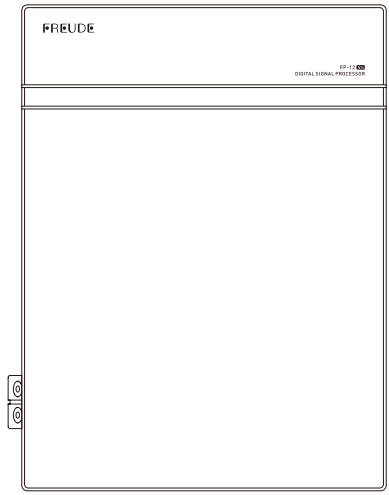
FREUDE

OWNER'S MANUAL

用 户 手 册



FP-12 V5

12CH DSP WITH AMPLIFIER

12路DSP带功放

⚠ WARNING / 注 意

PLEASE READ CAREFULLY BEFORE INSTALLING OR OPERATING THIS UNIT!

使用本产品前，请仔细阅读说明书，并保存好说明书，以备查阅！

Contents

⚠ WARNING ⚠

To prevent short circuit, please keep the device away from water or wet places.

If water or any other liquid soak into the device, cut off the power immediately, and call our service engineer of inspection, in case of emergency.

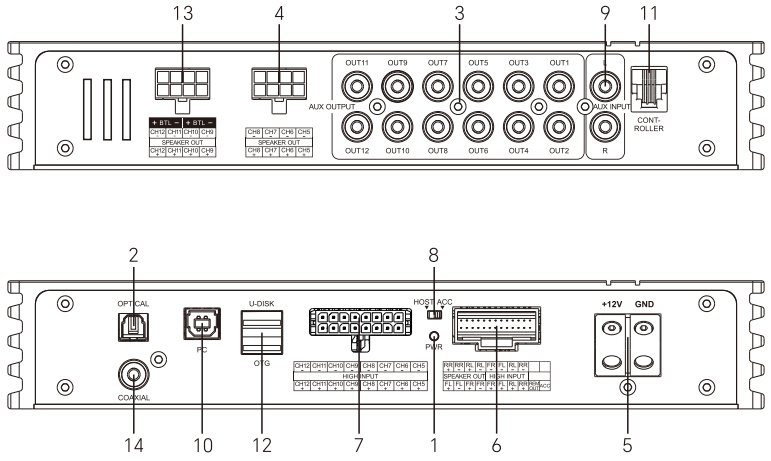
There is no repairing unit inside for user, please do not try to disassemble the bottom cover. Any problem please contact our service engineers in time.

1 Packing List

This following items should be placed in the gift box according to the model you purchased. If there is any missing, please inform the seller or manufacturer as soon as possible.

* FP-12 V5	1 unit
* User Manual	1 pc
* Composite Cable	1 set
* Installation Bracket & Screws	1 set

2 Hardware Interface



Below are the corresponding interface descriptions ↓

1. Power Indicator

2. Optical Input Port.

3. Low-level RCA Output (for connecting external amplifiers to expand the system)

4. Speaker Wire Terminals (CH5-CH8)

5. Power Port

6. High-level Input/Output Composite Interface

7. High-level CH5-CH12 Input Port

8. Machine Startup Mode Switch (ACC/HOST startup)

9. Low-level RCA Input Port

10. USB 2.0 Port (for connecting to a computer for audio tuning)

11. External Controller Port (supports volume control, data recall, track selection, playback switching, etc.)

12. USB Port (reads lossless music formats: WAV, FLAC, APE, MP3) / OTG Port (for HD music playback via smartphones)

13. High power output

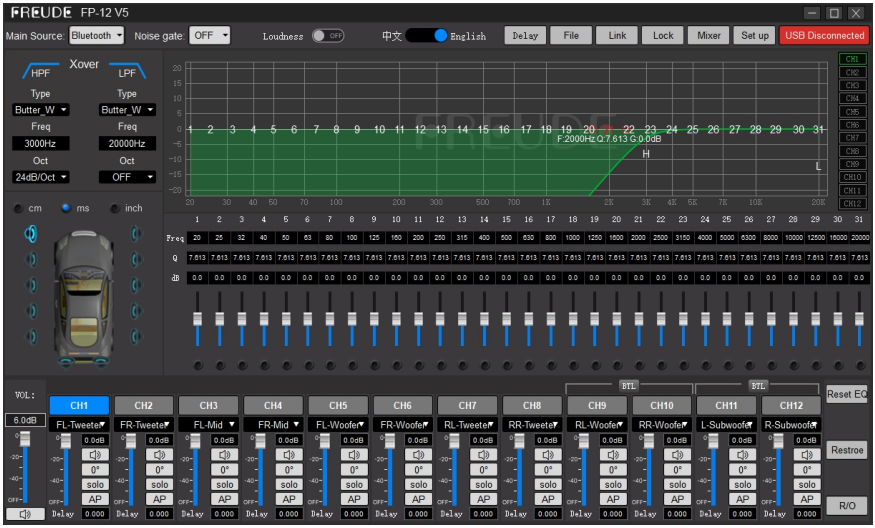
14. Coaxial input port: Connect the coaxial line

