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LWLONGWEI PDS-3010G

LWLONGWEI PDS-3010G DC Power Supply User Manual

Model: PDS-3010G

1. INTRODUCTION

This manual provides essential information for the safe and effective operation of your LWLONGWEI PDS-3010G DC Power Supply. Please read this manual thoroughly before use and retain it for future reference.

1.1 What's Included

- 1 x LWLONGWEI PDS-3010G Variable DC Power Supply
- 1 set of Output Power Cords (banana plug to alligator clip)
- 1 x Input Power Cord
- 1 x User Manual

1.2 Safety Precautions

- Ensure the power supply is properly grounded.
- Do not operate in wet or damp conditions.
- Verify the input voltage switch (110V/220V) on the rear panel is set correctly for your local power grid before connecting the power cord. Incorrect setting can cause damage.
- Avoid short-circuiting the output terminals.
- Do not open the casing; there are no user-serviceable parts inside except for the fuse, which should only be replaced by qualified personnel.
- Ensure adequate ventilation around the unit to prevent overheating.

2. PRODUCT OVERVIEW

The LWLONGWEI PDS-3010G is a high-precision, adjustable switching regulated DC power supply offering 0-30V and 0-10A output. It features a 4-digit LED display for accurate voltage, current, and power readings, along with coarse and fine adjustment knobs for precise control.

