

# MPS-300 Series

# Programmable DC Power

# Supply User Manual

**MATRIX TECHNOLOGY INC.**

---

Application model: MPS-301,MPS-302,MPS-303,  
MPS-304,MPS-305,MPS-306,  
MPS-307,MPS-308,MPS-309,  
MPS-310,

Version number: V1.1

## Preface

Dear user

Hello! Thank you for purchasing a brand Matrix. In order to use this instrument correctly, please carefully read the entire manual before using it, especially the section on "Safety Precautions".

If you have read the entire manual, it is recommended that you keep it properly and place it with the instrument or in a place where you can read it at any time for future use.

## Copyright Information

-  Copyright Matrix Technology Inc.
-  The product is protected by patents in China or other countries, including patents that have been obtained or are currently being applied for.
- Matrix Technology Inc. reserves the right to change product specifications and prices.
- “” It is a registered trademark of Matrix Technology Inc.

## Verification and calibration statement

Our company hereby declares that the instruments and equipment listed in this manual fully comply with the specifications and characteristics specified in our company's technical specifications. This instrument has passed the factory calibration of our company before leaving the factory, and the calibration procedures and steps comply with the specifications and standards of the electronic inspection center.

### Product quality assurance

Our company guarantees that all new instruments produced and manufactured have undergone strict quality confirmation. We also guarantee that within one year of leaving the factory, if any construction defects or component failures are found, our company is responsible for repairing them free of charge. However, if the user changes the circuit, function, or repairs the instrument and parts or damages the outer box on their own, our company will not provide free warranty services. If all grounding wires are not properly connected according to regulations or if abnormal conditions occur due to not operating the machine according to safety regulations, our company will not provide free warranty services.

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

During the one-year warranty period, please return the faulty unit to our repair center or our designated dealer, and our company will provide proper repair.

If the unit malfunctions under abnormal use, human negligence, or uncontrollable factors such as earthquakes, floods, riots, or fires, our company will not provide free warranty services.

**Our company adheres to the sustainable development strategy and reserves the right to make improvements to the content of this manual without prior notice.**

## 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.

### Caution

- Do not use damaged equipment. Before using the equipment, please check if it is in good condition. Do not operate this equipment in environments containing explosive gases, vapors, or dust.
- 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 the power supply, you should first ensure that the power supply is well grounded to avoid accidental injury!
- Before connecting the device, please observe all markings on the device.
- Please always use the cable connection equipment provided by the instrument at the factory to avoid accidental injury.
- Using wires with appropriate rated loads, the capacity of all loaded wires must be able to withstand 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 load rated short-circuit output current of the power supply.
- To reduce the risk of fire and electric shock, please ensure that the voltage fluctuation of the mains power supply does not exceed 10% of the working voltage range.
- If using a power source to charge the battery, confirm the positive and negative polarity of the battery during wiring, otherwise it may burn out the power source!
- Do not use this device when removing or loosening the cover.
- Do not install replacement parts on the instrument or perform any unauthorized modifications.
- We are not responsible for any direct or indirect financial losses that may occur when using this product.
- It is strictly prohibited to use this device on life support systems or any other equipment with safety requirements.
- If the device is not used in the way specified by the manufacturer, it may damage the protection provided by the device.
- Please always use a dry cloth to clean the equipment casing. Do not clean the interior of the instrument.

## Catalogue

### CHAPTER 1

INSPECTION AND INSTALLATION ..... 错误！未定义书签。

1.1 PACKING LIST ..... 1

1.2 INSTALLATION OF POWER SUPPLY ..... 2

1.3 INSTALLING THE POWER CORD ..... 3

### CHAPTER 2

QUICK START..... 4

2.1 INTRODUCTION ..... 4

2.2 INTRODUCTION TO THE FRONT PANEL..... 5

2.3 KEYBOARD KEYS INTRODUCTION ..... 6

2.4 REAR PANEL DESCRIPTION ..... 7

2.5 POWER-ON SELF-TEST..... 8

2.6 OUTPUT CHECK ..... 10

### CHAPTER 3

FUNCTIONS AND FEATURES ..... 11

3.1 SWITCHING LOCAL/REMOTE OPERATION..... 11

3.2 VOLTAGE SETTING OPERATION..... 11

3.3 CURRENT SETTING OPERATION..... 11

3.4 OUTPUT ON/OFF OPERATION..... 12

3.5 OVERVOLTAGE/OVERCURRENT PROTECTION FUNCTION (OVP/OCP)..... 12

3.6 BATTERY FUNCTION (BATTERY)..... 13

3.7 LIST (LIST TEST FUNCTION)..... 15

3.8 STORAGE OPERATIONS..... 17

3.9 SHORTCUT FUNCTION..... 19

3.10 MENU FUNCTIONS..... 19

3.11 KEYPAD LOCK FUNCTION..... 22

CHAPTER 4

TECHNICAL SPECIFICATIONS ..... 23

    4.1 MAIN TECHNICAL PARAMETERS..... 23

    4.2 SUPPLEMENTARY CHARACTERISTICS..... 23

CHAPTER 5

COMMUNICATION BETWEEN THE POWER SUPPLY AND THE PC ..... 24

FREQUENTLY ASKED QUESTIONS ..... 25

SECURITY ..... 26

WARRANTY CARD ..... 27

## 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 and check the contents of the box before operating the instrument. If there is any discrepancy, loss or appearance wear, please contact the seller immediately.

Name of accessory	Quantity	Remarks
Programmable power host	One	
Power line	One	Users can choose different power lines according to the local power socket specifications,
Communication lines	One	RS232/USB communication cable
User's manual	One	
Product factory report	One	

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

## 1.2 Installation of power supply

This instrument needs to be installed in a well-ventilated space with reasonable size. Please refer to the following power supply size introduction. Choose the right space to install.

MPS-300 series programmable power supply size: 110mm (W)\*90mm (H)\*355mm (D) / 215mm (W)\*90mm (H)\*452mm (D) (W: width; H: height; D: depth)

See the following size chart for details:



Front outline

Unit: millimeters (mm)

### 1.3 Installing the power cord

Connect the standard accessory power cable to ensure that the power supply is normally powered and reliably grounded.

Power input requirements:

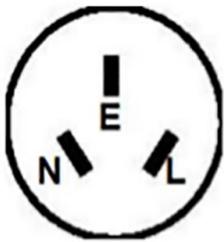
The power supply has two working voltages: 110V and 220V. Please pay attention to the input voltage of the power supply. There is a matching power input cable in the accessory. If you find that it does not match, please contact the authorized dealer or after-sales service department immediately.

