MPS-1000 Series
High Precision Programmable DC power supply
User's Manual

MATRIX TECHNOLOGY INC.

Applicable models: MPS-1001, MPS-1002, MPS-1003,

MPS-1004,MPS-1005,MPS-1006,
MPS-1007,MPS-1008,MPS-1009,
MPS-1010,MPS-1011,MPS-1012,

Version: V1.1

Introduction

Dear users:

Hello! Thank you for choosing the 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 the part about "Safety precautions".
If you have read the full text of this manual, it is recommended that you keep this manual safe and place it with the instrument or in a place where you can read it at any time for future use.

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Copyright information

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Verification and calibration statement

The company hereby declares that the instruments and equipment listed in this manual are fully in line with the specifications and characteristics indicated in the technical specifications of the company. The instruments have been tested in the factory before leaving the factory, and the procedures and steps of the test are in line with the specifications and standards of the Electronic Inspection Center.

Product quality assurance

Our company guarantees that all newly manufactured instruments have undergone rigorous quality checks. We also guarantee free repairs for any construction defects or part failures within one year of the product's release. However, if users modify the circuitry, functions, repair the instrument and its components, or if the outer casing is damaged, we will not provide free warranty services. If abnormal conditions occur due to improper grounding or failure to operate the machine according to safety standards, we will not provide free warranty services.

This warranty does not include accessories such as auxiliary equipment of this instrument which are not produced by our company.

Within the one-year warranty period, please return the faulty unit to our maintenance center or the dealer designated by us for proper repair.

The Company shall not provide free warranty service if the unit is faulty due to abnormal use, human negligence or factors beyond human control, such as earthquake, flood, riot or fire.

(Our company follows the sustainable development strategy and reserves the right to improve the contents of this specification without prior notice)

Safety precautions

The following general safety precautions must be followed at all stages of operation of the instrument. If not
Precautions or specific warnings described in other parts of this manual will violate the design, manufacture and. of the instrument concerned
Safety standards for use. The Company is not responsible for users who do not comply with these precautions.

Waring:

- Do not use damaged equipment. Check whether the equipment is in good condition before using it. Please Do not operate this equipment in the environment containing explosive gas, steam or dust.
- The power supply comes with a three-core power cord. Your power supply should be connected to the three-core connector On the box. Before operating the power supply, you should first make sure that the power supply is well grounded to avoid accidental injury!
- Before connecting the device, observe all the markings on the device.
- When connecting the power cable, be sure to turn off the main power switch and confirm that the input voltage matches the power supply, First plug the power cord into the power end, and then insert the power cord plug into the power socket.
- Before connecting the test line and the object under test, be sure to turn off the output switch.
- Do not touch the exposed terminals and test lines when the power supply is in output state to avoid accidents.
- The power supply must be supervised when in use.
- Always use the cable provided by the instrument to connect the equipment to avoid accidental injury.
  Use cords with appropriate load ratings, all of which must be of such capacity that they can carry the maximum short-circuit output current of the power supply without overheating. If there are multiple loads, each pair of load wires must be able to safely carry the full rated short-circuit output current of the power supply.
- To reduce the risk of fire and electric shock, ensure that the voltage fluctuation of the mains power supply does not exceed 10% of the working voltage range.
- If you use a power supply to charge the battery, confirm the positive and negative polarity of the battery when wiring, otherwise it will burn out the power supply!
- Do not use this equipment when the cover is removed or loose.
- Do not install alternative parts on the instrument or perform any unauthorized modifications.
- We shall not be liable for any direct or indirect financial loss that may occur when using this product.
- Do not use this equipment on life support systems or any other equipment with safety requirements.
- Failure to use the equipment in the manner specified by the manufacturer may compromise the protection provided by the equipment.
- Always use a dry cloth to clean the equipment housing. Do not clean the inside of the instrument.

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Catalogue

Chapter 1 Inspection and installation

Before installation or operation, please read the safety signs and instructions in this manual.

1.1 Packing List

Open the package, check the contents of the box before operating the instrument, if there is any discrepancy, missing or appearance wear and tear, please contact the seller immediately.

Name of accessory

Accessory Name	quantity	Remarks
Programmable Power Supply Mainframe	one unit	
power line	an article	Users can choose different power cords according to the specifications of local power sockets
test line	a pair	
communication line	an article	
user's manual	a copy	
Product factory report	a sheet	

📖 explain

After confirming that the packaging content is consistent and there is no problem, please properly keep the packing box and related contents. The instrument needs to meet the packing requirements when returning to the factory for service.

![MATRIX logo]

1.2 Install the power supply

This instrument needs to be installed in a well ventilated and reasonable size space. Please refer to the

following power supply size introduction Choose the right space to install.

MPS-1000 series programmable power supply size: 215mmW*90mmH*452mm (W: width; H: height; D: depth)

See the following size diagram for details:
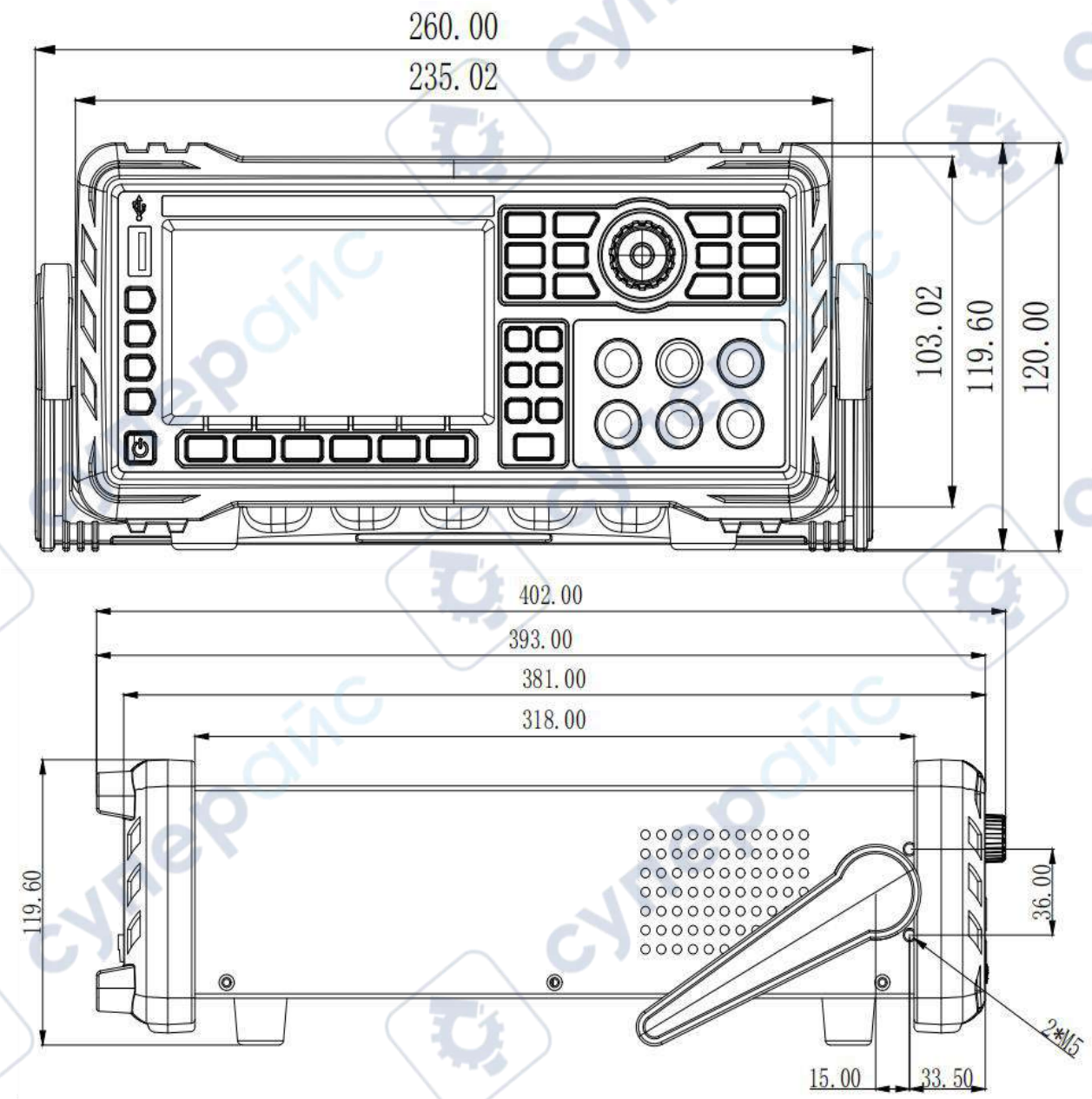
Unit: millimeters (mm)

1.3Adjust the power handle

The power handle can be adjusted to the three common states shown in the figure below. Note that

when adjusting the handle, you should pull moderately with both hands on both sides,

Adjust the handle to the appropriate position.

