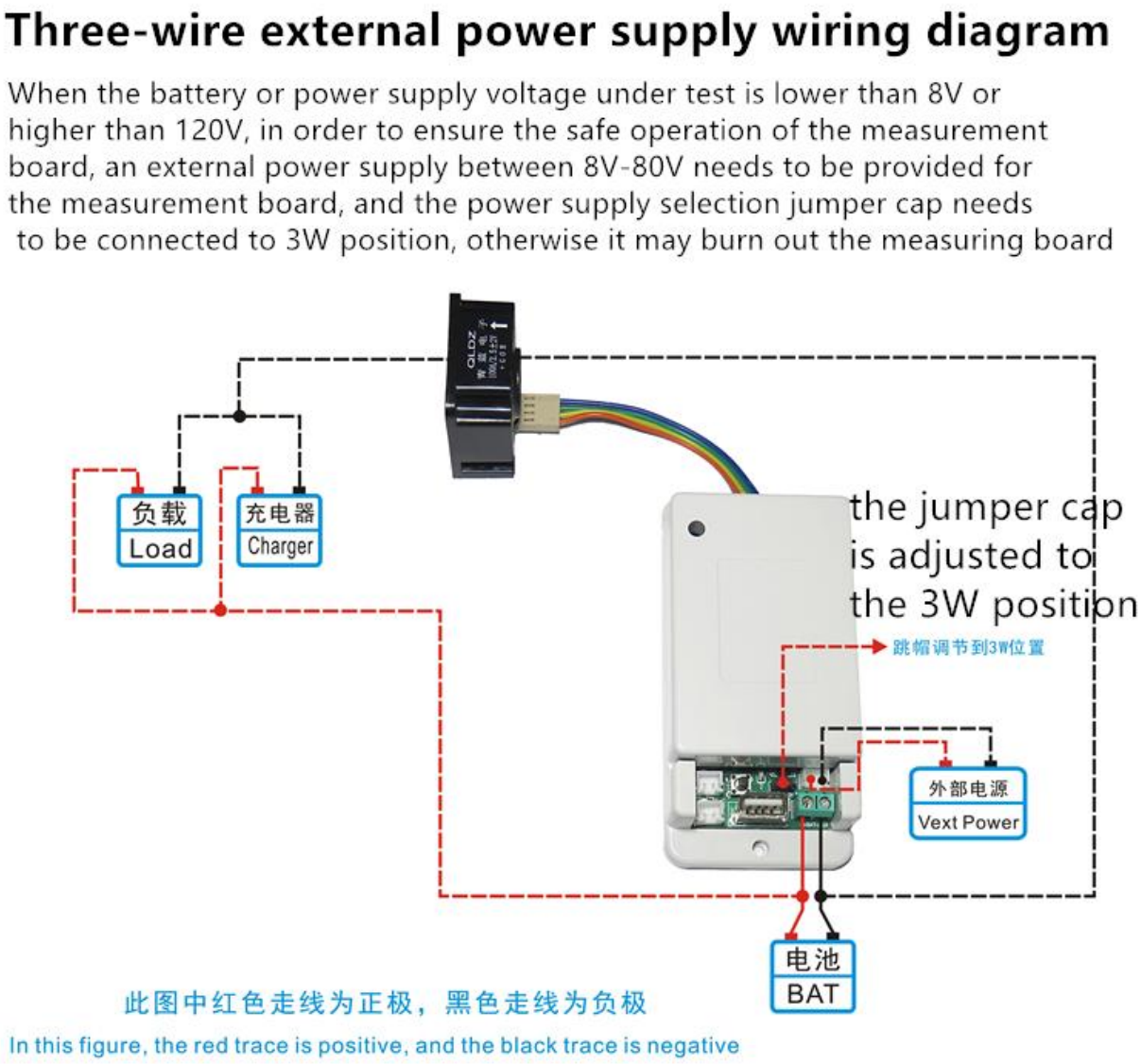
（1） Description of self-power supply wiring



