**OWON SPE8105**

# OWON Lab Power Supply SPE8105 User Manual

Programmable DC Power Supply (0-80V, 0-10A, 500W)

## 1. Introduction

This manual provides comprehensive instructions for the safe and effective use of the OWON SPE8105 Programmable DC Power Supply. It covers product features, component identification, setup procedures, operating instructions, maintenance guidelines, troubleshooting tips, and detailed technical specifications. Please read this manual thoroughly before operating the device to ensure proper functionality and safety.


Figure 1: OWON SPE8105 Lab Power Supply and included accessories (power cord, USB cable).

## 2. Product Overview

### 2.1 Key Features

- **Multi-Information Display:** A 2.8-inch TFT LCD simultaneously displays set and actual voltage, current, output power, cumulative runtime, and channel status. It automatically switches to Constant Current (CC) mode if the actual current exceeds the preset value.
- **Multiple Protection Functions:** Includes current limit, thermal, voltage overload (OVP), short circuit, and overpower protection to enhance durability and longevity.
- **Convenient USB Port Design:** Features a 5V/1A USB output port for charging mobile devices and a rear USB communication port for firmware updates and PC software control.
- **Adjustable Power Supply:** Constant power design with a wide application range, allowing flexible configuration of higher voltage and current within the rated power. Programmable with four groups of shortcut parameters and supports waveform editing and editable timing output for up to ten groups.
- **Compact and Lightweight:** Measures 3.2 x 8.9 x 5.6 inches and weighs 3.3 pounds, optimizing workbench space and portability.

## 2.2 Front Panel Components


Figure 2: Front and Rear Panel Layout of the OWON SPE8105.

1. **2.8-inch LCD:** Displays operational parameters and settings.
2. **Current Setting Button:** Used to adjust current parameters.
3. **Overcurrent Protection Setting (OCP):** Configures overcurrent protection limits.
4. **Adjustment Knob:** Rotary encoder for parameter adjustment.
5. **Channel Output On/Off Button:** Activates or deactivates the output. Long press for automatic output function.
6. **Channel Output Terminals:** Connect positive (red), negative (black), and ground (green) leads.
7. **Shortcut Output Button (Memory):** Accesses stored parameters. Long press to enter the List waveform timing output interface.
8. **Display Button:** Toggles display modes or information.
9. **Overvoltage Protection Setting (OVP):** Configures overvoltage protection limits.
10. **Voltage Setting Button (V):** Used to adjust voltage parameters.

## 2.3 Rear Panel Components

- **Intelligent Temperature Control Fan:** Provides cooling for the unit.
- **Fuse:** Overcurrent protection for the input power.
- **Power Switch:** Turns the unit on or off.
- **USB Device Communication Port:** For PC software control and firmware updates.
- **Power Cord Socket:** Connects the power supply to the AC mains.

## 3. Setup

1. **Unpacking:** Carefully remove the power supply and all accessories from the packaging. Verify that all components listed in the package contents are present.
2. **Placement:** Place the power supply on a stable, level surface with adequate ventilation. Ensure that the fan vents on the rear panel are not obstructed.
3. **Power Connection:** Connect the provided power cord to the power cord socket on the rear panel of the device, then plug the other end into a grounded AC power outlet (100-240V AC).
4. **Output Connections:** Connect your load to the output terminals on the front panel. Ensure correct polarity: red for positive (+), black for negative (-), and green for ground.

## 4. Operating Instructions

### 4.1 Powering On/Off

- To power on, press the power switch on the rear panel to the 'ON' position. The LCD will illuminate.
- To power off, press the power switch on the rear panel to the 'OFF' position.

### 4.2 Setting Voltage and Current


Figure 3: Detailed view of the 2.8-inch IPS LCD display.

- Press the 'V' button to select voltage adjustment. Rotate the adjustment knob to set the desired voltage.
- Press the 'I' button to select current adjustment. Rotate the adjustment knob to set the desired current limit.
- The display shows set values (Set) and actual output values.

## 4.3 Output Enable/Disable

- Press the 'On/Off' button to enable or disable the output to the connected load. The 'ON' or 'OFF' indicator on the display will change accordingly.
- A long press of the 'On/Off' button may activate an automatic output function, if configured.