Note: The following figure is for demonstration, the actual appearance is subject to the actual product.
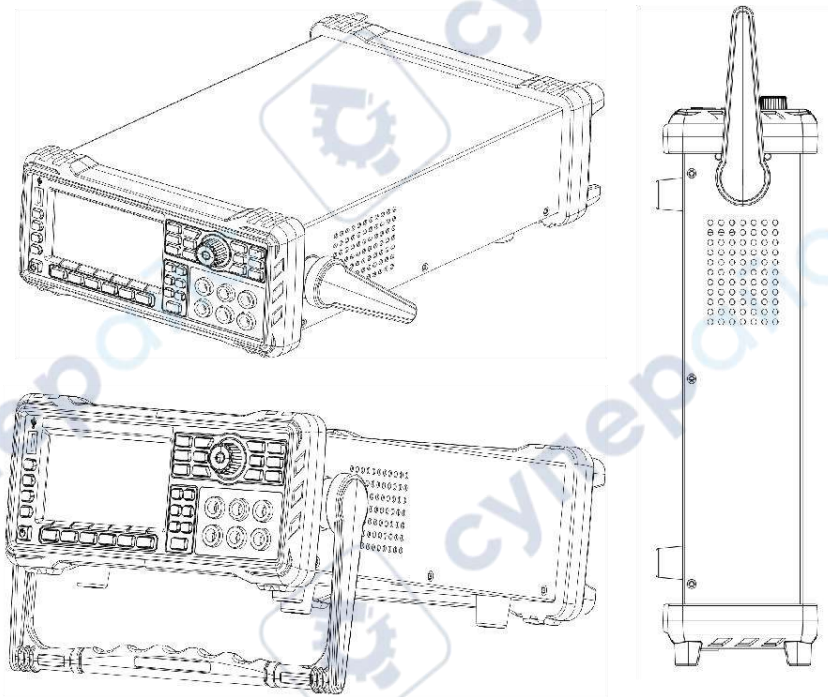
To remove the handle, adjust it to the position shown below and pull both hands hard to the sides (shown below).
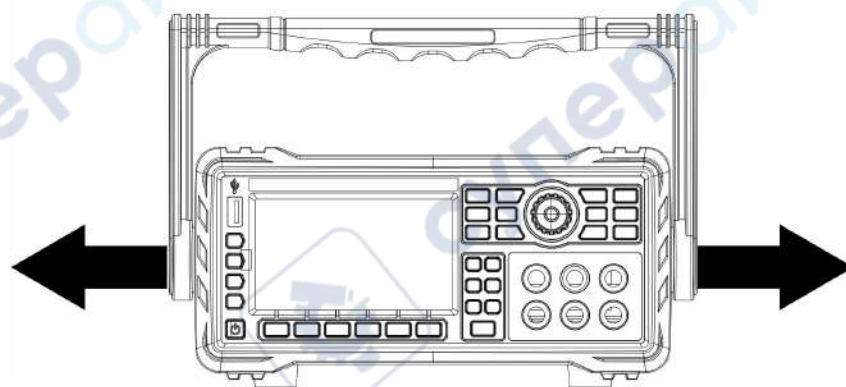
Note: Do not use too much force when loading and unloading the handle. Be careful not to pinch your hand.

Do not block the air intake holes on both sides of the instrument and the exhaust holes on the rear panel.

1.4 Install the power cable

Connect the standard accessory power cord to ensure that the power supply is properly supplied and reliably grounded.

Power input requirements:
The working voltage of the power supply is 110V and 220V. Please pay attention to the input voltage of the power supply. There is a link in the attachment that is relevant to you.
The power input line is matched with the ground. If you find that it does not match, please contact the authorized dealer or after-sales service department immediately.

Communication power input position (can be selected by [220] the switching switch on the back of the power supply):

Option Opt.1: 220VAC ±10%   47Hz-63Hz
Option Opt.2: 110VAC ±10%   47Hz-63Hz

Types of power cords
The power cord model provided by the power supply is shown in the figure below. Please select the power cord specification table below to choose the power cord suitable for the voltage of your region line model. If you make a mistake in the model when purchasing, please contact the dealer or directly find the manufacturer to replace it.

China   America   Europe   Britain

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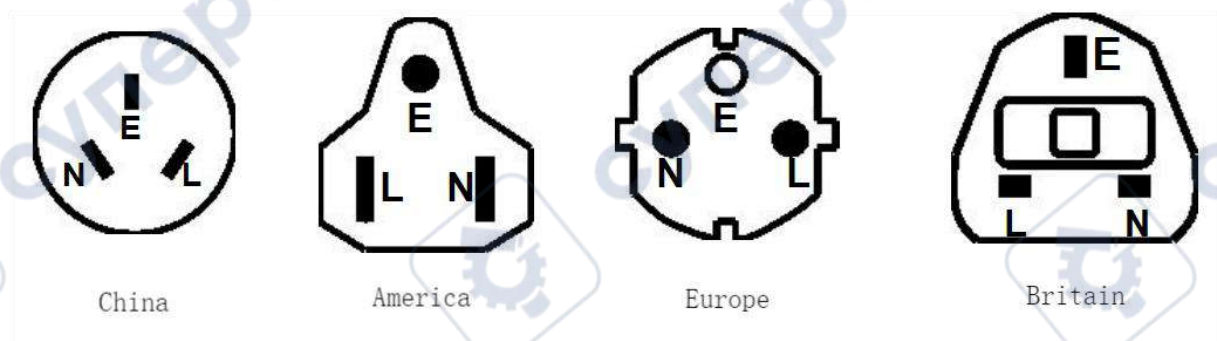
Chapter 2 Quick Start

This chapter briefly introduces the front panel, back panel, keyboard button function and TFT of MPS-1000 series power supply Display function to ensure that before operating the power supply, quickly understand the appearance, structure and key use of the power supply Function to help you better use this series of power supply.

2.1 Introduction

The MPS-1000 series is a single-channel output high precision programmable linear DC power supply. MPS-1000 series programmable DC power supply has a clear operation interface, excellent performance indicators, can be selected for a variety of Communication interface, can meet a variety of testing needs.

