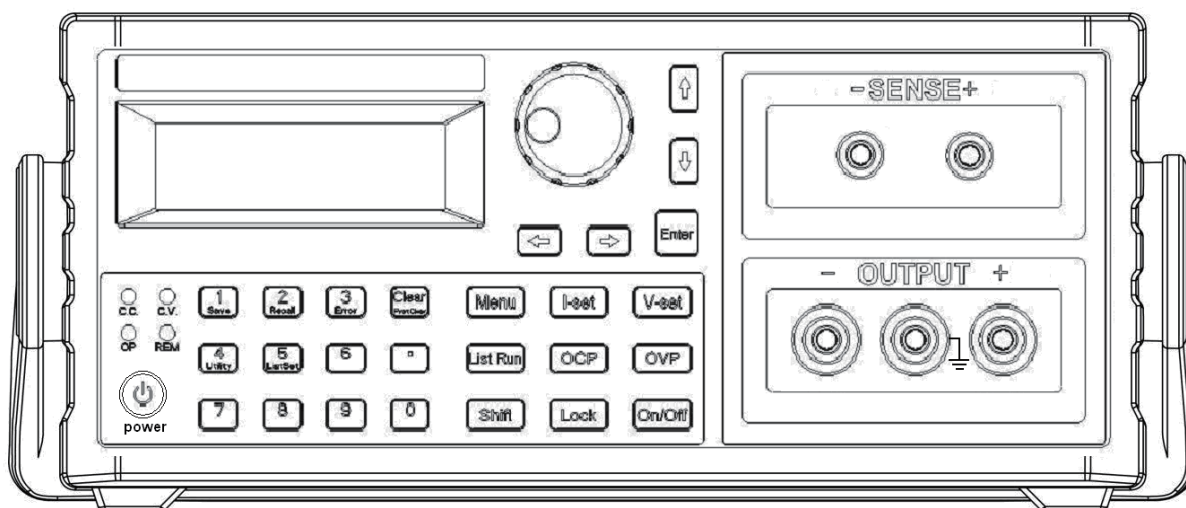


User manual



High precision programmable linear DC power supply (L-SP) V4.0

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No Further Notice Will Be Given if the Technical Specifications Are Changed.

Security Summary

This chapter contains the operation of the power supply and important safety instructions that must be followed when storing it, users should read the following instructions in detail before operating to ensure safety and keep the machine in optimal condition.

Safety symbols

The following safety symbols may appear in this operating manual or on the product:

	Warning	Warning The warning statement points out the conditions and behaviors that may endanger the life of the operator
	Attention	Attention The notice states that damage may occur to the product or other devices connected to the product.
	Danger	Danger Be careful with high voltage
		Protect grounding terminals
		Ground terminal
		Shell grounding end

Safety Guide

General Introduction

- | | | |
|---|------------------|---|
|  | Attention | <ul style="list-style-type: none"> ● Do not place heavy objects on the housing. ● Avoid serious impact or improper handling resulting in machine damage. ● Preventive measures against static electricity should be taken when connecting instruments. ● Do not block the ventilation ports of the side and rear panels. ● Do not disassemble the machine unless you are a professional. |
|---|------------------|---|

power supply

- | | | |
|---|----------------|---|
|  | Warning | <p>AC input voltage: 200-240VAC, 50/60Hz.</p> <p>Ensure that the power cable is connected to the grounding end to avoid electric shock.</p> |
|---|----------------|---|

fuse

- | | | |
|---|----------------|---|
|  | Warning | <ul style="list-style-type: none"> ● Make sure you use the correct fuse model before turning on the machine. ● In order to prevent fire, only the fuse of the specified specification of this product is allowed to be used. ● Cut off the power supply before replacing the fuse to eliminate the cause of the fuse damage. |
|---|----------------|---|

Cleaning machines

- Cut off the power before cleaning.
- Use a mild detergent and water to moisten the soft cloth, do not spray cleaner directly
- Do not use chemical or cleaning products containing abrasives such as benzene, toluene, xylene and acetone

operational environment

- Where to use: indoors, away from direct sunlight, dust and strong magnetic fields.
- Relative humidity: <80%
- Altitude: <2000m
- Temperature: 0°C~40°C

