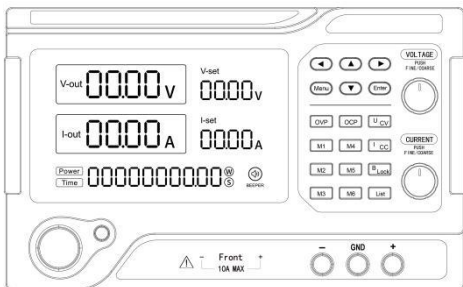


DC power supply



6000PE series program control power supply product instruction manual

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Performance indicators are subject to change without further statement.

Safety Profile

This section contains important safety instructions that must be followed when operating the power supply and storage environment. To ensure your personal safety, please read the following user manual carefully before operating to ensure that the power supply is in the best working environment.

Safety Guide

General
introduc
tion



attention

- Do not place heavy objects on the housing.
- Avoid damage to the machine due to serious impact or improper disposal.
- Take precautions against electrostatic discharge when connecting the instrument.
- Do not block or isolate fan vents.

	● Do not open the machine case unless it is a professional.
Power supply 	● AC input voltage: 220V $\pm$ 10%, 50Hz (110V input or 100V/220V manual switch) ● The ground cable of the power cable should be connected to the ground terminal to avoid electric shock.
Fuse 	● Make sure to use the correct fuse model before turning it on. ● To prevent fire, replace fuses that match the model and rating. ● Disconnect the power supply before replacing the fuse to rule out the cause of the damage.
Clean the machine	● Disconnect the power before cleaning. ● Wet a soft cloth with mild

	detergent and clean water, and do not spray the cleaner directly. ● Do not use chemicals or cleaners that contain abrasive products such as benzene, toluene, xylene, and acetone.
Operating environment	● Place of use: indoors, away from direct sun, dust and strong magnetic fields. ● Relative humidity: <80% ● Altitude: <2000m ● Temperature: 5°C to 40°C
Storage environment	● Location: Indoors ● Relative humidity: <70% ● Temperature: 0°C to 70°C

1 Overview

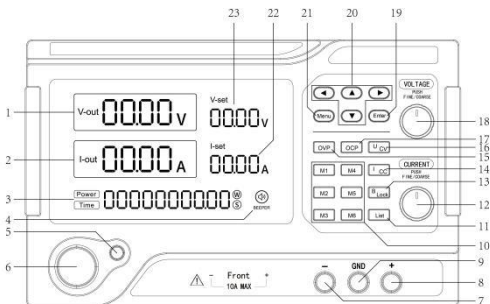
This series of products is a single output DC regulated power supply, LED digital display, can simultaneously display voltage, current, power and output time, voltage and current continuously adjustable.

1.1 Functional Features

- LED digital display, display voltage, current value, select display output time or output power.
- Stable voltage, stable current automatic switch, one key output on/off switch, output control is more flexible
- Over voltage, over current, over power, over temperature, short circuit protection five powerful protection functions
- 6 groups of quick parameter callback and storage function
- Programmable sequence output with hardware List

- Standard serial port, support Modbus programming instruction set
- Standard with SENSE compensation interface
- Adjustable output voltage, current, and the actual output value at the same time display
- Temperature control fan, energy saving
- One key lock keyboard to prevent misoperation

1.2 Front and Rear Panels



Front panel diagram

1. Output voltage display: The default mode displays the actual output voltage value, in volts (V); Enter the "MENU" menu mode to display the function menu name.

2. Output current display: The default mode displays the actual output current value, in amperes (A); Enter "MENU" or "OVP" or "OCP" menu mode to display the corresponding status value of the current menu, "ON/OFF" indicates the function opening state "on/off".

3. Time/Power/Status display/Menu:

Default mode display shows time value, the output format for the "D-H-M-S", corresponding to said "day - hour - minute - second" , "D-H-M-S" maximum value for the "9-23-59-59" (10 days);

The power display mode displays the actual output power value in the format of "xxxxxxx.xxx",

unit: watt (W), and displays "OFF" when the output is off;

The display format of time editing mode is "----xxxxx", unit: second (S), the maximum xxxxx is 43,200 seconds (12 hours);

"MENU" menu mode display format is "NO.x--xxxxx". "NO.x" indicates the menu number, and "xxxxx" indicates the parameter value of the corresponding menu.

