MPS-100 series DC Power Supply User Manual

MATRIX TECHNOLOGY INC.

introduction

Dear users:

Thank you for choosing a new MATRIX electronic equipment. In order to use this instrument correctly, please read the full text of this manual carefully before using this instrument, especially about the "safety precautions" part.

If you have read the full text of this manual, it is recommended that you keep it properly together with the instrument or where you can read it for future use.

Copyright information

Check and calibration statement

In particular, the company declares that the equipment listed in this manual fully complies with the nominal specifications and characteristics of the company's technical specifications. The instrument has passed the factory calibration of the company before leaving the factory, and the verification procedures and steps are in line with the specifications and standards of the electronic inspection center.

Product quality assurance

The company guarantees that the new instruments manufactured have been subject to strict quality confirmation, and in case of construction defects or parts faults, the company is responsible for free repair. However, if the user has changed the circuit, function, or repaired the instrument and parts or external box damage, the company will not provide free warranty service. No free warranty is provided for any abnormal failure to complete all the ground lines or to operate the machine according to the safety specifications.
This warranty does not include the auxiliary equipment and other accessories not produced by our company. During the one-year warranty period, please send the faulty unit back to the company's maintenance center or the dealer designated by the company, and the company will repair it properly.
If the unit is under abnormal use, or human negligence, or under human control, such as earthquake, flood, riot, or fire and other factors under human control, the company will not free warranty services.

(The Company follows the sustainable development strategy and reserves the right not to improve the contents of this specification.)

Safety precautions

The following general safety precautions must be followed during each stage of instrument operation. If these preventive measures or specific warnings described in other parts of this manual are not followed, it will violate safety standards related to the design, manufacturing, and use of the instrument. Our company does not assume any responsibility for users' non-compliance with these preventive measures.

Warning:

- Do not use damaged equipment. Check the equipment before using the equipment.request.
  Do not operate the equipment in an environment containing explosive gas, steam or dust.
- The power supply is supplied with a three-core power cable, and your power supply should be connected to a three-core connection line box. Before operating the power supply, you should first determine that the power supply is well grounded to avoid accidental injuries!
- Before connecting the device, observe all the markers on the device.
- Always use the cables provided at the factory to avoid accidental injuries.
- Using wires with appropriately rated loads, the capacity of all load wires must be able to withstand the maximum power supply large short-circuit output current without overheating. If there are multiple loads, each pair of load wires must be used.
- Full-load rated short-circuit output current that can safely carry the power supply.
- To reduce the risk of fire and shock, ensure that the voltage fluctuation of the mains supply does not exceed 10% of the operating voltage range.
- If you use the power supply to charge the battery, to confirm the positive and negative polarity of the battery when wiring, otherwise it will burn out the power supply!
- Do not use the device when the cover is removed or is loose.
- Do not install substitute parts on the instrument or perform any unauthorized modifications.
- We are not liable for possible direct or indirect financial losses arising from the use of this product.
- Never use the equipment on the life support system or any other equipment with safety requirements.
- Not used in the manner specified by the manufacturer may compromise the protection that the equipment provided.
- Always clean the equipment enclosure with a dry cloth. Do not clean the instrument interior.

catalogue

Chapter 1: Product Profile

The MPS-100 series is a high-quality pure linear DC voltage stabilizing power supply with a novel appearance, small size, simple operation, high precision and good stability. Five-bit high-precision LED display window, voltage, current, power display at the same time, to the user's use and operation to bring great convenience. Resolution up to 1mV/0.1mA, low ripple noise, is the replacement of ordinary power supply products, has a very high cost performance, can be widely used in production, research and development, scientific research and teaching and other fields.

This series of power supplies has the following features:

- Five-bit high-precision LED display window
- The voltage and current can be adjusted by using the number keyboard or the knob
- Voltage, current and power are displayed simultaneously
- 1mV/0.1mA Resolution
- The List output function
- Low ripple and low noise
- Intelligent fan control, save energy, reduce noise
- Optional communication interface, support for SCPI and MODBUS commands
- It has the temperature monitoring function
- With over voltage, over current protection and over temperature protection functions
- 9 sets of data storage

