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**OWON SPM6053-60V/5A**

# OWON SPM6053 2-in-1 Laboratory Power Supply & Multimeter User Manual

Model: SPM6053-60V/5A | Brand: OWON

## 1. Introduction

The OWON SPM6053 is a versatile 2-in-1 device that combines a high-performance DC power supply with a precise digital multimeter. Designed for a wide range of applications, from electronics repair to laboratory research, this unit offers efficient power delivery and accurate measurement capabilities in a compact form factor.


Figure 1.1: The OWON SPM6053 unit shown with its included accessories, including multimeter leads, a power cord, and a fuse.

## Key Features:

- **Versatile 2-in-1 Design:** This combination of DC power supply and multimeter offers multiple functions in one device, providing excellent value, space-saving, high performance, and improved work efficiency. The OWON SPM6053 features a 300W output power and a 60V/5A output range. The laboratory power supply also includes a USB charging port with SCPI support, allowing you to charge mobile phones or other devices.
- **Multimeter Function:** This device is not only a laboratory power supply but also functions as a 4 1/2-digit digital multimeter. Effortlessly measure voltage, current, capacitance, resistance, and continuity, and perform diode tests. The 2.8-inch LCD display offers high resolution (10mV/1mA) for convenient use.
- **Powerful Circuit Protection:** Our laboratory power supply features multiple circuit protection settings to ensure safe and worry-free operation. The independent on/off button for the output controls circuit protection. It can be set with over-voltage and over-current values to protect the circuit. The intelligent CV/CC switching mode ensures effective circuit protection.
- **Wide Range of Applications:** Equipped with an intelligent temperature-controlled fan and efficient heat dissipation, this power supply is perfect for laboratories, electronics repair, DIY projects, communication equipment maintenance, production lines, research and teaching institutions, as well as for mobile phone and laptop repairs, PCB aging tests, and battery charging experiments, etc.
- **What You Get:** OWON DC Power Supply, power cord, user manual, multimeter leads, as well as professional technical support from the OWON Team. If you have any questions, please feel free to consult us at any time.

# 2. Setup Guide

## 2.1 Unpacking and Inspection

Carefully remove the OWON SPM6053 from its packaging. Verify that all components listed below are present and undamaged:

- OWON SPM6053 DC Power Supply Unit
- Power Cord
- Multimeter Leads (Red and Black)
- User Manual (this document)
- Spare Fuse (typically included)

If any items are missing or damaged, please contact OWON customer support immediately.

## 2.2 Connecting the Device

1. Ensure the power switch on the rear panel of the unit is in the **OFF** position.
2. Connect the provided power cord to the power input socket on the rear panel of the SPM6053.
3. Plug the other end of the power cord into a grounded AC power outlet. Ensure the power supply voltage matches the rating on the unit's label (100-240V AC, 50/60Hz).
4. For multimeter functions, connect the red multimeter lead to the **VΩ+Hz** or **A** input terminal and the black lead to the **COM** terminal on the front panel, depending on the measurement type.


Figure 2.1: Front and rear panel overview. Note the power switch on the rear and the various input/output terminals on the front.

### 2.3 Initial Power On

Once connected, flip the power switch on the rear panel to the**ON** position. The 2.8-inch LCD display on the front panel will illuminate, indicating the unit is ready for operation. The device will typically boot into the DC Power Supply mode by default.

## 3. Operating Instructions

### 3.1 DC Power Supply Mode

In DC Power Supply mode, the unit provides a stable and adjustable voltage and current output. The display shows the set voltage, set current, and actual output values.

1. **Setting Voltage and Current:** Use the **V** and **I** buttons to select the voltage or current parameter you wish to

adjust. Rotate the adjustment knob to change the value. Press the knob to confirm or move to the next digit.

2. **Output Control:** Press the **On/Off** button to enable or disable the output. When the output is enabled, the corresponding indicator will light up.
3. **CV/CC Mode:** The device automatically switches between Constant Voltage (CV) and Constant Current (CC) modes depending on the load and set limits. The display will indicate the active mode.

