

Quick Start

SPD1000X Programmable Linear DC Power Supply

QS0501X-E02B

Copyright and Declaration

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Declaration

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General Safety Summary

Please review the following safety precautions carefully to avoid personal injury or damage to this product or any product connected to it. To prevent potential danger, please use the instrument as specified.

Use the proper power cord

Only the power cord designed for the instrument and authorized by the local country should be used.

Power supply

AC Input Voltages: 100/120/220/230 V \pm 10%, 50/60 Hz

Use the proper fuse

The fuse type: 100/120 V: T6.3A/250V

220/230 V : T3.15A/250V

Make sure to use the correct type of fuse before turning on the instrument.

Find the cause of the fuse failure before replacing the fuse and connecting the power cord.

Ground the instrument

The instrument is grounded through the protective earth conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to the earth ground. Make sure that the instrument is properly grounded before any activating any inputs or outputs.

Examine all the terminal ratings

To avoid fire or electric shock, please examine all ratings and symbols on the instrument. Read this guide carefully to know more details about the ratings before connection.

Keep proper ventilation

Inadequate ventilation may cause an increase of temperature within the

instrument, which can lead to further damage. Please keep proper ventilation and check the fan and air-vents regularly when using the instrument.

Operate condition

Location: indoor, no strong light, almost no interfering pollution

Relative humidity: < 80%

Altitude: < 2000 m

Temperature: 0°C to 40°C

Electrostatic Prevention

Operate in an electrostatic discharge protective area environment to avoid damages induced by static discharges. Always ground both the internal and external conductors of the cable to release static before connecting.

Do not operate in an explosive atmosphere

To avoid personal injury or damage to instrument, please do not operate in an explosive atmosphere.

Keep surface of the product clean and dry

Avoid dust and moisture in the air as they can influence the performance of the instrument. Please keep surface of the product clean and dry.

General Safety Summary

Terms may appear on the product:

DANGER: Indicates direct injury or hazard that may happen.

WARNING: Indicates potential injury or hazard that may happen.

CAUTION: Indicates potential damage to the instrument or other property that may happen.

Symbols may appear on the product:



**Hazardous
Power**



**Protective
Earth
Terminal**



Warning



**Earth
Ground**



**Power
Switch**

SPD1000X Brief Introduction

Siglent's SPD1000X Programmable DC Power Supply has a 2.8 inch TFT-LCD screen, programmable output, and real time measurement graphing. The SPD1168X has a maximum output values of 16 V/8 A, while the SPD1305X has a maximum output values of 30 V/5 A. Both models have remote sense capability, output short circuit and overload protection.



SPD1168X

SPD1305X

Figure 1: Side view

Main features:

- Single high-precision programmable output:
SPD1168X: 16 V/8 A, total power is 128 W
SPD1305X: 30 V/5 A, total power is 150 W
- Compact, easy to use, powerful, ideal for bench power supply applications
- Stable, Reliable and Low Noise: $\leq 350 \mu\text{Vrms}/3 \text{ mVpp}$

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- Fast Transient Response Time: < 50 μ s
- Maximum resolution of 1mV/ 1mA with 5-bit voltage and 4-bit current display.
- Timer function sequences pre-set output values
- High resolution 2.8 inch TFT LCD(240*320 pixels)
- Two output modes: two-wire output and remote sense compensation function (maximum compensation up to 1V)
- Four varieties of input-line voltage values include 100V, 110V, 220V and 230V to satisfy user requirements
- Intelligent temperature-controlled fan, effectively reduces noise
- Clear graphical interface, with waveform display
- 5 internal system parameters save / recall, support for data storage space expansion
- Uses EasyPower PC software, real-time control via USB, LAN, support SCPI command set and LabView driver package to meet the remote control and communication requirements

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General Inspection

Please inspect your new instrument follow the steps below.

1. Inspect the shipping container

Keep the shipping container or cushioning material until the contents of the shipment have been completely checked and the instrument has passed both electrical and mechanical tests. The consigner or carrier is responsible for damages to the instrument resulting from shipment. **SIGLENT** will not provide free maintenance or replacement for shipping damages.

2. Inspect the instrument

If there is damage, defects, or failures in electrical and mechanical tests of the product, please contact your nearest **SIGLENT** sales representative.

3. Check the accessories

Please check the accessories according to the packing list. If the accessories are incomplete or damaged, please contact your **SIGLENT** sales representative.

The Front Panel



Figure 2: The front panel of the SPD1168X

1. LCD

2.8 inch TFT display. It is used to display system parameter settings, system output state, menu options, prompt messages, etc.

2. Knob

When setting parameters, rotate the knob to increase or decrease the value of the digit at the cursor.

