MPD series

Multi-channel programmable

DC power supply User Manual

MATRIX TECHNOLOGY INC.

www.szmatrix .com

Preface

Dear users:

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

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

Copyright information

● MATRIX TECHNOLOGY INC.

● Products are protected by patents in China or other countries, including patents obtained or under application.

● MATRIX TECHNOLOGY INC. reserves the right to change the product specifications and prices.

● " " It is a registered trademark of MATRIX TECHNOLOGY INC.

Check and correction statement

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

Product quality assurance

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

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

Safety precautions

The following general safety precautions must be followed during all stages of this instrument operation. Failure to follow these precautions or the specific warnings described in other parts of this manual violates safety standards for the design, manufacture, and use of the instrument. The Company assumes no responsibility for the users' failure to comply with these precautions.

Warning

- Do not use damaged equipment, before using the equipment. Do not operate this equipment in an environment containing explosive gas, steam or dust.
- The power supply is supplied with a three-core power cord, and your power supply device should be connected to the three-core junction box. Before operating the power supply, you should first determine that the power supply is well grounded to avoid accidental injuries!
- Observe all the markers on the device before connecting to it.
- Always use the cables provided at the factory to avoid accidental injuries.
- Using wires with appropriately rated loads, the capacity of all load wires must be able to withstand the maximum 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 shock, make sure that the voltage fluctuation of the mains supply does not exceed 10% of the operating voltage range.
- If you use the power supply to charge the battery, to confirm the positive and negative polarity of the battery when wiring, otherwise it will burn out the power supply!
- Do not use the device when the cover is removed or is loose.
- Do not install substitute parts on the instrument, or perform any unauthorized modifications.
- We are not liable for any direct or indirect financial losses that may occur during the use of this product.
- Never use the equipment on the life support system or any other equipment with safety requirements.
- Not being used in the manner specified by the manufacturer may damage the protection provided by the equipment.
- Always clean the equipment enclosure with a dry cloth. Do not clean the instrument interior.

Catalogue

Chapter 1 Inspection and Installation

Before installation or operation, read this manual.

1.1 container loading list

Open the package, please check the items in the box before operating the instrument. If there is any discrepancy, missing or external wear, please contact the seller quickly.

Accessories	Quantity	Note instructions
Multi-channel programmable power supply host	A	
power line	a	Users can be according to the power socket specifications in the region to select the different power cords,
Communication line	a	USB communication line
user's manual	a copy	

Note: After confirming that the packing contents are consistent and there is no problem, please properly keep the packing box and related contents, and meet the packing requirements when the instrument returns to the factory for service.

1.2 Install the power supply

This instrument needs to be installed in a space with good ventilation environment and reasonable size. Please select the appropriate space for installation according to the following power supply dimensions.
MPD Series programmable Power Supply Size: 210 (W) x 147 (H) x 285 (D) mm / (W: Width; H: Height; D: Depth)
See the following dimension diagram for details:

Front panel

The rear panel

1.3 Install the power supply cord

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

Input requirements for the power supply

The operating voltage of the three-way power supply device is 100V / 120V / 220V / 230V. Note the input voltage of the power supply. The attachment includes a power input line that matches your local area. If a mismatch is found, please contact the company's authorized dealer or after-sales service department immediately.

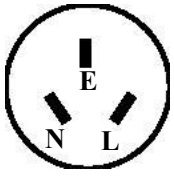
AC power input level (can be selected by the switching switch at the bottom of the power supply)

Option Opt.1: 220VAC ±10% 47Hz-63Hz

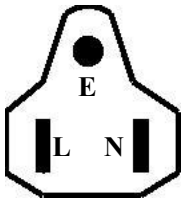
Option Opt.2: 110VAC ±10% 47Hz-63Hz

The type of power cord

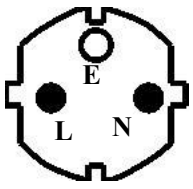
The power cord model provided by the standard power supply is shown in the following figure. Please select the power cord model suitable for your area voltage from the power cord specification table below. If you get the wrong model when buying, please contact the dealer or directly find the manufacturer for replacement.



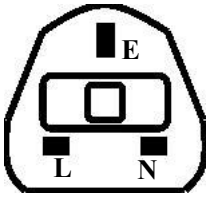
China



USA, Canada



Europe



Britain

Chapter 2 A Quick Start

This chapter briefly describes the front panel, rear panel, keyboard keys and LED display functions of the MPD series power supplier to ensure a quick understanding of the appearance, structure and key use of the power supply, to help you better use this series of power supply.

