SIGLENT®

SDL1000X

Programmable DC Electronic Load

Quick Start

Copyright and Statement

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 proper power cord

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

Power supply

AC Input Voltages: 110V/220V ±10%, 50/60Hz.

Use proper fuse

- The fuse types: 110V/220V: T315mA/250V.
- Make sure to use the correct type of fuse before turning on the instrument.
- Do not connect the power cord before replacing the fuse.
- Investigate the reason why the fuse burned out before replacing the fuse.

Ground the instrument

The instrument is grounded through the protective ground conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to the earth. Make certain that the instrument is properly grounded.

Observe all terminal ratings

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

Keep proper ventilation

Inadequate ventilation may cause an increase of temperature, which will 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, Comparative humidity: <80%, Altitude: <2000m, Temperature: 0℃ to 40℃

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

To avoid dust or moisture in the air influence the performance of the instrument, please keep surface of the product clean and dry.

Safety Terms and Symbols

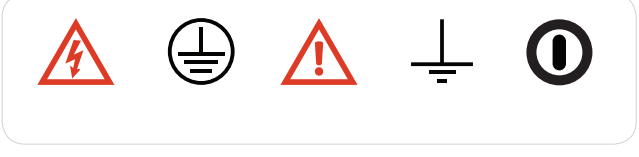
Terms may appear on the product:

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 Voltage	Protective Earth Ground	Warning	Earth Ground	Power Switch

SDL1000X Brief Introduction

SDL1000X/SDL1000X-E series Programmable DC Electronic Load has a 3.5 inch TFT-LCD display, and comes with a simple, user-friendly interface and superb performance specifications. The SDL1020X/ SDL1020X-E comes with an input range of 150 V/30 A @ 200 W. The SDL1030X/ SDL1030X-E comes with an input range of 150 V/30 A @ 300 W. The SDL1000X series leads with measurement resolution of 0.1mV/0.1mA and the base SDL1000X-E series resolution is 1mV/1mA. Adjustable current slew rate range is 0.001 A/μs~2.5 A/μs, and it comes with built-in RS232/USB/LAN communication interfaces. Standard SCPI communication protocol is used to establish an intelligent testing platform for applications in various industries, such as the power industry, battery industry, LED lighting, automotive electronics, and aerospace.

Main features of SDL1000X

- SDL1020X (Single channel): DC 150 V/30 A, total power up to 200 W
- SDL1030X (Single channel): DC 150 V/30 A, total power up to 300 W
- 4 Static modes / Dynamic mode: CC/CV/CR/CP
- CC Dynamic modes, continuous, pulsed, toggled
- CC Dynamic mode: 25 KHz, CP Dynamic mode: 12.5 KHz, CV Dynamic mode: 0.5 Hz
- Adjustable current slew rate range 0.001 A/us~2.5 A/us
- Min read-back resolution: 0.1 mV, 0.1 mA
- Measuring speed of voltage and current: up to 500 KHz
- List can edit one hundred steps; Program support programing fifty group data
- Over current protection test, Over power protection test, Battery test, short circuit and CR-LED test functions
- 4-wire SENSE compensation mode function
- External voltage and current control function
- Voltage, Current monitoring via 0-10V
- 3.5 inch TFT-LCD display, capable of displaying multiple parameters and states simultaneously
- With memory function in case of power-down
- OCP, OVP, OPP, OTP and LRV protection
- Graphical display of waveformFunction of Restore libraryFunction of test the rise and fall time base on the voltage Von and Vlatch functions
- Smart fan control
- Remote control and measurements via PC

Contents

Start Guide

General Inspection

Please check the instrument according to the following steps.

1. Inspect the shipping container.

Keep the damaged 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 will be responsible for damages to the instrument resulting from shipment. **SIGLENT** would not provide free maintenance or replacement.

2. Inspect the instrument.

If there are instruments found damaged, defective or failure in electrical and mechanical tests, please contact **SIGLENT**.