Note: If the voltage range of the battery (power supply) under test is between (8-120V) during normal operation, you can use its own power supply wiring method, first adjust the jumper cap of the power supply selection interface to "2W", and connect the battery The positive and negative poles of (power supply) are connected to the voltage measurement port "+Bat-"; note that "+" is connected to the positive pole of the battery (power supply), "-" is connected to the negative pole of the battery (power supply), and the positive and negative poles of the power supply should not be connected incorrectly Or the reverse connection, connect the positive pole of the

battery (power supply) to the positive pole of the load, and the negative pole of the battery (power supply) to the negative pole of the load through the Hall sensor. When the direction of the working current is consistent with the direction of the arrow on the Hall sensor, the measured current will It is displayed as a positive value, otherwise the measured current is displayed as a negative value.

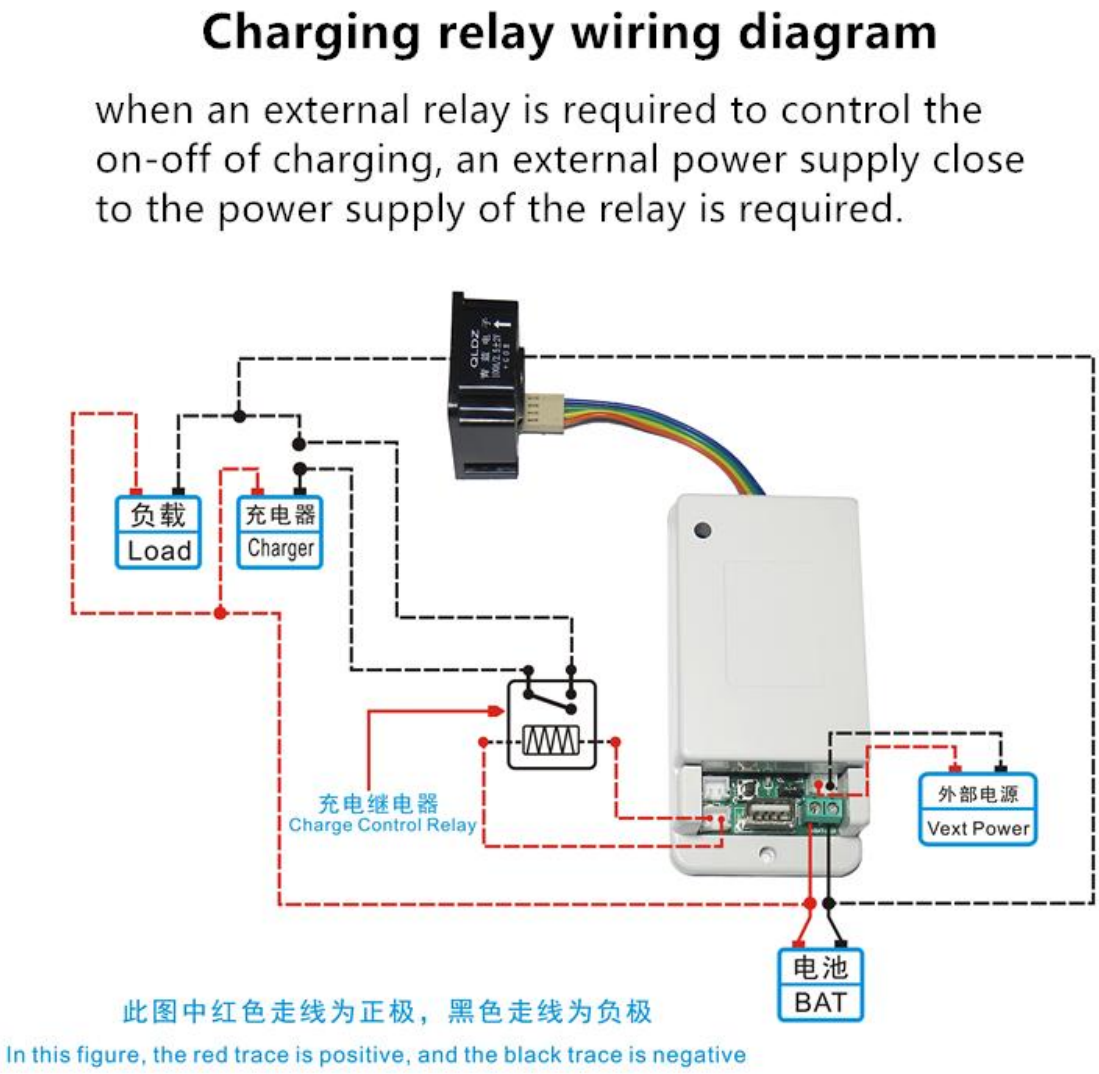
（2） **Description of external power supply wiring**



