USB Desktop Tool

POWER/VA-Meter/PWM

Applicable model: XY-DUT

USB Desktop Tool

Applicable Model: XY-KZ25/XY-KZ35

Dear users, thank you for purchasing USB desktop tools. In order to let you know all the functions of this product more quickly, get a better experience and avoid misoperation, please read and keep the instructions carefully before using them for future reference.

High-definition display dazzling interface clear and intuitive

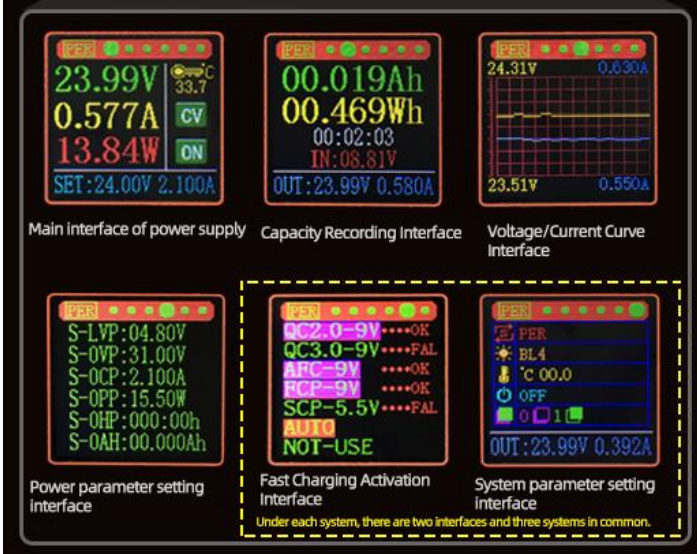
Using 1.44 inch LCD high-definition LCD display, multi-angle conversion, integration of three sets of systems, a comprehensive view of functions, 160 degrees wide angle of view, high brightness, long working life, so that you can enjoy the bright and delicate color, natural display screen from any angle.

Power System PER: High Precision CNC USB Boost-and-Drop Power Supply/Constant Voltage and Constant Current

The power system has nearly perfect protection mechanism:

Hardware protection: output short circuit protection, short connection without burning, output anti-backfilling, can directly charge the rechargeable battery, without additional anti-backfilling diode

Software Protection: Overvoltage Protection (OVP), Overcurrent Protection (OCP), Overpower Protection (OPP), Overtemperature Protection (OTP), Input Undervoltage Protection (LVP) Power Chip Self-Protection (OEP)



Power System (PER) Parameters	
Input voltage:	DC3.5~15V (Extreme Low Voltage 3.0V, Extreme High Voltage 16V)
Output voltage:	DC0.60V~30.00V
Output current:	0.000A~2.000A
Output power:	15W
Voltage resolution:	0.01V
Current resolution:	0.001A
Voltage accuracy:	±0.3%+1byte
Current accuracy:	±0.5%+1byte
Capacity:	0-999999AH
Energy:	0-999999WH
Time:	0-1000 huors

Note: 1. When the input voltage is 5.0-5.5V, the full power can be operated when the output voltage is lower than 24V. When the output voltage is higher than 24V, it is recommended to reduce the power usage. 2. When the input voltage is higher than 8V, the full power can be used in the whole range. 3. When the input voltage is lower than 5V, the lower the input voltage, the transmission. The smaller the output power is.

The ordinary 5V charging adapter itself is difficult to output 15W power, so don't expect the full power operation of the product with the ordinary charging head. If the charging head supports the fast charging function, it is recommended to activate the fast charging and output high voltage, so that the full power operation can be possible.

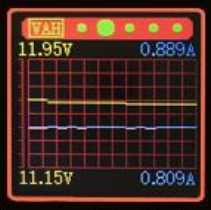
This product supports QC2.0/QC3.0, Huawei FCP/SCP Samsung AFC.

This product has soft start, no impact on load when starting.

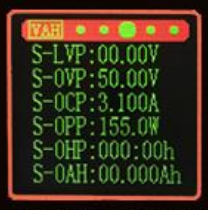
Watch Head System VAH: It can measure voltage, current and energy (Wh) time as well as power (W) capacity (Ah) as multimeter. It can be used for battery charging and discharging measurement and high precision coulometer.

Header system has soft protection mechanism:Undervoltage Protection (LVP) Overvoltage Protection (OVP) Overcurrent Protection (OCP) Overpower Protection (OPP)

Main measurement interface



Measurement Curve Interface



Measurement parameter setting interface

Fast Charging Activation Interface

System parameter setting interface

Under each system, there are two interfaces and three systems in common.

Table Header System (VAH) Parameters	
Power supply voltage:	DC3.0~15V (Ultimate Low Voltage 2.5V, Ultimate High Voltage 16V)
Measuring voltage:	DC0.00~50.00V
Measuring current:	0.00A~3.000A
Measured power:	0.00~150.0W
Voltage resolution:	0.01V
Current resolution:	0.001A
Voltage accuracy:	±0.3%+1byte
Current accuracy:	±0.5%+1byte
Capacity:	0-999999AH
Energy:	0-999999WH
Time:	0-1000 hours

PWM system PWM: There are three modes in this system. The mode switching is realized by setting MODE.

1. Normal mode NOR
2. Fine Mode FIN
3. Pulse mode PUL

Normal mode NOR

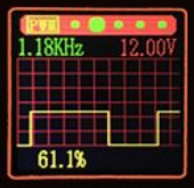
Frequency Main Interface

Frequency Graphic Interface

Frequency parameter setting interface

Fine Mode FIN

Frequency Main Interface

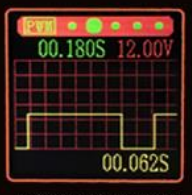


Frequency Graphic Interface

Frequency parameter setting interface

3. Pulse mode PUL

Pulse Main Interface



Pulse Graphic Interface

Pulse parameter setting interface

Fast Charging Activation Interface

System parameter setting interface

Under each system, there are two interfaces and three systems in common.

PWM system parameters

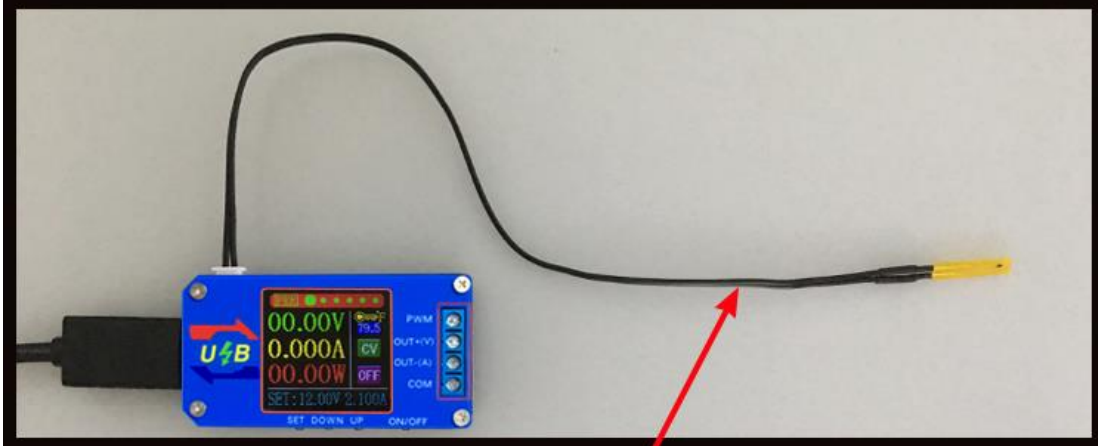
Normal mode NOP		Fine Mode FIN		Pulse mode PUL	
Frequency:	1HZ-240KHZ	Frequency:	1HZ-24.0KHZ	Orthopulse duration P-T:	0-65.535S
Duty cycle:	0-100%，Step 0.1%	Duty cycle:	0-100%，Step 0.1%	Negative pulse duration N-T:	0-(65.535-P-T)S
Amplitude:	0.60-30.00V	Amplitude:	0.60-30.00V	Amplitude AMP:	0.60-30.00V
				Number of pulses P-P:	0-99999

Note: The sum of positive and negative pulse widths does not exceed 65.535 seconds.