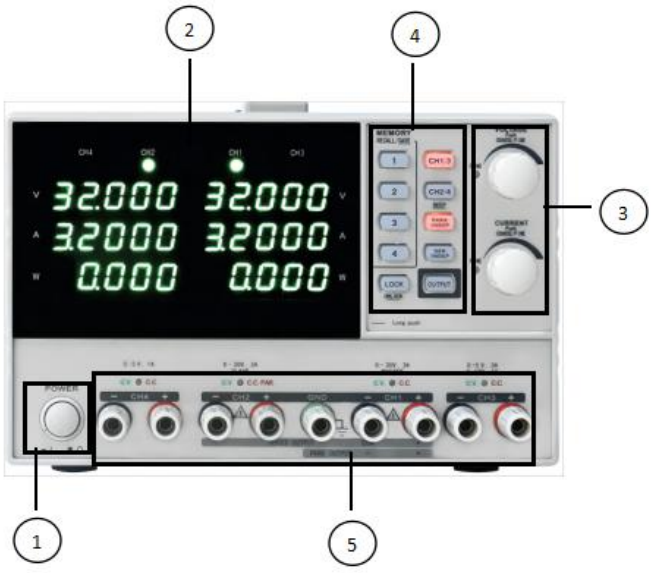
2.1 Introduction

MPD series programmable linear dc power supply is a multi-channel output programmable linear dc power supply, adhering to the MATRIX in the field of power supply development production consistent technical quality advantage, using the key panel control, large display, bright LED indicator, high output resolution, 4 group set memory, USB remote control, intelligent temperature control fan and other significant advantages. Not only simple operation, but also has a high cost performance, the main special functions and advantages are as follows:

- Multi-channel independent output, and continuously adjustable
- Independent, series and parallel three modes are optional
- 4 group save / fetch
- With SCPI and MODBUS instructions, it is convenient to establish an intelligent test platform
- Intelligent temperature control fan with good heat dissipation body to make the machine quieter
- Resolution: 1mV/0.1mA/1mW
- Key panel control (knob coding switch, silicone button with indicator light)
- USB standard interface that can be controlled remotely as required
- Lock key function
- Fast safety protection: overcurrent protection, over-temperature protection, overpressure protection.

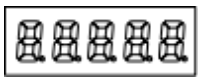
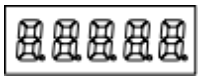
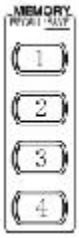
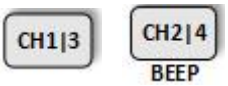
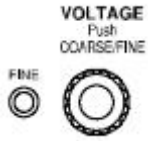
2.2 Introduction of the front panel

Front panel introduction:

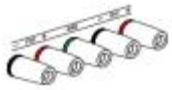
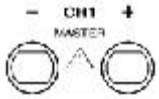
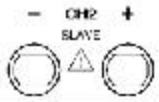
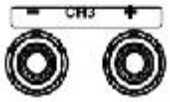
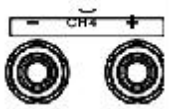
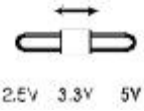


1. Power switch
2. LED display screen
3. Current / voltage adjusting knob
4. Function button
5. leading-out terminal

2.3 Introduction of display and function keys

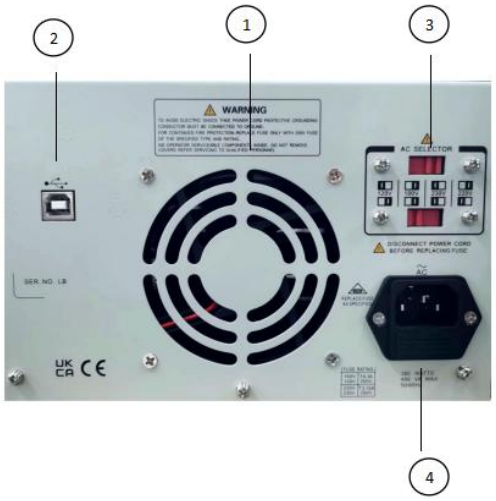
LED show		
Voltage meter head	4XXX-S-Series: CH 1 / CH3 and CH2 / CH 4 Displays the output voltage of each channel: 3XXX-S / SA-Series: CH 1 and CH 2	5-bit digital: 
Current meter head	4XXX-S series: CH 1 / CH3 and CH2 / CH 4 Display the output current of each channel: 3XXX-S / SA series: And both CH 1 and CH2	5-bit digital: 
control panel		
Storage / Call Keys		Store or call MEMORT values with 4 sets, 1-4 to select.
CH1/CH2		3XXX-A / SA series set channel selection
CH 1 / 3 and CH2 / 4		4303S Set / Display value channel selection
Series / parallel key		Start or cancel the series or parallel operations
Lock key		Lock / remove the front panel button operation (except OUTPUT), or long press to exit the remote control
Output key		Turn put on / off
Voltage knob		Adjust the output voltage value, adjust the set value of the selected channel, press the knob switch for rough or fine setting (when the FINE light is on / FINE light is off).
Current knob		Adjust the output current value, adjust the set value of the selected channel, press the knob switch for rough or fine tone setting, (FINE light is fine / FINE light is off).
Power switch		Power switch: power on / off

2.4 Description of the terminal function / indicator light

Terminal indicator light / functional description		
Output terminal		
Grounding terminal		Connect to the earth
CH1 output		Output of CH 1 voltage and current
CH2 output		Output CH2 voltage and current
CH3 output		Output CH3 voltage and current
CH4 output		Output CH4 voltage and current
CH3 Voltage selection switch		The CH3 output voltage selection for the 3XXX-S series
Output indicator light		The light indicates the output state, the green light indicates that the channel is in constant current mode / red light indicates that the channel is in constant current mode
Channel indicator light		Indicates the channel for the current set / display voltage current value

2.5Introduction to the rear panel

Rear panel introduction:



1. Heat dissipation window
2.USB communication interface
3. Input voltage selection
4.AC power input socket and fuse

2.6 Power-on self-test

The successful self-test process indicates that the power supply purchased by the user meets the factory standards and can be used by the user. Before operating the power supply, make sure you know the safety instructions.

