UNI-T®

UDP3303C

Linear DC Power Supply
User Manual

Preface

Thank you for purchasing the new linear DC power supply. In order to use this product safely and correctly, please read this manual thoroughly, especially the *Safety Information* part.

After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

Limited Warranty and Liability

Uni-Trend guarantees that the product is free from any defect in material and workmanship within 3 years from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. The dealer shall not be entitled to give any other warranty on behalf of Uni-Trend. If you need warranty service within the warranty period, please contact your seller directly.

Uni-Trend will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device.

UDP3303C Linear DC Power Supply Introduction

The UDP3303C DC power supply is a cost-effective program control DC power supply with outstanding performance, reliable output and clear interface. The UDP3303C DC power supply has three independent outputs: two of them are adjustable outputs of 30V/3A, the other one is a fixed selectable output of 1.8V/2.5V/3.3V/5V/3A (fine adjustable). With the constant voltage (CV) and constant current (CC) modes, short circuit and overvoltage protection features, the instrument can perfectly meet various test requirements.

Safety Information

Important safety instructions must be followed for operating and storing the UDP3303C. To ensure your personal safety, read the following instructions carefully before operation to ensure that the UDP3303C is in the best working environment.

WARNINGS

Please use the product properly as safety instructions to avoid injury or product damage.

- Please use the approved power cord appointed to the local country for this product.
- Static electricity will damage the instrument, so please test in the static-free area as far as possible. Before connecting the wire to instrument, the static electricity should be discharged by temporary grounding the internal and external conductors.
- This product is grounded by the protective grounding wire of the power cord. If you cannot determine whether the power cord is connected to the earth, connect the grounded terminal of metal enclosure to the earth through a wire.
- Never input voltage which exceeds the rated range into terminals of this product.
- Do not operate the instrument when the instrument cover is opened.
- Do not insert anything into the air vent, or damage may occur.
- Do not connect the power cord before replacing the fuse or opening the shell to avoid electric shock. Make sure the cover is tightly screwed before using the instrument.
- Only use fuses that meet the model and rating value (T6.3AL, 250V for 110V/120V, T3.15AL, 250V for 220V/230V).
- Never touch exposed joints and components after connecting the power supply.
- Please check the vents and fans regularly to ensure good ventilation is maintained during use. Poor ventilation will cause high temperature, which will lead to instrument damage.
- To avoid damage or injury, please do not use or store the meter in high temperature, high humidity, flammable, and explosive environments.
- To avoid dust or moisture affecting the performance of the instrument, please keep surface clean and dry.
- Do not expose the instrument to sunlight for long period.
- Clean the tester casing with a damp cloth and mild detergent. Do not use abrasives or solvents!
- Do not operate the product if you suspect it is faulty, and please contact UNI-T authorized service personnel for inspection. Only trained personnel can perform the maintenance program.
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Safety Symbol

	On (Power)
	Off (Power)
	Alternating current
	Earth (ground) TERMINAL of Casing
	Earth (ground) TERMINAL
	Caution, possibility of electric shock
	Warning or Caution

General Specification

UDP3303C is only allowed for indoor use.
Operating temperature and humidity: 0°C~30°C (32°F~86°F), ≤75%, 30°C~40°C (86°F~104°F), ≤50%
Storage temperature and humidity: -10~50°C (14°F~122°F), ≤50%
Operating Altitude: ≤2000m
Pollution degree: 2
Input Rating: AC 110V/120V/220V/230V (fluctuations ±10%), 50/60Hz, 420Wmax
Level of OVERVOLTAGE: CATEGORY ll