Note: If the voltage range of the battery (power supply) under test is not between (8-120V) during normal operation, the external power supply wiring method can be used. First, adjust the jumper cap of the power supply selection interface to "3W", and

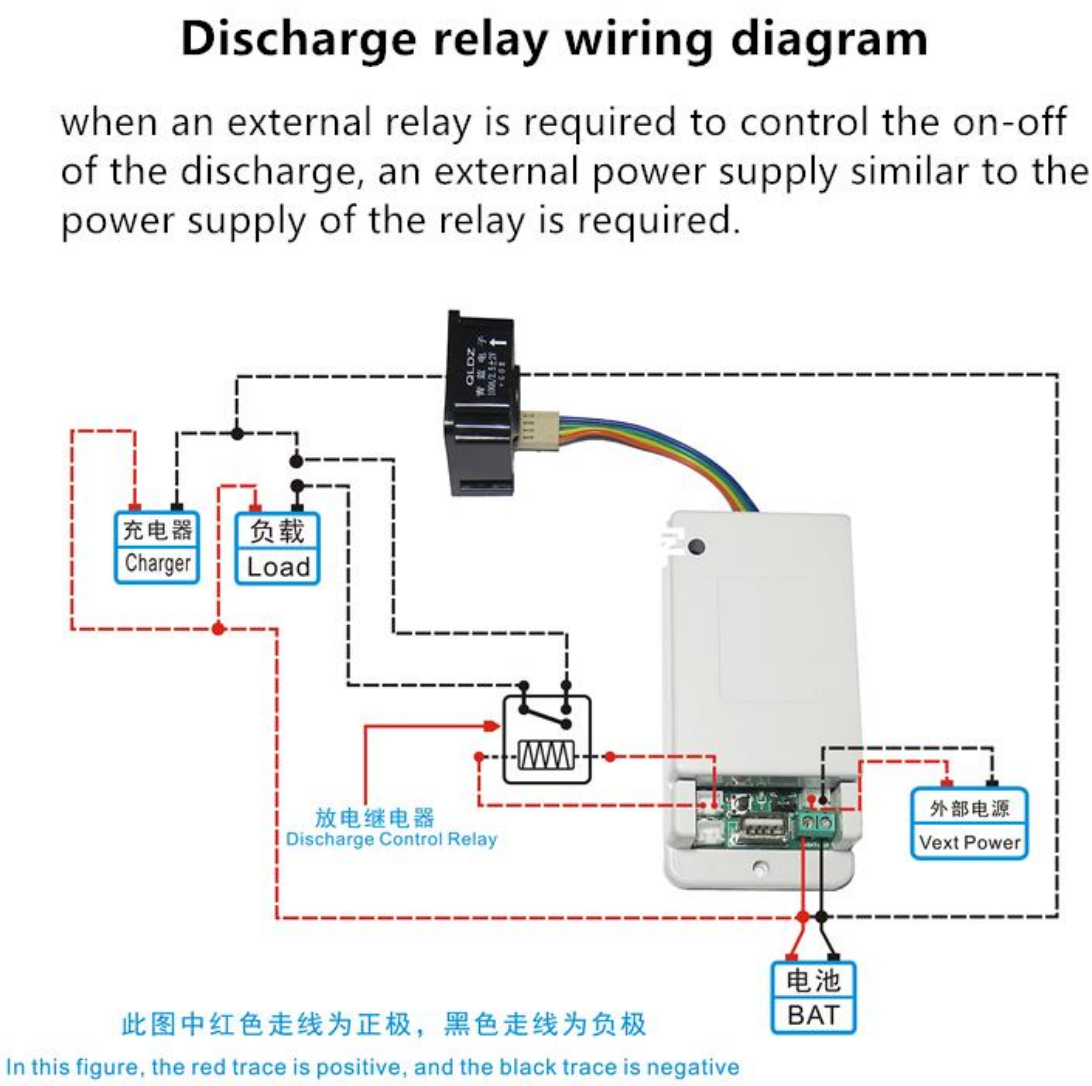
set the external power supply The positive and negative poles are connected to "+Vext-", note that "+" is connected to the positive pole of the external power supply, and "-" is connected to the negative pole of the external power supply; then when wiring, connect the positive and negative poles of the battery (power supply) to the voltage measurement port "+Bat" -", note that "+" is connected to the positive pole of the battery (power supply), and "-" is connected to the negative pole of the battery (power supply). Do not connect the positive and negative poles of the battery (power supply) wrongly or reversely, connect the positive pole of the battery (power supply) to the positive pole of the load, and the negative pole of the battery (power supply) to the negative pole of the load through the Hall sensor. When the arrows on the sensor are in the same direction, the measured current will be displayed as a positive value, otherwise, the measured current will be displayed as a negative value.

