

# RF4<sup>®</sup>

FOCUS DESIGN AND CONCEPT



# RF-305A

## 数控直流电源

## CNC DC power supply

# 使用说明书

# Instruction Manual

感谢您购买此款稳压电源, 使用前请仔细阅读本说明书, 阅读后请妥善保管以供日后参考  
Thank you for purchasing this stabilized power supply. Please read this manual carefully before use and keep it safe for future reference

## 产品概述

305系列数控直流电源专为科研、产品研发、实验室高校及手提电脑维修、电子生产线而设计，电压、电流在标准值内连续可调。具备精度高，可靠性强，并具备完善的过载保护电路，是行业中理想的选择。

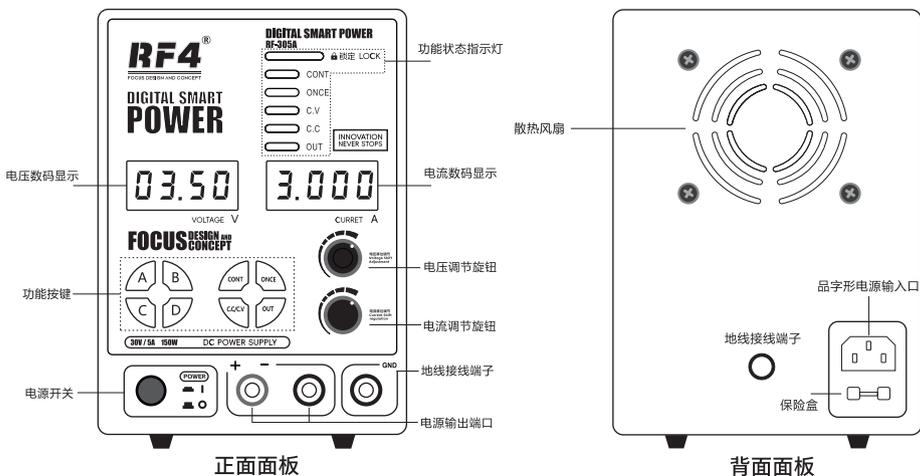
## 产品参数

电源电压	220V±10%50HZ 110V±10%60HZ	输出电压	0-30V
输出电压	0-5A	输出功率	150W
保护类型	过流保护、过压保护、过温保护		
电压分辨率	10mV	电流分辨率	1mA(2mA额定电流>3A)
稳流状态CC	0至额定电流连续可调	稳压状态CV	0至额定电压连续可调
负载调节率		设定准确率(25+5°C)	
电压	0.01%+3mV(1≤3A)	电压	≤0.1%
电流	0.01%+3mA	电流	≤0.2%(-10mA额定电流>3A)
波纹(20Hz-20MHz)		温度系数(0-40°C)	
电压 涟波	≤1mVrms(≤2mVrms>3A)	电压	≤300ppm+10mV
电流	≤3mArms(≤6mArms>3A)	电流	≤300ppm+10mA
读回值分辨率		飘移	
电压	≤300ppm+10mV	电压	≤300ppm+10mV
电流	≤300ppm+10mA	电流	≤300ppm+10mA

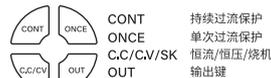
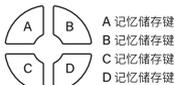
## 安全指南

- ◆ 不要阻拦和隔离机器的进风口和风扇通风口。
- ◆ 避免严重碰撞或错误的使用，导致机器损坏。
- ◆ 机器远离静电。
- ◆ 非专业人员禁止拆机。
- ◆ 交流电源输入，电压范围：AC220V\_50Hz      AC110V\_60Hz
- ◆ 连接保护地到大地，避免电击。
- ◆ 保险丝规格，不同型号机形对应的保险丝型号：  
220V电压机型：保险丝型号250V4A      110V电压机型：保险丝型号250V6A
- ◆ 更换保险丝后，开机前确保使用正确的型号。
- ◆ 为防止烧坏机器和引起火灾，要安装符合额定的保险丝。
- ◆ 更换保险丝前不要连接电源丝避免电击。
- ◆ 更换保险丝前确定保险丝烧断的原因，修复后再更换。

