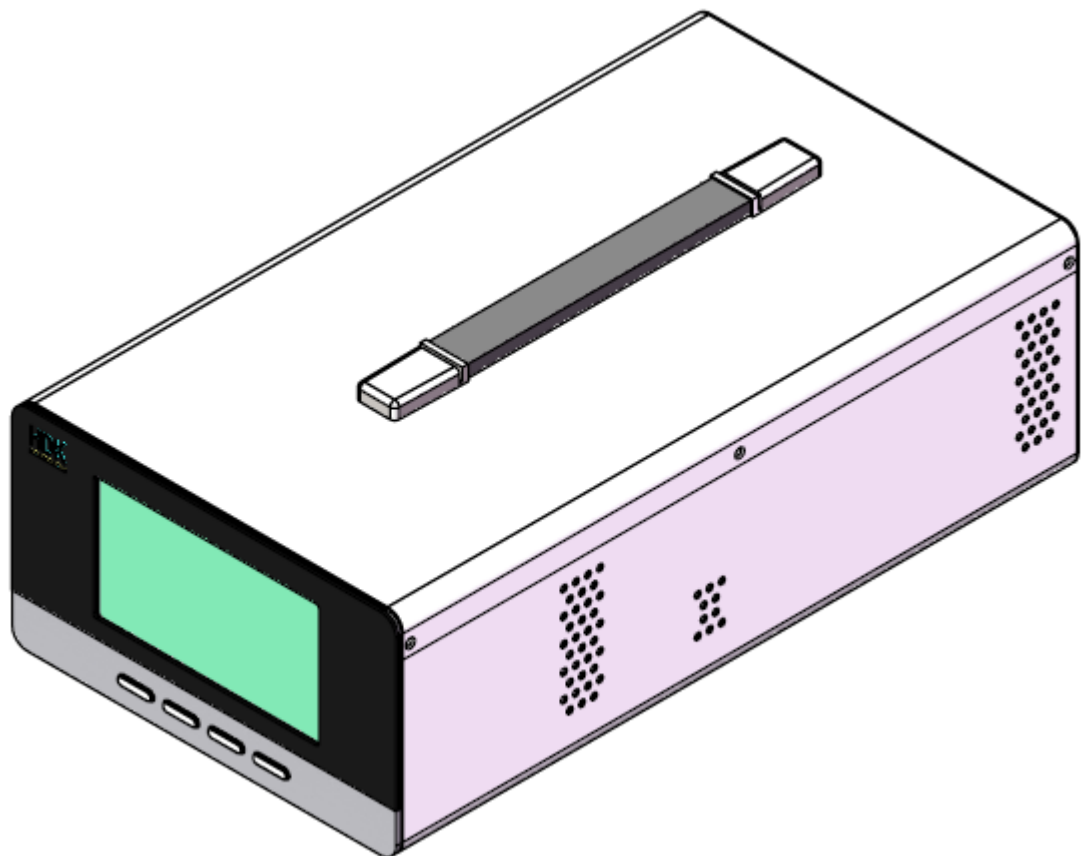


AIRFIELD MSC-CCR MANUAL



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Disclaimer

Hangdakang Electromechanical Technology (Wuhan) Co., Ltd. (hereinafter referred to as "HDK" or "the Company"). Its CCR products comply with the requirements of the Civil Aviation Administration of China (CAAC), the International Civil Aviation Organization (ICAO), and the International Electrotechnical Commission (IEC). All warranties provided by HDK do not cover cases involving gross negligence or improper handling of any products.

If the product has avoidable defects or malfunctions due to mechanical, electrical, or physical flaws, the Company may provide spare parts required for repairs.

The replacement and delivery of spare parts shall comply with the requirements for proper product storage, installation, and maintenance. A written request for spare parts must be submitted to the Company.

The Company reserves the right to inspect products with avoidable defects or damages at its facilities. The Company's obligations are limited to the labor costs required for product disassembly, assembly, and delivery of the corresponding products.

The product is specifically designed for its intended use. Any use beyond the scope of the instruction manual is deemed improper and excluded from the warranty, including:

- ✓ Any alteration or modification to the product without the explicit approval of Hangdakang.
- ✓ Use of unauthorized tools that are incompatible, unapproved, or not authorized by local regulations.

The Company shall not be liable for personal injury or damage caused by improper use of the equipment.

HDK reserves the right of interpretation within the scope permitted by law.

1. Safety

Airfield Ground Lighting is installed in high voltage series circuits, where the primary voltage is usually from several hundred to thousand volts and can be fatal if operated improperly. International or national standards referring to the electrical safety and safety of electrical operations should be strictly implemented during the operation and at any stage where powered lighting products are handled or maintained. Correct safety code must be followed during any operation in lighting circuit On and Off state conditions.

Pay attention to all safety instructions in this user manual. Negligence in following safety practices and instructions can result in serious injury, accident, or death. Safety instructions are categorized following the IEC standard and accompanied by an icon accordingly. Safety instructions and icons are listed and explained below:

DANGER:

Risk of electrical shock or flashover. Before any operations disconnect the equipment from line voltage, never connect or disconnect live circuits. Failure to observe "Danger" may result in severe injury, death, or equipment damage.

WARNING:

Failure to observe "Warning" may result in personal injury, death or equipment damage.

CAUTION:

Ignoring or violating "Caution" may cause damage to equipment.