AC Input

AC input voltage: 110V/120V/220V/230V (fluctuations ±10%), 50/60Hz

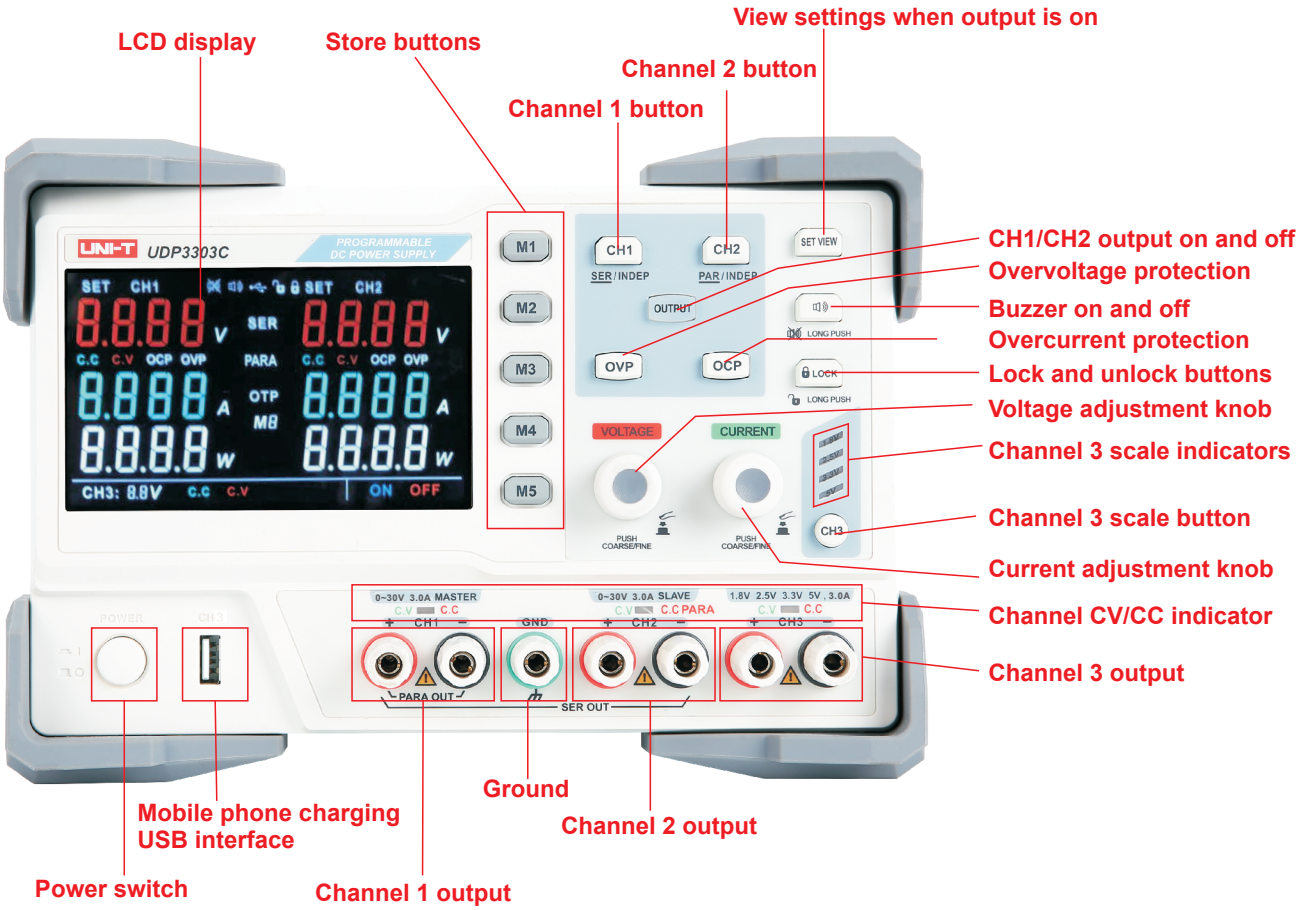
Users can select different input power supply as need through the AC SELECTOR on the rear panel, please disconnect the power before switching the input voltage.

The plug is used as the disconnecting device of the product. The plug of the product should be inserted into the socket easily accessible to the user.

