P50000 Series
High-Power DC Power Supply
User Manual

For product support, visit : www.owon.com.hk/download

※: The illustrations, interface, icons and characters in the user manual may be slightly different from the actual product. Please refer to the actual product.

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General Warranty

We warrant that the product will be free from defects in materials and workmanship for a period of 2 years (1 year for accessories) from the date of purchase of the product by the original purchaser from our company. This warranty only applies to the original purchaser and is not transferable to a third party.

If the product proves defective during the warranty period, we will either repair the defective product without charge for parts and labour, or will provide a replacement in exchange for the defective product. Parts, modules and replacement products used by our company for warranty work may be new or reconditioned like new. All replaced parts, modules and products become the property of our company.

In order to obtain service under this warranty, the customer must notify our company of the defect before the expiration of the warranty period. Customer shall be responsible for packaging and shipping the defective product to the designated service centre, a copy of the customers proof of purchase is also required.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. We shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than our company representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of not our supplies; or d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

Please contact the nearest Sales and Service Offices for services.

Excepting the after-sales services provided in this summary or the applicable warranty statements, we will not offer any guarantee for maintenance definitely declared or hinted, including but not limited to the implied guarantee for marketability and special-purpose acceptability. We should not take any responsibilities for any indirect, special or consequent damages.

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1. General Safety Requirements

Before use, please read the following safety precautions to avoid any possible bodily injury and to prevent this product or any other connected products from damage. To avoid any contingent danger, ensure this product is only used within the ranges specified.

Only a qualified person should perform internal maintenance.

To avoid Fire or Personal Injury:

- **Use Proper Power Cord.** Use only the power cord supplied with the product and certified to use in your country.
- **Product Grounded.** This instrument is grounded through the power cord grounding conductor. To avoid electric shock, the grounding conductor must be grounded. The product must be grounded properly before any connection with its input or output terminals.
- **Check all Terminal Ratings.** To avoid fire or shock hazard, check all ratings and markings on this product. Refer to the user manual for more information about ratings before connecting to the instrument.
- **Do not operate without covers**. Do not operate the instrument with covers or panels removed.
- **Use the Proper Fuse.** Use only the specified type and rating fuse for this instrument.
- **Avoid exposed circuit**. Be careful when working on exposed circuitry to avoid risk of electric shock or other injury.
- **Do not operate if any damage.** If you suspect damage to the instrument, have it inspected by qualified service personnel before further use.
- **Use your instrument in a well-ventilated area.** Please keep well ventilated and inspect the intake and fan regularly.
- **Do not operate in damp conditions.** To avoid short circuiting to the interior of the device or electric shock, please do not operate in a humid environment.
- **Do not operate in an explosive atmosphere.** To avoid damages to the device or personal injuries, it is important to operate the device away from an explosive atmosphere.
- **Keep product surfaces clean and dry.** To avoid the influence of dust or moisture in air, please keep the surface of device clean and dry.

2. Safety Terms and Symbols

Safety Terms

Terms in this manual (The following terms may appear in this manual):



Warning: Warning indicates conditions or practices that could result in injury or loss of life.



Caution: Caution indicates the conditions or practices that could result in damage to this product or other property.

Terms on the product. The following terms may appear on this product:

Danger: Indicates an immediate hazard or injury possibility.

Warning: Indicates a possible hazard or injury.

Caution: Indicates potential damage to the instrument or other property.

Safety Symbols

Symbols on the product. The following symbols may appear on the product:



Hazardous Voltage



Refer to Manual



Protective Earth Terminal



Chassis Ground



Public Ground

3. Quick Guide

3.1 Product Overview and Specification

P50000 series high-power DC power supply is characterized by high safety, high quality, and high stability. They provide stable voltage regulation for high-power DC systems with LED four-digit voltage and current displays. Our company's uniquely developed China over voltage protection function features a minimum set current of 4mA. Their exceptional stability and reliability make them ideal tools for colleges and universities, industrial production lines, home appliance repair units, and other applications.

Model	Voltage continuously adjustable				Maximum output current					
	0-30V	0-60V	0-100V	0-200V	2A	3A	5A	10A	20A	30A
P50320	●								●	
P50330	●									●
P50610		●						●		
P50620		●							●	
P51002			●		●					
P51003			●			●				
P51005			●				●			
P52002				●	●					
P52003				●		●				
P52005				●			●			

