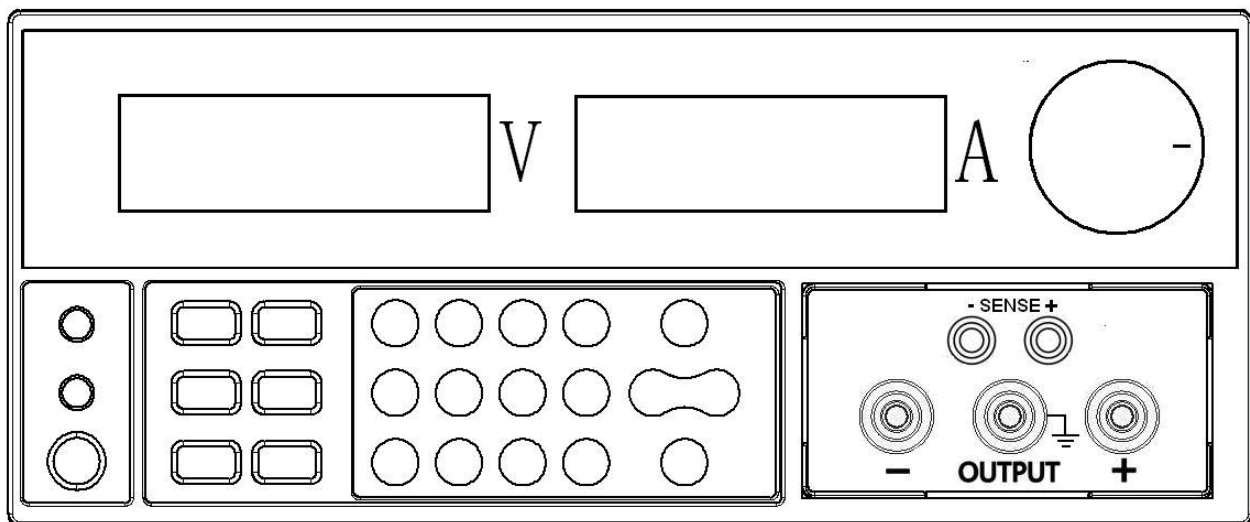


User Manual



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

Catalogue

Security Summary.....	III
1. Product description	1
1.1 Introduce	1
1.2 Characteristic.....	1
1.3 Front panel and back panel	2
1.4 Keyboard	2
2. Operation declaration	4
2.1 Previous panel operation instructions.....	4
2.2 Parameter input	4
2.2.1 Input through numeric keypad.....	4
2.2.2 Input through knob	4
2.3 Output voltage setting.....	4
2.4 Output current setting	4
2.5 Overvoltage protection setting.....	4
2.5.1 Overvoltage protection value setting.....	5
2.5.2 Overvoltage protection status setting	5
2.6 Overcurrent protection setting.....	5
2.6.1 Overcurrent protection value setting.....	5
2.6.2 Overcurrent protection status setting.....	5
2.7 Output delay time setting (this function is invalid in this series of conventional machines).....	5
2.8 Function Settings.....	6
2.8.1 Function Restore factory Setting	6
2.8.2 Output state memory function.....	6
2.8.3 Maximum input voltage limit	6
2.8.4 Maximum input current limit.....	6
2.8.5 RS232 port baud rate setting	6
2.8.6 Beeper Setting	7
2.8.7 Hotkey Setting	7
2.8.8 Voltage self-test function setting.....	7
2.8.9 Communication address setting.....	7
2.8.10 Remote sensing function setting.....	7

2.8.11	Communication protocol selection.....	7
2.8.12	Slow startup Settings.....	8
2.8.13	Encoder setup mode.....	8
2.8.14	View software version.....	8
2.8.15	Trigger setting	8
2.8.16	Trigger function Setting	8
2.8.17	Scheduled Output Shutdown Setting	8
2.8.18	Current offset.....	9
2.8.19	Line loss compensation setting.....	9
2.8.20	Store operation	9
2.8.21	Retrieval operation	9
2.9	Out switch	9
2.10	Lock function	9
2.11	Adjustment knob	9
2.12	Protection function	9
2.13	Operation mode description.....	10
2.13.1	Constant pressure operation mode.....	10
2.13.2	Constant current operation mode.....	10
2.13.3	Constant voltage/current state switching.....	10
3.	Telecontrol	11
3.1	Interface Setting	11
3.1.1	Interface	11
3.1.2	Communication Settings.....	11
3.2	SCPI programming instruction setting	11
4.	Maintenance	12
4.1	Periodic inspection	12
4.2	Replacement of fuse.....	12
5.	Product specification	13