warning

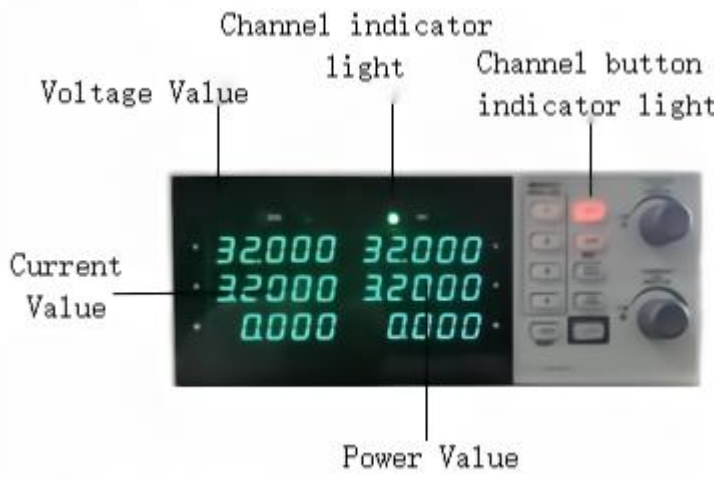
- Always confirm that the power supply voltage is consistent with the power supply voltage before turning on the power supply, otherwise the power supply will be burned out.
- Be sure to connect the main power plug to the power socket with protective grounding. Do not use the terminal board without protective grounding. Before operating the power supply, you should first determine that the power supply is well grounded.
- Pay attention to the identification of the positive and negative poles before wiring, otherwise the power supply will be burned out.

Self-check steps

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

1. Connect the power cord correctly, press the power switch key to power and power the power supply to start self-test.

2. Power supply self-test is completed, and the LED display status is as follows.



exception handling

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

1. Check whether the power cord is properly connected and confirm that the power supply is in the supplied state.

   Good power cord access = " 2

   Power Access Error = Please reconnect the power cord to see if the exception is cleared.

2. Whether the power supply is turned on. Power switch press is in power switch state.

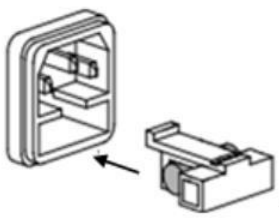
   Yes = " 3

   No = Please press the power switch to turn on the power supply to see if the exception is cleared.

3. Check if the power supply fuse is burnt out. If the fuse is burnt out, replace the fuse as follows:

   After removing the power cord, remove the fuse box with a small screwdriver (see the following layout of the fuse position)

- Replace the fuse of the same specification, put it into the box, and reinstall it.



List of Fuse specification:

model	Fuse Size (220V)	Fuse Specification (110V)
MPD-3XXX-S-Series	3.15A	6.3A
The MPD-3XXX-SA series	3.15A	6.3A
The MPD-4XXX-S series	3.15A	6.3A

2.7 Output check

The output check ensures that the power supply reaches its rated output and performs the front panel operation correctly.

Output voltage check

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

1. Turn on the power supply device.
2. Set the power supply current value (0.1A).
3. Turn the power output on.(Press the bright OUTPUT function button to illuminate the output indicator CV · CC status flag)
4. Set different power supply voltage, check whether the voltage value displayed on the display screen is close to the set voltage value, and whether the current value displayed on the display screen is close to 0A.
5. Ensure that the power supply voltage can be adjusted from 0V to the maximum output voltage.

----finish

Output current check

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

1. Turn on the power supply device.
2. Close the power output, make sure the power is off and the OUTPUT button light is not on
3. Connect an insulated wire between the output ends (+) and (-) of one of the power supply channels (the wire used shall 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 current, set different power current, whether the current value displayed on the display is close to the set current value.
7. Ensure that the supply current is adjusted from 0A to the rated full output current of the channel.
8. Close the power output and remove the short circuit wire.

----finish

Chapter 3 Functions and Features

This chapter describes the functions and characteristics of power supplies and will be divided into the following sections:

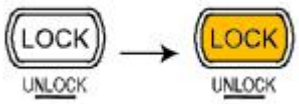
1. Switch between local / remote operations
2. Quick call / save operation
3. Series / parallel / independent output mode operation
4. Voltage setting operation
5. Current setting operation
6. Function menu

3.1 Switch over the local / remote connection operation

The power supply provides both modes of local and remote operation.

Go to the remote connection step:

1. Connect the USB cable between the PC and the power supply device
2. The PC sends valid instructions to the power supplier, and the power supplier is automatically in remote mode.
3. The lock key indicator of the power supplier is on and the panel operation is locked.

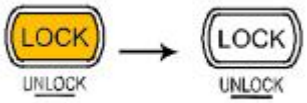


Remove the remote control step:

Use the remote command using LOCAL or long press LOCK until the light is off or remove the USB cable from the rear panel

functional characteristics

1. The LOCK key indicator light is turned off



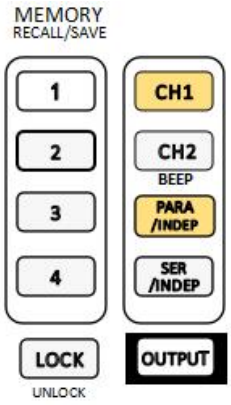
2. Remove the remote control and enter the panel operation mode

3.2 MEMORY Quick Call / Save settings

The front panel supports setting to save four sets of memory data modes for storage, which is convenient for users to call quickly. Independent, series and parallel modes can be set respectively.

