ODP8000 Series Programmable DC Power Supply User Manual

■ ODP8353

■ ODP8354

For product support, visit:www.owon.com.hk/download

※:The illustrations, interface, icons and characters in the user manual may be slightly different from the actual product. Please refer to the actual product.

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Fujian LILLIPUT Optoelectronics Technology Co., Ltd.
No. 19, Heming Road
Lantian Industrial Zone, Zhangzhou 363005 P.R. China

Tel: +86-596-2130430 **Fax:** +86-596-2109272

Web: www.owon.com **E-mail:** info@owon.com.cn

General Warranty

We warrant that the product will be free from defects in materials and workmanship for a period of 2 years from the date of purchase of the product by the original purchaser from our company. The warranty period for accessories is 12 months. This warranty only applies to the original purchaser and is not transferable to a third party.

If the product proves defective during the warranty period, we will either repair the defective product without charge for parts and labour, or will provide a replacement in exchange for the defective product. Parts, modules and replacement products used by our company for warranty work may be new or reconditioned like new. All replaced parts, modules and products become the property of our company.

To obtain service under this warranty, the customer must notify our company of the defect before the expiration of the warranty period. Customer shall be responsible for packaging and shipping the defective product to our designated service centre, a copy of the customer's proof of purchase is also required.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. We shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than our company representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of not our supplies; or d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

Please contact the nearest sales and service offices for services.

Excepting the after-sales services provided in this summary or the applicable warranty statements, we will not offer any guarantee for maintenance definitely declared or hinted, including but not limited to the implied guarantee for marketability and special-purpose acceptability. We should not take any responsibilities for any indirect, special or consequent damages.

Table of Contents

1. General Safety Requirements

Before use, please read the following safety precautions to avoid any possible bodily injury and to prevent this product or any other connected products from damage. To avoid any contingent danger, ensure this product is only used within the ranges specified.

Only a qualified person should perform internal maintenance.

To avoid Fire or Personal Injury:

- **Use Proper Power Cord.** Use only the power cord supplied with the product and certified to use in your country.
- **Product Grounded.** This instrument is grounded through the power cord grounding conductor. To avoid electric shock, the grounding conductor must be grounded. The product must be grounded properly before any connection with its input or output terminals.
- **Check all Terminal Ratings.** To avoid fire or shock hazard, check all ratings and markings on this product. Refer to the user manual for more information about ratings before connecting to the instrument.
- **Do not operate without covers**. Do not operate the instrument with covers or panels removed.
- **Use the Proper Fuse.** Use only the specified type and rating fuse for this instrument.
- **Avoid exposed circuit**. Be careful when working on exposed circuitry to avoid risk of electric shock or other injury.
- **Do not operate if any damage.** If you suspect damage to the instrument, have it inspected by qualified service personnel before further use.
- **Use your instrument in a well-ventilated area.** Please keep well ventilated and inspect the intake and fan regularly.
- **Do not operate in damp conditions.** To avoid short circuiting to the interior of the device or electric shock, please do not operate in a humid environment.
- **Do not operate in an explosive atmosphere.** To avoid damages to the device or personal injuries, it is important to operate the device away from an explosive atmosphere.
- **Keep product surfaces clean and dry.** To avoid the influence of dust or moisture in air, please keep the surface of device clean and dry.

2. Safety Terms and Symbols

Safety Terms

Terms in this manual (The following terms may appear in this manual):

Warning: Warning indicates conditions or practices that could result in injury or loss of life.

Caution: Caution indicates the conditions or practices that could result in damage to this product or other property.

Terms on the product. The following terms may appear on this product:

Danger: Indicates an immediate hazard or injury possibility.

Warning: Indicates a possible hazard or injury.

Caution: Indicates potential damage to the instrument or other property.

Safety Symbols

Symbols on the product. The following symbols may appear on the product:

Hazardous Voltage

Refer to Manual

Protective Earth Terminal

Chassis Ground

Public Ground

3. Quick Start

3.1 Front/Rear Panel and User Interface

This manual uses the four-channel example for illustration. For the three-channel version, please refer to the four-channel instructions.

3.1.1 Front Panel

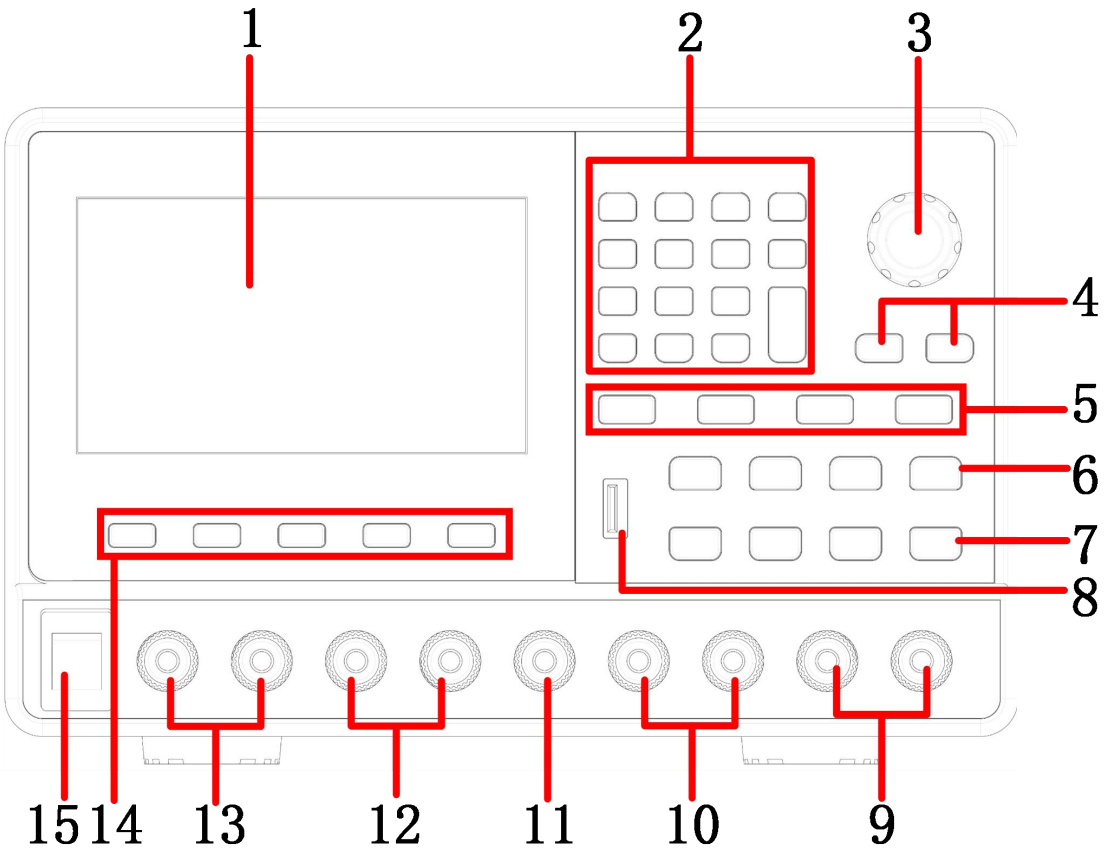


Figure 3- 1 Front panel overview

①	**LCD**	User interface display.
②	**Numeric keys area**	Parameter input, includes the numeric keys, decimal point and backspace key. **Up and down direction key:** Select sub menu. **Enter key:** Enter menu or confirm the parameter entered.