## 4.4 Protection Functions (OVP/OCP)

- **Overvoltage Protection (OVP):** Press the 'OVP' button to set the maximum allowable output voltage. If the output voltage exceeds this limit, the power supply will shut down the output to protect the load.
- **Overcurrent Protection (OCP):** Press the 'OCP' button to set the maximum allowable output current. If the output current exceeds this limit, the power supply will switch to CC mode or shut down the output.

### 4.5 Memory Function

- The 'Memory' button allows you to store and recall up to four groups of frequently used voltage and current settings.
- A long press on the 'Memory' button will enter the List waveform timing output interface for advanced programming.

### 4.6 USB Port Usage

- The front 5V/1A USB port can be used to charge compatible mobile devices.
- The rear USB communication port allows connection to a PC for software control and firmware updates. Refer to the OWON website for compatible software and update procedures.

## 5. Maintenance

- **Cleaning:** Disconnect the power supply from the AC mains before cleaning. Use a soft, dry cloth to wipe the exterior. Do not use abrasive cleaners or solvents.
- **Ventilation:** Ensure that the ventilation openings are kept clear of dust and debris to prevent overheating.
- **Fuse Replacement:** If the fuse blows, disconnect the power cord and replace it with a fuse of the same type and rating (refer to specifications).
- **Storage:** When not in use for extended periods, store the power supply in a dry, dust-free environment.

## 6. Troubleshooting

- **No Power:** Check the power cord connection and ensure the power switch is in the 'ON' position. Verify the AC outlet is functional and check the fuse on the rear panel.
- **No Output:** Ensure the output is enabled using the 'On/Off' button. Check for active OVP or OCP conditions that might have shut down the output. Verify connections to the load.
- **Incorrect Output:** Verify voltage and current settings. Ensure the load is connected correctly and is within the power supply's operating range.
- **Overheating:** Ensure adequate ventilation around the unit. Clear any obstructions from the fan vents. Reduce the load if operating continuously at high power.
- For persistent issues, refer to the detailed troubleshooting guide on the OWON support website or contact customer service.

## 7. Specifications

# PRODUCT SPECIFICATIONS

The instrument must be operated coninuously for more than 30 minutes at the specified operating temperature to achieve the following specifications.

| Model | SPE8105 |
|---|---|
| Output Voltage | 0-80V |
| Output Current | 10A |
| Max Output Power | 500W |
| OVP | 85V |
| OCP | 11A |
| OTP | 85°C |
| Load Regulation | ≤20mV(Voltage); ≤10mA(Current) |
| Power Regulation | ≤20mV(Voltage); ≤10mA(Current) |
| Setting Resolution | 10mV/ 1mA |
| Readback Resolution | 10mV /1mA |
| Setting Accuracy(25°C±5°C) | ≤0.01%±20mV (Voltage); ≤0.05%±10mA(Current) |
| Readback Accuracy(25°C±5°C) | ≤0.01%±20mV(Voltage); ≤0.05%±10mA(Current) |
| Ripple/Noise(*) | ≤50mVp-p; ≤15mAp-p |
| Output temperature coefficient(0°C-40°C) | 100ppm/°C (Voltage); 200ppm/°C (Curent) |
| Readback temperature coefficient | 100ppm/°C (Voltage); 200ppm/°C (Curent) |
| Response Time (50%-100% rated load) | ≤5.0ms |
| Storage | 4 groups of data |
| Display | 2.8inch LCD(IPS) |
| Interface | USB Device |
| Dimension | 82mm(W) x 142mm(H) x 226mm(D) |
| Weight | Approx. 1.8 kg |

* Ripple & Noise (Noise bandwidth 20MHz, ripple bandwidth lMHz, connect 10uF electrolytic capacitor in paralel wth 0.luf ceramic capacitor tothe output terminal for testing)

Figure 4: OWON SPE8105 Product Specifications.