3. Check the accessories.

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

The Front Panel

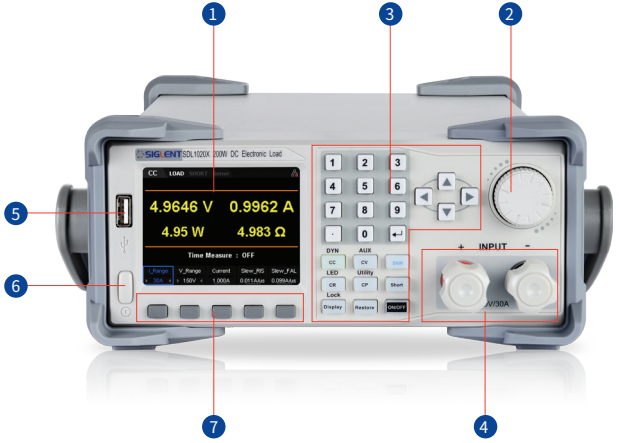


Figure1: The front panel of the SDL1000X

1. **1. LCD**
2. **2. Knob**
3. **3. Function button and power key**
4. **4. Input Terminal**
5. **5. USB interface**
6. **6. Power key**
7. **7. Function key**

1. LCD

The 3.5 inch TFT-LCD display is used to display system parameter settings, system output state, wave forms, 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. When browsing the setting object (switch of buzzer, sense, voltage and current protection, store or read files and switch modes ,etc), rotate the knob to quickly move the cursor or switch options.

3. Function button and power key

Press the button to enter the constant current mode. Enter DYN mode by pressing the shift button at the same time.

Press the button to enter the constant voltage mode. Enter AUX mode by pressing the shift button at the same time.

Press the button to enter the constant power mode. Enter Utility mode by pressing the shift button at the same time.

Press the button to enter the constant resistor mode. Enter LED mode by pressing the shift button at the same time.

Press the button to enter Display mode. Enable key lock function by pressing the shift button at the same time.

Press the button to enter Restore function.

Press the button to allow a button's secondary function to be selected.

Press down the button to enter Restore function.

Use the right, left, up, down buttons to move the cursor in that direction or select the appropriate field.

0~9 Select the appropriate numerical digit.

Decimal point.

Push to Enter a value.

This key selects a function in the interface.

4. Input Terminal

Physical input connections for the external circuit under test.

5. USB interface

Interface port used to insert USB device. Supports FAT32 file system formats.

6. Power key

Turns the instrument On or Off.

7. Function key

Used to select different interface functions.

The Rear Panel

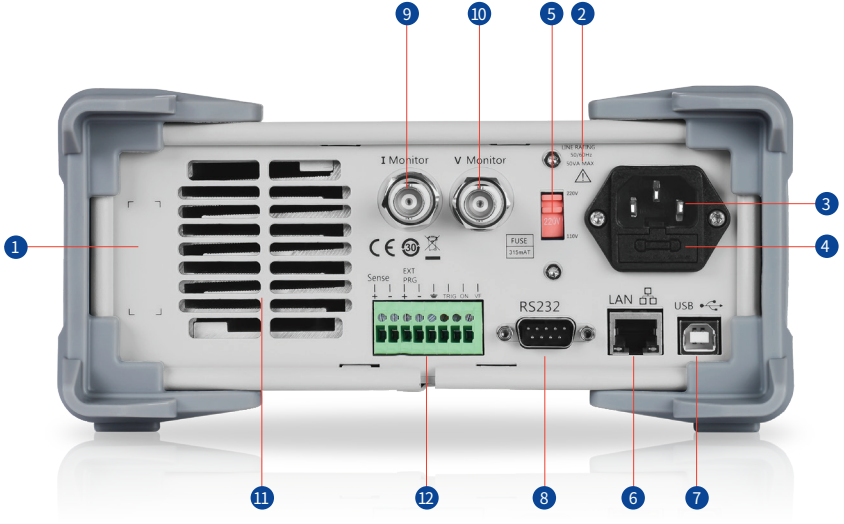


Figure 2: The rear panel of the SDL1000X

1. **Warning message**
2. **AC input voltage description**
3. **AC power socket**
4. **Fuse**
5. **AC line power selection switch**
6. **LAN interface**
7. **USB device**
8. **RS232 interface**
9. **Analog current monitor output**
10. **Analog voltage monitor output**
11. **FAN**
12. **Sense terminal,**
    External control terminal,
    PWM output terminal

1. Warning message

Note reminding user to ground the instrument and that non-professional personnel should not disassemble the instrument.

2. AC input voltage description

The specified input voltage, frequency, and fuse rating.

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: 110/220 V.

6. LAN interface

Use to connect to the local network by RJ45 interface.

7. USB device

Connects the instrument (as "slave" device) to external USB device (such as, USB storage device or external computer).