Introduction to Panel Functions

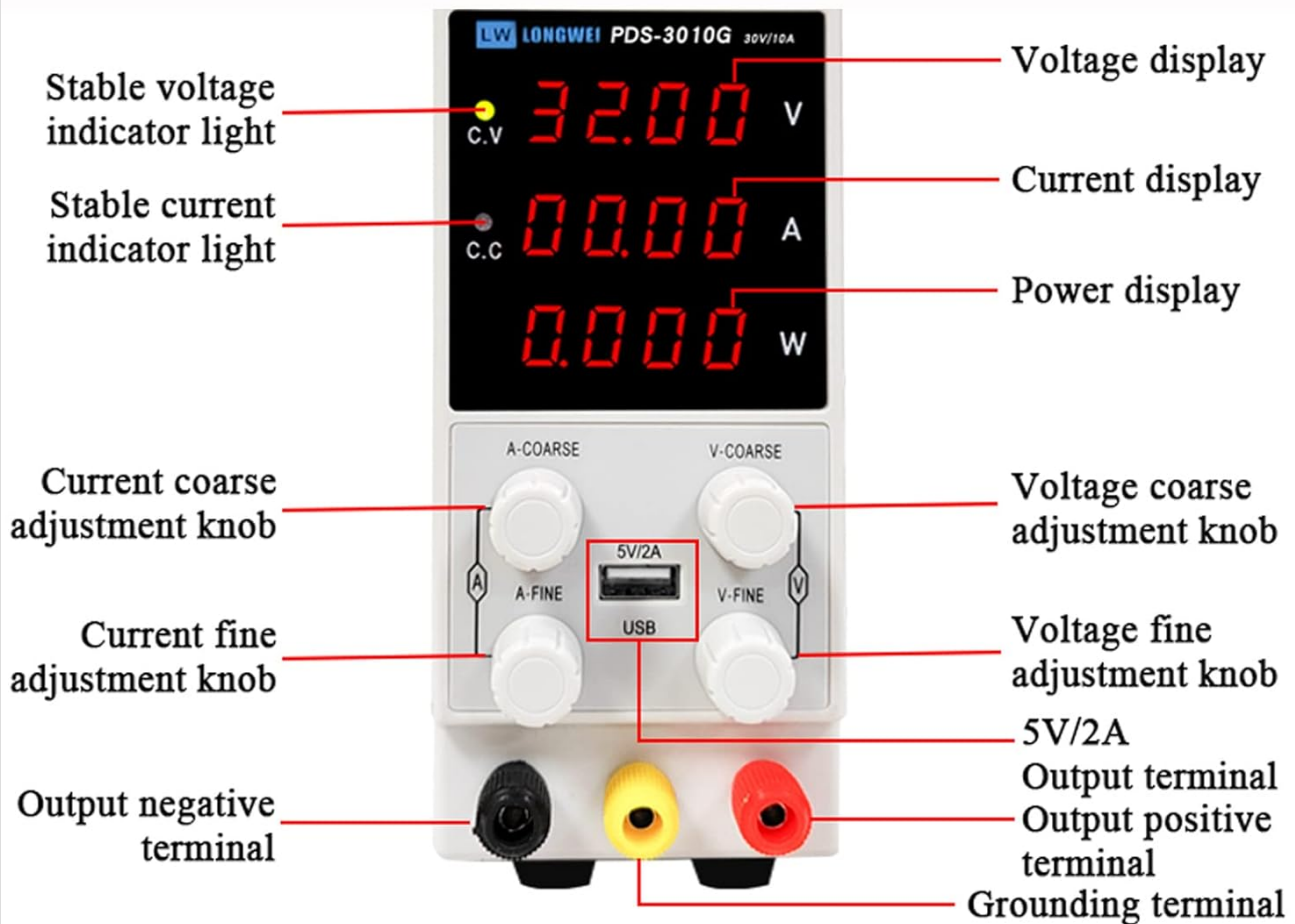


Figure 2.1: Front Panel Functions

This image illustrates the front panel of the PDS-3010G power supply. It highlights the 4-digit LED displays for voltage, current, and power, along with indicator lights for Constant Voltage (C.V.) and Constant Current (C.C.) modes. The panel also shows the coarse and fine adjustment knobs for both voltage and current, a 5V/2A USB charging interface, and the output terminals (negative, grounding, positive).

Introduction to Panel Functions



Figure 2.2: Rear Panel Functions

This image displays the rear panel of the PDS-3010G power supply. Key components identified include the main power switch, the cooling fan for thermal management, the input voltage switching switch (110V/220V) which must be set correctly, and the power socket with an internal fuse.

2.1 Front Panel Controls and Indicators

- **Voltage Display:** 4-digit LED display showing the output voltage in Volts (V).
- **Current Display:** 4-digit LED display showing the output current in Amperes (A).
- **Power Display:** 4-digit LED display showing the output power in Watts (W).
- **C.V. Indicator Light:** Illuminates when the unit is operating in Constant Voltage mode.
- **C.C. Indicator Light:** Illuminates when the unit is operating in Constant Current mode.
- **V-COARSE / V-FINE Knobs:** Coarse and fine adjustment knobs for setting the output voltage.
- **A-COARSE / A-FINE Knobs:** Coarse and fine adjustment knobs for setting the output current limit.
- **USB 5V/2A Interface:** Provides a fixed 5V, 2A output for charging devices.
- **Output Terminals:** Black (Negative), Yellow (Grounding), Red (Positive) terminals for connecting the load.

2.2 Rear Panel Components

- **Power Switch:** Main switch to turn the unit ON or OFF.

- **Cooling Fan:** Activates automatically to dissipate heat when the internal temperature exceeds 50°C (122°F).
- **Input Voltage Switching Switch (110V/220V):** Selects the appropriate input voltage for your region. **Ensure this is set correctly before connecting to power.**
- **Power Socket:** For connecting the input power cord. Contains an internal fuse.

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Video 2.1: Product Overview

This video provides a brief visual overview of the LWLONGWEI PDS-3010G DC Power Supply, showcasing its front and rear panels, input voltage selection, USB charging capability, and certifications. It highlights key features and components of the device.

3. SETUP

1. **Placement:** Place the power supply on a stable, level surface with adequate ventilation. Ensure no obstructions block the cooling fan on the rear panel.
2. **Input Voltage Selection:** Locate the red input voltage switching switch on the rear panel (refer to Figure 2.2). Use a small tool to set it to either **110V** or **220V**, matching your local power grid. **Failure to set this correctly can damage the unit.**
3. **Power Connection:** Connect the provided input power cord to the power socket on the rear panel and then to a grounded AC outlet.
4. **Output Cable Connection:** Connect the provided output power cords (banana plug to alligator clip) to the output terminals on the front panel. The red cable connects to the red (+) terminal, the black cable to the black (-) terminal, and the yellow cable to the yellow (ground) terminal if grounding is required for your application.
5. **Initial Power On:** Ensure all adjustment knobs (V-COARSE, V-FINE, A-COARSE, A-FINE) are turned fully counter-clockwise to their minimum settings. Flip the power switch on the rear panel to the 'ON' position. The LED displays should illuminate.

4. OPERATING INSTRUCTIONS

4.1 Setting Voltage and Current

1. **Pre-setting Current Limit (Constant Current Mode):**
 - a. With no load connected to the output terminals, turn the A-COARSE and A-FINE knobs clockwise to set the desired maximum current limit. The C.C. indicator may light up, and the current display will show the set limit.
 - b. Turn the V-COARSE and V-FINE knobs clockwise to set the desired output voltage. The C.V. indicator should light up.
2. **Connecting the Load:** Connect your device or circuit to the output terminals using the output power cords. Ensure correct polarity.
3. **Operation:**
 - a. If the load draws less current than the pre-set limit, the unit will operate in Constant Voltage (C.V.) mode, and the C.V. indicator will be lit. The voltage display will show the set voltage, and the current display will show the actual current drawn by the load.
 - b. If the load attempts to draw more current than the pre-set limit, the unit will automatically switch to Constant Current (C.C.) mode, and the C.C. indicator will be lit. The current display will show the pre-set current limit, and the voltage display will show the voltage across the load at that current.
4. **Adjusting During Operation:** You can adjust voltage and current limits during operation using the respective coarse and fine adjustment knobs. Use fine adjustment for precise tuning.

