

# Hantek



## HDP10000 Series

DC Regulated Power Supply

User Manual

2022.10

## **Warranties and Representations**

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### **Product certification**

Hantek certifies HDP10000 series DC regulated power supply to meet China national industry standards, has passed the CE certification, and will further complete the certification of other national standards.

### **Contact us**

If you encounter any problems in the process of using the products of Qingdao Hantek Electronics Co., LTD., you can obtain services and support through the following ways:

Email: [service@hantek.com](mailto:service@hantek.com), [support@hantek.com](mailto:support@hantek.com)

Website: <http://www.hantek.com>

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# 1 Safety requirements

## 1.1 Summary of general security issues

Carefully read the following safety precautions to avoid injury and to prevent damage to this product or products connected to it. To avoid possible dangers, please be sure to use this product in accordance with the regulations.

- **Only professionally authorized personnel can perform repairs.**

- **Use the right power cable.**

Use only the power cable approved by your country.

- **Ground the product.**

To avoid electric shock, the product is grounded through the grounding conductor of the power cable. The grounding conductor must be connected to the ground before connecting the input or output end of the product. Ensure that the product is properly grounded.

- **Check all terminal ratings.**

To avoid fire or excessive current, check all rated values and marking instructions on the product. Please consult the product manual for details before connecting the product.

- **Do not open the cover.**

Do not run the product when the outer cover or panel is open.

- **Avoid circuit exposure.**

Do not touch exposed wire terminals and electronic components after the power supply is switched on.

- **Do not perform operations when you suspect that the product is faulty.**

If you suspect that the product has been damaged, have it inspected by a qualified maintenance person.

- **Maintain proper ventilation.**

- **Do not operate in a damp environment.**

- **Do not operate in inflammable and explosive environment.**

- **Please keep the product surface clean and dry.**

## 1.2 Security terms and symbols

Safety terms in the manual:



**Warning:**

Indicates that this operation may not cause immediate damage to you.



**Note:**

Indicates that you may damage the product or other property if you do so.

Safety terms on the product:



**RATING:**

Indicates that if you do not perform this operation, potential harm may be caused.

Safety symbols on the product:



warning



Test ground

## 1.3 Ventilation requirements

The instrument is forced cooled by a fan. Ensure that the intake and exhaust areas are unblocked, and free flowing air is available. In order to ensure adequate ventilation, when using the instrument in the workbench or rack, please make sure that the two sides, above and behind should leave a gap of at least 10 cm.



**Note:**

Poor ventilation will cause the temperature of the instrument to rise, which will damage the instrument. Good ventilation should be maintained when using.

Ventilation vents and fans should be checked regularly.

## 1.4 Work environment

**Working conditions:**

Temperature -10 ° C to 40 ° C, relative humidity ≤80%

**Storage conditions:**

Temperature -20 ° C to 60 ° C, relative humidity ≤80%



**Warning:**

To avoid short circuit or electric shock, do not operate the instrument in a damp environment.



**Warning:**

Ensure that no overvoltage (e.g. lightning) reaches the product. Otherwise, the operator may be in danger of suffering from electric shock.

## 1.5 Maintenance and cleaning

**Maintenance:**

Do not expose the instrument to direct sunlight for a long time when storing or placing the instrument.



**Note:**

To avoid damaging the instrument or accessories, do not place it in fog, liquid or solvent.

**Cleaning:**

Check the instrument and accessories frequently as required by the operating conditions. Clean the outer surface of the instrument according to the following steps:

- 1) Use lint-free cloth to remove floating dust outside the instrument and accessories. Please be careful to avoid scratching the smooth display.
- 2) Clean the instrument with a soft cloth soaked in water. For a more thorough cleaning, use a aqueous solution of 75% isopropyl alcohol.



**Note:**

To avoid damaging the surface of the instrument and accessories, do not use any corrosive reagent or chemical cleaning reagent.

**Warning:**

Before powering on the instrument again, ensure that the instrument is dry enough to avoid electrical short circuit or even personal injury.

## 1.6 Environmental considerations

The following symbols indicate that the product complies with the requirements of WEEE Directive 2002/96/EC.

**Equipment recycling:**

Producing this product requires the extraction and use of natural resources. Some substances contained in the equipment may be harmful to the environment or human health if the product is not disposed of properly. To avoid the release of harmful substances and reduce the cost of natural resources, it is recommended that appropriate methods be used to recycle this product to ensure most of the materials can be properly reused.