（3）Wiring instructions of the charging relay



Note: The working power of the relay is provided by an external power supply. If the relay is connected, an external power supply with the same working voltage as the relay should be provided. Connect the control port of the relay to the interface of the charging controller. If you want to control the positive pole of the charging, pass the positive wire through the relay. If you want to control the negative pole of the charging, connect the negative wire to the relay. When the relay is closed, the "IN" light will light up and turn off as a reminder when disconnected.

（4）Discharge relay wiring instructions



Note: The working power of the relay is provided by an external power supply. If the relay is connected, an external power supply with the same working voltage as the relay should be provided. Connect the control port of the relay to the discharge controller interface. If you want to control the positive pole of the discharge, pass the positive wire through the relay. If you want to control the negative pole of the discharge, connect the negative wire to the relay. When the relay is closed, the "OUT" light will light up and turn off as a reminder when disconnected.

Chapter III Use Instructions

One, wiring

Select an appropriate wiring method according to the range of the measured voltage to ensure that the input voltage is within the range of the instrument. External power supply voltage 8-120V.

Note: Self-powered detection voltage range: 8V~120V;

2. Parameter introduction and setting

1: Short press the up button on the main interface to close/disconnect the charging relay, and short press the button to close/disconnect the discharge relay;

2: Short press the OK key to enter the curve display interface, long press the OK key to exit the curve interface;

3: On the main interface, long press the upper key to fill up the capacity, and long press the key to clear the capacity;

4: Long press the OK key on the main interface to enter the parameter setting page, long press the OK key to exit the parameter setting interface;

In the parameter setting interface, click the up/down button to select the corresponding parameter option, and click OK to enter the corresponding setting item; the gray font indicates the unselected state, and the black font indicates the selected state.

The relays used in the test are normally open relays..

(1) “CLR”The current is cleared. In the no-load state, the current value is not 0, you can use this item to clear it.

(2) “BPC” Percentage of battery capacity. Refer to Example 1 for the setting method.

(3) “BAT” Set the total battery capacity value. This value corresponds to the nominal AH number of the battery. Please refer to Method 1 for the specific setting method.

(4) “BWH” Set the total energy value of the battery. This value corresponds to the nominal WH number of the battery. Refer to Example 1 for the setting method.

(5) “LED” Set the display brightness. 0-10 can be set according to your needs. The higher the level, the higher the brightness.

(6) “COR” Set the display color. Both black and white and color display effects. After the setting is complete, restart the monitor.

(7) “LAG” Set the display language. Display in Chinese and English. After the setting is complete, restart the monitor.

(8) “LCOK” Key lock. After clicking OK, the gray font will turn into black. Use the up and down keys to change the number, select the corresponding function, long press OK to save the data, and the key will be locked. Press and hold OK again to unlock.