Chapter II Technical specifications

2.1 Main technical specifications

MPS-100 Series Technical Specification Table (23℃± 5℃):

model		MPS-100	MPS-101
Rated input voltage		AC220V±10%	
Rated output voltage		0-30V	0-60V
rated output current		0-50A	0-3A
Load regulation rate	voltage	<0.05%+8mV	<0.05%+8mV
	current	<0.1%+5mA	<0.1%+5mA
Power regulation rate	voltage	<0.05%+8mV	<0.05%+8mV
	current	<0.1%+5mA	<0.1%+5mA
Set value resolution	voltage	1mV	1mV
	current	0.1mA	0.1mA
Setpoint accuracy (25℃± 5℃)	voltage	≤0.1%+8mV	≤0.1%+8mV
	current	≤0.2%+2mA	≤0.2%+2mA
Reread value resolution	voltage	1mV	1mV
	current	0.1mA	0.1mA
Readback value precision (25℃±5℃)	voltage	≤0.1%+8mV	≤0.1%+8mV
	current	≤0.2%+2mA	≤0.2%+2mA
temperature	operational environment	0 to 40 ℃ ≤ 85 R.H.	0 to 40 ℃ ≤ 85 R.H.
	Storage environment	-15 to 70 ℃ ≤ 85 R.H	-15 to 70 ℃ ≤ 85 R.H
Size (W * H * D (mm))		185 * 105 (including footpad) * 295	185 * 105 (including footpad) * 295
Package weight (net weight)		4.5Kg	4.5Kg

2.2 Supplementary Features

Status memory capacity: 9 sets of operation states

Recommended calibration frequency: 1 year / 1 time

Heat dissipation mode: forced air cooling

Operating ambient temperature: 0 to 40℃

Storage ambient temperature: -20 to 60℃

Use environment: indoor use design, pollution level 2, maximum humidity 80%

Chapter 3: A Quick Start

This chapter will briefly introduce the appearance and basic functions of MPS-100 series DC voltage power supply, let you quickly understand the MPS-100 series DC voltage power supply. At the same time, you will be told about the basic inspection after getting the power supply to ensure the normal operation of the product.

3.1 Introduction of the front and rear panel

The front panel of the MPS-100 series DC stabilized power supply is shown below.

Figure 3.1 Front panel of MPS-100 series DC stabilized power supply

① Model and specification label

② ④ ⑥ Digital keys and function keys

③ knob

⑤ Voltage, current, power display window

⑦ leading-out terminal.

⑧ mains switch

Rear panel introduce , as shown in the figure below.

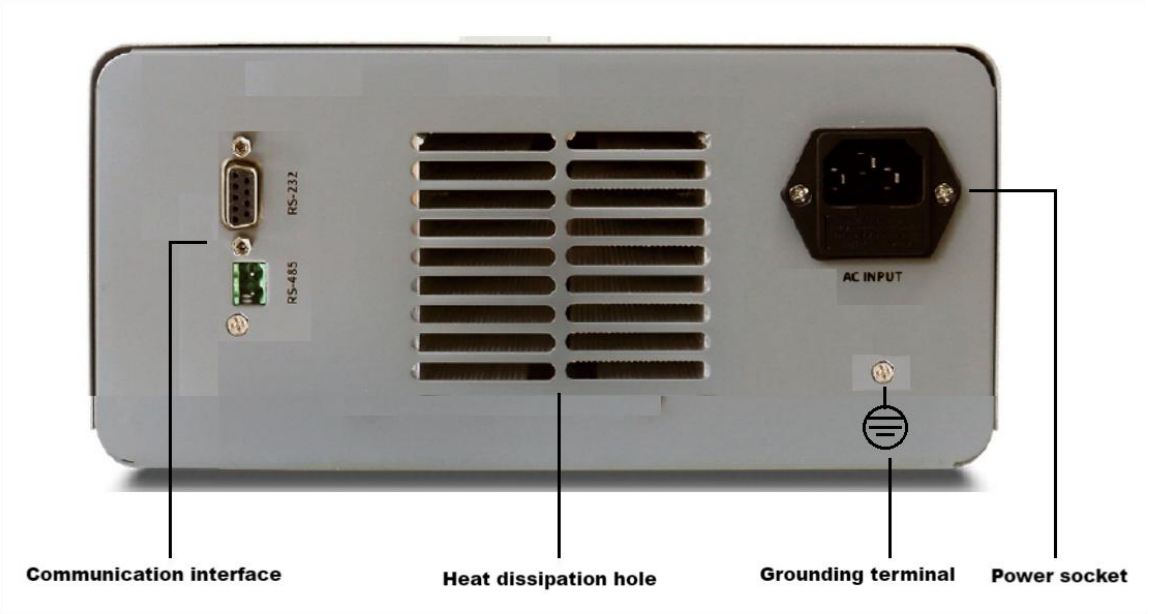


Figure 3.2 Rear panel of MPS-100 series DC stabilized power supply

3.2 Pre-check

Follow the following below to check the power supply to ensure the power supply is properly.

