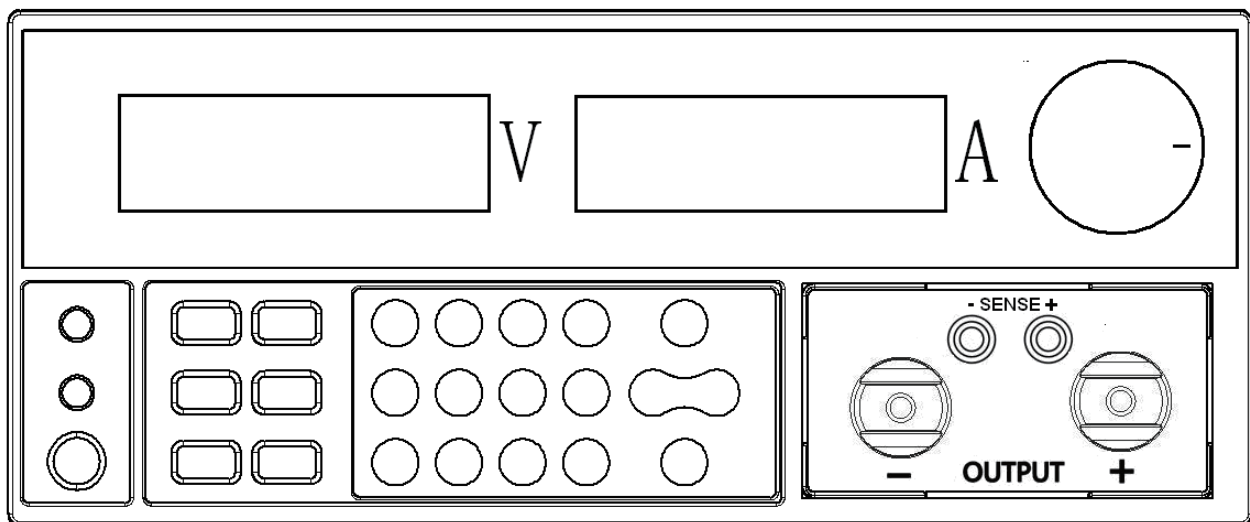


User Manual



High-Precision Programmable Switched-mode DC Power Supply (K-SPD) V4.0

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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

- 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

AC input voltage: 200-240VAC, 50/60Hz.

Ensure that the power cable is connected to the grounding end to avoid electric shock.

fuse



Warning

- 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

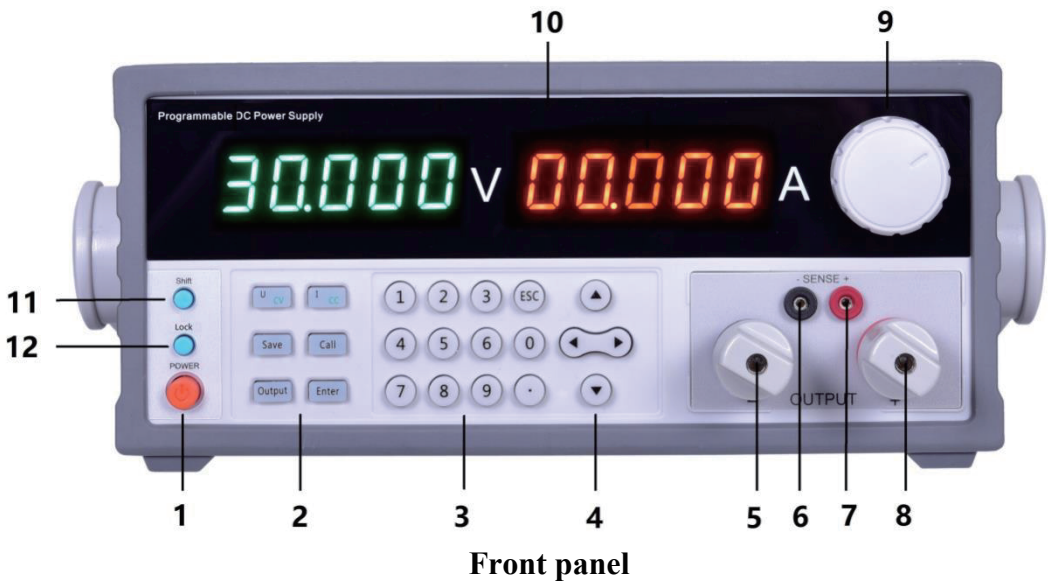
1.1 Introduce

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.