The display format of the menu mode of "LIST" is Mx---xxxxx. "Mx" indicates the shortcut group number, and "xxxxx" indicates the time value of the corresponding group.

4. Buzzer function Of Key display: when the key sound is on, this symbol is lit, and when the key sound is off, this symbol is not displayed.

5. Key of output ON/OFF: can directly control the power output on/off. Green indicates that the output is On; Red indicates that output is off.

6. Power switch: It is power on/off switch. It is normally on after pressing.

7. Output negative pole: power output negative pole; Output current range: 0~10A, When the output current will be higher than 10A, need to use the back-side output pole. Models above 2400W do not have this port.

8. Output positive pole: power output positive pole; Output current range: 0~10A, When output current will be higher than 10A, need to use the back-side output pole. Models above 2400W do not have this port.

9. Ground terminal: The safety ground terminal connected with the power supply housing, models above 2400W (including) do not have this port;

10. "M1" ~ "M6" six groups of setting parameter storage keys: in the normal mode, press to ENTER the shortcut parameter preview/editing mode, and

setup the voltage value, current value and time value of the shortcut parameter through the direction keyboard or the voltage rough adjustment shuttle or the "Enter" confirmation key. In editing mode, press "B Lock" key to exit directly and save the set value or after hold to operate 5S, the system will out of the mode and save the set value; Press twice consecutively to set the voltage value and current value of the shortcut parameter key to the current output voltage value and current value.

11. "List" mode key: long press 2S to enter or exit the hardware List function mode, the hardware List function mode "List" button light is on; In List mode, when the output state is disconnected, press the shortcut key in the six groups of "M1" to "M6" to select or delete whether the shortcut parameter of this group is executed cyclic output, and the backlight of the key

corresponding to the selected express parameter group is steady on; List output shortcut parameter execution sequence is from "M1" to "M6" the selected shortcut parameter group. Press the "ON/OFF" key to start List function output.

12. Current adjustment shuttle: Used to adjust the current value when the current is stable, press down to move the current editing bit.

13. "B Lock" exit/keyboard lock key: in ordinary mode, short press to return to the main interface of the power supply; Long press 2S to exit or enter the Lock keyboard, all function keys ON the panel (excluding ON/OFF keys) are invalid, at this time, the "B Lock" light is on.

14. "I CC" current setting key: in ordinary mode, short press to enter the interface of power current setting, and the current data setting bit flashes. "I CC" light on indicates steady current state at the current output.

15. "OVP" overvoltage setting key: in the ordinary mode, short press to enter the power overvoltage function editing mode, the current overvoltage threshold data setting bit flashing display; Press this key again in the editing mode to switch the opening state of the overvoltage function ON/OFF.

16. "U CV" voltage setting key: in normal mode, press it to enter the interface of power voltage setting, and the current data setting bit will flicker. "U CV" light on indicates the current output at the voltage regulator state;

17. "OCP" overcurrent setting key: in the ordinary mode, short press to enter the power overcurrent function editing mode, the current overcurrent threshold data setting bit flashing display; In the editing mode of overcurrent function, press this key again to switch the opening state of overcurrent function ON/OFF.

18. voltage regulation shuttle: used to adjust the voltage value when the voltage is stabilized, press to move the current editing bit.

19. "Enter" confirm key: enter the MENU function menu short press the confirm key to save the current options and data; When entering the editing mode of M1~M6 shortcut parameters, press the "confirm" key to save the current option data and switch to editing voltage value or current value or time value.

20. Arrow key: When entering the editing mode, press the left or right arrow key and move the cursor blinking bit in the corresponding direction. Press the up or down arrow key to increase or decrease the value of the cursor blinking bit by 1.

21. "MENU" function menu key: short press to enter or switch the function menu, the corresponding function menu is:

NO.1: Output timing closed function menu "Time", through the voltage adjustment shuttle or direction keys to adjust the current value or select the function state open (ON) or OFF);Short press the "Enter" key to save the value or state, while switching the edit function menu state and parameter value.