3 PC Software Introduction

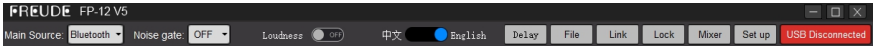
System Requirements:

Display resolution greater than 1280*768, otherwise the interface will not be fully displayed.
Compatible with Windows operating systems on laptops, desktops, and tablets.

3.1 Home Page



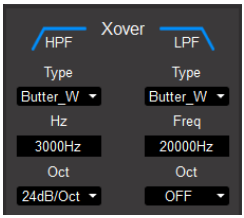
1. Main Menu Editing Area (as shown below)



Main Features: [Main Source], [Noise gate], [Loudness], Chinese/English language switching, [File], [link],[Lock], [Mixer], [Set up], and other operations.

1) 【Main Source】: Selects the input audio source: High-Level, Low-Level, Optical, Player (USB drive), Bluetooth, or OTG.
2) 【Noise Gate】: Sets the threshold to mute the input signal below a certain level, reducing noise.
3) 【Loudness】: Boosts low-frequency volume at low playback levels to compensate for human hearing perception.
4) 【Language】: Switches the user interface between Chinese and English.
5) 【File】: Opens a dialog box to load (call up) or save audio effect profiles.
6) 【Lock】: Protects tuning data on the device with encryption to prevent unauthorized copying or piracy.
7) 【Mixer】: Adjusts the mixing levels for individual inputs: High-Level, Low-Level, Bluetooth, Digital (Optical)/Player (USB), and OTG.
8) 【Set up】: Opens a dialog box for firmware updates, input volume trims (allows individual level adjustment per source), default startup source, and other system configurations.

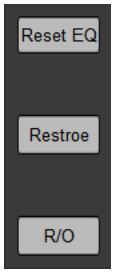
2. Crossover Editing Area (as shown below)



Settings for high-pass and low-pass crossover.

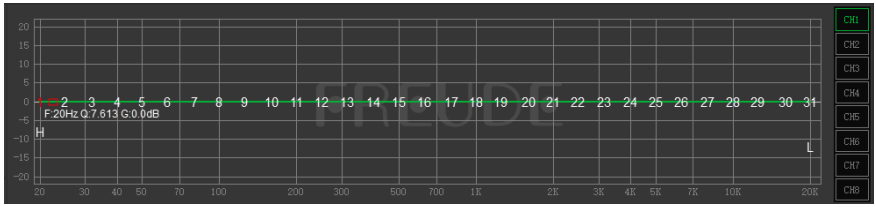
1) Click the slope drop-down list to select from 6dB/Oct to 48dB/Oct.
2) Frequency adjustment range: 20Hz~20KHz.
3) Types: Linkwitz-Riley, Butterworth, and Bessel.

3. Output Signal Equalizer Configuration Area (as shown below)



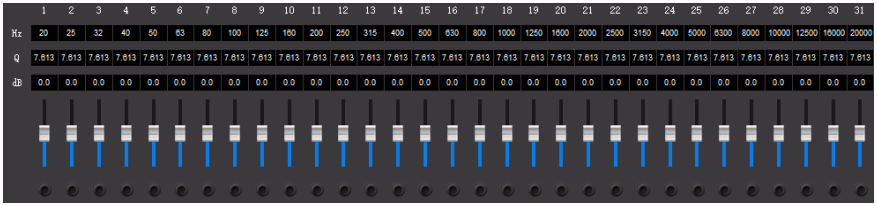
1) **Click [Reset EQ]** to restore the 31-band equalizer parameters to the factory default mode (frequency, Q value, and gain are reset to initial values).
2) **Click [Restore]** : Toggles between the current EQ settings and the initial preset.
3) **Click [R/O]** : Redefines the names for all output channels.