8. RS232 interface

Connect to the computer via 9-pin RS232 cable.

9. Analog current monitor output

User can observe the DUT output current level by connecting to an oscilloscope to monitor the current level.

10. Analog voltage monitor output

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

11. FAN

12. Sense terminal, External control terminal, PWM output terminal

Terminals used in conjunction with various external functions.

Connect Power

The SDL1000X load supports a variety of AC line power input values. For each line voltage, the rear panel voltage selector settings are to be set according to the table below:

AC Power Input	Voltage selector configure
110 Vac ± 10%, 50Hz~60Hz	 110 V
220 Vac ± 10%, 50Hz~60Hz	 220 V

Table 1: AC input line power specifications

Please connect the power carefully by following the steps below:

1. Check the input power

Make sure that the AC line power to be connected 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 located at the rear panel of the instrument matches the actual input voltage.

3. Check the fuse

When the instrument leaves the factory, the specified fuse is installed. Please check to verify the fuse matches the actual input voltage according to the "Input Power Requirements" on the rear panel of the instrument.

4. Connect the power

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

WARNING

Before switching on 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

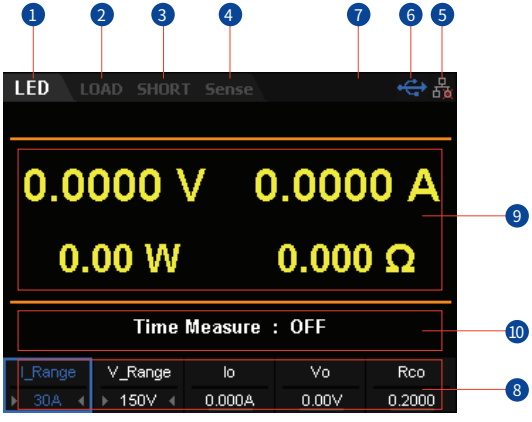


Figure 3: The user interface of SDL1000X

1. Displays the load'smode

2. Displays the load's state

3. Displays a Short state

4. Remote sense mode

5. LAN connection icon

6. USB connection icon

7. Keyboard lock

8. Setting value

9. Measured output values

10. Voltage slew rate

To Power on the instrument

After the instrument is connected to the power source, press the Power key at the left bottom of the front panel to pwer on the instrument. When the instrument is turned on, it will undergo a self-test. If the instrument passes the self-test, the welcome interface is displayed; otherwise, self-test failure information will be displayed. If this does occur please contact SIGLENT.

CAUTION

Ensure that the AC selector setting on the rear panel of the instrument matches the actual AC input voltage, otherwise, the electronic load could be damaged.

CAUTION

Please pay close attention to the positive and negative polarities of the electronic load to avoid wrong connection. Otherwise, the load could be damaged.

Fuse Replacement

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

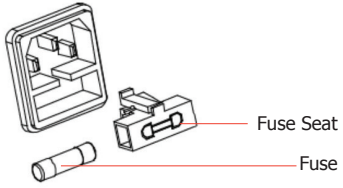
Input voltage	Fuse specification
110 Vac	T315 mA / 250V
220 Vac	T315 mA / 250V

Figure 3: The user interface of SDL1000X

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 relationship between the input voltage and fuse specification, refer to the "input power requirement" on the rear panel).

5. Re-insert the fuse holder into the power socket (please pay attention to the direction in which it is inserted).

WARNING

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

Trouble Shooting

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

1. The instrument cannot power up.

(1) Check whether the power source is correctly connected.

(2) Check whether the power switch at the front panel is on.

(3) Remove the power cord and check whether the voltage selector is at the proper setting, 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 USB device cannot be identified.

(1) Check whether the USB device is correctly working.

(2) Check whether the USB Host interface of the electronic load is correctly working.

(3) Make certain to use a Flash U-disk. This electronic load cannot support hard drive disk devices.

(4) Make certain to use FAT32 system format.

(5) Restart the electronic load then insert the USB device.

(6) If the problem remains, please contact **SIGLENT**.

3. The electronic load is working incorrectly.

(1) Check whether the input connection wiring is correct.

(2) Check whether the power is turned on.

(3) Check whether the value of the conduction voltage.

(4) Check whether the load settings for power, voltage and current meet the requirements.

(5) If the problem remains, please contact **SIGLENT**.

Contact SIGLENT

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