Alternating current power input position (can be selected by the switching switch on the back of the power supply):

- Option Opt.1: 220VAC  $\pm$ 10% 47Hz-63Hz
- Option Opt.2: 110VAC  $\pm$ 10% 47Hz-63Hz

Types of Power Cord:

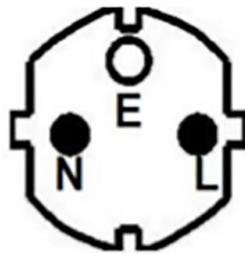
The power cord types provided as standard with the power supply are shown below. Please select the power cord model that is suitable for the voltage in your area from the power cord specification table below power cord model. If you have purchased the wrong type, please contact your dealer or the manufacturer directly for an exchange.



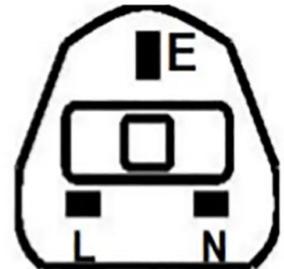
China



United States  
Canada



Europe



Britain

## Chapter 2 Quick Start

This chapter briefly introduces the front panel, rear panel, keypad button functions and TFT display display functions of the MPS-300 series power supply to ensure a quick understanding of the power supply's appearance, structure and key usage functions before operating the power supply, and to help you better utilize this series of power supply.

### 2.1 Introduction

MPS-300 series programmable DC power supplies are single-channel output programmable DC power supplies. MPS-300 series programmable DC power supplies have clear operation interface, excellent performance index, and various communication interfaces to meet diversified testing needs. The main special features and advantages are listed below:

- 3.5-inch high visibility TFT display
- Voltage and current can be adjusted using the numeric keypad or knobs
- High accuracy and resolution
- List output function
- Low ripple and low noise
- Intelligent fan control saves energy and reduces noise
- CC/CV priority function
- Voltage and current ramp rate can be set
- SCPI and MODBUS commands to facilitate the establishment of intelligent test platforms.
- Over-voltage, over-current protection and over-temperature protection.
- Voltage rise time is less than 10ms

MPS-300 series programmable DC power supply selection table:

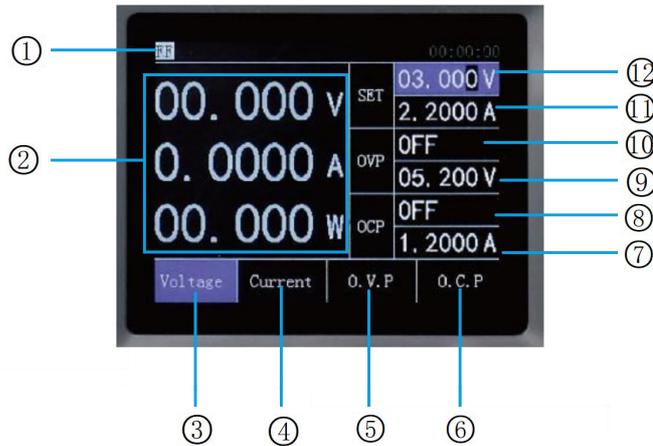
Model	Voltage	Current	Output power
MPS-301	20V	6A	120W
MPS-302	20V	10A	200W
MPS-303	36V	3A	108W
MPS-304	36V	6A	216W
MPS-305	36V	10A	360W
MPS-306	60V	3A	180W
MPS-307	60V	6A	360W
MPS-308	80V	2A	160W
MPS-309	100V	1A	100W
MPS-310	160V	1A	160W

## 2.2 Introduction to the front panel

Front panel introduction:



- ① The instrument specification model label
- ② TFT display
- ③ Multi-function knob
- ④ Keypad
- ⑤ Output terminals (red is positive, black is negative, green is ground terminal)
- ⑥ USB port (5V/1A output, can be used for software upgrade and data import and export)
- ⑦ Power switch



- ① Power status display status bar (displays output status, OVP/OCP/OTP/Remote Compensation/PC Connection/USB and output time)
- ② Power supply output voltage, current and power parameters display column.
- ③ ④ ⑤ ⑥ Voltage, current, OVP/OCP setting indication, when the corresponding position will be lit, it means that the parameter can be set
- ⑦ OCP setting value (refer to 3.5.2 OCP setting)
- ⑧ OCP enable switch (refer to 3.5.2 OCP setting)

- ⑨ OVP set value (refer to 3.5.1 OVP setting)
- ⑩ OVP enable switch (refer to 3.5.1 OVP setting)
- ⑪ Current set value (refer to 3.3 Current Settings)
- ⑫ Voltage set value (refer to 3.2 Voltage setting)

## 2.3 Keyboard Keys Introduction



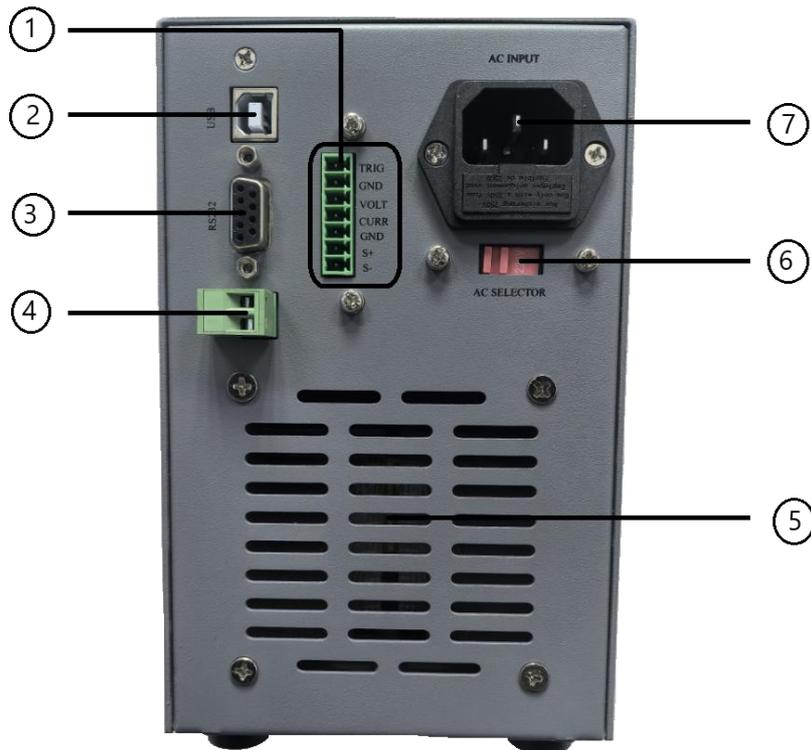
The key instructions are shown in the following table:

Key	Name and function
0-9	Digital input keys
	Radix point
	Voltage setting key, set the power output voltage value/ overvoltage protection function key (long press to enter overvoltage protection Settings), used to set the power over- voltage protection point.
	Current setting key, set the power output voltage value/ current overcurrent protection function key (long press to enter the overcurrent protection setting), used to set the power overcurrent protection point.
	Storage file
	Battery function Settings
	The List key is used to set the List parameter
	Confirm the key to confirm the input parameters.
	Output open/close key, used to control the output state/power supply / keyboard lock function Key, used to lock the panel button (long press to lock the button, long press again to unlock the button).
	Move the left and right keys to adjust the cursor to the specified position when the setting is in place.
	Menu The menu function key is used to set the power related parameters.