NO.2: The first output state function menu is "OUT" when the power is powered ON, and the function state is on or OFF through the voltage adjustment shuttle or the direction key;Short press "Enter" key to save the state.

NO.3: Output compensation function menu "SENS", select function state ON (ON) or OFF (OFF) through voltage regulation shuttle or direction keys;Short press "Enter" key to save the state.

NO.4: Key sound function menu "BELL", select function state ON (ON) or OFF (OFF) through

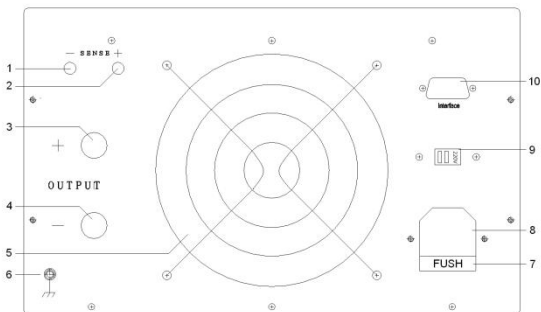
voltage adjustment shuttle or direction keys; Short press "Enter" key to save the state.

NO. 5: Serial port communication address menu "Addr", it can be adjust the voltage by voltage adjustment shuttle or direction key . or select the function ON or OFF; Short press the "Enter" key to save the value or setting, while switching the edit function menu state and parameter value.

NO. 6: Select the display menu "-P-T" in the power TIME display window, and select display "POWE" (output power value) or "time" (time value) through the voltage adjustment shuttle or the direction key; Short press the "Enter" key to save the selection.

22. Preset Current display: Displays the preset current value, in amperes (A).

23. preset voltage display: display preset voltage value, unit: volt (V).



Rear panel picture

1. **SENSE input negative:** sampling point at the far end of the negative output voltage of the power supply;
2. **SENSE input positive:** power supply output voltage positive far sampling point;
3. **output positive:** power output positive (+) pole; Output current range: 0~ maximum rating.
4. **output negative:** power output negative (-) pole; Output current range: 0~ maximum rating.

- 5. Cooling fan vent:** used for power supply air cooling heat dissipation. The fan can be started according to the internal operating temperature of the power supply, effectively reducing the standby power consumption and extending the life of the fan.
- 6. Ground terminal:** ground terminal, connected with the power supply shell;
- 7. Fuse holder:** it is equipped with power fuse, which can be replaced by prying open with a flat-head screwdriver. Note: Models above 2400W (including) do not have fuse holder, built-in circuit breaker.
- 8. Power input socket:** AC input port, 2400W (including) above the model here leads a cable to connect with the input AC power.
- 9. Input power switch:** AC110V/220V input switch (the default is not with this switch).
- 10. Communication interface:** standard RS485 communication serial port, support the optional RS232/USB interface. Support MODBUS

communication protocol, to read or control the output value of the power supply;

1.3 First Use

1.3.1 Connecting the Power Supply

(1) Input power requirements

Refer to Chapter 4 Performance Specifications for input power supply details.

(2) Check the fuse

When the instrument leaves the factory, a suitable fuse has been installed.

(3) Connect the instrument power cord

Connect the instrument to the AC power supply using the power cord provided with the attachment. For models above 2400W, connect the power cable directly to the AC power supply.



To avoid electric shock, make sure the instrument is properly grounded.

1.3.2 Power-on check

Press the power ON key , the backlight of the "ON/OFF" key shows red, the power output is in the OFF state, press the "ON/OFF" key, the backlight of the "ON/OFF" key shows green, the power output has been turned on.

Tip: If you turn on the power again after shutting it down, please ensure that the time interval between the two starts is longer than 5s.

1.33 Output Check

The output check ensures that the instrument responds correctly to the front panel operation and outputs the rating. The output check includes the voltage output when the channel is empty and the current output when it is short circuited.

(1) Output switch

To turn ON the power output, press the "ON/OFF" key, its back light turns green; Pressing the key again will

turn off the output and turn the back light red.

(2) Voltage output check

- a. When the instrument is unloaded, turn on the power button to confirm that the current setting steady current value is not 0;
- b. Press the "ON/OFF" key to open the output, and when the back light turns green, the channel is in the state of stable voltage output (C.V. Light up). Check that the voltage can be adjusted from 0 to the maximum rating.