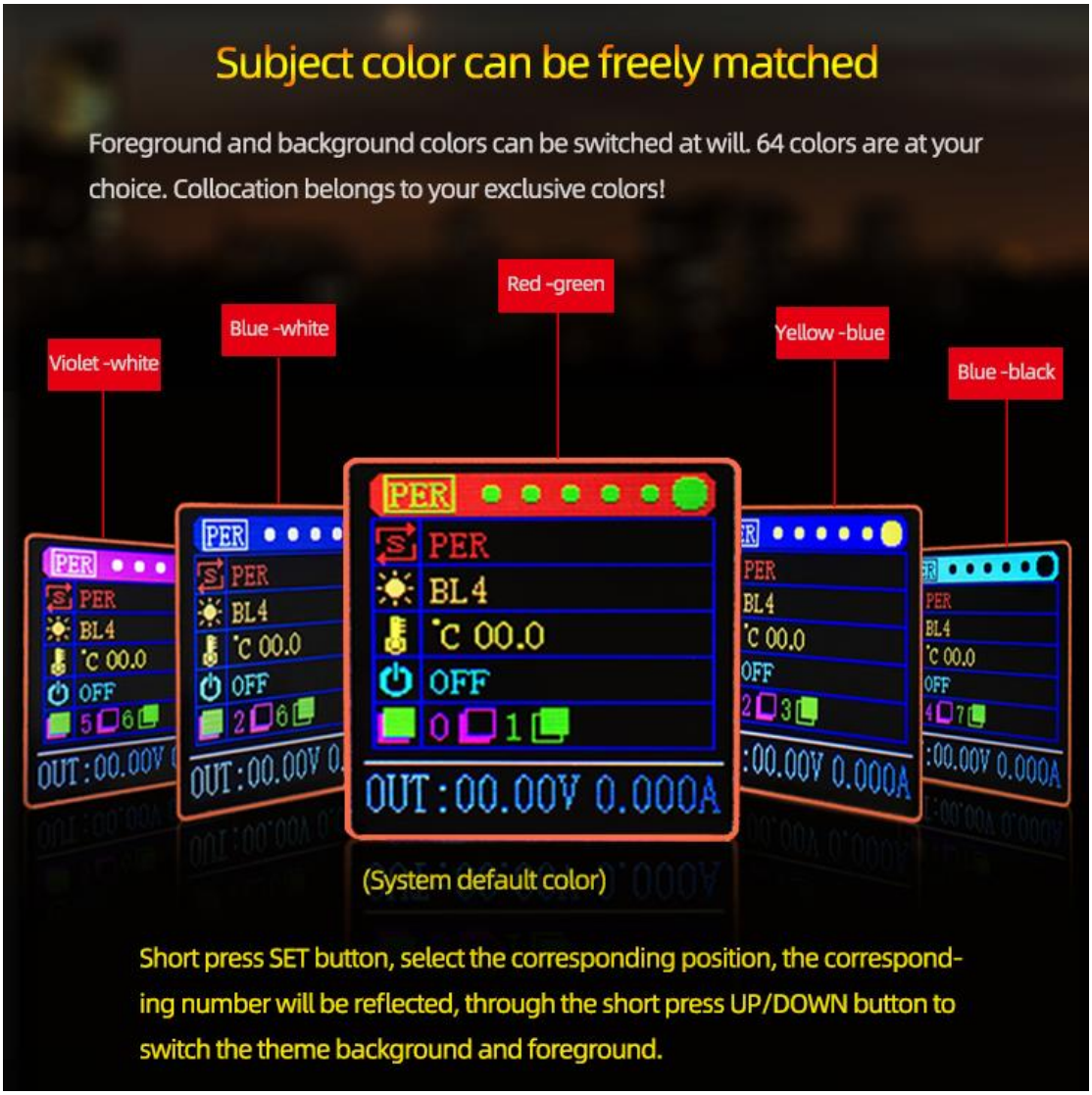
Display 99999 when the number of pulses exceeds 999999.

Each system can measure the ambient temperature and the surface temperature of external objects, and can switch between Celsius and Fahrenheit freely.

When inserting external temperature timing, it will automatically switch to external temperature measurement temperature will be anti-blue display.



When inserting external temperature timing, it will automatically switch to external temperature measurement temperature will be anti-blue display.


Subject color can be freely matched
Foreground and background colors can be switched at will. 64 colors are at your choice. Collocation belongs to your exclusive colors!
Violet -white
Blue -white
Red -green
Yellow -blue
Blue -black
PER
BL4
°C 00.0
OFF
OUT:00.00V 0.000A
(System default color)
Short press SET button, select the corresponding position, the corresponding number will be reflected, through the short press UP/DOWN button to switch the theme background and foreground.

PER power system wiring

Power System Interface Index Display PER

OUT+

Output 0.6V~30V

OUT-

Power system PWM and COM ports are not connected

Connection of VAH Header

Table Header System Interface Index Displays VAH

V

A

COM

Usage is like multimeter, black meter is connected with COM terminal, red meter is connected with voltage V, measuring voltage; red meter is connected with current A, measuring current

Watch Head System PWM Port Not Connected

Note: Head system needs some electronic basis. This product can only measure forward voltage and current. Do not connect wrong lines. After positive and negative connections, it is easy to damage the product.

Wiring of PWM system

PWM System Interface Index Displays PWM

PWM

Connect the common ground terminal to COM port when using PWM

COM(GND)

The OUT+(V) and OUT-(A) ports of the PWM system can be used as an external output 2A/15W power supply with an output voltage equal to the amplitude voltage of the PWM.

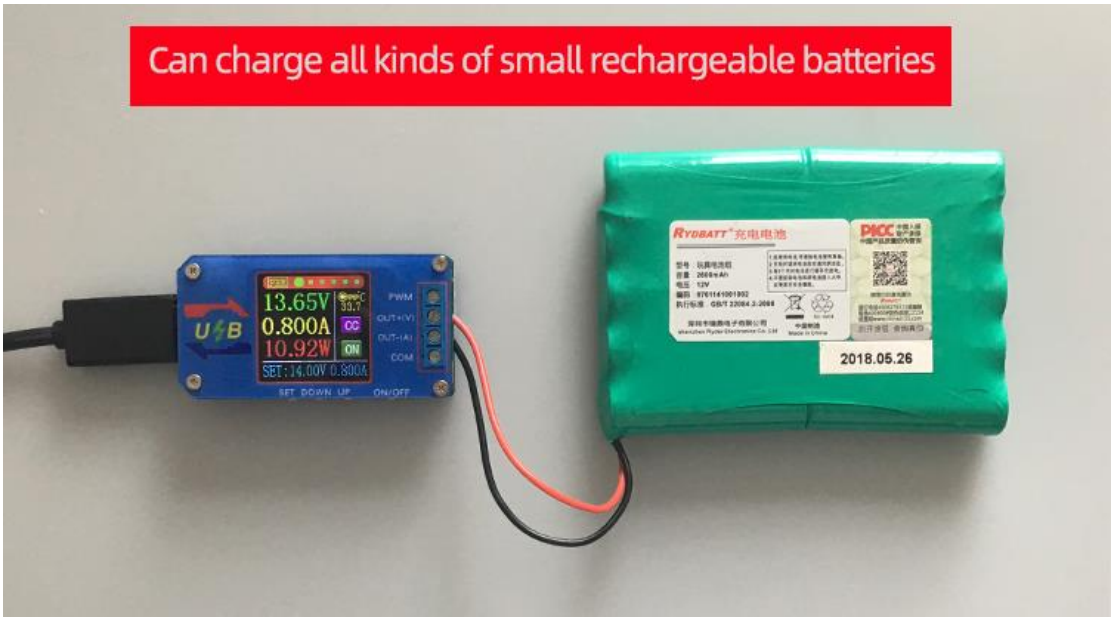
Note: In the application of each system, please do not connect the wrong line, the wrong line is easy to damage the product!

Application:

Power System (PER):
1. As a common boost-and-drop power supply with over-voltage/over-current/over-power/over-temperature/under-voltage protection;
2. The product has constant current function and can charge all kinds of small rechargeable batteries within 0.6V-30V within 15W.
Charging step:
(1) Determine the floating charge voltage and current of your rechargeable battery; (If the lithium battery parameter is 3.7V/2200mAh, the floating charge voltage is 4.2V, if it is 12V rechargeable battery, the floating charge voltage is generally set to about 14V)
(2) Under no-load condition, set the output voltage to reach floating charge voltage; (If charging 3.7V lithium battery, adjust the output voltage to 4.2V only)
(3) Set charging current (constant current value) and set current directly. Note: When setting the current, the power should be calculated, charged within the power range, and the product will enter a protective state if it is used with super power.
(4) Connect the battery to charge.

Application:

Power System (PER):
1. As a common boost-and-drop power supply with over-voltage/over-current/over-power/over-temperature/under-voltage protection;
2. The product has constant current function and can charge all kinds of small rechargeable batteries within 0.6V-30V within 15W.
Charging step:
(1) Determine the floating charge voltage and current of your rechargeable battery; (If the lithium battery parameter is 3.7V/2200mAh, the floating charge voltage is 4.2V, if it is 12V rechargeable battery, the floating charge voltage is generally set to about 14V)
(2) Under no-load condition, set the output voltage to reach floating charge voltage; (If charging 3.7V lithium battery, adjust the output voltage to 4.2V only)
(3) Set charging current (constant current value) and set current directly. Note: When setting the current, the power should be calculated, charged within the power range, and the product will enter a protective state if it is used with super power.
(4) Connect the battery to charge.



3. This product has constant current function, can directly drive 0.6-30V, 0-15W LED lamp;

Step of driving LED lamp:

(1) Determine the working current and maximum operating voltage of the LED you need to drive.

(2) Under no-load condition, set the voltage and current values to make the output voltage reach the maximum working voltage and working current of the LED.

(3) Connect the LED and test it.

This product can adjust the constant current value (between 0 and working current) to achieve LED polar dimming, no stroboscopic!!