	M1, M2, M3 quick build is used to store and call commonly used voltage and current parameters.
	A multi-function knob is used to set the parameters of the power supply.
	Power Power switch button

## 2.4 Rear panel description

Rear Panel Layout:



① Multi-function interface

(TRIG: external trigger, GND: ground of external trigger, TRIG and GND short-circuit once the power supply will depart once, VOLT: voltage analog input, CURR: current analog input, GND: ground of analog, S+: voltage compensation positive terminal, S-: voltage compensation negative terminal.)

② USB communication port

③ RS232 communication port

④ RS485 communication port

⑤ Heat dissipation and ventilation port

⑥ Voltage selector switch

(Used to select the input voltage specification, AC 110V or 220V) Before powering on the power supply, you must make sure that the switch position is compatible with the input power supply, otherwise the power supply will be damaged.

⑦ Power jack (AC power input connector).

## 2.5 Power-on self-test

A successful self-test process indicates that the user has purchased a power supply product that meets factory standards and is ready for normal use by the user. Before operating the power supply, please make sure you have understood the safety instructions.

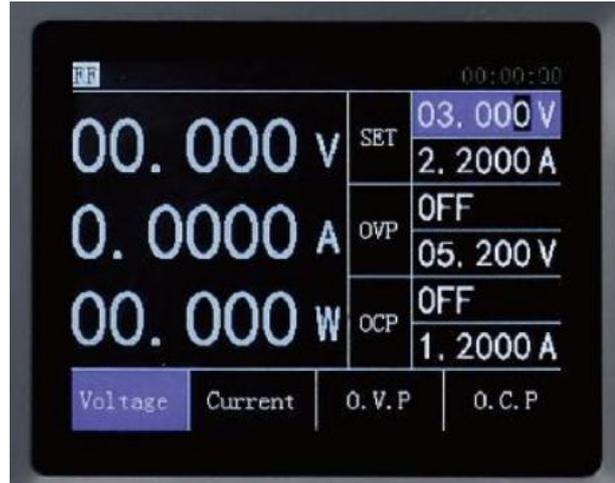
### Warning

- Please make sure that the power supply voltage matches the supply voltage before turning on the power supply, otherwise the power supply will be burned out.
- Be sure to connect the mains plug to a power socket with a protective earth, do not use a wired socket without a protective earth. Before operating the power supply, you should first make sure that the power supply is well grounded.
- Before connecting the power supply, please pay attention to the positive and negative markings, otherwise the power supply will be burned out.

Self-testing steps:

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

1. Connect the power cord correctly and press the power switch button to turn on the power. The power supply performs self-test.
2. When the power self-test is completed, the TFT display shows the following status.



Exception handling:

When starting the power supply, if the power supply fails to start properly, please refer to the following steps for inspection and handling.

1. Check whether the power cord is correctly connected and confirm that the power supply is in the powered state.

The power cord is well connected => Go to step 2

The power cord is wrongly connected => Please reconnect the power cord and check whether the abnormality is cleared.

2. Check whether the power supply is turned on. Press the power on/off switch so that it is in the power-on and switch-closed state.

Yes => Go to step 3

No => Please press the voltage on/off switch to turn on the power supply and check whether the abnormality is cleared.

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

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

- 1) Unplug the power cord and then use a small screwdriver to remove the fuse box. (The location of the fuse is described in the introduction of the rear panel.)
- 2) Replace the fuse with one of the same specification, put it into the fuse box, and reinstall the fuse box.



Fuse specification sheet:

Model	Fuse specification (220V)	Fuse specification (110V)
MPS-301,MPS-303,MPS-308,MPS-309,MPS-310,	3.15A	5A
MPS-302,MPS-304,MPS-304,	5A	6.3A
MPS-305,MPS-307,	8A	10A

## 2.6 Output check

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

### Check the 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 ( $\geq 0.1A$ ).
3. Enable the power output.

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

4. Set the power supply voltage.

Set different power supply voltages, check whether the voltage value displayed on TFT is close to the set voltage value, and whether the current value displayed on TFT is close to 0A.

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

----finish

### Check the output current

Verify the basic current function of the power supply when the output is short-circuited.

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 wires 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 turned on.
6. Set the power supply current.

Set different power supply current, whether 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 Features

This chapter describes the functions and features of the power supply in detail. It is divided into the following sections:

- Switching local/remote operation
- Voltage setting operation
- Current Setting Operation
- Output on/off operation
- Overvoltage/overcurrent protection function (OVP/OCP)
- Battery function (Battery)
- List (List test function)
- Storage Operations
- Shortcut function
- Menu Functions
- Keypad lock function

### 3.1 Switching local/remote operation

The power supply provides two modes of operation: local and remote. The two modes can be switched by communication commands. The power supply initialization mode is set to local operation mode by default.

- Local operation mode: Use the buttons on the power panel to perform relevant operations.
- Remote Operation Mode: The power supply is connected to the PC, and relevant operations of the power supply are performed via communication commands on the PC. When the power supply is in remote operation mode, all buttons except the Shift and Local keys are inactive. The local operation mode can be switched by pressing Shift + number key 7 (Local). Changing the operation mode does not affect the output parameters of the power supply.

### 3.2 Voltage setting operation

The voltage setting ranges from 0V to the maximum output voltage value. When pressed  When the key is pressed, the voltage position of the button light and display screen will be lit up, and the voltage setting operation can be performed at this time. The output voltage value can be set through the front panel by the following two methods.

① After the power is on, press  Key, use the press button to move the cursor to the specified position (or press the button and then use  Move the cursor to the desired position), and then turn the knob to adjust the voltage setting.

② After the power is on, press  Press the key + 0 to 9 number keys again  Set the voltage value of the key.