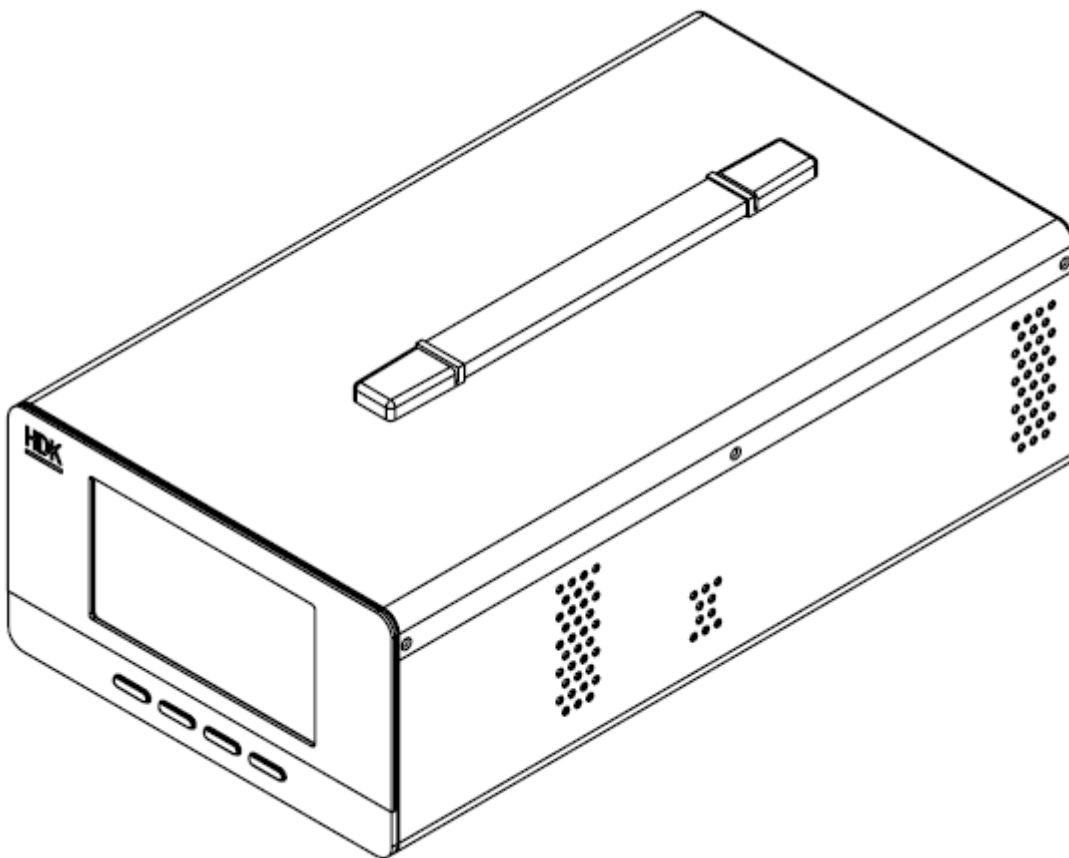
Note:

Explanations and supplements to parts of the description.

2. Introduction

The compact sine wave regulator (CCR - MSC) manufactured by Hangdakang adopts an integrated structure and modular circuit design, boasting ruggedness and durability. With a small size, the product is equipped with a high-definition LCD display. Its minimalist UI combined with physical buttons enables simple and convenient operation. This product is suitable for various types of laboratories and airports.