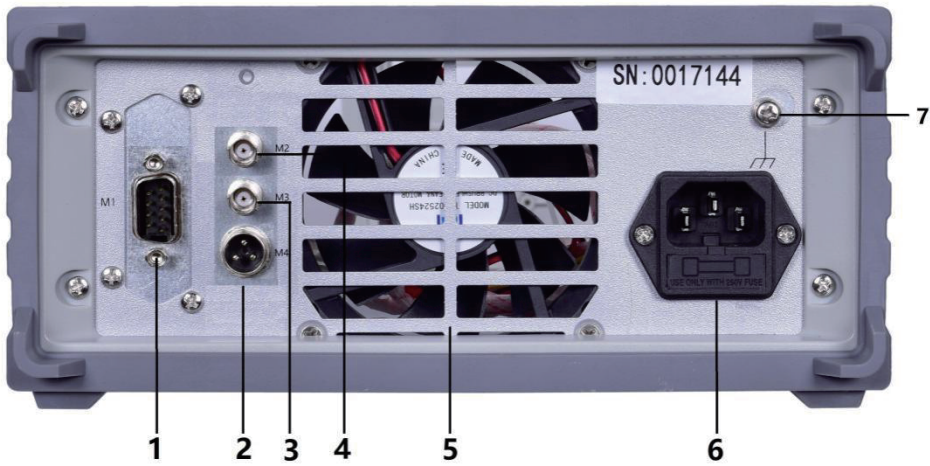
1.2 Characteristic

- 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 Rear Panel



1. mains switch	2. Function key	3. Numeric key	4. Direction key
5. Output negative terminal	6. Remote sensing negative terminal	7. Remote sensing terminals	8. Output positive terminal
9. Adjust knob	10. Displaying digital tubes	11. Function keys	12. Lock function button



Back Panel

1. M1 communication interface (standard RS232, optional RS485, USB , LAN)	2. M4 Air Control Interface function customizable	3. M3 BNC interface external trigger interface	4. Function of M2 BNC interface can be customized
5. Fan	6. Power outlet (including fuse holder)	7. Shell grounding terminals	

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 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	Nottailored	7	Enter the number 7	Nottailored
1	Enter the number 1	Nottailored	8	Enter the number 8	Nottailored
2	Enter the number 2	Nottailored	9	Enter the number 9	Nottailored
3	Enter the number 3	Nottailored	•	Enter decimalpoint	Nottailored
4	Enter the number 4	Nottailored	← →	Move cursor left and right	None
5	Enter the number 5	Nottailored	↑ ↓	Up and down, add/subtract keys	None
6	Enter the number 6	Nottailored	Enter	Confirmation key	None
U	Setting voltage	Nottailored	I	Setting current	Nottailored
Save	preserve	Nottailored	Call	Redeployment	Nottailored
Output	Output on or off	None	Lock	Key lock	Menu
Shift	Select the secondary function	None	Esc	Remove 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, the required instrument setting can be performed on the panel.

2.2 Input Mode

2.2.1 Digital Key Input

Use the 0~9 keys to enter the value you want, and press [Enter] to confirm. If there is an error in the data input, press [Esc] 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. This 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 it right increments the number in the cursor indicator by one while carrying to higher digits, while turning it left decrements the number by one while borrowing from higher digits. When using the knob for data input, any changes in numbers take effect immediately.

2.3 Output Voltage Setting

Press [U] button, 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] to display the input voltage value on the digital tube.

2.4 Output Current Setting

Press [I] key to activate the current display window.

Method 1: Press [0-9] keys followed by [Enter] to set the output voltage.

Method 2: Use [◀] or [▶] keys to navigate to target bit, then rotate knob to adjust voltage setting.

Example: Set output voltage to 10.000A.

Press [I][1][0][.] [0][0][0][Enter] to display input current value on digital display.

