



EL-PA4.6

Part Nr. 280192



User Manual

Precautions

- Do not configure the machine or read this user manual while driving.
 - Adjust the audio system volume to a level where you can still hear traffic sounds.
 - Please read this manual thoroughly to understand relevant safety tips and warning signs. After reading, store it in a safe place for future reference.
 - Remember, traffic safety should always be the top priority.
-
1. If you encounter any operational issues, park your vehicle in a safe location before troubleshooting. Prevent children from operating the machine to avoid personal injury or damage.
 2. Do not install or repair the machine while it is powered on. Do not attempt self-maintenance or repairs; seek professional assistance if necessary.
 3. To ensure proper operation, avoid exposing the machine to humidity or liquids.



Packing list

The package contains the following items. If anything is missing, please contact the authorized seller or manufacturer immediately.

Items	Quantity
EL-PA4.6 Machine	1 Pc
User Manual	1 Pc
1.5m USB 2.0 Cable	1 Pc

Contents

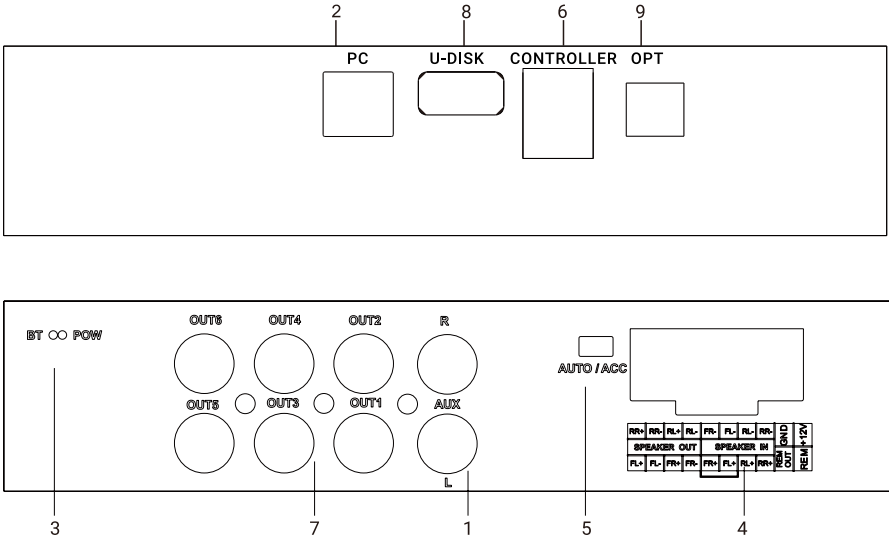
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Part 1: Introduction to Machine Interface



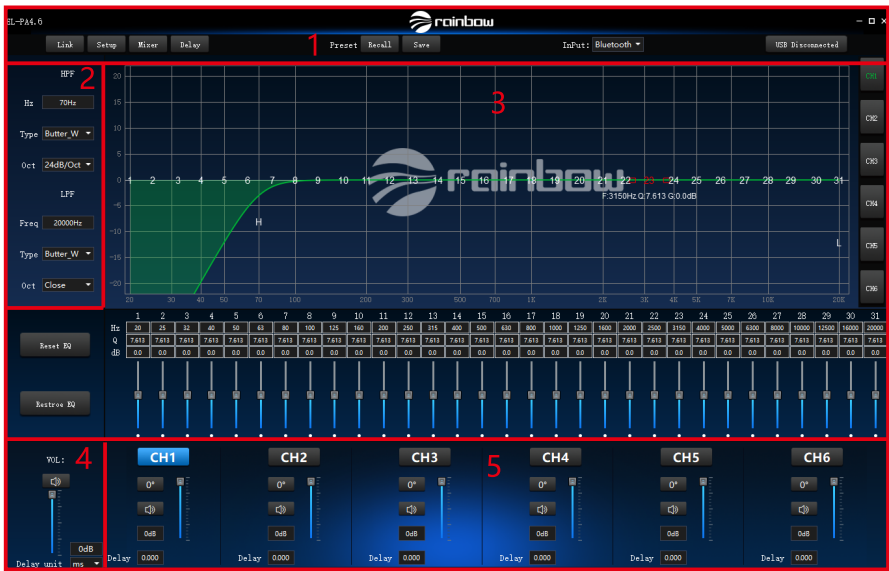
- 1. Low level input interface
- 2. USB 2.0 interface
- 3. Power indicator
- 4. High level input, output and power interface