Figure 1 - Sine Wave CCR



2.1. Model

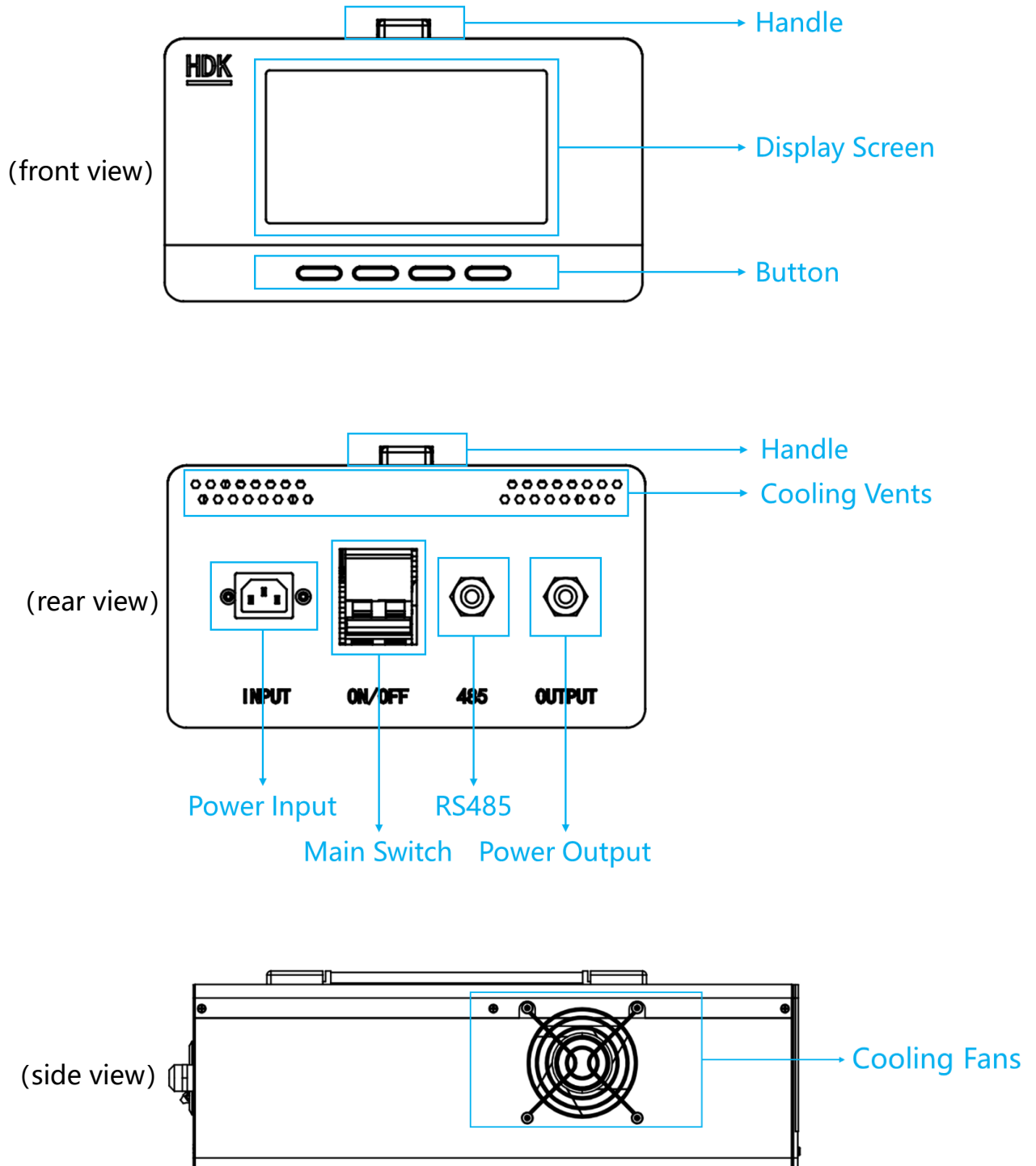
This manual presents essential information for handling, installation and maintenance operations of the CCR-MSC. The model is shown in Table 1:

Table1 - CCR Model List

Name	Model	Power supply	Type
Compact Regulator	CCR-MSC	220V AC	Sine Wave

2.2. Product Features

Figure 2 - CCR Appearance



2.3. Electrical Properties

CCR Power Input

- AC 220V $\pm$ 10% 50Hz $\pm$ 5Hz

CCR Output Current

Table 2 - CCR Output Current

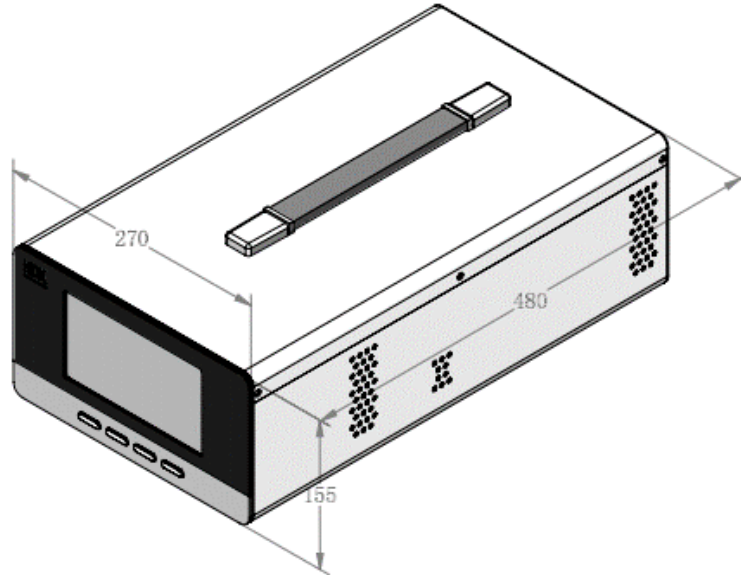
Output Current (Max)	Step	Rated Current Output	Rated Capacity
6.6A	5	2.8A,3.4A,4.1A,5.2A,6.6A	500VA

Note: The output current can also be manually set to any value between 2.7A and 6.7A, with each key press adjusting it by 0.1A.



2.4. Mechanical Properties

Figure 3 - Major Dimensions of The CCR



Degree of Protection

- IP21 (IEC 60529)