### 3.3 Current Setting Operation

The range of current setting is between 0V and the maximum output current value. When pressed  When the key is pressed, the current position of the key light and display screen will be lit,

and the current setting operation can be performed at this time. The output current value can be set through the front panel by the following two methods.

① After the power is on, press  Key, use the press button to move the cursor to the specified position (or press the button and then use  Move the cursor to the desired position), and then turn the knob to adjust the current setting.

② After the power is on, press  Press the key + 0 to 9 number keys again  Set the current value of the key.

### 3.4 Output on/off operation

You can do this by pressing the front panel  The key controls the on and off of the power output,  Key light, indicating Output open,  When the key is off, it indicates that the output is turned off. When the power output is on, the operating status indicator (ON and CV/CC) on the TFT screen lights up, and the timing in the upper right corner resets and starts to tick. When the power output is off, the operating status indicator (OFF) on the TFT lights up, and the time in the upper right corner stops ticking.



explain

After connecting the power supply to the device under test, press the On/Off button to turn on the output. Otherwise, arcing is likely to occur during the wiring process. If there is no output from the power supply after turning on the output, please check the voltage and current setting values. Set both the voltage and the current to non-zero values, and then turn on the output.

### 3.5 Overvoltage/overcurrent protection function (OVP/OCP)

The 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 perform OVP/OCP protection. During overvoltage/ current protection, the power supply output will be turned off, accompanied by a buzzer sound, and the VFD will display the relevant alarm prompt (OVP/OCP).

#### 3.5.1 OVP (Overvoltage Protection)

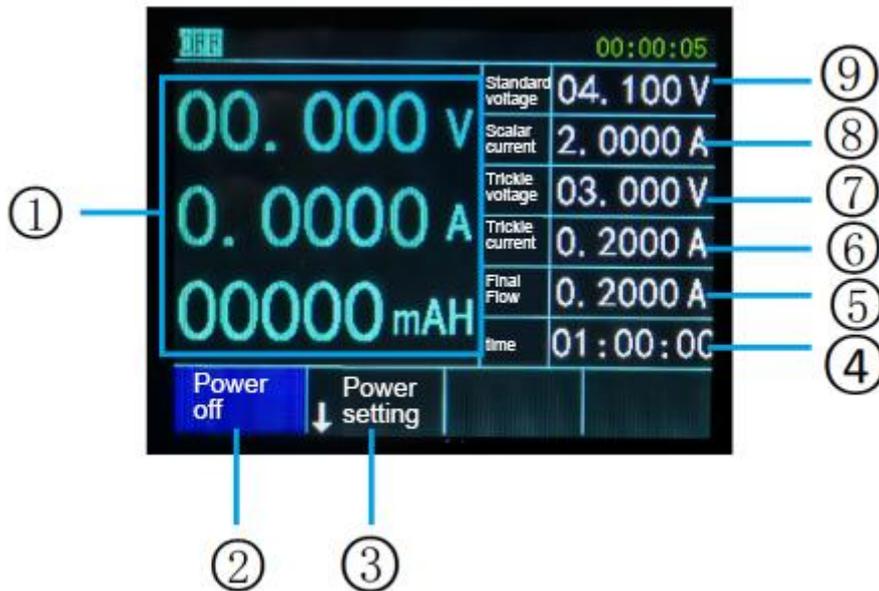
Long press  The key power supply will enter the function item of OVP Settings, and the overvoltage position on the TFT display will be lit. At this time, you can rotate the knob left and right to change the protection open/closed state. In the OVP Settings state, press again for a long time  Key power enters the parameter setting of OVP value (the parameter of OVP value can be modified by using the 0-9 number keys).

#### 3.5.2 OCP (Over current protection)

Long press  The key power supply will enter the function item of OCP Settings, and the overcurrent position on the TFT display will be lit. At this time, you can rotate the knob left and right to change the protection open/closed state. In the OCP Settings state, press again for a long time  Key power enters the parameter setting of OCP value (the OCP value parameters can be modified by using the 0-9 number keys).

### 3.6 Battery function

The Battery (battery) function can simulate the charger to charge the battery for testing.



① Output voltage, current, capacity and other parameters display.

② Battery(Battery) function switch, select  the key and press the knob to turn on and off the Battery(battery) function. After turning on the Battery(battery) function, you can charge the battery by pressing  on the front panel. At this time, the battery capacity (mAH position) in the parameter display bar will continue to increase. When the predetermined charging parameters are reached, the output will be automatically turned off and the charging will be terminated. After the Battery function is enabled, only  on the front panel are valid. Press the knob to turn off the Battery function and perform other key operations.

③ Battery Settings: Press  button to select and press the knob to enter the battery charging parameter setting function.

④ Time, charging time setting (maximum 99:59:59), the power will automatically stop charging after the charging time.

⑤ The final current, the charging termination current is set, the charging current is less than this setting current, the power will automatically stop charging after 5 seconds.

⑥ Trickle, when the battery voltage is lower than the trickle voltage setting value, the power supply will charge the battery according to the current value set by the trickle, this function can protect the battery.

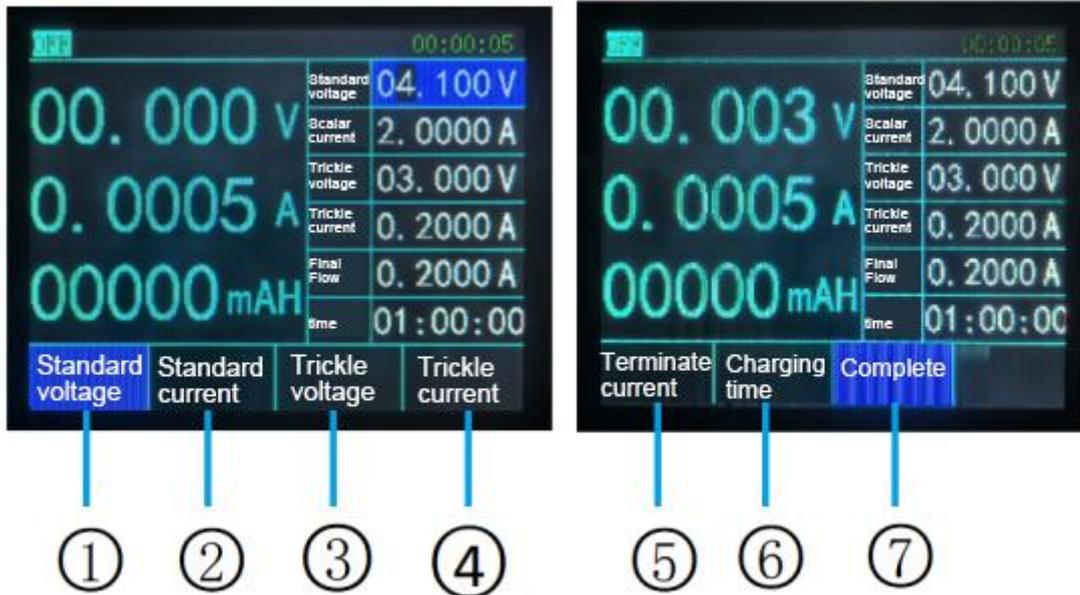
⑦ Trickle voltage, trickle and standard current charging threshold, when the battery voltage is lower than the trickle voltage setting value, the power will charge the battery according to the current value set by the trickle voltage, when the battery voltage is higher than the trickle voltage setting value, the power will charge the battery according to the current value set by the standard current.

