SpacEND ZERO 静电耳机放大器

使用说明书

设计简述

SpacEND ZERO 静电耳机放大器采用全平衡电子管线路，输入采用瑞士原装 LUNDAHL 输入牛为第一级缓冲与全平衡倒相，音量调节采用丹麦 DACT 四联晶片高精度电位器，线路电压放大采用四颗 ECC81 与 ECC802s，推动级采用二颗 ECC802s，输出采用四颗 EL34，所有八颗耦合电容采用德国蒙多福铜箔高级发烧电容，信号通道与主工作电源部分机内线，采用单晶银与单晶铜线材连接

SpacEND ZERO 静电耳机放大器主电源设计，采用双 150 瓦电源变压器工作结构，电压放大供电与输出供电完全独立，并在电压放大供电通道上引入 6X4 电子管作为高压缓冲，整机采用交流灯丝供电。为提高整机信噪而引入了三个扼流圈的 CLC 滤波线路，外加全线路稳压电路，整流部分采用十四颗美国原装 MR760 二极管，高压滤波电容采用十三颗日本原装 Nichicon KX 发烧高压电容，确保纯净、高速、充沛能量的放大器供电

SpacEND ZERO Electrostatic Headphone Amplifier
User Manual

Design Introduction

SpacEND ZERO Electrostatic Headphone Amplifier adopts fully balanced tube circuit. The input applies the Swiss original LUNDAHL input transformer as the first stage buffer and full-balanced inversion. The volume control uses the Danish DACT quad chip high-precision attenuator. The line voltage amplification includes four ECC81 and ECC802s, the driving stage uses two ECC802s, and the output four EL34. All eight capacitors are coupled by German Mundorf copper foil high-grade capacitor, signal path and main power supply part are connected with single crystal silver and single crystal copper cables

The main power supply design of SpacEND ZERO Electrostatic Headphone Amplifier, is a dual-mono 150 watt power transformer structure, voltage amplification and output power supply are completely independent. A 6X4 electronic tube is introduced as high voltage buffer in the voltage amplification power supply channel with all unit AC filament. In order to improve signal-to-noise ratio, the CLC filter circuit with three choke coils is introduced, plus full line voltage regulator circuit. The rectification circuit adopts fourteen original American MR760 diodes thirteen Japanese original Nichicon KX high voltage capacitors to ensure pure, high speed, abundant energy for amplifier power supply

技术参数

适配耳机：Stax 静电耳机

电子管型号：ECC81*2、ECC802s*4、EL34*4、6X4*1

EL34 满足最大屏压 720V，最大屏耗 15W，注意！更换电子管会造成工作点变化，需要调整主机上四颗可调电阻，让输出偏置电压归零

整机失真：< 0.12%

测试条件 THD+N，输入：2V rms，RZ：600 ohm，BW：DC—20KHz，A 记权

输出电压摆幅：1500Vpp

偏压电压：+580V

信号输入：XLR 平衡输入与 RCA 单端输入各一组

输入电压：AC 110-220V 可切换

通过电源主机的输入电压开关调整输入电压。注意！开机前请确认当前本地工作电压，调整静电耳机放大器交流电源输入电压与本地电压一致后开机使用

电源保险丝：AC 220V（1.25A）；AC 110V（2.5A）

整机消耗功率：200W

主机机箱尺寸：430mmx360mmx88mm

电源机箱尺寸：430mmx360mmx88mm

Technical Specifications

Adaptable Headphones: Stax headphones

Type of Electronic Tube: ECC81*2、ECC802s*4、EL34*4、6X4*1

EL34 maximum screen grid voltage 720V, maximum screen grid consumption 15W. Attention! Replacing tubes will change the working point. It is necessary to adjust the four adjustable resistors to zero the output bias voltage

THD+N: < 0.12%

Testing Conditions: THD+N, input: 2V rms; RZ: 600 ohm; BW: DC—20KHz A-weighted

Output Voltage Swing: 1500Vpp

Bias Voltage: +580V

Signal Input: XLR Balanced Input *1 and RCA Single-ended Input *1

Input Voltage: AC 110-220V

The input voltage is adjusted by the input voltage switch on the back of power supply. Attention! Confirm the current local power voltage first and adjust the input voltage switch to the right voltage before turning on