①: Adjust the required output voltage and current through the VOLTAGE / CURRENT knob and the channel button

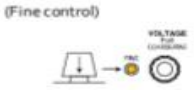
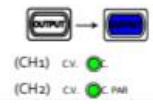
②: Tap the desired channel button and the desired mode button (light on as shown in the picture)

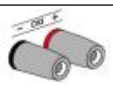
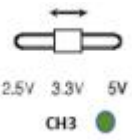
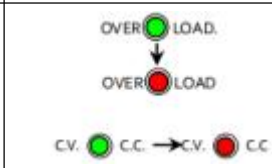


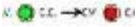
③: Select a digital button without stored data and press to the light, when the set mode, channel and preset output value have been stored.

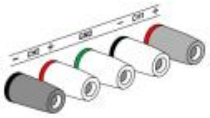
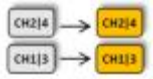
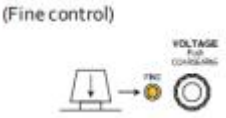
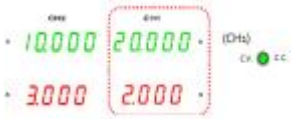
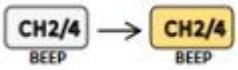
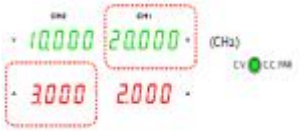
④: Tap the digital button to call out the required parameters from the storage area, facilitating quick use. When the setting is called, the output is automatically in the closed state. At this time, tap the OUTPUT key to restore the output.

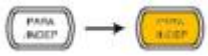
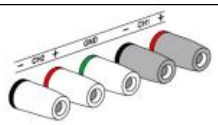
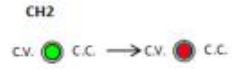
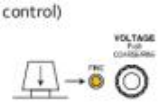
3.3 Series / parallel / independent output mode operation

C H 1/C H 2 independent mode CH1 and CH2 outputs work independently and are controlled separately		
Output rated value	0-32V/0-3.2A each channel	
Panel operation	Confirm that the parallel and series buttons are turned off (the button light is not on)	
	Connect the load to the front panel terminal , CH1+/-,CH2+/-	
	Set the output voltage and current of CH1, press the CH1 switch (light on) and use the voltage and current knobs to set the output value (CH2 operation is the same)	
	Usually, the voltage and current knobs operate in coarse adjustment mode. Activate the fine adjustment mode and press the knob to turn on the FIHE light. Coarse tuning: 0.1V or 0.1A per step Fine tuning: 1mV or 1mA per step	
	Turn on the output, press the output button, the button light will turn on and display CC/CV mode	

C H 3 independent mode CH3 does not have a series/parallel mode. CH3 output is also not affected by CH1 and CH2 modes		
Output rated value	3XXXS: 2.5V/3.3V/5V,3Amaximum value 4XXXS: 0-5V,0-3A /5.001-10V,0-1A	
Panel operation	Connect the load to the CH3+/- terminal on the front panel	
	Set output voltage 3XXXS: 2.5V/3.3V/5V, using voltage selection switch. 4XXXS: Switch to CH3 by pressing the CH1/CH3 keys (the channel indicator light will light up), and then use the voltage and current knob to set	
	Turn on the output, press the output button, the button light will turn on and display CC/CV mode	
	3XXX: When the output current value exceeds 3.2A, the overload indicator light will change from green to red, and CH3 will transition from a constant voltage source to a constant current source. 4XXXS: When the output current value exceeds the set value, the CV/CC indicator light will change from green to red, and CH3 will transition from a constant voltage source to a constant current source.	

C H 4 independent mode CH4 does not have a series/parallel mode. CH4 output is also not affected by CH1 and CH2 modes		
Output rated value	5V/1A maximum value	
Panel operation	Connect the load to the CH4+/- terminal on the front panel	
	Set output voltage Switch to CH4 using the CH2/CH4 keys (the channel indicator light will light up), and then use the voltage and current knob to set it	
	Turn on the output, press the output button, the button light will turn on and display CC/CV mode	
	When the output current value exceeds the set value, the CV/CC indicator light will change from green to red, and CH4 will transition from a constant voltage source to a constant current source.	