1. Inspection of goods

Please check for the following accessories while receiving the power supply. If there is any missing thing, please contact your nearest dealer.

☑ One power cord (meet the voltage standard used in the region)

☑ One operation manual (standard equipment)

☑ One certificate (standard)

2. Connect the power cord and turn the power on

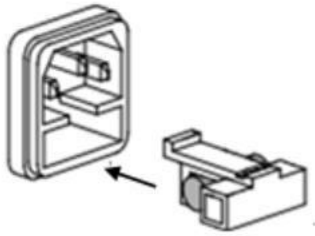
After the power on, the power supply first performs the system self-test, and then enters the standby state.

Warning: The power supply comes with a three core power cord, and your power supply should be connected to the three core junction box. Before operating this power supply, you should first ensure that the power supply is well grounded.

3.3 If the power supply cannot be started

1. Check that the power cord is well connected
2. Fuse replacement method

Use the screwdriver to open the small plastic cover under the power input socket on the back panel of the power supply to see the fuse. Please use the same fuse in the same specification.



model	Fuse specification of 110V	Fuse specification of 220V
MPS-100	8A	5A
MPS-101	8A	5A

Chapter 4: Panel operation

This chapter details the operation of the front power supply panel and is divided into the following sections:

- Keyboard description
- Introduction of the front panel operation
- Voltage-setting operation
- Current-setting operation
- Store / Recall the operation
- Vacation Menu Operation
- Output the on / off operation
- List operate
- Over-voltage / overcurrent protection function
- Keyboard-lock function

4.1 Keyboard description

Key position	Key function description
0-9:	numbering key
Enter	Confirm the key
I-Set	Set the power supply maximum output current / OCP setting
V-Set	Set the power supply output voltage / OVP setting
Save	Storage power supply current relevant parameters to the specified storage location
Recall	Recall power related setting parameters from the specified storage location
Menu	Menu function key
Esc	Exit the key / keyboard lock
On/off	Power supply output state control key
knob	Used to change the power supply voltage, current setting and menu switching.

4.2 Introduction to the front panel operation

Before using this power supply, please know the following basic introduction about the front panel button operation.

- After the power supply, the power supply automatically is the panel operation mode. In the panel operation mode, all the buttons can be used.
- LED can display the current operation state of the power supply, turn on the power supply, LED shows three lines of data, the first line shows the voltage value, the second line shows the current value, and the third line shows the power value. When the instrument is in the output state, the voltage, current and power window are displayed as the actual output value; when the instrument is in the closed state, the voltage and current window are displayed as the set value, and the power is 0.000W.

4.3 Voltage setting operation

The voltage setting ranges from 0V to the maximum voltage setting value, and you can set the output voltage value through the front panel in the following two methods.

Method 1: press V-Set key + 0 to 9 number keys, and then press Enter key to set the voltage value.

Method 2: change the voltage setting value by pressing the knob and then rotating left and right. (press the knob inside, the screen flashes to rotate the left and right to set the voltage, move the knob to set the cursor position, press "Enter" to confirm and exit the setting mode).

4.4 Current setting operation

Current setting range between 0A and full rated output current,

Method 1: Press I-Set key + 0 to 9 number key, and then press Enter key to set the current value.

Method 2: Press I-Set to change the voltage setting value by rotating the knob left and right. (Press the knob in, and the screen flashes to rotate the left and right to set the current, set the cursor position by moving the knob, press "Enter" to confirm and exit the setting mode).

4.5 Storage / recall operation

The power supply can save some commonly used parameters in 9 sets of non-volatile memory, for users to use quickly. You can use the front panel Save and Recall keys to access the (0~9) group storage area.

Storage contents include: 1. Voltage setting value 2. Current setting value 3.OVP,4.OCP.

The specific operations are performed as follows:

4.5.1 Storage operation

Press the "Save" key, the screen will switch to the storage operation interface (as shown below), then enter the "0" to "9" number keys, and press Enter to store the power supply parameters in the specified storage area.

4.5.2 Recall operation

Press "Recall", the screen will switch to the Recall operation interface (as shown below), enter "0" to "9", and press Enter to Recall the power supply parameters from the specified storage area.

