

DC580 Numerically Controlled DC Boost and Buck Adjustable Power Supply

Product Manual



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1 product description

DC-580 digital controlled step-up and step-down adjustable power supply is small in size, powerful in function, stable in performance, high in precision, and contains a variety of humanized system settings. Adopting 1.44-inch LCD high-definition display, one screen displays a variety of data, the page is simple and rich.

2 Parameter Description

2.1 Basic parameters

1. Input voltage: 8V-32V (Note: The lower the input voltage, the smaller the maximum output power);
2. The output voltage: 1.8-32V;
3. Output current: 0-5A;
4. Output Power: 0-80W (Note: When running at full load, ensure that the input voltage is greater than 15V and the power is greater than 100W);
5. Voltage resolution: 0.01V;
6. Current resolution: 0.001A;

2.2 Protection mechanism parameters

1. Input anti-reverse connection, output anti-short connection and anti-backflow, can charge the battery (distinguish positive and negative)

2. Output overvoltage protection (OVP): 1.8V-35V custom adjustment, default 35V;
3. Output overcurrent protection (OCP): 0-5A custom adjustment, default 5A;
4. Output over power protection (OPP): 0-80W custom adjustment, default 80W;
5. Output over temperature protection (OTP): 45-120 °C self-defined adjustment, closed by default;
6. Output overtime protection (OHP): 0-100h custom adjustment, closed by default;
7. Power-on default (ACQ): Closed by default

3 Function introduction

3.1 Interface display diagram



description:

① Digitally set voltage and current; ② Output voltage; ③ Output current; ④ Output power; ⑤ Running time; ⑥ Switch indicator; ⑦ CC/CV constant current and constant voltage display; ⑧ $\sqrt{\quad}$: Normal output status, if the software protection is triggered, the protection type will be displayed, OVP/OCP/OPP/OTP/OHP; ⑨ temperature display; ⑩ output parameters: voltage, current; ⑪ output power; ⑫ output energy; ⑬ input voltage value; ⑭ output voltage value; ⑮ output current value; ⑯ output power value;

3.2 Parameter setting description

3.2.1 System settings

1. Default Switch: Set the power-on device to turn on or turn off the output by default;
2. Language: Set English and Chinese switching;
3. Brightness: Support display brightness adjustment;
4. Direction: Set the direction of four-way rotation;
5. Temp Unit: Set the temperature unit ($^{\circ}\text{C}$ or $^{\circ}\text{F}$).

3.2.2 Software protection settings

During the operation of the equipment, once the software protection mechanism is triggered, the output of the equipment is disconnected and the buzzer will beep for a long time, and the corresponding mechanism code will be

alarmed. Press the switch key and the knob again to release the alarm and return to the normal state.

1. **Over Voltage:** Set the threshold voltage, and alarm OVP when the output voltage exceeds the set voltage;
2. **Over Current:** Set the threshold current, and alarm OCP when the output current exceeds the set current;
3. **Over Power:** Set the threshold power, and alarm OPP when the output power exceeds the set power;
4. **Over Temp:** Set the threshold temperature, and alarm OTP when the device temperature exceeds the set temperature
5. **Timeout:** Set the threshold time, when the output time exceeds the set time, it will alarm OHP;

3.3 Intelligent temperature control system

When the product temperature is greater than 45° C or the output current is greater than 1A, the fan will automatically start, and the fan will automatically turn off when the conditions are not met.

4 Key Description

Switch button:

On any page, short press the power switch, and long press to enter the waveform page (in the software protection alarm state, short press reset);

Coding button: rotate left or right to realize page turning or adjustment function;

Main page: short press the timer to clear it, long press to enter the state of setting output voltage and current (in this state, short press to adjust the output voltage and current by bit);

Battery display page: Long press to switch to the value of clear 0, the corresponding font color will turn white (power, energy, timing), short press to clear 0;

Settings page: short press to enter the setting options, and adjust the specified setting item by rotating the button (the corresponding option will turn yellow at this time), long press to enter the specific setting of this option, and long press again to exit the specific setting (when exiting, it will Automatically save the set values) Short press again to exit the setting options;

Waveform interface: Press and hold to switch the output voltage and current waveform interface.

5 Upper computer Software introduction (Suitable for DC580 V1.1 version)

After the DC580 is powered on, connect to the computer through the serial

port module, select the corresponding serial port number (if you find the serial port number, please check whether the computer is installed with the CH340 driver), and then open the serial port, click Connect device, the message window will prompt whether the connection is successful, the connection is successful. The corresponding product model will be updated in the lower left corner of the back page.

5.1 Firmware upgrade

After turning on the Upper computer to connect to the device, select the correct latest device firmware file and data packet length (optional) to perform the firmware upgrade operation. Please do not power off the device during the upgrade process to avoid the failure of the upgrade and cause the device to crash. If the upgrade fails, please disconnect the power supply and press and hold the coding button to power on the device, try to re-enter the upgrade mode, and turn on the upper computer again to upgrade the firmware. After the firmware upgrade is successful, the device will automatically run the latest firmware, and the Upper computer software will restart.

5.2 Control operation

First, you must open the correct serial port number before connecting the device button to take effect. When operating the upper computer, all control input boxes cannot be empty, and only numbers and decimal points can be input (decimal points can only be input in specific positions to take effect, such as voltage 10.00 , Current 3.000, power 080.0), the setting will take effect after the cursor leaves the input box.

You can observe the waveform status light to determine whether the

waveform status is acquired in real time (green represents acquiring data waveform, red represents data waveform acquisition pause), and the waveform status light can be controlled by the start/pause next to the waveform. The waveform can also be zoomed in by selecting the specified area with the left mouse button to view the waveform more intuitively. If you want to analyze the data for a period of time, click the save button next to the waveform, and the DC-Date.xlsx file will be automatically generated on the desktop and open the file Just perform data analysis.