OWH67D Series Programmable DC Power Supply User Manual

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.

Apr. 2026 edition V1.0.1

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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 such as probes, battery 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.

In order 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 the designated service centre, a copy of the customers 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.

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1. General Safety Requirement

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

Only the qualified technicians can implement the 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 terminal.

Limit operation to the specified measurement category, voltage, or amperage ratings.

Check all Terminal Ratings. To avoid fire or shock hazard, check all ratings and markers on the instrument. Refer to the user's manual for more information about ratings before connecting the instrument. Do not exceed any of ratings defined in the following section.

Do not operate without covers. Do not operate the instrument with covers or panels removed.

Use Proper Fuse. Use only the specified type and rating fuse for this instrument.

Avoid exposed circuit. Do not touch exposed junctions and components when the instrument is powered.

Do not operate if in any doubt. If you suspect damage occurs to the instrument, have it inspected by qualified service personnel before further operations.

Use your instrument in a well-ventilated area. Inadequate ventilation may cause an increasing of temperature or damages to the instrument. Please keep the instrument well ventilated, and inspect the air outlet and the fan regularly.

Do not operate in wet conditions. To avoid short circuit inside the instrument or electric shock, never operate the instrument in a humid

environment.

Do not operate in an explosive atmosphere. In order to avoid damages to the device or personal injuries, it is important to operate the device away from an explosive atmosphere.

Keep instrument 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 the 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: It indicates an injury or hazard may immediately happen.

Warning: It indicates an injury or hazard may be accessible potentially.

Caution: It indicates a potential damage to the instrument or other property might occur.

Safety Symbols

Symbols on the Product. The following symbol may appear on the product:

⚡	Hazardous Voltage	⚠	Refer to Manual
⏚	Protective Earth Terminal	⏚	Chassis Ground
⏚	Public Ground		

3. Quick Start

3.1 Front Panel and Interface

3.1.1 Front Panel

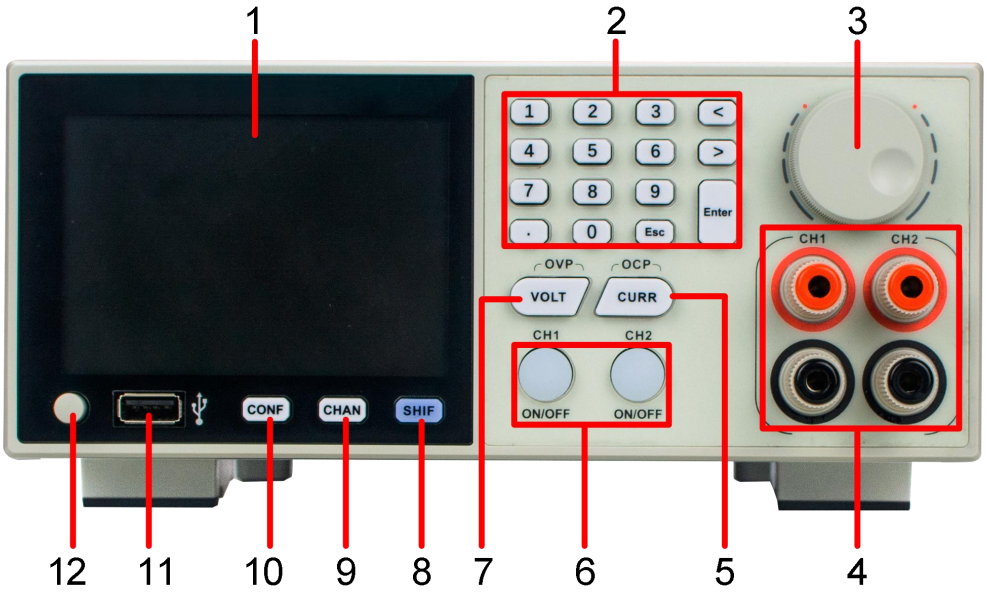


Figure 3- 1 OWH67010D Front panel overview

1	**Display area**	TFT color screen display, output Settings and measurement results.
2	**0-9 and .** **Esc** **< >** **Enter**	Number and dot key:input number; Esc key: return to the previous page. < > Cursor movement key: Use to move the cursor left and right to the desired parameter position. Enter: Confirm parameter setting.
3	**Knob**	Users can turn the knob to enter programming information or options.
4	**DC source output terminal**	The output connection of the DC source.

5	**CURR**	Current setting key: press it to enter the current setting mode, at the same time, user can input current value by numeric box or knob. SHIF+CURR: quick setting for OCP. In LIST mode, this button is defined as the manual trigger button for channel 2.
6	**CH1:ON/OFF**	Control the output status of CH1: ON or OFF.
	CH2:ON/OFF	Control the output status of CH2: ON or OFF.
7	**VOLT**	Voltage setting key: press it to enter the voltage setting mode, at the same time, user can input voltage value by numeric box or knob. SHIF+VOLT: quick setting for OVP. In LIST mode, this button is defined as the manual trigger button for channel 1.
8	**SHIF**	Reuse function keys.
9	**CHAN**	Switch between Channel 1 and Channel 2. In PV and LIST modes, you can also switch to the output curve display interface.
10	**CONF**	Switch the page into configure page, to set up various functions.
11	**USB**	USB data interface.
12	**Power button**	Turn on/off instrument.