Storage environment

- Indoor
- Relative humidity: <70%
- Temperature: 10°C~70°C

1. Product Description

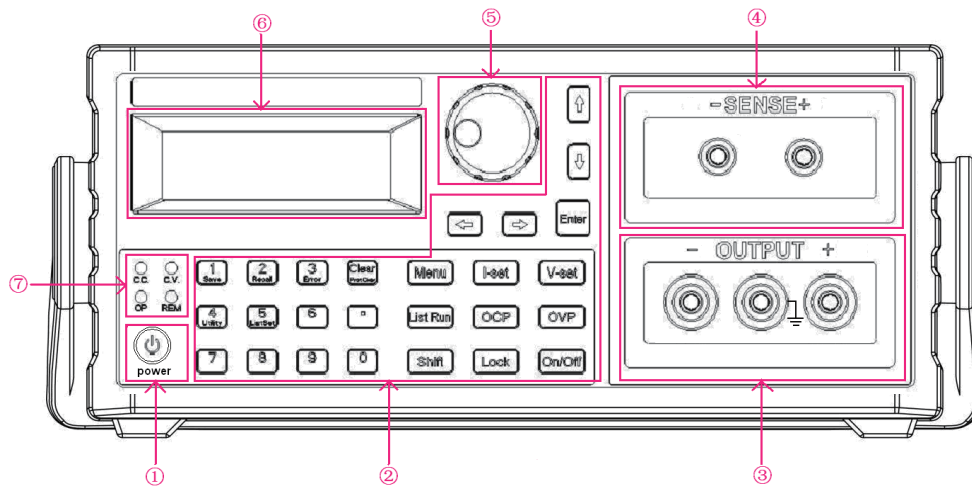
1.1 Introduce

This series of products is a high-precision single-output programmable DC switched-mode power supply, featuring compact design, adjustable parameters, and multiple operational modes. The entire system is fully controlled by a microprocessor (MP), enabling seamless connectivity with computers (PC) through RS-232 communication interfaces to meet users' needs for automated testing and control systems. Its software commands fully comply with SCPI protocol standards, facilitating user development of custom automation applications. With full digitalization, data input is entirely managed via keyboard and rotary controls, ensuring rapid, precise, and user-friendly operation. The system finds wide application in electronic product development, component testing, telecommunications industries, laboratories, and research institutions.

1.2 Characteristic

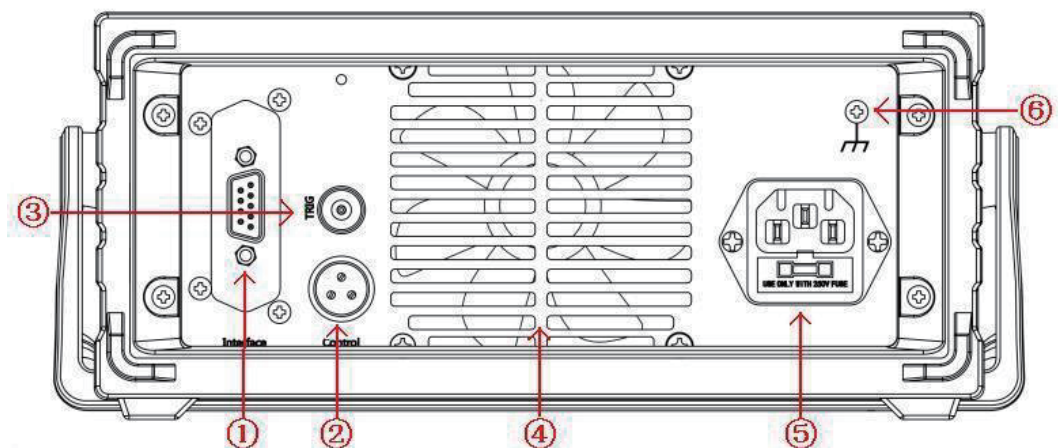
- Compact and lightweight, combining the features of both desktop and system-level devices
- The 122 x 32 LCD display provides a comprehensive overview of the power supply's status
- High resolution and high accuracy
- Constant voltage/current automatic switching
- With output control switch, control is more flexible
- Convenient and fast operation and setting interface, high speed adjustment knob and digital key input
- Built-in buzzer as a prompt or warning
- 100 sets of preset storage and retrieval functions can store/retrieve 100 sets of voltage, current and other data. Combined with the List to execute the program, simple automatic test purposes can be achieved
- Remote sensing achieves compensation for voltage drop across the connection wires between the output terminals and both ends of the load.
- Overload, polarity reversal protection, overvoltage protection, overcurrent protection, overtemperature protection
- One-click lock function, effectively prevent misoperation
- The temperature control fan speed makes the instrument have low noise, the fan life is longer
- Equipped with RS232 interface
- The programming instruction set supports SCPI and MODBUS

1.3 Front Panel and Back Panel



Front panel

- | | | | |
|-----------------|-----------------------------------|---------------------|----------------------------|
| 1. Power switch | 2. Function keys and numeric keys | 3. Output terminals | 4. Remote sensing terminal |
| 5. Knob | 6. LCD screen | 7. Indicators | |



Back panel

- | | | | |
|---|---------------------------------|-----------------------------|---------|
| 1. Programmable interface | 2. Aviation terminal (optional) | 3. Trigger input (optional) | 4. Fans |
| 5. Power socket (including fuse holder) | 6. Shell grounding terminal | | |

1.4 Keyboard Description

Key notes

The front panel features a total of 26 keys (excluding the POWER key). The text above each key indicates its primary function, which can be executed by pressing the key directly. The text below each key indicates its secondary function. To activate the secondary function, first press the **【Shift】** key until its indicator light illuminates, then press the desired key. Each key press is accompanied by an audible “beep” confirmation. (if the buzzer is enabled).