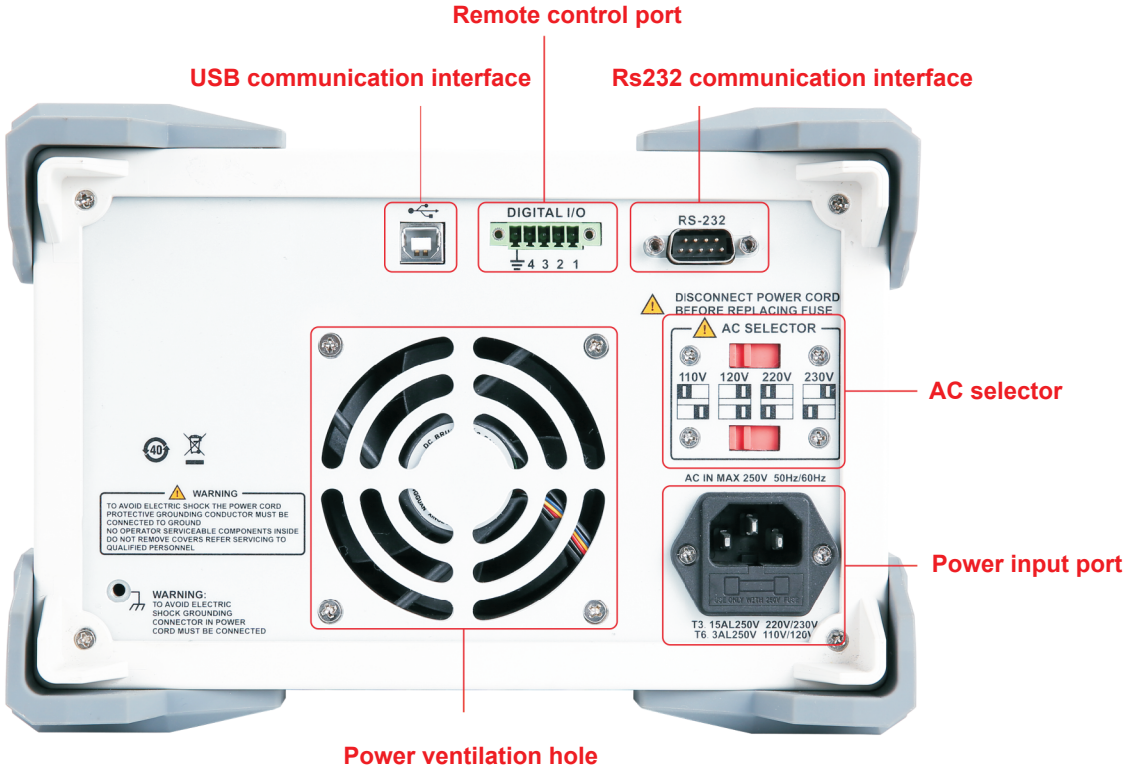
UDP3303C Main Features

- 4-digit voltage and current high precision display
- Overvoltage and overcurrent protection
- Output voltage/current settings viewable
- Remote control (output ON/OFF)
- USB-Device communication interface (can be used in software upgrade and upper computer control power output)
- RS232 interface
- 5 sets of setup storage: M1-M5
- Shutdown memory
- Buttons lock
- Intelligent temperature-controlled fan
- USB phone charging interface

Front Panel



Rear panel



Main Index Parameters

Test conditions: Turn on the device for 30 minutes at temperature +20°C~+30°C.