③	**Knob**	Select menu or change the value, pressing it has the same effect as pressing the enter key.
④	**Left and right direction key**	Set sub menu or move the cursor.
⑤	**Function keys**	**Utility** key: Menu of output mode, utility, info, port settings. **Record** key: Manual record, auto record, view setting and view recording. **Program** key: Programmable output. **All On/Off** key: Short press this key to enable/disable all channels output. Press and hold this key for 5 seconds to lock the panel keys. Unlock method: Press and hold the key for more than 5 seconds, and release.
⑥	**Channel button**	CH1, CH2, CH3, CH4 channel button, press it to select this channel.
⑦	**On/Off button**	Press the On/Off button of the corresponding channel to turn the channel output on or off.
⑧	**USB Host port**	Connect as a "host device" with an external USB device, such as connect a USB disk to the instrument.
⑨	**CH4 output terminals**	Channel 4 output connectors.
⑩	**CH2 output terminals**	Channel 2 output connectors.
⑪	**Ground terminal**	Channel ground connector.
⑫	**CH1 output terminals**	Channel 1 output connectors.

⑬	**CH3 output terminals**	Channel 3 output connectors.
⑭	**Menu selection button**	Include 4 buttons, press it to select corresponding menu.
⑮	**Power button**	Turn on/off the instrument

Instructions for panel key indicator

ON/OFF key: Press the button, and the channel light and the button light will turn on.

3.1.2 Rear Panel

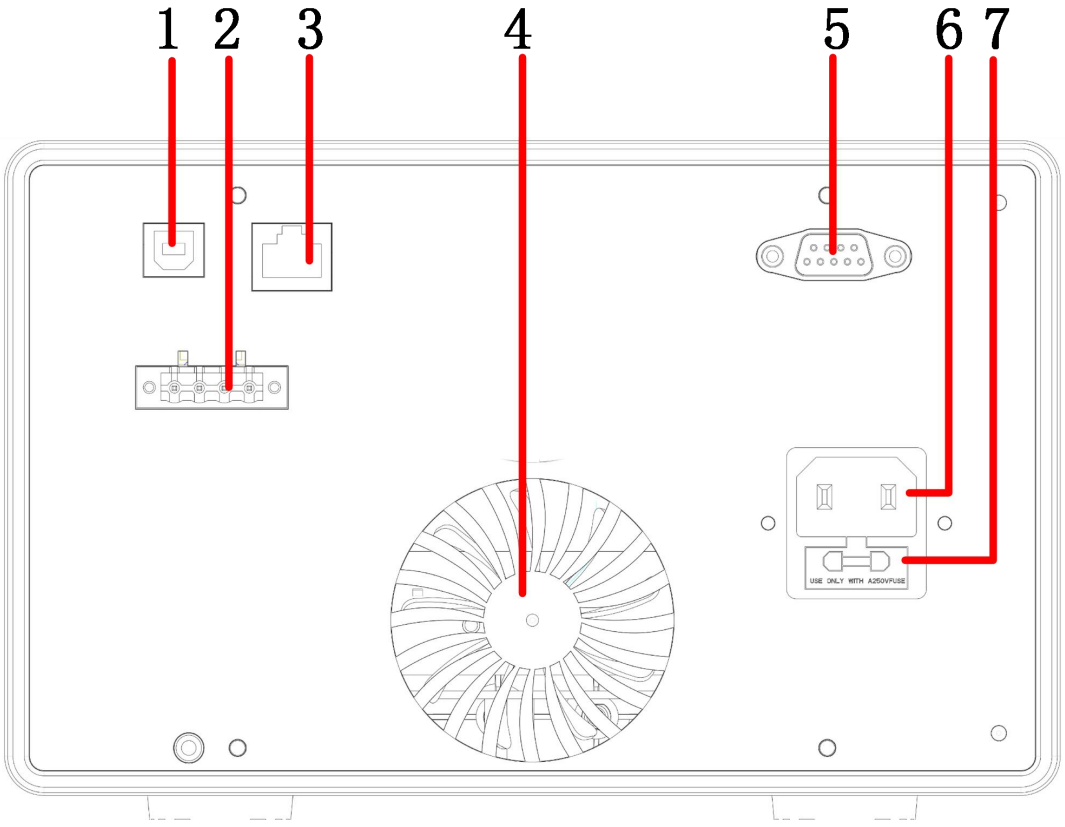


Figure 3- 2 Rear panel overview

①	**USB Device Connector**	Connect as a "slave device" with an external USB device, such as connect the instrument to a PC.
②	**S2+/S2-/S1+/S1-**	Remote compensation voltage for Channel 1 and

	interface	Channel 2.
③	**LAN interface**	The power supply can be connected to the network for remote control via this connector.
④	**Fan**	Fan inlet.
⑤	**RS232 interface**	Serial port for connecting the instrument to external devices.
⑥	**Power socket**	AC input connector.
⑦	**Fuse**	Power supply fuse.

3.1.3 User Interface

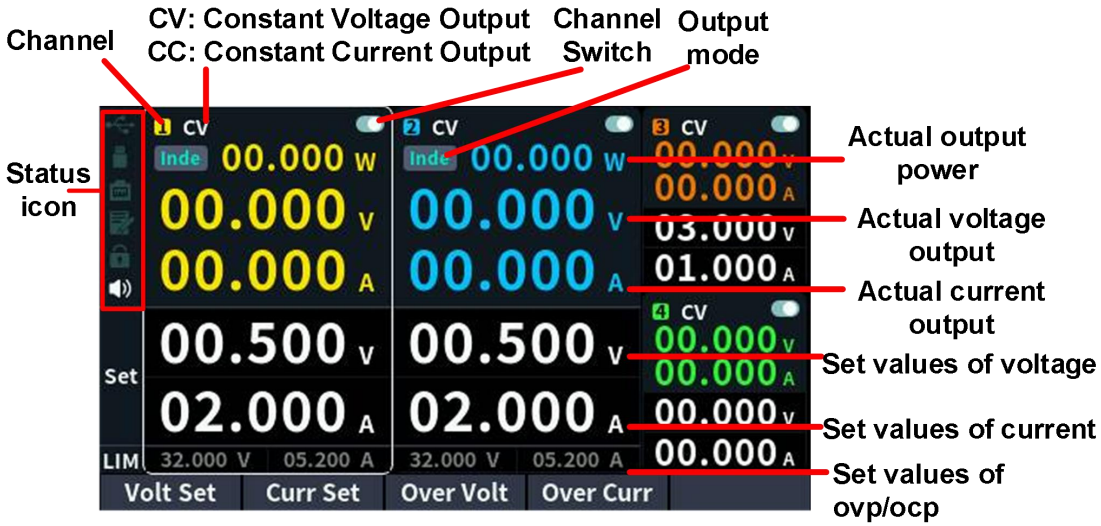


Figure 3- 3 User interface in All channel mode

Status Icons

Icons	Instruction
	USB Communication Port Priority
	USB Device Priority
	Recording the current output
	The panel keys are locked

	The beeper is turned on

3.2 General Inspection

When you receive your new power supply, it is recommended that you check the instrument following these steps:

1. **Check for transportation damage.**

   If it is found that the packaging carton or the foamed plastic protection cushion has suffered serious damage, do not throw it away first till the complete device and its accessories succeed in the electrical and mechanical property tests.

2. **Check the Accessories**

   The supplied accessories are described in the "Appendix A: " of this Manual. You can check whether there is any loss of accessories with reference to this description. If it is found that there is any accessory lost or damaged, please get in touch with the distributor of our responsible for this service or our local offices.