Key name	Primary function	Secondary function	Key name	Primary function	Secondary function
0	Enter the number 0	None	7	Enter the number 7	None
1	Enter the number 1	Save	8	Enter the number 8	None
2	Enter the number 2	Recall	9	Enter the number 9	None
3	Enter number 3	None	.	Enter decimal point	None
4	Enter number 4	Utility	←、→	Move cursor left and right	None
5	Enter the number 5	List function setting	↑、↓	Up and down, add/subtract keys	None
6	Enter number 6	None	Enter	Confirmation key	None
V-set	Setting voltage	None	OVP	Set the overvoltage protection value	None
I-set	Setting current	None	OCP	Set the overcurrent protection value	None
Menu	Menu selection	None	Lock	1. Key lock 2. Local operation	None
Clear	Exit key	Prot Clear (Removes protective labels)	Shift	Select the secondary function	None
List Run	Turn on/off the autoexecution program	None	On/Off	Output on or off	

Instructions light explanation

There are four LED indicators on the front panel, namely CV, CC, OP and REM.

- (1) CV indicator light (green light): When this signal light is on, the equipment is operating in CV mode.
- (2) CC indicator light (red light): When this signal light is on, the device is operating in CC mode.
- (3) OP indicator light (red light): When this signal light is on, the device is in the protection state.
- (4) REM indicator light (green light): When this signal light is on, it indicates that the equipment is in remote operation mode.

2. Operation Declaration

2.1 Front Panel Operation Instructions

- (1) The units of voltage and current in this instrument and the manual are volts (V) and amperes (A).
- (2) This instrument is set to the front panel operation mode when it leaves the factory. When the power is on, you can make the required instrument setting on the panel.
- (3) When the power supply enters remote operation mode, the **【Lock】** key light is on and the panel keys are locked, but the **【On/Off】** and **【Lock】** keys are still valid. To return to the panel operation mode, press the **【Lock】** key. The key light is off, and then the power supply returns to the panel operation mode.

2.2 Input Mode

2.2.1 Digital Key Input Parameters

Use the 0~9 keys to enter the value you want to set, and then press [Enter] to confirm. If there is an error in the data input, press **【Clear】** to clear the current data, and then re-enter the data.

2.2.2 Enter parameters via the knob

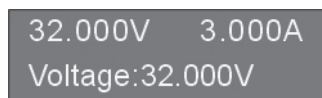
In practical applications, continuous signal adjustment is sometimes required, which can be achieved using the digital adjustment knob. Pressing the shift keys **【←】** or **【→】** allows the cursor indicator to move left or right. The knob on the panel is a digital adjustment knob. Turning the knob clockwise increments the digit at the cursor position by one and carries over to the next higher place value. Turning the knob counterclockwise decrements the digit at the cursor position by one and borrows from the next higher place value. When entering data using the knob, the changed digit takes effect immediately.

2.3 Output Voltage Setting

Press **【V-set】** button and LCD displays "Voltage"

Method 1: Press the 0~9 number keys and press the **【Enter】** key to set the output voltage.

Method 2: Use the **【←】** or **【→】** key to move the cursor to the specified bit, and rotate the knob to adjust the voltage setting. For example: Set the output voltage to 32.000V Press **【V-set】 【3】 【2】 【.】 【0】 【0】 【0】 【Enter】** to display the input voltage value on the LCD:



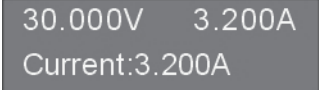
32.000V 3.000A
Voltage:32.000V

2.4 Output Current Setting

Press **【I-set】** button and LCD displays "Current"

Method 1: Press the 0~9 number keys and press the **【Enter】** key to set the output current.

Method 2: Use the **【←】** or **【→】** key to move the cursor to the specified bit, and rotate the knob to adjust the voltage setting. For example: Set the output current to 3.200A Press **【I-set】 【3】 【.】 【2】 【0】 【0】 【Enter】** to display the input current value on the LCD:



30.000V 3.200A
Current:3.200A

2.5 Overvoltage Protection Setting

Overvoltage protection is a feature that activates to safeguard the power supply and DUT when the output voltage exceeds the overvoltage threshold. Before operation, enable the overvoltage protection function and set the overvoltage protection threshold. When the output voltage surpasses this limit, the output immediately shuts off and the “OP” indicator on the panel illuminates. Additionally, voltage adjustment is restricted to this protection value.