4. Output Channel Frequency Response Curve Display and Editing Area



In the output channel frequency response curve display and editing area, there are 31 EQ bands that can be adjusted. When the mouse is moved to the position of a band number, hold down the left mouse button and drag up and down to adjust the equalizer gain; drag left and right to adjust the equalizer frequency; when the mouse is moved to the yellow boxes on the left and right, hold down and drag left and right to adjust the Q value of the equalizer. All adjustments will be displayed in real-time in the parameter display and editing area below the band number, and the equalizer parameter editing area will also be updated. The parameter display and editing area is shown in Figure 4.

5. Output Channel Gain, Q Value, and Frequency Editing Area

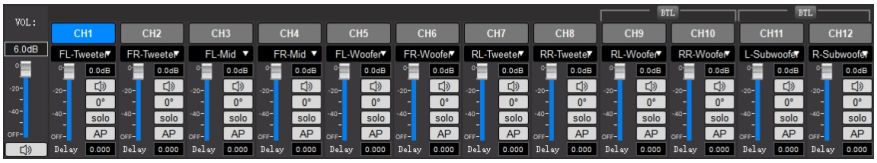


1) Frequency: Directly input values, scroll the mouse wheel, or use the up and down keys on the keyboard to adjust the frequency.
2) Q Value: In the editing area, directly input values, scroll the mouse wheel, or use the up and down keys on the keyboard to adjust the Q value (adjustable range: 0.429~16.052).
3) Gain: In the editing area, directly input values, scroll the mouse wheel, use the up and down keys on the keyboard, or drag the slider to adjust the gain (adjustable range: -20dB~20dB).

6. Master Volume Editing Area (as shown below)

Adjustment range: Off, 0dB to +6dB.
Click the speaker button to mute the master volume.

7. Output Channel Settings Editing Area (as shown below)



1) Channel Volume Range: -60 dB to 0 dB.
2) Click the speaker icon to mute/unmute the channel.
3) Click 【Positive Phase】 0° to switch to 【Invertedphase】 180°
4) Click the delay field to adjust the delay value:
   Range: 0.000 to 20.000 ms, 0.00 to 692 cm, or 0.00 to 272 in.
   Units: Selectable between milliseconds (ms), centimeters (cm), and inches (in).
5) Click 【Solo】 to isolate and monitor the channel individually; all other channels are instantly muted.
6) Click 【AP】 to adjust the All-Pass Filter settings, including phase adjustment at 1st-order or 2nd-order frequency points.

4 Product Specifications

4.1 Technical Specifications

· Dynamic Range:	· ≥102dB
· S/N:	· ≥98dB
· Frequency Response:	· 20Hz~20kHz
· Output Max Power:	· Class D amplifier: 8CH×80W+4CHx150W (bridge: 2CHx300W) @ 4Ω
· Output Rms Power:	· Class D amplifier: 8CH×40W+4CHx80W (bridge: 2CHx160W) @ 4Ω
· Input Sensitivity:	· RCA/Cinch: 1-6Vpp, High-level: 8-28Vpp
· Input Impedance:	· Low-level: 20kΩ, High-level: 4.7Ω
· Working Temperature:	· -20~60℃
· Power:	· DC 9V~17V
· REM Input:	· High-level start (FL+/FL-), ACC start optional
· REM Output:	· DC +12V Start-up Voltage Output(≥100mA)
· Standby Power:	· ≤0.1W
· Weight:	· 2.4KG
· Product Dimension:	· 261.4(L) x 196(W) x 46(H)mm

4.2 The Functions of DSP

· Input Signal Type:	· 12-ch high-level, Coaxial, AUX, Optical fiber, Built-in digital BT Supported USB Playback Formats:WAV, MP3, APE, OTG Playback Support: Supports high-resolution audio up to 192kHz/24-bit
· Output Signal Type:	· 12 Channel Low Level Output, 12 Channel High Level Output
· Output Delay:	· Single channel output volume: mute, -60dB~0dB Master volume adjustment: mute, -60dB~6dB
· Output Signal EQ:	· 31 Levels EQ · 1.Frequency Range20Hz~20kHz, 1Hz Accuracy · 2.Q Value(Slope) 0.429 ~ 16.052 · 3.Gain -20.0dB~+20.0dB, 0.1dB Accuracy
· Output Signal Crossover:	· Each channel is Equipped with a multi-order high-low pass independent filter. · 1.Professional filter type: Butterworth, Linkwitz-Riley, Bessel · 2.Filter Crossover Point: 20Hz~20kHz, Resolution 1Hz · 3.Filter Slope Setup: OFF, 6dB/Oct~48dB/Oct.
· Output Phase and Time Alignment:	· Phase and time alignment adjustable for every output channel. · Phase: In Phase or Out Phase (0°~180°) · Each channel: 0.000 to 20.000 milliseconds, 0.00 to 692 centimeters, 0.00 to 272 inches
· Presets:	· Save 6 presets into the device.