3. **Check the Complete Instrument**

   If it is found that there is damage to the appearance of the instrument, or the instrument can not work normally, or fails in the performance test, please get in touch with our distributor responsible for this business or our local offices. If there is damage to the instrument caused by the transportation, please keep the package. With the transportation department or our distributor responsible for this business informed about it, a repairing or replacement of the instrument will be arranged by us.

3.3 Power-On Check

(1) Connect the instrument to the AC supply using the supplied power cord.

 **Warning:**

To avoid electric shock, the instrument must be grounded properly.

(2) Push the **power button** on the front panel, the screen will show the startup screen.

3.4 Output Inspection

Output inspection is to ensure that the instrument can achieve its rated outputs and properly respond to operation from the front panel. For the procedures below, it is suggested that you read "*Turn On/Off the Channel Output*" on page 10 and "*Set the Output Voltage/Current*" on page 10.

3.4.1 Voltage Output Inspection

The following steps verify basic voltage functions without load:

(1) When the instrument is under no load, select a channel and ensure the output current setting for this channel is not at zero.

(2) Turn on the channel output, then ensure the channel is in Constant Voltage output mode.

(3) Set some different voltage values on this channel; check if the actual voltage value displayed is close to the set voltage value, and also that the actual current value displayed is nearly to zero.

(4) Check that if the output voltage can be adjusted from zero to the maximum rating.

3.4.2 Current Output Inspection

The following steps check basic current functions with a short across the power supply's output:

(1) Connect a short across (+) and (-) output terminals with an insulated test lead on this channel. Use a wire size sufficient to handle the maximum current.

(2) Set the output voltage to the maximum rating on this channel.

(3) Turn on the channel output. Ensure the channel you used is in Constant Current output mode.

(4) Set some different current values on this channel; check if the actual current value displayed is close to the set current value, and to check if the actual voltage value displayed is nearly zero.

(5) Check that if the output current can be adjusted from zero to the maximum

rating.

(6) Turn off the channel output and remove the short circuit from the output terminals.

4. Front Panel Operation

4.1 Turn On/Off the Channel Output

Yellow **On/Off** button: Pressing the **On/Off** button will turn on the output of Channel 1, and the button light will turn on. Pressing the button again will turn off the output of Channel 1, and the button light will turn off.

Blue **On/Off** button: Pressing the **On/Off** button will turn on the output of Channel 2, and the button light will turn on. Pressing the button again will turn off the output of Channel 2, and the button light will turn off.

Orange **On/Off** button: Pressing the **On/Off** button will turn on the output of Channel 3, and the button light will turn on. Pressing the button again will turn off the output of Channel 3, and the button light will turn off.

Green **On/Off** button: Pressing the **On/Off** button will turn on the output of Channel 4, and the button light will turn on. Pressing the button again will turn off the output of Channel 4, and the button light will turn off.

4.2 Set the Output Voltage/Current

4.2.1 Set the Output Voltage

- **Set the output voltage of CH1**

  Press the **CH1** button to select Channel 1, then press the **Volt Set** key, CH1 set voltage is flashing, indicating the value is editable. The following methods can be used to set the value:

  - Turn the **knob** to change the value. Press the < / > key to move the cursor. Press the ↵ key to confirm.
  - Use the **numeric keys** to input, the input box of **Channel 1** output voltage will pop up. Enter a desired value. Press the ↵ key to confirm.

- **Set the output voltage of CH2**

  Press the **CH2** button to select Channel 2, then press the **Volt Set** key to enter edit mode. You can set the value in the same way as CH1 above.

- **Set the output voltage of CH3**

Press the **CH3** button to select Channel 3, then press the **Volt Set** key to enter edit mode. You can set the value in the same way as CH1 above.

- **Set the output voltage of CH4**

  Press the **CH4** button to select Channel 4, then press the **Volt Set** key to enter edit mode. You can set the value in the same way as CH1 above.

4.2.2 Set the Output Current

- **Set the output current of CH1**

  Press the **CH1** button to select Channel 1, then press the **Curr Set** key, CH1 set current is flashing, indicating the value is editable. The following methods can be used to set the value:

  - Turn the **knob** to change the value. Press the < / > key to move the cursor. Press the ↵ key to confirm.
  - Use the **numeric keys** to input, the input box of **Channel 1** output current will pop up. Enter a desired value. Press the ↵ key to confirm.

- **Set the output current of CH2**

  Press the **CH2** button to select Channel 2, then press the **Curr Set** key to enter edit mode. You can set the value in the same way as CH1 above.

- **Set the output current of CH3**

  Press the **CH3** button to select Channel 3, then press the **Curr Set** key to enter edit mode. You can set the value in the same way as CH1 above.

- **Set the output current of CH4**

  Press the **CH4** button to select Channel 4, then press the **Curr Set** key to enter edit mode. You can set the value in the same way as CH1 above.

Note: If the input value is out of the rated range, the box prompts "Over The Limit!"; you need to input another value within the rated range.

4.3 Over Voltage/Current Protection

When the Over Voltage Protection or Over Current Protection is enabled, once the output voltage/current reaches the set value, the instrument will cut off the output,

a warning will show on the screen.

Note:

When the instrument disables the output due to protection, after you make some adjustments, the channel must be restarted to output normally.

This function can keep the power output from exceeding the load rating to protect the load.

4.3.1 Set OVP

- **Set the OVP of CH1**

  Press the **CH1** button to select Channel 1, then press the **Over Volt** key, CH1 set OVP is flashing, indicating the value is editable. The following methods can be used to set the value:

  - Turn the **knob** to change the value. Press the < / > key to move the cursor. Press the ↵ key to confirm.
  - Use the **numeric keys** to input, the input box of **Channel 1** output OVP will pop up. Enter a desired value. Press the ↵ key to confirm.

- **Set the OVP of CH2**

  Press the **CH2** button to select Channel 2, then press the **Over Volt** key to enter edit mode. You can set the value in the same way as CH1 above.

- **Set the OVP of CH3**

  Press the **CH3** button to select Channel 3, then press the **Over Volt** key to enter edit mode. You can set the value in the same way as CH1 above.

- **Set the OVP of CH4**

  Press the **CH4** button to select Channel 4, then press the **Over Volt** key to enter edit mode. You can set the value in the same way as CH1 above.

4.3.2 Set OCP

- **Set the OCP of CH1**

  Press the **CH1** button to select Channel 1, then press the **Over Curr** key, CH1

set OCP is flashing, indicating the value is editable. The following methods can be used to set the value:

- Turn the **knob** to change the value. Press the < / > key to move the cursor. Press the ↵ key to confirm.
- Use the **numeric keys** to input, the input box of **Channel 1** output OCP will pop up. Enter a desired value. Press the ↵ key to confirm.

- **Set the OCP of CH2**

  Press the **CH2** button to select Channel 2, then press the **Over Curr** key to enter edit mode. You can set the value in the same way as CH1 above.

- **Set the OCP of CH3**

  Press the **CH3** button to select Channel 3, then press the **Over Curr** key to enter edit mode. You can set the value in the same way as CH1 above.

- **Set the OCP of CH4**

  Press the **CH4** button to select Channel 4, then press the **Over Curr** key to enter edit mode. You can set the value in the same way as CH1 above.

4.4 Save Settings/Auto Record

4.4.1 Manual Record

Press the **Record** key. Then press **Manual** to enter manual record menu.You can save, recall and delete current setting parameters. The storage memory could be set as internal or USB flash device. Up to 100 groups of settings can be saved.