## 2 Product features

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### Product features

- Four-digit-display voltage and current, resolution up to 10mV/1mA;
- USB quick charging function, 5-12V output voltage, 18 W maximum output power, supporting a variety of quick charging protocols;
- 10 groups of data storage/retrieval functions;
- AC input voltage 230/115V switch, universal;
- Fully isolated serial ports. Software supports multiple power supply, easy to set up measurement and control system or aging system;
- Over voltage, over current, overload, overheating, short circuit protections;
- Low noise temperature control fan, quiet and durable;
- On/Off output control, one-button panel lock function to prevent misoperation;
- Constant voltage (CV) / constant current (CC) mode automatic switching, effectively protect the circuit;
- Two-stage adjustment topology structure, no impact on the load when powering on;
- Ultra-thin body, light and easy to carry, excellent indicators and quality, stable performance, strong durability.

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HDP10000 series DC regulated power supply is a high quality, cost-effective economic product. Four - digit LED voltage and current display. With over voltage protection (OVP), over current protection (OCP), over temperature protection (OTP) and USB fast charging functions.

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### 3 Document overview

This document is to guide users to quickly understand the front and rear panel functions of the HDP10000 series DC power supply.




**Tip:**

The latest version of this manual can be downloaded at ( <http://www.hantek.com>).

**Document format conventions:**

**Buttons:**

Icons are used to represent front panel buttons. For example,  represents the ON/OFF button.

**Document content conventions:**

HDP10000 series DC regulated power supply includes the following models.

Output rating	Model	Output voltage	Output current	RS232	The AC input
210W	HDP135V6	0~35V	0~6A	--	115/230V
	HDP135V6A	0~35V	0~6A	--	230V
	HDP135V6B	0~35V	0~6A	--	115V
	HDP135V6S	0~35V	0~6A	√	115/230V
180W	HDP180V8S	0~80V	0~8A	√	115/230V
180W	HDP1160V4S	0~160V	0~4A	√	115/230V

**Table Model 3.1**

## 4 Quick start

### 4.1 General examination

#### Check shipping packing

After receiving the power supply, check the instrument according to the following steps: Check whether there is any damage caused by transportation. If the carton or foam protective pad is seriously damaged, keep it until the machine and accessories pass the electrical and mechanical tests.

#### Check the accessories

Details of the accessories are provided in [Appendix A: Accessories and options](#): at the back of this manual. If you find items on the list missing or damaged, please contact the dealer responsible for the business.

#### Check the machine

If the appearance of the instrument is damaged, the instrument does not work properly, or fails the performance test, please contact the dealer responsible for the business.