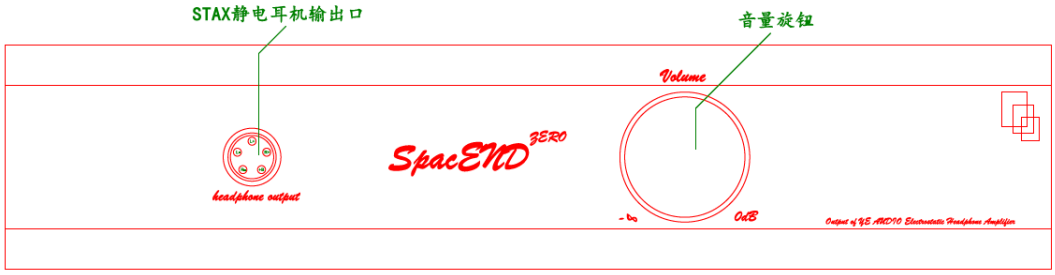
Power Fuse: AC 220V (1.25A); AC 110V (2.5A)

Power Consumption: 200W

Main Unit Size: 430mmx360mmx88mm

Power Supply Size: 430mmx360mmx88mm

前后面板（Front & Rear Panel）



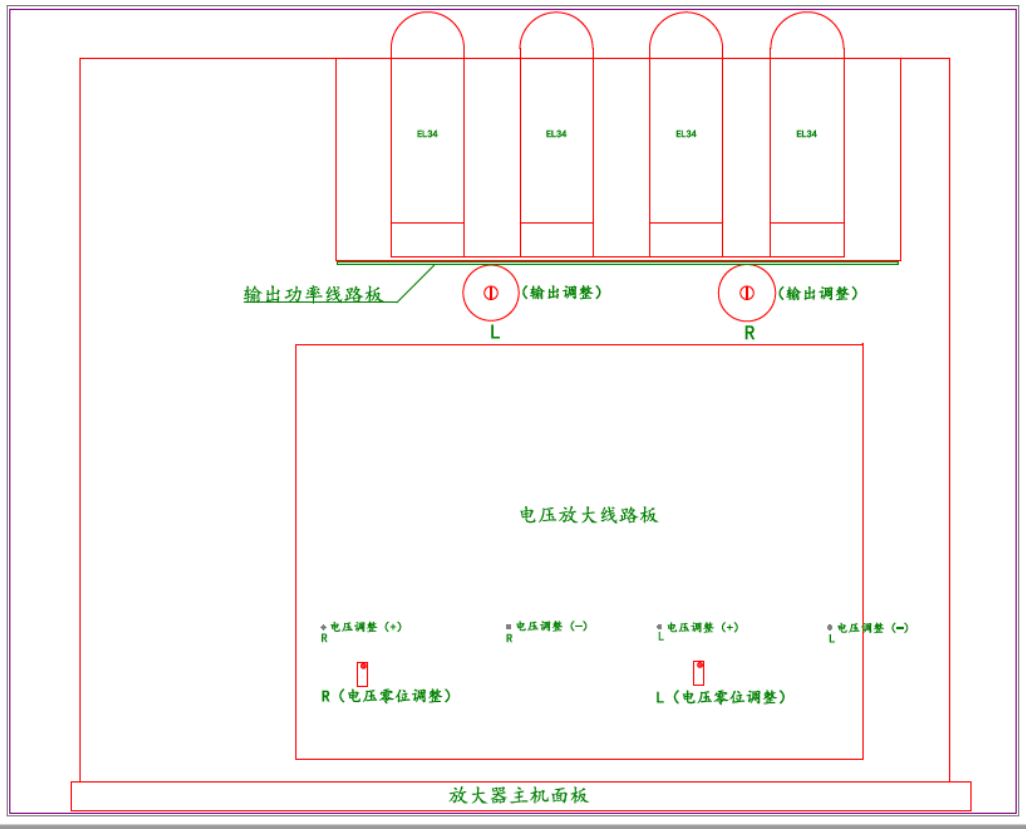
图一

图二

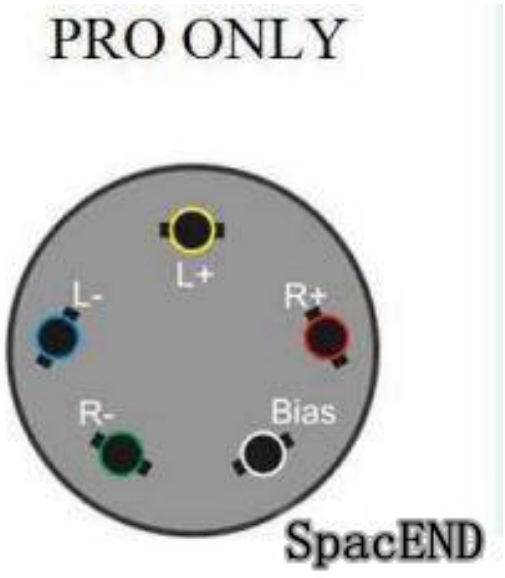
图三

图四

调整图例及针脚定义（Adjustment Scheme and Pin Definition ）



图五



图六

工作点调整

在更换电子管及进行一年定期维护时，需要对主机零电位工作点进行调整

1. 打开耳机放大器主机顶盖，音量电位器开到最小，打开耳机放大器主电源，输出指示灯亮后开始进行调整
2. 用数字万用表调整至直流测量档，双色表棒分别插入图五电压放大器线路板电压调整 R（+）与 R（-），调整 R（电压零位调整）万用表显示接近零点即可，同理 L（+）与 L（-）
3. 用数字万用表调整至直流测量档，双色表棒分别按图六插入 L（+）与 L（-），调整图五所示 L（输出调整），万用表显示接近零点即可，同理 R（+）与 R（-）

保修条款

整机保修一年，电子管因外力造成损坏不在保修范围内，机器停产后负责维修五年

附件清单

1、　静电耳机放大器主机一台

2、 静电耳机放大器电源一台

3、 静电耳机放大器电源与主机连接线一条

4、 市电国标电源线一条

5、 EL34 电子管四枚

6、 预装 ECC81 电子管两枚、ECC802s 电子管四枚、6X4 电子管一枚

7、 备用保险丝一枚

8、 使用说明书一本

警告

1. 静电耳机放大器电源与主机连接未完全接通前，严禁开启工作电源（AC220/100 伏）
2. 拆卸主机与静电耳机放大器电源之间的连接电源线时，必须切断电源（AC220/100 伏）超过 3 分钟
3. 当主机反复连接到静电耳机放大器的电源时，两者之间的间隔不能少于 5 分钟。

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Working Point Adjustment

Upon replacement of Electronic Tube and regular one year maintenance, you need to adjust zero working point on the main unit

1. Open the main unit cover, turn down the volume attenuator to minimum, turn on the power supply and wait until the output indicator light is on
2. Adjust the digital multimeter to DC measurement, insert the two-color meter sticks into the circuit board voltage adjustment R(+) and R(-) respectively as Figure Five and adjust R, let multimeter display close to zero, the same as L(+) and L(-)
3. Adjust the digital multimeter to DC measurement, insert the two-color meter sticks into pin L(+) and L(-) respectively as Figure Six and adjust L, let multimeter display close to zero, the same as R(+) and R(-)

Warranty

The whole set is guaranteed for one year. Any tube damage caused by external force is not covered by the warranty. It is responsible for the maintenance for five years after the model is discontinued

Accessories

1. Main unit *1

2. Power supply *1
3. Connection power cord *1
4. National standard power cord *1
5. EL34 tube *4
6. Pre-installed ECC81 tube *2、ECC802s tube *4、6X4 tube *1
7. Spare fuse *1
8. User manual *1

Warnings

1. It is STRICTLY FORBIDDEN to turn on the power supply (AC220/100V) before connecting to the main unit
2. Before disconnecting the power cord between the main unit and the power supply, turn off the power (AC220/100 volts) and wait for AT LEAST 3 minutes
3. When the main unit is repeatedly connected to the power supply, the interval between the two SHOULD NOT be less than 5 minutes

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