The main special functions and advantages are as follows:
- 4.3-inch high visibility TFT display
- Voltage and current can be adjusted by using a digital keyboard or knob
- High accuracy and high resolution, voltage resolution: 0.1mV, current resolution up to: 0.001mA
- List output function
- Battery (battery test) function
- Low ripple and low noise
- Intelligent fan control, energy saving, low noise
- Has CC/CV priority function
- The voltage and current rise slope can be set
- It has SCPI and MODBUS instructions to facilitate the construction of intelligent test platform
- It has overvoltage, overcurrent protection and overtemperature protection functions
- The voltage rise time is less than 10ms
- Supports Chinese and English language interface display
- It has the function of measuring resistance
- Built-in voltage meter measurement function
- It has the function of output and voltage compensation on the back panel
- It has an external trigger function

MPS-1000 series programmable DC power supply selection table:

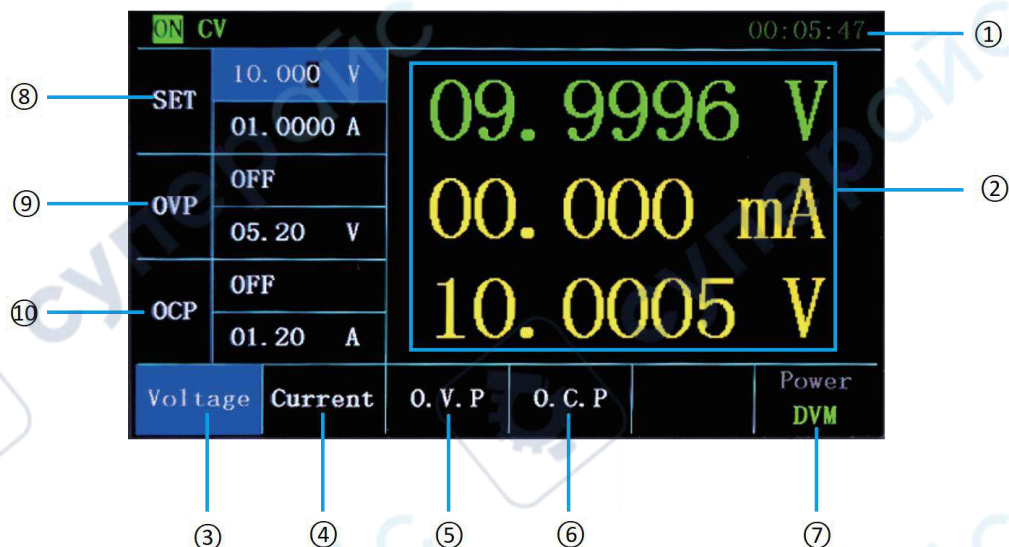| type	voltage	current	output power
MPS-1001	20V	3A	60W
MPS-1002	20V	6A	120W
MPS-1003	20V	10A	200W
MPS-1004	36V	1A	36W
MPS-1005	36V	3A	108W
MPS-1006	36V	6A	216W
MPS-1007	36V	10A	360W
MPS-1008	60V	1A	60W
MPS-1009	60V	3A	180W
MPS-1010	60V	5A	300W
MPS-1011	100V	1A	100W
MPS-1012	150V	1A	150W

2.2 Introduction of front panel

Front panel layout:

① USB interface (5V/1A output, can be used for software upgrade and data import and export)

② ⑤ Function keys

③ Power switch

④ Function keys corresponding to the bottom menu of the screen (different menus for different display interfaces)

⑥ DVM (voltage) measuring terminal (maximum measuring voltage 80V DC, red is positive, black is negative)

⑦ Power output terminals (red for positive, black for negative)

⑧ Voltage compensation terminal (red is positive, black is negative)

⑨ Removable handle

⑪ Multi-function knob

⑫ ⑩ The numeric keys and the Enter confirmation key

⑬ TFT display

⑭ Power supply specification label
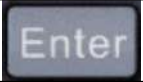
①. Power status display bar (display output status, OVP/OCP/OTP/remotely compensated/PC connection/USB And the output time and other status)

②. Power output voltage, current, power and DVM (voltmeter) parameter display column.

③④⑤⑥. Voltage, current, OVP/OCP setting indicator. When the corresponding position is lit, it indicates that the parameter can be set, and select the parameters to be modified by the function key at the bottom of the screen.

⑦.DVM (voltmeter) parameter display and output power display switch button.

⑧. Voltage and current setting values (refer to 3.3 Current Settings).

⑨.OVP setting value and OVP enabled status (see 3.5.1 OVP Settings).

⑩ OCP set value and OCP enabled status (see 3.5.2 OCP Settings).

2.3 Introduction of keyboard keys

The key instructions are as follows:

key	Name and function
0-9	Enter key
⊙	radix point
Enter	Enter the confirmation key to confirm the input parameters.
○	A rotary knob is used to set the parameters of the power supply.
Menu	Menu menu function keys are used to set the relevant parameters of the power supply.
Esc	Esc cancels/returns
Store	Store files
Local	Local Local the key to return the power supply from remote mode to local mode
HotKey	Hotkey, a hotkey to enter or exit the hotkey function
Lock	Lock panel keyboard lock
Output	Output the open/close key to control the output state of the power supply
Display	Display the output waveform display button
Battery	Battery battery function setting key
List	List key, used to set the List parameter
Ω	Ω Resistance measurement function key
⏻	Power switch button

2.4 Rear panel introduction

Power supply, rear panel layout.
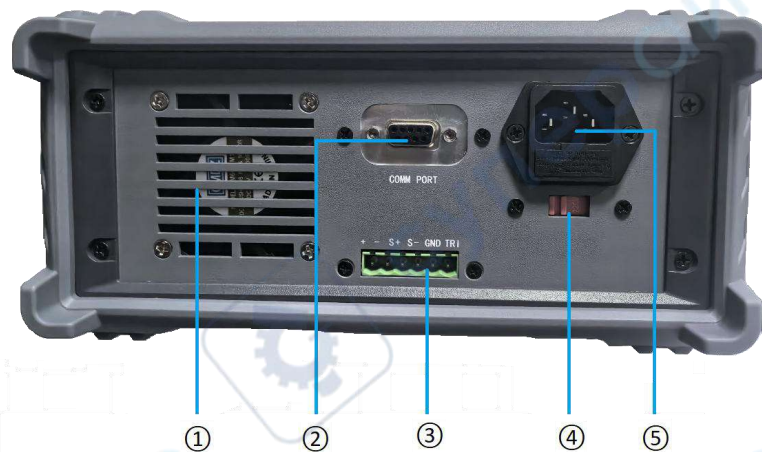
① Ventilation and air discharge.

② Communication port (standard RS-232 communication port, optional USB, RS-485, LAN port).

③ Multi-function interface (TRIG: external trigger, GND: ground for external trigger, TRIG and GND short circuit once the power supply will be out Once, S+: voltage compensation positive end, S-: voltage compensation negative end, "+" and "-" are the output terminals of the panel, allowing the maximum current stream 5A.)

② USB communication port

③ RS232 communication port)

④ Input voltage selection switch (specifications for selecting input voltage, AC 110V or 220V) must be on before power is applied. The switch position must be confirmed to match the input power supply, otherwise the power supply will be damaged.

⑤ Power socket (AC power input interface).

2.5 Power on self-test

The successful self-inspection process shows that the power supply purchased by the user meets the factory standard and can be used normally before using the power supply, make sure you have read the safety instructions.

- Be sure to confirm that the power supply voltage is consistent with the supply voltage before turning on the power supply, otherwise it will burn out the power supply.

- Be sure to plug the main power supply into a power outlet with protective grounding. Do not use wiring without protective grounding Plug. Before operating the power supply, you should first make sure that the power supply is well grounded.

- Before wiring the power supply, please pay attention to the positive and negative pole identification, otherwise the power supply will be burned out.

Self-inspection steps

The normal self-test process of the power supply is as follows:

1. Connect the power cord correctly, turn on the power supply by pressing the power switch, and the power supply will perform self-test.