<table>
<tr><th colspan="3">C H 1/C H 2 series mode
There is a common end connected in series</th></tr>
<tr><td>Output rated value</td><td>Output rated value:
0-32V/0-3.2A for CH1+ ~ COM
0-32V/0-3.2A for CH2- ~ COM</td><td></td></tr>
<tr><td rowspan="9">Panel operation</td><td>Press the SEER/INDEF button to activate the serial mode, and the button light will turn on</td><td> 
</td></tr>
<tr><td>Connect the load to the front panel terminal, CH1+and CH2- use CH1- terminal as a common line connection</td><td>  </td></tr>
<tr><td>Press the CH1 switch (light on) and use the voltage knob to set the master-slave output voltage (2 channels with the same value)</td><td> 
</td></tr>
<tr><td>Usually, the voltage and current knobs operate in coarse adjustment mode. Activate the fine adjustment mode and press the knob to turn on the FIHE light.
Coarse tuning: 0.1V or 0.1A per step
Fine tuning: 1mV or 1mA per step</td><td> 
</td></tr>
<tr><td>Use the current knob to set the main output current</td><td>  </td></tr>
<tr><td>Turn on the output, press the output button, the button light will turn on and display CC/CV mode</td><td> 
</td></tr>
<tr><td>Regarding the CV/CC status of the main (CH1) output value, please refer to its header and indicator lights.
CH1 (main) voltage: Read the output voltage displayed on the CH1 meter, and in the above situation, the actual output is 20.000V. CH1 (main) current: Read the output current displayed on the CH1 meter. In the above situation, the actual output is 2.000A</td><td>  </td></tr>
<tr><td>Press the CH2 switch (LED on) and use the current knob to set the output current</td><td> 
</td></tr>
<tr><td>For the output value and CV/CC status of CH2 (from), please refer to the CH1/2 header and CH2 indicator light
CH2 (slave) voltage: Read the output voltage displayed on the CH1 header, and in the above situation, the actual output is 20.000V. CH2 (slave) current: Read the output current displayed on the CH2 header, and in the above situation, the actual output is 3.000A</td><td>  </td></tr>
</table>

CH1/CH2 parallel mode		
Output rated value	0-30V/0-6A	
Panel operation	Press the PAE/IHDEF button to activate the parallel mode, and the button light will turn on	
	Connect the load to the CH1 +/- terminal	
	Turn on the output and press the output button to turn on the light	
	Turn on the output and press the output button to turn on the light	
	Press the CH1 button (CH1 light on) to use the voltage and current knobs to set the output voltage and current. CH2 control function is turned off	
	Usually, the voltage and current knobs operate in coarse adjustment mode. start-up fine tuning mode, press the knob and the FIHE light will turn on. Coarse tuning: 0.1V or 0.1A per step Fine tuning: 1mV or 1mA per step	
	For output values and CV/CC status, refer to the CH1 header and indicator lights Voltage value: When reading the CH1 meter, the output voltage value is displayed as above, but the actual output is 20.000V Current value: When reading twice the CH1 current display value, the actual output is 2 [000] * 2=4.000A	

3.4 Voltage setting operation

The voltage setting range is between 0V and the maximum rated voltage setting value. The setting output voltage value is as follows.
Select the required output channel mode (the button indicator and the channel indicator are on)
Set the required voltage value by rotating the VOLITAGE knob left and right (press the VOLITAGE knob and adjust the FINE light to fine)

3.5 Current setting operation

The current setting range is between 0V and the maximum rated current setting value. The setting output current value is as follows.
Select the required output channel mode (the button indicator and the channel indicator are on)
Set the required voltage value by rotating the CURRENT knob left and right (press the CURRENT knob and adjust the FINE light to fine)

3.6 Function menu

Long press the VOLITAGE knob to enter the function menu, and switch the setting interface by rotating the VOLITAGE knob left and right.

3.6.1 OVP setting operation:

Long press the VOLITAGE knob to enter the function menu as follows:
1. OVP parameter setting: press the VOLITAGE knob to select the parameters to be modified (display flashing), change the setting value by rotating the CURRENT knob. The method is consistent with the voltage setting, press the VOLITAGE knob to confirm (press the CURRENT knob to switch rough and fine tone, and press the channel selection button "CH 1-CH4" to switch the channel to be set.)
2. OVP status setting: press the VOLITAGE knob to select the status display area (flashing), OFF is the function off, ON is the function on, and switch by rotating the CURRENT knob left and right.

3.6.2 OCP setting operation:

Long press the VOLITAGE knob to enter the function menu and switch to the OCP setting interface by rotating the VOLITAGE knob left and right. Shown as follows:
1. OCP parameter setting: press the VOLITAGE knob to select the parameters to be modified (display flashing), change the setting value by rotating the CURRENT knob. The method is consistent with the current setting, press the VOLITAGE knob to confirm (press the CURRENT knob to switch rough and fine tone, and press the channel selection button "CH 1-CH4" to switch the channel to be set.)
2. OCP status setting: Press the VOLITAGE knob to select the status display area (flashing), OFF is the function off, ON is the function on, and switch by rotating the CURRENT knob left and right.

3.4.5 Power supply startup default parameter setting:

Long press the VOLITAGE knob to enter the function menu, and switch the VOLITAGE knob to the power supply default parameter setting interface."ON" and "OFF", switch by rotating left and right CURRENT knob, "ON" is the parameter of maintaining the last power failure, and "OFF" is the default parameter of the recovery system.

3.4.6 Power supply startup output status setting:

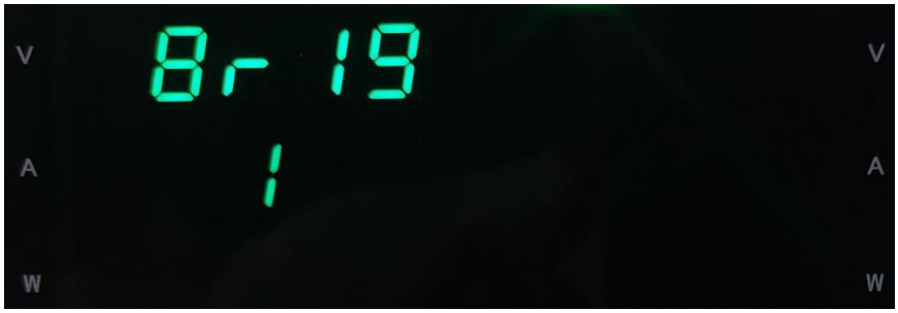
Long press the VOLITAGE knob to enter the function menu, and switch to the power power-on output state setting interface. There are two states: "ON" and "OFF". By rotating the CURRENT knob left and right, "ON" keeps the output on when the power is turned on, and "OFF" keeps the output off when the power is turned on.