Operating Temperature

- -5°C ~ +55°C

Storage Temperature

- -40°C ~ +55°C

Product Size

- 480mm×270mm×155mm

Weight

- Net Weight: 12.5 kg

Package Dimensions

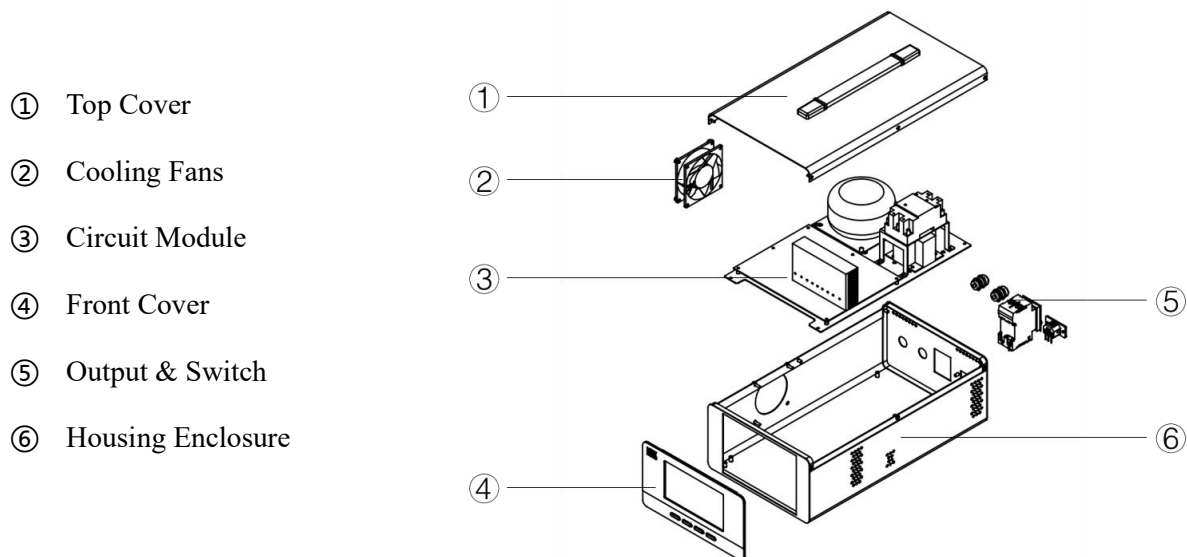
- 600mmx350mmx325mm; Weight 22 kg

2.5. Main Components

HDK CCR-MSC is equipped with the following main components:

- Constant Current Regulator
- Power Supply Cable
- Power Output Cable
- Product Qualification Certificate

Figure 4 - Exploded View of The CCR



2.6. Nameplate

Constant Current Regulator

Model: CCR-MSC

Input: 1 phase AC 220V/ 50Hz

Output: 2.8A~6.6A

Rated Capacity: 500VA

Size: 480mmx270mmx155mm

Date: 2025.11

SN: 6AG0566

www.hdk-aero.com



3. Installation

WARNING: Read installation instructions in their entirety before starting installation.



- Observe all safety regulations. To avoid injuries, always disconnect power before making any wiring connections or touching any parts.
- Allow ample room for maintenance, panel accessibility.

Note:



This section provides the installation instructions for HDK compact CCR.

3.1. Unpacking Unit

Please carefully check whether the package is in good condition. If the product or accessories are damaged during delivery, demand compensation from the carrier immediately.

Upon receipt of delivery, please confirm and check that the information in the delivery documents is inline with the project requirements and construction design. Check that quantity, type, specification of the CCR are consistent with the actual delivery. If you have any doubts, please contact the supplier as soon as possible.

CAUTION:  The packaging of this product can be used for various purposes such as future maintenance, uninstallation and transportation of the CCR. Please keep the product packaging properly after receiving the cargo.

3.2. Equipment Installation

CAUTION:  Place the CCR in a well-ventilated room, on a workbench or table with sufficient space for personnel to inspect and maintain it. Ensure that the input AC voltage is within $\pm 10\%$ of the nominal value and that the three-pin socket is grounded as required.

Note:  A standard AC three-pin input plug is factory-fitted. If an adapter for a different plug type is required, replace the three-pin plug with a local 10A, 250V power cable.

- 1) The equipment shall be placed on a well-ventilated workbench, away from heat sources, and protected from dust accumulation and moisture to prevent rusting.
- 2) The workbench for placement shall be flat and sturdy.
- 3) The distance between the back and sides of the equipment and the wall or obstacles shall be more than 300mm to facilitate heat dissipation and maintenance.

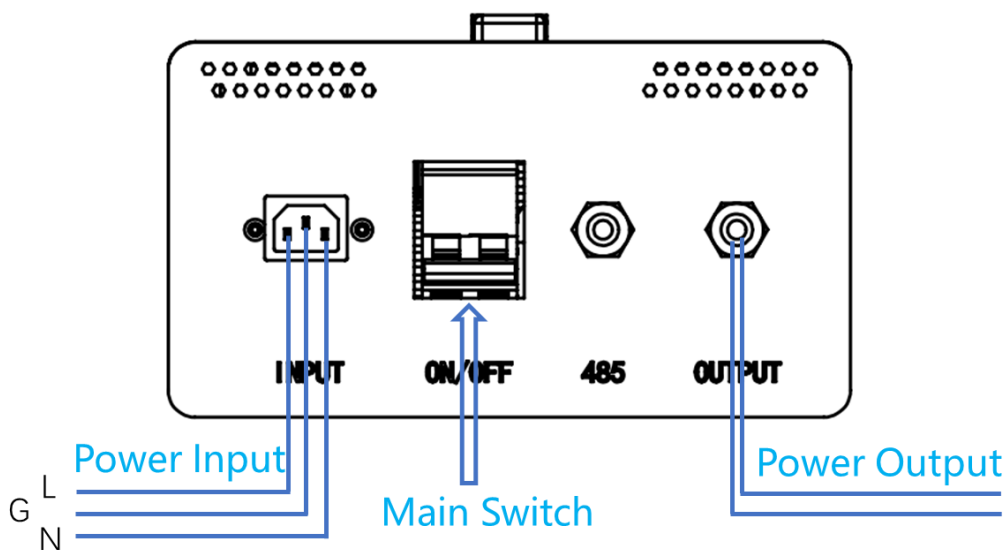
3.3. Circuit Connection of CCR

- 1) Connect one end of the power input cable to the power input port on the back of the device, and the other end to a 220V power socket. Ensure the power socket is grounded.
- 2) Connect one end of the Gland of the secondary power output cable to the output port on the back of the device, and the other end to the light fixture.