3. Function button and power key



When setting parameters, press the Fine button to move the cursor to select the position of digit to be modified.



The right and left direction buttons move the cursor to select the parameter to be modified.



Press the button briefly to enter the system message interface. Press the button for 1 second or longer to activate the lock function.



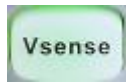
Press the button briefly to enter the timer interface. Press the left button to move the cursor from left to right, press the right button to move the cursor in the opposite direction. In the timer interface or main interface, press the On/Off button briefly to turn on/off the timer.

Press the button for 1 second or longer to enter the waveform display mode.

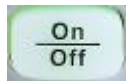


Press the button briefly to configure the network connection information. Then press the left button to move the cursor from right to left, press the right button to move the cursor from left to right. Choose the DHCP window, press the On/Off button for a short period to turn On/Off the DHCP function..

Press the button for a longer period to enter the storage function system. Press the Fine button for a short period to choose the subproject, press the Fine button for a longer period to determine the choice.



Press the button to enable/disable the remote sense function.



Press the button to enable/disable the channel output.

4. Output Terminal

Physical output connections to the external circuit.

5. Ground Terminal

This terminal is connected to the instrument chassis and ground wire and is in grounded state.

6. Sense terminal

Used to sense the actual voltage at the load. This allows the source to compensate the voltage drop caused by the leads between the power supply and the load and increases the accuracy of the voltage delivered to the load.

7. Power key

Turn on or off the instrument.

The Rear Panel



Figure 3: The rear panel of the SPD1000X

1. Warning message

To note to ground the instrument and non-professional personnel should not disassemble the instrument and so on.

2. AC input voltage description

The frequency, voltage and the specified fuse have to match with AC input .

3. AC power socket

The socket of AC input power.

4. Fuse

The needed specified fuse relate to the input voltage(Please refer to the “AC input voltage description“)

5. AC line power selection switch

AC Input Voltages: 100/120/220/230 V

6. LAN interface

Connect the local network by RJ45 interface.

7. USB device





Connect the instrument (as “slave” device) to external USB device(such as, USB storage device) computer.

8. Fan

Connect power

The power supply supports a variety of AC line power input values. For each line voltage, the rear panel voltage selector settings are different, as shown in table 1 below.

Table 1: AC input line power specifications

AC power input	Voltage selector configure
100 VAC \pm 10%, 50 ~ 60 Hz	
120 VAC \pm 10%, 50 ~ 60 Hz	
220 VAC \pm 10%, 50 ~ 60 Hz	
230 VAC \pm 10%, 50 ~ 60 Hz	

Please connect the power carefully follow the steps below:

1. Check the input power

Make certain that the AC line power to be connect to the instrument meets the requirements in Table 1.

2. Check the voltage selector at the rear panel

Make certain that the voltage selector setting at the rear panel of the instrument matches the actual input voltage.


3. Check the fuse

When the instrument leaves factory, the specified fuse is installed.

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Please check whether the fuse matches the actual input voltage according to the "Input Power Requirements" at the rear panel of the instrument.

4. Connect the power

Connect the instrument to AC power supply using the power cord provided in the accessories. Then press the button  to turn on the power.

WARNING

Before switching the input power supply voltage, please disconnect the power supply before setting the voltage selector To the appropriate gear.