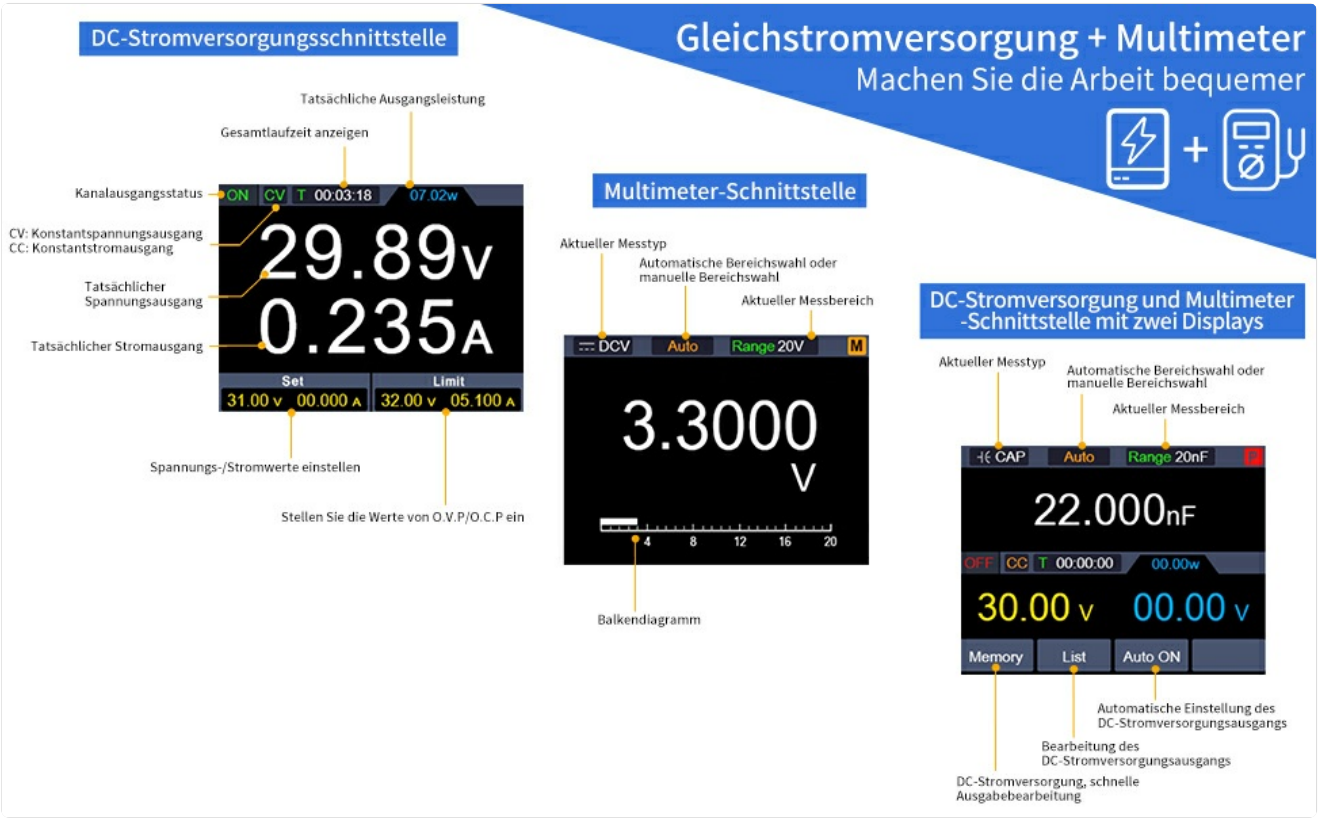


Figure 3.1: Front panel controls and display elements for setting voltage, current, and navigating menus.

## 3.2 Multimeter Mode

The SPM6053 can function as a 4 1/2-digit digital multimeter, capable of measuring various electrical parameters.