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 current value set by the standard current.

⑨ Standard voltage, the battery charging voltage threshold. When the charging voltage is greater than this set voltage, the power supply will automatically stop charging after 5 seconds.

#### 3.6.1 Battery Settings

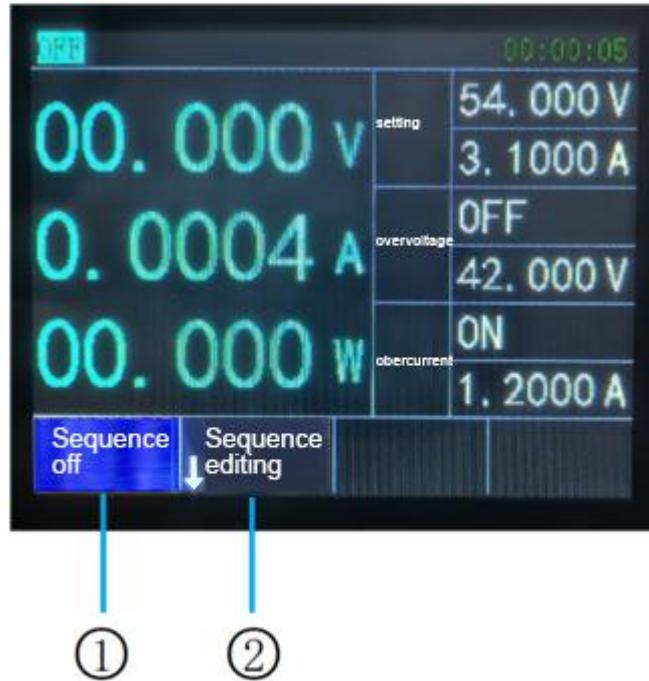
Pass through  After the key is selected, press the knob to enter the Battery (battery) charging parameter setting function. Enter the Battery (battery) charging parameter setting function and press again  Key select the parameters to be set, turn the knob left and right to modify the parameters, press the knob to move the cursor of the parameter setting position, or directly through the numeric key enter, press  affirm.



- ① Standard voltage (standard voltage), the battery charging voltage threshold, the charging voltage is greater than this set voltage, the power will automatically stop charging after 5 seconds.
- ② Standard current (standard current), when the battery voltage is higher than the trickle voltage setting value, the power supply will charge the battery according to the current value set by the standard current.
- ③ Trickle voltage (trickle voltage), the threshold of trickle and standard current charging, when the battery voltage is lower than the trickle voltage setting value, the power supply will charge the battery according to the current value set by the trickle voltage, when the battery voltage is higher than the trickle voltage setting value, the power supply will charge the battery according to the current value set by the standard current.
- ④ Trickle current (trickle), when the battery voltage is lower than the trickle setting value, the power supply will charge the battery according to the current value set by the trickle, this function can protect the battery.
- ⑤ Termination current (final current), charging termination current setting, charging current is less than this set current, the power will automatically stop charging after 5 seconds.
- ⑥ Charging time (time), charging time setting (maximum 99:59:59), the power will automatically stop charging after the charging time.
- ⑦ After the charging parameters are set, select the "Finish" button by key  to press the knob to complete the charging parameters setting.

### 3.7 List test function

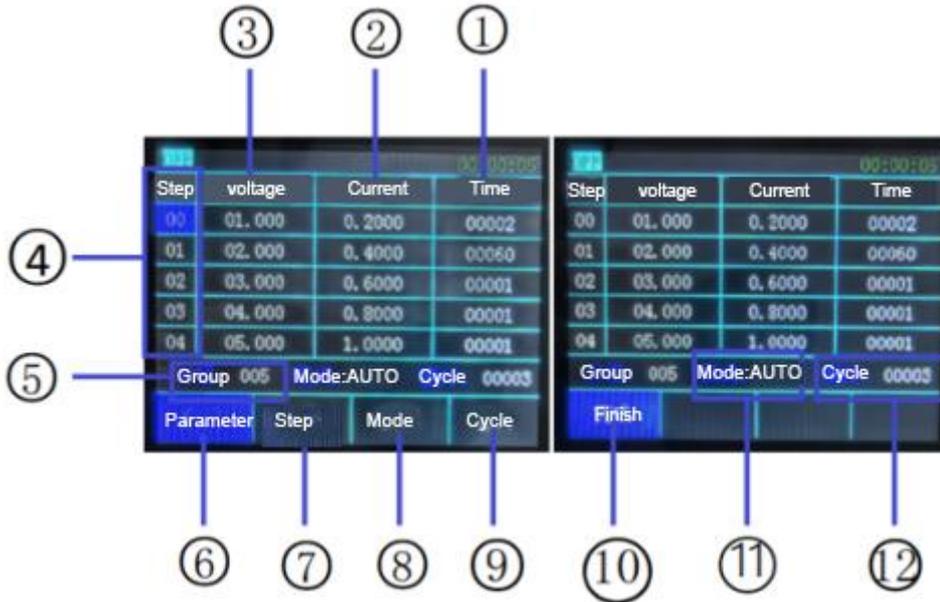
The List (sequence) operation function can set the value and time of each single step by editing the List (sequence) file. When the power supply receives a trigger signal, the power supply can automatically execute the set value of each single step. Trigger signal mode: automatic, key, external three.



① List (sequence) operation function switch, select by key  and press the knob to enable and disable the List (sequence) operation function. After enabling the List (sequence) operation function, you can press  on the front panel. After the List (sequence) operation function is enabled, only  on the front panel is effective, and other key operations can be performed after pressing the knob to close the List (sequence) operation function.