2.5 Overvoltage protection setting

Overvoltage protection protects power supply and DUTs by activating when voltage exceeds preset thresholds. Before operation, enable the overvoltage protection function and set the threshold value. When the output terminal voltage surpasses this limit, the output immediately shuts off, with the "OVP" indicator on the digital display panel. The voltage adjustment range is strictly limited to this protection threshold.

External voltage loaded on the output should not be more than 120% of the rated voltage, otherwise the internal components of the product will be damaged!

When the power supply is in the overvoltage protection state, the external cause should be checked. After the external factors are eliminated, the ON/OFF button can be used to reopen it.

2.5.1 Overvoltage protection value setting

Scroll up [▲] and down [▼] to enter the operation parameter menu, then scroll to [OVP-S.] to modify the protection threshold. Method 1: Press 0-9, press the number key, and then press [Enter] to set the overvoltage protection value.

Method 2: Use the [◀] or [▶] keys to move the cursor to the specified position, then rotate the knob to adjust the overvoltage protection setting. For example: Set the overvoltage protection voltage value to 33.0V. Press [▲] up and [▼] down to navigate through the pages until you reach [OVP-S][3][3][.][0][Enter].

2.5.2 Overvoltage protection status setting

According to [▲] and [▼] above, you can flip to the OVP-E. menu to enter the operation parameter menu and modify the protection function status: ON/OFF.

2.6 Overcurrent protection setting

Overcurrent protection safeguards power supplies by activating when the load current exceeds preset limits. Before operation, enable the overcurrent protection function and set the protection threshold. When the load current surpasses this limit, the output immediately shuts off, with the digital display on the control panel showing "OCP". The current adjustment range will be restricted to the set protection value.

2.6.1 Overcurrent protection value setting

Press [▲] and [▼] to flip the page to the operation parameter menu, and then flip to [OCP-S.] to modify the protection threshold.

Method 1: Press 0-9, press the number key and then press [Enter] to set the overcurrent 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 value.

For example, set the overvoltage protection voltage value to 11.0A.

Flip up [▲] and down [▼] until you enter [OCP-S][1][1][.][0][Enter].

2.6.2 Overcurrent protection status setting

According to [▲] and [▼] above, flip to the running parameter menu and 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], press [▲] and [▼] to flip the page to the running parameters menu, and then flip 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]. Next, press [▲] up and [▼] down to navigate through menu items. Press [▼] to flip pages: The first menu item is INIT (Restore Factory Settings); OUT (Output Status); V-M (Maximum Voltage Input); I-M (Maximum Current Input); BAUD (Communication Port Rate); BEEP (Beep); H.K. (Quick 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 Close 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 [▲] up and [▼] down to flip pages, displaying "INIT". Use [▲] and [▼] 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 MENU, press [▲] up and [▼] down to page, display "OUT", use [▲] [▼] keys or knobs to select functions.

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

2.8.3 Maximum input voltage limit

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

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], press [Lock] to enter MENU, press [▲] up and [▼] down to page, and display "I-M", indicating that "V-M" is referenced.

2.8.5 RS232 Port baud rate setting

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

The following table shows the code table corresponding to the port baud 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]. After pressing [▲] 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 groups 0-9.

2.8.8 Voltage Self-Test Function Setting

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

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 Setting of Address

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

Note: The address range is 1 to 250.

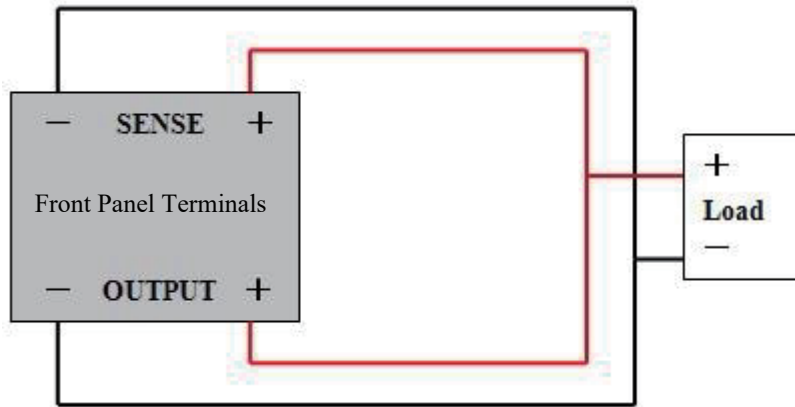
2.8.10 Remote Sensing Function Setting

When the load consumes a large current, a voltage drop is generated 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 on the load line.