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

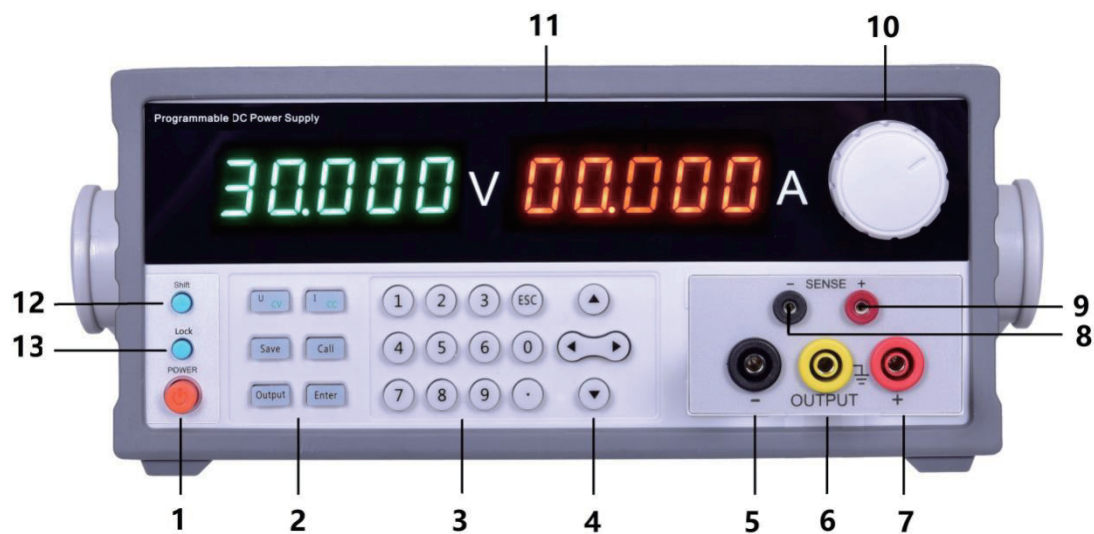
1.1 Introduce

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 dual five-digit digital tube displays the voltage and current clearly
- 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 key	3.Numbering key	4.Direction key
5.Negative terminal	6.Ground	7.Positive terminal	8.Remote sensing negative terminal
9.Remote sensing positive terminal	10.Adjustment knob	11.Digital tube displaying	12 .Shift keys
13.Lock button			



Back panel

1 . Communication interface (standard RS232, optional RS485, USB, LAN)	2. Aircraft control interface function (customized)	3. The external trigger interface of the BNC interface (customized)
4. Fan	5. Power outlet (including fuse holder)	6. Shell grounding terminal

1.4 Keyboard Description

Key notes

The front panel features a total of 24 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 second-

ary 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	Primary function
0	Enter the number 0	Not tailored	7	Enter the number 7	Not tailored
1	Enter the number 1	Not tailored	8	Enter the number 8	Not tailored
2	Enter the number 2	Not tailored	9	Enter the number 9	Not tailored
3	Enter the number 3	Not tailored	.	Enter decimal point	Not tailored
4	Enter the number 4	Not tailored	←、→	Move cursor left and right	None
5	Enter the number 5	Not tailored	↑、↓	Up and down, add/subtract keys	None
6	Enter the number 6	Not tailored	Enter	Confirmation key	None
U	Setting voltage	Not tailored	I	Setting current	Not tailored
Save	Save	Not tailored	Call	Retrieval	Not tailored
Output	Output on or off	None	Lock	Lock	Menu
Shift	Select the secondary function	None	Esc	Escape key	None

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 set the instrument as required on the panel.

2.2 Parameter input

2.2.1 Input through numeric keypad

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

2.2.2 Input through 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 [U] key, voltage display window flashes.

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 [U] [3] [2] [.] [0] [0] [0] [Enter], the digital tube displays the input voltage value.

2.4 Output Current Setting

Press [I] key, the current display window flashes.

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 10.000A.

Press [I] [1] [0] [.] [0] [0] [0] [Enter], the digital tube displays the input current value.