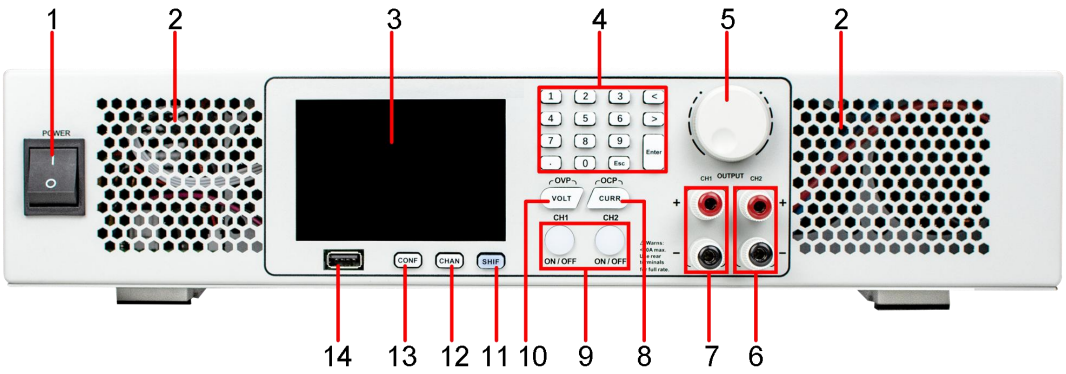


Figure 3-2 OWH67060D Front panel overview

1	**Power button**	Turn on/off instrument.

2	**Fan**	Do not block the outlet of the fan, otherwise the internal heat dissipation of the machine will lead to excessive internal temperature.
3	**Display area**	TFT color screen display, output Settings and measurement results.
4	**0-9 and .** **Esc** **< >** **Enter**	Number and dot key:input number; Esc key: return to the previous page. < > Cursor movement key: Use to move the cursor left and right to the desired parameter position. Enter: Confirm parameter setting.
5	**Knob**	Users can turn the knob to enter programming information or options.
6	**CH2 Output Terminal**	Output connection of Channel 2.
7	**CH1 Output Terminal**	Output connection of Channel 1.
8	**CURR**	Current setting key: press it to enter the current setting mode, at the same time, user can input current value by numeric box or knob. SHIF+CURR: quick setting for OCP. In LIST mode, this button is defined as the manual trigger button for channel 2.
9	**CH1:ON/OFF**	Control the output status of CH1: ON or OFF.
	CH2:ON/OFF	Control the output status of CH2: ON or OFF.
10	**VOLT**	Voltage setting key: press it to enter the voltage setting mode, at the same time, user can input voltage value by numeric box or knob. SHIF+VOLT: quick setting for OVP. In LIST mode, this button is defined as the manual trigger button for channel 2.
11	**SHIFT**	Reuse function keys.

12	**CHAN**	Switch between Channel 1 and Channel 2. In PV and LIST modes, you can also switch to the output curve display interface.
13	**CONF**	Switch the page into configure page, to set up various functions.
14	**USB**	USB data interface.

3.1.2 Rear Panel

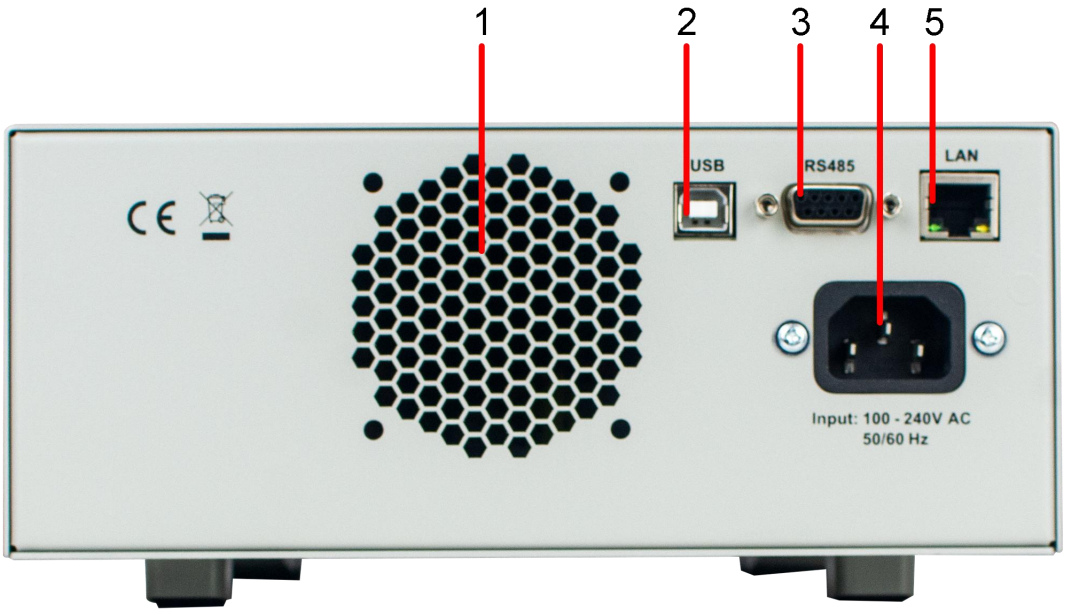


Figure 3- 3 67010D Rear panel overview

1	**Fan**	Do not block the outlet of the fan, otherwise the internal heat dissipation of the machine will lead to excessive internal temperature.
2	**USB terminal**	The computer can be connected through the USB port.
3	**RS485 interface**	The computer can be connected through the RS485 port.
4	**AC Power connection terminal**	Power cord input AC power, from this connection terminal to the input terminal.

5	**LAN interface**	Ethernet remote communication controller can be connected to a computer through this interface for remote operation.