5 Troubleshooting

Before powering on, you should carefully check whether the connection line is normal, and you must ensure that all interfaces are properly connected.

Common fault judgment and treatment flow:

When a failure occurs: Before sending for repair, please refer to the table below to find the reason. → **When still unable to repair after checking:** Please restore this machine to its default value. → **When still unable to repair:** Please consult the manufacturer's customer service department.

Troubleshooting method:

No.	Malfuction	Reason and Solution
1	No Power	① Is the power connection properly connected? ② Is the connection method correct?
2	No Sound	① Has the mute operation been activated? ② Is the signal input channel selected correctly?
3	Use connection is not available	① Is the USB cable inserted in place? ② Is there any discovery in the ergonomic input device of the computer device manager named"HID-compliant device" equipment?

Warranty Terms

Dear Customer:

· Thank you for purchasing our product. To protect your legal rights, we provide the following warranty services:

1. Warranty Period

· Within one year from the date of purchase (based on the valid purchase receipt date), we provide warranty services for this product (excluding parts).

2.Non-Warranty Scope

· Faults caused by improper installation by unauthorized personnel.

· Faults caused by repairs by unauthorized personnel.

· Products without a nameplate (barcode) or with a nameplate (barcode) that has been altered or torn.

· Damage caused by accidental transportation (e.g., severe collisions, bumps during transportation) or improper use (e.g., long-term overload operation, failure to follow the product manual instructions) or faults caused by non-original parts are not covered by the warranty.

· Faults caused by force majeure (e.g., natural disasters, wars) or intentional human actions (e.g., intentional damage, tampering with the internal structure of the product) are not covered by the warranty.

· External decorations and accessories (e.g., body, shell, grille) are not covered by the warranty.

· Routine inspections and adjustments, as well as damage caused by exceeding parameter ranges, are not covered by the warranty.

3.Warranty Method

· During the warranty period, if the product has quality issues, you can return the damaged product to the seller and notify us to arrange for repairs. You need to provide a valid purchase receipt (invoice or receipt) and a detailed description of the quality issue.

· After receiving the product, we will inspect and repair it. If special circumstances require an extension of the repair time, we will inform you in advance.

· After the repair is completed, we will return the product to you and provide a repair report. The repaired product will continue to enjoy warranty services for the remaining warranty period, but parts repaired due to non-warranty reasons will not be recalculated for the warranty period.

4.Important Notes

· If the product serial number is altered or torn, the warranty card is invalid.

· If the product is repaired or disassembled by non-authorized personnel, the warranty is void.

· Products used for commercial purposes are not covered by the warranty.

5.Other

· Please read the product manual carefully before using the product and follow the instructions for proper use and maintenance. Faults caused by failure to follow the manual instructions are not covered by the warranty.

· We reserve the final interpretation rights of this warranty clause. In the event of special circumstances or disputes regarding the warranty terms, we will handle them in accordance with relevant laws and regulations and the principles of fairness and reasonableness.