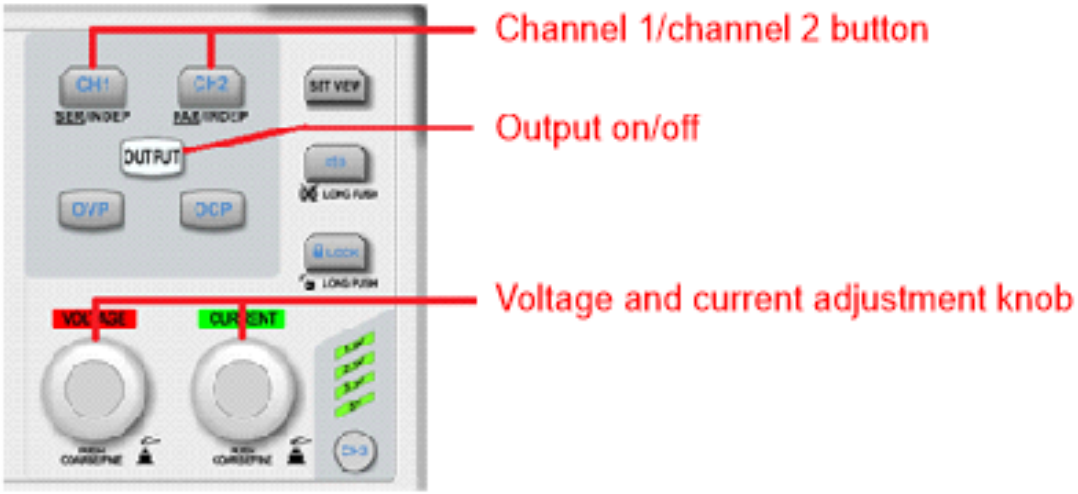
CH1/CH2	
Output Voltage	0-30V
Output Current	0-3A
Line Regulation	
Constant Voltage	≤ 0.01%+3mV
Constant Current	≤ 0.2%+3mA
Load Regulation	
Constant Voltage	≤ 0.01%+3mV (rated current ≤ 3A)
	≤ 0.02%+5mV (rated current > 3A)
Constant Current	≤ 0.2%+3mA
Resolution	
Voltage	10mV
Current	1mA
Programming Accuracy (25°C ± 5°C)	
Voltage	≤ 0.1%+30mV
Current	≤ 0.5%+2mA
Read Back Accuracy (25°C ± 5°C)	
Voltage	≤ 0.1%+30mV
Current	≤ 0.5%+2mA
Ripple and Noise (5Hz-1MHz)	
Voltage	≤ 1mVrms
Current	≤ 3mArms
Temperature Coefficient	
Voltage	≤ 300ppm
Current	≤ 300ppm
Parallel Mode	
Line Regulation	≤ 0.01%+3mV
Load Regulation	≤ 0.01%+3mV (rated current ≤ 3A)
	≤ 0.02%+5mV (rated current > 3A)
Series Mode	
Line Regulation	≤ 0.01%+5mV
Load Regulation	≤ 300mV
Error	≤ 0.5%±10mV (10~30V no-load) (access load ≤ 300mV)
	≤ 0.5%±30mV (0~9.99V no-load) (access load ≤ 300mV)
CH3	
Output Voltage	1.8V/2.5V/3.3V/5.0V ±3% (fine adjustable)
Output Current	3A
Line Regulation (25±5℃)	≤ 5mV
Load Regulation (25±5℃)	≤15mV
Ripple and Noise (5Hz-1MHz)	≤ 2mVrms
USB (CH4)	
Output Voltage	5V±0.25V
Output Current	2A