(1) Press ▲ / ▼ to select **Save**，then Press the < / > key to the channel (CH1, CH2), press the ↵ key to save the setting of the selected channel.

(2) Press ▲ / ▼ to select **Delete**, then rotary the knob to select the item which you desired to delete. Press the < / > key to turn the page. Press the ↵ key to delete.

(3) Press ▲ / ▼ to select **Recall** , then rotary the knob to select the item. Press the < / > key to turn the page. Press the ↵ key to recall.

4.4.2 Auto Record

Press the **Record** key. Then press **Auto** to enter automatic record menu.

(1) Press ▲ / ▼ to select **Interval**. Use the **numeric keys** to set the record interval, press the ↵ key to confirm.

(2) Press ▲ / ▼ to select **Points**. Use the **numeric keys** to set the points, press the ↵ key to confirm.

(3) Press ▲ / ▼ to select **Channel**. Press the < / > key to the channel (CH1, CH2), press the ↵ key to save the setting of the selected channel.

(4) Press ▲ / ▼ to select **Record**. Press the ↵ key to start recording the output of the selected channel. Press the ↵ key again to stop recording. During recording, the icon  will be lighted on the status bar.

4.4.3 View Setting

Press the **Record** key. Then press **View Set** to enter view setting menu. Only records in the internal storage source can be viewed; records from the internal storage source can be exported to an external storage source.

(1) Press ▲ / ▼ to select **Channel**. Press the < / > key to the channel (CH1, CH2), press the ↵ key to save the setting of the selected channel.

(2) Press ▲ / ▼ to select **Display**. Press the < / > key to select **Sheet** or **Wave**.

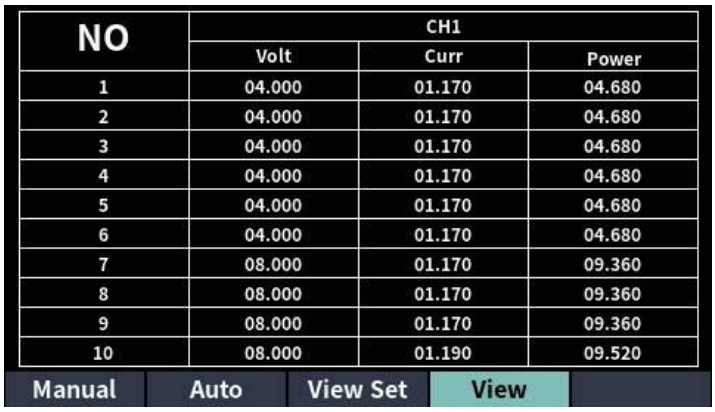
(3) Press ▲ / ▼ to select **Export**. Then insert U disk, press the ↵ key to export the recording file of the selected channel onto the U disk. The directory is **ODPXXXX\Record** (ODPXXXX is the model).

(4) Press ▲ / ▼ to select **Clear**. Press the ↵ key to clear the recording file.

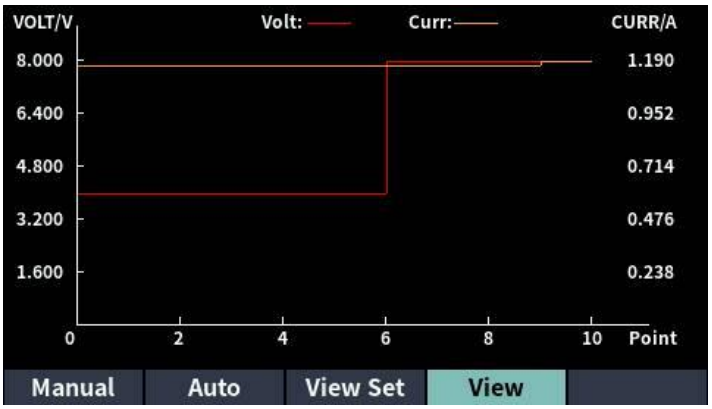
4.4.4 View Record

Press the **Record** key. Then press **View** to enter view record menu. Press the < / > key to turn the page.

If the display mode is set to Sheet, the records will be displayed in table format; if the display mode is set to Wave, the records will be displayed in waveform format.



Sheet display mode



Wave display mode

4.5 Programmable Output

The programmable output function can preset up to 100 groups of timing parameters. When you turn on the programmable output, the instrument will output the pre-specified voltage, current in pre-specified time.

4.5.1 Data View

Press the **Program** key. Then press **Data** to enter data view menu.

(1) Press ▲ / ▼ to select **Import**. Insert U disk and press the ↵ key to import data.

Note: The exported file can be edited using Excel. After editing, remove "xx_xx_xx_Export" from the file name. The import file format should be

Program_XXXXXXXX.csv, where XXXXXXXX represents the serial number. The file must be placed in the Program subfolder to be recognized.

(2) Press ▲ / ▼ to select **Export** . Insert U disk and press the ↵ key to export data.

Note: The programming data file will be saved in CSV format to the USB drive, with the storage path under the Program subfolder in the USB storage device folder named XXXXXXXX_xx_xx_xx_Export (model name).

(3) Press ▲ / ▼ to select **Clear**. Press the ↵ key to clear data.

4.5.2 Output Set

The output settings allow you to define the start point, end point, and output method for programmed output. During programmed output, the system will follow the settings to sequentially or cyclically output the preset parameters between the start point and the end point.

Press the **Program** key. Then press **Output** to enter output setting menu.

(1) Press ▲ / ▼ to select **Cycle**. Press the < / > key to select **Oder** or **Loop**.

(2) Press ▲ / ▼ to select **Range**. Press the < / > key to select **Begin** or **End**. Use the **numeric keys** to input (1 to 100), press the ↵ key to confirm.

(3) Press ▲ / ▼ to select **Channel**. Press the < / > key to the channel (CH1, CH2 or All), press the ↵ key to save the setting of the selected channel.

(4) Press ▲ / ▼ to select **Output**. Press the ↵ key to confirm output. Press the ← key to return to the submenu selection.

4.5.3 Data process

You can set the programmable parameters of CH1 and CH2, including voltage, current and output time. This function allows up to 100 parameter groups of each channel.

Press the **Program** key. Then press **Edit** to enter data edit menu.

(1) In the data processing interface, Press the < / > key to turn the page. Press the ▲ / ▼ key to move the cursor up and down. Turn the knob to move the cursor between CH1 and CH2. Use the After selecting the parameter, use the numeric keys to enter a desired value, press the ↵ key to confirm.