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 “OVP” 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

Click [▲] and [▼] to enter the operation parameter menu, and then click [OVP-S.] to edit the protection threshold.

Method 1: Press 0~9, the number key and press [Enter] to set the overvoltage protection value.

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 voltage value is set to 33.0V.

Press [▲] and [▼] to flip the page until you reach [OVP-S] and press [3] [3] [.] [0] [Enter].

2.5.2 Overvoltage Protection Status Setting

Press [▲] and [▼] to flip the page to the operation parameter menu, and then flip to [OVP-E.] to modify the protection function status: ON/OFF.

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 “OCP” indicator on the panel illuminates. Furthermore, the current adjustment range is restricted by this protection value.

2.6.1 Overcurrent Protection Value Setting

Click [▲] and [▼] to enter the operation parameter menu, and then click [OCP-S.] to edit the protection threshold.

Method 1: Press 0~9, the number key and press [Enter] to set the overvoltage protection value.

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 overvoltage protection voltage value is set to 11.0A.

Press [▲] and [▼] to flip the page until you reach [OVP-S] and press [1] [1] [.] [0] [Enter].

2.6.2 Overcurrent Protection Status Setting

Press [▲] and [▼] to flip the page to the operation parameter menu, and then flip to [OCP-E.] to modify the protection function status: ON/OFF.

2.7 Output Delay Time Setting (this Function Is Invalid in This Series of Conventional Machines)

Press [Shift], press [Lock] again, press [▲] and [▼] to turn the page to the running parameter menu, and then turn to [DELAY] to modify the delay parameters.

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 Setting

Press [Shift], then [Lock], followed by [▲] and [▼] to navigate through menu items. Press [▼] to switch pages, The menu items are as follows: INIT (Factory Reset); OUT (Output Status); V-M (Maximum Voltage Input); I-M (Maximum Current Input); BAUD (Communication Port baud Rate); BEEP (Beep); H.K. (Hot Key); V SELF (Automatic Voltage Tuning); ADDR (Communication Address); SENSE (Compensation Function); COM-P (Communication Protocol); SL-ON (Slow Start); EC- (Encoder Setting); VER (Version Number); T-S (Trigger Mode); T-F (Trigger Function); A-OFF (Automatic Turn-off Time); T-DAT (Current Offset); WL-MR (Line Loss Compensation).

2.8.1 Function Restore Factory Settings

Press [Shift], then press [Lock] to enter the MENU. Press [▲] and [▼] key to flip pages, displaying "INIT". Use [▲] [▼] keys or the knob to enable this feature. Once activated, the MENU interface will pop up, allowing all settings to be reset to factory defaults.

2.8.2 Output State Memory Function

Press [Shift], press [Lock] to enter the MENU. Press [▲] and [▼] key to flip the page, and display "OUT". Use [▲] [▼] keys or knobs to select functions.

- Function item: 0-F. DF means that the power is not output and the default parameters are restored (5V 1A);
1-F. ST indicates that the power is not output and the user's set parameters are restored;
2-O. ST means to turn on the output and restore the user's set parameters.

2.8.3 Maximum input voltage limit

Press [Shift], press [Lock] to enter MENU, press [▲] and [▼] to turn the page, and display "V-M", using the numeric keypad or knob to set parameters.

The parameters set by this function will limit the maximum voltage setting for [U-CV] or communication. For example, if the U Max parameter is set to 15V, the [U-CV] or communication command setting voltage will be limited to a maximum of 15V.

2.8.4 Maximum input current limit

Press [Shift], then press [Lock] to enter the MENU. Press [▲] up and [▼] down to flip the page. The display shows "I-M", indicating that it refers to "V-M".

2.8.5 RS232 Port baud rate setting

Press [Shift], press [Lock] and then enter MENU. Press [▲] up and [▼] down to flip the page until "BAUD" is displayed. Set the code corresponding to the baud rate with the knob, so that the device meets the requirements of the baud rate when the computer is remotely controlled.

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

code	1.2K	2.4k	4.8K	9.6K	19.2K	38.4K	57.6K	11.52K
Baud rate	1200	2400	4800	9600	19200	38400	57600	115200

2.8.6 Beeper Settings

Press [Shift], press [Lock], press [▲] and [▼] to flip the page, and select the corresponding menu item.