Avoid applying external voltages exceeding 120% of the rated voltage to the output terminals, as this may damage internal components!

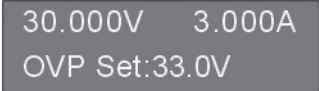
After the power supply enters overvoltage protection mode, investigate external causes. Once external factors are eliminated, use the ON/OFF button to reactivate the protection.

2.5.1 Overvoltage Protection Value Setting

Press the **【OVP】** button and the LCD displays "OVP Set" to set the overvoltage protection threshold.

Method 1: Press the 0~9 number keys and press the **【Enter】** key to set the overvoltage protection threshold.

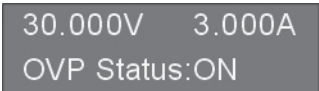
Method 2: Use the **【←】** or **【→】** key to move the cursor to the specified bit, and rotate the knob to adjust the overvoltage protection setting. For example, the overvoltage protection threshold is set to 33.0V. Press **【OVP】 【3】 【3】 【.] 【0】 【Enter】**.



30.000V 3.000A
OVP Set:33.0V

2.5.2 Overvoltage Protection Status Setting

Press the **【Menu】** button until the display shows "OVP Status" to enter the overvoltage protection status setting, and use the **【↑】** and **【↓】** keys or knobs to select on or off.



30.000V 3.000A
OVP Status:ON

2.6 Overcurrent Protection Setting

Overcurrent protection activates when the load current exceeds the preset threshold. Before operation, enable the overcurrent protection function and set the protection threshold. When the load current surpasses this limit, the output immediately shuts off and the “OP” indicator on the panel illuminates. Furthermore, the current adjustment range is restricted by this protection value.

2.6.1 Overcurrent Protection Value Setting

Press the **【OCP】** button and the LCD displays "OCP Set" to set the overcurrent protection threshold.

Method 1: Press the 0~9 number keys and press the **【Enter】** key to set the overcurrent protection threshold.

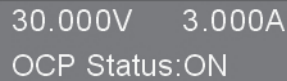
Method 2: Use the **【←】** or **【→】** key to move the cursor to the specified bit, and rotate the knob to adjust the overcurrent protection setting. For example, the overcurrent protection threshold is set to 3.30A. Press **【OCP】 【3】 【.] 【3】 【0】 【Enter】**.



30.000V 3.000A
OCP Set:3.30A

2.6.2 Overcurrent Protection Status Setting

Press the **【Menu】** button until the display shows "OCP Status" to enter the overcurrent protection status setting, and use the **【↑】** and **【↓】** keys or knobs to select on or off.



30.000V 3.000A
OCP Status:ON

2.7 Output Delay Time Setting

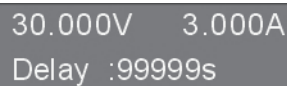
Press the **【Menu】** button until the display shows "Delay" to set the output delay time.

Method 1: Press the 0~9 number keys and press the **【Enter】** key to set the output delay time.

Method 2: Use the **【←】** or **【→】** key to move the cursor to the specified position, and rotate the knob to adjust the output delay time.

For example: Set the output delay time to 99999s.

Press **【Delay】 【9】 【9】 【9】 【9】 【9】 【Enter】** .



30.000V 3.000A
Delay :99999s

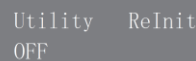
Note: This Delay setting only works when the cycle is automatically executed, so when the memory is stored, this Delay setting is also stored in the memory location.

2.8 Function Settings

Press **【Shift】 + 【4】** to enter the Utility function Settings. Then press the **【Menu】** key to cycle through the options under the current function.

2.8.1 Restore Factory Setting Function

Press the **【Menu】** key until "Utility ReInit" is displayed. The **【↑】** **【↓】** key or knob can be used to open or close it.

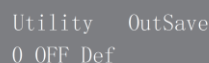


Utility ReInit
OFF

When you open Utility ReInit, the page automatically jumps out and restores all functions to factory Settings.

2.8.2 Output State Memory Function

Press the **【Menu】** key until "Utility OutSave" is displayed. The **【↑】** **【↓】** key or knob to select the function.



Utility OutSave
0 OFF Def

Function item: 0 OFF Def means that the power is not output and the default parameters are restored (5V 1A);

1 OFF Set means that the power is not output and the user's setting parameters are restored;

2 ON Set indicates the power-on output and restores the user's set parameters.

2.8.3 RS232 Port Baud Rate Settings

Press the **【Menu】** key until "Utility Baud" is displayed, and set the code corresponding to the baud rate, so that the device meets the requirements of the baud rate for computer remote control.

The following table shows the code table corresponding to the port baud rate:

code	0	1	2	3	4	5	6	7	8	9
Baud rate	1200	2400	4800	9600	14400	19200	28800	38400	57600	115200

Method 1: Press the 0~9 number keys and press **【Enter】** to set the code value.