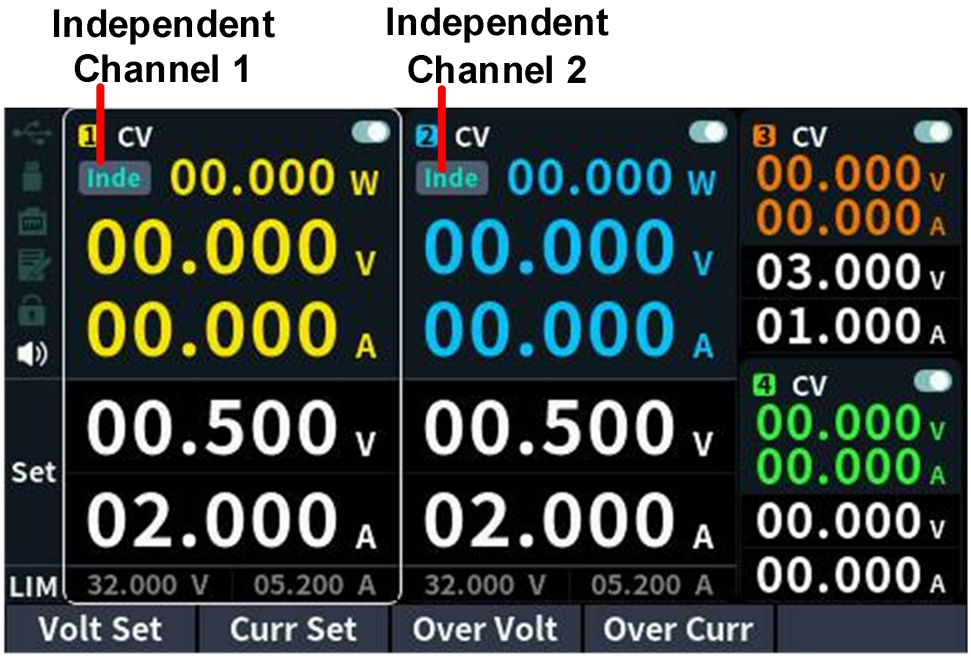
Figure 4- 1 Data processing Interface

4.6 Output mode

Output mode can simplify the parameter inputting of CH1 and CH2. Output mode setting is only for CH1 and CH2, without affecting CH3. There are four output modes:

- **Independent Output**

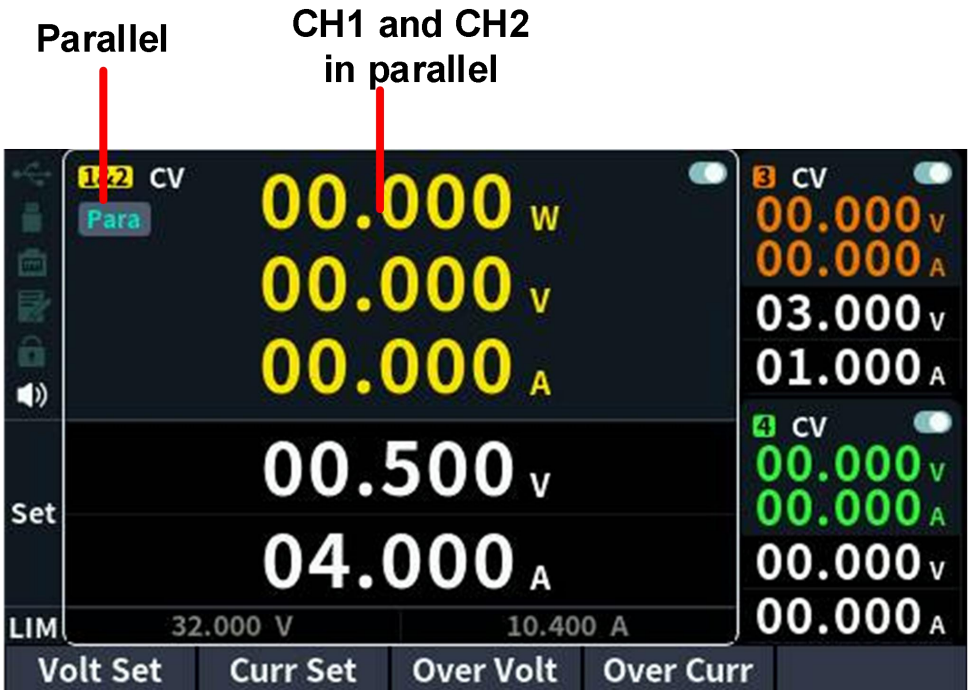
  The parameter of each channel can be set independently.



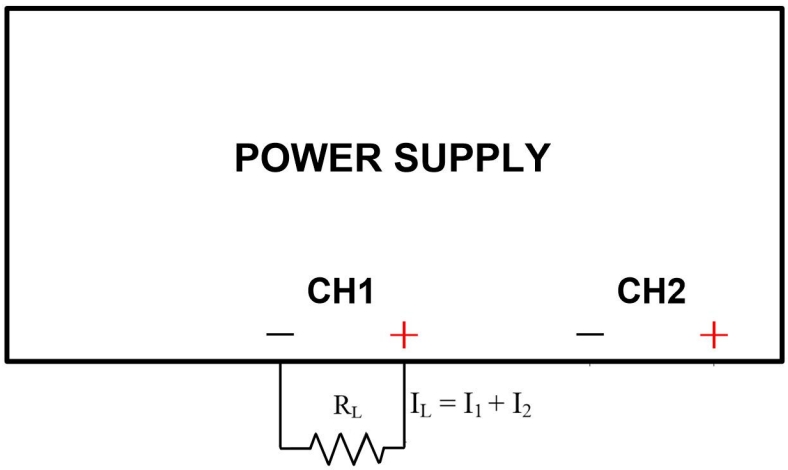
- **Parallel mode**

When CH1 and CH2 are connected in parallel, you can select this mode to simplify the parameter inputting. You just need to set the parameters of the combined channel. The voltage rating is same as the single channel; the current rating is the sum of CH1 and CH2 current rating.

Press the **yellow/blue** **On/Off** key to turn on/off the combined channel.



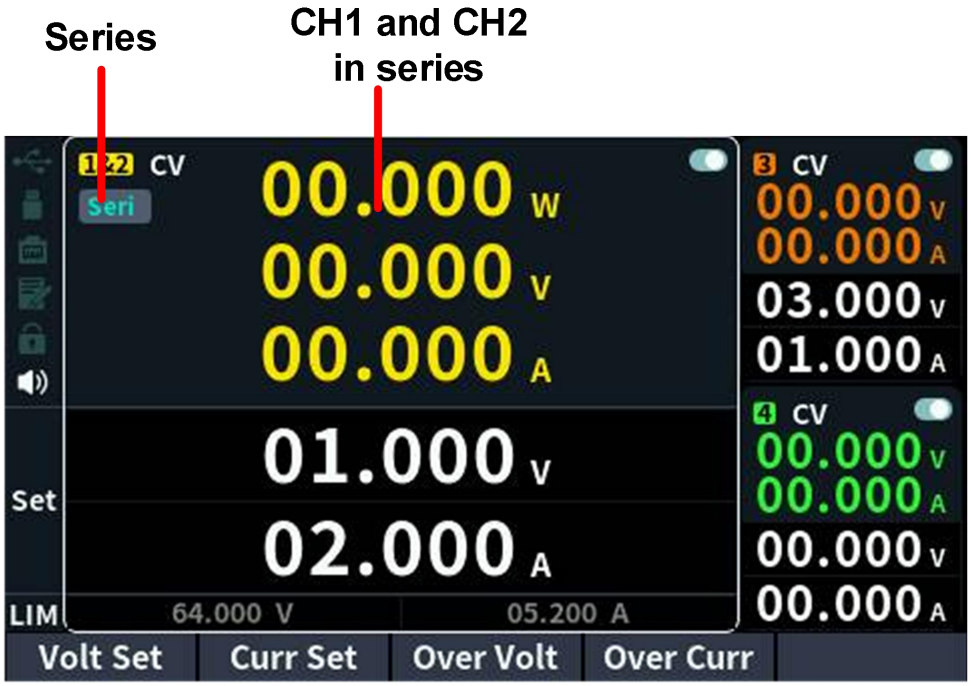
The connection method of the parallel connection of CH1 and CH2 is as shown in the figure below.