Note: Do not exceed the lamp capacity of 500VA to avoid triggering the driver protection.



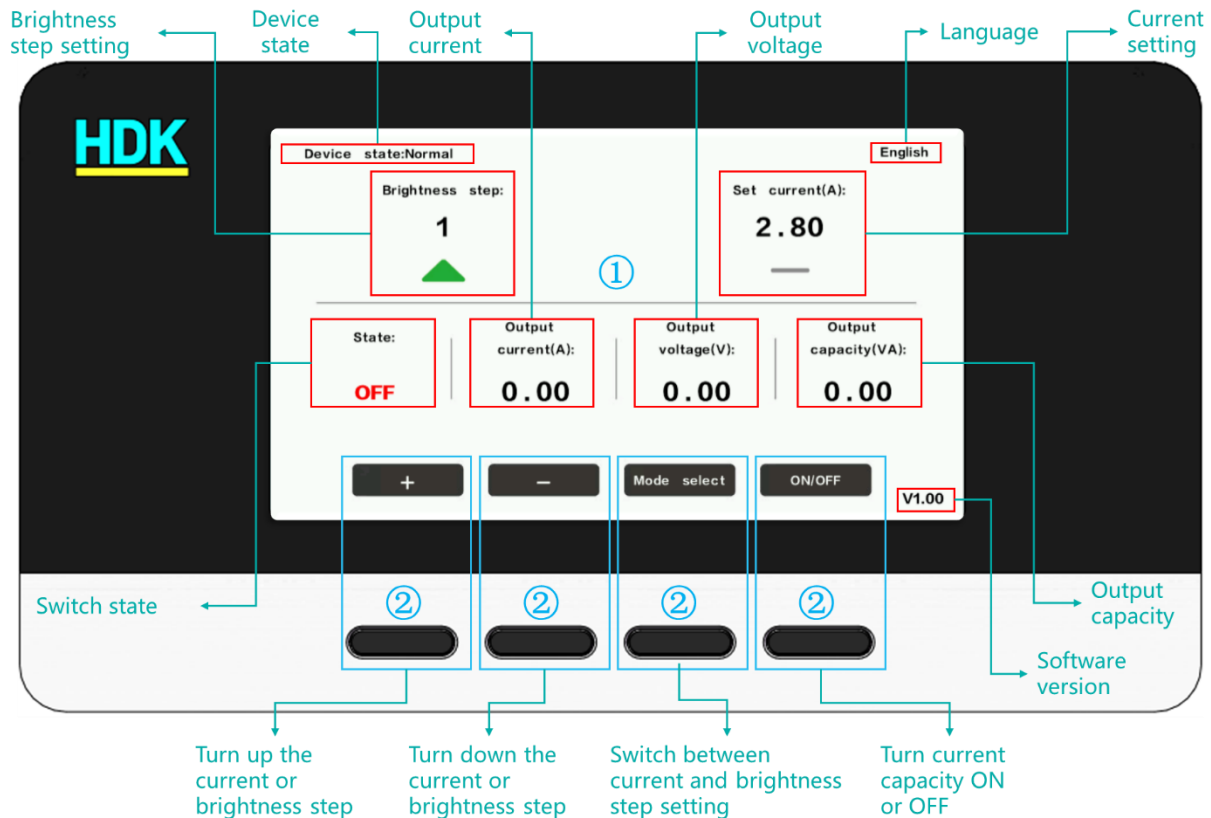
Figure 5 - Diagram of CCR Input and Output Circuit Connection



4. Operation

4.1. LCD Display

Figure 6 - UI Display of the CCR



- ① LCD Display: Shows the CCR operating parameter information;
- ② Mechanical Buttons: Set the specific parameters of the CCR.

Note: The adjustment and setup of each function group within the blue wire frame on the LCD screen must be completed by operating the corresponding mechanical button ② below one by one. The detailed function explanations are as follows:



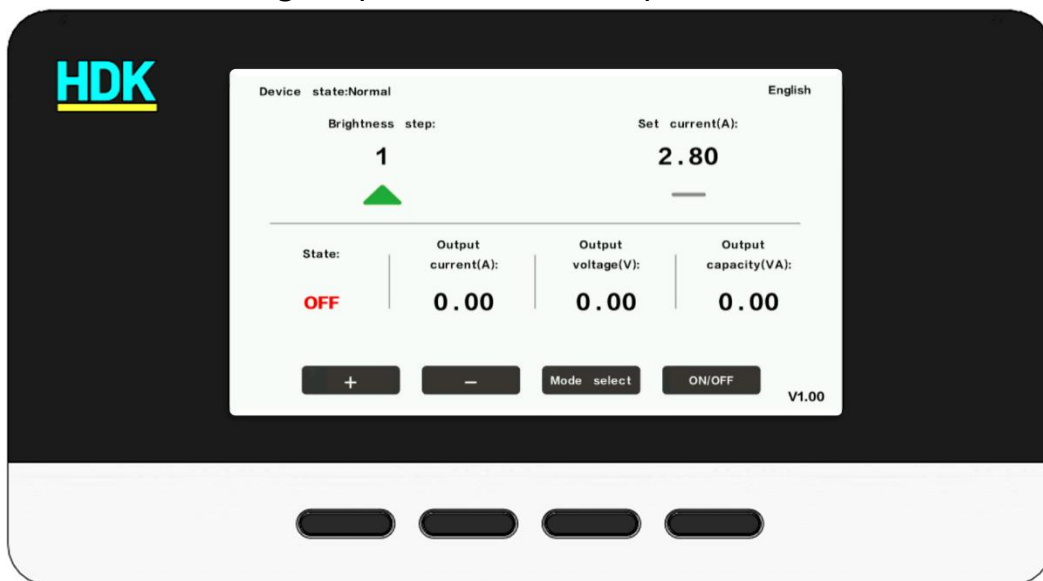
- a) "+" turn up the current or brightness step
- b) "-" turn down the current or brightness step
- c) "Mode Select" switch current and brightness step settings.
- d) "ON/OFF" turn the capacity output on or off

