

直流电源说明书

产品概述

本系列可调直流稳压电源是专门为实验室、学校和生产线的使用而设计，其输出电压和输出电流均可在0和标称值之间连续可调。

电源的稳定度和纹波系数都非常好，且有完美的保护电路。可以满足负荷长时间工作。本电源既可用作稳压电源也可用作稳流电源。

工作要求:

- 1、交流输入：请先确定本机器允许的输入电压：
230V±10% 50Hz
115V±10% 60Hz
- 2、请勿在环境温度超过40℃的地方使用,排风扇位于仪器后部,应留有足够的空间利于散热。



交流电压输入错误，会造成机器的严重损坏。
请确定机器所要求的输入电压值。

警告

操作说明

电源输出模式均分为两种：恒压输出（CV）和恒流输出（CC）。输出模式由用户设定的电压值和电流值以及用户所接的负载决定。电源输出的电压值或电流值不会超过用户所设定的电压值和电流值。恒压模式下，输出的电压值等于用户设定的电压值，恒流模式下，输出的电流值等于用户设定的电流值。

例如：电压值设定为5V, 电流值设定为5A

操作步骤:

- 1、打开电源开关
- 2、将电压调节旋钮调节至5V
- 3、用导线将“正极”和“负极”连接，调节电流旋钮至5A
- 4、将导线断开，连接负载即可使用。

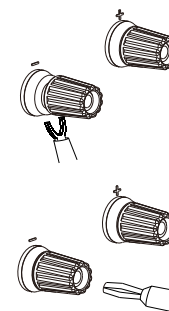


注意

在实际的CV操作中，如果负载阻值减小导致输出电流增加到设定的电流值时，电源将自动切换到CC模式，当负载阻值继续减小时，电流将保持在电流设定值，电压则按比例下降 ($I=V/R$)。此时加大负载阻值或提高电流设定值则可恢复CV输出状态。

连接负载

- 1、逆时针旋转松开接线柱旋钮
- 2、插入负载接线端子
- 3、顺时针旋转拧紧接线柱旋钮
- 4、香蕉插头可直接插入接线柱孔



注意

不正确的连接可能导致电源及连接电源的负载损坏。
当连接电池等负载时，请勿将“+”“-”极接反，这样可能损坏电源。

恒压/恒流特性:

该系列电源的工作特性为恒压/恒流自动转换型，它能随负载的变化在恒压恒流状态之间自动转变，恒压与恒流方式之间的交点称为转换点。例如，如果负载使电源工作于恒压方式，则输出恒定电压。随着负载的增大，输出电压会一直保持稳定，输出电流则增加。当电流值达到到设定的限流值时，电源将自动转换到恒流模式。输出电流保持稳定，输出电压随着负载的进一步增加而成比例减少。恒压与恒流的转换由前面板的LED指示。恒压时CV指示灯亮，恒流时CC指示灯亮。

SWITCHING DC POWER SUPPLY

Instruction manual

INTRODUCTION

The series of switching power supplies for measuring instrument have ruled out the inconvenience of big volume and heavyweight of a traditional power supply possess. The output voltage and current is controlled by two variable resistors regulation for more handy and precise adjustment.

Features:

- 1, With more extensive range of input voltage at $230V \pm 10\%$ 50Hz
(Can be customized to $115V \pm 10\%$ 60Hz)
- 2, With high frequency operation can reduce the size of power transformer.
- 3, With small size, light weight and high density power.
- 4, Entire efficiency rate higher up to 70%.
- 5, Zero adjustment for the output of voltage and current.

Parameter Specification

Operation Environment : Indoor use, Altitude up to 2000m,
Installation Category II,
Pollution degree 2.

Operation Temperature & Humidity : 0°C to 40°C , $<80\%$.

Storage Temperature & Humidity : -10°C to 70°C , $<70\%$.

Constant Voltage Operation

- (1) Output Voltage ranges from 0 to rating voltage with continuous adjustment.
- (2) Voltage regulation
line regulation $\leq 5\text{mV}$.
Load regulation $\leq 5\text{mV}$.
- (3) Recovery time $\leq 500 \mu\text{s}$ (50% Load change, minimum load 0.5A).
- (4) Ripple & Noise $\leq 5\text{mV}_{\text{rms}}$, $100\text{mV}_{\text{p-p}}$
- (5) Temperature coefficient $\leq 100\text{ppm}/^{\circ}\text{C}$.

Operation mode: Voltage Operation Mode

- A. Set Power switch to "OFF" position.
- B. Make sure that line voltage is correct for the input power voltage.
- C. Plug power cord into the power outlet.
- D. Set Power switch to "ON" position.
- E. Adjust "Voltage" and "Current" control to the desired output voltage and current.
- F. Connect the external load to the output binding posts. Make sure both "+" and "-" terminals are connected correctly.

setting Current Limit

- (1) Determine the maximum safe current for the device to be powered.
- (2) Temporarily short the (+) and (-) terminals of the power supply together with a test lead.
- (3) Rotate the COARSE VOLTAGE control away from zero sufficiently to have the CC indicator lightened.
- (4) Adjust the CURRENT control for the desired current limit. Read the current value on the Ammeter.
- (5) The current limit (overload protection) has now been preset. Do not change the CURRENT control setting after this step.
- (6) Remove the short between the (+) and (-) terminals and hook up for constant voltage operation

Terminal

1. Loosen the terminal knob with counterclockwise rotation
2. Insert the load terminal
3. Tighten the terminal knob by turning clockwise
4. The banana plug can be inserted directly into the terminal hole



Constant Voltage / Constant Current Crossover Characteristic

The working characteristic of this series is called a constant voltage/constant current automatic crossover type. This permits continuous transition from constant current to constant voltage modes in response to the load change. The intersection of constant voltage and constant current modes is called the crossover point.

For example, if the load is such that the power supply is operating in the constant voltage mode, a regulated output voltage is provided. The output voltage remains constant as the load increases, up until the point where the preset current limit is reached. At that point, the output current becomes constant and the output voltage drop is proportioned to further increases in load. The crossover point is indicated by the front panel LED indicators. The crossover point is reached when the CV indicator goes out and the CC indicator is on.