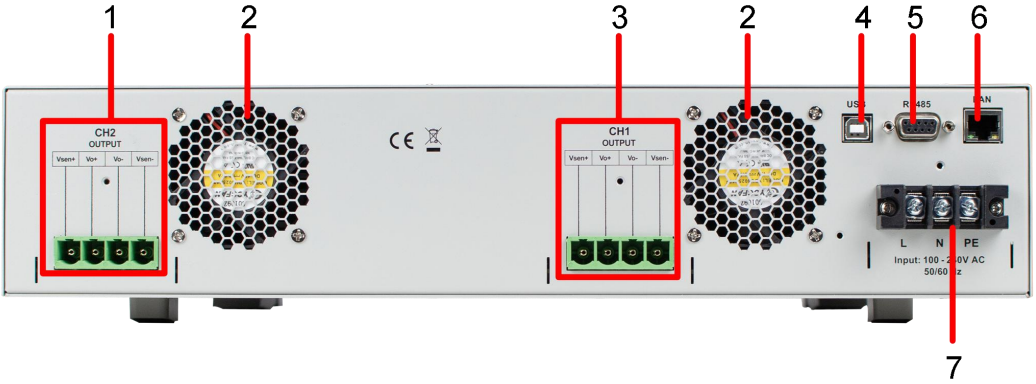


Figure 3-4 67060D Rear panel overview

1	**Channel 2: DC output terminal + Remote compensation**	The DC power output terminal is equipped with a remote compensating sampling terminal, which is connected to the load terminal to compensate for the voltage drop on the line. Please make sure that Vsen+ is connected to output +, Vsen- is connected to output -, do not connect to reverse or floating.
2	**Fan**	Do not block the outlet of the fan, otherwise the internal heat dissipation of the machine will lead to excessive internal temperature.
3	**Channel 1: DC output terminal + Remote compensation**	The DC power output terminal is equipped with a remote compensating sampling terminal, which is connected to the load terminal to compensate for the voltage drop on the line. Please make sure that Vsen+ is connected to output +, Vsen- is connected to output -, do not connect to reverse or floating.
4	**USB terminal**	The computer can be connected through the USB port.
5	**RS485 interface**	The computer can be connected through the RS485 port.
6	**LAN interface**	Ethernet remote communication controller can be

		connected to a computer through this interface for remote operation.
7	**AC Power connection terminal**	Power cord input AC power, from this connection terminal to the input terminal.

3.1.3 User Interface

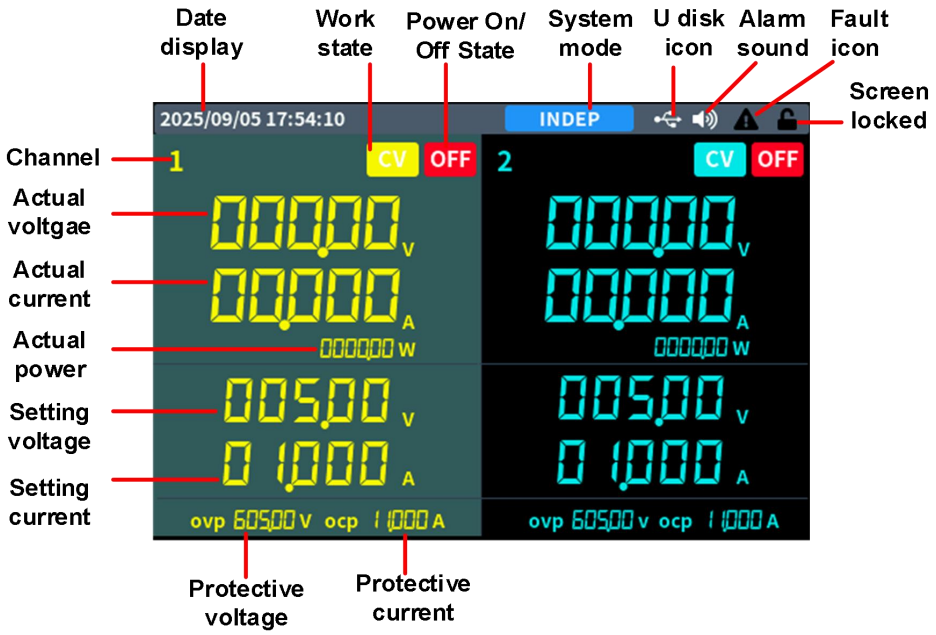


Figure 3-5 User Interface

Status Icon

Icon	Description
	The panel keys are locked
	Panel USB data cable is transmitting
	Enable beeper
	A failure alarm

3.2 General Inspection

After you get a new DC power supply, it is recommended that you should

make a check on the instrument according to the following steps:

1. **Check whether there is any damage caused by transportation.**
   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 have been already described in Appendix A: Accessories 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 our distributor responsible for this service or our local offices.
3. **Check the Complete Instrument.**
   If it is found that there is damage on the first appearance of the instrument, or the instrument cannot 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 Inspection

(1) Connect the instrument to an AC power source using the power cord supplied with the accessory.

> ⚠ **Warning:**
> To prevent electric shock, make sure the instrument is properly grounded.

(2) Press the **power button** on the front panel and the startup screen will be displayed on the 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.

Warning:

Please verify the voltage withstand and polarity requirements of the instrument's output terminals and remote sensing connections. Do not reverse the +/- connections or exceed the rated output voltage, as improper operation may result in fatal injury or equipment damage.

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 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 to directly short the output two terminals:

(1) Starting up.

(2) 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.

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

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

(5) 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.

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

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

4. Functional features and Panel operation

This chapter will describe program power supply function feature and panel operations in details,it will be divided into the following sections:

- Turn on/off channel output
- Local/Remote mode operation switch
- Output voltage/current setting
- Adjust output voltage/current and power value
- System menu function
- Waveform display function
- Remote measurement function (Only OWH67060D Series)

4.1 Turn On/Off the Channel Output

Press the **ON/OFF** key to turn on/off the channel. When the **ON/OFF** key is bright, the output is turned ON; when the **ON/OFF** key light is off, the output is turned off. When the power is turned on, the panel defaults to the main interface to display the current state.

Press the button, the indicator light shows that the output is open; Press the key again and the indicator light goes off to indicate that the output is off.

Description:

After the power supply is connected with the object to be tested, press the **ON/OFF** key to open the output to avoid the possible ignition phenomenon. If there is no power output after the output is turned on, please check the voltage and current setting value, please set the voltage and current is according the setting values and not 0 value,and then turn on the output.

4.2 Local/Remote mode Operation switch

The power supply provides both local and remote operation mode, and the two modes can be switched by communication commands. In power initialization mode, the machine is operated locally by default.

- Local operation mode: Use the keys on the panel to perform relevant operations.
- Remote operation mode: The power supply is connected to the PC, and the PC performs relevant operations on the power supply. When the power is in remote mode, all the buttons in the panel do not work except for the LOCK key. You can switch to local operation mode by press and hold **LOCK** key. When the operation mode is changed, it will not affect the output parameters of the power supply.