② List (sequence) operation function Settings, press the knob to enter the List (sequence) operation function parameter Settings after selecting .

#### 3.7.1 List (sequence) operation function parameter Settings



- ① Time: List (sequence) Operation Duration of this step (0-99999 seconds).
- ② Current: List (sequence) Operation Maximum output current in this step.
- ③ Voltage: List (sequence) Operation Output voltage in this step.
- ④ Step: List (sequence) operates on the current step (steps 0-99).
- ⑤ Steps: The total number of steps (0-99 steps) of the current List operation.
- ⑥ Parameter: This option is used to set parameters such as time, current, and voltage for the List

(sequence) operation. Select the parameter setting through  and press the knob to enter the parameter setting. After entering the parameter setting, turn the knob left and right to select the step to be edited. Press the knob to move the cursor to select the parameters to be edited, such as time, current, and voltage.

⑦ Number of steps: This option is used to set the total steps of the List (sequence) operation, which can be changed by turning the knob left and right or the number key and the confirm key after selected by .

⑧ Mode: This option is used to set the trigger mode of the List (sequence) operation, which can be modified by turning the knob left and right after being selected by . Trigger signal mode: automatic, key, external three,

⑨ Cycle: This option is used to set the number of cycles of the List (sequence) operation (0-99999, 0 is an infinite cycle), selected by  can be changed by turning the knob left and right or the number key and the confirm key.

⑩ Finished: After setting the List (sequence) operation parameters, select the "Finish" button by  and press the knob to complete the setting of the List (sequence) operation parameters and return to the main interface of the List (list) operation function.

⑪ Mode: The current List (sequence) operation trigger signal mode is divided into: automatic, key, external three,

⑫ Loop: The number of loops that the current List (sequence) operation executes.

### 3.8 Storage Operations

The file storage and call of common voltage and current parameters, List (sequence) function parameters and Battery(battery) function parameters of the power supply.



- ① C: \: indicates the current disk location.
- ② Local disk (C) : Storage disk inside the power supply.
- ③ Mobile disk (D) : Storage disk outside the power supply.
- ④ Browse the disk: For selecting the disk to browse and the files in the disk, select "browse disk"

through  and press the knob to enter the disk browse, when you insert the mobile disk (D), after entering the disk browse, you can turn the knob left and right to select the disk to browse, press the knob to enter the disk for browsing. After entering the disk browse, you can save and read (call) the pre-set file through the function button below.

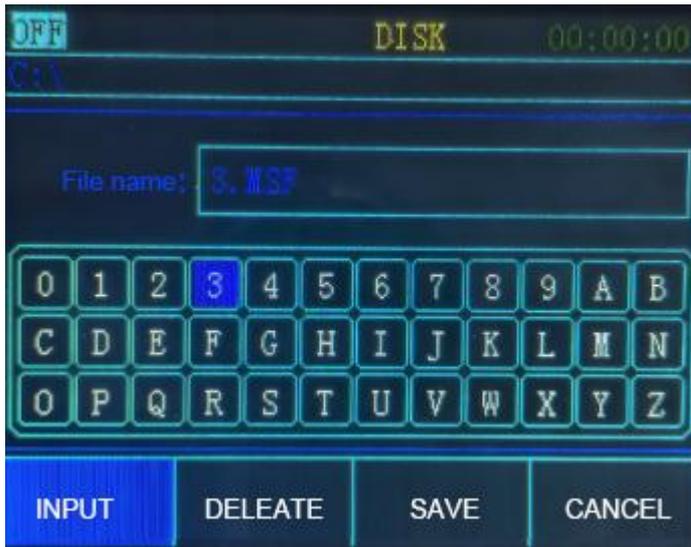
⑤ Type: Used to select the file type in the storage or call disk. Select "File type" through  and press the knob to enter "File Type". The file types are: \*.msf, \*.mbf, \*.mtf, \*.csv and other formats.

- \*.msf: Storage file for voltage and current parameters commonly used by power supplies.
- \*.MBF: storage file for the Battery Function parameter.
- \*.mtf: Storage file for the parameters of the power supply "List (sequence) operation".
- \*.csv: Storage file for the parameters of the power supply "List (sequence) operation", this file can only be saved and read when the mobile disk (D) is inserted.

⑥ Save: The common voltage and current parameters, List function parameters, Battery function parameters and other files are stored. If the mobile disk (D) is not inserted when \*.csv is selected, the save menu is gray and unavailable.

Pre-edit the commonly used voltage and current parameters or List (sequence) functional parameters and Battery(battery) functional parameters, then enter the browse disk (refer to item 4 of this section), select the location of the file "save", such as local disk (C) or mobile disk (D), turn the knob left and right to select the disk, Press the knob to confirm and enter the file list (refer to item in this section). After entering the file list, you can turn the knob to move the cursor up and down to select the file group that you want to save. After selecting the file group that you want to save, select "Save" on the menu bar below  and press the knob to enter the save. (as shown below).

When saving, we need to name the file. Name the file by selecting "Input" in the menu bar below , turn the knob left and right to select numbers or letters to input the name of the file. If there is no file name, the "Save" menu is gray and unavailable. Select the correct file type when saving (refer to the item in this section). If you do not save the file, you can select "Cancel" in the menu bar below , and then press the knob to cancel and exit the save interface. If the input is incorrect, you can select "Delete" in the menu bar below , and then press the knob to cancel the input.



⑦ Read: File call of common voltage and current parameters, List (sequence) function parameters, and Battery(battery) function parameters of the power supply. Go to the browse disk (refer to item (4) of this section), select the disk location where the file to be invoked is located, press the knob to enter the file list (item (4) of this section), after entering the file list, you can turn the knob to move the cursor up and down to select the file to be invoked, select the required file, and select the "Read" menu through . Press the knob to retrieve the data and enter the corresponding test. When the selected corresponding group has no files, the "Read" menu is gray unavailable.

When you select \*.csv, the mobile disk (D) is not inserted, and the Read menu is unavailable in gray.

\*.MSF: Call the commonly used voltage and current parameters of the power supply, after reading the power supply back to the basic operation interface, and call out the preset voltage, current, OVP, OCP and other parameters.

\*.MBF: calls the Battery function parameter of the power supply. After reading the parameter, the power supply returns to the Battery Function interface and retrieves the preset parameters.

\*.MTF: Call for the parameters of the power supply "List (sequence) operation", after reading the power supply back to the "List (sequence) operation" interface, and call up the preset parameters.

\*.csv: Call for the parameters of the power supply "List (sequence) operation", this file can only be read when the mobile disk (D) is inserted, after reading the power supply returns to the "List (sequence) operation" interface, and calls the preset parameters.