(3) Current output check

- a. Turn on the power button;
- b. Adjust the voltage Adjust the shuttle so that the power output voltage value is any value in 3-5V. Press "ON/OFF" again to disconnect the output;
- c. Use a wire to short the front panel output terminal;
- d. Press the "ON/OFF" key to turn on the output, and after its back light turns green, the channel is in a

steady current output state (C.C. Light on). Check that the current can be adjusted from 0 to the maximum rating.

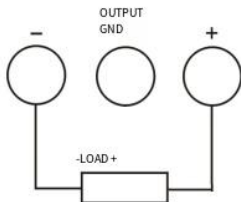
Chapter 2 Operating Instructions

2.1 Stabilized voltage output

The power supply provides two power supply output modes: stabilized voltage output (CV) and stabilized current output (CC).

In CV mode, the output voltage is directly controlled by the voltage-regulated shuttle; In CC mode, the output current is controlled by the current regulating shuttle. For example: voltage is set to 16V, current is set to maximum rating, and access load is $8\Omega/300W$. $16V/8\Omega = 2A < \text{the maximum rating}$, so the regulated voltage output is 16V, 2A power supply.

To do it:



- (1) Power on: Press the power button to start the instrument into the working state.
- (2) Voltage setting: Adjust the voltage regulating shuttle will set the voltage value to 16V.
- (3) Current setting: Adjust the current to adjust the shuttle to steady current value to the maximum rating.
- (4) Connect the output lead: Connect the output terminal of the instrument to the load as shown below.
- (5) Open the output: press the "ON/OFF" key (corresponding back light green), and the

instrument will work in the voltage stabilized output mode.

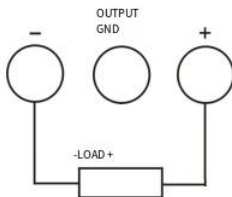
Tip: In CV mode, if the output current exceeds the set value due to load changes, the instrument will switch to CC mode according to the current set value, and the output voltage will also be reduced proportionally. At this point, the current setting value can be increased to restore the CV output.

2.2 Steady current output

For example: Set voltage to 16V, current to maximum rating 5A (eTM-305), and access load to $1\Omega/300W$. Since $1\Omega \times 5A = 5V < 16V$, and $16V/1\Omega = 16A > 5A$, this channel steady current output 5V, 5A power supply.

Operation steps:

- (1) Connect the output lead: Connect the output terminal of the instrument to the load as shown below.



attention

An incorrect connection can result in

damage to the product or the device connected to it.

- (2) Power on: Press the power button to start the instrument into operation.
- (3) Voltage setting: Adjust the voltage regulating shuttle will set the voltage value to 16V.
- (4) Current setting: Adjust the current to adjust the shuttle to steady current value to the maximum rating.
- (5) Open the output: press the "ON/OFF" key (corresponding back light green), the instrument will work in the steady current output mode.

Tip: In CC mode, if the output voltage exceeds the set value due to load changes, the instrument will switch to CV mode according to the current set voltage value, and the output current will also be reduced proportionally. At this point, the voltage setting can be increased to restore CC output.

3. Maintenance

3.1 Regular inspections

- During the use of the product, in order to ensure that the product can reach its best working condition, please do regular inspection.
- Check that the power supply input socket is not burnt out. Check for any loose power output terminals.

3.2 Replacement of fuses

Steps:

- (1) Remove the power cord, then use a small screwdriver

to remove the fuse box. Figure 1:

(2) Replace the fuse. Figure 2:

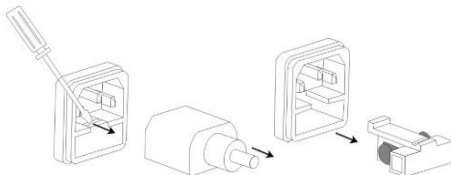


Figure 1 Figure 2

Fuse specifications:

Models with power $\leq 1200\text{W}$:

220V: F10A/250V

110V: F20A/250V

1200W < Power < 2400W models:

220V: F20A/250V

Note: Models with power $\geq 2400\text{W}$ do not come with this fuse, built-in circuit breaker.