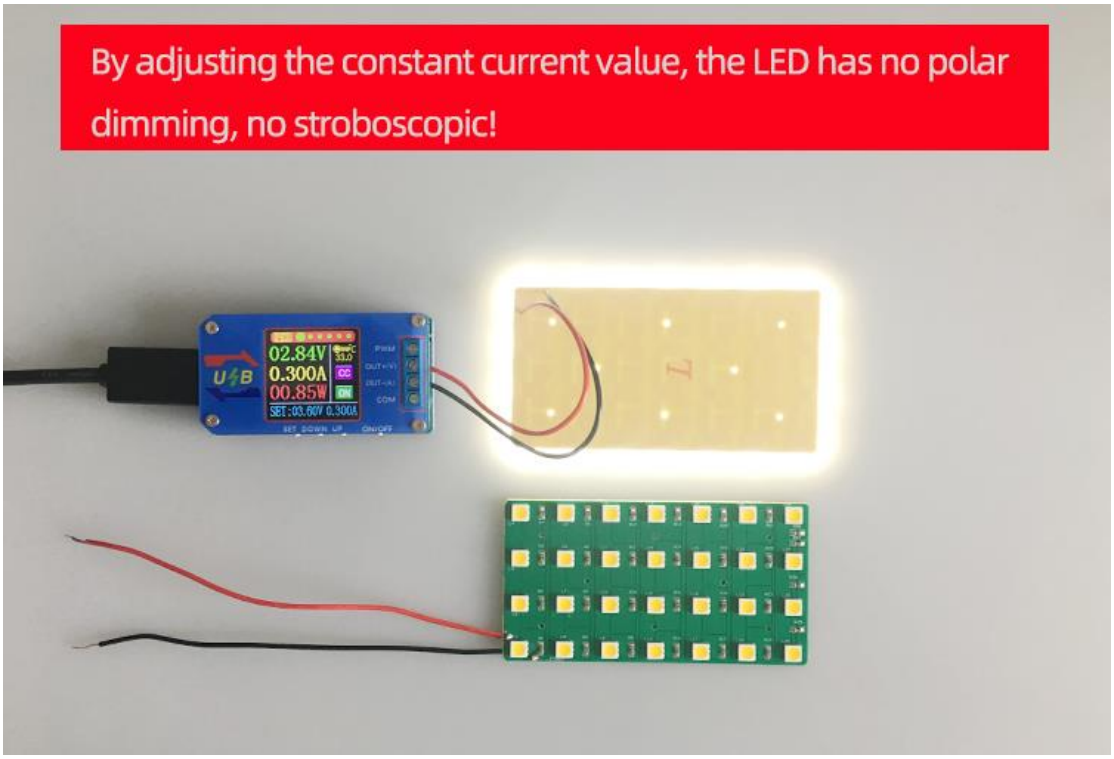
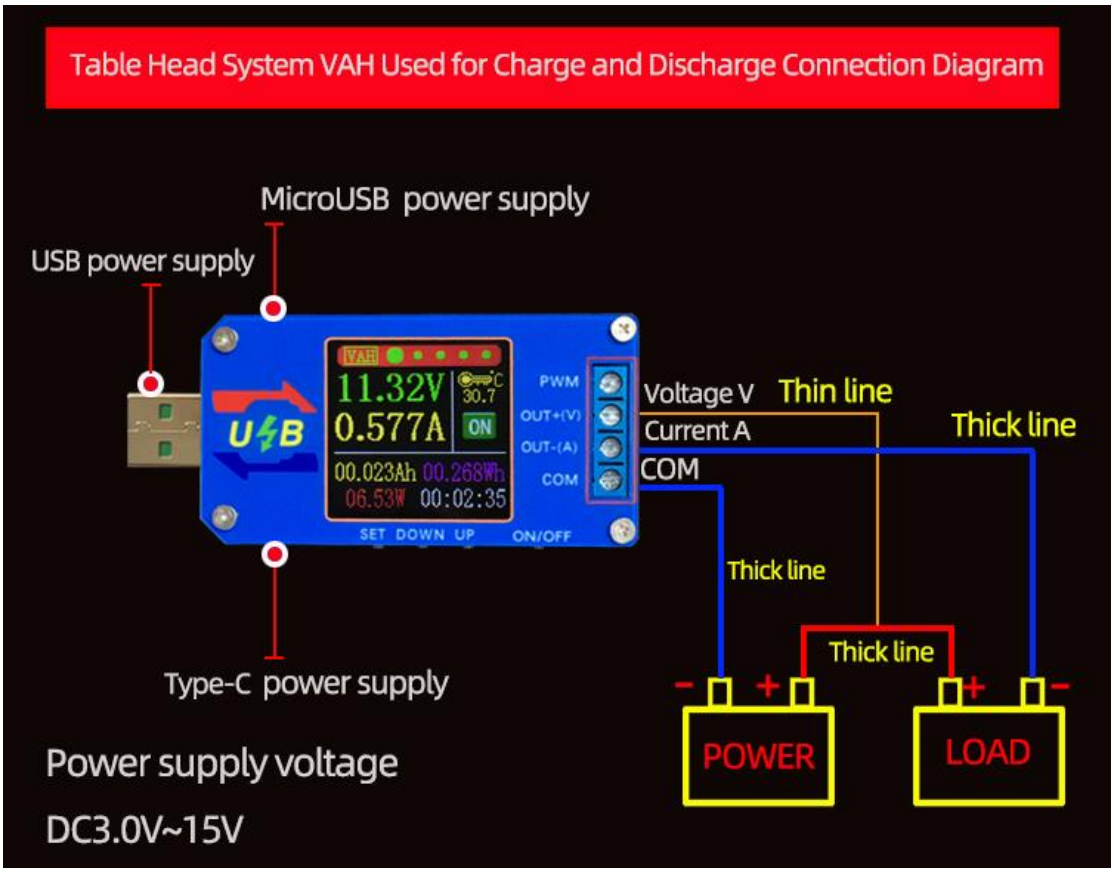
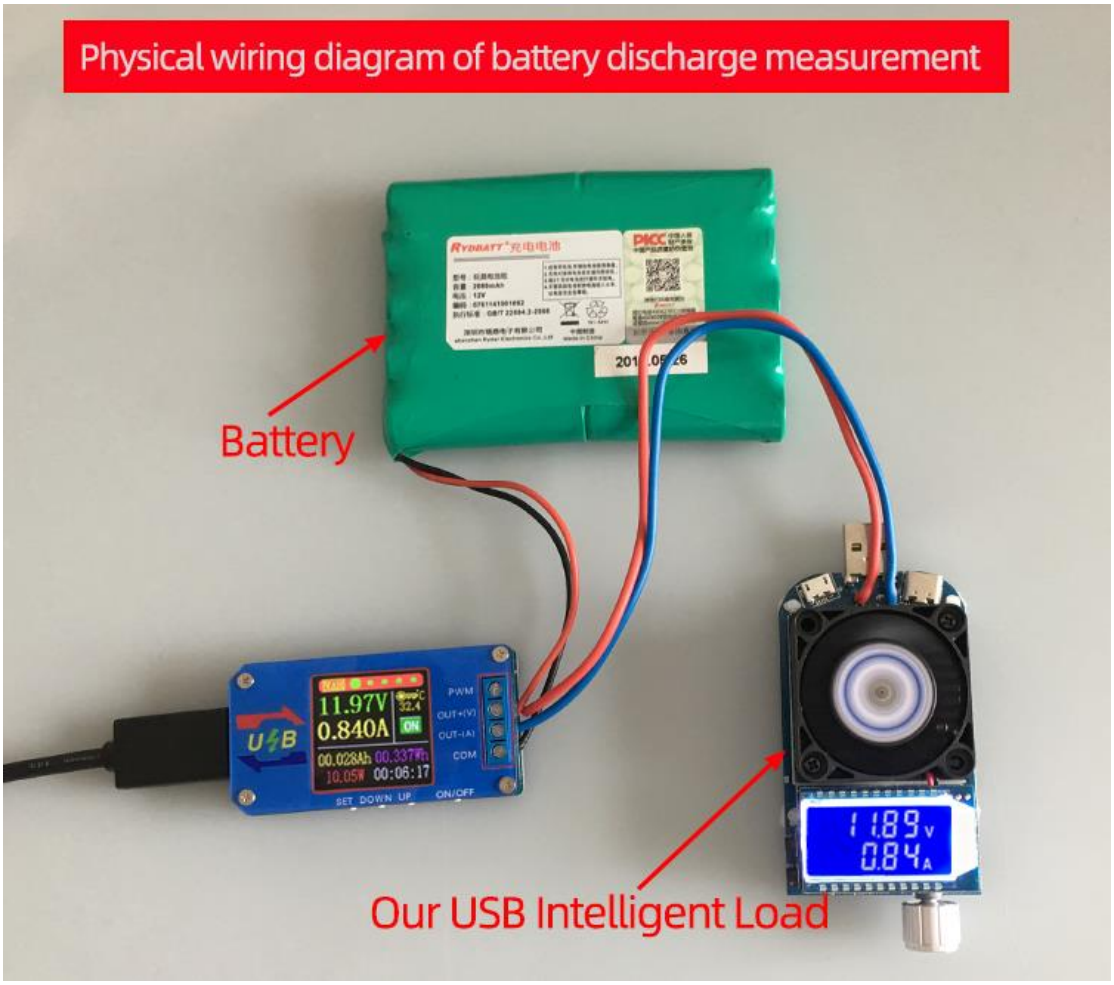


Table Header System (VAH):

1. Like multimeter, it can measure forward voltage and current. It can measure power, capacity, energy and time. It can be used for battery charging and discharging measurement and high precision Coulometer.





PWM system (PWM):

1. Used as square wave signal generator and pulse signal generator to generate square wave pulse signal for experimental development and debugging.
2. Square wave signal used to control DC motor or stepper motor driver; Servo motor, stepper motor, electric clamp, instead of PLC pulse, etc.
3. Generating adjustable pulse, matching driver to realize dimming, speed regulating, controlling solenoid valve, etc.

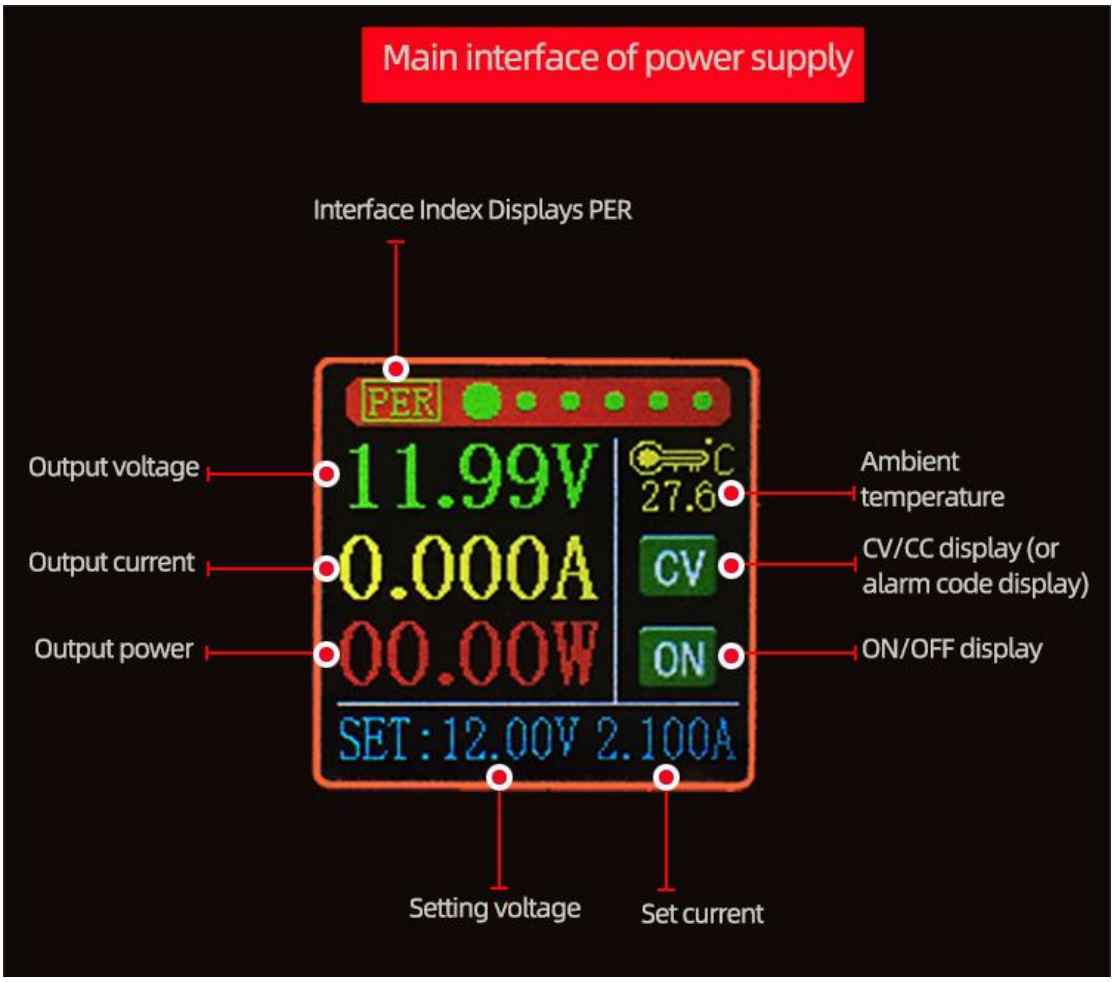
Note: PWM system is only the output signal, and can not directly drive power loads such as electric lamps, motors, solenoid valves.