(9) “SFH” Match the communication channel value. When the display cannot receive the signal from the measurement module, adjust the channel value to match the signal. After searching for a signal, the value is the channel value that matches successfully. Refer to Example 2 for the setting method.

(10) “FCH” Set the communication channel value. Set the matched channel value into FCH, and automatically match the channel value after restarting the system. When there are multiple coulomb counters of the same type that interfere with each other, you can also use this option to modify the channel value to avoid mutual interference.

(11) “STI” Set the screen current value. After setting the screen-off time; if the actual current value is less than the set value, the screen will turn off, reducing power consumption. When the actual current value is greater than the screen current value, the screen lights up.

(12) “SCT” Set the screen-off time. After the display is not operated, the timer starts. If the timer time is greater than the set value, the screen will turn off and the

power consumption will be reduced.

(13) “OVP” Set the overvoltage protection value. During the charging process, if the voltage is greater than the set value, the charging relay can be automatically disconnected.

(14) “LVP”Set the low voltage protection value. When the voltage is lower than the set value during the discharge process, the discharge relay can be automatically disconnected.

(15) “STV” Set the discharge start threshold voltage. When the discharge relay is disconnected, the charging voltage of the battery is higher than the STV setting value, and the discharge relay is automatically closed. Refer to Example 1 for the setting method.

(16) “NCP” Charge overcurrent protection value. During the charging process, the actual current value is greater than the set value, and the charging relay is automatically disconnected.

(17) “OCP” Discharge overcurrent protection value. During the discharge process, the actual current value is greater than the set value, and the discharge relay is automatically disconnected.

(18) “OTP” Set the over temperature protection value. When the measured temperature exceeds the set value, the relay is disconnected.

(19) “LTP” Set the low temperature protection value. When the measured temperature is lower than the set value, the relay is closed.

(20) “ON/OFF” The default discharge relay is closed when power on. Refer to Example 1 for the setting method.

(21) “RYT” Delay action of relay. To prevent false triggering caused by large fluctuation of parameters, this value is used to delay the action of the relay.

(22) “RYS”Relay control mode. 5 relay working modes, choose according to the worksheet. After setting, the measurement module needs to be restarted.

(23) “PTS” Relay temperature control mode. The temperature-controlled charge/discharge relay is closed or opened as required.

(24) “ETS” Relay timing mode. After setting, the charging or discharging relay can be closed or opened periodically.

For example: the relay timing mode selects 1 discharge, and the timing time is set to 10 seconds. When the discharge relay is in the disconnected state, the timing function is turned on, the relay is closed automatically, and the relay is automatically disconnected after 10 seconds;

The discharge relay is in a conducting state, the timing function is turned on, and the relay is automatically disconnected after 10 seconds.

(25) “STE”Set the discharge timing time. The total duration is 0-100H, in hours, minutes and seconds.

(26) “VDB”The maximum value of the voltage curve. (It is recommended to be consistent with the setting of the maximum voltage value during use) Under the curve interface, the voltage curve changes more obviously.

(27) “IDB” The maximum value of the current curve. (It is recommended to be consistent with the setting of the maximum current value during use) Under the curve interface, the current curve changes more obviously.

(28) “PAI” Set the reset current value. After the no-load current is cleared, the temperature drift of the transformer makes the current value not 0. Use this item to set to prevent the temperature drift. After the no-load current is cleared, the actual current value is not 0 due to other reasons. By setting this parameter, the current value is cleared to zero.

For example: the current has been cleared under no-load condition. Due to the temperature drift, a current of 0.2A occurs occasionally. At this time, the zero-returning current value is set to 0.3A; when the measured current value is less than 0.3A, the meter does not display. When the working current is greater than 0.3A, the meter displays the current value normally.

