

DC REGULATED POWER SUPPLY

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USER MANUAL

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**Before using the instrument, please read the user manual carefully, specially pay attention to the warning. Please DO NOT ignore it, as it is very important!**

**Warning:** Do not connect any load to the power supply before it's turned on. Likewise, make sure to disconnect the load before shutting down the power supply. Damages to the power supply can happen if you do not follow this. Such damages are not under warranty.

**Warning:** If you are running inductive load like magnetic coils, DC motors, stepper motors, etc., make sure to change the voltage/current slowly, and NEVER turn the power supply on or off with a inductive load connected!

**1.Summary**

This series single output dc power supply is a kind of switching power supply with LED digital display. it has high precision, high efficiency, light, energy efficiency and environmental protection characteristics. Also it has perfect protection functions, such as over voltage, over temperature and short-circuit protection which can protect the testing load and power supply form damage. It can be used both as constant voltage and constant current dc power supply. What's more, it's constant voltage and constant current operation mode can be automatic conversion. It is widely used in LED testing and aging, motor manufacturing ,PCB manufacturing, battery, dc fan, etc . It is the first choice for school, laboratory and production line.

Model	Rated output		Display	Precision
	Voltage (V)	Current (A)		
1510D	0-15V	0-10A	3 LED display	±1%
1520D	0-15V	0-20A	3 LED display	±1%
303D	0-30V	0-3A	3 LED display	±1%
305D	0-30V	0-5A	3 LED display	±1%
3010D	0-30V	0-10A	3 LED display	±1%
602D	0-60V	0-2A	3 LED display	±1%
603D	0-50V	0-3A	3 LED display	±1%
605D	0-60V	0-5A	3 LED display	±1%
1003D	0-100V	0-3A	3 LED display	±1%

**2. Specifications**

**2.1 Rated operating condition**

Input voltage: 220V±10% 47~63Hz or 220V/110V±10% 47~63Hz

Working conditions: -10°C-40°C relative humidity :< 80%

Storage conditions: -20°C-80°C relative humidity :< 80%

## 2.2 Output technical parameters

Power effect ion:  $CV \leq 0.05\% + 1\text{mV}$        $CC \leq 0.05\% + 10\text{mA}$

Load effect ion:  $CV \leq 0.1\% + 5\text{mV}$        $CC \leq 0.1\% + 10\text{mA}$

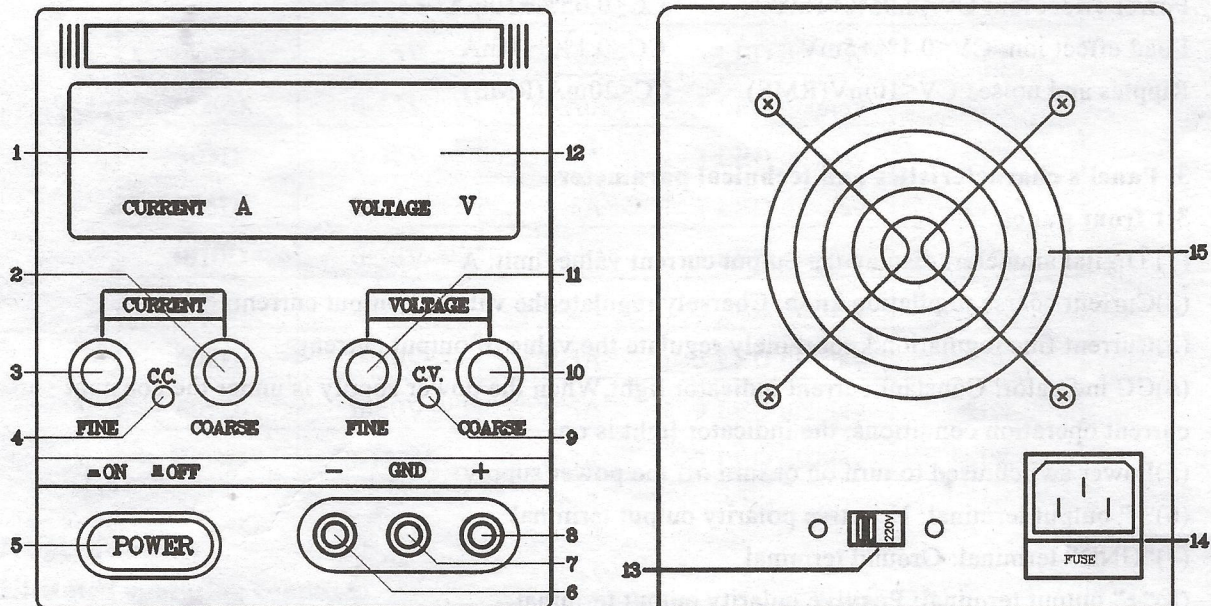
Ripples and noises:  $CV \leq 10\text{mV(RMS)}$        $CC \leq 20\text{mA(RMS)}$

## 3. Panel's characteristics and technical parameters

### 3.1 front panel

- (1) Digital ammeter: display the output current value, unit: A
- (2) Current coarse regulation knob: Coarsely regulate the value of output current.
- (3) Current fine regulation knob: Finely regulate the value of output current.
- (4) CC indicator: Constant current indicator light, When the power supply is under the constant current operation conditions, the indicator light is on.
- (5) Power switch: used to turn on or turn off the power supply
- (6) "-" output terminal: Negative polarity output terminal
- (7) "GND" terminal: Ground terminal
- (8) "+" output terminal: Positive polarity output terminal
- (10) Voltage coarse regulation knob: Coarsely regulate the value of output voltage
- (11) Voltage fine regulation knob: Finely regulate the value of output voltage
- (12) Digital voltmeter: display the output voltage value, unit: V

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### 3.2 Back panel

(13)AC input voltage selection switch:AC110V/220V input voltage selection switch. It has no switch in default state.