Before using the remote sensing function, you must first set the power supply to remote sensing mode and enable the remote sensing function only when the output is turned off. Sense leads should be twisted as much as possible and should not be tangled with the load lines.

Press [Shift], press [Lock], press [▲] and [▲] to flip the page, select the corresponding menu SENSE, and use [▲] and [▲] keys or knobs to open or close.

The wiring diagram is as follows:



2.8.11 Communication Protocol Selection

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

2.8.12 Slow Startup Settings

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

Function item: OFF means to turn off the slow start function;
CV represents the rising time of voltage increase in constant voltage mode;
CC represents the rising time of current increase in constant current mode.

2.8.13 Encoder Setup Mode

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

Function item: 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 press the [I-set], and the current can be adjusted directly through the rotary encoder.

2.8.14 View Software Version

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

2.8.15 Trigger Setting

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

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

1-EXT means external trigger;

2-PUL indicates pulse trigger;

3-LEL means low level trigger.

2.8.16 Trigger Function Setting

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

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

2.8.17 Automatic Close Time Setting

Press [Shift], press [Lock], press [▲] and [▼] to flip the page, and display "A-OFF", and set parameters using the numeric keypad or knob.

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

2.8.18 Current Offset

Press [Shift], press [Lock], press [•] and [•] to flip the page, and display "T-DAT" to view the current offset when output is empty.

In the no-load output condition, if the current output is not shown as 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 [▼] to flip the page, and display "WL-mR". Use [▲] and [▼] 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 thresholds, overcurrent protection thresholds, overvoltage protection status, overcurrent protection status, and delay time settings.

Press [Save], set the knob group number, press [Enter] to save the current runni
for example: store the setting to memory address 5.

Press [Save][5][Enter].

2.8.21 Recall Operation

Press the [Call] key, use the knob to set the group number, then press [Enter] to recall the operating parameters of that group.

Example: Recall the setting with memory address 5.

Press [Call] [5] [Enter].

2.9 Output On/Off

The [On/Off] key on the front panel controls the activation and deactivation of the output.

2.10 Keypad Lock Function

The [Lock] key on the front panel enables or disables the keypad lock function. After pressing the [Lock] key, pressing any other key will cause the digital display to show “-L-L-L-L”. Except for the [Lock] and [On/Off] keys, all other keys and knobs are locked.

2.11 Adjustment Knob

Pressing the adjustment knob allows switching of the cursor position.

2.12 Protection Function

This instrument provides over-voltage, over-current, and over-temperature protection functions.

The over-voltage protection level can be set via the [OVP-S] key on the panel. The over-current protection level can be set via the [OCP-S] key on the panel.

Over-temperature protection (OTP): When abnormally high internal temperature is detected during operation, the instrument will automatically shut down the output to ensure user safety and safe operation of the instrument.

2.13 Operation Mode Description

2.13.1 Constant Voltage (CV) Mode

(1) Connect the load to the output terminals

For safety, connect the load to the (+) and (-) output terminals only when the output is turned off.

(2) Enter the desired current limit value

Press the [I] key to enter the current setting input mode. In this mode, use the numeric keypad or knob to input and set the desired current value.

(3) Enter the desired output voltage value

Press the [U] key to enter the voltage setting input mode. In this mode, use the numeric keypad or knob to input and set the desired voltage value.

(4) Activate the output

Press the [On/Off] key to turn on the output. The display will then show the actual measured output values.

(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 limit value to ensure that the output operation is in constant voltage mode.

2.13.2 Constant Current Operation Mode

- (1) Connect the load to the output

For safety, 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 digital keyboard or knob to input and 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 /RS485/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 line and power supply are correctly connected to the corresponding PC pins.
- Check 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 (hexadecimal 0X0A).