Method 2: Rotate the knob to set the code value.



Utility Baud
0 1200

2.8.4 Beeper Settings

Press the **【Menu】** button until "Utility Beep" is displayed. Use the **【↓】** **【↑】** button or knob to turn it on or off.



Utility Beep
ON

2.8.5 Hotkey Settings

Press the **【Menu】** key until "Utility HotKey" is displayed. Use the **【↑】** **【↓】** key or knob to enable or disable it.



Utility HotKey
ON

After this function is enabled, you can call the corresponding group 0-9 Settings in the memory by pressing the 0-9 number keys.

2.8.6 View Software Version

Press the **【Menu】** button until "Utility Version" is displayed, at which time the software version date of the instrument is displayed.



Utility Version
Sep 18 2017

2.8.7 Setting of Address

Press the **【Menu】** key until the "Utility Address" is displayed. Use the **【↑】** **【↓】** key, knob or number key to set the desired address.



Utility Address
001

Note: The address range is 1 to 250.

2.8.8 Retrieval Operation

Press the **【Menu】** key until "Utility Recall" is displayed. Enter the 0-99 number keys, and press the **【Enter】** key to call the parameters of the specified storage area. After calling, the output will be automatically closed.



Utility Recall
05

For example: Call the setting, memory address is 5.

Press **【5】** **【Enter】** .

2.8.9 Store Operation

The power supply allows users to store commonly used parameters in 100 non-volatile memory units, enabling convenient and quick retrieval. The stored data includes output voltage values, output current values, overvoltage protection thresholds, overcurrent protection thresholds, overvoltage protection status, overcurrent protection status, and delay time settings.

Press the **【Menu】** key until "Utility Store" is displayed. Enter the 0-99 number keys, and press the **【Enter】** key to store the power supply parameters in the specified storage area.



Utility Store
05

For example, the storage is set to memory address 5.

Press **【5】** **【Enter】** .

2.8.10 Voltage Self-Test Function Setting

Press the **【Menu】** key until "Utility VSelfTe" is displayed. Use the **【↑】** **【↓】** key or knob to enable or disable it.



Utility Vself
OFF

After this function is enabled, the output voltage value of the automatic monitoring is adjusted to reduce the deviation between the set voltage value.

2.8.11 Remote Sensing Function Setting

When the load consumes a large current, a voltage drop will occur on the connection line between the power supply and the load terminal. In a constant voltage state, remote sensing can automatically compensate for the voltage drop of the load line.

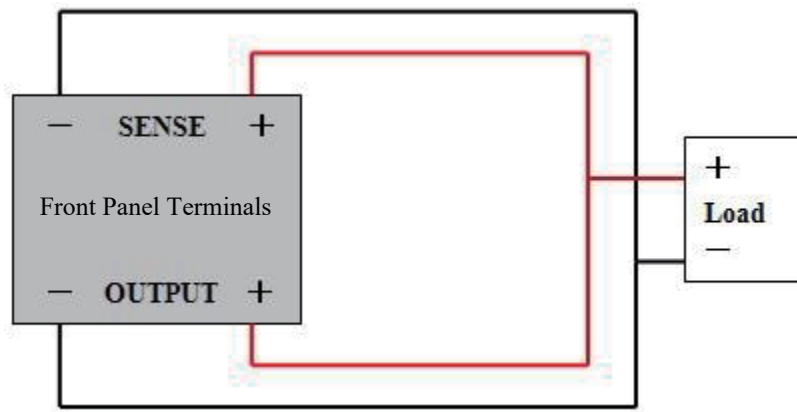
Before using the remote sensing function, you must first set the power supply to remote sensing mode, and the remote sensing function can only be enabled when the output is turned off. Use twisted-pair wiring for the Sense leads whenever possible, and avoid tangling them with the load wires.

Press the **【Menu】** button until "Utility Sense" is displayed. Use the **【↑】** **【↓】** button or knob to turn it on or off.



Utility Sense
OFF

The wiring diagram is as follows:



2.8.12 Trigger Setting

Press the **【Menu】** key until "Utility TRISOU" is displayed. Use the **【↑】** **【↓】** key or knob to select the function.

```
Utility TRISOU
0 IMM
```

Function item: 0 IMM indicates that the communication command is triggered;

- 1 EXT means external trigger;
- 2 Pulse indicates pulse trigger;
- 3 Level indicates low level trigger.

2.8.13 Trigger Function Settings

Press the **【Menu】** key until "Utility TRIFUN" is displayed. Use the **【↑】** **【↓】** key or knob to select the function.

```
Utility TRIFUN
0 Output
```

Function item: 0 Output means that the state of the output switch changes once every time a trigger is triggered. If it was open, then it will be closed after one trigger, and vice versa;

- 1 The List indicates that each time a pulse is sent, it goes to the next group of the list test function.