2.8.7 Hotkey Settings

Press [Shift], then [Lock], followed by [▲] and [▼] to flip the page. The display will show "H.K." Use [▲] and [▼] keys or the knob to enable or disable this feature. Once activated, pressing any number key (0-9) will retrieve the corresponding settings from memory for the respective group (0-9).

2.8.8 Voltage Self-Test Function Setting

Press [Shift], press [Lock], press [▲] and [▼] to turn the page, and display "V. SELF". Use [▲] and [▼] keys or knobs to open or close.

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

2.8.9 Communication address setting

Press [Shift], press [Lock] again, press [▲] and [▼] to turn the page, and display "ADDR". You can set the required address by using [▲] [▼] keys, knob or numeric keys.

Note: The address range is 1 to 250.

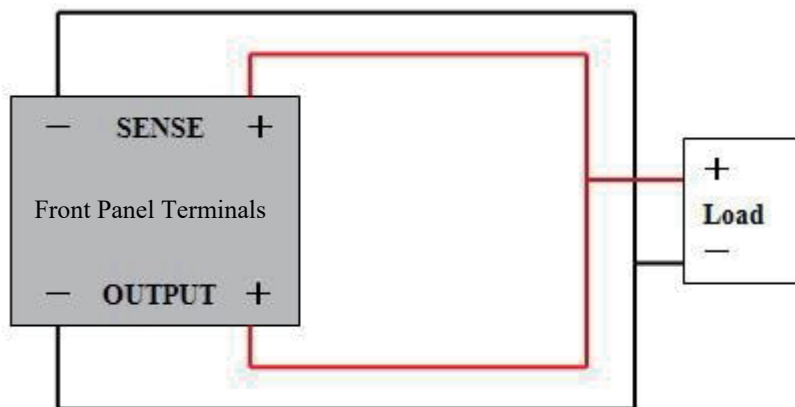
2.8.10 Remote Sensing Function Setting

When the load consumes a large current, a voltage drop occurs in 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 [Shift], press [Lock], press [▲] and [▼] to flip the page, select the corresponding menu SENSE, and use [▲] [▼] keys or knobs to open or close.

Schematic diagram of power supply remote measurement wiring:



2.8.11 Communication Protocol Selection

Press [Shift], press [Lock] again, press [▲] and [▼] to turn the page up and down, and display "COM-P". Use [▲] [▼] keys or knobs to select SCPI or Modbus protocol.

2.8.12 Slow Startup Settings

Press [Shift], press [Lock] again, press up [▲] and down [▼] to turn the page, and display "SL-ON". Use [▲][▼] keys or knobs to select functions.

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.

2.8.13 Encoder Setup Mode

Press [Shift], then press [Lock], press up [▲] and down [▼] to turn the page, and display "EC-". Use [▲] [▼] keys or knobs to select functions.

Function items: O. N means to turn off the encoder setting function;

1. S U means that there is no need to press the [V-set], and the voltage can be adjusted directly through the rotary encoder;

2. S I means that there is no need to follow the [I-set], and the current size can be adjusted directly through the rotary encoder.

2.8.14 View Software Version

Press [Shift], press [Lock], press up [▲] and down [▼] to flip the page, and select the corresponding menu "VER".

2.8.15 Trigger Setting

Press [Shift], press [Lock], press up [▲] and down [▼] to turn the page, display "T-S", use [▲] [▼] keys or knobs to select functions.

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

1-EXT means external trigger;

2-PUL indicates pulse triggering;

3-LEL indicates low level trigger.

2.8.16 Trigger Function Setting

Press [Shift], press [Lock] again, press up [▲] and down [▼] to turn the page, display "T-F", use [▲] [▼] keys or knobs to select functions.

0-Out means that the state of the output switch changes once for each trigger. If it was open, it will be closed after one trigger, and vice versa;

2.8.17 Scheduled Output Shutdown Setting

Press [Shift], press [Lock] again, press up [▲] and down [▼] to turn the page, and display "A-OFF", use the numeric keypad or knob to set parameters.

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

2.8.18 Current Offset

Press [Shift], press [Lock] again, press [↑] and [↓] key to turn the page, and display "T-DAT" to view the current offset when output is empty.

This function is available under no-load output conditions. If the current output display is not zero, press [Shift] + [Esc] to clear the current offset and save it to "T-DAT".