1. **Switching Modes:** Press the **Mode** button to switch between DC Power Supply mode and Multimeter mode.
2. **Measurement Functions:** In Multimeter mode, use the function buttons (e.g.,**VΩ+Hz**, **A**) to select the desired measurement type (Voltage, Current, Capacitance, Resistance, Continuity, Diode Test).
3. **Connecting Probes:** Connect the multimeter leads to the appropriate input terminals on the front panel for the measurement you intend to perform.


### + Multimeter Specifications

| | | | |
|---|---|---|---|
| Full Scale Reading | 4½ digits | Auto Range | √ |
| Measure | Voltage, Current, Capacitance, Resistance, Continue, Diode(0-2V) test | | |
| Capacitance | 20.000nF,200.00nF,2.0000uF,20.000uF,200.00uF, 2.0000mF: ±(3.0%±10digit) | | |
| Voltage | DCV: 200.00mV: ±(0.3%±10digit), 2.0000V, 20.000V, 200.00V,1000V: ±(0.3%±5digit),<br>ACV: 200.00mV, 2.0000V, 20.000V, 200.00V: ±(0.8%±10digit) 750V: ±(1%±10digit) | | |
| Current | DCA: 200.00mA:±(0.8%±10digit),10.000A: ±(2.5%±10digit)<br>ACA: 200.00mA:±(1%±10digit),10.000A: ±(2.8%±10digit) | | |
| Impedance | 200.00Ω,2.0000kΩ,20.000kΩ,200.00kΩ,2.0000MΩ: ±(0.8%±10digit),20.000MΩ: ±(1%±3digit)<br>100MΩ: ±(5%±10digit) | | |

Specifications subject to change without prior notice.

Figure 3.2: The SPM6053 being used to measure components on a circuit board in multimeter mode.

## 3.3 USB Quick Charging Interface

The front panel features a 5V/1A USB output port, which can be used for quick charging of compatible devices or for SCPI communication.

1. Connect your USB device (e.g., smartphone, tablet) to the 5V/1A USB port on the front panel.
2. The unit will automatically provide 5V/1A output for charging.
3. For SCPI communication, refer to the detailed SCPI programming guide (not included in this manual) for instructions on connecting and controlling the device via USB.


Figure 3.3: A smartphone being charged using the USB quick charging interface on the front of the SPM6053.

## 3.4 Circuit Protection (OVP/OCP)

The SPM6053 includes Over-Voltage Protection (OVP) and Over-Current Protection (OCP) to safeguard connected circuits and the device itself.

- **Setting OVP/OCP:** Use the **Ω/OVP** and **⇌/OCP** buttons to access and set the over-voltage and over-current protection limits. Adjust values using the knob.
- When an OVP or OCP condition is detected, the output will automatically shut down to prevent damage.
- To reset after a protection event, clear the fault condition and then toggle the output **On/Off** button.

# 4. Maintenance

Proper maintenance ensures the longevity and reliable operation of your OWON SPM6053.

- **Cleaning:** Regularly clean the exterior of the unit with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure no liquids enter the device.
- **Ventilation:** The unit is equipped with an intelligent temperature-controlled fan. Ensure the rear ventilation grille is clear of obstructions to allow for proper airflow and heat dissipation. Do not block the fan opening.
- **Fuse Replacement:** If the unit fails to power on, the fuse may need replacement. The fuse holder is located on the rear panel.
    a. Disconnect the power cord from the unit and the AC outlet.
    b. Locate the fuse holder on the rear panel (labeled "Fuse 10A").
    c. Carefully pry open the fuse holder.
    d. Replace the blown fuse with a new fuse of the same type and rating (10A, 250V).
    e. Close the fuse holder securely and reconnect the power cord.
- **Storage:** When not in use for extended periods, store the unit in a cool, dry environment, away from direct sunlight and excessive dust.