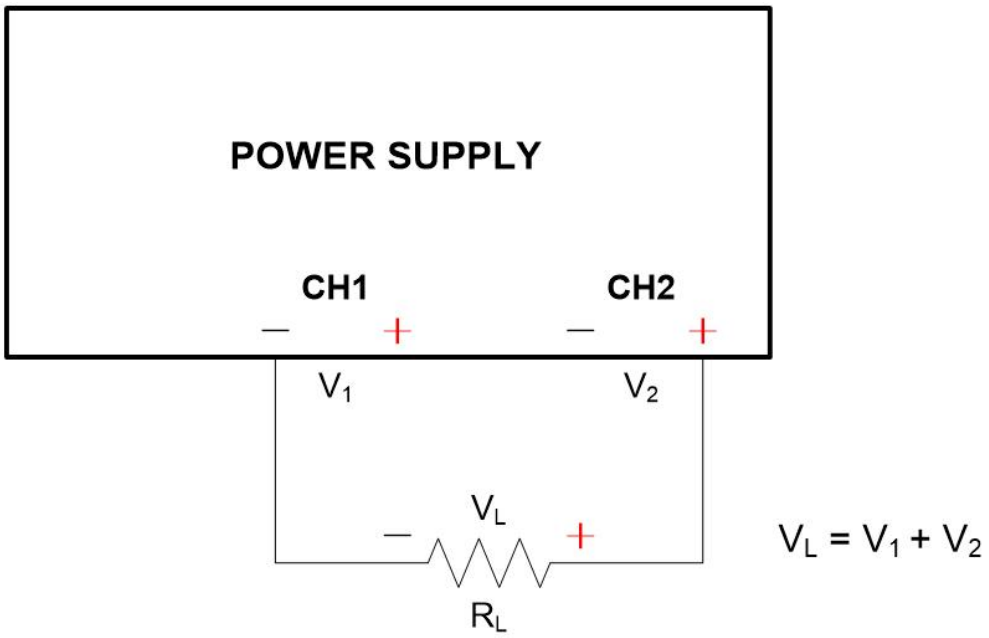
- **Series mode**

When CH1 and CH2 are connected in series, you can select this mode to simplify the parameter inputting. You just need to set the parameters of the combined channel. The voltage rating is the sum of CH1 and CH2 voltage rating; the current rating is same as the single channel.

Press the **orange** **On/Off** key to turn on/off the combined channel.



The connection method of the series connection of CH1 and CH2 is as shown in the figure below.

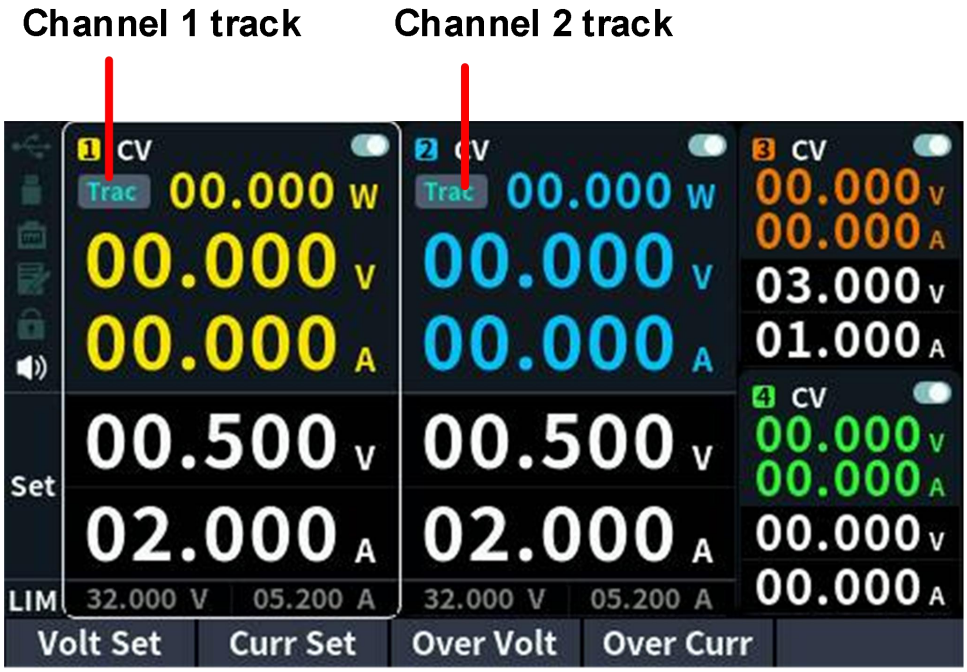


- **Channel track**

  In independent output mode, set the output parameters of CH1 and CH2, and then enter the channel track mode, if the parameters of any one channel are changed, the other channel will change proportionally.

  For example, in independent output mode, set the CH1 voltage to 2V, current to 1A; set the CH2 voltage to 4V, current to 2A. After entering channel track mode, if CH1 voltage is set to 6V, CH2 voltage will be adjusted to 12V proportionally. If CH1 current is set to 2A, CH2 current will be adjusted to 4A proportionally.

  Note: If the setting value is out of the rated range, it will be set to the maximum.



To set the output mode:

(1) Press the **Utility** key. Then press **Mode** to enter output mode menu.

(2) Press the ▲ / ▼ key to select the **Output**. Press the < / > key to choose **Independ**, **Series**, **Parallel** or **Track** as current output mode.

(3) Press the ▲ / ▼ key to select the **Sense**.Press the < / > key to choose **OFF** or **ON** to enable or disable remote compensation function.

(4) Press the ▲ / ▼ key to select the **Device**. Press the < / > key to choose **USBTMC** or **Udisk**. When performing USBTMC communication, select USBTMC. When you need to upgrade through a USB flash drive, select Udisk.

4.7 Utility Settings

4.7.1 Language

(1) Press the **Utility** key. Then press **System** to enter system setting menu.

(2) Press the ▲ / ▼ key to select the **Language**. Press the < / > key to choose the desired language. The supported languages include: Chinese, English and so on.

4.7.2 Brightness

(1) Press the **Utility** key. Then press **System** to enter system setting menu.

(2) Press the ▲ / ▼ key to select the **Screen**. Use the knob or numeric keypad to set the desired value.

4.7.3 Beeper

(1) Press the **Utility** key. Then press **System** to enter system setting menu.

(2) Press the ▲ / ▼ key to select the **Buzzer**. Press the < / > key to turn on/off the beeper. When the beeper is on, the icon  will be lighted on the status bar. When the system prompts the instrument will make a buzzing sound, e.g. cutting off the output due to OVP/OCP.

4.7.4 Date

(1) Press the **Utility** key. Then press **System** to enter system setting menu.

(2) Press the ▲ / ▼ key to select the **Date**. Press the < / > key to move the cursor. Use the knob or numeric keypad to set the desired value, press the ↵ key to confirm.

4.8 Port Settings

4.8.1 Serial Setting

(1) Press the **Utility** key. Then press **Interface** to enter interface setting menu.

(2) Press the **Interface** key to select the **Serial**.

(3) Press the ▲ / ▼ key to select **Baudrate**. Press the < / > key to select the desired baud rate from 1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200. The default is 115200. Make sure that the baud rate matches that of the computer.

(4) Press the ▲ / ▼ key to select **Data Bits**. Press the < / > key to select 6, 7, or 8.

(5) Press the ▲ / ▼ key to select **Stop Bits**. Press the < / > key to 1 or 2.

(6) Press the ▲ / ▼ key to select **Parity**. Press the < / > key to select None, Odd, or Even.

4.8.2 LAN Setting

(1) Press the **Utility** key. Then press **Interface** to enter interface setting menu.

(2) Press the **Interface** key to select the **Lan**.