About the screen information:

1: When the screen time value is equal to 0, the screen current value is equal to 0; the LCD screen is always on

2: When the screen-on time value is greater than 0, the screen-on-screen current

value is equal to 0; when the LCD screen is on for longer than the screen-on time value, the LCD screen will automatically turn off, and when the battery power is less than 20%, the LCD screen will flash a prompt. Click any button to re-light the screen;

3: When the screen time value is greater than 0, the screen current value is greater than 0;

During charging, the LCD backlight screen will enter the breathing light state when the on-time of the LCD screen is longer than the screen-off time value; when the charging current is less than the screen-on-screen current value, the LCD screen will turn off, and when the current is greater than the screen-off current value, the LCD screen will turn off. automatically light up,

In the discharge, when the current is less than the screen current value, the LCD backlight will automatically turn off when the lighting time of the LCD screen is greater than the screen time value; when the current is greater than the screen current value, the LCD screen will automatically light up. When the battery power is less than 20%, a flashing prompt will appear on the LCD screen.

Working mode table in relay 5:

project	Battery voltage below the LVP discharge relay is disconnected	Battery voltage is lower than the LVP charging relay is closed	Battery voltage higher than OVP charging relay disconnected	The battery voltage is higher than the OVP discharge relay is closed	Battery voltage higher than the STV discharge relay is closed
pattern 0	self-regulation	manual regulation	self-regulation	manual regulation	not have
pattern 1	self-regulation	manual regulation	self-regulation	self-regulation	not have
pattern 2	self-regulation	self-regulation	self-regulation	manual regulation	not have
pattern 3	self-regulation	self-regulation	self-regulation	self-regulation	not have
pattern 4	self-regulation	self-regulation	self-regulation	not have	self-regulation

Example 1 of parameter setting method: Here is an example of setting parameters 01 and 02 to explain how to set parameters;

Press and hold the OK key to enter the parameter setting interface, click the up key to change the options, find the corresponding parameter setting item (Figure 1), set the item in black font, and set the content in gray font; click OK, set the item in gray font, The setting content is in black font; it means that the parameter setting interface has been entered (Figure 2)

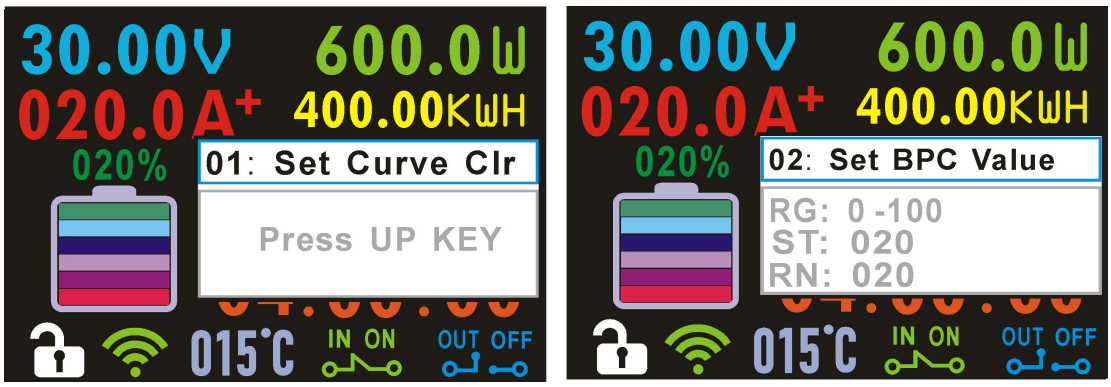


Figure 1

Set parameters according to the prompt content. ▼Adjust the parameter setting position, the selected font is red; ▲Change the size of the parameter value, when the return value is the same as the set value, it means that the data is sent successfully, long press the OK key to save the parameter and exit the page, and the buzzer will give a prompt at the same time The sound indicates that the parameters have been saved successfully.