RR+ OUT	RR- OUT	RL+ OUT	RL- OUT	FR- IN	FL- IN	RL- IN	RR- IN	GND	+12V
FL+ OUT	FL- OUT	FR+ OUT	FR- OUT	FR+ IN	FL+ IN	RL+ IN	RR+ IN	REM OUT	ACC

- 5. Startup Mode
- 6. Controller interface
- 7. Low level output interface
- 8. Music USB interface
- 9. Optical interface

Part2: Overview of Control Software

PC Software Introduction



1. Main Menu Settings

Load or save PC presets or the entire machine preset. Switch between Chinese and English. Update firmware, reset the device, view the version number, configure channel delay settings, and enable data encryption. Select and store up to six preset sound effects. Set the main source selection.

2. Filter Settings

Select frequencies, slopes, and types of high-pass and low-pass filters.

3. EQ Settings

Adjust the equalizer for the output channel, including frequency, Q value, and gain. Pass through, restore, or reset the equalizer. Toggle between joint tuning and solo tuning.

4. Volume Settings

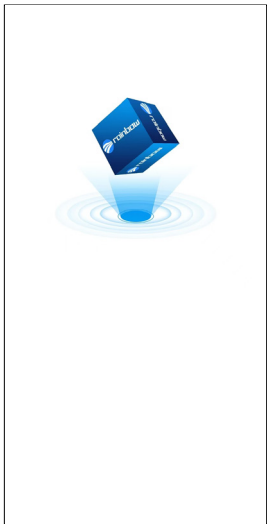
Setting range: OFF, -59dB to 0dB. Click the speaker button to mute.

5. Output Channel Settings

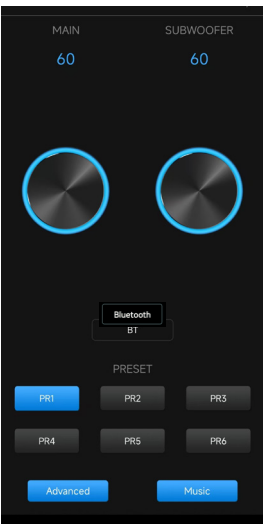
Set the volume, mute, and phase shift for the output channel. Choose between joint tuning and solo tuning methods.

Part2: Overview of Control Software

Mobile Software Introduction



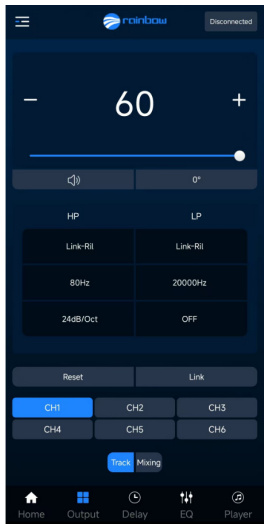
Start page



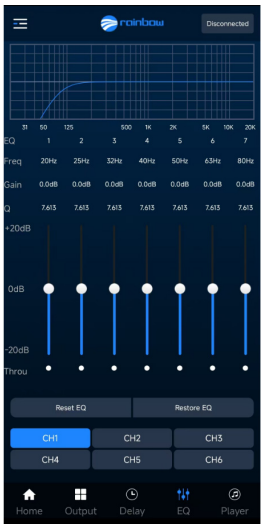
Home



Delay



Channel



EQ

Part2: Overview of Control Software

1. Start Page of the Software

A clear and intuitive interface to begin configuring your audio system.

2. Home Page

Encrypt data and view the model and version numbers of the machine and software. Adjust the master volume, select the main audio source, store and access up to six preset sound effects, and switch to the advanced interface.

3. Delay Page

Set the delay for the output channel. Use the "DELAY" button to adjust and fine-tune delay settings.

4. Channel Page

Control the output channel's volume, phase, and mute functions. Configure high-pass and low-pass filters, including their types, frequencies, and slopes. Perform joint tuning across output channels for unified adjustments.

5. EQ Page

Customize the equalizer for the output channel by adjusting frequency, Q value, and gain. Options include pass-through, restore, or reset for quick configuration. Toggle between joint tuning or solo tuning modes for precise equalizer adjustments.