Select the correct file type when reading the call (refer to item 1 of this section).

⑧ Delete: Used to delete unused files. Press the button to select Browse Disk on  and press the knob to go to the disk browse, turn the knob left and right to select the disk where the file to be deleted resides, and then press the knob to enter the disk, turn the knob left and right to select the file to

be deleted, and press the knob after selecting the file to be deleted, a dialog box will be displayed. In this case, you can select OK or Cancel by using .

⑨ Back: After parameter setting is complete, select the "back" button by  and press the knob, and the power supply will return to the main interface at startup.

⑩ List of files. Select the disk that you want to browse and press the knob to enter the disk browse. All available files are displayed here. Rotate the knob left and right to scroll. A maximum of 100 groups (0-99) are displayed. The middle of the file name is the name of this file, defined by the customer, followed by the file format, which is divided into: \*.msf, \*.mbf, \*.mtf, \*.csv and other formats (as shown below).

	Filegroup	File name	File format
	STAT 00:	M1	MSF
	STAT 01:	M2	MSF
	STAT 02:	M3	MSF
	STAT 03:		
	STAT 04:		
	STAT 05:		
	STAT 06:		
	STAT 07:		
	STAT 08:		
	STAT 09:		

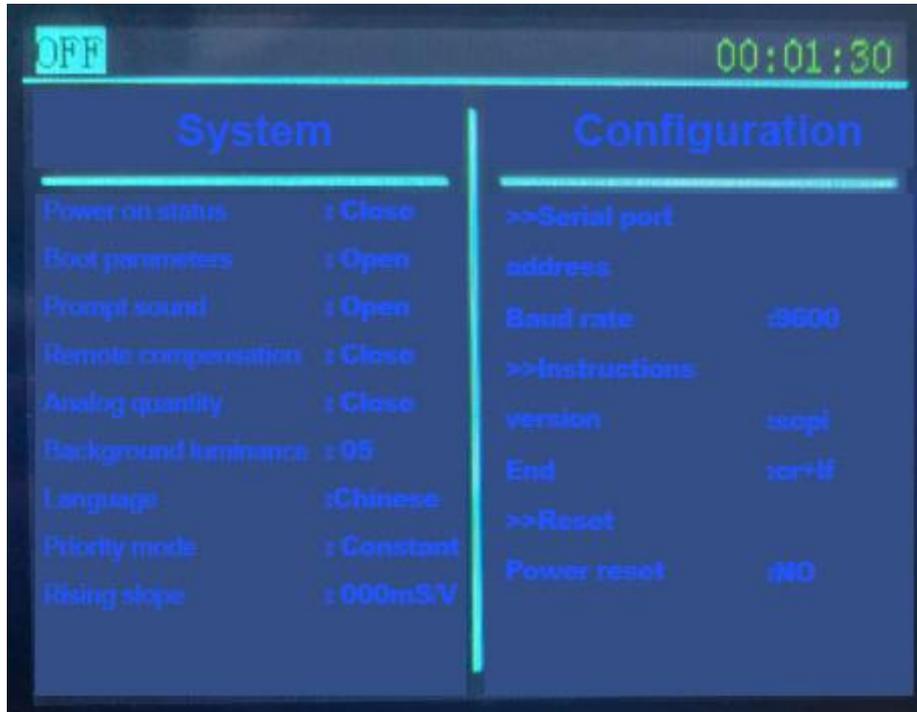
- ⑪ DISK: indicates that the mobile DISK is inserted. If disk is on, the mobile disk is inserted.
- ⑫ Loop: The number of loops that the current List (sequence) operation executes.

### 3.9 Shortcut function

The power supply can store some commonly used parameters in  (M1,M2,M3) three groups of non-volatile memory, which is convenient and fast for users to call out. After setting parameters such as voltage and current, hold down any key of M1,M2,M3 to save the parameters in the corresponding group, including voltage and current and OVP/OCP.

### 3.10 Menu Functions

Power In the standby state, press  to enter the Menu menu function, which is used to set parameters related to the power supply. After entering the Menu Menu function, turn the knob left and right to move the cursor to the parameter to be edited, press the knob to enter the parameter modification, Turn the knob left and right to modify the selected parameter, press the knob to confirm the parameter modification, and press the Menu key again to exit the menu function after the parameter modification is complete.



#### System parameter:

Power on state: The power output state is kept as set. "On" keeps the power on when it is powered on, "Off" keeps the power off when it is powered on, and "Last" keeps the power off when it is powered on before the last shutdown.

Startup parameters: Power on parameters are kept as set. ON keeps the data from the last power failure, and OFF keeps the factory default value.

Note: Power button sound Settings, ON is the sound of the buzzer on, OFF is the sound of the buzzer off.

Remote compensation: Power remote compensation function Settings, ON is to turn on the remote compensation function, OFF is to turn off the remote compensation function.

Simulation quantity: the voltage and current of the power supply are controlled by the analog switch. ON is the analog control open, OFF is the analog control closed. When the analog control is open, the voltage and current will not be controlled by the front panel button, and only the analog signal is valid.

Background brightness: The display brightness of the TFT screen is adjusted between 1 and 10, with 1 being the darkest and 10 being the brightest.

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

Priority mode: priority mode setting when the power output is turned on, with voltage priority and current priority for selection. When voltage priority is selected, the voltage is opened first when the power output is turned on; when current priority is selected, the current is opened first when the power output is turned on.

Upward slope: the climbing speed setting when the power output is turned on. The climbing speed of voltage or current can be set. Two options: mS/A or mS/V, ranging from 0 to 250.

Configuration parameter:

Serial port: Communication port Settings.

1. Address: Set the power communication address, ranging from 1 to 254.
2. Baud rate: The baud rate of the power supply is 4800, 9600, 14400, 19200, 38400, 56000, 57600, and 115200.