目录

⚠ 注意事项 ⚠

为了防止电气短路，请勿将设备置于有雨或潮湿的地方。

电器如遇水和其它液体进入机内，应立即切断电源，并请专业维修人员检查维修，以免发生意外。

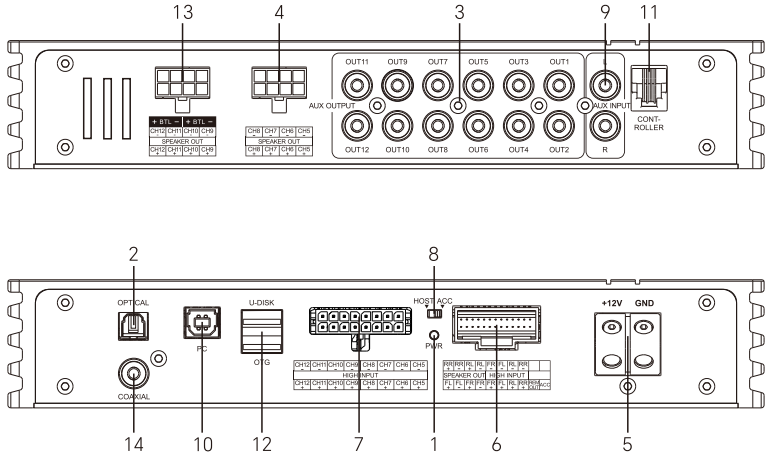
机内没有用户能自行维修的地方，请勿打开机盖，请找专业人员打开和维修。

1 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:

* FP-I2 V5主机	1台
*用户手册	1本
*高电平喇叭输出复合线/喇叭线	1套
*安装支架包	1套

2 机器接口简介



以下，对应接口定义描述↓

1、电源指示灯

2、光纤输入接口: 可接光纤输入

3、低电平RCA输出（外接功放可拓展系统）

4、喇叭线接口（CH5-CH8）

5、电源接口

6、高电平输入输出复合接口

7、高电平CH5-CH12输入接口

8、机器启动方式开关（ACC/HOST启动）

9、低电平RCA输入接口

10、USB2.0接口（连接电脑调音）

11、外置控制器接口（控制器可控总音量大小、数据调用、歌曲选曲、上下曲播放切换等）

12、USB盘（读取无损音乐WAV\FLAC\APE\MP3歌曲格式） OTG接口（手机高清音乐播放）

13、大功率输出（CH9-CH12）—可桥接

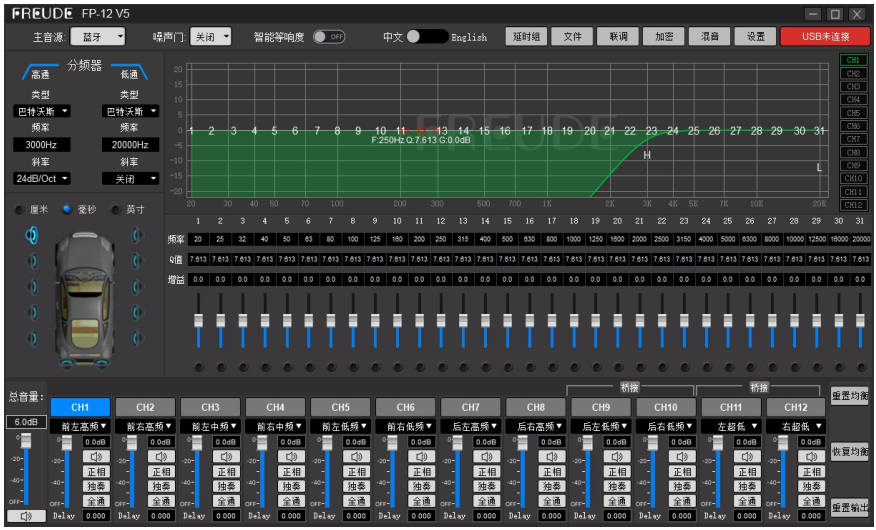
14、同轴输入口

3 控制软件简介

电脑运行要求:

显示器分辨率大于1280*768，否则不能完全显示界面，只适应于Windows操作系统手提电脑、台式电脑和平板电脑。

3.1 主页



1、主菜单编辑区（如下图）

主要功能：主音源、噪声门、等响度、中英文切换、延时组、文件、联调、加密、混音、设置等操作；

1) 点击【主音源】可选择高电平、低电平、光纤、播放器（U盘）、蓝牙、OTG音源切换
2) 点击【噪声门】可进行门限阈值设定输入静噪作用
3) 点击【等响度】在低音量时提升低频成分的音量
4) 点击【中/英】可切换中文/英文界面
5) 点击【文件】弹出对话框中，可进行音效调用和音效保存；
6) 点击【加密】可进行对机器调音数据加密防止盗用或数据抄袭；
7) 点击【混音】分别可进行高电平、低电平、蓝牙、数字（光纤）/播放器(U盘)输、OTG入混音；
8) 点击【设置】弹出对话框中，固件更新、音源音量调节（可进行单独音源通道音量调节）、开机默认音源等。