## 面板功能



### 功能按键



## 使用说明



### 电压调节

扭动“V”旋钮调节电压。依次按压“V”旋钮，对应的调节电压位提示字符闪烁。选择想要调节的电压位扭动旋钮，即可快速获得想在设定的电压。



### 电流调节

扭动“A”旋钮调节电流。依次按压“A”旋钮，对应的调节电流位提示字符闪烁。选择想要调节的电流位扭动旋钮，即可快速获得想在设定的电流。

### 烧机模式



连续按功能模式键3次即可进入烧机模式，指示灯闪烁(慢闪)，调节所需电压电流，烧机模式状态下所有功能键失效，连接好被测的设备，按动“OUTPUT”按键即可进入烧机，工作指示灯闪烁(快闪)，所有功能键和旋钮处于失效状态。再次按动“OUTPUT”按键可退出测试工作，按功能模式键可转换其它模式，所有功能键才可恢复正常功能。



### 锁定/解锁功能

调节所需的电压电流后，长按任意旋钮“V”或“A”，待锁定指示灯长亮并伴随提示音响起，此时进入锁定状态，所有的功能键和旋钮处于失效状态。再次长按旋钮“V”或“A”可解除锁定状态，所有功能键和旋钮恢复正常功能。



### 输出开关

电源在开机瞬间会产生较高的冲击电压，在维修精密设备时有烧坏元件的风险。“输出开关键”有效的解决这一问题，防止电源烧毁，防止起火花。



## 记忆存储

调出:短按一下存储键(听到"滴"一声松手),即可调出上一次该存储键的数值,方便快捷。

储存:当按下任意1个存储键不放,即刻短响一声"滴",3秒后长响一声"滴"即可储存当前设置的电压、电流。

## 持续过流保护

CONT.OCP  
持续过流保护

按下"持续过流保护"按键,听到提示"滴"声响松开,即可进入持续过流保护模式,指示灯长亮。持续过流保护模式下,当被测设备电路故障造成短路(或电流大于设定电流值),立即触发保护并警示声响起(连续警示声),断开输出,且在3秒后自动恢复。如不断开被测设备将继续触发保护直到断开被测设备。

## 单次过流保护

ONCE.OCP  
单次过流保护

按下"单次过流保护"按键,听到提示"滴"声响松开,即可进入单次过流保护模式,指示灯长亮。单次过流保护模式下,当被测设备电路故障造成短路(或电流大于设定电流值),立即触发保护并警示声响起(单次警示声),断开输出,且不会自动恢复。指示灯、电流显示闪烁。

## 恒流模式C.C

CC CV SK  
恒流-恒压-待机

按"功能模式"按键切换模式,当"恒流模式"指示灯长亮后即进入该模式。在该模式下除"电压电流调节旋钮"和"OUTPUT、功能模式"按键,其它按键将处于失效状态。在该模式下设定电流不变,电压显示数值随着负载变化而变化(如负载逐渐变大电压随之变小)。在使用过程中如瞬间大电流(电流超过5A),设备本身会触发自我保护。恒流指示灯闪烁,需按"OUTPUT"键恢复或重启设备。

## 恒压模式C.V

CC CV SK  
恒流-恒压-待机

按"功能模式"按键切换模式,当"恒压模式"指示灯长亮后即进入该模式。在该模式下设定电压不变,电流显示数值随着负载变化而变化(如负载逐渐变大电流随之变大)。当负载电流超过设定值后,触发过流保护。

## 常见故障处理

按下前面板电源开关显示器黑屏,没有任何显示

- 1.确保电源线是否完好。
- 2.检查电源接头是否接好。
- 3.检查保险丝是否不正好以及是否完好无损。

恒压输出不正常:

- 1.检查最大输出功率是否满足负载要求。
- 2.如果满足,请检查:查看电流设定值是否合适,如果过低可适当加大电流设定值。
- 3.检查负载和负载连接线是否有短路或断路等问题,查看负载接触点和负载连接线接触是否良好。

恒流输出不正常:

- 1.检查最大输出功率是否满足负载要求。
- 2.如果满足,请检查:查看电流设定值是否合适,如果过低可适当加大电压设定值。
- 3.检查负载和负载连接线是否有短路或断路等问题,查看负载接触点和负载连接线接触是否良好。

保险丝更换:

- 1.切断电源,使用一字螺丝刀取出保险丝。
- 2.更换相同型号的保险丝。

## Overview

The 305 series CNC DC power supply is designed specifically for scientific research, product development, laboratory, university and laptop maintenance, and electronic production lines. The voltage and current are continuously adjustable within standard values. Having high precision, strong reliability, and a complete overload protection circuit, it is an ideal choice in the industry.