4.2. Operation UI

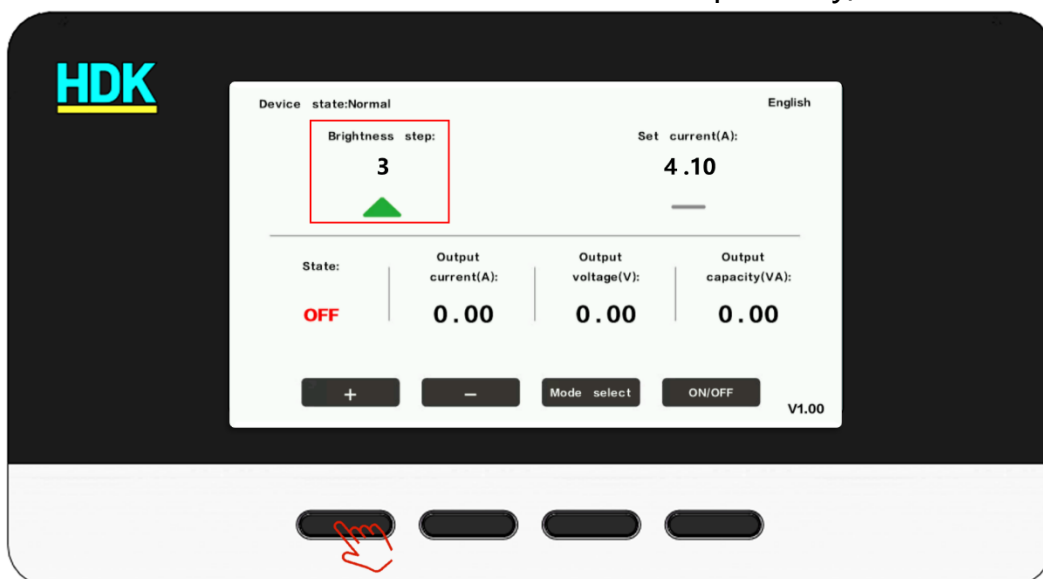
Note: After the circuit connection of the CCR installation is completed, manually turn on the main switch on the back of the CCR.



- **Turn on The CCR:** Switch on the main switch on the back of the CCR, and the main screen will light up, then enter the operation interface.