2、分频器编辑区（如下图）

可对高通和低通分频的设置。

1) 点击斜率下拉列表有6dB/Oct至48dB/Oct可选。

2) 频率调节范围：20Hz~20KHz。

3) 类型：有宁克-锐、巴特沃斯和贝塞尔。

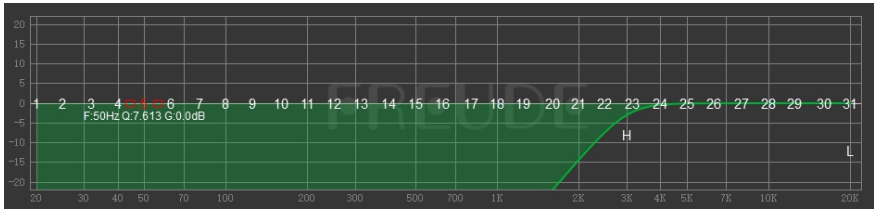
3、输出信号均衡配置区（如下图）

1) 点击【重置均衡】可将31段均衡器的参数恢复到原厂直通模式（均衡器的频率、Q值和增益都恢复到初始值）；

2) 点击【恢复均衡】可在现有均衡与初始均衡之间切换；

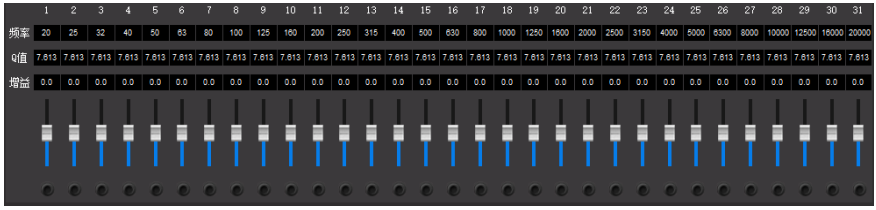
3) 点击【重置输出】可重新定义各声道名称。

4、输出通道图示频响曲线显示编辑区



在输出信号通道图示频响曲线显示编辑区中有31段EQ可调节。当鼠标移至序号位置上时按住鼠标左键，上下拖动鼠标可调节均衡器增益；左右拖动鼠标可调节均衡器频率；当鼠标移动到左右的黄色小框上，按住再左右拖动来调节均衡器的Q值。以上所有调节的同时都会在序号下方所对应的参数显示和编辑区中实时显示当前均衡器的参数，也会更新均衡器参数编辑区的数值， 参数显示和编辑区如图4参数显示和编辑区所示。

5、输出通道增益、Q值、频率编辑区



1) 频率：可直接输入数值、滚动鼠标滚轮和键盘上的上下键来进行调节频率；
2) Q值：在编辑区中，可通过直接输入数值、滚轮鼠标滚轮和键盘上的上下键等方式来进行调节Q值（可调范围：0.429~16.052）；
3) 增益：在编辑区中，可通过直接输入数值、滚动鼠标滚轮和键盘上的上下键和直接拖动推子等方式来进行调节增益（调节范围：-20dB~20dB）。

6、主音量编辑区（如下图）

调节范围：关闭，0dB ~ +6dB。
点击喇叭按钮可直接静音总音量。

7、输出通道设置编辑区（如下图）

1) 通道音量调节范围：-60dB~0dB；
2) 点击喇叭按钮可使通道声音静音；
3) 点击【正相】 正相 可切换【反相】 反相；
4) 点击延时框可调节延时值，延时：0.000至20.000毫秒，0.00至692厘米，0.00至272英寸；
单位：有毫秒、厘米和英寸可选；
5) 点击【独奏】可进行单独通道音量定点听音，其他通道瞬间静音；
6) 点击【全通】可进行全通滤波器功能调节，分为一阶/二阶频率点的相位调节。

本手册基于特定软件版本编写，后续升级可能改变界面或操作。请以实际软件为准。

4 产品参数指标

产品参数

· 动 态 范 围：	· ≥102dB
· 信 噪 比：	· ≥98dB
· 频 率 响 应：	· 20Hz~20kHz
· 峰值输出功率：	· D类功放：8CH × 80W + 4CH × 150W(桥接功率： 2CH x 300W) @4Ω
· 额定输出功率：	· D类功放：8CH × 40W + 4CH × 80W(桥接功率： 2CH x 160W) @4Ω
· 输 入 灵 敏 度：	· 低电平：1-6Vpp 高电平：8-28Vpp
· 输 入 阻 抗：	· 低电平输入： 20KΩ， 高电平输入：4.7Ω
· 使用环境温度：	· -20 ~ 60℃
· 电 源：	· DC 9V ~ 17V（支持新能源车）
· 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
· 重 量：	· 2.4KG（千克）
· 产 品 尺 寸：	· 261.4(长) x 196(宽) x 46(高)mm