4.2 Using the USB 5V/2A Interface

The USB port on the front panel provides a fixed 5V, 2A output. This can be used to charge compatible USB devices or power small electronics. Simply connect your USB device to this port.

5. MAINTENANCE

5.1 Cleaning

To clean the unit, disconnect it from all power sources and loads. Use a soft, dry cloth to wipe the exterior. Do not use abrasive cleaners or solvents. Ensure no liquids enter the unit.

5.2 Cooling System

The PDS-3010G features an intelligent temperature control cooling fan. The fan will activate automatically when the internal working temperature exceeds 50°C (122°F) to maintain optimal operating conditions and prolong the product's lifespan. Ensure the rear fan grille remains clear of dust and obstructions.



Figure 5.1: Intelligent Temperature Control Fan

This image highlights the rear panel of the power supply, emphasizing the intelligent temperature control fan. The fan is designed to reduce noise and extend its lifespan by adjusting speed based on load and internal temperature, ensuring efficient heat dissipation.

6. TROUBLESHOOTING

- **No Power:**

- a. Check if the input power cord is securely connected to both the unit and the AC outlet.
- b. Verify the power switch on the rear panel is in the 'ON' position.
- c. Ensure the input voltage switch (110V/220V) is set correctly for your region.
- d. Check the internal fuse. If blown, it indicates an issue and should be replaced by qualified personnel with a fuse of the same rating.

- **No Output Voltage/Current:**

- a. Ensure the output cables are correctly connected to the terminals and the load.
- b. Check if the voltage and current adjustment knobs are set above zero.
- c. If the C.C. indicator is lit and current is at maximum, the load may be drawing more current than the set limit, or there might be a short circuit in the load.

- **Fan is Loud/Always On:**

The intelligent fan activates based on internal temperature. If it runs continuously or loudly, ensure adequate ventilation around the unit and that the fan grille is not obstructed. This is normal operation under higher loads or ambient temperatures.

- **Inaccurate Readings:**

While the unit provides high precision, for critical measurements, always verify with a calibrated external multimeter.

7. SPECIFICATIONS

Parameter specifications

Manual measurement: If there is any error, refer to the actual product



Brand	Longwei	Model	PDS-3010G
Ripples Noise	$\leq 0.5\%FS$ (Valid value)	Work environment	Temperature: $-10^{\circ}C-40^{\circ}C$ Relative humidity: $<80\%$
Voltage stability	$\leq 0.5\%FS$	Storage conditions	Temperature: $-20^{\circ}C-50^{\circ}C$ Relative humidity: $<70\%$
Current stability	$\leq 0.5\%FS$	Overall dimensions	200x73x160mm
Load stability	$\leq 0.5\%FS$	Weight	2kg

Figure 7.1: Parameter Specifications

This image presents a detailed table of technical specifications for the LWLONGWEI PDS-3010G, including electrical parameters, environmental conditions, and physical dimensions. It also shows a side-by-side comparison of the unit with its measurements.

Parameter	Value
Brand	LWLONGWEI
Model	PDS-3010G
Output Voltage	0-30V Adjustable
Output Current	0-10A Adjustable
Output Wattage	300W
Voltage Display Accuracy	±0.5%FS
Current Display Accuracy	±0.5%FS
Voltage Resolution	0.01V
Current Resolution	0.01A
Ripples Noise	≤0.5%FS (Valid value)
Voltage Stability	≤0.5%FS
Current Stability	≤0.5%FS
Load Stability	≤0.5%FS
Fixed USB Output	5V/2A
Operating Environment Temperature	-10°C to 40°C
Operating Environment Relative Humidity	<80%
Storage Conditions Temperature	-20°C to 50°C
Storage Conditions Relative Humidity	<70%
Overall Dimensions (L x W x H)	200 x 73 x 160 mm (7.87 x 2.87 x 6.3 inches)
Item Weight	1.5 kg (3.3 pounds)
Cooling Method	Air (Intelligent Fan)

8. WARRANTY AND SUPPORT

The LWLONGWEI PDS-3010G DC Power Supply is designed for reliable operation. For warranty information or technical support, please refer to the documentation provided with your purchase or contact LWLONGWEI customer service directly. Technical support is available from LWLONGWEI.