2. The power self-test is completed, and the TFT display screen shows the following status.
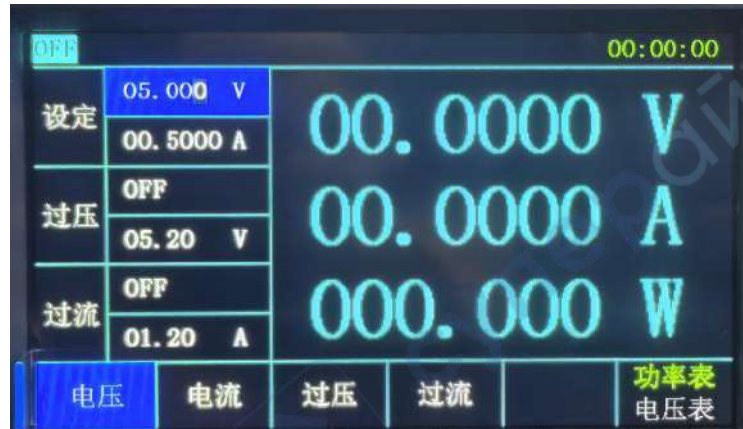
Exception handling

When the power supply is started, the power supply cannot be started normally. Please refer to the following steps for inspection and treatment.

1. Check whether the power cable is connected correctly and confirm that the power supply is powered on.

> Power cable is well connected => 2
> Power supply connection error => Please reconnect the power cord and check whether the exception is cleared.

2. Whether the power supply is on. The power supply key is pressed and in the closed state.

> Yes => 3

No? Please press the voltage key to open the power supply and check whether the exception is cleared.

3. Check whether the fuse of the power supply is burnt out.

If the fuse is burnt out, please replace the fuse. The specific steps are as follows:

1) Remove the power cord and remove the fuse box with a small screwdriver. (The position of the fuse is described on the back panel.)

spare fuses
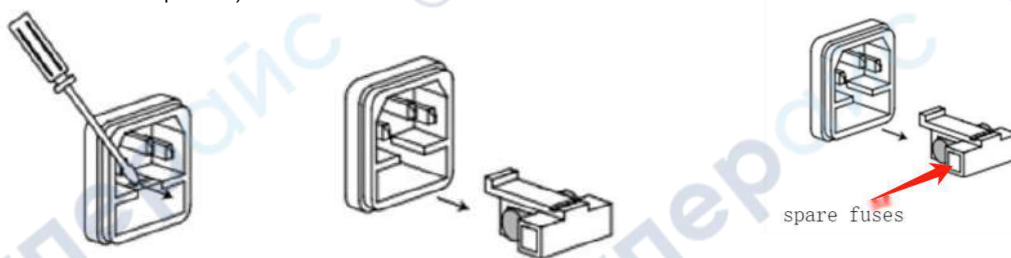
2) Replace the fuse of the same specification, put it into the box and reinstall it.

Specification list of insurance wire:

Model	Fuses Spec (220V)	Fuses Spec (110V)
MPS-1001,MPS-1002,MPS-1004, MPS-1005,MPS-1008,MPS-1011	3.15A	5A
MPS-1003,MPS-1006,MPS-1009,MPS-1012,	5A	6.3A
MPS-1007,MPS-1010,	8A	10A

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2.6 Output check

The output check ensures that the power supply reaches its rated output and can correctly perform the front panel operations.

Check output voltage

Verify the basic voltage function of the power supply without load.

1. Turn on the power supply.

2. Set the power supply current value (≥0.1A).

3. Turn on the power output.

Press the ON/OFF function button to light up the ON and CV status marks on the TFT display.

4. Set the power supply voltage.

Set different power supply voltages and check whether the voltage value displayed on TFT is close to the set voltage value and whether the current value displayed on TFT is connected

Close to 0A.

5. Ensure that the power supply voltage can be adjusted from 0V to the maximum output voltage.

---- finish

Check output current

Verify the basic current function of the power supply in case of output short circuit.

1. Turn on the power supply.

2. Turn off the power output to ensure that the power supply is OFF and the TFT displays the OFF status mark.

3. Connect an insulated wire between the output terminals (+) and (-) of the power supply.

(The wire used must be able to withstand the maximum output current of the power supply.)

4. Set the power supply voltage value to 1V.

5. Power output is on.

6. Set the power supply current.

Set different power supply currents, and the current value displayed on TFT is close to the set current value.

7. Ensure that the power supply current can be adjusted from 0A to the rated full output current of the channel.

8. Turn off the power output and remove the short circuit wire.

---- finish

Chapter 3 Functions and Characteristics

This chapter will describe in detail the functions and characteristics of the power supply. It will be divided into the following sections:
- Local (switch local/remote) operation
- Voltage setting operation
- Current setting operation
- Output on/off operation
- Overvoltage/current protection function
- DVM (voltmeter) function
- Display (waveform display) function
- List (sequence) operation
- Battery (battery) function
- Ω(Resistance measurement) function
- Menu (menu) function
- Esc (cancel/exit)
- Store (access) function
- Hot Key (hot key) function
- Lock (keyboard lock) function

3.1 Switch between local and remote operation

The power supply provides two modes of operation: local and remote. The two modes can be communicated between each other To switch. The power supply initialization mode is default to local operation mode.
- Local operation mode: Use the keys on the front panel of the power supply to perform related operations.
- Remote operation mode: the power supply is connected to the PC, and the related power supply operations are carried out on the PC through communication commands. The power supply is far away In program mode, all buttons on the panel except the Local button are inactive. You can switch to local by pressing the Local button Operation mode. When the operation mode is changed, the output parameters of the power supply will not be affected.

3.2 Voltage setting operation

The voltage setting ranges from 0V to the maximum output voltage value. When the function key corresponding to "Voltage" at the bottom of the screen is pressed, The voltage setting position of the display screen will be lit up, and the voltage setting operation can be performed at this time. There are two ways below. The output voltage value is set through the front panel.

① After the power supply is on, press the function key corresponding to "voltage" at the bottom of the screen, and use the knob to move the cursor to the specified position Then turn the knob to adjust the voltage setting.

② After the power supply is powered on, press the function key corresponding to $\boxed{\text{Enter}}$ "voltage" at the bottom of the screen + 0 to 9 numeric keys and then press the button to set the voltage value.

3.3 Current setting operation

The current setting ranges from 0V to the maximum output voltage value. When the function key corresponding to "Voltage" at the bottom of the screen is pressed, The current setting position of the display screen will be lit and the current setting operation can be performed. There are two ways below The output current value is set through the front panel.

① After the power supply is powered on, press the function key corresponding to "current" at the bottom of the screen, and use the pressing knob to move the cursor to the specified position Then turn the knob to adjust the current setting.

② After the power supply is powered on, press the function key corresponding to ⌈Enter⌋ "current" at the bottom of the screen + 0 to 9 numeric keys and then press the button to set the current value.

3.4 Output on/off operation

The power output can be ⌈Output⌋ turned on and off by pressing the keys on the front panel. When the power output is on, the status bar at the top of the TFT display will be lit with the working status flag (ON and CV/CC). The timing in the upper right corner is reset and starts to jump. When the power output is off, the working status flag (OFF) on the TFT will be When lit, the time in the upper right corner stops jumping and maintains the current output timing.

📖 explain

> After connecting the power supply to the object under test, press the On/Off button to open the output, otherwise it is easy to spark when wiring. If there is no output after opening the output, please check voltage and current setting value: Set both voltage and current to non-zero values, and then turn on the output.

3.5 Overvoltage/current protection function (OVP/OCP)

Overvoltage/current protection function allows the user to set an overvoltage/current protection point, when the voltage/current of the object under test is greater than this protection point, The power supply will provide OVP/OCP protection. When overvoltage current protection is applied, the power output will be turned off and accompanied by a buzzer sound, VFD display phase alarm notification (OVP/OCP).

3.5.1 OVP (Overvoltage Protection):

When the function key corresponding to "overvoltage" at the bottom of the screen is pressed, the power supply enters the overvoltage protection setting operation and the display screen is overvoltage. The overvoltage setting parameter of the set position will be lit. At this time, you can press again the function key corresponding to "overvoltage" at the bottom of the screen, You can switch between the overvoltage protection parameter setting and the overvoltage protection switch status. When the overvoltage protection parameter setting is enabled, you can Modify the parameters of the overvoltage protection value using a knob or 0-9 numeric keys (see 3.2 Voltage Settings for instructions). Overvoltage When the protection switch state setting parameter is set, turn the knob left and right to change the overvoltage protection on/off status.