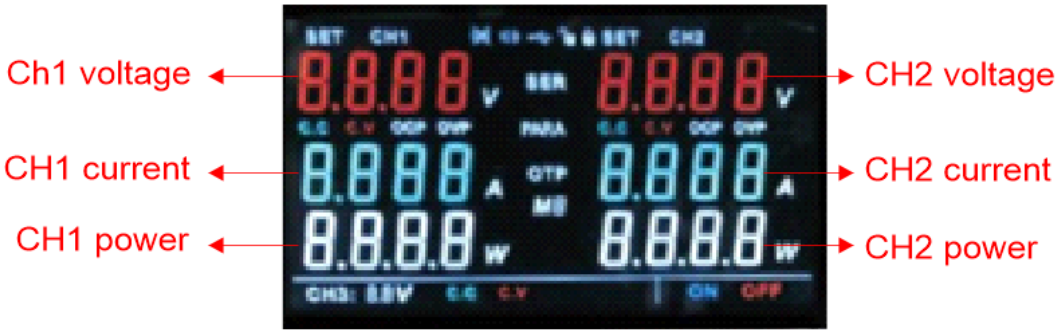
Function Introduction

1. Voltage / Current Setting and Output

- Voltage setting: Press CH1 button, the cursor will flash on the CH1 voltage position, press the voltage knob to move the cursor and rotate the knob to adjust the voltage value;
- Current setting: Press CH1 again, the cursor will flash on the CH1 current position, press the current knob to move the cursor and rotate the knob to adjust the current value.
- Press CH2 to set the CH2 voltage and current values with the same method above.
- Press the OUTPUT button to enable CH1, CH2 and CH3 outputs after voltage and current setting.
- With the shutdown memory function, the last set value can be automatically restored when the device is started next time.

The operation and display interfaces are as follows:



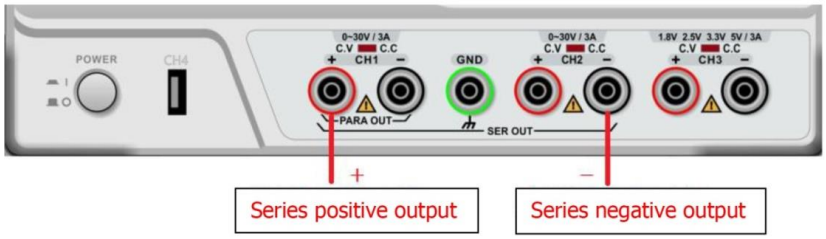


2. Series and Parallel Settings

2.1 Series Settings:

- Press CH1 button for 3 seconds to enter series mode, the “SER” symbol will be on. CH1+ is the main positive output of series and CH2- is the slave negative output. The series voltage and current settings can only be adjusted in CH1, and the CH2 settings will follow that of CH1.
- The series voltage total set value is twice of CH1, and the current total value equals to CH1.
- To exit the series mode, long press the CH1 button for 3s, the “SER” symbol will disappear.
- With the shutdown memory function, the last voltage/current settings and the series mode will be restored when the device is restarted.

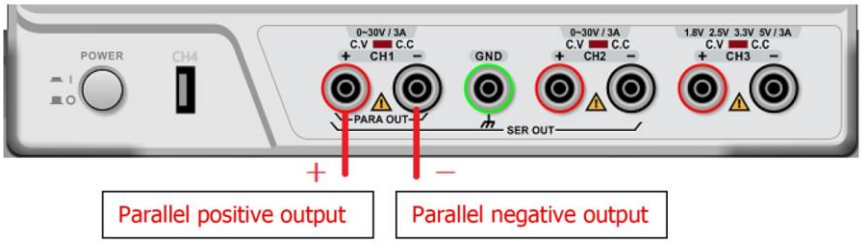
The series output connection is as follows:



2.2 Parallel Settings:

- Press CH2 button for 3s to enter parallel mode, the “PARA” symbol will be on. CH1+ is the main positive output of parallel and CH1- is the slave negative output. The parallel voltage and current settings can only be adjusted in CH1, and the CH2 settings will follow that of CH1.
- The parallel voltage total value equals to the CH1 voltage, and the current total value is twice of CH1.
- To exit the parallel mode, long press CH2 button for 3s, the “PARA” symbol will disappear.
- With the shutdown memory function, the last voltage/current settings and the parallel mode will be restored when the device is restarted.