3.4.7 Power supply buzzer sound setting:

Long press the VOLITAGE knob to enter the function menu and switch to the interface by turning to the VOLITAGE knob left and right. There are two states: "ON" and "OFF", by rotating the CURRENT knob left and right, "ON" is the power buzzer sound is on, and "OFF" is the power buzzer sound is off.

3.4.8 Power supply brightness display Settings:

Long press the VOLITAGE knob to enter the function menu and switch to the VOLITAGE knob to the left and right. There are six different bright states, "1 / 2 / 3 / 4 / 5 / 6", which are switched by rotating the CURRENT knob left and right. The "1" gear is the darkest, and the "6" gear is the brightest.



3.4.9 Power supply mailing address setting:

Long press the VOLITAGE knob to enter the function menu, and switch to the power supply address setting interface by rotating the VOLITAGE knob around. The address is chosen between 1 and 254 and set by rotating the CURRENT knob left and right.

3.4.10 Power supply communication wave rate setting:

Long press the VOLITAGE knob to enter the function menu, and switch to the power communication wave rate setting interface by rotating the VOLITAGE knob left and right. By modifying the parameter setting by rotating the CURRENT knob, a total of six port rates are 4800,9600,19200,38400,57600 and 115200.

3.4.11 Selection of communication protocol type:

Press the VOLITAGE knob to enter the function menu, and rotate the VOLITAGE knob to the left and right. The communication protocol has two modes: SCPI and MODBUS, which is set by rotating the CURRENT knob left and right.

3.4.12 Communication protocol termination symbol selection:

Long press the VOLITAGE knob to enter the function menu, and turn the VOLITAGE knob to select the setting interface. To modify the parameter setting by rotating the CURRENT knob left and right, there are four closing options for CR, LF, CRLF, CR and LFCR.

3.4.13 Power supply initialization settings:

Long press the VOLITAGE knob to enter the function menu, and switch to the power initialization setting interface by rotating the VOLITAGE knob left and right. There are two states, "NO" and "OFF", which confirm by rotating the CURRENT knob around and pressing the CURRENT knob. "NO" is not initialized and "YES" is initialized.

The initialization content is as follows:

Menu function initialization parameters:

① Power startup default parameter setting: P-STON, the default is "ON".
② Power power-on output state setting: P-UP OFF, the default is "OFF".
③ Power supply buzzer sound set: BEEP ON, the default is "ON".
④ Power supply display brightness set: BRIG 3, the default is "3".
⑤ Power supply communication address setting: ADDR 001, the default is "001".
⑥ Power communication baud rate set: BAUD 9600, the default is "9600".
⑦ Communication protocol type selection: PLC SCPL, the default is SCPL ".
⑧ Communication protocol end selection: CEND LF, default "LF".
⑨ Power initialization setting: INIT NO, default to NO.

OVP function initialization parameters:

①. OVP parameter setting: OUP 33.000, the default value is Max.
②. OVP status setting: OUP OFF, default OFF.

OVP function initialization parameters:

①. OCP parameter setting: OCP 3.3000, the default value is "maximum value".
②. OCP status setting: OCP OFF, default " OFF.

Chapter 4 Technical Specification

4.1 Main technical specifications

The specification of MPD series shall be applied after 30 minutes, and the temperature shall be between + 20℃ and + 30℃. Technical specification table:

		MPD-3303S			MPD-3303SA			MPD-4303S			
Output	**Channel**	CH1	CH2	CH3	CH1	CH2	CH3	CH1	CH2	CH3	CH4
	Voltage	0~30V	0~30V	2.5/3.3/5.0V	0~30V	0~30V	0-5V	0~30V	0~30V	0-5V or 5.001V to 10 V	0~5V
	Current	0~3A	0~3A	0~3A	0~3A	0~3A	0~3A	0~3A	0~3A	0~3A or 0~1A	0~1A
Fixed voltage mode	**Fluctuation ratio**	Voltage fluctuation rate ≤ 0.01%+3mV Load variation rate ≤ 0.01%+3mV (rated current ≤ 3A) ≤ 0.02%+5mV (rated current>3A)									
	Ripple & noise	≤1mVrms (5Hz~1MHz)									
	Recovery time	≤ 100 μ S (load change of 50%, minimum load of 0.5A)									
	Temperature coefficient	≤300ppm/℃									
	Output range	0-rated voltage, continuously adjustable									
Fixed current mode	**Fluctuation ratio**	Voltage fluctuation rate ≤ 0.2%+3mA									
	Ripple current output range	Load variation rate ≤ 0.2%+3mA ≤ 3mArms 0~rated current, continuously adjustable									
Tracking mode	**Parallel change rate**	Voltage fluctuation rate ≤ 0.01%+3mV Load variation rate ≤ 0.01%+3mV (rated current ≤ 3A) ≤ 0.02%+5mV (rated current>3A)									
	Series change rate	Voltage fluctuation rate ≤ 0.01%+5mV Load variation rate ≤ 300mV Tracking error ≤ 0.5% ± 10mV (10-30V no-load) Load connection ≤ 300mV) ≤ 0.5% ± 30mV (0~9.99V no-load) Load connection ≤ 300mV									
	Tracking error	≤0.5%±10mV									
Gauge outfit	**Display**	Voltage: 5-bit 0.4 " LED display Current: 5-bit 0.4 " LED display Power: 5-bit 0.4 " LED display									
	Resolution	Voltage: 1mV Current: 0.1 mA Power: 1mW									
	Programming accuracy (25 ± 5℃)	Voltage: ± (0.03% reading + 10 bits) Current: ± (0.3% reading + 10 bits)									