3.2 SCPI Programming Instruction Set

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

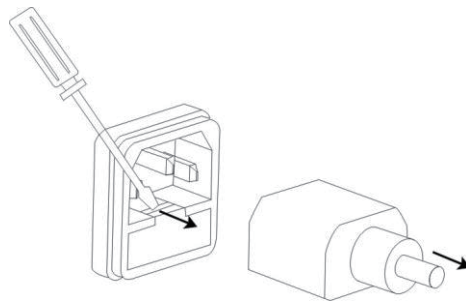
4. Maintenance

4.1 Periodic Inspection

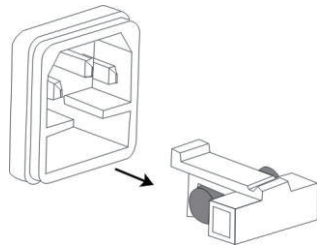
- In the process of using the product, in order to ensure that the product can achieve its best working state, please do regular inspection.
- Check whether the power supply input socket is burned out. Check whether the power output terminal is loose.

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. Size of Product

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

Epi :

model	30V10A	30V20A	60V10A	80V8A
Rated output (0℃~40℃)				
Voltage	0~30V	0~30V	0~60V	0~80V
Current	0~10A	0~20A	0~10A	0~8A
Overvoltage protection	0.1~34V	0.1~34V	0.1~64V	0.1~88V
Overcurrent protection	0.1~12A	0.1~24A	0.1~12A	0.1~8.8A
Voltage output				
Power effect	≤0.01%+4mV			
Load effect	≤0.01%+5mV			
Recovery time	≤1.5ms(50%load change)			
Ripples and noise	≤5mVrms,30mVpp			
Temp. coefficient	≤300ppm/			
Set precision	±(0.03%of reading+10mV)(25±5			
Set resolution	1mV (5 bits)/0.1mV (6 bits)			
Current output				
Line regulation	≤0.2%+3mA			
Load regulation	≤0.2%+5mA			
Ripples and noise	≤10mA _{rms}			
Set precision	±(0.3%ofreading+10mA)(25±5			
Set the resolution	1mA(5 bits)/0.1mA(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	1mA(5 bits)/0.1mA(6 bits)			
Accuracy of reading	±(0.02% of reading+5mV)(25±5℃); ±(0.05% of reading+10mA)(25 ±5℃)			
Protection	Overload protection, polarity reverse protection, overvoltage protection, overcurrent protection, overtemperature protection			
Lock function	have			
Programming interface	Standard RS232 interface, support SCPI and MODBUS instruction set,optional RS485, LAN interface			
Storage and retrieval	100 group			
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	User manual 1 copy, power cord 1, PC software CD 1, RS232 interface cable 1			

Size (without protective case)	400(D)×215(W)×88(H)mm
Weight	About 5.5kg

Table 2:

Specifications	15V60A	30V30A	60V15A	80V11A
Rated output (0℃~40℃)				
Voltage	0~15V	0~30V	0~60V	0~80V
Current	0~60A	0~30A	0~15A	0~11A
Overvoltage protection	0.1~18V	0.1~34V	0.1~64V	0.1~88V
Overcurrent protection	0.1~62A	0.1~34A	0.1~18A	0.1~12A
Voltage output				
Power effect	≤0.01%+4mV			
Load effect	≤0.01%+5mV			
Recovery time	≤1.5ms(50%load change)			
Ripples and noise	≤5mVrms,30mVpp			
Temp. coefficient	≤300ppm/℃			
Set precision	±(0.03% of reading+10mV)(25±5℃)			
Set resolution	1mV (5 bits)/0.1mV (6 bits)			
Current output				
Line regulation	≤0.2%+3mA			
Load regulation	≤0.2%+5mA			
Ripples and noise	≤10mArms			
Set precision	±(0.3% of reading+10mA)(25±5℃)			
Set resolution	1mA(5 bits)/0.1mA(6 bits)			
show				
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	1mA(5 bits)/0.1mA(6 bits)			
Accuracy of reading	±(0.02% of reading+5mV)(25±5℃); ±(0.05% of reading+10mA)(25±5℃)			
Protection	Overload protection, polarity reverse protection, overvoltage protection, overcurrent protection, overtemperature protection			
Lock function	have			
Programming interface	Standard RS232 interface, support SCPI and MODBUS programming instruction set, optional RS485, LAN interface			
Storage retrieval	100 group			
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	User manual 1 copy, power cord 1, PC software CD 1, RS232 interface cable 1			

Size (without protective case)	400(D)×215(W)×88(H)mm
Weight	About 5.5kg