(14)Power input socket : connect with power cord to swith on the power. (fuse in it)

(15)Cool Fan: Used for cooling. It is intelligent fan, automatically adjust the fan speed according to the state of load, can effectively reduce noise, prolong the life of fan.

## Chapter 4 Detailed Explanations

### 4.1 Preparation before energizing

4.1.1 Please make sure the input voltage is AC198 -242V 50Hz, or 99V-121V 60Hz .if there has input voltage selection switch , please make sure the voltage you choose is the one you need , otherwise it will make damage to the power supply.

4.1.2 Make sure there is too much space for cooling, The two sides and back of the power supply should have 10cm space at least. the operating temperature should be less than 40<sup>0</sup>C, humidity less then 80%. Please **DO NOT** use it in the place where has acid and alkaline gases or excessive dust. Also please prevent the power supply from rain, sun exposure and Strenuous Vibration.

4.1.3 The copper diameter of the cable should be over than 0.5mm<sup>2</sup> and it is certainly to add a control switch for it, so that it can be used to cut off the power completely when there is a need.

4.1.4 before running the power supply, it is better to turn it on for preheating 10 minutes. Then the

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testing will be more accurate.

### 4.2 Operation

4.2.1 Contact the power to the AC power with the plug and press the power switch (5), then the indicator C.C or C.V will be light and LED will has display.

4.2.2 Constant voltage setting: Clockwise current regulate knobs(2) and (3) to the maximum firstly, adjust voltage regulate knobs (10) and(11) to the necessary value of voltage, then connect the load with output terminals(6) and (8).The power supply can be used for work now. In this time the CV indicator light (9)will be on. That is to say, the output voltage is constant while the output current will be changed with the load.

(the load current of power supply must be within the maximum output current, otherwise, the power supply will be into constant current operation mode automatically. Then constant current indicator light will be on. the output voltage value will decrease)

4.2.3 Constant current setting: regulate voltage setting knob (10) to any value from 3~5V, then counterclockwise current regulate knobs(2) and (3) to the minimum. Use a lead to make terminals (6) and (8) shorted. Adjust the current knobs (2)and(3) to the necessary value of current, then take away the lead. Regulate the knobs (10) and(11)to the necessary value of voltage. Connect with the load to output terminals(6) (8) . Now the power supply can be used for work. At this time, the power supply operates under constant current state. the CC Indicator light (4)will be on. The output current is

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constant while the output voltage will be changed with the load. If the CC indicator light(4) is not on, it means the power supply is not under the constant current operation state. Should increase the load or change the constant current value to make the current be constant. When the power supply is shorted, it will have some light noise. It is a normal phenomenon.

#### 4.3 Notes:

- 4.3.1. To avoid the damage from heating, please make sure the copper diameter of the input or output cable should be tight enough. Regularly check whether terminals are tight. If loose, the contact resistance will be increased then it will burn out terminals
- 4.3.2. The fan for the power supply is intelligent one. It will automatically adjust the speed according to the state of the load. Using intelligent fan effectively can reduce fan noise, prolong the service life of fan
- 4.3.3. There will be a buffer for 2~3 seconds when turn on the power supply, also it has a buffer for 1~2 seconds when turn off it. Please do not turn on and turn off it frequently, or it will reduce the life of the power supply.
- 4.3.4 To reduce the ripple factor and safely use the power supply, please connect the GND terminal(7) to any one of the "+" terminal or "-" terminal.
- 4.3.5. This power supply can be used for series and parallel. If you want to use more ones to series or parallel, please contact dealer or factory to check whether it is ok.

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### 5. Routine Maintenance

- 5.1 Fuse Change: If the fuse was burned out, please find the reason firstly then change it with the same capacity. The fuse is on the back panel of power supply at the position of (14). Before change the fuse, please talk off the plug firstly.
- 5.2. Please get rid of dust for the power supply regularly. To clean the case with a dry cloth without any organic solvent. Use the high pressure dry air to blow dust through vents. To avoid damage or dangerous, Please DO NOT open the case for cleaning.
- 5.3 if no use the power supply for a long time. Please completely cut off the AC power, take away the plug and keep it in a place where is dry, ventilated and avoid direct sunlight. Every six months to electrify it at least 30 minutes.
- 5.4. As inside of the power supply, it has high voltage circuit. To avoid electric shock accidents, Please do not open the case of the power supply if you are not a professional maintenance personnel.

### 6. Packing List

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|--------------------|-------|
| 1. DC Power Supply | 1 set |
| 2. Power Cord      | 1 pc  |
| 3. Manual          | 1pc   |

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