	Read value accuracy (25 ± 5℃)	Voltage: ± (0.03% reading + 10 bits) Current: ± (0.3% reading + 10 bits)		
CH3 specifications	**Output voltage** **Output Current** **Rate of change (25 ± 5℃)** **Ripple & noise**	(2.5V/3.3V/5V)±8% 3A Voltage fluctuation rate ≤ 0.01%+3mV Load variation rate ≤ 0.01%+3mV ≤1mVrms (5Hz~1MHz)	0-5V 0-3A Voltage fluctuation rate ≤ 0.01%+3mV Load variation rate ≤ 0.01%+3mV ≤1mVrms (5Hz-1MHz)	0~5V/5~10V 0~3A/O~1A Voltage fluctuation rate ≤ 0.01%+3mV Load variation rate ≤ 0.01%+3mV ≤2mVrms (5Hz~1MHz)
Lock key function	**Yes**			
Save / transfer	**Four groups**			
Input Voltage	A C 100V/120V/220V/230V±10%,50/60Hz			
Size & weight	MPD-3 XXXS (A) X series: 210 * 130 * 265mm; approximately 7Kg MPD-4XXX-SX series: 210 * 130 * 265mm; approximately 8 Kg			

4.2 Supplemental features

Status memory capacity: 99 sets of operation states
Recommended calibration frequency: 1 year / 1 time
Heat dissipation mode: forced air cooling
Operating ambient temperature: 0 to 40℃
Storage ambient temperature: -20 to 70℃
Use environment: indoor use design, pollution level 2, maximum humidity 80%

Maximum input power:

model	The MPD-3XXX-S series	The MPD-3XXX-SA series	The WMPD-4XXX-S series
Maximum input power	W	W	W

Chapter 5 Communication

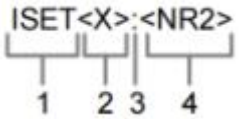
The MPD series power supply comes standard with USB, which users can use to communicate with computers.
Communication Settings

Before performing communication operations, you should first match the power supply with the following parameters of the PC.
Paud rate: 9600 (4800,9600,19200,38400,57600,115200). You can enter the system menu through the panel and set the communication port rate.

Data bit: 8
Stop position: 1
Check: NONE (8 data bits)

Start Bit	8 Data Bits	Parity=None	Stop Bit

5.1 Instructions and syntax

<table>
<tr><td colspan="4">Instruction syntax
Note: All instructions do not need to be case sensitive</td></tr>
<tr><td>Command format</td><td colspan="2"> 
</td><td>1: Instruction Title
2: Output channel
3: Delimiter
4: Parameters</td></tr>
<tr><td>Output Channel</td><td colspan="3">1:CH1, 2:CH2, and so on</td></tr>
<tr><td rowspan="4">Parameter</td><td>Category</td><td>Description</td><td>Example</td></tr>
<tr><td><Boolean></td><td>Boolean algebra</td><td>0(off), 1(on)</td></tr>
<tr><td>〈NR1></td><td>Decimal integer</td><td>0,1,2,3…</td></tr>
<tr><td>〈NR2></td><td>Decimal number</td><td>0.1,3.14,8.5</td></tr>
<tr><td colspan="4">Error message</td></tr>
<tr><td>Information content</td><td colspan="3">Description</td></tr>
<tr><td>a Program mnemonic too long</td><td colspan="3">Instruction length exceeds 15 characters</td></tr>
<tr><td>b Invalid chanracter</td><td colspan="3">Invalid character, inserted characters such as #, $, or%, e.g.:VOUT#</td></tr>
<tr><td>Missing parameter</td><td colspan="3">Missing parameters in the instruction, e.g. VSET: (must be parameterized)</td></tr>
<tr><td>Date out of ange</td><td colspan="3">Parameter exceeds the specified range, e.g. VSET:33 (must be two 32V)</td></tr>
<tr><td>Command not allowed</td><td colspan="3">Input commands are not accepted, e.g. the value of CH2 cannot be set in the case of parallel connection</td></tr>
<tr><td>Undefined header</td><td colspan="3">Instruction does not exist or has syntax errors</td></tr>
</table>

5.2 List of instructions

- Description of the details of each instruction on the next page.
- “HELP ?"The instructions will show all the instructions except the HELP itself and their meaning.