WARNING

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

User interface

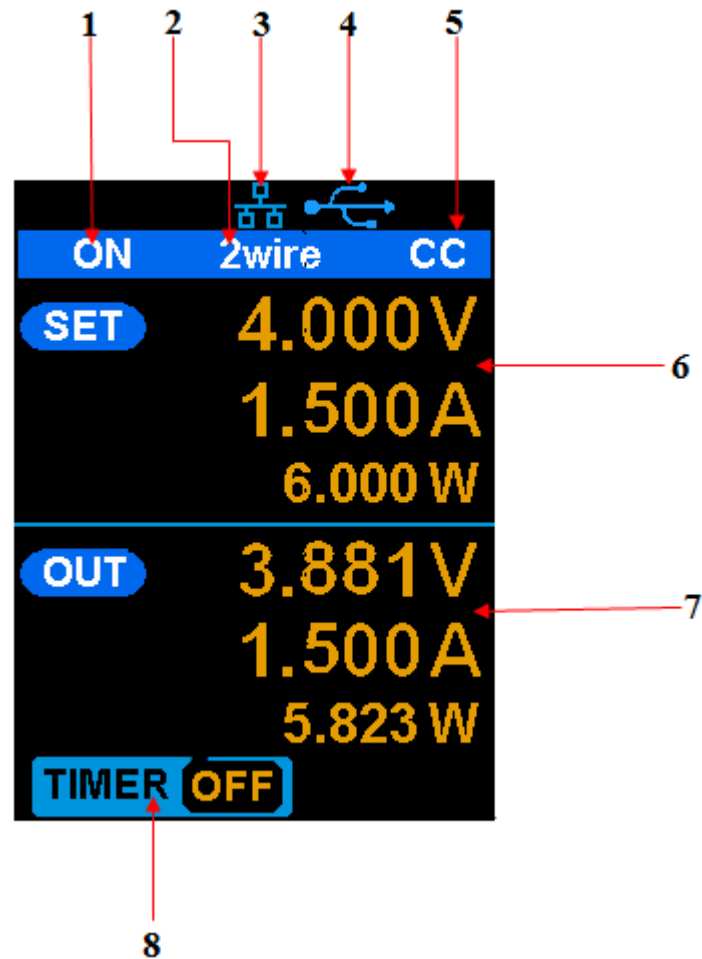


Figure 4: The user interface

1. Channel output state
2. Remote sense mode
3. LAN connection icon
4. USB connection icon
5. Output mode

6. Output programmed values

7. Measured output values

8. Timer state

Output Inspection

1. Check the output voltage

- (1) Turn on the power and make sure the channel current setting is not zero when the instrument has no-load.
- (2) Press **on/off** button, the supply should be working in constant voltage (CV) mode. You can check the voltage range of SPD1168X by adjusting the voltage setpoint from the minimum (0 V) to the maximum value (16 V) and the voltage range of SPD1305X by adjusting the voltage setpoint from the minimum (0 V) to the maximum value (30 V).

2. Check the output current

- (1) Turn on the power and make sure the voltage setting is not zero.
- (2) Connect the output terminals (short) with an insulated wire that can handle 10 A or more (18 AWG single core, for example).
- (3) Activate the output by pressing the on/off button. The low impedance (shorted) output will cause the instrument to enter current control (CC) mode. You can check the current range of the SPD1168X by adjusting the current setpoint from the minimum (0 A) to the maximum value (8 A) and the current range of the SPD1305X by adjusting the current setpoint from the minimum (0 A) to the maximum value (5 A).

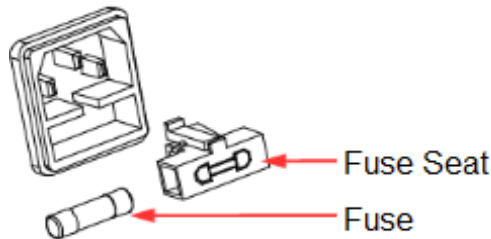
Fuse Replacement

The specifications of the fuse are relative to the actual input line voltage, shown in the table below. You also can refer to the rear panel “input power requirement”.

Input voltage	Fuse specification
100/120 VAC	T6.3A
220/230 VAC	T3.15A

To replace the fuse, please follow the steps below:

1. Turn off the instrument and remove the power cord.
2. Insert a small straight screwdriver into the slot at the power socket and gently pry out the fuse seat.



3. Adjust the power voltage selector manually to select the correct voltage scale.
4. Take out the fuse and replace it with the specified fuse (for the corresponding relations between the input voltage and fuse specification, refer to the “input power requirement” at the rear panel).
5. Re-insert the fuse holder into the power socket (please pay attention to the direction).



To avoid personal injuries, unplug the power supply before replacing the fuse. To avoid electric shock or fire, select the proper power supply specification and replace only with the proper fuse.

Troubleshooting

Here are some common failures and their solutions. If the problem persists after following the listed steps, please contact **SIGLENT**.

1. The instrument cannot start up.

- (1) Check whether the power is correctly connected.
- (2) Check whether the power switch at the front panel is really on.
- (3) Remove the power cord and check whether the voltage selector is at the proper scale, whether the specification of the fuse is correct and whether the fuse is intact. If the fuse needs to be changed, refer to “**To Replace the Fuse**”.
- (4) If the problem remains, please contact **SIGLENT**.

2. The constant voltage output is abnormal.

- (1) Check whether the maximum output power of the scale currently selected fulfills the load requirement. If yes, go to the next step.
- (2) Check the cable connecting the load and power supply for short-circuits.
- (3) Check whether the load is normal.
- (4) Check whether the current setting value of this scale is proper. If it is too low, increase it.
- (5) If the problem remains, please contact **SIGLENT**.

3. The constant current output is abnormal.

- (1) Check whether the maximum output power of the scale currently selected fulfills the load requirement. If yes, go to the next step.
- (2) Check whether the cable connecting the load and power supply is in good condition.
- (3) Check whether the load is normal.
- (4) Check whether the voltage setting value of this scale is proper. If it is too low, increase it.
- (5) If the problem remains, please contact **SIGLENT**.