3.5.2 OCP (Over current protection):

When the function key corresponding to "overcurrent" at the bottom of the screen is pressed, the power supply enters the operation of overcurrent protection setting and the display screen is overcurrent The overcurrent setting parameters of the set position will be illuminated. At this time, you can press again the function key corresponding to "overcurrent" at the bottom of the screen. You can switch between the overcurrent protection parameter setting and the overcurrent protection switch status. When the overcurrent protection parameter setting is enabled, you can Modify the parameters of the overcurrent protection value using a knob or 0-9 numeric keys (see section 3.3 Current Settings for operation). Overcurrent When the protection switch status setting parameter is set, turn the knob left and right to change the overvoltage protection on/off state.

3.6 DVM (voltmeter) function

The DVM (voltmeter) function can measure a DC voltage signal below 80V, which is passed through the DVM on the front panel terminals interface input: When measuring, you must confirm that the positive and negative poles are correct before connecting them. Otherwise, the power supply will be damaged. You can press "Power" at the bottom of the screen. The function key corresponding to the "pressure meter" will display the switch between the voltmeter and the power meter.

3.7 Display (waveform display) function

Display (waveform display) function, can monitor the waveform of voltage, current and power, and press it in standby state to enter the wave shape display interface (as shown in the figure below), press again to exit the waveform display function.

①. Output voltage waveform
②. Output current waveform
③. Output power waveform

3.8 List (sequence) operation function

The List (sequence) operation function can be used to set the voltage and electricity of each single step by editing the List (sequence) file Flow rate and time. When the power supply receives a trigger signal, the power supply can automatically execute each single step of the set value. Trigger Signal mode is divided into three types: automatic, button and external.

①. Sequence on/off: List (sequence) operation function switch, press the "sequence on/off" at the bottom of the screen function key enables and disables the List (sequence) operation function. After

enabling the List (sequence) operation function, only the previous one is enabled the key [Output] of the board is valid. Other key operations can be performed only after the List (sequence) operation function is closed.

②. Sequence editing: Set the function parameters of List (sequence) operation by pressing the corresponding "Sequence editing" at the bottom of the screen function key to enter List (sequence) operation function parameter setting.

3. 8.1 List (sequence) operation function parameter setting.

①. Time: List (sequence) operation The duration of this step (0-99999 seconds).
②. Current: List (sequence) operation This step has the maximum output current.
③. Voltage: List (sequence) operation This step outputs the voltage.
④. Steps: List (sequence) operation Current step (steps 0-99).
⑤. Steps: Total number of steps (0-99) for the current List (sequence) operation.
　　　Mode: The current List (sequence) operation trigger signal mode is divided into three types: automatic, key and external.
　　　Cycle: The number of times the List (sequence) operation is executed.
⑥. Parameters: This option is used to set the time, current, voltage and other parameters of the List (sequence) operation. Press the screen at the bottom of the screen, the function key "Parameter" corresponds to the parameter setting. Turn the knob left and right to select the steps to be edited. Press the pressure knob can move the cursor to select the time, current, voltage and other parameters that need to be edited. You can rotate the knob left and right or the numeric key and confirmation key modify parameters such as time, current, voltage, etc.
⑦. Steps: This option is used to set the total number of steps for the List (sequence) operation. Press "Steps" at the bottom of the screen the number of steps can be set by the function key. After selection, the number of steps can be modified by turning the knob left and right or by pressing the numeric key and confirmation key.
⑧. Mode: This option is used to set the trigger mode of List (sequence) operation by pressing the "Mode" at the bottom of the screen the corresponding function key is used to enter the mode setting. After selection, it can be modified by turning the knob left and right. The trigger signal mode is divided into: automatic, Three modes: key, external and three.
⑨. Loop: This option is used to set the number of times the List (sequence) operation is looped (0-99999,0 for infinite loop), By pressing the function key corresponding to "cycle" at the bottom of the screen, you can set the number of cycles. After selection, you can rotate left and right modify with a button or numeric key and confirm key.
⑩ Complete: After setting the operation parameters of List (sequence), press the function key corresponding to "Complete" at the bottom of the screen complete the List (sequence) operation parameter setting and return to the main interface of List (sequence) operation function.

3.9 Battery function,

The Battery (battery) function simulates a charger to test the battery.

①. Power output voltage, current, capacity and other parameters display column.

②. Battery Settings: Press the function key corresponding to "Battery Settings" at the bottom of the screen to enter Battery (battery) Charging parameter setting function.

③.Battery (battery) function switch, which can be turned on by pressing the function key corresponding to "Battery on/off" at the bottom of the screen and Turn off Battery (battery) function, and turn on Battery (battery) function by pressing the front panel the [Output] key is used to charge the battery with preset charging parameters. At this time, the parameter display bar shows the battery capacity (mAHLocation) will continue to increase, and the output will be automatically closed and charging will be terminated when the predetermined charging parameters are reached. Turn on the Battery After the Battery (battery) function [Output] is enabled, only the keys on the front panel are valid and can be performed after the Battery (battery) function is turned off other key operations.

④. Time and charging time setting (longest 99:59:59). After the charging time, the power supply will automatically stop charging.

⑤. End current, charging termination current setting. After the charging current is smaller than this setting current, the power supply will automatically stop after 5 seconds stop charging.

⑥. Trickle, when the battery voltage is lower than the trickle setting value, the power supply will charge the battery according to the trickle setting current value, This function protects the battery.

⑦.The current value is used to charge the battery. When the battery voltage is higher than the trickle setting value, the power supply will use the current value set in the standard flow charge the battery.

⑧. Standard current, when the battery voltage is higher than the trickle voltage setting value, the power supply will charge the battery according to the standard current setting value.

⑨. Standard voltage, the voltage threshold of battery charging. After the charging voltage is greater than this set voltage, the power supply will be automatically turned off after 5 seconds turn off the lights.

3.9.1 Battery Settings,

Select the battery and enter the Battery (battery) charging parameter setting by pressing the function key corresponding to "Battery Settings" at the bottom of the screen placement function. After entering the battery parameter setting function, press the corresponding function key at the bottom of the screen to select the one you want to set parameters, turn the knob left and right to modify parameters, press the knob to move the cursor of the parameter setting bit, or through the numeric key Enter directly and [Enter] press OK.

① Standard voltage (standard voltage), the voltage threshold for battery charging. When the charging voltage exceeds this set voltage, The power supply will automatically stop charging after 5 seconds.

② Standard current (standard flow), when the battery voltage is higher than the trickle voltage setting value, the power supply will be set according to the standard flow The current value charges the battery.

③ trickle voltage (trickle voltage), the threshold of trickle and standard flow charging, when the battery voltage is lower than the trickle voltage setting, The power supply will charge the battery according to the current value set in trickle mode. When the battery voltage is higher than the trickle voltage setting, electricity will be generated the source will charge the battery according to the current value set by the standard flow.

④ trickle current (trickle) When the battery voltage is lower than the trickle voltage setting value, the power supply will follow the trickle setting flow value charges the battery, which protects the battery.

⑤ Termination current (final current), charging termination current is set, the charging current is smaller than this setting current, power supply the charging will stop automatically after 5 seconds.

⑥ The next page is the setting interface used to switch to the next page.

⑦ The previous page is used to switch to the previous page setting interface.

⑧ Charging time (time), charging time setting (up to 99:59:59), power supply after charging time charging will be automatically stopped.

⑨ Complete. After the charging parameters are set, press the function key corresponding to "Complete" at the bottom of the screen to complete the charging parameter Settings.