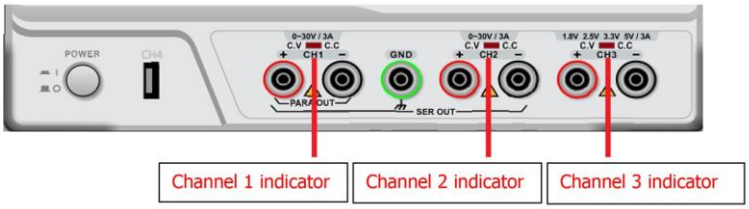
The parallel output connection is as follows:



3. Constant Voltage / Constant Current

In constant voltage mode, the output current is lower than set value, the channel indicator will be green (CV), and the voltage keeps as set value. If the output current reaches the set value, the device will switch to the constant current mode. In constant current mode, the channel indicator will be red (CC). The output current is equal to set value and the voltage is lower than set value. If the output current is lower than the set value, device will switch to the constant voltage mode.

The channel indicators are shown below:



4. OVP (overvoltage protection), OCP (overcurrent protection) Setting and Enabling

- Long press OVP button (>3s) to enter OVP threshold setting, press CH1 or CH2 to select the channel, then rotate the voltage knob to set the OVP limit, long press OVP button again to exit the OVP setting.
  Short press OVP button (backlight on) to enable the overvoltage protection, if the output voltage exceeds the OVP set limit, the output will be shut off, and the OVP symbol will disappear later. Short press OVP button again (backlight off) to disable overvoltage protection.
- Long press OCP button (>3s) to enter OCP threshold setting, press CH1 or CH2 to select the channel, then rotate the current knob to set the OCP limit, long press OCP button again to exit the OCP setting.
  Short press OCP button (backlight on) to enable the overcurrent protection, if the output current exceeds the OCP set upper limit, the output will be shut off, and the OCP symbol will disappear later. Short press OCP button again (backlight off) to disable overcurrent protection.

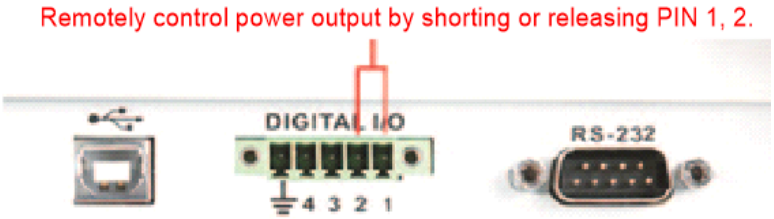
5. Remote Control DIGITAL I/O Interface

To remotely control the output and shutoff of CH1/CH2, you can short-circuit or disconnect the pin 1 and 2 of the DIGITAL I/O terminal by a short-circuit wire or an external relay. The specific operations are as follows:

When the pin 1 and 2 of the DIGITAL I/O terminal are short-circuited, the OUTPUT button on the front panel is disabled, the power output is forcibly turned on, and the ON symbol appears on the LCD.

When the short circuit is released, the OUTPUT button function is restored, and the power output is turned off, the OFF symbol appears on the LCD.

The DIGITAL I/O port is shown in the following figure:

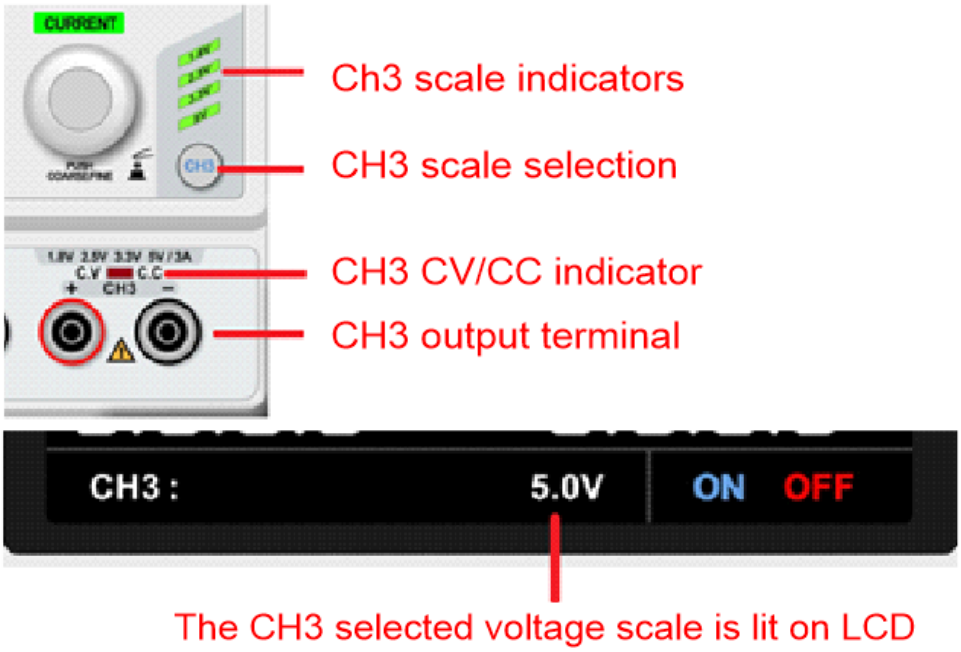


6. CH3 Output

The CH3 has 4 sets of fixed outputs which are 1.8V/2.5V/3.3V/5.0V/3A, which can be fine adjusted by OUTPUT button. By pressing the CH3 button, the output voltage can be switched between 1.8V/2.5V/3.3V/5.0V and the corresponding indicator will be on. Double press the CH3 button, the cursor will flash on CH3 voltage and can be fine adjusted.

The shutdown has a memory function. The last set value will be restored when the device is started up next time.

The CH3 operation and display interfaces are as follows:



7. M1-M5 Store/Recall Functions Introduction

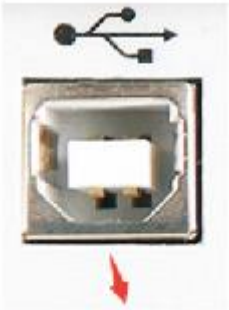
After output parameters are set, long press one of the M1-M5 buttons (>3s) to save the setting.

Short press one of the M1-M5 buttons to recall the stored data with the button's backlight on.

8. USB Interfaces

The USB_Host interface on the front panel is not for communication but for an independent CH4 channel, which comes with fixed output of 5V/2A, can be used to charge the mobile phone and so on.

The USB_Device interface on the rear panel comes with communication function for software programing and upgrade, and output control of power supply by upper computer.



9. OTP (over-temperature protection) Overview

Inside the power supply, there are two thermistors placed on the heat sink which has the maximum heat.

Once the power supply fails and the temperature of the heat sink reaches about 100℃, the over-temperature protection is triggered, and the output will be turned off with the “OTP” symbol flashing on the LCD screen and periodical beeps.

The “OTP” symbol disappears when any key is pressed.

10. SET VIEW Introduction

When the power output is on, the voltage and current displayed on the LCD are the real-time sampling output values.
Press SET VIEW button (backlight on) to view the voltage and current set values.
Press SET VIEW button again (backlight off), the LCD redisplays the real-time sampling output voltage and current.

11. Buzzer On and Off

Press the BEEP button (backlight on), the buzzer will be on; long press the BEEP button for 3s, the buzzer will be off.
With the shutdown memory function, the last saved settings can be restored when the device is started up next time.
When the buzzer is enabled, it beeps for example:

- Power on/off
- CH1/CH2 setting switching
- Independent - series - parallel switching
- Output on/off
- OVP/OCP setup and on/off
- Pressing the voltage/current knob
- SET VIEW (setting/output) display switching
- LOCK/UNLOCK operation
- Panel lock/unlock
- CH3 output selection

12. Buttons Lock

Short press the LOCK button, the button backlight is on and the buttons on panel are locked.
Long press the LOCK button (>3s), the button light is off and the buttons on panel are unlocked.

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