Part 3: Product Parameters

Technical Specifications

High-End Components	High-performance DSP chip: 269MHz/48kHz/24Bit Integrated ADC/DAC: 10-192kHz/24Bit High-end, low-noise dual op amp
Input	4-channel high level, AUX, optical fiber (supporting 48kHz/16Bit), integrated digital Bluetooth Supports USB playback formats: MP3, WMA, WAV, SBC
High-Level Input Mixer	Each channel supports up to 4 independent input signal mixing.
Bluetooth	1. Bluetooth 5.0 2. Bluetooth protocol: SoC+BR+EDR+BL 3. Bluetooth format: MP3, WMA, APE, FLAC, AAC, M4A, WAV, AIF, AIFC
Output	6-channel RCA, 4-channel high level
Amplifier Output	Class AB amplifier: 4CHx50W (4Ω, 14.4V, 1kHz, 1%THD)
Dynamic Range	≥ 102dB
Signal-to-Noise Ratio	≥ 98dB
Total Harmonic Distortion	≤0.03%
Input Sensitivity	RCA/Cinch: 1-6Vpp, High Level: 8-28Vpp
Frequency Response	20Hz-20kHz
Input Impedance	Low Level Input: 20kΩ, High Level Input: 4.7Ω
RCA Output Voltage	RCA/Cinch: 6Vpp

Part 3: Product Parameters

Power Supply	DC 9V-17V (support EV)
Output Crossover	Each channel is equipped with independent multi-stage HPF and LPF: 1. Type: Butterworth, Linkwitz-Riley, Bessel 2. Filter cutoff frequency: 20Hz-20kHz, resolution: 1Hz 3. Slope: 6dB/Oct-48dB/Oct
Output EQ	1. 31-Band EQ 2. Frequency response: 20Hz-20kHz, resolution: 1Hz 3. Q value (Slope): 0.429-16.052 4. Gain: -20.0dB to+ 20.0dB, resolution: 0.3dB
EQ Adjustment	single channel adjustment, left/right linking adjustment, delay linking adjustment, gain linking adjustment, etc
Output Phase	Each channel can be independently adjusted between 0° and 180°
Output Delay	Each channel: 0.000-20.000ms, 0.00-692cm, 0.00-272inch
Output Volume	Single channel output volume: mute, -60dB-0dB Single channel subwoofer volume: mute, -60dB-0dB Master volume control: mute, -60dB-0dB
DRC	Mode selection, master volume control, language switch (Chinese/English) USB flash drive song control: previous/next, pause/play, track display, etc
Computer Tuning	Windows system, XP system, USB interface, no drive required
APP	Android mobile app, Apple mobile app

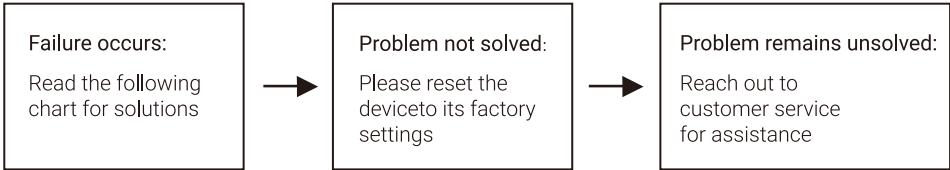
Part 3: Product Parameters

Operating Temperature	- 40-60℃
Storage Temperature	- 40-80℃
Sampling Rate	DSP: 269MHz/48kHz/24Bit Integrated ADC/DAC: 10-192kHz/24Bit
REM Input	High level (FL+/FL-) or ACC startup (optional)
REM Output	+12V starting voltage output (0.1A)
Standby Power	≤0.1W
Gross Weight	Approx. 1.2kg
Product Dimensions	Approx. 177mm x 126mm x 42mm
Scene Operation	The machine can save 6 preset music scenes

Part 4: Common Troubleshooting

Please ensure all cables and interfaces are correctly connected before turning the power on.

Troubleshooting Process:



Common Troubles & Solutions:

NO.1	Fault Phenomenon	Causes & Solutions
1	No Power	Check the power connection; Check the startup mode.
2	No Sound	Check if it is in mute mode; Check if the correct input channel has been selected.
3	Unable to connect USB	Check the USB connection; Check if a "HID-compliant device" has been installed.