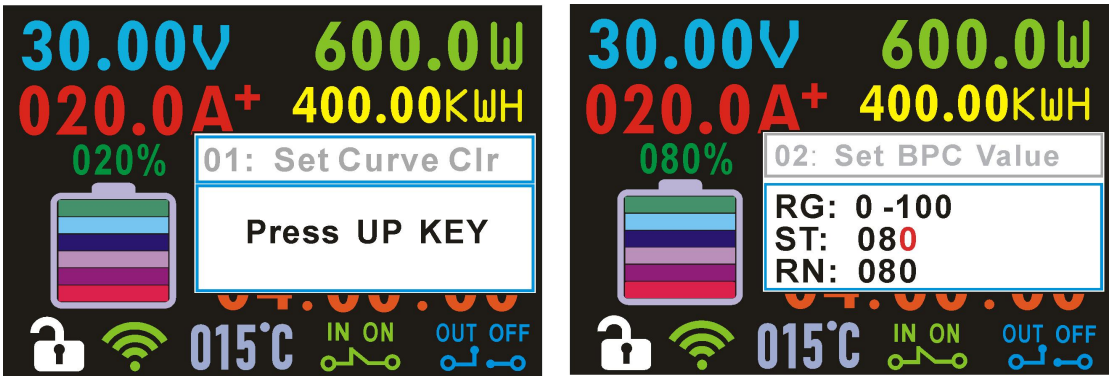


Figure 2

Example 2 of parameter setting method:

When the display screen cannot communicate with the measuring box, you can manually search in the 09th option, search for a channel every two seconds, and wait for the measuring box to receive the signal; when the channel value matches, the correct information of parameters such as voltage and current will appear, such as As shown in Figure 3; save the value in the 10th option. As shown in Figure 4.