3.10 Ω (resistance measurement) function

Press [Ω] the key to enter the "Ω" resistance measurement function (the screen is shown below), and press the corresponding position key at the bottom of the screen switch the gear. For low resistance, use the "1A" gear. The resistance measurement range is from 0.0001Ω to 999.999KΩ. Press again [Ω] Press the key to exit the "Ω" resistance measurement function.

① Resistance value display window.

② 0.1A measurement range.

③ 1A measurement range (the "1A" range is recommended for low resistance).

④ Clear function key (this function can only be enabled when the test line is short circuit).

📖 Note: The original test cable must be used when using the resistance measurement function.

3.11 Menu function

Press the button when the [MENU] power supply is in standby state to enter the "Menu" menu function, and you can set the related parameters of the power supply. Enter after the "Menu" function, switch to the menu to be edited by pressing the corresponding function key at the bottom of the screen, and select to enter the required menu after editing the menu, modify the selected menu parameters through the function keys at the bottom of the screen. After modification, press "Return" the "Back" key is used to return to the main menu. After all parameters are modified, press "Menu" or "ESC" again to save and back exit menu function.

3.11.1 System parameters

① Power on status: The power output status is maintained when the power is turned on. "On" means that the power supply is kept in the output state when it is turned on. "Off" is to keep the power supply off when it is powered on, and "Last time" is to keep the power supply off when it is powered on the output status before the last shutdown.

② Startup parameters: Power on parameters remain set, "last" is to keep the data of the last power failure, and "default" is to keep hold the factory default value.

③ beep: Power button sound setting, "on" is to open the buzzer sound, "off" is the buzzer sound close

④ Remote compensation: The remote compensation function of the power supply is set. ON means that the remote compensation function is turned on, and OFF means that the remote compensation function is turned of close.

⑤ Current range: The current range of the power supply is divided into low, high and automatic three levels. Below 50mA is the low level, and more than 50mA is the high level high speed, automatically switches between high and low gears.

⑥ 〉〉 Turn right.

⑦ 〈〈 Turn the page to the left.

⑧ Background brightness: The display brightness of the power TFT display is adjusted between 1 and 10, with 1 being the darkest and 10 being the brightest turn the knob to adjust and exit the background brightness setting through the function key "Complete" at the bottom of the screen.

⑨ Language: The language setting of the power supply operating system is available in Chinese and English.

⑩ Priority mode: The priority mode setting when the power output is on, with voltage priority and current priority for selection. Voltage in priority mode, the voltage is turned on first when the power output is turned on, and in current priority mode, the power output is turned on open the flow first.

⑪ Rising slope: The rising speed of the power supply output is set when it is turned on. You can set the rising speed of voltage or current, and choose one of them Unit: mS/A or mS/V, ranging from 0 to 250. Adjust the knob by turning left and right, corresponding to the bottom of the screen the function key "Complete" exits the upward slope setting.

⑫ Turn 〉〉 the page to the right.

⑬ 〈〈 Turn left.

3.11.2 Configuration parameters

Serial port: Communication port setting.

⑭ Address: Power communication address setting, the range is between 1 and 254, turn the knob to adjust, through the bottom of the screen the function key "Finish" exits the address setting.

⑮ baud rate:The power baud rates are:4800,9600,14400,19200,38400,.56000、57600、115200.

instruct ：

⑯ Protocol version: Power communication protocol type setting, the communication protocol can be SCPI and MODBUS.

⑰ End character: Power communication end character setting, communication end character has CR, LF, CRLF, LFCR.

⑱ Reset: Power reset, power reset has "OK" and "Cancel" options, "OK" is to reset the power,"Cancel" is the power supply that does not reset. The power supply reset setting is to initialize the power supply "Menu" function at factory.

After initialization, the content is set as follows:

3.12 Esc (Cancel/Exit)

Esc (cancel/exit) key, press the power supply in the [Esc] menu setting interface to exit the current window and return to the main interface, parameters when setting [Esc], you can cancel the current operation.

3.13 Store (access) function

A file that contains the commonly used voltage and current parameters of the power supply, the List (list) function parameters, and the Battery (battery) function parameters storage and invocation.

①.C: \: The current disk location.

②. Local disk (C): the storage disk inside the power supply.

③. Mobile disk (D): a storage disk outside the power supply.

④. Browse disk: used to select the disk and files to be viewed, through the "Browse disk" at the bottom of the screen function key to enter disk browse, when you have inserted a mobile disk (D), after entering disk browse you can rotate left and right select the disk you want to browse. After selection, press the knob to enter the disk for browsing. After entering the disk browsing, you can turn left and right move the knob to save and read (call) a pre-set file.

⑤. Type: Used to select the type of file stored or called from the disk. Select "Text" by pressing the function key at the bottom of the screen file types include: *.MSF, *.MBF, *.MTF, *.CSV, etc.

    * MSF: a file that stores the voltage and current parameters commonly used for power supply.

    * MBF: Storage file for the "Battery (battery)" function parameter of the power supply.

    * MTF: The storage file for the parameters of the power supply "List (list) operation".

    *. CSV: The storage file for the parameters of the power supply "List (list) operation". This file can only be used on the mobile disk (D) Save and read can be performed when inserted.

⑥. Preservation: commonly used voltage and current parameters of the power supply, List (list) function parameters, Battery (battery) function parameters when selecting "*".CSV, the save menu is gray and unavailable without inserting a removable disk (D). Preedit the commonly used voltage and current parameters or List (list) function parameters and Battery (battery) function parameters,

Press the button to enter the "Access interface", then enter the disk browsing (see item ④ in this section), and select the file "Save" Location, such as local disk (C) or mobile disk (D), rotate the knob left and right to select the disk, press the knob to confirm and enter file list (refer to item in this

⑩ section). After entering the file list, you can move the cursor up and down by turning the knob to select the file save the file group. Select the file

group to be saved and press the function key corresponding Ⓒ to "Save" at the bottom of the screen () to enter the save mode save (as shown below). To save, we need to name the file and select the "Enter Ⓐ " () key at the bottom of the screen by turning the knob select a number or letter on the keyboard to input a name for the file. If there is no file name, the "Save" menu is gray and unavailable. Save select the correct file type (see item in ⑩ this section). If you do not want Ⓓ to save, press the "Cancel" button () to cancel and exit the save window If the input is wrong, you can delete Ⓑ the wrong input by pressing the "Delete" key ().


⑦. Read: commonly used voltage and current parameters of the power supply, List (list) function parameters, Battery (battery) function parameters file access. Enter the disk browse (see item ④ in this section), select the disk location where the file to be accessed is located, press the knob to enter the file list (⑩ item in this section). After entering the file list, you can rotate the knob to move the cursor up and down select the file to be called. After selecting the required file, select the corresponding function key at the bottom of the screen to call it data is exported and entered into the corresponding test. If there is no file in the selected group, the "Read" menu is gray and unavailable. when selecting "*" *.CSV, the mobile disk (D) is not inserted, and the "Read" menu is gray and unavailable.

* MSF: For the call of voltage and current parameters commonly used in power supply, the read power supply returns to the basic operation interface and calls out the pre set the voltage, current, OVP, OCP and other parameters.

* MBF: Call the "Battery (battery)" parameter of the power supply. After reading, the power supply returns to "Battery (battery)". Function interface, and call up the preset parameters.

*.MTF: Calls the parameters of the power supply "List (list) operation". After reading, the power supply returns to "List (list) Settings in the "Set" interface, preset parameters List are called up and the "List (List) operation" is executed.

*.CSV: Calls the parameters of the power "List (list) operation". This file can only be used when the mobile disk (D) is in use it can be read when inserted, and after reading, the power supply returns to the "List (list) operation" interface and calls out the preset one parameter .Select the correct file type when reading a call (see ⑩ item in this section).