4.3 Output Voltage/Current Setting

4.3.1 Set the Output Voltage/Current

There are two ways to set the output voltage (CV mode):

Mode one:

1. Press **VOLT** key, at this time, the voltage number of the user interface will display cursor.
2. Use the numeric **0-9** softkey to set desired voltage. Press **Enter** key to save voltage setting, or turn the **knob** to adjust directly to the set value.
3. Press **ON/OFF** key to output the setting voltage.

Mode two:

1. Press **VOLT** , at this time, the voltage number of the user interface will display cursor.
2. Use the left and right direction function keys to move the cursor to different bits, and turn the **knob** to increase or decrease the value.
3. Press **ON/OFF** key to output the setting voltage.

Note: The current setting must be greater than the load current to maintain the output in CV mode, otherwise the output voltage may not be equal to the set voltage.

Set the current as follows:

Press **CURR** key, the rest of the settings are the same as the voltage setting.

4.4 Adjust Output Voltage/Current and Power

The output voltage and load resistance of the program power supply determine the output current. For example: “4.3 Output Voltage/Current Setting”, only when the output current is lower than the set current limit value, the product is operated in constant voltage CV mode and is indicated by CV status.

If the output current is limited by the current set point or rated current, the product will be converted to constant current mode CC and indicated by CC status.

The output of voltage and current is also controlled by the limit power, because the voltage and current and the power limit affect each other, take OWH67060D-600 as an example, when the voltage is set to 300V, the maximum current can only be set to 10A due to the power limitation; when the voltage value is set to 600V, the current can only be set to 5A due to the power limitation.

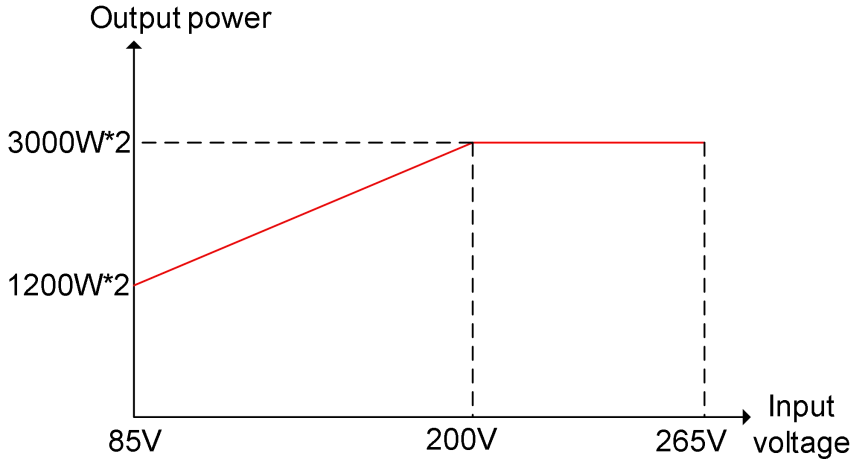
4.5 Input current limitation and output power derating

To ensure the input AC cable does not exceed its rated current capacity, the system incorporates an intelligent output power derating mechanism. This mechanism dynamically adjusts the maximum output power (Pout) based on the input voltage (Vin), maintaining the input current within safe operating limits.

- For OWH67060D series, the input current is limited to 32 A max.

This means when the input voltage drops below the nominal range, the maximum output power will derate accordingly to prevent input current overload, and the warning message of “INPUT POWER LIMIT” will be shown on the screen.

Please refer to the Pout vs. Vin characteristics curve below for detailed derating behavior under low AC input voltage condition



4.6 System menu function

System function Settings provide users with various system function Settings for program power supply. The system functions include the following:

1. SYSTEM SETUP
2. MODE SETUP
3. OUTPUT SETUP
4. PROTECT SETUP
5. REMOTE SETUP
6. SYSTEM INFO

Detailed operation steps:

Press **CONF** key to enter “Function menu” options setting.

1. Turn the **knob** to select desired setting item.
2. Press **Enter** to confirm.
3. Press **Esc** or **CONF** to return CONFIG PAGE.

Note:

1. If want to cancel setting, press **Esc** to return the CONFIG PAGE.

2. Press **VOLT** or **CURR** from any setting page to quickly navigate back to the CONFIG PAGE.

Menu as shown below:

Menu function	Settings	Descriptions		
SYSTEM SETUP	DISPLAY SETUP	BACKLIGHT	0-100%	
		LANGUAGE	Chinese/ENGLISH	
	CHANNEL SETUP	INDEPENDENT MODE (default)	Dual-channel independent operation	
		PARALLEL MODE	Dual-channel external parallel operation	
		SERIES MODE	Dual-channel external series operation	
	SOUND SETUP	ALARM	ON/OFF	
		KEY BEEP	ON/OFF	
	DATE SETUP	YEAR/MONTH/DAY		
	TIME SETUP	HOUR/MINUTE/SECOND		
	RESTORE FACTORY	DETERMINE/CANCEL		
	CALIBRATION	Default password:123456		
MODE SETUP	CC/CV MODE			
	LIST MODE (There is no such mode in parallel or series connection.)			
	PV MODE (There is no such mode in parallel or series connection.)			
OUTPUT SETUP	CC/CV SETUP	V SLEW RATE, range: 0.02~0.2, unit is V/ms		
		I SLEW RATE, range: 0.02~1, unit is A/ms		
		CC/CV PRIOR, default CV prior		
	LIST SETUP	Import data		
		Export data		
		LIST SETUP (STEP,CYC,VOLTAGE(V), CURRENT(A),TIME(s), INC/DEC steps)		
		MODE	AUTO	
			MANUAL	
		LOAD		
	PV SETUP	TYPE	EN50530	MATERIAL TYPE
				V_MAX
				P_MAX

				TC
				TREF
				IRRADIANCE
			Sandia	MATERIAL TYPE
				V_MAX
				P_MAX
				TC
				TREF
				IRRADIANCE
PROTECT SETUP	OVP	Note: The protection setting values vary depending on the model.		
	OCP			
	OPP			
REMOTE SETUP	USB(RS232)	BAUD RATE	2400, 4800, 9600, 19200, 38400, 57600, 115200 (default)	
	RS485	BAUD RATE	2400, 4800, 9600, 19200, 38400, 57600, 115200 (default)	
	LAN	DHCP IP	IP ADDR	
			GATEWAY	
			SUBNET MASK	
		DHCP	ON/OFF	
SYSTEM INFO	Model etc.			