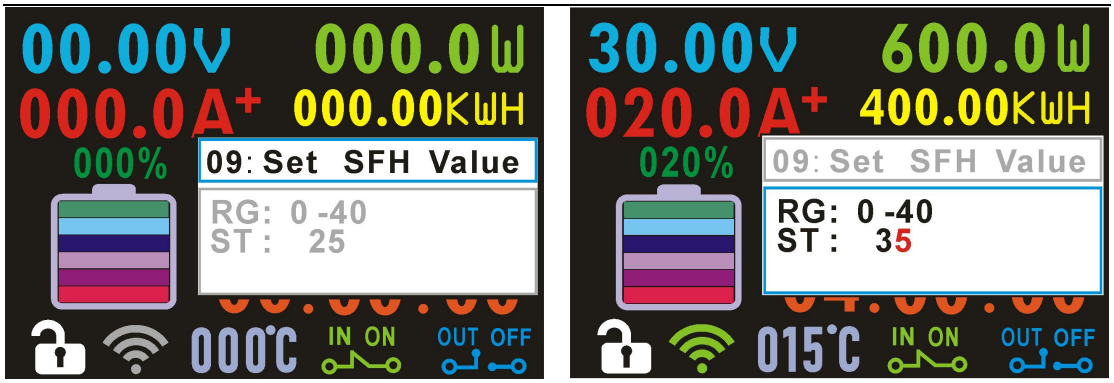


Figure 3

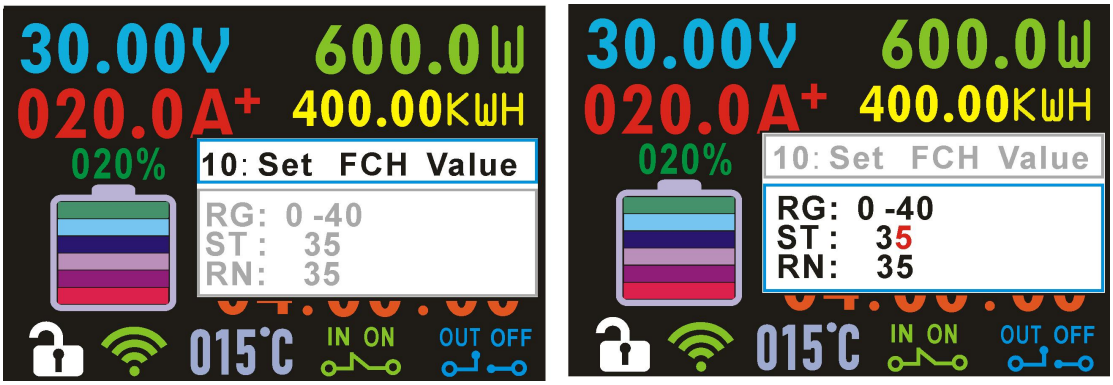
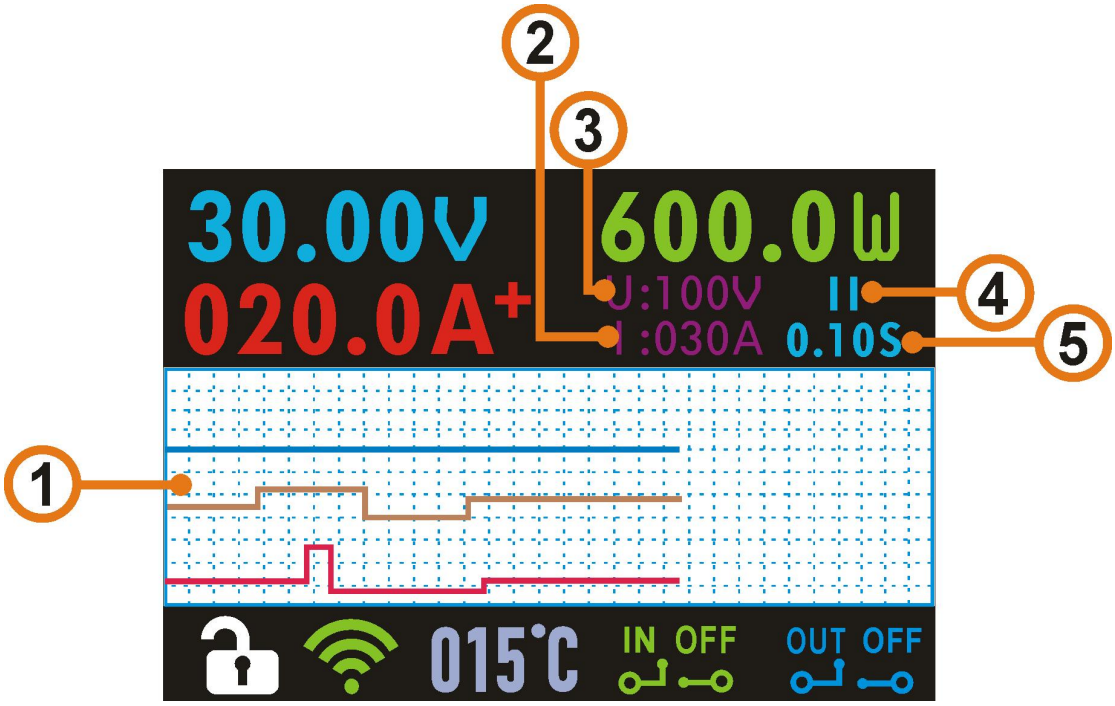


Figure 4

3. Curve display interface

The display has two kinds of display interface, initialization display and curve display, under the initialization display interface, click OK once to enter the curve interface display: under the curve interface, click OK to start/pause the curve; long press OK to exit the curve to refresh the interface.



① Voltage, current and temperature curve display area (blue is voltage curve, brown is current curve, red is temperature curve)

② Current curve magnification (recommended to be consistent with the setting of the maximum current value during use)

③ Voltage curve magnification (recommended to be consistent with the setting of the maximum voltage value during use)

④ Start/pause refresh

⑤ Refresh time

In the curve interface, click ▲ ▼ to change the refresh time; click the OK button to start/pause the curve refresh; long press the OK button to exit the curve display interface;

Attention and maintenance

1. Do not exceed the voltage and current range of the instrument, otherwise the instrument will be damaged.

2. The positive and negative poles cannot be reversed, and the reversed connection cannot be correctly measured.

3. The working temperature is -10~50℃, the storage temperature is -20~70℃, and the instrument is kept in a dry environment.

4. Do not attempt to disassemble the instrument. Damage to the package will void the warranty. There are no user-repairable parts inside the instrument, and repairs can only be done through designated repair outlets or returned to the factory.

5. When the instrument is working normally, please do not move the instrument violently to avoid irreparable damage to the internal circuit.