### 4.2 Appearance and dimensions

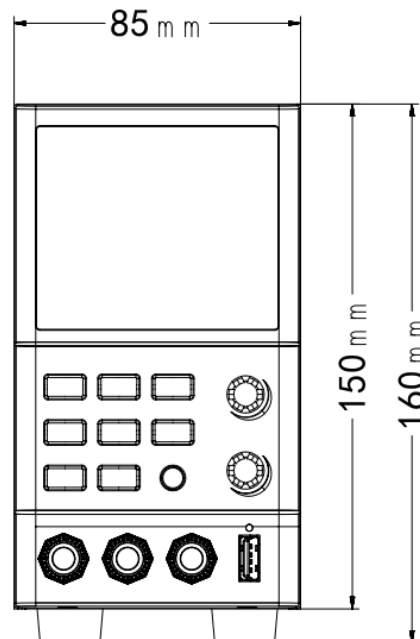


Figure 4.1 Front view

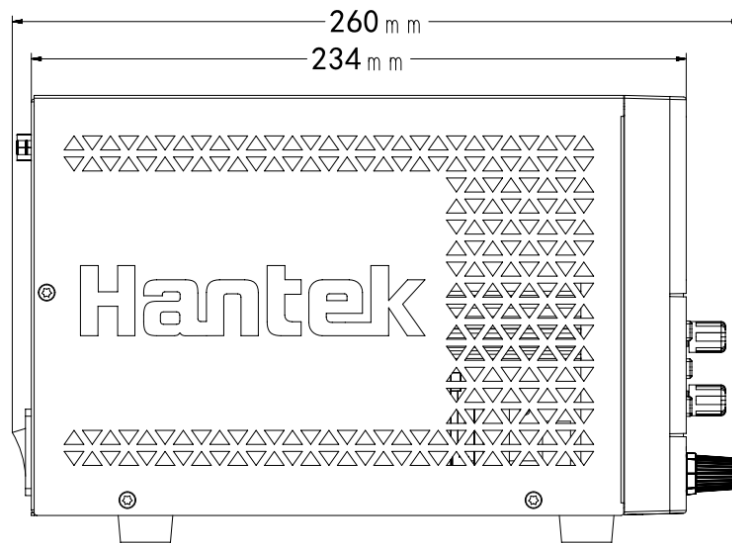


Figure 4.2 Side view

## 4.3 Preparation before use

### 4.3.1 Connect the power supply

#### 1. Check the AC voltage gear

The HDP10000 stabilized power supply supports two specifications of AC power input (115VAC and 230VAC). Before use, the user should check the gear of the AC voltage selector on the rear panel, and the input voltage should be within the range allowed by the gear ( $\pm 10\%$ ).



#### Note:

Ensure that the AC voltage gear is consistent with the AC power input, otherwise, the power supply may be damaged.

#### 2. Check the fuse

The instrument has been installed with a fuse of specified specification before leaving the factory. Before use, check whether the fuse model matches the AC voltage gear. If the fuse does not match or is blown, replace the fuse according to the specification.

#### Procedure for replacing a fuse:

A. Turn off the power and remove the power cable.

B. Pull out the fuse holder.



C. Remove the faulty fuse and install a new one.

D. Reinstall the fuse holder into the slot.

### 3. Connect the AC power supply

Use the power cable provided in the accessories to connect the instrument to the properly grounded AC power supply.

To avoid electric shock, ensure that the instrument has been properly grounded.

### 4. Boot

Press the power switch to start the instrument and light up the display screen.



**Warning:**

To avoid electric shock, ensure that the instrument is properly grounded.

## 4.4 Product introduction

This chapter describes the front and rear panels of the power supply.

## 4.4.1 Front Panel





Figure 4.3 Front panel diagram


### 1. Voltage value display

### 2. Current value display


### 3. Store and call out buttons M1 ~ M10


M1 ~ M4: Tap  once, the indicator light will be on, calling out settings of this group. Use the voltage and current adjustment knobs to select the settings to be saved,


then hold down  until the indicator lights is on. The settings are then saved in M1. The operations for M2 to M4 are the same as those for M1.

M5 ~ M10: If you want to use M5 to M10 to save and call out data,  is needed.

Take M5 as an example. Press the , the shift indicator light will be on. Tap once


, the M1 indicator light will be on, calling out settings in stored in M5. Use the

voltage and current adjustment knobs to select the settings to be saved. Press ,

the shift light will be on. Hold  again until the M1 indicator lights is on. The

settings are then saved in M5 position. Operations for M6 ~ M10 are the same as those for M5.

#### 4.

Some buttons have texts on them, indicating that the button has a function that you can press and release  before pressing the button to access it. For example, if you

press and release  before pressing  , you will access the M5 function.

#### 5.

Turn on or off the output.

### 6. Output terminal

Positive output terminal (red) : connected to the positive terminal of the load.

Negative output terminal (black) : connected to the negative load terminal.

Ground terminal (green) : connected to the machine casing and ground cable (ground terminal of power cable), and is grounded.


### 7. USB quick charge port


The output voltage of USB quick charge ranges from 5V to 12V, providing a maximum output power of 18 W. The USB quick charge automatically adjusts the output voltage and current according to the identified quick charge protocol. Typical output voltages and currents are 5V@3.4A, 9V@2.0A, and 12V@1.5A. When charging electronic devices that do not have the function of quick charge, the standard 5V charge will be provided.

USB quick charge provides input overvoltage and undervoltage protection, output overcurrent, overvoltage, undervoltage, short circuit protection and other functions.

The quick charge indicator light will be on when the request voltage is not 5V, that is, when it is higher or lower than 5V.

#### 8.






Press this button, the indicator lights will be on. All buttons and knobs except  and

 are disable. Press the button again and all buttons and knobs will be restored.

### 9. Current value adjustment knob

Press down the knob to enter the setting mode with the digit flashing. Press the knob several times continuously to change the flashing digit. Turn the knob clockwise, the value will increase. Turn the knob counterclockwise, the value will decrease.






#### 10.

Press the  to enable the OCP function. The indicator light will be on. Press  again to disable the OCP function, the indicator will be off. Long press  to enter the setting mode, use the current value adjustment knob to change the OCP set value. When the actual output current value is higher than the OCP set value, the protection function will be triggered and the screen will display . The output is forcibly turned off, but the ON/OFF indicator light is not turned OFF. Press  to clear the error and turn off the indicator light.