4. Specification

4.1 Display resolution

Voltage resolution	< 100V: 10mV ≥100V: 100mV
Current resolution	< 100A: 10mA ≥100A: 100mA
Power resolution	< 10W: 1mW ≥10W: 10mW ≥100W: 0.1W ≥1000W: 1W
Time resolution	S

4.2 Output parameters (When using this specification, make sure you turn it on for more than 10 seconds)

Voltage stability: $\leq \pm (0.2\% + 5\text{digits})$

Current stability: $\leq \pm (0.5\% + 5\text{digits})$

Load stability: $\leq 0.5\%$

Ripple and noise: $\leq 1\%$ (effective value)

4.3 Preset accuracy of voltage and current value

Preset accuracy of output voltage: $\pm 0.1V$

Preset accuracy of output steady current: $\pm 0.1A$

4.4 Operating environment:

Indoor use

Altitude: $\leq 2000m$

Ambient temperature: $5^{\circ}C \sim 40^{\circ}C$

Relative humidity: $< 80\%$

4.5 Storage Environment:

Indoor storage

Ambient temperature: $0-70^{\circ}C$

Relative humidity: $< 70\%$

4.6 Power Input

AC220V $\pm 10\%$, 50Hz (or AC110V input or AC100V/220V manual switch)

4.7 Accessories:

1 copy of instructions; 1 certificate of qualification; 1 power cord (models below 2400W)

4.8 Bare device size

< 2400W model : 330 (D) × 250 (W) × 155 (H) mm

≥ 2400W models : 410 (D) × 250 (W) × 155 (H) mm

4.9 Package Size:

< 2400W models : 420 (D) × 310 (W) × 220 (H) mm

≥ 2400W models : 497 (D) × 310 (W) × 220 (H) mm

4.10 Communication parameters:

Baud rate: 9600

Starting bit: 1

Data bit: 8

Check bit: None

Stop bit: 1

4.11 Weight:

Type	< 2400W	≥ 2400 w
Net weight	About 5Kg	About 7.5Kg

Chapter V Product Declaration of toxic and harmful substances

Components Name	Product toxic or hazardous substance or element					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
Printed circuit components	X	O	O	O	O	O
Transformer	X	O	O	O	O	O
Connecting wire	X	O	O	O	O	O
Hardware case	X	O	O	O	O	O
Power cord	X	O	O	O	O	O
Electronics Materials	O	O	O	O	O	O
Plastic Panels	O	O	O	O	O	O
Packaging Materials	O	O	O	O	O	O

O: indicates that the content of the toxic and hazardous substance in all homogeneous materials of the part is below the limit requirements specified in the SJ/T11363-2006 standard.

X: indicates that the content of the toxic or harmful substance in at least one homogeneous material of the component exceeds the limit requirements specified in the SJ/T11363-2006 standard.

Note: This table shows that the product may contain these substances, but this information may be updated with the development of technology;The reason for the "X" is that there is no alternative technology or component available at the present stage, and it complies with the regulations of the People's Republic of China "Measures for the Control and Administration of Pollution from Electronic Information Products".

Chapter VI Warranty Service

1、Sincerely thank you for choosing this power supply, our company will strictly implement the national three-guarantee policy. For the quality problem of the product itself is not caused by human factors, you can handle the repair, replacement and return by the invoice and the

certificate of three guarantees. If the warranty period is exceeded, only the cost of replacement parts will be charged.

2. Please pack and ship the products properly when you send them for repair. If any damage or loss occurs during delivery, the company will not be responsible for it.

3. Please make sure that the warranty card is stamped and dated by the after-sales unit to ensure your rights and interests.

4, the following circumstances are not exempt from the service scope:

(1) More than the validity period of three packages.

(2) altering the certificates of the three packages without authorization.

(3) Failure to use, maintain and keep the product according to the requirements of the instructions for use, resulting in damage.

(4) Product damage caused by natural disaster, power grid failure or other irresistible factors.

(5) Accessories are not covered by warranty.

(6) The product model or number on the certificate of three packages is inconsistent with the real product.

Warranty card

This card is a proof of product warranty. Please keep it safe

Product name (Product model)	
Date of purchase	
Unit sold	
Customer name	
Customer address	
Customer phone number	
Fault description	