Detailed Explanation of Interface and Key Function

Power System PER

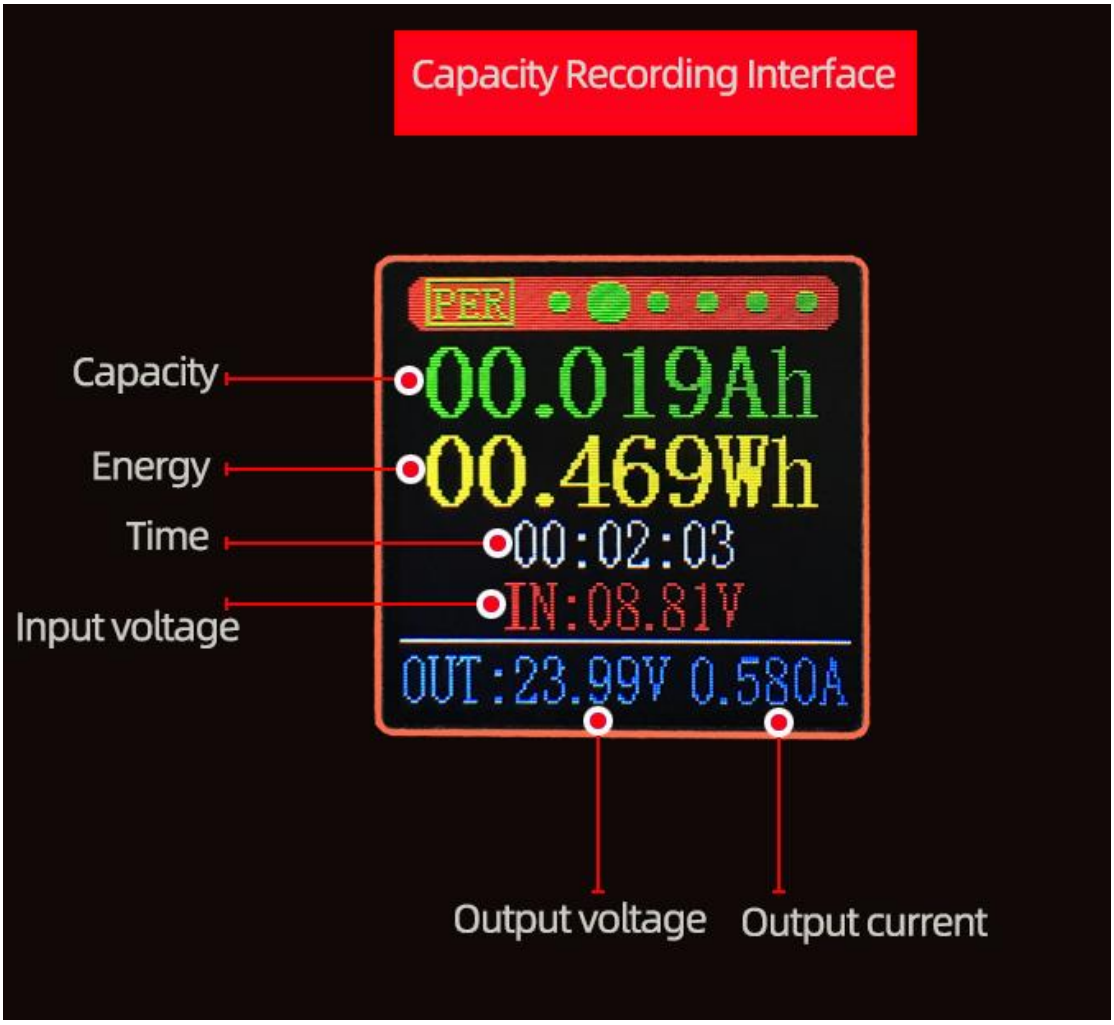
Shortly press the ON/OFF button, turn on and off the power output, and long press the ON/OFF button for 2 seconds. The screen can rotate 360 degrees in four directions.
Short press the `UP/DOWN'button to turn the page.

Main interface of power supply:



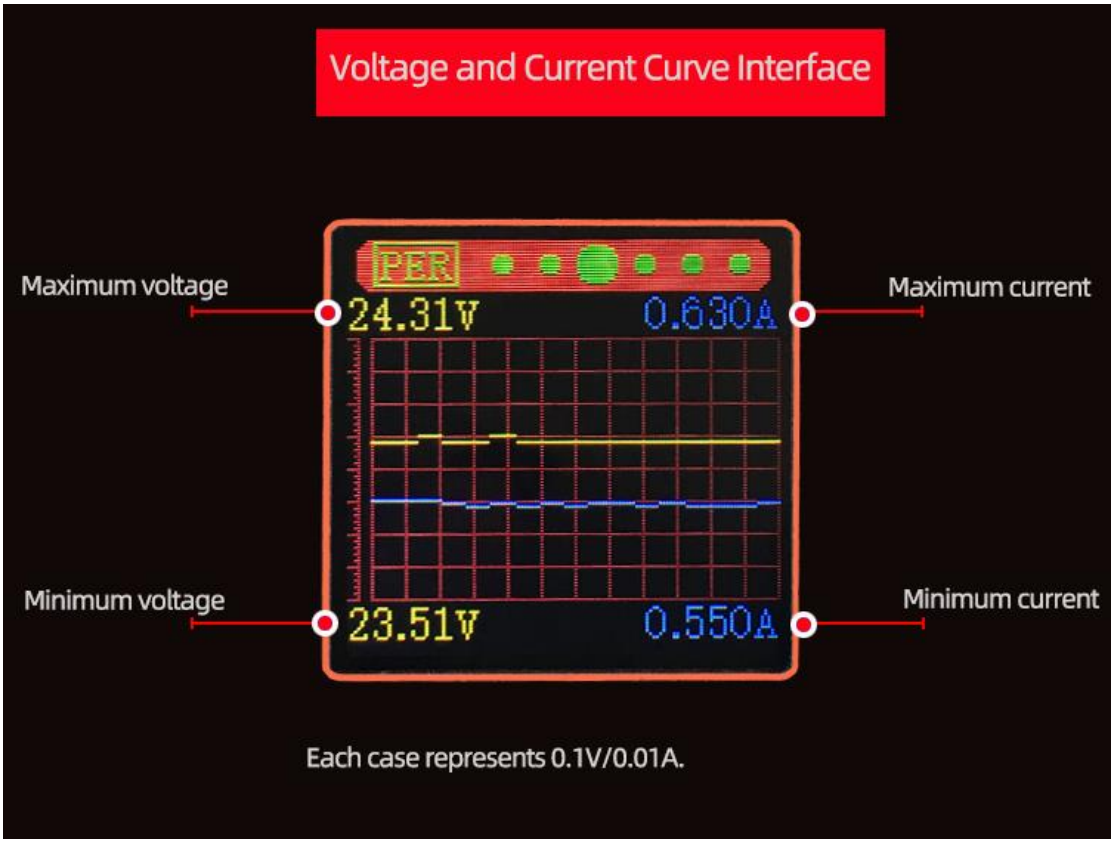
Press the'SET'button to activate the parameters (voltage/current) to be set.
The switch between full selection and bit selection is realized by pressing the'SET'button.
After full selection, all anti-blue display will be displayed, and the setting voltage/setting current will be switched by the'UP/DOWN'button.
After bit selection, the corresponding bit will be displayed in reverse blue. The parameters are set by the'UP/DOWN'button. The'UP/DOWN' button supports long press, and the long press increases/decreases the parameters rapidly.
When the settings are completed, press the'SET'button for 2 seconds or no key operation for more than 6 seconds will automatically exit the settings.
All parameters are saved automatically after exit.