ISET<X>:<NR2>	Set current value
ISET<X)?	Return the set current value
VSET<X>:<NR2>	Set voltage value
VSET?	Return the set voltage value
IOUT<X>?	Return the actual current output value
VOUT<X>?	Return the actual voltage output value
TRACK<NR1>	Set operating mode
BEEP<Boolean>	Turn on or off the buzzer
OUT<Boolean>	Open or close the output
STATUS?	Return the status of the machine
*IDN?	Return the machine's identification code
RCL<NR1>	Call setting value
SAV<NR1>	Save set values
HELP?	Display command list
ERR?	Return instruction error message
BAUD<NR1>	Set the baud rate for remote control
LOCAL	Return to local operation from remote control
REMOTE	Return to remote control from local operation

Note: The instruction must end with (0x0A or 0x0D0A).

5.3 Instructions are detailed

ISET<X>:<NR2>	
Description	Set the current value for the corresponding channel
X	Decimal integer，1=CH1,2=CH2(43038:3=CH3,4=CH4
NR2	Decimal numbers，Range 0 ~ 3.200A
Response time	Minimum value of 10 ms
Example	ISET1:2.234 Set the current value of CH1 to 2.234A

ISET<X>?	
Description	Return the corresponding channel current value set
X	Decimal integer，1=CH1,2=CH2 (4303S:3=CH3, 4=CH4)
Response time	Minimum value of 10 ms
Example	ISET1? Return the current setting value of CH1

VSET<X>:<NR2>	
Description	Set the voltage value of the corresponding channel
X	Decimal integer，1=CH1,2=CH2(43038:3=CH3,4=CH4)
NR2	Decimal numbers，Range 0 ~ 32.000V
Response time	Minimum value of 10 ms
Example	VSET1:20.345 Set the voltage value of CH1 to 20.345V

VSET<X>?	
Description	Return the corresponding channel voltage value set
X	Decimal integer，1=CH1, 2=CH2 (4303S: 3=CH3, 4=CH4)
Response time	Minimum value of 10 ms
Example	ISET1? Return the voltage setting value of CH1

IOUT<X>?	
Description	Return the actual corresponding channel current output value
X	Decimal integer，1=CH1,2=CH2 (4303S: 3=CH3, 4=CH4)
Response time	Minimum value of 10 ms
Example	IOUT1? Return the current output of CH1

VOUT<X>?	
Description	Return the actual corresponding channel voltage output value
X	Decimal integer，1=CH1 ,2=CH2(4303S:3=CH3,4=CH4)
Response time	Minimum value of 10ms
Example	IOUT1? Return the voltage output of CH1

TRACK<NR1>	
Description	Select operation mode: independent, series or parallel
NR1	Decimal numbers，Range 0 ~ 2
	0: Independent; 1: Series connection; 2: Parallel connection
Response time	Minimum value of 10 ms
Example	TRACK0 Select independent mode

BEEP<Boolean>	
Description	Turn on or off the buzzer
Boolean	Boolean algebra, 0 or 1
Response time	Minimum value of 10 ms
Example	BEEP1 Turn on the buzzer

0UT<Boolean>	
Description	Open or close the output
Boolean	Boolean algebra, 0 or 1
Response time	Minimum value of 10 ms
Example	0UT1 Open output

STATUS?	
Description	Return the working status of the machine
Response time	Minimum value of 10 ms
Content	8-bit according to the following format:

Digit	Content	Description
0	CH1	0=CC mode，1=CVmode
1	CH2	0=CCmode，1=CVmode
23	Tracking	01=independence，11=series，10=parallel
4	Beep	0=OFF，1=ON
5	Output	0=OFF，1=ON
67	Baud	00=115200bps,01=57600bps, 10=9600bps

HELP?	
Description	Browse command list
Response time	Minimum value of 50 ms
Content	
ISET<x>:<NR2>Sets the value of current.	
VSET<x>:<NR2>Sets the value of voltage.	
ISET<x>?Return the value of current.	
VSET<x>?Return the value of voltage	
IOUT<x>?Returns actual output current,	
VOUT<x>?Returns actual output voltage.	
TRACH<NR1>Sets the output of the power supply working on independent or tracking mode.	
BAUD<NR1 >Set the value of baud rate.	
RCL<NR1>Recal1 the setting data from the memory which previous	
SAV<NR1>Saves the setting data to memory.	
BEEP<Boolean>Sets the BEEP state on or off.	
OUT<Boolean>Sets the output state on or off.	
LOCAL Return to local mode	
REMOTE Return to remote mode	
*IDN?Returns instrument identification.	
ERR?Returns instrument error messages.	
STATUS?Returns the power supply state.	

- **Reminder: The response time of the above instructions is measured at the baud rate of 115200 bps.**

appendix

frequently asked questions

1. After pressing the layout lock key, the output can still be opened / closed. Why?
Answer: For safety, the output key is not controlled by the panel lock key operation.

2. Is it wrong to light on the CH3 overload indicator light?
Answer: No, it simply means that the CH 3 output current reaches the maximum current of 3.0A and the operation mode changes from a constant voltage source to a constant current source. You can continue with the power supply and recommend reducing the output load.

3. The specification does not match the real temperature?
Answer: Make sure the machine heat for at least 30 minutes, temperature between + 20 °C and + 30°C.

4. Save settings do not record the output open position, why?
Answer: The output is mostly saved or called as "off" state for security

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	