3.2 Panel

3.2.1 Front Panel

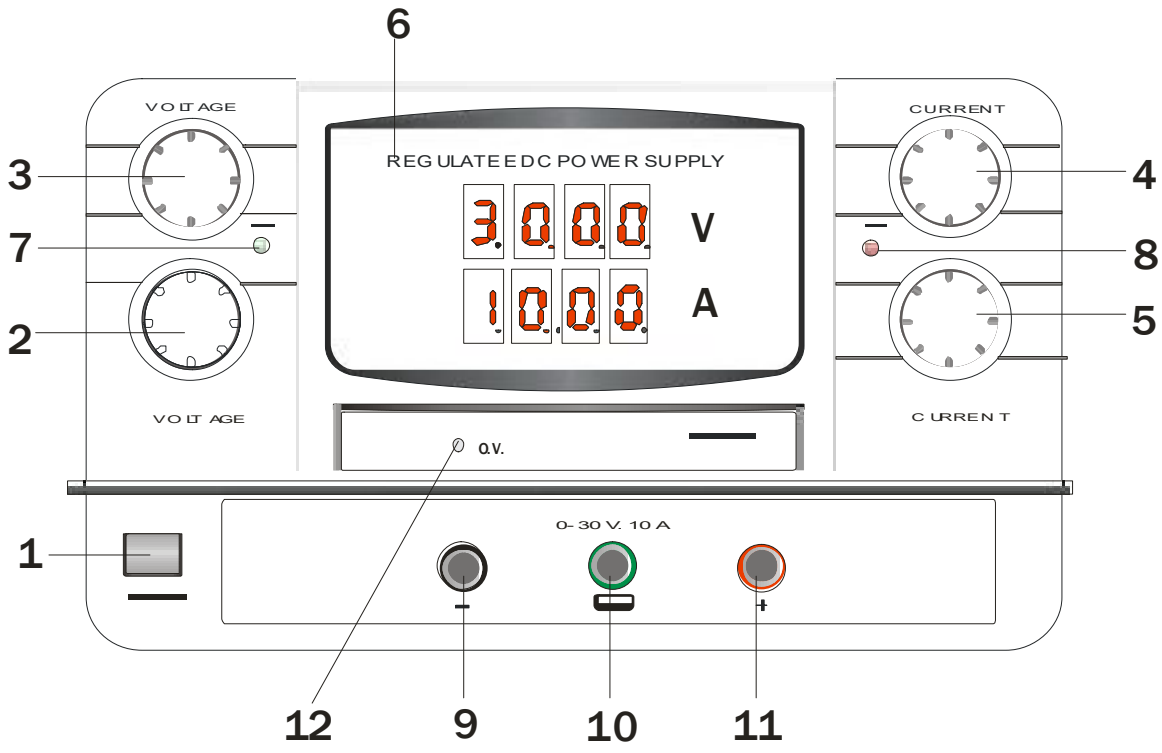


Figure 3- 1 Front Panel Overview

1. POWER power switch.
2. Fine: Turn clockwise to increase the output voltage, and turn counterclockwise to decrease the output voltage.
3. Voltage output coarse adjustment knob COARSE: clockwise rotation increases the output voltage, counterclockwise rotation decreases the output voltage.
4. Coarse adjustment knob COARSE: clockwise rotation increases the output voltage, counterclockwise rotation decreases the output voltage.
5. Fine adjustment knob FINE: clockwise rotation increases the output voltage, counterclockwise rotation decreases the output voltage. The fine adjustment knob FINE and coarse adjustment knob COARSE can be used together to adjust the output voltage to the required accurate value.
6. Voltage and current value display panel meter.

7. CV voltage stabilization working status indicator: this light is lit when the voltage is stabilized.
8. CC steady flow working state indicator: this light is lit in the steady flow working state.
9. 0-30V output terminal "-" pole. (black).
10. Ground GND: This terminal is connected to the housing and to the ground wire of the power line.
11. 0 ~ 30V. Output terminal "+". (red).
12. Overpressure protection indicator.