⑧. Delete: Used to delete unused files. Enter the disk browse through the function key corresponding to "Browse disk" at the bottom of the screen, Turn the knob left and right to select the disk where the file to be deleted is located, press the knob to enter the disk, and turn the knob left and right select the file you want to delete and delete it by pressing the Delete key at the bottom of the screen. A dialog box will pop up "Do you want to delete the file?" Press "OK" at the bottom of the screen to delete the file or "Cancel" to undo the operation.

⑨. Return: After the parameter setting is completed, return to the main interface at the start of the operation through the "Return" function key at the bottom of the screen.

⑩ File list. After selecting the disk to browse, press the knob to enter the disk browsing mode, and all available files will be displayed here, by turning the knob left and right to roll, there are up to 100 groups (0-99), "STAT 00" indicates the first group STAT 99" indicates the 100th group. The middle of the file name is the name of this file, which is defined by the customer, followed by File formats are divided into: *.MSF, *.MBF, *.MTF, *.CSV and other formats (as shown in the figure below).
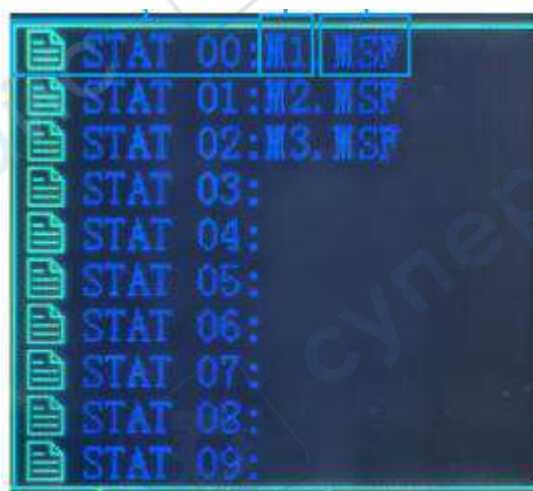
⑪ DISK: The mobile disk is prompted. When the "DISK" is lit, it indicates that the mobile disk has been inserted.

3.14 Hotkey function

The power supply can save some commonly used parameters in six groups of non-volatile memory for users to use conveniently and quickly call it out for use.

3.14.1 Save the Hol Key (hot key) function

Pre-set the voltage, current and other parameters to [HotKey] be saved. Press the button to enter the hot key function (screen display as next), by long pressing the shortcut function key at the bottom of the screen to save the preset voltage, current and other parameters, press the [HotKey] key again to exit the hotkey function.
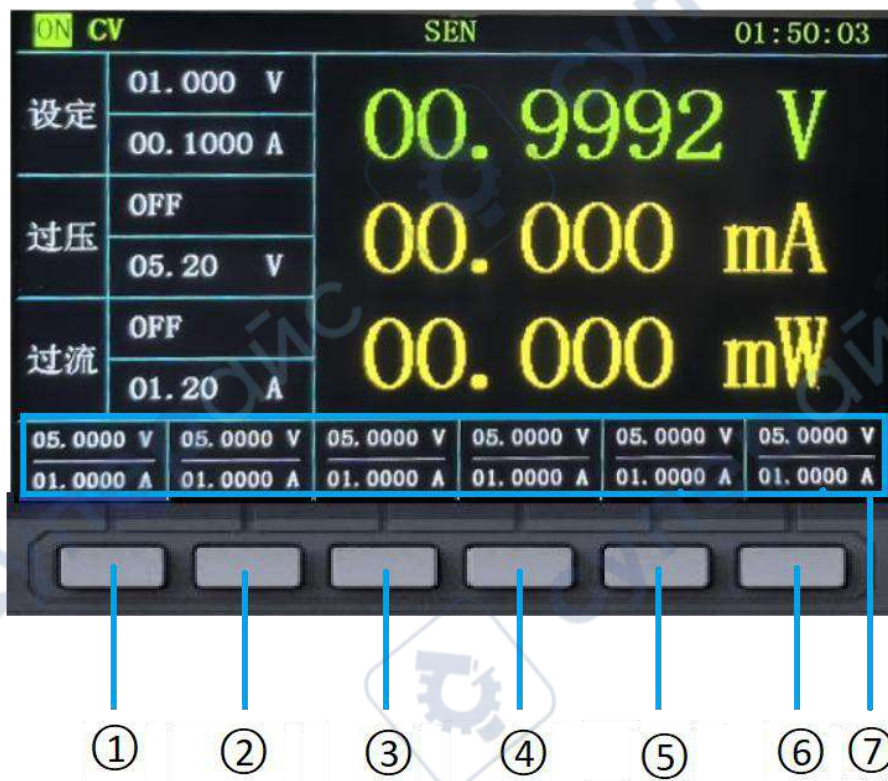
① Hotkey 1.

② Hotkey 2.

③ Hotkey 3.

④ Hotkey 4.

⑤ Hot 95.

⑥ Hotkey 6

⑦ Display the voltage and current parameters corresponding to the hot key.

3.14.2 Call of Hol Key (hot key) function

Press the button [HotKey] on the standby main screen to enter the hot key function (the screen is shown below), and use the corresponding shortcut at the bottom of the screen the function key calls the preset voltage, current and other [HotKey] parameters, and presses the button again to exit the hot key function.

① Hotkey 1.

② Hotkey 2.

③ Hotkey three.

④ Hotkey four.

⑤ It's 95 degrees.

⑥ Hotkey 6

⑦ Display the voltage and current parameters corresponding to the hot key.

3.15 Lock (keyboard lock) function

Under the main interface [Lock], press the power button [Lock] that can be locked. Long press again to unlock the button.

Chapter 4 Technical Specifications

4.1 Main technical specifications

Technical Specification Table (I):