## Product Parameters

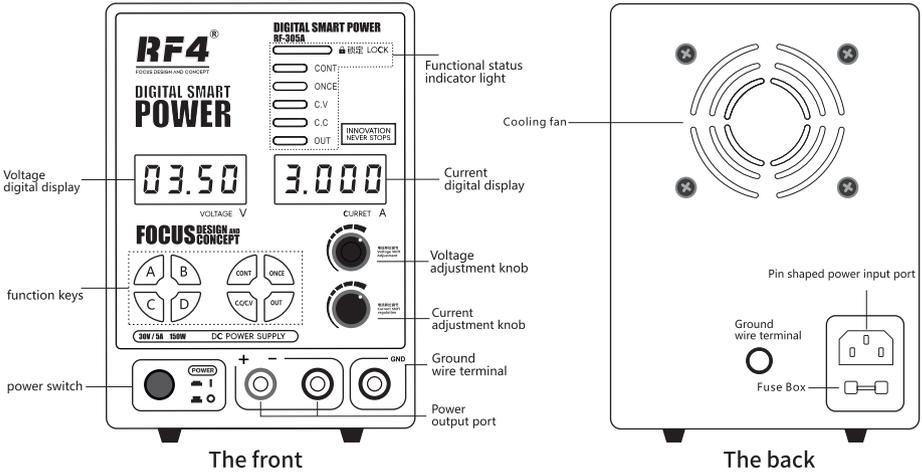
Supply voltage	220V±10%50HZ 110V±10%60HZ	Output voltage	0-30V
Output current	0-5A	Output	150W
Protection type	Overcurrent protection, overvoltage protection, overtemperature protection		
Voltage	10mV	Current resolution	1mA(2mA Rated current>3A)
Steady current stateCC	0~The rated current is continuously adjustable	Steady current stateCC	0~The rated current is continuously adjustable
Load regulation		Set the accuracy rate(25+5°C)	
Voltage	0.01%+3mV(1≤3A)	Voltage	≤0.1%
Current	0.01%+3mA	Current	≤0.2%(-10mA Rated current>3A)
Corrugation(20Hz-20MHz)		Temperature coefficient(0-40°C)	
Voltage Ripples	≤1mVrms(≤2mVrms>3A)	Voltage	≤300ppm+10mV
Current	≤3mA rms(≤6mA rms>3A)	Current	≤300ppm+10mA
Read back value resolution		Drift	
Voltage	≤300ppm+10mV	Voltage	≤300ppm+10mV
Current	≤300ppm+10mA	Current	≤300ppm+10mA

## Safety Instructions

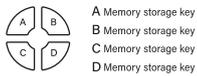
- ◆ Do not obstruct or isolate the machine's air inlet and fan vent.
- ◆ Avoid serious collisions or incorrect use that may cause damage to the machine.
- ◆ Keep the machine away from static electricity.
- ◆ Non professionals are prohibited from dismantling the machine.
- ◆ AC power input, voltage range: AC220V\_50Hz AC110V 60Hz
- ◆ Connect the protective ground to the ground to avoid electric shock.
- ◆ Specification of fuses, corresponding fuse models for different machine shapes:  
220V voltage model: fuse model 250V4A 110V voltage model: fuse model 250V6A
- ◆ After replacing the fuse, make sure to use the correct model before starting up.
- ◆ To prevent burning out the machine and causing a fire, it is necessary to install fuses that meet the rated requirements.

- ◆ Do not connect the power cord before replacing the fuse to avoid electric shock.
- ◆ Determine the cause of the blown fuse before replacing it, and repair it before replacing it.

## Panel Functions



### Function buttons



## Instructions For Use



### Voltage Regulation

Turn the "V" knob to adjust the voltage. Press the "V" knob in sequence, and the corresponding voltage adjustment prompt characters will flash. Select the desired voltage level and turn the knob to quickly obtain the desired voltage.



### Current Regulation

Turn the "A" knob to adjust the current. Press the "A" knob in sequence, and the corresponding adjustment current position prompt character will flash. Select the desired current level and turn the knob to quickly obtain the desired current.