Capacity Recording Interface:



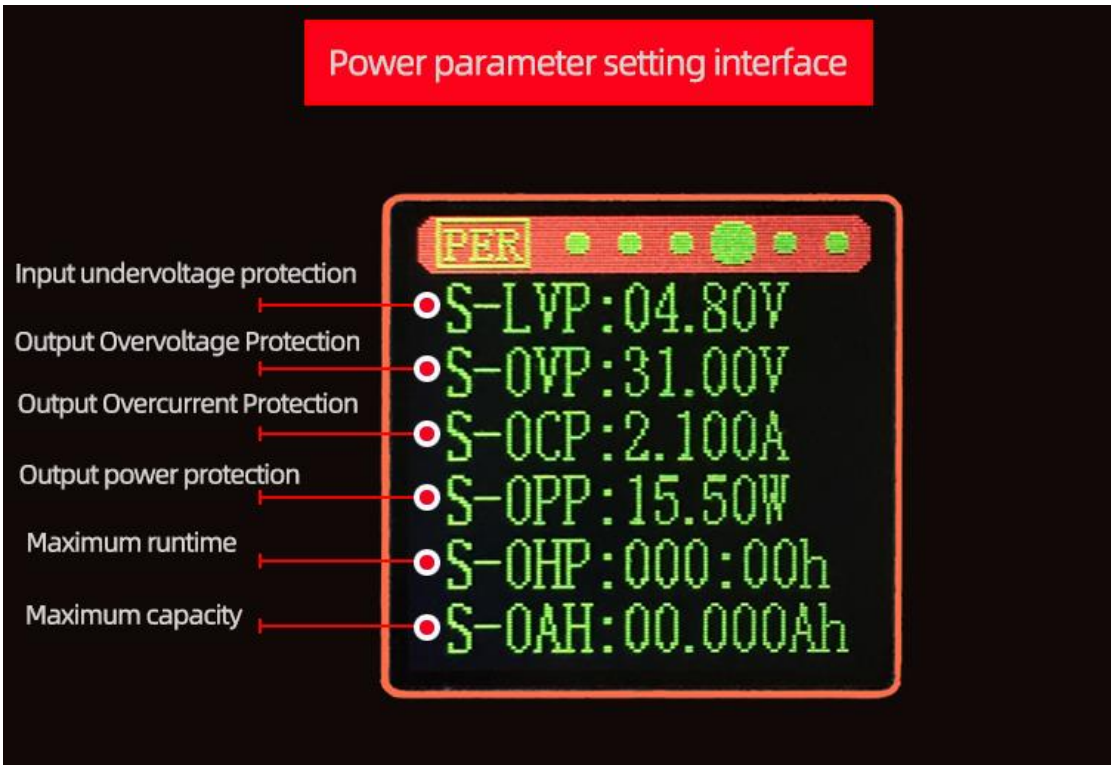
Shortly press the'SET'button, select the'capacity/energy/time', the corresponding anti-blue display after the full selection, switch the parameters to be cleared by the'UP/DOWN' button, and then press the'SET'button to clear the corresponding parameters; after the selection, press the'SET' button for 2 seconds or no key operation for more than 6 seconds will automatically exit. 。

Voltage and Current Curve Interface:



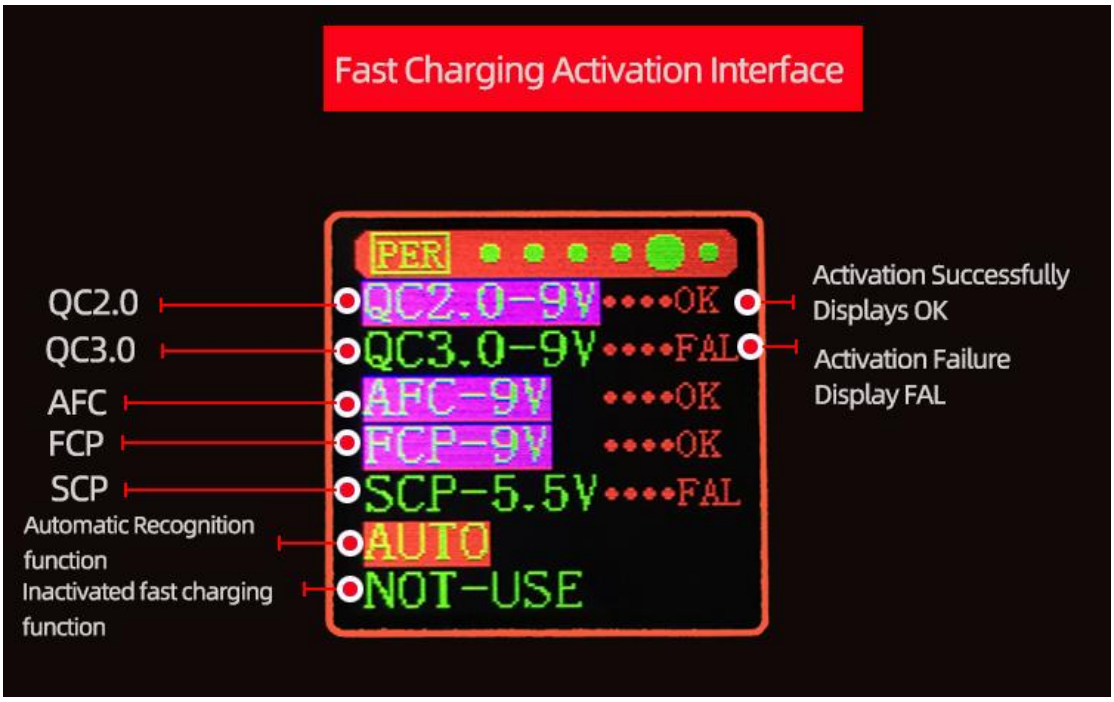
"SET" button has no function

Power parameter setting interface:



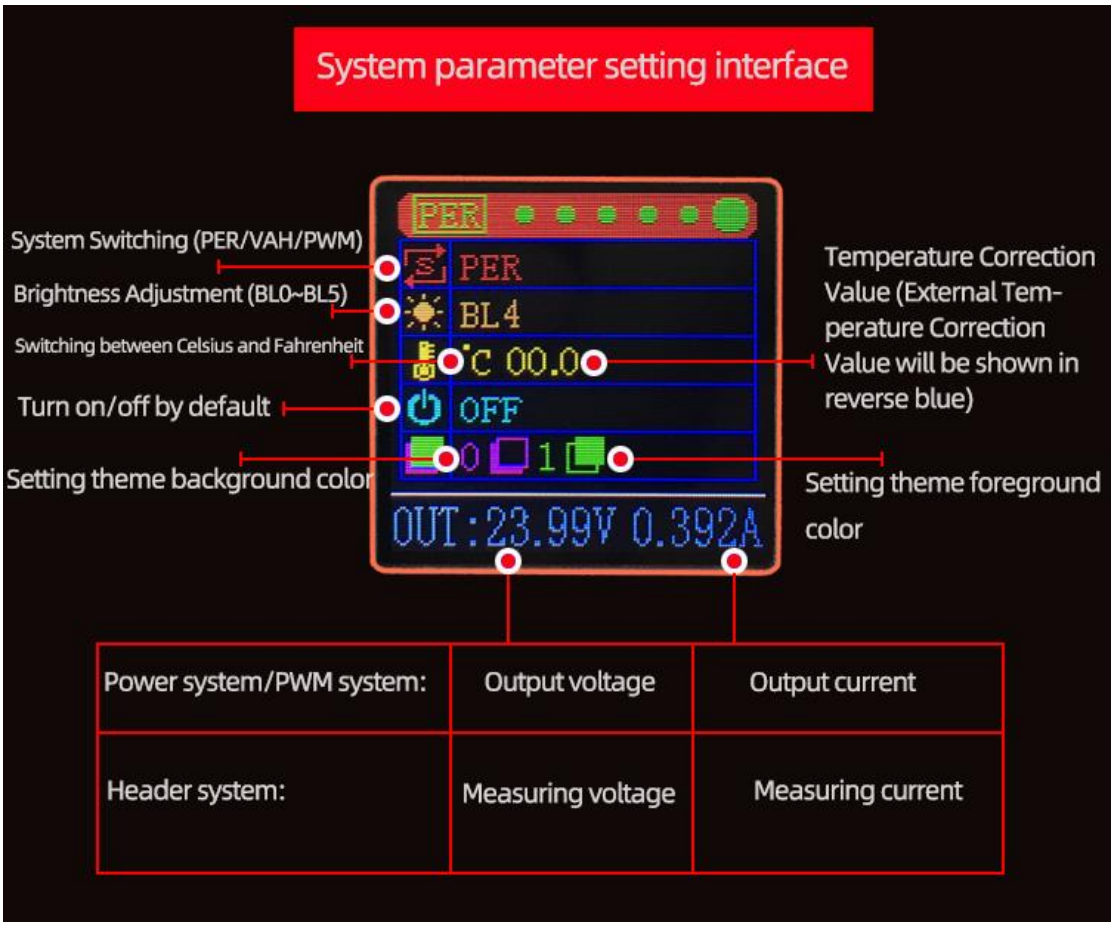
Press the'SET'button to activate the parameters to be set.
The switch between parameter name and bit selection is realized by pressing the'SET'button.
When the parameter name is selected, the parameter name will be displayed in reverse blue, and the parameters to be set will be switched by the 'UP/DOWN'button.
After bit selection, the corresponding bit will be displayed in reverse blue. The parameters are set by the'UP/DOWN'button. The'UP/DOWN' button supports long press, and the long press increases/decreases the parameters rapidly.
When the settings are completed, press the'SET'button for 2 seconds or no key operation for more than 6 seconds will automatically exit the settings.
All parameters are saved automatically after exit.

Fast Charging Activation Interface:



Shortly press the'SET'button, select the fast charging mode to activate, switch the fast charging mode to activate through the'UP/DOWN' button, the corresponding mode will be anti-blue display after selection; after selection, just press the'SET'button to activate the fast charging protocol; long press the'SET' button for 2 seconds or no button operation for more than 6 seconds will automatically exit the selection mode. After exit, it will save automatically and trigger the currently selected mode again.
AUTO function: Automatically detect the fast charging protocol supported by the current charging head, and the fast charging protocol will be marked with purple background color after detection.