(3) Press the ▲ / ▼ key to select the **IP Address**. Press the < / > key to move the cursor. Use the knob or numeric keypad to set the desired value, press the ↵ key to confirm.

(4) Press the ▲ / ▼ key to select the **Net Mask**. Press the < / > key to move the cursor. Use the knob or numeric keypad to set the desired value, press the ↵ key to confirm.

(5) Press the ▲ / ▼ key to select the **Gateway**. Press the < / > key to move the cursor. Use the knob or numeric keypad to set the desired value, press the ↵ key to confirm.

(6) Press the ▲ / ▼ key to select the **Port**. Press the < / > key to move the cursor. Use the knob or numeric keypad to set the desired value, press the ↵ key to confirm.

(7) Press the ▲ / ▼ key to select the **DHCP**. Press the < / > key to enable or disable DHCP function.You can manually adjust IP information only when DHCP function is disabled.

Note: Restart the instrument for the parameter changes to take effect.

4.9 System Information

4.9.1 View System Information

(1) Press the **Utility** key. Then press **Info** to enter system information menu.

(2) Press the ▲ / ▼ key to select the **Info**. You can view the version, series number, checksum and so on.

4.9.2 Default Setting

(1) Press the **Utility** key. Then press **Info** to enter system information menu.

(2) Press the ▲ / ▼ key to select the **Default**. Press the ↵ key to use the factory defaults, see table below.

Output Setting	**Output**		**VOLT**	**CURR**
	CH1		03.000V	01.000A
	CH2			
	CH3			
	CH4			
	Parallel		03.000V	02.000A
	Series		06.000V	01.000A
Limit Setting	**Output**		**VOLT**	**CURR**
	CH1		32.000V	05.200A
	CH2			
	CH3		25.000V	03.200A
	CH4			
	Parallel		32.000V	10.400A
	Series		64.000V	05.200A
Utility	Output		Independent	
	Sense		OFF	
	Screen		50%	
	Buzzer		ON	
	Interface setting	Series	Baudrate	115200
			Data Bits	8
			Stop Bits	1
			Parity	None
		Lan	IP	192.168.000.001
			Net Mask	255.255.255.000
			Gateway	192.168.001.254

			Port	3000
Record	Save	Channel	CH1	
	Auto	Interval	1	
		Points	1000	
		Channel	CH1	
	View	Channel	CH1	
		Display	Sheet	
Program	Output	Cycle	Order	
		Range	Begin: 1 ~ End: 100	
		Channel	CH1	

4.9.3 Update

Use the front-panel USB port to update your instrument firmware using a USB memory device.

USB memory device requirements: This instrument only supports a USB memory device with a FAT32 file system. If the USB memory device doesn't work properly, format it into the FAT32 format and try again; or try another USB memory device.

⚠ **Caution:** Updating your instrument firmware is a sensitive operation, to prevent damage to the instrument, do not power off the instrument or remove the USB memory device during the update process.

To update your instrument firmware, do the following:

(1) Press the **Utility** key. Then press **Info** to enter system information menu.

(2) Press the ▲ / ▼ key to select the **Info**. You can view the model and firmware version.

(3) From a PC, visit our website and check if the website offers a newer firmware version. Download the firmware file. The file name must be ODP.upp. Copy the firmware file onto the root directory of your USB memory device.

(4) Insert the USB memory device into the front-panel USB port on your

instrument. If the status icon  appears on the left of the screen, the USB memory device is installed successfully.

(5) Press the ▲ / ▼ key to select the **Update**. Press the ↵ key to start update.

(6) The instrument displays a message telling you not to remove the USB device or power off the instrument until the update process is complete. The progress bar of the screen indicates the update process is in progress.

Note: A firmware update usually takes approximately a minute. Do not remove the USB memory device during the update process. If you accidentally removed the USB memory device during the update process, do not power off the instrument. Repeat the installation process from step 3.

(7) Wait until the instrument displays "Firmware upgrade success.", and then it will reboot automatically.

Note: If the operation complete message is not displayed, do not power off the instrument. Repeat the installation process from step 3 using a different type of USB memory device.

(8) Remove the USB memory device from the front-panel USB connector.

(9) Press the **Utility** key. Then press **Info** to enter system information menu.Press the ▲ / ▼ key to select the **Info**, view the firmware version. Confirm that the firmware has been updated.

4.10 Other Settings

4.10.1 Knob Setting

Output mode when setting the output value by rotating the knob.

(1) Press the **Utility** key. Then press **Other** to enter other setting menu.

(2) Press the ▲ / ▼ key to select the **Knob**. Press the < / > key to select **After press Enter** or **Directly output**.

4.10.2 Screen Test

The instrument has a screen self test function, which can test the LCD screen.

(1) Press the **Utility** key. Then press **Other** to enter other setting menu.

(2) Press the ▲ / ▼ key to select the **Screen**. Press the ↵ key to enter the screen test interface. Observe if the screen has severe color shift, spot, scuffing, or other defect.

(3) Press the ↵ key to exit the test.

4.10.3 Key Test

The instrument provides the key self testing, which can test the keys on the front panel.

(1) Press the **Utility** key. Then press **Other** to enter other setting menu.

(2) Press the ▲ / ▼ key to select the **Key**. Press the ↵ key to enter the key test interface. Each shape on the test interface represents a front panel key. Press any front panel key, the corresponding shape on the test interface will turn green.

(3) Press the ↵ key to exit the test.

5. Troubleshooting

1. **The instrument is powered on but no Display.**
   - Check if the power is connected properly.
   - Check if the fuse which is below the AC Power socket is used appropriately and in good condition (the cover can be pried open with a straight screwdriver).
   - Restart the instrument after the steps above.
2. **The output is abnormal:**
   - Check if the output voltage is set to 0V. If so, set it to other value.
   - Check if the output current is set to 0A. If so, set it to other value.
   - When in programmable output status, check if there is any voltage/current value is set to 0. If so, set it to other value.
3. **Cannot identify the USB device correctly:**
   - Check if the system settings prioritize USB devices. If you want to use a USB flash drive, set USB devices as the priority.
   - Check if the USB device is in good condition.
   - Check if the used USB device is a flash device, note a hard disk cannot be supported.
4. **USB cannot communication:**
   - Check if USB communication is prioritized in the system settings. If you want to use USB communication, set USB communication as the priority.

Check if the used USB device is a flash device, note a hard disk cannot be

If you encounter any other issues, please try restarting. If the product still does not function properly, please contact us so we can assist you.

6. Technical Specifications

The specifications below are based on the instrument having run for at least 30 minutes continuously under the specified operating temperature.