### Burn Mode **SHORT KILLER**

Press the function mode button three times continuously to enter the burning mode. The indicator light flashes (slowly), adjust the required voltage and current. In the burning mode, all function keys fail. Connect the tested device and press the "OUTPUT" button to enter the burning mode. The work indicator light flashes (quickly), and all function keys and knobs are in a failed state. Press the "OUTPUT" button again to exit the testing work, press the function mode button to switch to other modes, and all function keys can resume normal functions.



### Lock/Unlock Function

After adjusting the required voltage and current, press and hold any knob "V" or "A" until the lock indicator light is on and accompanied by a sound prompt. At some point, it enters the lock state, and all function keys and knobs are in a failed state. Long press the knob "V" or "A" again to release the lock state, and all function keys and knobs will return to normal function.



## OUTPUT

The power supply will generate a high impulse voltage at the moment of startup, which poses a risk of burning out components when repairing precision equipment. "Output key" effectively solves this problem, preventing power supply burnout and sparking.



## Memory Storage

Recall: Short press the storage key (release with a beep) to retrieve the previous value of the storage key, which is convenient and fast.

Storage: When any one of the storage keys is pressed and not released, a short "beep" sound is immediately heard, and after 3 seconds, a long "beep" sound is made to store the current set voltage and current.

## Continuous Overcurrent Protection



Press the "Continuous Overcurrent Protection" button, hear a beep sound and release to enter the continuous overcurrent protection mode, and the indicator light will stay on. In the continuous overcurrent protection mode, when the circuit fault of the tested equipment causes a short circuit (or the current is greater than the set current value) the protection will be immediately triggered and a warning sound will sound (continuous warning sound), the output will be disconnected, and it will automatically recover after 3 seconds. If the tested device is continuously disconnected, the protection will continue to be triggered until the tested device is disconnected.

## Single Overcurrent Protection



Press the "Single overcurrent protection" button and hear a beep sound to release, then enter the single overcurrent protection mode, and the indicator light will stay on. In the single overcurrent protection mode, when the circuit fault of the tested equipment causes a short circuit (or the current is greater than the set current value), the protection is immediately triggered and a warning sound is sounded (single warning sound), the output is disconnected, and it will not automatically recover. The indicator light and current display are flashing.

## Constant Current Mode CC



Press the "Function Mode" button to switch modes. When the "Constant Current Mode" indicator light is on for a long time, it will enter this mode. In this mode, except for the "Voltage and Current Adjustment Knob" and "OUTPUT, Function Mode" buttons, all other buttons will be in a failed state. In this mode, the current is set to remain unchanged, and the displayed voltage value changes with the load (such as the load gradually increasing and the voltage gradually decreasing). During use, if there is an instantaneous high current (current exceeding 5A), the device itself will trigger self-protection. The constant current indicator light is flashing, and the device needs to be restored or restarted by pressing the "OUTPUT" button.

## Constant Pressure Mode CV



Press the "Function Mode" button to switch modes. When the "Constant Voltage Mode" indicator light remains on, it enters that mode. In this mode, the voltage is set to remain constant, and the displayed current value changes with the load (such as the load gradually increasing and the current also increasing). When the load current exceeds the set value, overcurrent protection is triggered.

## Common Fault Handling

Press the power switch on the front panel to display a black screen without any display:

1. Ensure that the power cord is intact.
2. Check if the power connector is properly connected
3. Check if the fuse is correct and intact.

### Abnormal constant voltage output:

1. Check if the maximum output power meets the load requirements.
2. If it meets the requirements, please check whether the current setting value is appropriate. If it is too low, increase the current setting value appropriately.
3. Check if there are any short circuits or open circuits in the load and load connection wires, and check if the load contact points and load connection wires are in good contact.

### Abnormal Constant Current Output:

1. Check if the maximum output power meets the load requirements.
2. If it meets the requirements, please check whether the current setting value is appropriate. If it is too low, increase the voltage setting value appropriately.
3. Check if there are any short circuits or open circuits in the load and load connection wires, and check if the load contact points and load connection wires are in good contact.

### Replacement Of Fuses:

1. Cut off the power and use a flat screwdriver to remove the fuse.
2. Replace the fuse with the same model.

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