Notice

This manual is subject to minor updates or modifications. For the most accurate and up-to-date version, scan the QR code on the box to access the latest manual on Rainbow Audio's official website.

注意事项

为了您的安全,请不要在驾驶过程中操作机器或查看本说明书; 驾驶车辆时, 请将音量调到能清楚听到外界声音水平。开始操作前, 请详细阅读本手册, 了解本使用手册和机器上的相关安全提示和警告标识, 阅读完之后妥善保管, 防止丢失。

首先请注意交通安全:

- 1、如您在操作本机器遇到困难时, 请将车辆停靠在安全的地方后操作, 勿让儿童操作本机器, 以免造成人身伤害或者机器损坏。
- 2、在接通电源的情况下请勿安装或维修本机。机内没有用户能维修的地方, 请勿自行保养, 维护安装本机器, 如有需要, 请找专业人员打开和维修。
- 3、为了保证机器正常运行, 请不要将机器暴露在潮湿的空气中, 更不能将液体洒落在机器上。



包装清单

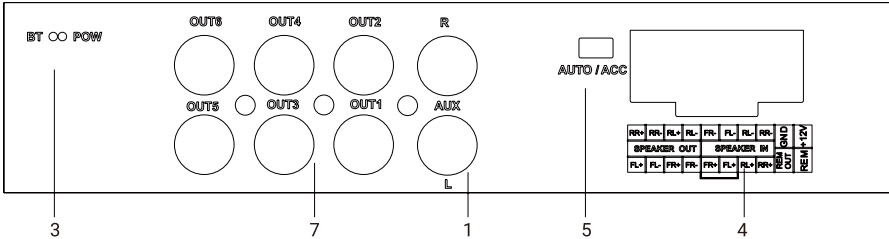
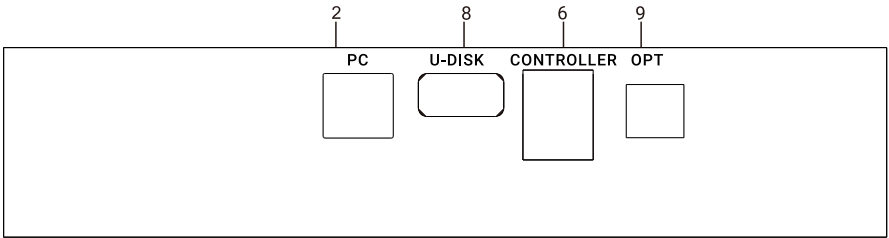
根据您购买的型号, 包装箱内应放置如下物件, 如有缺少, 请尽快通知销售商或厂家:

配件	数量
EL-PA4.6	1 台
用户手册	1 本
1.5米USB 2.0	1 条

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第一部分：机器接口简介



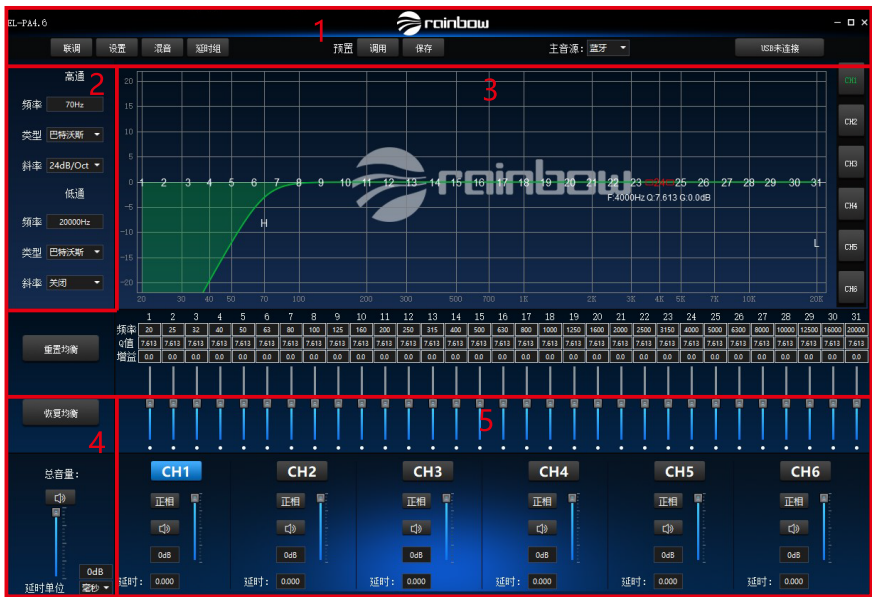
- 1、低电平输入接口
- 2、USB 2.0接口
- 3、电源指示灯
- 4、高电平输入、输出及电源接口