### 11. Voltage value adjustment knob

It is the same as the current value adjustment knob.





### 12.

Press the  to enable OVP function. The indicator light will be on. Press  again to disable OVP function. The indicator light will be off. Long press  to enter the setting mode and use the voltage adjustment knob to change the OVP set value. When the actual output voltage value is higher than the OVP set value, the protection function will be triggered and  will be displayed on the screen. The output is forcibly turned off, but the ON/OFF indicator light is not turned off. Press  to clear the errors and turn off the indicator light.

### 13. CC constant current output state

Under constant current working state, the status indicator will be on.

### 14. Button lock

Press . The indicator light will be on. In button lock mode, only  and  can be used. Press the  again to quit this mode.

### 15. CV constant voltage output state

Under constant voltage working state, the status indicator will be on.



## 4.4.2 Rear Panel

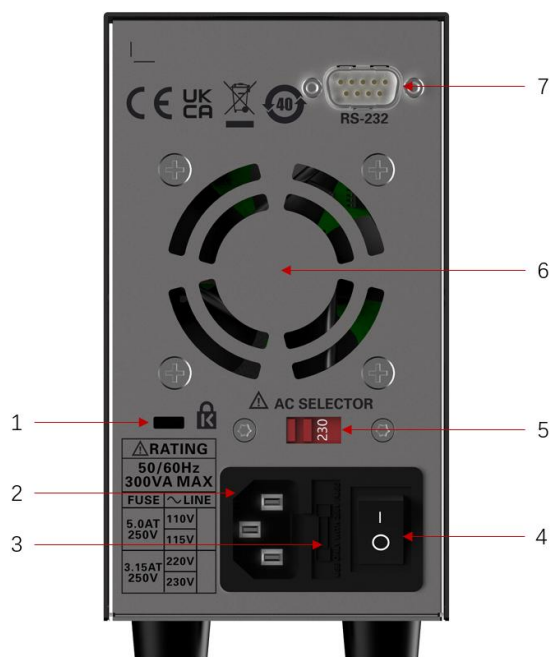


Figure 4.4 Rear panel

1. Security lock hole
2. AC power socket
3. Fuse holder
4. Power on switch
5. 115VAC/230VAC switch button
6. Fan
7. RS232

## 5 **RS232 remote control**

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Only HDP10000S supports RS232 remote control.

Use the RS232 serial port straight-through cable for connection.

To use RS232 for remote control, please log in to the following website to download:

<http://hantek.com/products/detail/18193>

Or scan the QR code below to enter the website:



## 6 Performance indicators

### Rated operating condition

**Working conditions:** temperature  $-10^{\circ}\text{C}\sim 40^{\circ}\text{C}$ , relative humidity  $\leq 80\%$

**Storage conditions:** temperature  $-20^{\circ}\text{C}\sim 60^{\circ}\text{C}$ , relative humidity  $\leq 80\%$

**Ac input:** 115 VAC  $\pm 10\%$ , 230 VAC  $\pm 10\%$ , 50/60Hz

### Indicators

All technical indicators can only be guaranteed when the instrument is operated continuously for more than 30 minutes under the specified operating temperature ( $18^{\circ}\text{C}$  to  $28^{\circ}\text{C}$ ).

Voltage			
Load regulation	$\leq 0.1\% + 5\text{mV}$		
Linear regulation	$\leq 0.01\% + 5\text{mV}$		
Setting resolution	HDP135V6S	10mV	
	HDP180V8S	10mV	
	HDP1160V4S	0~100V	10mV
100~160V		100mV	
Setting precision	$\leq 0.1\% + 1$ digits		
Read back resolution	HDP135V6S	10mV	
	HDP180V8S	10mV	
	HDP1160V4S	0~100V	10mV
100~160V		100mV	
Read back accuracy	$\leq 0.1\% + 1$ digits		
Ripple	HDP135V6S	10mVrms	
	HDP180V8S	10mVrms	
	HDP1160V4S	15mVrms	
Overvoltage protection(OVP)	HDP135V6S	0 ~ 37V $\pm 0.2\%$ FS	
	HDP180V8S	0 ~ 88V $\pm 0.2\%$ FS	
	HDP1160V4S	0 ~ 176V $\pm 0.2\%$ FS	
Maximum voltage	HDP135V6S	35.2V $\pm 0.2\%$	
	HDP180V8S	81V $\pm 0.2\%$	
	HDP1160V4S	162V $\pm 0.2\%$	
Current			
Load regulation	$\leq 0.2\% + 3\text{mA}$		
Linear regulation	$\leq 0.2\% + 3\text{mA}$		
Setting resolution	1mA		
Setting precision	$\leq 0.2\% + 3\text{mA}$		
Read back resolution	1mA		
Read back accuracy	$\leq 0.2\% + 3$ digits		
Ripple	HDP135V6S	5mArms	
	HDP180V8S	8mArms	
	HDP1160V4S	10mArms	