2.8.19 Line Loss Compensation Setting

Press [Shift], press [Lock], press [↑] and [↓] key to turn the page, and display "WL-mR". Use [↑] [↓] keys, knob or numeric keypad to set the line resistance value (mR).

2.8.20 Store Operation

The power supply can store commonly used parameters in 100 non-volatile memory units, allowing users to retrieve them conveniently and quickly. The stored data includes output voltage values, output current values, overvoltage protection values, overcurrent protection values, overvoltage protection status, overcurrent protection status, and delay time.

Press [Save], set the knob group number, press [Enter] ENTER, save the current running parameters

For example: store is set to memory address 5.

Press [Save] [5] [Enter].

2.8.21 Retrieval operation

Press [Call] to set the group number of the knob, and press [Enter] to retrieve the running parameters of the group

For example: call set, memory address is 5.

Press [Call] [5] [Enter].

2.9 Out Switch

The [On/off] key on the front panel controls the opening and closing of the output.

2.10 Lock Function

The [Lock] key on the front panel can be turned on/off to enable the keyboard lock function. After pressing the [Lock] key, when other keys are pressed, the digital tube will display "-L-L-L-L", and all other keys and knobs except the [Lock] key and [On/off] key are locked.

2.11 Adjustment Knob

Press the adjustment knob to switch the cursor position.

2.12 Protection Functions

This product provides overvoltage, overcurrent, overtemperature protection function.

Over temperature (OTP) protection function. When operating this instrument, abnormal high temperature is generated, the instrument will automatically turn off the output, to ensure the safety of users and the use of the instrument.

2.13 Operation Mode Description

2.13.1 Constant Voltage Operation Mode

- (1) Connect the load to the output

For safety of use, connect the load to the (+) and (-) terminals of the output with the output closed.

- (2) Enter the desired current limit value

Press [I] 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 [U] 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 if the CV light is on to ensure that the output is operating in constant voltage mode. If the CC light is on, increase its current limit to ensure that the output is operating in constant voltage mode.

2.13.2 Constant Current Operation Mode

- (1) Connect the load to the output

For safety of use, connect the load to the (+) and (-) terminals of the output with the output closed.

- (2) Enter the desired voltage limit

Press [U] 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.

- (3) Enter the current value to be output

Press [I] 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 if the CC light is on to ensure that the output is operating in constant current mode. If the CV light is on, increase its voltage limit to ensure that the output is operating in constant current mode.

2.13.3 Constant Voltage/current State Switching

When operating in output mode, the power supply maintains constant voltage (green indicator light on) until the output current reaches the preset threshold. Upon reaching this threshold, it switches to constant current mode (red indicator light on), automatically adjusting between constant voltage and constant current states based on load requirements.

3. Telecontrol

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

3.1 Interface Settings

3.1.1 Interface

RS232, RS485, USB and LAN interfaces can be installed on the back panel of the instrument, as shown in the figure below.

			
RS232 interface	RS 485 interface	USB interface	Internet interface

3.1.2 Communication Settings

Set up the COM port on your 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 cable and power supply are correctly connected to the corresponding PC pins.
- Whether 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).

3.2 SCPI Programming Instruction Set

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

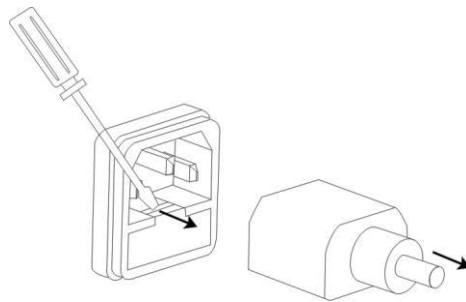
4. Maintenance

4.1 Periodic Inspection

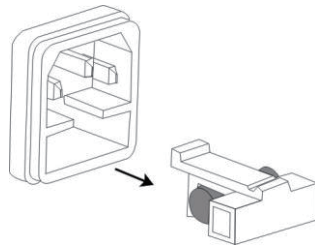
- In the process of using the product, in order to ensure that the product can achieve its best working state, please do regular inspection.
- Check whether the power supply input socket is burned out. Check whether the power output terminal is loose.