RR+ OUT	RR- OUT	RL+ OUT	RL- OUT	FR- IN	FL- IN	RL- IN	RR- IN	GND	+12V
FL+ OUT	FL- OUT	FR+ OUT	FR- OUT	FR+ IN	FL+ IN	RL+ IN	RR+ IN	REM OUT	ACC

- 5、机器启动方式
- 6、控制器接口
- 7、低电平输出接口
- 8、音乐U盘接口
- 9、光纤输入接口

第二部分：控制软件介绍

一、PC软件使用简介



1、主菜单编辑区

加载或另存电脑上场景文件，加载或保存整机场景；中英文切换、固件更新、恢复出厂设置、查看版本；通道的延时设置、数据加密；6组预置音效的调用和存储；主音源选择操作。

2、滤波器编辑区

高通和低通滤波器的频率、斜率以及类型的选择。

3、输出EQ编辑区

输出通道的均衡设置，频率、Q 值（响应带宽）和增益（增加或减少该频率点附近的频响幅度），可直通、恢复和重置均衡，联调或不联调切换等操作。

4、主音量调节区

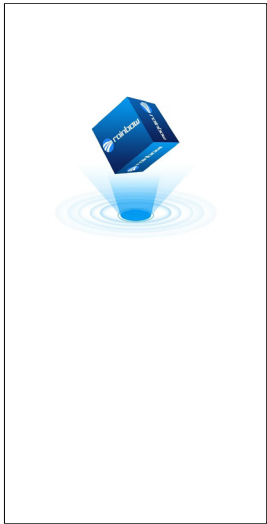
音量调节范围：关闭，-59dB-0dB，点击喇叭按钮可直接静音总音量。

5、输出通道编辑区

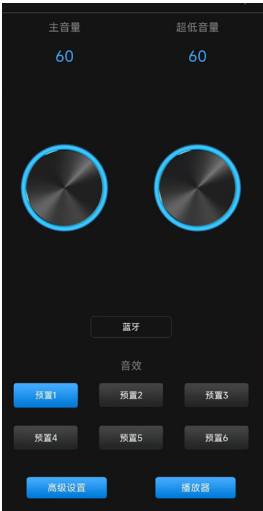
输出通道的音量、静音、正反相设置、联调方式选择以及独奏选择。

第二部分：控制软件介绍

二、手机软件使用简介



启动页



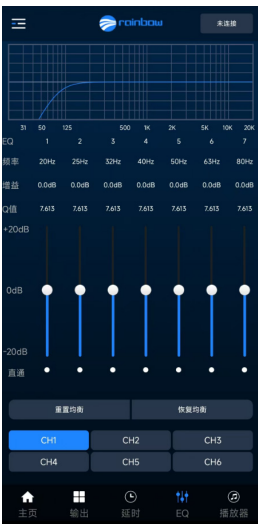
主页



延时



通道



EQ

第二部分：控制软件介绍

1、软件的启动页面

2、主页界面

可对数据加密，查看设备和软件的型号和版本号；对主音量大小进行调节；主音源选择、6组预置场景的存储或调用；切换至高级界面。

3、延时界面

声场定位输出通道延时调节，点击“延时”按键进入延时设置。

4、通道界面

设置输出通道音量、相位和静音；可调节滤波类型、频率和斜率，输出联调设置。

5、EQ界面

对应输出通道EQ曲线的调节(增益、Q值和频率)，可直通、恢复和重置均衡，联调或不联调切换等操作。

第三部分：产品参数指标

技术规格

优质级元器件	AKM 高性能 DSP 芯片：269MHz/48kHz/24Bit 内置数模转换 ADC/DAC：10 ~ 192kHz/24Bit 高性能低噪声双运算放大器
输入通道	4 通道高电平、AUX、光纤（支持48kHz/16Bit）、内置数字蓝牙、支持 U 盘播放格式：MP3、WMA、WAV、SBC
高电平输入合频	每个通道最多支持4路独立输入合频
蓝牙	蓝牙 5.0 蓝牙协议：SoC+BR+EDR+BLE 蓝牙格式：MP3、WMA、APE、FLAC、AAC、M4A、WAV、AIF、AIFC
输出通道	6 通道低电平 RCA 、4通道高电平
功放输出	AB 类功放： 4CH X 50W (4Ω, 14.4V, 1kHz , 1%THD)