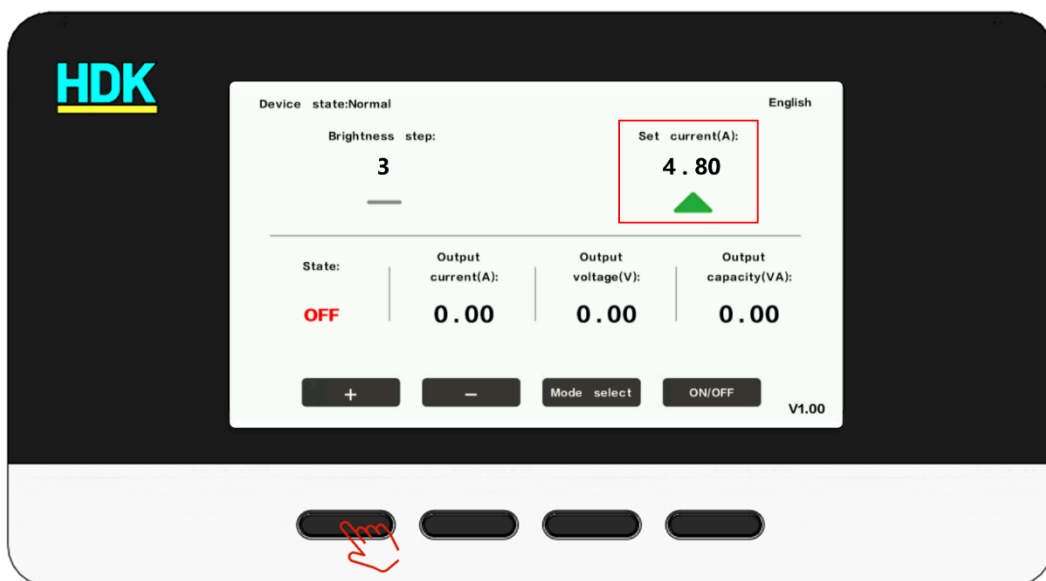
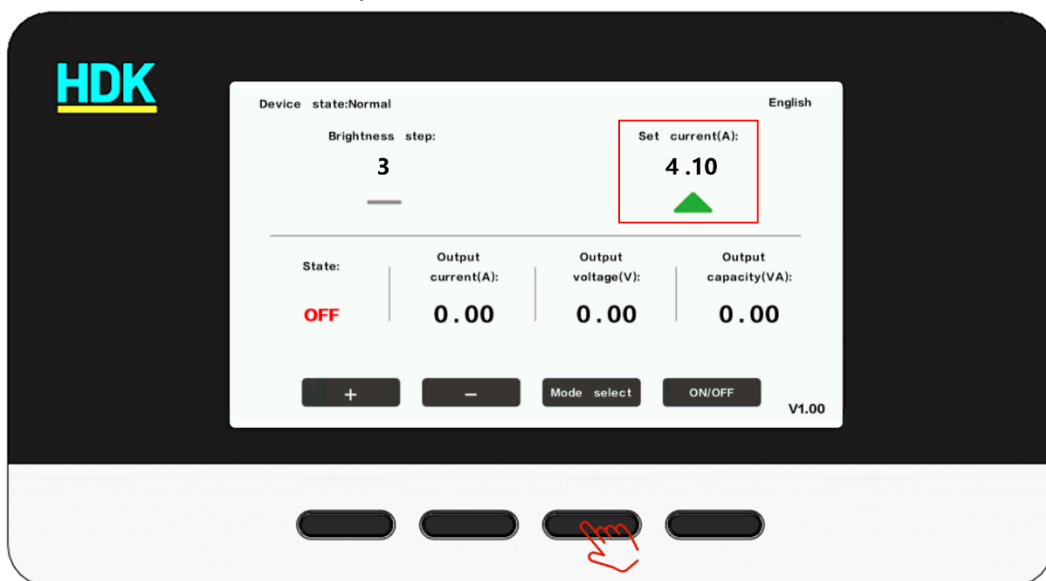
- **Setting Brightness Step:** Press the "+" or "-" corresponding mechanical button to select the desired brightness Step (Step 1 to Step 5, corresponding to output currents of 2.8A, 3.4A, 4.1A, 5.2A, and 6.6A respectively).



Note: If the cursor stays on the Set current during brightness step adjustment, press the "Mode Select" corresponding mechanical button to switch the cursor to the brightness step setting first, then perform the corresponding brightness step configuration.

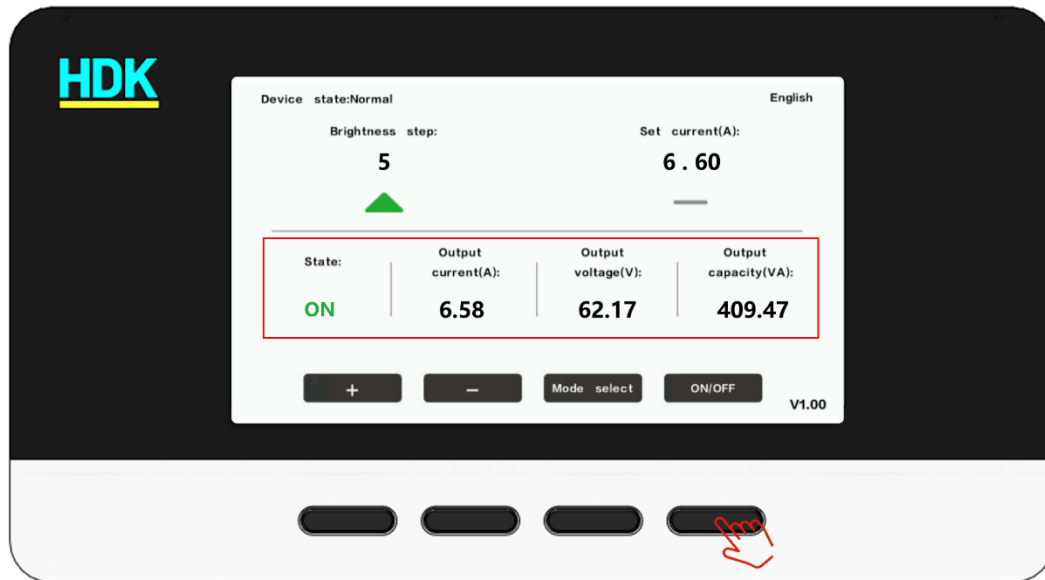


- **Setting Current:** Press the "Mode Select" corresponding mechanical button to switch until the cursor stays on the "Set current", then use the "+" or "-" corresponding mechanical button to set the specific current value (any value between 2.7A and 6.7A).



- **Turn on Capacity Output:** Press the "ON/OFF" corresponding mechanical button (the switch status on the screen will display "ON"), and the CCR will

output the set current value to complete the load power-on.