3.2.2 Rear Panel

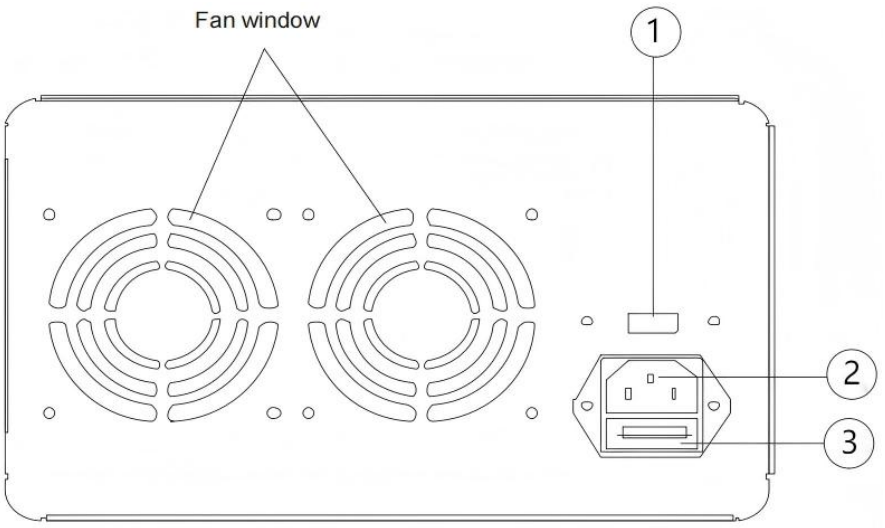


Figure 3- 2 Rear Panel Overview

1. Source voltage input converter.
2. Source voltage input socket.
3. Fuse holder.

4. Instructions for use and Protective Measures

- The POWER switch is turned off, and the power cord attached to the power supply is connected. The grounding wire in the power cord should be ensured to have a good connection with the earth.
- The high-power series power supply is a floating type power supply. If the output end must be grounded, the positive (+) or negative (-) terminal of the front panel 0-30V output can be connected to the ground (GND) with the grounding plate attached to the power supply.
- Attention should be paid to ventilation when using this power supply. Keep a gap of 10cm between the upper, lower, left and right sides and other objects to ensure smooth ventilation. Do not expose this power supply to dust, corrosive gas and other harmful substances.
- Stable voltage output preset: Put the POWER switch on, the CV light is lit, and the power supply works in a stable voltage state. Adjust the VOLTAGE knob 7-COARSE and 8-FINE to make the output voltage reach the predetermined value, and then connect the load to the 0-30V output end of this power supply to work normally.
- Current Output Setting: When no load is present, adjust the output voltage to a range of 2-5V. Turn the CURRENT knob (coarse and fine positions 9-COARSE and 10-FINE) to the "0" position. Short-circuit the + and- terminals using a dedicated wire, which will illuminate the CC indicator. Adjust the CURRENT knob to achieve the desired output current. Disconnect the short-circuit wire, set the voltage to the required level, and connect the load to start operation.
- The technical index measurement of this power supply should be carried out after 15 minutes of preheating.

5. Maintenance

(1) When the power supply voltage is normal, the POWER light, CV light and digital display are not on after starting up, it may be due to fuse burnout or other faults. Disconnect the power switch, unplug the power cord, replace the fuse or ask a professional to check.

(2) When the voltage regulator is used, if the output voltage is less than the predetermined value and the CC light is on, it is current protection. The machine will automatically switch to the steady flow working state. At this time, the load should be checked or the maximum current should be increased according to the use (turn CURRENT clockwise).

(3) When the steady current source is used, if the output current is less than the predetermined value and the CV light is on, it is the open circuit voltage protection. The machine will automatically switch to the steady voltage working state. At this time, the load should be checked or the maximum voltage should be increased according to the use (turn the VOLTAGE clockwise).

(4) When used as a voltage stabilizer, the operation is unstable, which may be due to the AC power supply voltage below 198V. If the fault still cannot be solved, please contact your local distributor or our company.

6. Technical Specifications

6.1 Rated Working Conditions

Power supply voltage	AC: 110V/220V ±10%，50Hz / 60Hz
Working conditions	Temperature: 0-40 ℃ Relative humidity: ≤85%RH
Storage conditions	Temperature: -10℃-80℃ Relative humidity: ≤80%RH

6.2 Technical Indicators

Stabilized voltage characteristic	
Source effect: CV	$5*10^{-4}$ + 2 mV
Load effect: CV	$5*10^{-4}$ + 2 mV
Ripples and noise	≤1.5 mV (effective straight)
Stabilized current characteristic	
Source effect: CC	$2*10^{-4}$ + 3 mV
Load effect: CC	≤15 mA
Current temperature coefficient	500 ppm/℃
Ripples and noise	≤ 1.5 mA
Display accuracy	
Precision of digital display	Four digits show ≤ ±(0.1% + 5d)
Power Resolution	
Voltage four digit display resolution: 10 mV Current four digit display resolution: 1 mA	
Recovery Time	
Recovery time	≤100 us

7. Appendix

7.1 Appendix A: Accessories

- Machine*1
- Power cord*1
- User manual*1
- Fuse*1

7.2 Appendix B: General Care and Cleaning

General Care

Do not store or leave the instrument where the liquid crystal display could be exposed to direct sunlight for long periods of time.
Caution: To avoid any damage to the instrument, do not exposed it to any sprays, liquids, or solvents.

Cleaning

Inspect the instrument as often as operating conditions require. To clean the instrument exterior, perform the following steps:
1. Wipe the dust from the instrument surface with a soft cloth. Take care not to scratch the transparent LCD protection screen when cleaning.
2. Disconnect power before cleaning your instrument. Clean the instrument with a damp soft cloth (not dripping with water). It is recommended to clean with soft detergent or fresh water. To avoid damage to the instrument, do not use any corrosive chemical cleaning agents.



Warning: Before re applying power, ensure that the instrument is completely dry, avoiding any electric shock or electrical short circuit resulting from moisture.