System parameter setting interface:

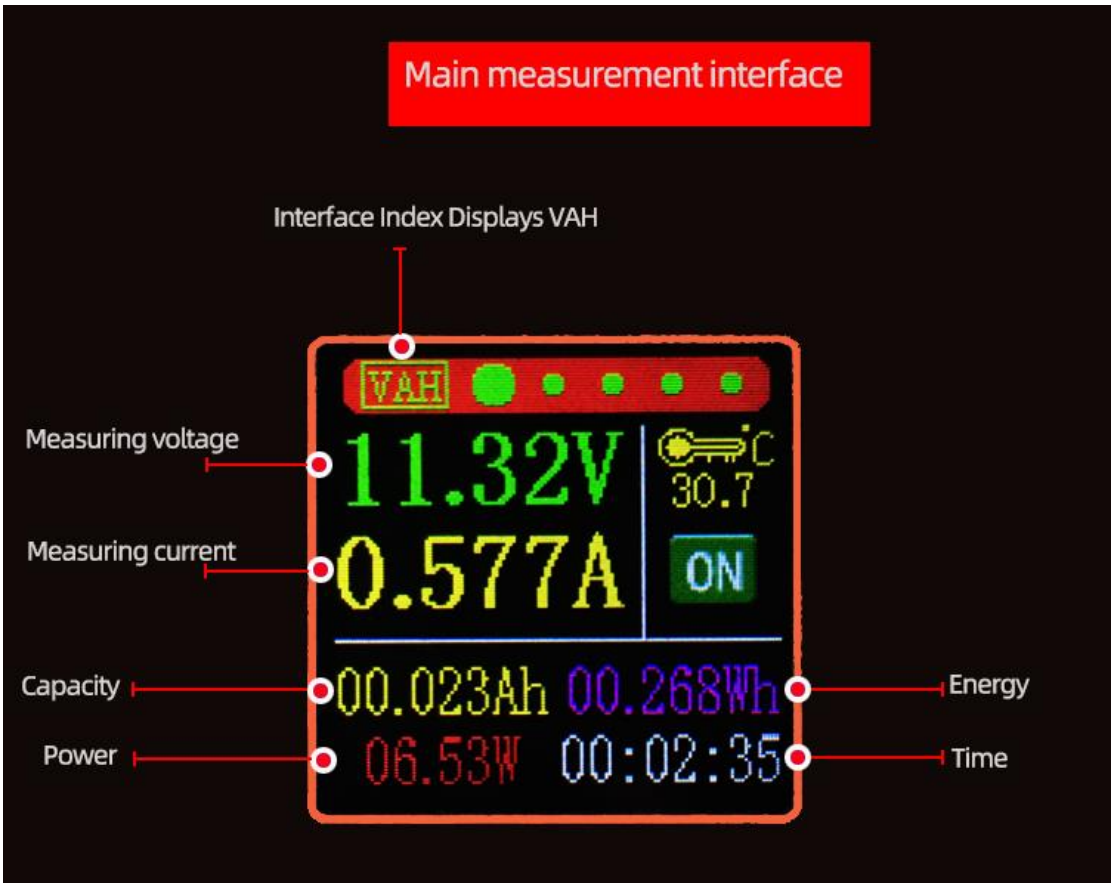


Shortly press the'SET'button and select/switch the parameters to be set. After selection, the parameters will be displayed in reverse green. The parameters will be set by the'UP/DOWN' button.
When the settings are completed, press the'SET'button for 2 seconds or no key operation for more than 6 seconds will automatically exit the settings.
All parameters are saved automatically after exit.

Table Header System VAH:

Shortly press the ON/OFF button, open and close the measurement, and long press the ON/OFF button for 2 seconds. The screen can rotate 360 degrees in four directions.
Short press the `UP/DOWN'button to turn the page.

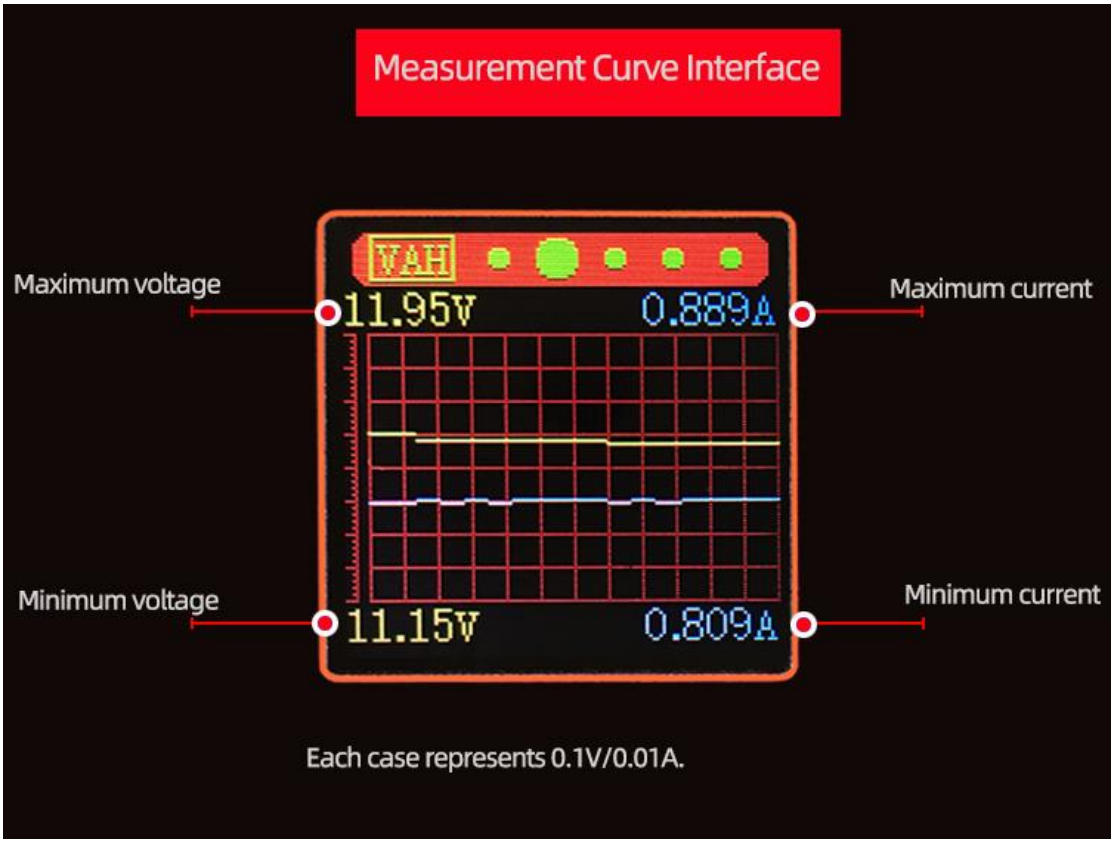
Main measurement interface:



Keyboard operation is the same as PER'capacity recording interface'of power supply system.

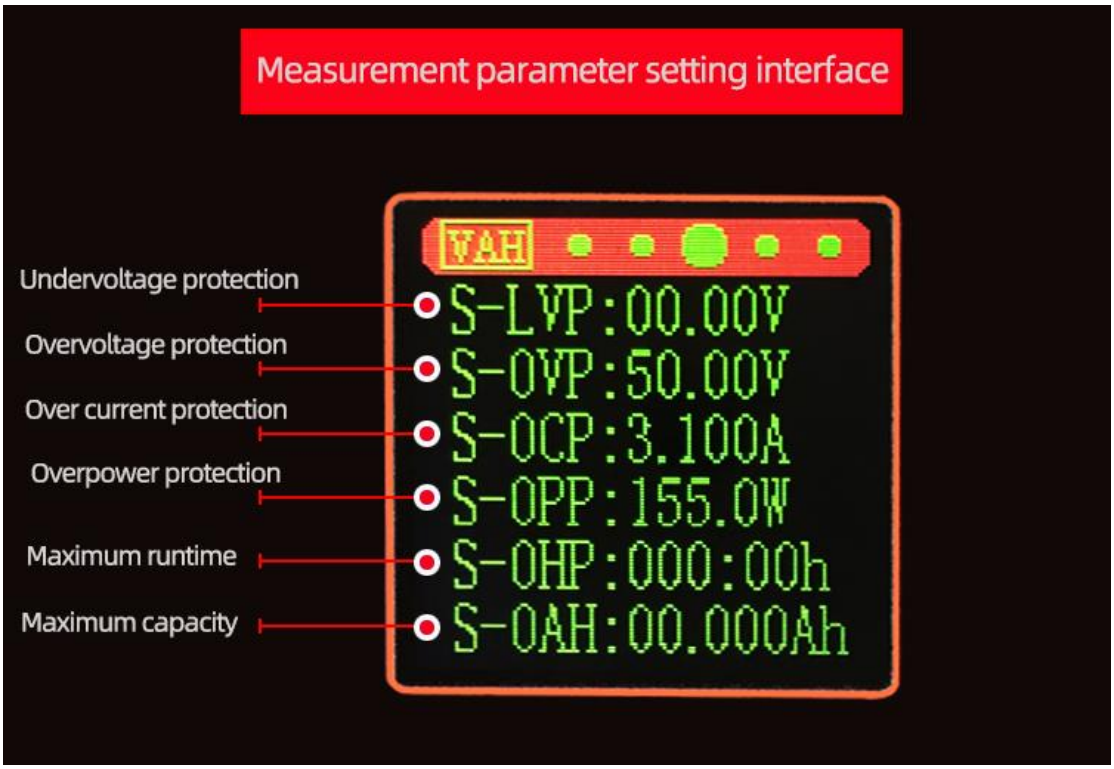
Shortly press the'SET'button, select the'capacity/energy/time', the corresponding anti-blue display after the full selection, switch the parameters to be cleared by the'UP/DOWN' button, and then press the'SET'button to clear the corresponding parameters; after the selection, press the'SET' button for 2 seconds or no key operation for more than 6 seconds will automatically exit.