4.6.1 System Setup

Select **SYSTEM SETUP**, press **Enter** key to enter “SYSTEM” options setting, as shown in the below figure.

4.6.2 Mode Setup

Select **MODE SETUP**, press **Enter** key to enter “MODE” options setting, Products support three output modes.

- CC/CV MODE
- LIST MODE
- PV MODE

The mode setting edit box can be determined by selecting any of the modes by the knob. After pressing **ON/OFF** key, the mode is locked and cannot be edited. If you need to change to another mode, you need to power off and re-select the corresponding mode.

4.6.3 Output Setup

The mode setup is associated with the output setup. After selecting the output mode of the mode setting, it can be directly associated with the setting interface of the corresponding mode when clicking the output setting. For example, when the output mode is set to CC/CV mode, and then click Output Settings to directly enter the CC/CV setting interface.

4.6.3.1CC/CV Setup

CC/CV mode setup includes three parts:

- V SLEW RATE:

  Voltage slew rate range can be set from 0.02V/ms to 0.2V/ms.

- I SLEW RATE:

  Current slew rate range can be set from 0.02A/ms to 1A/ms.

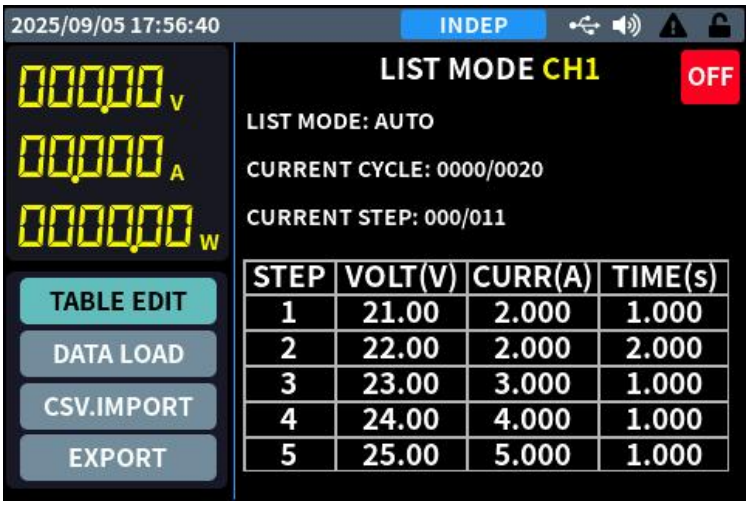
- CC/CV PRIOR

  Mode set CV first (default), if the user knows in advance that the connected load characteristic, you can eliminate voltage/current overshoots when the output is turned on by switching the CV/CC priority mode.

4.6.3.2LIST Setup

The LIST setting interface is composed of two parts: the upper partition and the lower partition. The upper partition includes import, export, loading curve, mode selection, setting the total number of steps and cycle times. The lower partition is the editing area of the specific number of steps and is composed of the number of steps, voltage, current and time. User can press < , > to select these two partitions to quickly configure and manage the LIST schema.

Users can set the total number of steps, the number of cycles, and the trigger mode of LIST mode in the upper partition, and edit the voltage, current, and time of each step in the lower partition.



There are two TRIGGER modes of LIST curve: AUTO and MANUAL. In automatic trigger, the running time of each STEP needs to be set. Note: When

manual trigger are selected, the runtime is determined by the external trigger source.

You can set a LIST curve either by creating a new one or by importing it. To create a new LIST curve, follow these steps:

- Set the total number of steps: Press < key, the cursor jump to the upper partition, through the knob, select the total number of steps edit box, through the **Enter** key or **knob** to enter or exit editing, the total number of steps is a positive integer not exceeding 100. For example, if the total number of steps is 6, the edit area will generate 6 editable data.

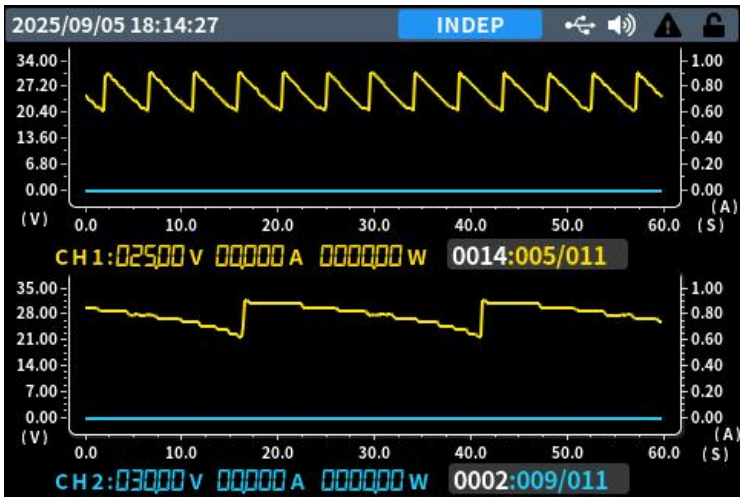
- Cycle number setting: Press < key, the cursor to jump to the upper partition,select the editing box of cycle number through the **knob**. Enter or exit editing through the **Enter** key or knob. The number of cycles is 0-1000, where 1-1000 represents the LIST curve cycle running 1-1000 times, 0 represents the LIST curve infinite cycle running, input 0 will display INF.
- Trigger mode setting: Rotary the **knob** to select AUTO or MANUAL, the automatic trigger mode needs to set the running time of each step, and the running time of external trigger and manual trigger is infinite (INF). Among them, the automatic trigger (AUTO) only needs to be

started at the beginning, and the power supply can be automatically operated according to the preset total number of steps, the number of cycles, and the voltage/current/time of each step. MANUAL trigger can be triggered by **VOLT** (CH1) or **CURR** (CH2), the voltage setting key of the panel, and one step is executed for each setting. Manual trigger also supports the SCPI command of the host computer as the trigger source. Please see SCPI Instruction programming set for details.