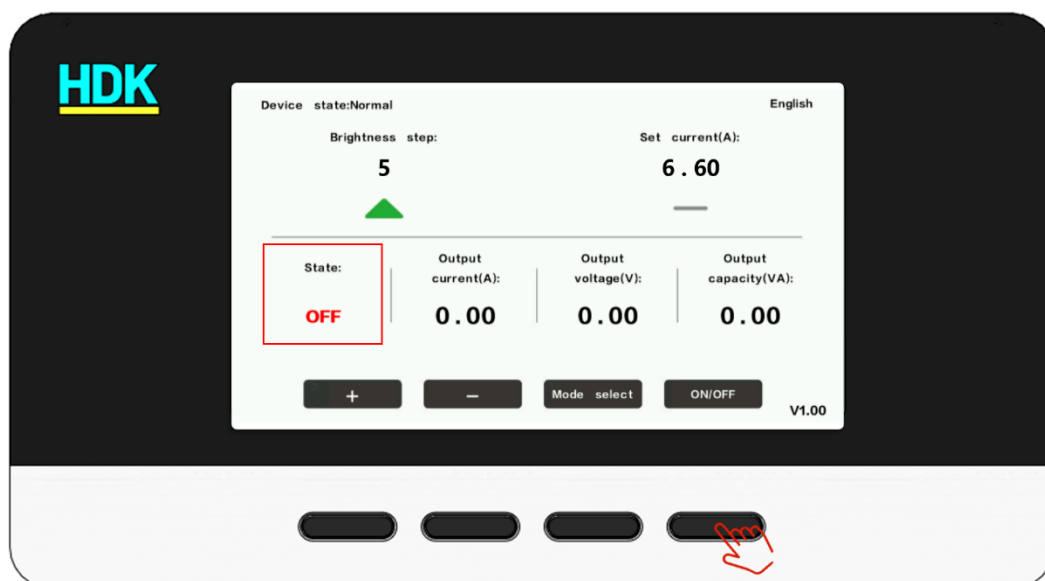


Note:



Even when the load is powered on, the brightness step or current value can be adjusted and setting at any time as needed. Resetting the current value may dynamically update the displayed brightness step. At the moment the power output is turned off, there will be a short delay before the load is completely de-energized. Do not restart the power output until all output parameters on the display have returned to zero, otherwise, the CCR will trigger an abnormal alarm.

- **Turn off The CCR:** Press the "ON/OFF" corresponding mechanical button again (the switch status on the screen will display "OFF"), complete the load power-off, and then turn off the main switch on the back of the CCR.



5. Maintenance

5.1. Basic Maintenance Program

DANGER: Do not open the CCR top cover under any circumstances to prevent high-voltage electric shock. Disconnect the power cord plug before cleaning the CCR or inspecting its grounding status.



Suggested basic maintenance program is presented in table 3.

Note: The following is a recommended plan, the specific implementation shall be subject to the airfield lighting maintenance regulations of the lamp-using unit.



Table 3 - Basic Maintenance Program of CCR

Maintenance	Maintenance Task
Daily	1. Visually inspect the CCR alarm information and operating status.
Monthly	1. Check if the CCR circuit connections are loose 2. Clean the CCR
Semiannual	1. Clean the dust accumulated on the exterior of the CCR cooling fan. 2. Inspect the integrity of the dimmer's grounding device.
Unscheduled	1. Inspection and maintenance for special reasons.

5.2. Maintenance Procedures

Following maintenance procedures can be performed:

Table 4 - Maintenance Items for CCR

Maintenance Items	Method/Steps
Check the CCR operating status	Visual inspection
Check and record whether the CCR output current values at each brightness step meet the requirements	Visual inspection
Clean the CCR	Use a clean cloth
Verify that the CCR grounding wire is reliably connected to the protective grounding	Multimeter inspection

CAUTION:



When cleaning the dirt on the surface of the CCR screen, do not use a rag covered with dirt, or a hard brush to rub the surface of the screen, so as not to scratch the surface.

5.3. Trouble Shooting

When the CCR malfunctions, it will automatically cut off the current output. The switch status on the LCD display will show "OFF", and the device status will display a red flashing fault message. For specific fault information, refer to the table 5 below:

Table 5 - Trouble Shooting

Problems	Solutions
Overcurrent	1.The load connected to the secondary circuit is excessive, exceeding the 500VA load capacity. Reduce the connected load.
Temp Abnormal	1.CCR cooling fan failure; 2.Excessive dust accumulation on the CCR cooling fan or air vents. Clean the dust in a timely manner.
Open Circuit	1.The load is not connected, or the load is in an open circuit state due to failure.
Input Undervoltage	1.The input power voltage is unstable or lower than -10% of the nominal value. Turn off the CCR and measure whether the input power voltage is normal.
Driver Protect	1. The driver protection is triggered, the main power switch must be restarted to reset the system.
Frequency Abnormal	1. The input frequency exceeds $\pm 10\%$ of the nominal value

6.Support

6.1. Customer Service

If you need after-sales service, please contact us through the after-sales service hotline or sales consultant.

After-sales service hotline

+86-27-63498449

Please prepare the following information in advance in order to get the service quickly:

- Product name and serial number
- Airport code or company name
- Your phone and email address

6.2. Recycling

Improper disposal of scrapped electronic equipment may have a negative impact on the environment and human health. Regarding the recycling of electronic products, please follow the local laws and regulations.

6.3. About HDK

Handakang Electrical & Mechanical Technology Corp. Ltd., established in 2003 in Wuhan/China is an already professional known provider of Airfield Lighting, Navigation Aids, Frangible Mast Systems and Heavy Duty Support Equipment. In 2017 HDK started to create a new LED Airfield Lighting Portfolio supported by known capacities from Europe, to become the supplier for Airfield Customers in China, Asia, Europe and all over the World for reliable, efficient and innovative Airfield Lighting Products at highest quality.

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