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, please ensure that the machine is turned on for more than 30 minutes. **Table 1:**

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	≤0.01%+3mV(I≤3A)/≤0.01%+5mV(I>3A)				
Recovery time	≤100us(50% load change,minimum load 0.5A)				
Ripples and noise	≤1mV rms(I≤3A)(5Hz~1MHz)/≤2mV rms(I>3A)(5Hz~1MHz)				
Temp. coefficient	≤100ppm/℃				
Set precision	±(0.03% of reading + 10mV)(25±5℃)				
Set resolution	1mV (5 bits)/0.1mV (6 bits)				
Current output					
Power effect	≤0.01%+3mA				
Load effect	≤0.01%+3mA(I≤3A)/≤0.01%+5mA(I>3A)				
Ripples and noise	≤3mA rms(I≤3A)/≤6mA rms(I>3A)				
Set precision	±(0.02% of reading + 0.1% of FS) (25±5℃)				
Set resolution	0.1mA(10A resolution above 1mA)(5-bit); 0.01mA(10A resolution above 0.1mA)(6-bit)				
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(10A resolution above 1mA)(5-bit); 0.01mA(10A resolution above 0.1mA)(6-bit)				
Accuracy of reading	±(0.02% of reading+5mV)(25±5℃); ±(0.02% of reading + 0.1% of FS) (25±5℃)				
Protection	Overload protection, polarity reversal protection, overvoltage protection, overcurrent protection, overtemperature protection				
Lock function	have				
Programming interface	RS232,485 (optional), aviation alarm interface (optional), analog control interface (optional), LAN interface (optional)				
Programming protocol	Compatible Modbus, SCPI protocol				
Storage and retrieval	100 Group storage, contains 10 groups of quick parameter storage				
Insulativity	Output terminals to the housing or other terminals; ≤ 60VDC				
Operational environment	Indoor use elevation: ≤2000m ambient temperature: 0℃~40℃ relative temperature: ≤80% Installation level: II Pollution degree: 2				
Storage environment	Environment temperature: -10 ~ 70℃ relative temperature: ≤70%				
Input	AC220V±10%,50/60Hz				
Appendix	Power cable * 1, PC software CD 1, RS232 interface cable * 1, USB communication cable * 1				
Size (without protective case)	376(D)× 215(W)× 89(H)mm				
Weight	About 7kg, Each model is different				

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	0.1~153V	0.1~253V
Overcurrent protection	0.1~1.5A	0.1~2.5A	0.1~3.5A	0.1~1.2A
Voltage output				
Line regulation	≤0.01%+3mV			
Load regulation	≤0.01%+3mV(I≤3A)/≤0.01%+5mV(I>3A)			
Recovery time	≤100us(50% load change,minimum load 0.5A)			
Ripples and noise	≤1mV rms(I≤3A)(5Hz~1MHz)/≤2mV rms(I>3A)(5Hz~1MHz)			
Temp. coefficient	≤100ppm/℃			
Set precision	±(0.03% of reading + 10mV)(25±5℃)			
Set resolution	1mV (5 bits); 0.1mV (6 bits)			
Current output				
Line regulation	≤0.01%+3mA			
Load regulation	≤0.01%+3mA(I≤3A)/≤0.01%+5mA(I>3A)			
Ripples and noise	≤3mA rms(I≤3A)/≤6mA rms(I>3A)			
Set precision	±(0.02% of reading + 0.1% of FS) (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℃); ±(0.02% of reading + 0.1% of FS) (25±5℃)			
Protection	Overload protection, polarity reversal protection, overvoltage protection, overcurrent protection, overtemperature protection			
Lock function	have			
Programming interface	RS232,485 (optional), aviation alarm interface (optional), analog control interface (optional), LAN interface (optional)			
Programming protocol	Compatible Modbus, SCPI protocol			
Storage and retrieval	100 Group storage, contains 10 groups of quick parameter storage			
Insulativity	Output terminals to the housing or other terminals; ≤60VDC			
Operational environment	Indoor use elevation: ≤2000m ambient temperature: 0℃~40℃ relative temperature: ≤80% Installation level: II Pollution degree: 2			
Storage environment	Environment temperature: -10 ~ 70℃ relative temperature: ≤70%			
Input	AC220V±10%,50/60Hz			
Appendix	Power cable * 1, PC software CD 1, RS232 interface cable * 1, USB communication cable * 1			
Size (without protective case)	376(D)×215(W)×89(H)mm			
Weight	About 7kg, Each model is different			