- Edit curve: Press **>** key, the cursor to jump to the lower partition. Edit the voltage, current and time data of a step, select a step of data through the **knob**. Enter or exit the voltage, current and time editing through the **Enter** key or the **knob**. When all the steps are set, the LIST curve is set.
- Load curve: Press **<** key, the cursor to jump to the upper partition, through the **knob** to select **LOAD**, the panel sends the curve to the lower machine, and the page jumps to the main page of LIST.

Press **ON/OFF**, on the running main page, can see the current voltage/current/step/total step/cycle times/total cycle times, and historical voltage and current curves.

After editing the LIST parameters, users can also directly start the computer by pressing the **ON/OFF** button. The system will automatically load the curve, edit the curve, go to the main page of the LIST and run the LIST curve.



Users can also edit and save curves by means of import and export. Through the **knob**, select the **IMP.**, and press **Enter** to jump to the file management page. Select the LIST curve that needs to be imported by the **knob**, and then press the **knob** or **Enter** key to import the curve, at the same time, the page switches back to the LIST setting screen, the total number of steps to import the curve, the voltage, current, and time for each step are loaded to the page. It should be noted that the number of cycles and the trigger mode are set to 1 by default, and the AUTO mode is automatically triggered. Finally, through the **knob**, select the "LOAD", and the panel will send the curve. At the same time, the page jumps to the main page of LIST operation, and press the **ON/OFF** button to run the LIST curve.

When the user needs to export the curve, through the **knob**, select the **EXP.**, and press the **Enter** key to jump to the file management page. By default, the system names the file according to the time. After saving, the **Esc** key is used to exit the file management interface and return to the LIST setting interface. The remaining operations are similar to the import.

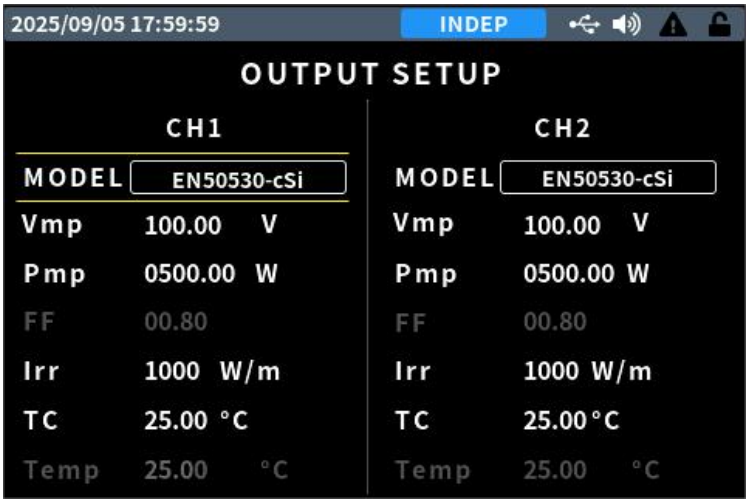
4.6.3.3PV Setup

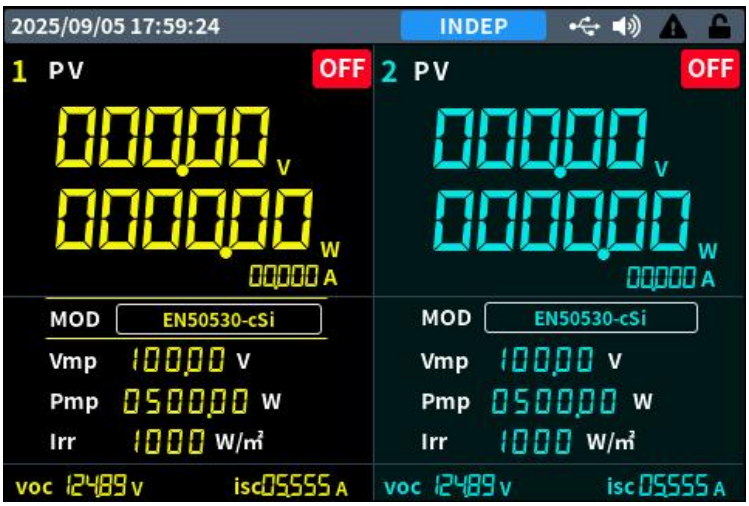
The programmable DC power supply features PV curve simulation capability, capable of simulating the IV output characteristics of various types of solar panels (monocrystalline, polycrystalline, thin-film) under different

environmental conditions (including temperature, illumination, shading, degradation). It includes testing for Static MPPT efficiency and incorporates EN50530 and Sandia photovoltaic curve models. The standard photovoltaic curve simulation software can control multiple power supplies, enabling MPPT tracking testing. It provides testing and validation for grid-tied inverters, string inverters, PV-battery systems, and energy storage inverters, offering users an efficient testing solution.

Note: PV mode is an optional function. It is distinguished by the suffix band S of the model. If you are not clear, please consult our after-sales service or agents.

After setting the adjustable DC power supply to PV mode, clicking on the output settings will directly switch to the parameter setting interface of the PV mode.