4.6 Menu operation

Press the "Menu" button, the screen will switch to the menu operation interface. When the screen flashes, and the menu operation interface can rotate the knob, scroll the menu up and down, press the knob or press the "Enter" button to select the menu to be modified or confirm the modified parameters, and the "Esc" button is used to return to the previous menu.

4.6.1 Config (power supply configuration):

When pressing the "Menu" key, the current window displays "CONF" (power configuration) and flashes (show the following figure). Turn the menu to scroll up and down through the knob. When pressing or pressing the knob in the "CONF" (power configuration), the power supply will enter the power configuration, function option, "Esc" key back to the upper level.

4.6.1.1 Power Set (power supply power parameter setting):

On the Config menu, Press the knob or press Enter, The power supply will enter the Power S et (power on the power supply parameter setting) function option, Show below (Voltage window menu flashes), At this time can be through the knob left and right rotation to scroll up and down the menu, Press the knob or press Enter to select the menu to modify, When the current window parameter flashes by pressing the knob or Enter in the P-ST position, Enter the Power S et function parameter setting, Left and right rotary knob modification parameters, "ON" is the voltage and current parameters of the last shutdown, "OFF" is the factory default voltage and current parameters, Press the knob or the "Enter" key to confirm, The Esc " key returns to the upper level.

4.6.1.2 Power UP (Power output status setting on power supply):

Under the "Config" menu, you can scroll up and down to the "P-UP" position by rotating the knob left and right, Show below (Voltage window menu flashes), Press the knob or press Enter to select the Modify P-UP menu, The current window parameters flash, Enter Power UP (power on output state setting) function parameter setting, Left and right rotary knob modification parameters, "ON" is kept as the output state when powered on, "OFF" keeps the output off when powered on, Press the knob or the "Enter" key to confirm, The Esc " key returns to the upper level.

4.6.1.3 Beep (buzzer sound setting):

Under the "Config" menu, you can scroll the menu up and down through the knob to the "BEEP" position, display the following (voltage window menu flashes), press the knob or press the "Enter" button to select to modify the "BEEP" menu, then the current window parameters flicker, enter the BEEP (buzzer sound setting) function parameter setting, and the left and right rotation button modification parameter, "ON" is to open the buzzer, "OFF" to close the buzzer, press the button or "Enter" key to confirm, and the "Esc" key is to return to the previous level.

4.6.1.4 Brightness (brightness setting):

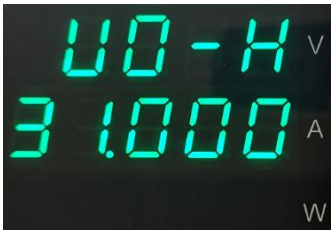
Under the "Config" menu, you can scroll up and down to the "Brig" position by rotating the knob ", display the following (voltage window menu flashes), press the knob or press the" Enter "key to select and modify the" Brig "menu, then the current window parameters flicker, enter the Brig (brightness setting) function parameter setting, modify the parameter," 1 "is the darkest," 6 "is" brightest ", press the knob or" Enter "key to confirm, and" Esc " key to return to the previous level.

4.6.1.5 VO-L (lower limit of voltage range):

Under the "Config" menu, you can scroll up and down to the "VO-L" position by rotating the knob, display the following (voltage window menu flashing), press the knob or press the "Enter" key to select and modify the "VO-L" menu, then the current window parameters flash and enter the VO-L (lower voltage range setting) function parameter setting, you can modify the parameters through the number key "1-9", "Enter" to confirm the input parameters, and "ESc" key to return to the previous level.

4.6.1.6 VO-H (upper limit of voltage range):

Under the "Config" menu, you can scroll up and down to the "VO-H" position by rotating the knob, display the following (voltage window menu flashing), press the knob or press the "Enter" key to select and modify the "VO-H" menu, then the current window parameters flicker and enter the VO-H (voltage range setting) function parameter setting, you can modify the parameters through the number key "1-9", "Enter" to confirm the input parameters, and "ESc" key to return to the previous level.



4.6.1.7 CU-L (lower limit of current range):

Under the "Config" menu, you can scroll up and down to the "CU-L" position through the knob, display the following (voltage window menu flashes), press the knob or press the "Enter" key to modify the "CU-L" menu, then the current window parameters flash and enter the CU-L (lower current range setting) function parameter setting, you can modify the parameters by "1-9", "Enter", and "ESc" key to return to the previous level.