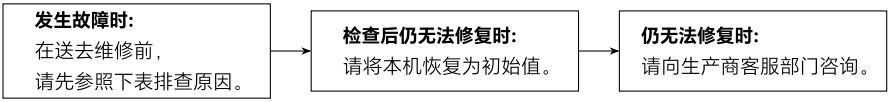
功能参数

· 输 入 信 号 类 型：	· 12通道高电平、AUX、同轴、光纤，内置数字蓝牙，支持U盘播放格式：(WAV MP3 APE)，支持OTG播放（支持高达192Khz/24bit的高清音乐播放）
· 输 出 定 位：	· 12路低电平RCA、12路高电平
· 输 出 音 量：	· 单通道输出音量：静音、-60dB~0dB 总音量调节：静音、-60dB~6dB
· 输出信号均衡器：	· 31段均衡器引擎： 1、频率范围： 20Hz ~ 20KHz， 分辨率1Hz 2、Q值（斜率或坡度）：0.429 ~ 16.052 3、增益： -20.0dB ~ +20.0dB， 分辨率：0.1dB
· 输出信号分频器：	· 每路通道配有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： OFF、6dB/Oct 至 48dB/Oct
· 输出相位和延时：	· 每路通道可进行相位和延时调整， 参数范围： · 相位： 同相或反相（0°/180°） · 延时： 0.000至20.000毫秒，0.00至692厘米，0.00至272英寸
· 场 景 操 作：	· 机器可保存6种预置音乐场景。

5　常见故障解决方法

在通电前，应仔细查连接线是否正常，必须保证所有接口为正常连接。

一般故障处理流程:



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? ②启动方式是否正确?
2	无声音	①是否触发了静音模式? ②信号输入通道选择是否正确?
3	USB连接不上	①USB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?

保修条例

尊敬的顾客：

· 感谢您购买本公司的产品。为保障您的合法权益，现向您提供以下保修服务：

一、保修期限

· 自您购买本产品之日起一年内（以有效购买凭证日期为准），本公司为该产品（不包括零件）提供保修服务。

二、非保修范围

· 由非本司授权服务人员安装不良所引起的故障。

· 由非本司授权服务人员修理而引起的故障。

· 产品无铭牌（条形码）或铭牌（条形码）被涂改、撕毁的。

· 因意外运输（如产品在运输过程中遭受剧烈碰撞、颠簸等）及不当使用（如长时间超负荷运行、未按照产品说明书要· 求使用等）非正常操作导致的损坏，或采用非原厂零件而导致的故障，保修无效。

· 由于不可抗力因素（如自然灾害、战争等）或人为故意行为（如故意损坏、篡改产品内部结构等）造成的故障。

· 器材外表的装饰及附件（如机身、外壳、网罩等）不在保修范围内。

· 日常检查及调样，因超参数范围使用造成的损坏，不在保修范围内。

三、保修方式

· 在保修期内，若产品出现质量问题，您可将损坏的产品送回购买的商家，并及时通知本公司安排维修。您需提供有效购买凭证（发票或收据等）以及产品出现质量问题的具体情况描述。

· 本公司将在收到产品后对产品进行检测和维修。如遇特殊情况需延长维修时间，我们将提前告知您。

· 维修完成后，我们将产品返还给您，并提供维修报告。维修后的产品在剩余保修期内继续享受保修服务，但因非保修范围原因导致的维修，维修后的部分不再重新计算保修期限。

四、重要事项

· 若器材编号被涂改或撕毁，本保修卡无效。

· 若器材由非我司技术人员修理、拆剪，保修无效。

· 器材作为商业用途，保修无效。

五、其他

· 请您在使用产品前仔细阅读产品说明书，按照说明正确使用和维护产品。因您未按照说明书要求使用和维护产品而导致的故障，不在保修范围内。

· 本公司对本保修条款拥有最终解释权。在保修执行过程中，如遇特殊情况或对保修条款存在争议，本公司将依据相关法律法规和公平合理的原则进行处理。

FREUDE

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