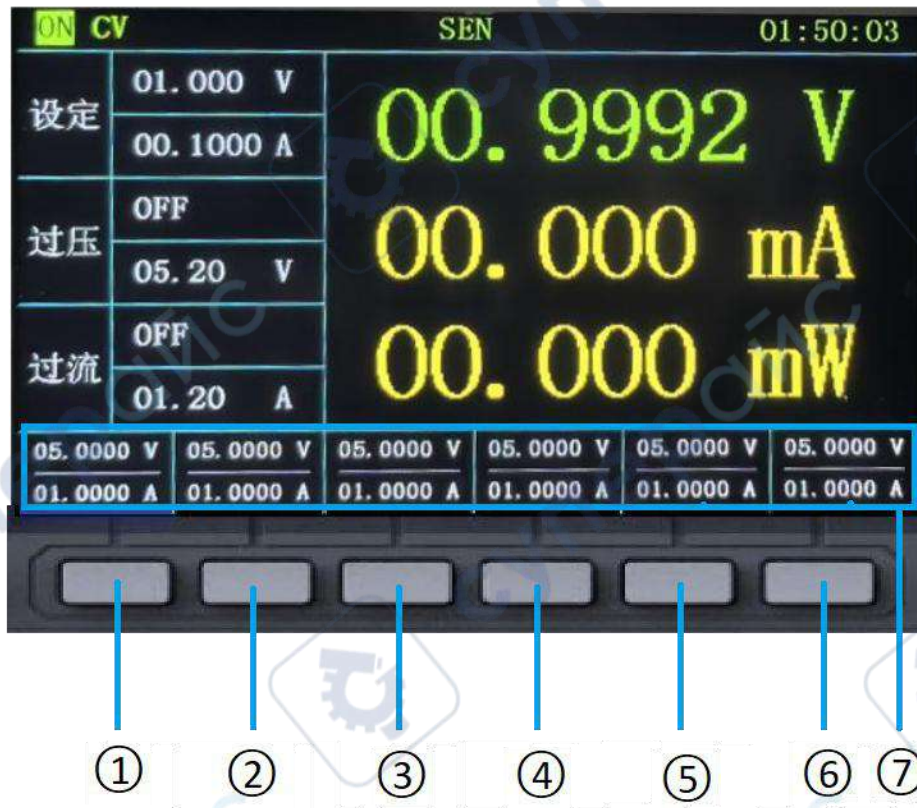| Model		MPS-1001	MPS-1002	MPS-1003	MPS-1004	MPS-1005	MPS-1006
Rated output voltage		0~20V	0~20V	0~20V	0~36V	0~36V	0~36V
Rated output current		0~3A	0~6A	0~10A	0~1A	0~3A	0~6A
Rated output power		60W	120W	200W	36W	108W	216W
Load regulation rate	Voltage	0.05%+5mV	0.05%+8mV	0.05%+10mV	0.05%+5mV	0.05%+5mV	0.05%+8mV
	Current	0.1%+2mA	0.1%+2mA	0.1%+5mA	0.1%+2mA	0.1%+2mA	0.1%+2mA
Line regulation rate	Voltage	0.05%+5mV	0.05%+8mV	0.05%+10mV	0.05%+5mV	0.05%+5mV	0.05%+8mV
	Current	0.1%+2mA	0.1%+2mA	0.1%+5mA	0.1%+2mA	0.1%+2mA	0.1%+2mA
Setting resolution	Voltage	0.1mV	0.1mV	0.1mV	0.1mV	0.1mV	0.1mV
	Current	0.1mA	0.1mA	0.1mA	0.1mA	0.1mA	0.1mA
Read back resolution	Voltage	0.1mV	0.1mV	0.1mV	0.1mV	0.1mV	0.1mV
	Current	0.1mA/1uA	0.1mA/1uA	0.1mA/1uA	0.1mA/1uA	0.1mA/1uA	0.1mA/1uA
Setting accuracy (25°C±5°C)	Voltage	≤0.1%+5mV	≤0.1%+5mV	≤0.1%+5mV	≤0.1%+5mV	≤0.1%+5mV	≤0.1%+5mV
	Current	≤0.2%+1mA	≤0.2%+1mA	≤0.2%+1mA	≤0.2%+1mA	≤0.2%+1mA	≤0.2%+1mA
Read back accuracy (25°C±5°C)	Voltage	≤0.1%+1mV	≤0.1%+1mV	≤0.1%+1mV	≤0.1%+1mV	≤0.1%+1mV	≤0.1%+1mV
	Current	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA
Ripple and noise (25°C±5°C)	Voltage	3mVrms	3mVrms	5mVrms	3mVrms	3mVrms	3mVrms
	Current	3mArms	3mArms	5mArms	3mArms	3mArms	3mArms
Temperature coefficient	Voltage	300ppm	300ppm	300ppm	300ppm	300ppm	300ppm
	Current	300ppm	300ppm	300ppm	300ppm	300ppm	300ppm
Machine size (W*H*D)	mm	300*195*480	300*195*480	300*195*480	300*195*480	300*195*480	300*195*480
Packing size (W*H*D)	mm	230*110*395	230*110*395	230*110*395	230*110*395	230*110*395	230*110*395
Net weight	kg	6.7	4.5	6.7	7.5	5.6	7
Gross weight	kg	7.8	5.6	7.8	8.6	6.7	8
Rise time		< 20ms					

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Technical Specification Sheet (II):

Model		MPS-1007	MPS-1008	MPS-1009	MPS-1010	MPS-1011	MPS-1012
Rated output voltage		0~36V	0~60V	0~60V	0~60V	0~100V	0~160V
Rated output current		0~10A	0~1A	0~3A	0~5A	0~1A	0~1A
Rated output power		360W	60W	180W	300W	100W	160W
Load regulation rate	Voltage	0.05%+10mV	0.05%+5mV	0.05%+5mV	0.05%+8mV	0.05%+5mV	0.05%+5mV
	Current	0.1%+5mA	0.1%+2mA	0.1%+2mA	0.1%+2mA	0.1%+2mA	0.1%+2mA
Line regulation rate	Voltage	0.05%+10mV	0.05%+5mV	0.05%+5mV	0.05%+8mV	0.05%+5mV	0.05%+5mV
	Current	0.1%+5mA	0.1%+2mA	0.1%+2mA	0.1%+2mA	0.1%+2mA	0.1%+2mA
Setting resolution	Voltage	0.1mV	0.1mV	0.1mV	0.1mV	0.1mV	0.1mV
	Current	0.1mA	0.1mA	0.1mA	0.1mA	0.1mA	0.1mA
Read back resolution	Voltage	0.1mV	0.1mV	0.1mV	0.1mV	0.1mV	0.1mV
	Current	0.1mA/1uA	0.1mA/1uA	0.1mA/1uA	0.1mA/1uA	0.1mA/1uA	0.1mA/1uA
Setting accuracy (25℃±5℃)	Voltage	≤0.1%+5mV	≤0.1%+5mV	≤0.1%+5mV	≤0.1%+5mV	≤0.1%+5mV	≤0.1%+5mV
	Current	≤0.2%+1mA	≤0.2%+1mA	≤0.2%+1mA	≤0.2%+1mA	≤0.2%+1mA	≤0.2%+1mA
Read back accuracy (25℃±5℃)	Voltage	≤0.1%+1mV	≤0.1%+1mV	≤0.1%+1mV	≤0.1%+1mV	≤0.1%+1mV	≤0.1%+1mV
	Current	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA	≤0.2%+1mA/5uA
Ripple and noise (25℃±5℃)	Voltage	5mVrms	3mVrms	3mVrms	3mVrms	3mVrms	3mVrms
	Current	5mArms	3mArms	3mArms	3mArms	3mArms	3mArms
Temperature coefficient	Voltage	300ppm	300ppm	300ppm	300ppm	300ppm	300ppm
	Current	300ppm	300ppm	300ppm	300ppm	300ppm	300ppm
Machine size (W*H*D)	mm	230*110*395	230*110*395	230*110*395	230*110*395	230*110*395	230*110*395
Packing size (W*H*D)	mm	300*195*480	300*195*480	300*195*480	300*195*480	300*195*480	300*195*480
Net weight	kg	6.7	4.5	4.5	6.7	7.5	5.6
Gross weight	kg	7.8	5.6	5.6	7.8	8.6	6.7
Rise time		< 20ms					

4.2 Supplementary characteristics

Recommended calibration frequency: 1 year / 1 time
Cooling method: forced air cooling
Operating ambient temperature: 0 to 40℃
Storage ambient temperature: -20 to 70℃
Usage environment: indoor design, pollution level 2, maximum humidity 80%

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Chapter 5 Communication between power supply and PC

Communication between the power supply and the PC

The power supply is equipped with three communication interfaces: RS232, USB and RS485. Users can choose any one of them to realize computing communication between machines.

Communication Settings

Before performing communication operations, you should first make sure that the power supply matches the following parameters of the PC.

1. Port rate: 9600 (4800,9600,14400,19200,38400,56000,57600,115200). You can enter the system menu through the panel to set the communication baud rate.

2. Protocol: Power communication protocol type setting, communication protocol can be SCPI or MODBUS.

3. End symbol: Power supply communication end symbol is set. The communication end symbol is LF, CR, CRLF, and LFCR (mandatory when SCPI protocol is used the end character is correct).

4. Address: Power communication address setting, range between 1 and 254 (the address must be correct when using MODBUS protocol).

Data bits: 8
Stop position: 1
Check: NONE (no check for all 8 data bits)

Start Bit	8 Data Bits	Parity=None	Stop Bit

Common questions
1. Cannot be turned on   (see exception handling in Quick Start).
2. Can't communicate with PC.
   Enter the menu to check the configuration parameters of communication, such as: address, baud rate, instruction type, end character (see menu single function configuration parameters.)
3. no-output

   1. Check if there is a button [On/Off] to open the output (see 3.4 Open/Close operation of output).
   2. Check that the power supply or current is set to 0.

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	

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