4.6.1.8 CU-H (upper limit of current range):

Under the "Config" menu, you can scroll up and down to the "CU-H" position by rotating the knob, display the following (voltage window menu flashes), press the knob or press the "Enter" key to select "to modify the" CU-H "menu, then the current window parameters flicker, enter the CU-H (upper limit of current range setting) function parameter setting, then modify the parameters by" 1-9 "," Enter "confirm input parameters, and the" ESc " key to return to the previous level.

4.6.1.9 Initialize (Power supply initialization):

Under the "Config" menu, you can scroll up and down to the "INIT" position by rotating the knob, display the following (voltage window menu flashes), press the knob or press the "Enter" key to select and modify the "INIT" menu, then the current window parameters flicker, enter the INIT (power initialization) function parameter setting, then modify the parameters through the left and right rotation knob, "NO" is not initialized, "YES" is initialization, press the knob or "Enter" key to confirm, and "Esc" key to return to the previous level.

4.6.2 List (List test function):

When pressing the "Menu" key, the current window displays "CONF" (power configuration) and flashes. By rotating the knob left and right, scroll up and down to select the "List" (list test function), press the button or press "Enter". The power supply will enter the list test function option, displayed as follows, and the "Esc" key returns to the upper level.

4.6.2.1 Load List File

After the power supply enters the list test function option (as shown below), press the knob or press "Enter", the system will automatically load the edited List file and switch to the List test interface, press "Output" key to execute or stop List, and "Esc" key will return to the upper level.

4.6.2.2 Edit List File

After the power supply enters the list test function option, scroll the menu up and down through the knob left and right to select "Edit" (edit the list test function, as shown below).

4.6.2.3 List Total step setting

After entering the edit list test function, press the knob or press "Enter", the power supply will enter the List total step setting edit, display as follows, "Esc" key back to the upper level, use the number key to input parameters, press "Enter" key to confirm, the total step between 1-10 selection.

4.6.2.4 List Continuous cycle times setting

List total step length setting, after the editing to automatically enter the List continuous cycle number setting, with the number key to input parameters, press "Enter" key to confirm, the total number between 0-9999 selection, 0 is infinite cycle, List execution can press "Output" to stop or continue.

4.6.2.5 List output parameter setting

After the completion of the edit, the voltage, current and time (unit: seconds) of List (the figure below). The value of the set item will blink, enter the parameters with the number key, press the "Enter" key to confirm and jump to the next item. After the editing is completed, the power supply will return to the list test function option home page.

4.6.2 Information (Power supply information):

4.6.2.1 When pressing the "Menu" key, the current window displays "CONF" (power configuration) and flashes. Roll the menu up and down to the position of "INFO" (power information menu). As shown in the figure below:

4.6.2.2 Press the knob or "Enter" at the "INFO" (power information menu), and the power supply will enter the power information menu as follows:

safe

Do not install the substitute parts on the instrument yourself, or perform any unauthorized modifications. Please send the instrument to the company's maintenance department for repair to ensure its safe use.

Please refer to the specific warning or precautions information in this manual to avoid causing personal injury or instrument damage.

Safety signs

Warning

It reminds users to pay attention to certain operating procedures, practices, conditions, and other matters that may cause personal injury take care.

NOTE It reminds users of operating procedures, practices, conditions, and other issues that may cause damage to the instrument or permanent loss of data


Grounding point


High voltage hazard. (Non professional personnel are not allowed to open the machine)


Refer to the warnings in the relevant documents and pay attention to the prompts. (The voltage is high, please wear gloves when operating, be careful not to use the machine in safety related situations.).

Warranty Card

What the warranty covered:

If the machine break down due to its defectiveness, MATRIX will provide free maintenance during warranty period. If the machine break down due to wrong operation or carelessness, then Matrix provide paid service within warranty period.

How long does this warranty last:

This warranty lasts for 3 years from the date of original purchase of all MATRIX branded products.

Who is covered:

This warranty covers only the original purchaser of this product. This warranty is not transferable to subsequent owners or purchasers of this product.

What do customers need to do to get repairs/service under the warranty policy?

If the machine get problem, please contact our local distributor. If you cannot find the local distributor, you can contact us directly, our email is service@szmatrix.com, our telephone No. is 0086 755 2836 4276.

What information do customers need to supply?

Model No.	
Serial No.	
Problem description	
Picture	
Video if necessary	