## 5. Troubleshooting

This section addresses common issues you might encounter with the OWON SPM6053.

| Problem | Possible Cause | Solution |
|---|---|---|
| Unit does not power on. | Power cord not connected; Power switch off; Blown fuse; No power from outlet. | Ensure power cord is securely connected. Flip power switch to ON. Check and replace fuse if necessary (refer to Maintenance section). Verify power outlet is functional. |
| No output voltage/current. | Output is disabled; OVP/OCP triggered; Incorrect settings. | Press the **On/Off** button to enable output. Check for OVP/OCP indicators and clear fault. Verify voltage/current settings are not zero. |
| Multimeter readings are inaccurate or unstable. | Incorrect probe connection; Wrong measurement mode selected; Faulty leads. | Ensure multimeter leads are correctly connected to the appropriate terminals. Verify the correct measurement mode is selected. Test leads for continuity or replace if damaged. |
| USB connection issues for SCPI. | Driver not installed; Incorrect software settings; Cable issue. | Install the correct USB drivers for the device. Refer to the SCPI programming guide or OWON support for software setup. Try a different USB cable. |
| Unit feels hot during operation. | Blocked ventilation; High load for extended periods. | Ensure the rear fan and ventilation grilles are not blocked. This unit has an intelligent temperature-controlled fan; normal operation may involve some heat. If overheating persists, reduce load or ensure adequate ambient ventilation. |

## 6. Specifications

Detailed technical specifications for the OWON SPM6053-60V/5A model.


Figure 6.1: Overview of the OWON SPM6053 specifications.

| Parameter | Value |
|---|---|
| Model Number | OWON-SPM6053 |
| Output DC Current | 0-5A |
| Output Voltage | 0-60V |
| Total Output Power | 300W |
| Channel | Single Channel Output |
| Operating Temperature | 0-40°C |
| Multimeter Functions | Yes (4 1/2 digits) |
| Automatic Range Selection | Yes |
| Fan | Yes (Intelligent temperature-controlled) |
| Short Circuit Alarm | Yes |
| USB Quick Charging Interface | Yes (5V/1A) |
| Product Dimensions (L x W x H) | 8.2 x 22.6 x 14.2 cm |

| Parameter | Value |
| --- | --- |
| Item Weight | 1.5 Kilograms |
| Specification Met | CE, IEC 61010-1, FCC |
| Country of Origin | China |

## 7. Warranty and Support

OWON products are manufactured to high quality standards and are backed by a manufacturer's warranty. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official OWON website.

For technical support, troubleshooting assistance, or any inquiries regarding your OWON SPM6053, please contact the OWON professional technical support team. Contact details can typically be found on the OWON website or in the product packaging.

You can also refer to the "What You Get" section in the Introduction for a direct mention of support: "professional technical support from the OWON Team. If you have any questions, please feel free to consult us at any time."

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### Related Documents - SPM6053-60V/5A

| | |
| --- | --- |
|  | OWON OWH67000 Series Programmable Power Supply SCPI Command Manual<br>Comprehensive SCPI command manual for the OWON OWH67000 Series programmable power supplies, detailing system, output, control, measurement, configuration, protection, list waveform, and PV simulation commands. |
|  | OWON HDS200 Series SCPI Command Protocol Reference<br>This document details the Standard Commands for Programmable Instruments (SCPI) protocol for the OWON HDS200 Series oscilloscopes, covering horizontal settings, acquisition, channel configuration, triggering, measurements, and function generator control. |

| | |
|---|---|
|  | OWON Single Channel DC Power Supply Programming Manual<br>A comprehensive programming manual for OWON Single Channel DC Power Supplies, detailing SCPI command syntax, measurement, output setup, and system control commands. |
|  | 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. |
|  | OWON ODP Series Dual Output Linear Programmable DC Power Supply User Manual<br>User manual for the OWON ODP Series Dual Output Linear Programmable DC Power Supply (models ODP3122, ODP6062), detailing safety precautions, operation procedures, interface descriptions, troubleshooting, technical specifications, and maintenance. |
|  | OWON Digital Multimeter Quick Start Guide and Safety Information<br>Essential guide for OWON Digital Multimeters, detailing safety precautions, quick start instructions, Bluetooth mobile connectivity, and maintenance tips for safe and effective use. |