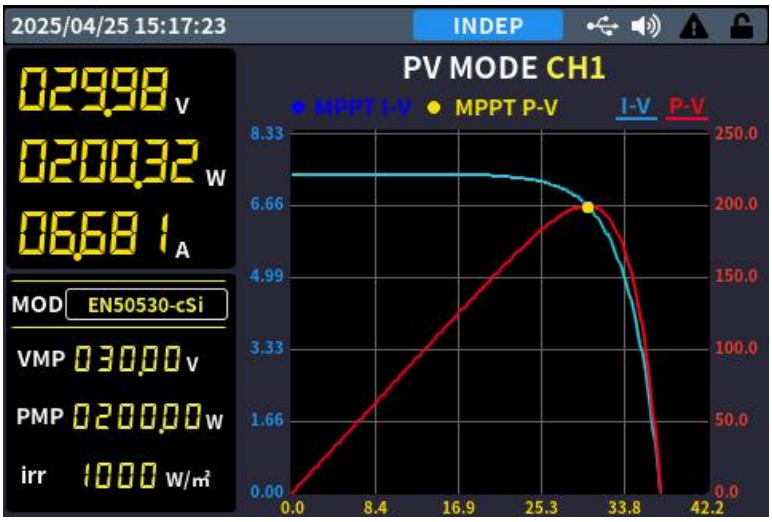


In the PV settings interface, users can conveniently configure PV curve types such as EN50530 and Sandia through the interface.

- Type/Material type setting: Turn the **knob**, select the **TYPE** and **MATERIAL TYPE** in turn. Press **Enter** , **Esc** or **knob** to enter or exit editing.Select different curve types (EN50530, Sandia) and material types, and the setting interface will switch to the setting box of the corresponding curve. For example: Select the EN50530 curve type and material (THIN-FILM,c-Si), the corresponding parameters to be set include: maximum voltage, maximum power, test temperature (usually 25℃), ambient temperature, light intensity. Select the Sandia curve type and material (THIN_FILM,STD-CRY, HI-CRY), the corresponding parameters to be set include: maximum voltage, maximum power, test temperature (usually 25℃), ambient temperature, light intensity.
- Set the maximum voltage: This maximum voltage is the maximum power point voltage of the simulated PV curve in volts.
- Set the maximum power: The maximum power is the maximum power value corresponding to the PV curve under the test temperature (usually 25℃) and standard light intensity (1000W/m2).
- Test temperature: It is usually 25 ℃ and is used to provide standard

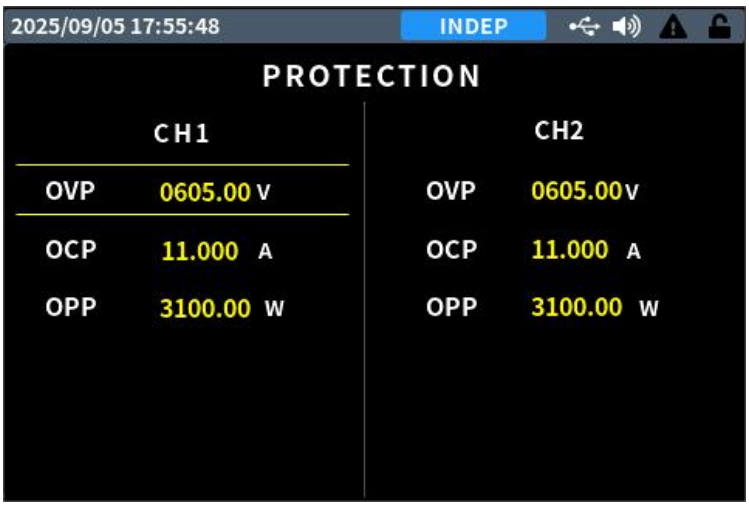
PV curves.

- Ambient temperature: When the simulated PV is running, the actual ambient temperature, when the ambient temperature is different, the maximum voltage and maximum power of the PV curve are also different.
- Light intensity: When the simulated PV is running, the actual light intensity change, the value range is 0-1000 W/m^2, the weaker the light, the smaller the output power.
- Press the **ON/OFF** to load curve:When the parameters of all steps are set, press the power button to run the PV curve.



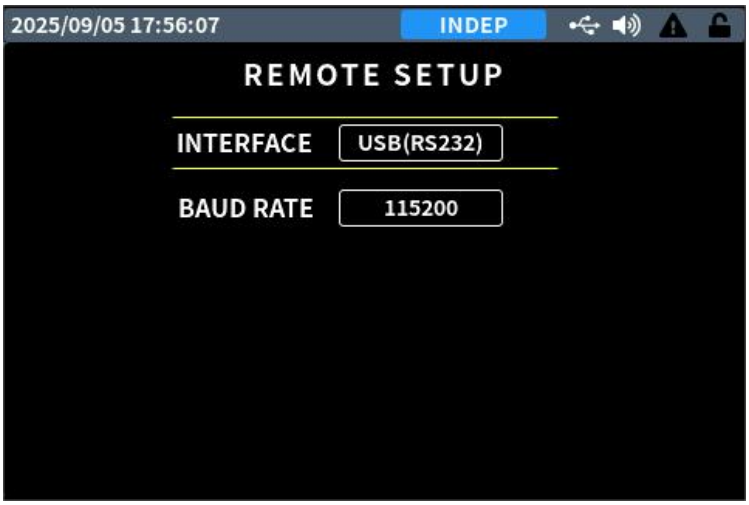
4.6.4 Protect Setup

Products can flexibly set OVP (Over-Voltage Protection), OCP (Over-Current Protection), OPP (Over Power Protection) functions according to user need.



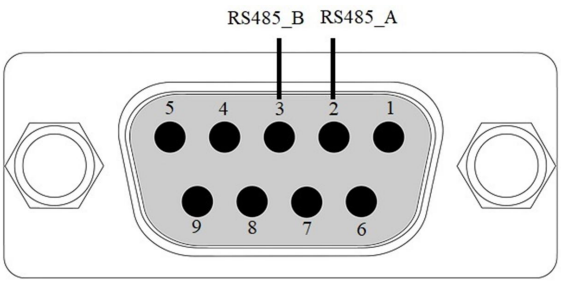
4.6.5 Remote Setup

Products are equipped with a variety of communication interface, USB serial port, RS485 and LAN functions.