2.8.14 Maximum Input Voltage Limit

Press the **【Menu】** key until "Utility U Max" is displayed, and set the parameters using the numeric keypad or knob

```
Utility U Max
32.000V
```

The parameters set by this function will limit the maximum voltage setting of the **【V-Set】** or communication.

For example, if the U Max parameter is set to 15V, then the voltage of **【V-Set】** or communication command will be limited to a maximum of 15V.

2.8.15 Maximum Input Current Limit

Press the **【Menu】** key until "Utility I Max" is displayed, indicating that "Utility U Max" is referenced.

2.8.16 Scheduled Output Shutdown Setting

Press the **【Menu】** key until "Auto OFF Time" is displayed, and set the parameters using the numeric keypad or knob.



Auto OFF Time
00000s

This function can achieve 0 ~99999s timed output, when the output reaches the set time, will automatically close the output.

2.8.17 Communication Protocol Selection

Press the **【Menu】** key until "COM Protocol" is displayed. Use the **【↑】** **【↓】** key or knob to select SCPI or Modbus protocol.



COM Protocol
0 SCPI

2.8.18 Slow Startup Settings

Press the **【Menu】** key until "Slow on" is displayed, and use the **【↑】** **【↓】** key or knob to select the function.



Slow on
OFF

Function item: OFF means to turn off the slow start function;

CV indicates the rising time of increased voltage in constant voltage mode;
CC indicates the increase in current rise time under constant current mode.

2.8.19 Encoder Setup Mode

Press the **【Menu】** key until "EC SetMode" is displayed, and use the **【↑】** **【↓】** key or knob to select the function.



EC SetMode
NO

Function item: NO means to turn off the encoder setting function;

SetU indicates that there is no need to press [V-set], and the voltage can be adjusted directly through the rotary encoder;

SetI indicates that there is no need to press [I-set], and the current can be adjusted directly through the rotary encoder;

2.8.20 Line Loss Compensation Setting

Press the **【Menu】** button until "Wire Lose (mR)" is displayed, and use the **【↑】** **【↓】** button knob or numeric key to set the wire loss resistance value (mR).



Wire Lose (mR)
000

2.9 Automated Execution Mode Operation

2.9.1 Set the Starting Address

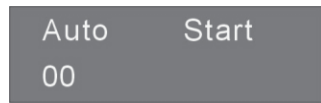
After pressing **【Shift】** + **【5】** , the display shows "Auto Start", and then enters the automatic execution mode range setting options. Press fMenu to cycle through the options under the current function.

Method 1: Press the 0-9 number keys and press **【Enter】** to set the starting memory address.

Method 2: Use the **【←】** or **【→】** keys to move the cursor to the specified bit, and rotate the knob to adjust the starting memory address.

For example: Set the starting memory address to 0.

Press **【0】** **【Enter】** .



2.9.2 Set the End Address

Press the **【Menu】** button until the display shows "Auto End" to set the end memory address.

Method 1: Press the 0~9 number keys and press **【Enter】** to set the end memory address.

Method 2: Use the **【←】** or **【→】** key to move the cursor to the specified bit, and rotate the knob to adjust the end memory address.

For example, set the end memory address to 8.

Press **【8】** **【Enter】** .



2.9.3 Set the Number of Cycles

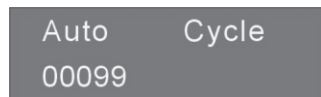
Press the **【Menu】** button until the display shows "Auto Cycle" and set the number of cycles.

Method 1: Press the 0-9 number keys and press **【Enter】** to set the number of times to be recycled (0~99999). When 0 is input, it means that the cycle can be repeated indefinitely.

Method 2: Use the **【←】** or **【→】** key to move the cursor to the specified position, and rotate the knob to adjust the number of cycles.

For example, set the number of cycles to 99.

Press **【9】** **【9】** **【Enter】** .



2.9.4 Enter/exit Automatic Mode Status

Pressing the **【List Run】** button enables or disables automatic execution mode. When the **【List Run】** indicator is lit, the system enters automatic execution mode.

The display shows "LeftTime" indicating the remaining time for the current memory address, and LeftCycle showing the remaining cycle count. No. indicates the currently executing memory address. Pressing **【On/off】** activates the output function.



2.10 Output Switch

The **【On/off】** button on the front panel controls the opening and closing of the output.

2.11 Keyboard Lock Function

The **【Lock】** key on the front panel can be turned on/off to enable the keyboard lock function. When the **【Lock】** key light is on, all keys and knobs except the **【Lock】** key and the **【On/off】** key are locked.

2.12 Adjust the Knob

Press the adjustment knob to switch the cursor position.