动态范围	≥ 102dB
信噪比	≥ 98dB
总谐波失真	≤ 0.03%
输入灵敏度	RCA/Cinch：1 ~ 6Vpp 高电平：8 ~ 28Vpp
频率响应	20Hz ~ 20kHz
输入阻抗	低电平输入：20kΩ 高电平输入：4.7Ω
RCA输出电压	RCA/Cinch：6Vpp
电源	DC 9V ~ 17V (支持新能源车)
输出信号分频器	每通道输出配多阶高低通独立滤波器 1、专业滤波类型:巴特沃斯（Butterworth）、宁克-锐（Linkwitz-Riley）、贝塞尔（Bessel） 2、滤波分频点：20Hz-20kHz，分辨率：1Hz 3、滤波斜率（坡度）设置：6dB/Oct ~ 48dB/Oct

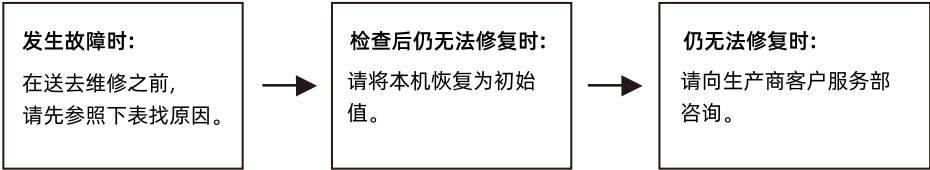
第三部分：产品参数指标

输出信号均衡器	1、31段均衡器 2、频率范围：20Hz ~ 20kHz，分辨率1Hz 3、Q值 (斜率或坡度)：0.429 ~ 16.052 4、增益：- 20.0dB ~ 20.0dB，分辨率 0.3dB
均衡器联调模式	独立调节/左右联调/延时联调/增益联调等
输出相位	每个通道独立调节：正相/反向（0°/180°）
输出延时	每个通道：0.000 至 20.000 毫秒，0.00 至 692 厘米，0.00 至 272 英寸
输出音量	单通道输出音量：静音、-60dB~0dB 单通道超低音音量：静音、-60dB~0dB 总音量调节：静音、-60dB~6dB
线控扩展	模式选择、总音量选择、中英文切换、低音音量控制 U 盘上下曲控制、U 盘歌曲暂停/播放、曲目显示等
电脑调音	Windows 系统、XP 系统、USB 接口、免驱
手机APP	安卓手机 APP、苹果手机 APP
使用环境温度	-40~60℃
保存温度	-40~80℃
系统采样率	DSP: 269MHz/48kHz/24Bit 内置ADC/DAC: 10-192kHz/24Bit
启动 REM 输入	高电平启动（FL+/FL-）、ACC 启动可选
启动 REM 输出	+12V 启动电压输出（0.1A）
待机功耗	≤0.1W
毛重	约 1.2kg
产品尺寸	约 177mm*126mm*42mm
场景操作	机器可保存6 种预置音效

第四部分：常见故障解决

在通电前，应仔细检查连接线是否正常，必须保证所有接口为正常连接。

常见故障判断及处理方法：



故障排除方法：

序号	故障现象	原因及解决方法
1	不通电	① 电源连接是否正确连接？ ② 启动方式是否正确连接？
2	无声音	① 是否启动了静音操作？ ② 信号输入通道选择是否正确？
3	USB联机不上	① USB 连接线有无插到位？ ② 电脑设备管理器的人体学输入设备内有无发现名为 "HID-compliant device" 的设备？

注意

本手册可能会有小的更新或修改。如需最新版本，请扫描产品包装上的二维码，进入彩虹音响官方网站，查看最新手册。