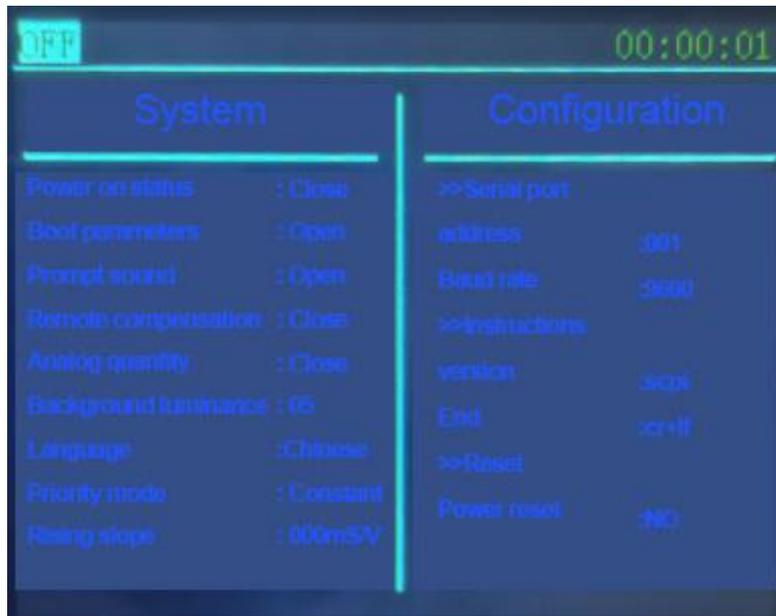
Instructions:

1. Class type: power communication protocol type Settings, communication protocols have SCPI and MODBUS two options.
2. End character: Set the end character of power communication, the end character of communication is LF, CR, CRLF, LFCR.

Reset:

Power reset, the power reset Settings have "Yes" and "No" options, "Yes" indicates the reset power supply, "No" indicates the non-bit power supply, the power reset setting is the "Menu" menu function of the power supply factory initialization.

The Settings after initialization are as follows:



### 3.11 Keypad lock function

Power Hold down the  button on the home screen to lock the power button, and then hold down the button to unlock it.

## Chapter 4 Technical specifications

### 4.1 Main technical parameters

Model		MPS-301	MPS-302	MPS-303	MPS-304	MPS-305	MPS-306	MPS-307	MPS-308	MPS-309	MPS-310
Rated output voltage		0~20V	0~20V	0~36V	0~36V	0~36V	0~60V	0~60V	0~80V	0~100V	0~160V
Rated output current		0~6A	0~10A	0~3A	0~6A	0~10A	0~3A	0~6A	0~2A	0~1A	0~1A
Rated output power		120W	200W	108W	216W	360W	180W	360W	160W	100W	160W
Load regulation rate	Voltage	0.05%+8mV	0.05%+10mV	0.05%+5mV	0.05%+8mV	0.05%+10mV	0.05%+5mV	0.05%+8mV	0.05%+5mV	0.05%+5mV	0.05%+5mV
	Current	0.1%+3mA	0.1%+5mA	0.1%+3mA	0.1%+3mA	0.1%+5mA	0.1%+3mA	0.1%+3mA	0.1%+3mA	0.1%+3mA	0.1%+3mA
Line regulation rate	Voltage	0.05%+8mV	0.05%+10mV	0.05%+5mV	0.05%+8mV	0.05%+10mV	0.05%+5mV	0.05%+8mV	0.05%+5mV	0.05%+5mV	0.05%+5mV
	Current	0.1%+3mA	0.1%+5mA	0.1%+3mA	0.1%+3mA	0.1%+5mA	0.1%+3mA	0.1%+3mA	0.1%+3mA	0.1%+3mA	0.1%+3mA
Setting resolution	Voltage	1mV									
	Current	0.1mA									
Read back resolution	Voltage	1mV									
	Current	0.1mA									
Setting accuracy (25°C±5°C)	Voltage	≤0.1%+5mV									
	Current	≤0.2%+1mA									
Read back accuracy (25°C±5°C)	Voltage	≤0.1%+5mV									
	Current	≤0.2%+1mA									
Ripple and noise (25°C±5°C)	Voltage	5mVrms	8mVrms	5mVrms	5mVrms	8mVrms	5mVrms	8mVrms	10mVrms	15mVrms	15mVrms
	Current	3mA <sub>rms</sub>	6mA <sub>rms</sub>	2mA <sub>rms</sub>	5mA <sub>rms</sub>	6mA <sub>rms</sub>	2mA <sub>rms</sub>	3mA <sub>rms</sub>	2mA <sub>rms</sub>	2mA <sub>rms</sub>	2mA <sub>rms</sub>
Temperature coefficient	Operating	300ppm									
	Storage	300ppm									
Machine size (W*H*D)	mm	110*183*288	110*183*345	110*183*288	110*183*288	110*183*345	110*183*288	110*183*288	110*183*345	110*183*345	110*183*345
Net weight	kg	4.5	5.6	6.7	5.6	7	5.6	5.6	5.6	5.6	5.6
Rise time		< 10mS									

### 4.2 Supplementary characteristics

Recommended calibration frequency: once a year

Heat dissipation mode: forced air cooling

Operating ambient temperature: 0 to 40 °C

Storage ambient temperature: -20 to 70 °C

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

## Chapter 5 Communication between the power supply and the PC

### Communication between power supply and PC

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

#### Communications Settings

Before performing communication operations, you should first match the power supply with the following parameters of the PC.

1. Baud rate: 9600 (4800,9600,14400,19200,38400,56000,57600,115200). You can enter the system menu through the panel and set the communication baud rate.
2. Protocol: Power communication protocol type Setting s, communication protocols can be selected from SCPI and MODBUS.
3. End of frame: Power communication end character setting. The communication end character is LF, CR, CRLF, LFCR (the end character must be correct when the SCPI protocol is used).
4. Address: Power communication address setting, the range is between 1 and 254 (the address must be correct when MODBUS protocol is used).

Data bits: 8

Stop position: 1

Check: NONE (no check for all 8 data bits)

Start Bit	8 Data Bits	Parity=None	Stop Bit
-----------	-------------	-------------	----------

## Frequently Asked Questions

1. The machine cannot be started. (See Exception Handling in Quick Start.)
2. Cannot communicate with PC.
2. Enter the menu to check the configuration parameters of communication, such as: address, baud rate, command type, and end character (please refer to the configuration parameters of menu functions.)
3. No output.
  - 1) Check if it is on  The output is turned on by the key (see 3.4 Output On/Off Operation).
  - 2) Check that the power or current is set to 0.

## Security

Do not install replacement parts on the instrument or make any unauthorized modifications. Please send the instrument to our company's maintenance department for maintenance to ensure its safe use.

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

### Safety sign

#### Warning

It reminds users of certain operating procedures, practices, conditions, and other matters that may lead to personal injury.

#### Caution

It warns the user of procedures, practices, conditions, etc. that may cause damage to the instrument or permanent loss of data.



Grounding point today



High voltage hazard. (Do not open the machine for non-expert personnel)



Refer to the warnings in the related documents and pay attention to the tips. (High voltage, please wear gloves when operating, and do not use the machine for safety purposes).

## 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](mailto: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	