2.13 Protection Function

This instrument provides over voltage, over current, over power, over temperature protection function. The overvoltage protection point of the power supply can be set by the **【OVP-set】** on the panel, and the overcurrent protection point of the power supply can be set by the **【OCP-set】** on the panel.

Overpower protection is the protection measure when the power exceeds the maximum power of the instrument itself.

Over temperature protection function. When operating this instrument, abnormal high temperature will be generated and the instrument will automatically shut down the output to ensure the safety of users and the instrument.

2.14 Operation Mode Description

2.14.1 Constant Voltage Operation Mode

(1) Connect the load to the output

For safe operation, connect the load to the output's (+) and (-) terminals only when the output is turned off.

(2) Enter the desired current value

Press **【I-set】** and the display shows "Current" to enter the current setting input mode. In this input mode, you can use the numeric keypad or knob to set the desired current setting.

(3) Enter the voltage value to be output

Press **【V-set】** and the display shows "Voltage" to enter the voltage setting value input mode. In this input mode, you can use the numeric keypad or knob to set the desired voltage setting value.

(4) Launch the output

After pressing **【On/Off】**, the output is turned on, and the display shows the actual output measurement value

(5) Confirm that the power supply is in constant voltage mode

Please check whether the CV light is on to ensure that the output operation is in constant voltage mode. If the CC light is on, increase its current value to ensure that the output operation is in constant voltage mode.

2.14.2 Constant Current Operation Mode

(1) Connect the load to the output

For safe operation, connect the load to the output's (+) and (-) terminals only when the output is turned off.

(2) Enter the desired voltage value

Press **【V-set】** and the display shows "Voltage" to enter the voltage setting input mode. In this input mode, you can use the numeric keypad or knob to set the desired voltage setting.

(3) Enter the current value to be output

Press **【I-set】** and the display shows "Current" to enter the current setting value input mode. In this input mode, you can use the numeric keypad or knob to set the desired current setting value.

(4) Launch the output

After pressing **【On/Off】**, the output is turned on, and the display shows the actual output measurement value

(5) Confirm that the power supply is in constant current mode

Please check whether the CC light is on to ensure that the output operation is in constant current mode. If the CV light is on, increase its voltage value to ensure that the output operation is in constant current mode.

2.14.3 Constant Voltage/current State Switching

When operating in output mode, if the current falls below the preset threshold, the power supply enters constant voltage mode. The green indicator light illuminates as the output voltage stabilizes at the set value. Once the current reaches the target level, it switches to constant current mode, with the red indicator light lighting up. The system automatically adjusts between constant voltage and constant current modes based on the load's requirements.

3. Telecontrol

This series of power supply supports remote control mode, provides RS232 /USB / RS485 interface to communicate with the computer, and realizes all functions on the panel through the upper computer software.

3.1 Interface Setting

3.1.1 Interface

The RS232 /USB/RS485 interface is installed on the back panel of the instrument, as shown in the figure below.



RS232 interface



USB interface



RS232 interface

3.1.2 Communication Setting

Set up the COM port on the PC according to the following

- (1) Baud rate:9600
- (2) Check bit: None
- (3) Data bits: 8
- (4) Stop position: 1
- (5) Data flow control: None

Note 1: If the power supply does not respond to remote control, please check:

- Whether the interface line itself is disconnected.
- Check whether the interface line and power supply are correctly connected to the corresponding PC pins.
- Check if the interface cable is fastened.
- The communication parameters of the remote control program are consistent with 3.1.2.
- Whether the command terminator of the remote control program is a line break (hex 0X0A).

Note 2: When the instrment is controlled by software, the **【Lock】** key will be lit up and the power supply enters remote control mode. The control keys on the front panel are locked and can not be used for control. To return to local control mode, just press the **【Lock】** key again to tu off the button light, and the power supply will return to local control mode.

3.2 SCPI Programming Instruction Setting

Refer to the programming manual for details of the SCPI programming instruction set.

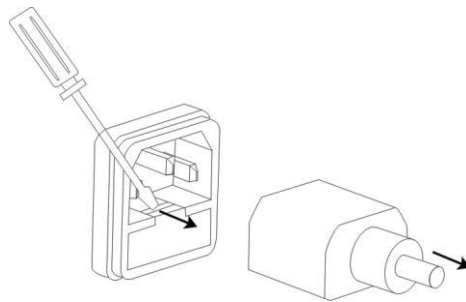
4. Maintenance

4.1 Periodic Inspection

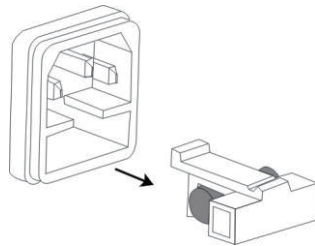
- In the process of using the product, in order to ensure that the product can achieve its best working state, please do regular inspection.
- Check whether the power supply input socket is burned out. Check whether the power output terminal is loose.