Current		
Overcurrent protection (OCP)	HDP135V6S	0 ~ 7A ± 0.2%FS
	HDP180V8S	0 ~ 8.8A ± 0.2%FS
	HDP1160V4S	0 ~ 4.4A ± 0.2%FS
Maximum current	HDP135V6S	6.2A ± 0.2%
	HDP180V8S	8.2A ± 0.2%
	HDP1160V4S	4.1A ± 0.2%
Quick charge		
Output voltage range	5V ~ 12V	
Output power	Maximum 18 W	
Supported quick charging protocol	DCP (Apple, Samsung and BC1.2), Qualcomm QC2.0/QC3.0, Huawei Quick Charge Protocol FCP, Samsung Quick Charge Protocol AFC	
General features		
Remote interface	RS232 (Female connector)	
	Baud rate: 2400	
	Data bit: 8	
	Stop bit: 1	
AC input	115 Vac ± 10%, 230 Vac ± 10%, 50/60Hz	
Working conditions	Temperature -10 ° C to 40 ° C, relative humidity ≤80%	
Storage conditions	Temperature -20 ° C to 60 ° C, relative humidity ≤80%	
Cooling	Air cooling	
Weight	HDP135V6S	1.3Kg
	HDP180V8S	1.5Kg
	HDP1160V4S	1.5Kg
Dimensions	85×160×260(mm)	

Table 6.1 Indicators

## 7 Fault handling

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1. If the power supply voltage is normal and the display screen does not light after the instrument is started, the fuse may be blown or other faults may occur. Turn off the power switch , disconnect the power cable, replace the fuse, or ask professional personnel for maintenance.
2. When performing constant voltage output, the output voltage is less than the set value and CC light is on. It is the current protection. The instrument will automatically switch to constant current working state. At this time, check the load or increase the maximum current according to the situation.
3. When performing constant current output, the output current is less than the set value and CV light is on. It is the open circuit voltage protection. The instrument will automatically switch to constant voltage working state. At this time, check the load or increase the maximum voltage according to the situation.
4. If the fault persists, please contact Hantek.

## 8 Appendix

### 8.1 Appendix A: accessories and options

Order information	Order number
<b>Host model</b>	
210W/35V/6A, AC input 115/230VAC	HDP135V6
210W/35V/6A, AC input 230VAC	HDP135V6A
210W/35V/ 6A, AC input 115VAC	HDP135V6B
210W/35V/6A, AC input 115/230VAC, RS232	HDP135V6S
180W/80V/8A, AC input 115/230VAC, RS232	HDP180V8S
180W/160V/4A, AC input 115/230VAC, RS232	HDP1160V4S
<b>Standard accessories</b>	
Power cables that comply with national standards	--
Alligator clip test line	--

## 8.2 **Appendix B: Warranty summary**

Qingdao Hantek Electronics Co., LTD. (hereinafter referred to as Hantek) undertakes that main body and accessories of its instruments shall be free from any material and process defects during the warranty period.

During the warranty period, if the product is proved to be defective, Hantek will repair or replace the product free of charge. Please refer to Hantek's official website or product warranty card for details. For full repair service or warranty instructions, please contact Hantek Repair Center or local agencies.

Hantek disclaims all warranties, express or implied, other than those provided in this summary or any other applicable warranty card, including, but not limited to, any implied warranties of merchantability and applicability for special purpose. In no instance shall Hantek be liable for indirect, special or consequential loss.



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Address: Building 35, Lian Dong U Gu, No.780 Baoyuan Road, High-tech Zone, Qingdao, Shandong  
Province

Switchboard: 400-036-7077

E-mail: [service@hantek.com](mailto:service@hantek.com)

Tel: 0532-55678770, 55678772, 55678773

Postcode: 266000

Website: [www.hantek.com](http://www.hantek.com)

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