| Parameter | Value |
|---|---|
| Model | SPE8105 (OWON-SPS3081) |
| Output Voltage | 0-80V |
| Output Current | 0-10A |
| Max Output Power | 500W |
| Overvoltage Protection (OVP) | 85V |
| Overcurrent Protection (OCP) | 11A |
| Over Temperature Protection (OTP) | 85°C |
| Load Regulation (Voltage) | ≤20mV |
| Load Regulation (Current) | ≤10mA |
| Power Regulation (Voltage) | ≤20mV |

| Parameter | Value |
| --- | --- |
| Power Regulation (Current) | ≤10mA |
| Setting Resolution (Voltage) | 10mV |
| Setting Resolution (Current) | 1mA |
| Readback Resolution (Voltage) | 10mV |
| Readback Resolution (Current) | 1mA |
| Setting Accuracy (25°C±5°C) (Voltage) | ≤0.01%±20mV |
| Setting Accuracy (25°C±5°C) (Current) | ≤0.05%±10mA |
| Readback Accuracy (25°C±5°C) (Voltage) | ≤0.01%±20mV |
| Readback Accuracy (25°C±5°C) (Current) | ≤0.05%±10mA |
| Ripple & Noise (Voltage) | ≤50mVp-p |
| Ripple & Noise (Current) | ≤15mAp-p |
| Output Temperature Coefficient (Voltage) | 100ppm/°C |
| Output Temperature Coefficient (Current) | 200ppm/°C |
| Response Time (50%-100% rated load) | ≤5.0ms |
| Storage | 4 groups of data |
| Display | 2.8inch LCD (IPS) |
| Interface | USB Device |
| Dimension (W x H x D) | 82mm x 142mm x 226mm |
| Weight | Approx. 1.8 kg |

*Note: The instrument must be operated continuously for more than 30 minutes at the specified operating temperature to achieve the following specifications. Ripple & Noise bandwidth 20MHz, ripple bandwidth 1MHz, connect 10uF electrolytic capacitor in parallel with 0.1uF ceramic capacitor to the output terminal for testing.*


Figure 5: OWON SPE8105 dimensions and internal component layout.

## 8. Warranty and Support

OWON products are designed for reliability and performance. For warranty information, technical support, or service, please contact your local distributor or visit the official OWON website. Keep your purchase receipt as proof of purchase for warranty claims.
Manufacturer: ZHANGZHOU LILLIPUT ELECTRONIC TECHNOLOGY CO.,LTD.

**Related Documents - SPE8105**

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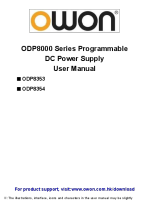
|---|---|
|  | [OWON SPS Series Single Channel Output DC Power Supply User Manual]<br>User manual for the OWON SPS Series Single Channel Output DC Power Supply. Provides detailed information on safety precautions, quick start guide, panel operations, troubleshooting, and general care. Essential for operating and maintaining the SPS Series power supply. |
|  | [OWON ODP3031 Linear Programmable DC Power Supply User Manual]<br>Comprehensive user manual for the OWON ODP3031 Linear Programmable DC Power Supply, detailing its features, operation, safety precautions, troubleshooting, and technical specifications. |
|  | [OWON ODP Series Linear Programmable DC Power Supply User Manual]<br>User manual for the OWON ODP Series Linear Programmable DC Power Supply, covering general safety, characteristics, quick start guide, front panel operation, PC communication, troubleshooting, technical specifications, and appendices. |
|  | [OWON ODP Series Triple Output DC Power Supply User Manual]<br>Comprehensive user manual for OWON ODP Series Triple Output Linear Programmable DC Power Supplies (ODP3033, ODP3063, ODP6033), covering setup, operation, safety, and technical specifications. |
|  | [Owon P Series Single Channel DC Power Supply User Manual]<br>Comprehensive user manual for the Owon P Series single channel DC power supply, detailing safety precautions, panel operations, system settings, troubleshooting, and general care. |
|  | [OWON ODP8000 Series Programmable DC Power Supply User Manual]<br>Comprehensive user manual for the OWON ODP8000 Series Programmable DC Power Supply, covering ODP8353 and ODP8354 models. It details safety precautions, front and rear panel operations, user interface, output settings, programmable functions, utility settings, troubleshooting, and technical specifications. |