RS485 is DB9 terminal:

Pin	Function
Pin 2	RS485_A
Pin3	RS485_B
Pin1,4,5,6,7,8,9	NC



4.6.6 System Setup

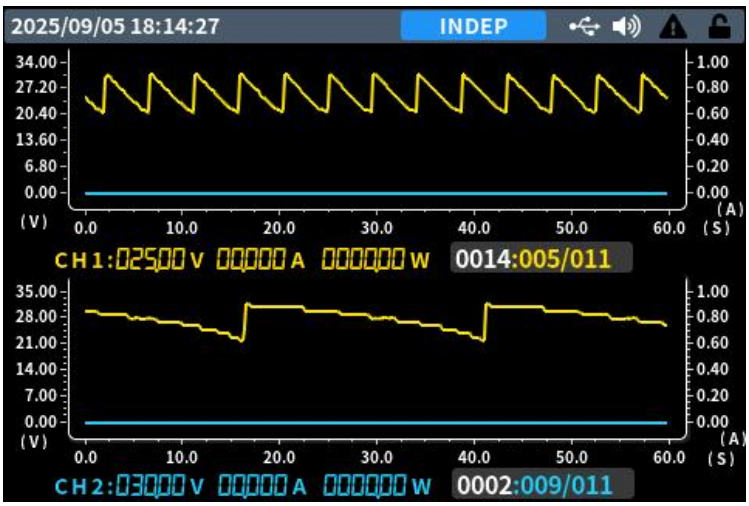
The screen displays the model, version, serial, and checksum of the machine.

4.7 Waveform display Function

When operating in LIST mode and PV mode, the product provides real-time local waveform function, allowing intuitive reading of current voltage and current values, as well as curve status over a period of time.

LIST Work Mode, setting method:

1. Set the output mode to LIST mode;
2. Return to the main interface, press **ON/OFF** button for output, press **CHAN** key to switch channels, and then press **CHAN** key again to enter the waveform display interface.
3. Press **CHAN** key to exit and return to the user interface.



PV Work Mode, setting method:

1. Set the output mode to PV mode;
2. Return to the main interface, press **CHAN** key to switch the display to channel 1 waveform. Press **CHAN** key again to switch the waveform display to channel 2.
3. Press **CHAN** key to exit and return to the user interface.

5. Troubleshooting

1. **The instrument is powered on but no display. Please following the steps:**

   - 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.
   - If the problem still exists, please contact our customer service.

6. Technical Specifications

The instrument must be operated continuously for more than 30 minutes at the specified operating temperature to achieve the following specifications:

Model		OWH67010D-80		OWH67060D-600		OWH67060D-300		OWH67060D-150	
Rated Output (0℃-40℃)	Channel	CH1	CH2	CH1	CH2	CH1	CH2	CH1	CH2
	Output voltage range	0 -80V	0 -80V	0-600V	0-600V	0 -300V	0 -300V	0 -150V	0 -150V
	OVP	0V-85V	0V-85V	1V-605V	1V-605V	1V-305V	1V-305V	1V-155V	1V-155V
	Output current range	0-20A	0-20A	0-10A	0-10A	0-15A	0-15A	0-30A	0-30A
	OCP	0A-21A	0A-21A	1A-11A	1A-11A	1A-20A	1A-20A	1A-35A	1A-35A
	Max. Power	500W	500W	3000W	3000W	3000W	3000W	3000W	3000W
Input Voltage[1]	Volt./Freq.	100V-240Vac; 45Hz-65Hz		100V-240Vac; 45Hz-65Hz		100V-240Vac; 45Hz-65Hz		100V-240Vac; 45Hz-65Hz	
Load regulation (%of output+offset)	CV	≤0.03% + 0.03%FS							
	CC	≤0.03% + 0.05%FS							
Input power regulation (%of output+offset)	CV	≤0.03% + 0.03%FS							
	CC	≤0.03% + 0.05%FS							
Setting resolution	Voltage	10mV		10mV		10mV		10mV	
	Current	1mA		1mA		1mA		1mA	
Readback resolution	Voltage	10mV		10mV		10mV		10mV	
	Current	1mA		1mA		1mA		1mA	
Setting accuracy	Voltage	≤0.05% + 0.05%FS							
	Current	≤0.05% + 0.1%FS							
Readback accuracy	Voltage	≤0.05% + 0.05%FS							
	Current	≤0.05% + 0.1%FS							
Ripple noise[2]	Voltage	≤50mVp-p		≤500mVp-p		≤250mVp-p		≤150mVp-p	

	Current	≤20mArms	≤50mArms	≤50mArms	≤50mArms
Output temp drift coefficient (0℃-40℃)	Voltage	100ppm/℃	100ppm/℃	100ppm/℃	100ppm/℃
	Current	200ppm/℃	200ppm/℃	200ppm/℃	200ppm/℃
Readback temp drift	Voltage	100ppm/℃	100ppm/℃	100ppm/℃	100ppm/℃
	Current	200ppm/℃	200ppm/℃	200ppm/℃	200ppm/℃
Transient response (10%-90% rated load)		≤5.0ms			
Working temperature		0-40℃			
Display		3.95 inch TFT LCD screen			
Interface		USB/LAN/RS485			
Dimension (W x H x D)		215.0mm x 88.0mm x 453.0mm	430.0mm x 88.0mm x 453.0mm	430.0mm x 88.0mm x 453.0mm	430.0mm x 88.0mm x 453.0mm
Weight		Approx. 5kg	Approx. 13kg	Approx. 13kg	Approx. 13kg

[1] : Input voltage <200Vac, please refer to Pout vs Vin curve in chapter 4.5.

[2] Noise bandwidth: 20 MHz. Test with a 10 μF electrolytic capacitor connected in parallel with a 0.1 μF ceramic capacitor at the output.

Interval Period of Adjustment:

One year is recommended for the calibration interval period.

7. Appendix

7.1 Appendix A: Accessories

(The accessories subject to final delivery.)

Note: Due to differences in models, the accessories included may vary. Please refer to the actual items received.

Standard

Power Cord

User Manual

USB Cable

Output terminal

AC/DC terminal protective cover

Optional

Banana plug to alligator clip cable

L-shaped fixed bracket

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.