Measuring Curve Interface:



"SET" button has no function

Measurement parameter setting interface:



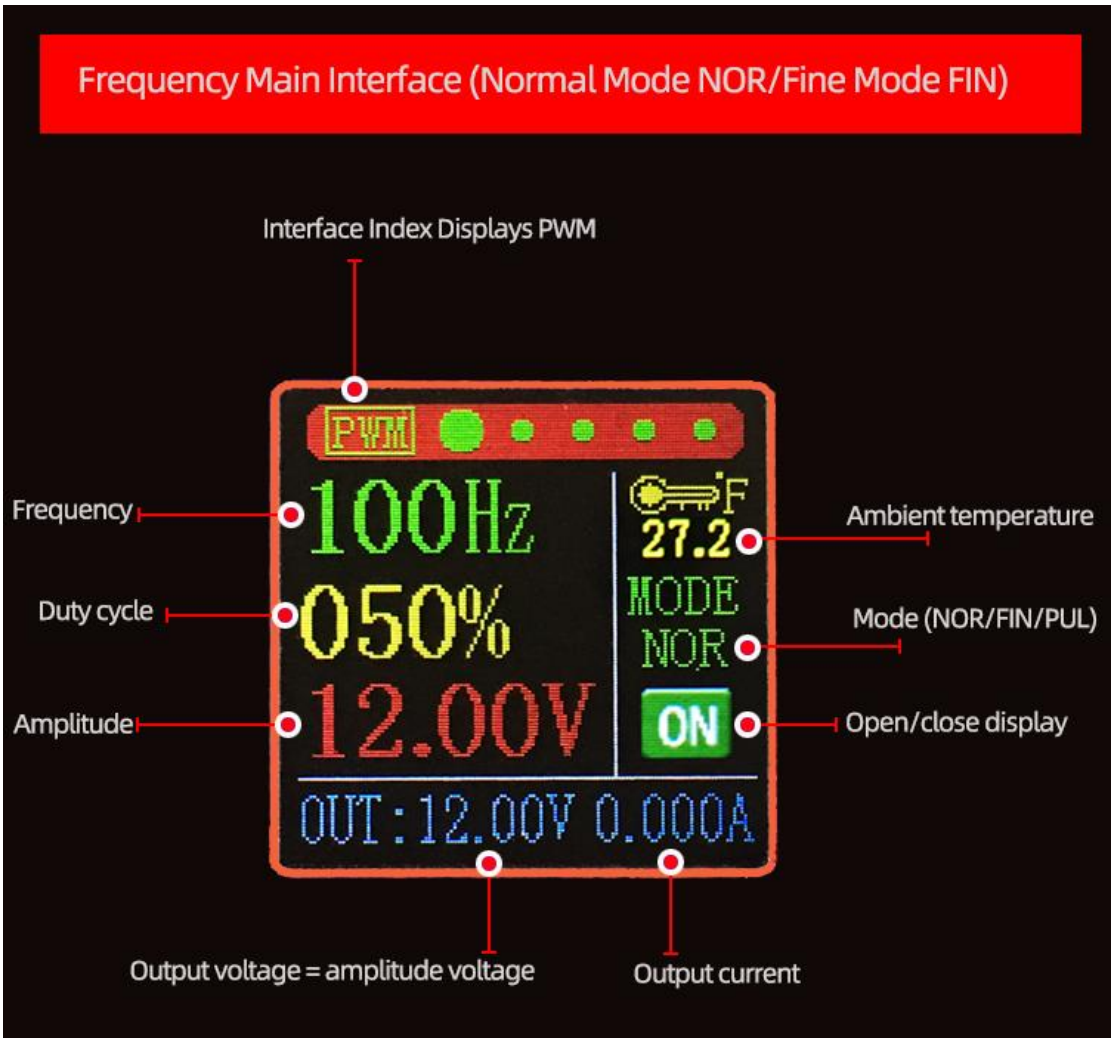
The key operation is the same as PER's power parameter setting interface'.

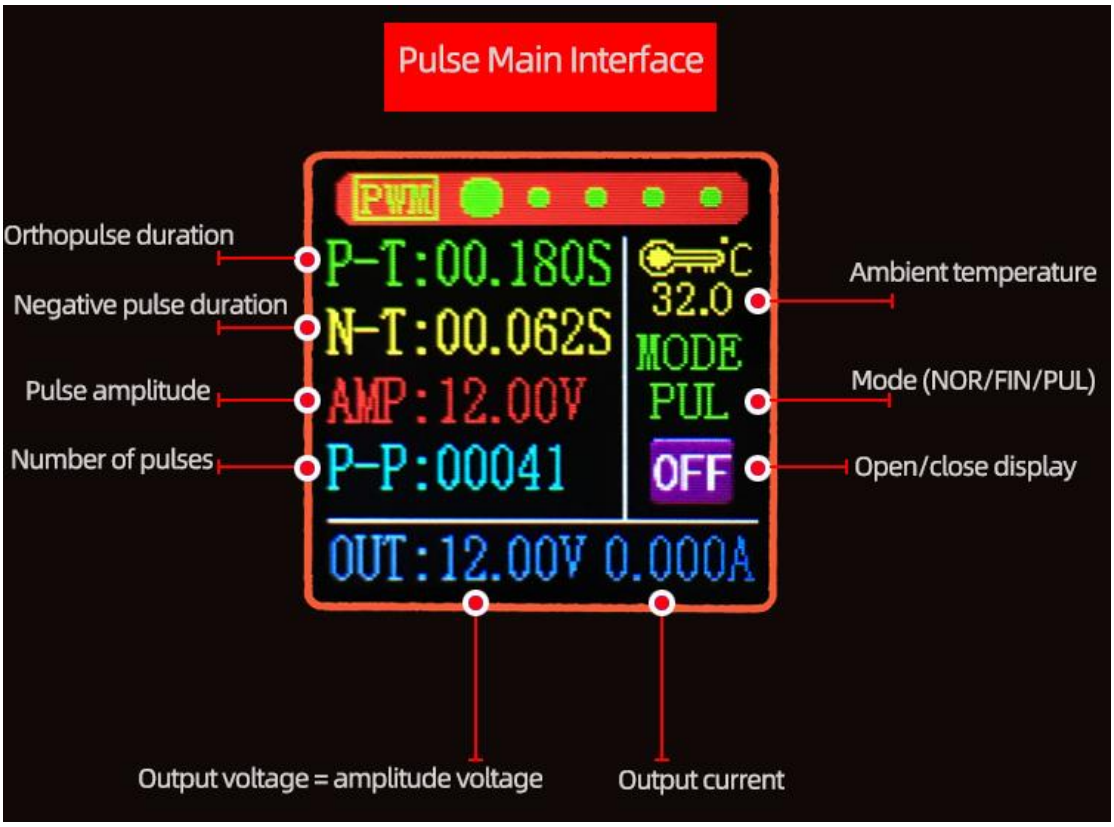
Press the'SET'button to activate the parameters to be set.
The switch between parameter name and bit selection is realized by pressing the'SET'button.
When the parameter name is selected, the parameter name will be displayed in reverse blue, and the parameters to be set will be switched by the `UP/DOWN'button.
After bit selection, the corresponding bit will be displayed in reverse blue. The parameters are set by the'UP/DOWN'button. The'UP/DOWN' button supports long press, and the long press increases/decreases the parameters rapidly.
When the settings are completed, press the'SET'button for 2 seconds or no key operation for more than 6 seconds will automatically exit the settings.
All parameters are saved automatically after exit.

PWM system PWM:

Shortly press the ON/OFF button, turn on and off the PWM output, and long press the ON/OFF button for 2 seconds. The screen can rotate 360 degrees in four directions.
Short press the `UP/DOWN'button to turn the page.

Frequency Main Interface:

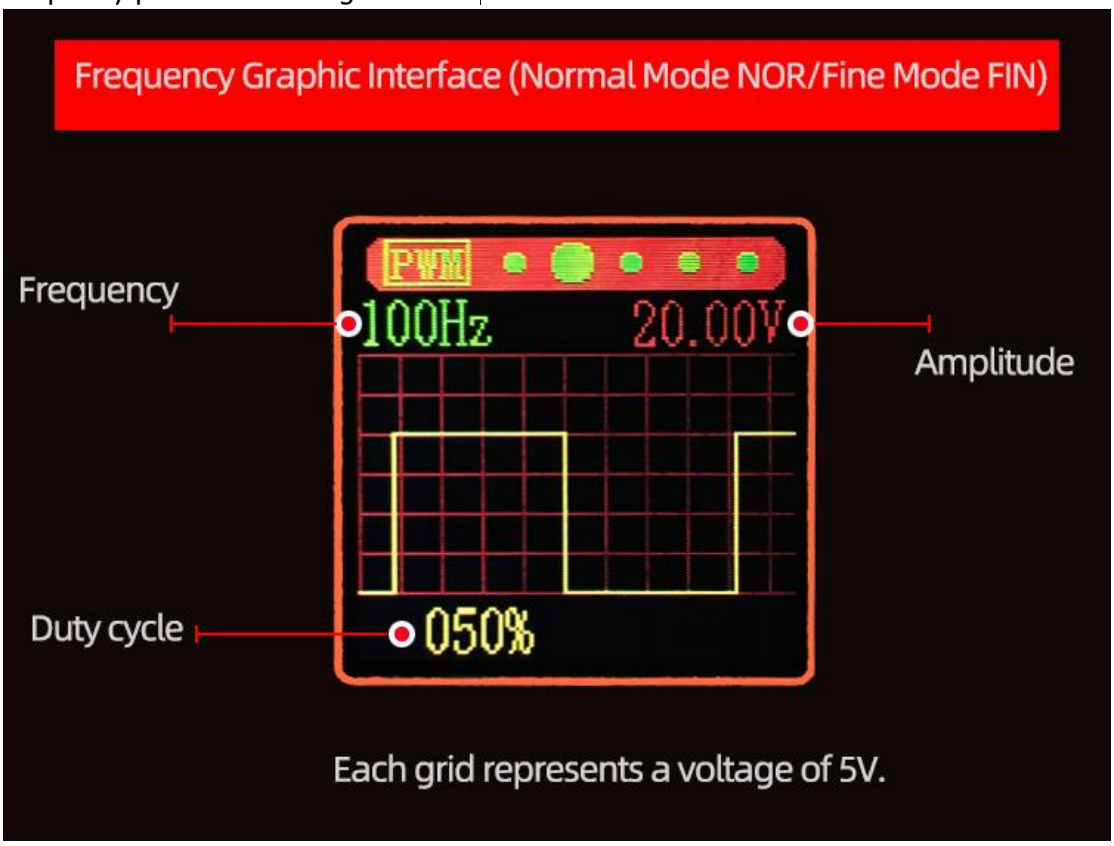


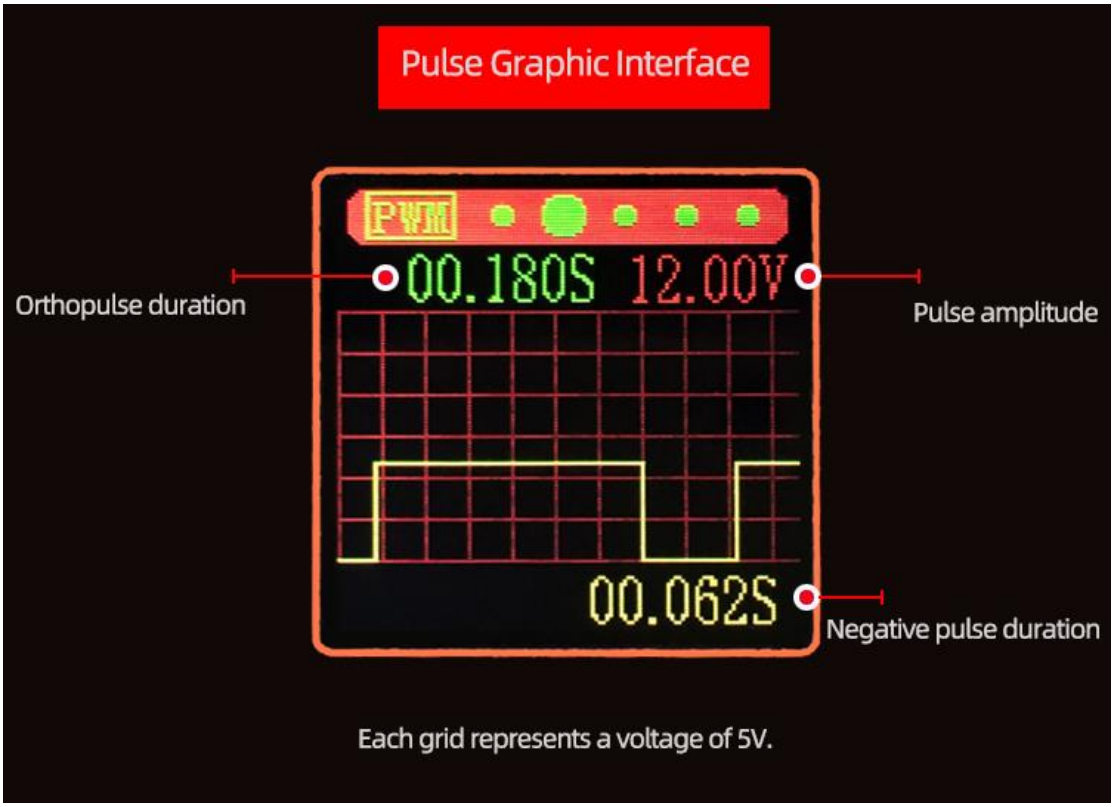


The operation of key press is the same as that of PER's main interface of power supply system.

Press the'SET'button to activate the parameters (frequency/duty cycle/amplitude/mode) to be set.
The switch between full selection and bit selection is realized by pressing the'SET'button.
After full selection, all anti-blue display will be displayed, and the parameters to be set will be switched by the'UP/DOWN'button.
After bit selection, the corresponding bit will be displayed in reverse blue. The parameters are set by the'UP/DOWN'button. The'UP/DOWN' button supports long press, and the long press increases/decreases the parameters rapidly.
When the settings are completed, press the'SET'button for 2 seconds or no key operation for more than 6 seconds will automatically exit the settings.
All parameters are saved automatically after exit.

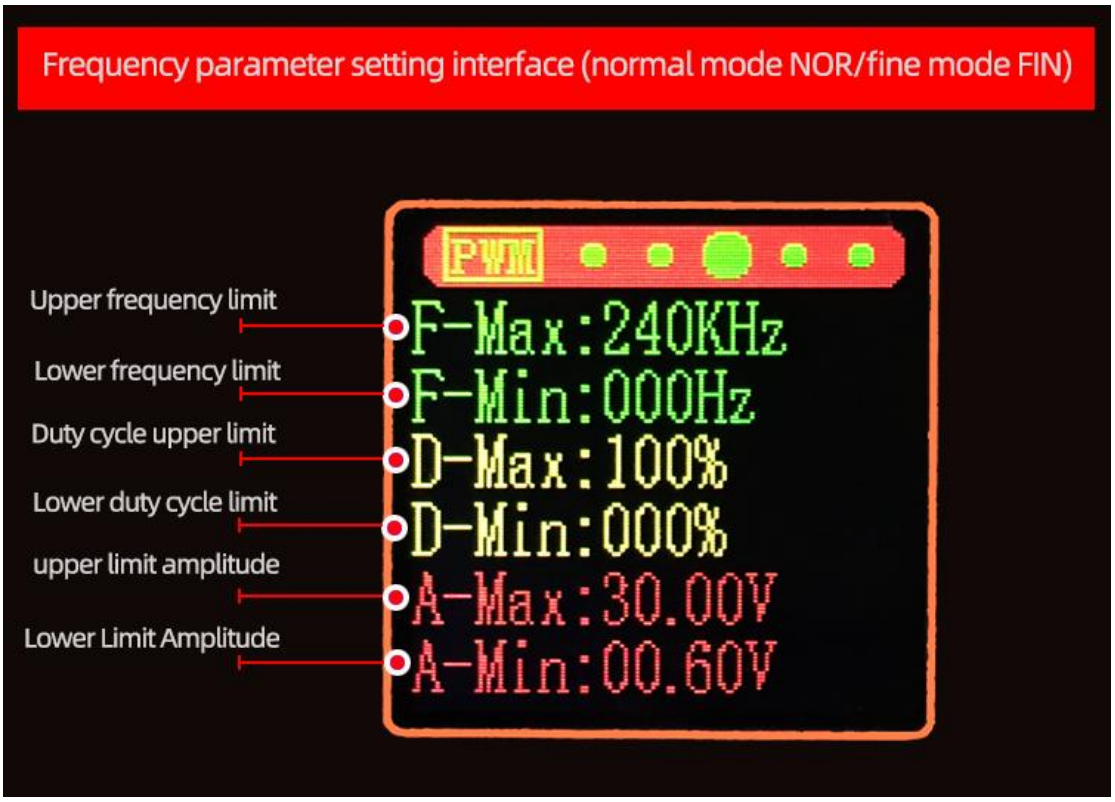
Frequency parameter setting interface:

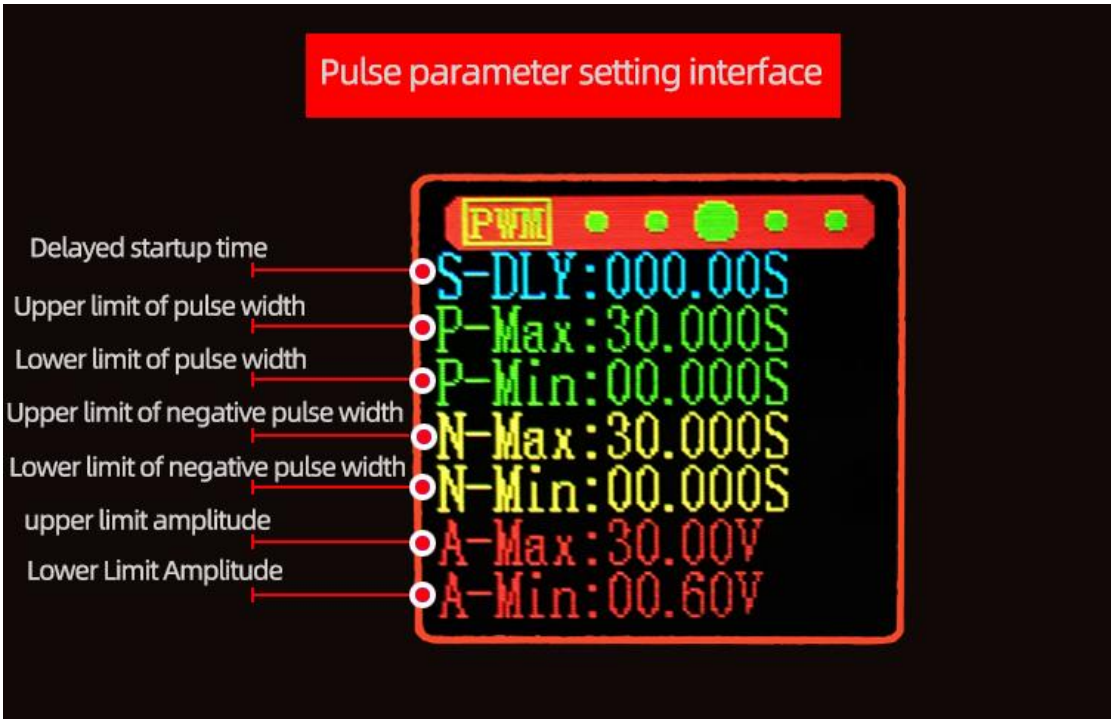




The operation of key press is the same as that of PER's main interface of power supply system.

Frequency parameter setting interface:





The key operation is the same as PER's power parameter setting interface'.

Press the'SET'button to activate the parameters to be set.
The switch between parameter name and bit selection is realized by pressing the'SET'button.

When the parameter name is selected, the parameter name will be displayed in reverse blue, and the parameters to be set will be switched by the `UP/DOWN'button.
After bit selection, the corresponding bit will be displayed in reverse blue. The parameters are set by the'UP/DOWN'button. The'UP/DOWN' button supports long press, and the long press increases/decreases the parameters rapidly.
When the settings are completed, press the'SET'button for 2 seconds or no key operation for more than 6 seconds will automatically exit the settings.
All parameters are saved automatically after exit.

Fine mode FIN and pulse mode PUL button operation are the same as normal mode NOR button operation.

Products and accessories

Small size, the size of a pack of cigarettes, portable, versatile, is a device worth possessing by everyone.

Chinese and English cards, scan code to see instructions, suitable for global users to view。

Size :92mm*63mm*19mm Weight : 79g