4.2 Replacement of Fuse

step : (1) Unplug the power cord and remove the fuse box with a small screwdriver.



(2) Replace fuse.



Fuse specification: T10AL/250V

5. Product specification

When using this specification, ensure that the machine is turned on for more than 30 minutes.

Epi :

Model	30V3A	30V5A	30V10A	60V3A	60V5A
Rated output (0℃~40℃)					
Voltage	0~30V	0~30V	0~30V	0~60V	0~60V
Current	0~3A	0~5A	0~10A	0~3A	0~5A
Overvoltage protection	0.1~33V	0.1~33V	0.1~33V	0.1~65V	0.1~65V
Overcurrent protection	0.1~4A	0.1~6A	0.1~11A	0.1~4A	0.1~6A
Voltage output					
Line regulation	≤0.01%+3mV				
Load regulation	≤0.02%+5mV				
Recovery time	≤100us(50% load change)				
Ripples and noise	≤1mVrms				
Temp coefficient	≤100ppm/℃				
Set precision	±(0.03% of reading+10mV)(25±5℃)				
Set resolution	1mV(5bits)/0.1mV(6bits)				
Current output					
Line regulation	≤0.1%+3mA				
Load regulation	≤0.1%+5mA				
Ripples and noise	≤6mArms				
Set precision	±(0.2% of reading+10mA)(25±5℃)				
Set resolution	0.1mA(5 bits)/0.01mA(6 bits)				
Display					
Voltage	5 digits display/6 digits display				
Current	5 digits display/6 digits display				
Voltage resolution	1mV (5 bits)/0.1mV (6 bits)				
Current resolution	0.1mA(5 bits)/0.01mA(6 bits)				
Accuracy of reading	±(0.02% of reading+5mV)(25±5℃); ±(0.05% of reading+0.1% of FS)(25±5℃)				
Protection	Overload protection, polarity reversal protection, overvoltage protection, overcurrent protection, overtemperature protection				
Lock function	have				
Interface	Standard RS232 interface, support SCPI and MODBUS instruction set, analog control interface (optional)				
Storage and retrieval	100 group				
Insulativity	Between output terminals and housing or other terminals: ≥20M Ω /500 VDC				
Operational environment	Indoor usage Altitude: ≤2000m Environmental temperature: 0~40℃ Relative humidity: ≤80% Installation level: II Level of contamination: 2				
Storage environment	Environment temperature: -10~70℃ relative humidity: ≤70%				
Input	200-240VAC,50/60Hz				
Appendix	Power cable 1, PC software CD 1, RS232 interface cable 1				
Size	352(D)×215(W)×89(H)mm				
Weight	5~8kg				

Table 2:

Model	150V1A	150V2A	150V3A	250V1A	
Rated output (0℃~40℃)					
Voltage	0~150V	0~150V	0~150V	0~250V	
Current	0~1A	0~2A	0~3A	0~1A	
Overvoltage protection	0.1~153V	0.1~153V	0.1~34V	0.1~64V	
Overcurrent protection	0.1~1.5A	0.1~2.5A	0.1~3.5A	0.1~1.5A	
Voltage output					
Line regulation	≤0.01%+3mV				
Load regulation	≤0.02%+5mV				
Recovery time	≤100us(50% load change)				
Ripples and noise	≤1mVrms				
Temp coefficient	≤100ppm/℃				
Set precision	±(0.03% of reading+10mV)(25±5℃)				
Set resolution	1mV(5bits)/0.1mV(6bits)				
Current output					
Line regulation	≤0.1%+3mA				
Load regulation	≤0.1%+5mA				
Ripples and noise	≤6mArms				
Set precision	±(0.2% of reading+10mA)(25±5℃)				
Set resolution	0.1mA(5 bits)/0.01mA(6 bits)				
Display					
Voltage	5 digits display/6 digits display				
Current	5 digits display/6 digits display				
Voltage resolution	1mV (5 bits)/0.1mV (6 bits)				
Current resolution	0.1mA(5 bits)/0.01mA(6 bits)				
Accuracy of reading	±(0.02% of reading+5mV)(25±5℃); ±±5℃)				
Protection	Overload protection, polarity reversal protection, overvoltage protection, overcurrent protection, overtemperature protection				
Lock function	have				
Interface	Standard RS232 interface, support SCPI and MODBUS instruction set, analog control interface (optional)				
Storage and retrieval	100 group				
Insulativity	Between output terminals and housing or other terminals: ≥20MΩ /500 VDC				
Operational environment	Indoor usage Altitude: ≤2000m Environmental temperature: 0~40℃ Relative humidity: ≤80% Installation level: II Level of contamination: 2				
Storage environment	Environment temperature: -10~70℃ relative humidity: ≤70%				
Input	200-240VAC,50/60Hz				
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