6.1 ODP8353 Parameter

Parameter			Description
Output Ratings (0℃-40℃)		Voltage/ Current	CH1: 30V/5A, Maximum 90W constant power output CH2: 30V/5A, Maximum 90W constant power output CH3: 24V/3A, Maximum 24W constant power output
		CH1,CH2 Parallel Voltage/ Current	60V/5A, Maximum 180W constant power output
		CH1,CH2 Series Voltage/ Current	30V/10A, Maximum 180W constant power output
Channel		3	
Load Regulation	**Independent**	Voltage	≤0.01%+5mV
	Parallel	Voltage	≤0.01%+50mV
	Series	Voltage	≤0.01%+50mV
Voltage Regulation	**Independent**	Voltage	≤0.01%+3mV
		Current	≤0.01%+3mA
	Parallel	Voltage	≤0.01%+3mV
		Current	≤0.01%+3mA

	Series	Voltage	≤0.01%+3mV
		Current	≤0.01%+3mA
Settings Resolution	**Independent**	Voltage	1mV
		Current	1mA
	Parallel	Voltage	1mV
		Current	1mA
	Series	Voltage	1mV
		Current	1mA
Read Back Resolution	**Independent**	Voltage	1mV
		Current	1mA
	Parallel	Voltage	1mV
		Current	1mA
	Series	Voltage	1mV
		Current	1mA
Settings Accuracy (Within 12 months) (25℃±5℃)	**Independent**	Voltage	±(0.03% of reading+10)mV
		Current	±(0.1% of reading+5)mA
	Parallel	Voltage	±(0.03% of reading+10)mV
		Current	±(0.2% of reading+20)mA
	Series	Voltage	±(0.06% of reading+20)mV
		Current	±(0.1% of reading+5)mA
Read Back Accuracy (25℃±5℃)	**Independent**	Voltage	±(0.03% of reading+10)mV
		Current	±(0.1% of reading+5)mA
	Parallel	Voltage	±(0.03% of reading+10)mV
		Current	±(0.2% of reading+10)mA
	Series	Voltage	±(0.06% of reading+20)mV
		Current	±(0.1% of reading+5)mA
Noise and Ripple (20Hz-20M	**Independent**	Voltage(Vp-p)	≤5mVp-p
		Voltage(rms)	≤1mVrms
		Current(rms)	≤5mArms

Hz)	**Parallel**	Voltage(Vp-p)	≤5mVp-p
		Voltage(rms)	≤1mVrms
		Current(rms)	≤10mArms
	Series	Voltage(Vp-p)	≤10mVp-p
		Voltage(rms)	≤1mVrms
		Current(rms)	≤5mArms
Temperature Coefficient	**Independent**	Voltage	100ppm/℃
		Current	200ppm/℃
	Parallel	Voltage	100ppm/℃
		Current	200ppm/℃
	Series	Voltage	100ppm/℃
		Current	200ppm/℃
Programmable output		Storage	1M points
		Groups saved in internal memory	100 groups
		Time setting	Second
Data Record Function		10k groups of data (voltage, current)	
Ports		USB Host, USB Device, RS232, LAN, supports USB TMC protocol	

6.2 ODP8354 Parameter

Parameter			Description
Output Ratings (0℃-40℃)		Voltage/ Current	CH1: 30V/5A, Maximum 90W constant power output CH2: 30V/5A, Maximum 90W constant power output CH3: 24V/3A, Maximum 24W constant power output CH4: 24V/3A, Maximum 24W constant power output
		CH1,CH2 Parallel Voltage/ Current	60V/5A, Maximum 180W constant power output
		CH1,CH2 Series Voltage/ Current	30V/10A, Maximum 180W constant power output
Channel		4	
Load Regulation	**Independent**	Voltage	≤0.01%+5mV
	Parallel	Voltage	≤0.01%+50mV
	Series	Voltage	≤0.01%+50mV
Voltage Regulation	**Independent**	Voltage	≤0.01%+3mV
		Current	≤0.01%+3mA
	Parallel	Voltage	≤0.01%+3mV
		Current	≤0.01%+3mA
	Series	Voltage	≤0.01%+3mV

		Current	≤0.01%+3mA
Settings Resolution	**Independent**	Voltage	1mV
		Current	1mA
	Parallel	Voltage	1mV
		Current	1mA
	Series	Voltage	1mV
		Current	1mA
Read Back Resolution	**Independent**	Voltage	1mV
		Current	1mA
	Parallel	Voltage	1mV
		Current	1mA
	Series	Voltage	1mV
		Current	1mA
Settings Accuracy (Within 12 months) (25℃±5℃)	**Independent**	Voltage	±(0.03% of reading+10)mV
		Current	±(0.1% of reading+5)mA
	Parallel	Voltage	±(0.03% of reading+10)mV
		Current	±(0.2% of reading+20)mA
	Series	Voltage	±(0.06% of reading+20)mV
		Current	±(0.1% of reading+5)mA
Read Back Accuracy (25℃±5℃)	**Independent**	Voltage	±(0.03% of reading+10)mV
		Current	±(0.1% of reading+5)mA
	Parallel	Voltage	±(0.03% of reading+10)mV
		Current	±(0.2% of reading+10)mA
	Series	Voltage	±(0.06% of reading+20)mV
		Current	±(0.1% of reading+5)mA
Noise and Ripple (20Hz-20MHz)	**Independent**	Voltage(Vp-p)	≤5mVp-p
		Voltage(rms)	≤1mVrms
		Current(rms)	≤5mArms
	Parallel	Voltage(Vp-p)	≤5mVp-p

		Voltage(rms)	≤1mVrms
		Current(rms)	≤10mArms
	Series	Voltage(Vp-p)	≤10mVp-p
		Voltage(rms)	≤1mVrms
		Current(rms)	≤5mArms
Temperature Coefficient	**Independent**	Voltage	100ppm/℃
		Current	200ppm/℃
	Parallel	Voltage	100ppm/℃
		Current	200ppm/℃
	Series	Voltage	100ppm/℃
		Current	200ppm/℃
Programmable output		Storage	1M points
		Groups saved in internal memory	100 groups
		Time setting	Second
Data Record Function		10k groups of data (voltage, current)	
Ports		USB Host, USB Device, RS232, LAN, Support USB TMC	

6.3 General Parameter

Display

Characteristics	Description
Display Type	4.3 inch colored LCD (Liquid Crystal Display)
Display Resolution	480 (Horizontal) × 3(RGB) x 272 (Vertical) Pixels
Display Colors	16.7M colors, IPS

Power Supply

Characteristics	Description

Supply	110 VAC ± 10% or 220 VAC ± 10%; AC input 50/60Hz		
Fuse	ODP8353	110 V	250 V，F5A
		220 V	250 V，F3A
	ODP8354	110 V	250 V，F5A
		220 V	250 V，F3A

Environment

Characteristics	Description
Temperature	Working temperature: 0℃～40℃ Storage temperature: -20℃～60℃
Relative Humidity	≤ 90%
Height	Operating: 3,000 m Non-operating: 15,000 m
Cooling Method	Fan cooling

Mechanical Specifications

Characteristics	Description	
Dimension	290mm(W)*212mm(H)*130mm(D)	
Weight	ODP8353	Approx. 9 kg
	ODP8354	Approx. 9 kg

Interval Period of Adjustment:

One year is recommended for the calibration interval period.

7. Appendix

7.1 Appendix A: Packaging

(The accessories subject to final delivery.)

Standard Accessories:

Power Cord

User Manual

USB Cable

Fuse

Options:

Banana plug to crocodile clip test leads

7.2 Appendix B: General Care and Cleaning

General Care

Do not store or leave the instrument where the liquid crystal display could be exposed to direct sunlight for long periods of time.

Caution: To avoid any damage to the instrument, do not exposed it to any sprays, liquids, or solvents.

Cleaning

Inspect the instrument as often as operating conditions require.
To clean the instrument exterior, perform the following steps:

1. Wipe the dust from the instrument surface with a soft cloth. Take care not to scratch the transparent LCD protection screen when cleaning.
2. Disconnect power before cleaning your instrument. Clean the instrument with a damp soft cloth (not dripping with water). It is recommended to clean with soft detergent or fresh water. To avoid damage to the instrument, do not use any corrosive chemical cleaning agents.

Warning: Before re applying power, ensure that the instrument is completely dry, avoiding any electric shock or electrical short circuit resulting from moisture.