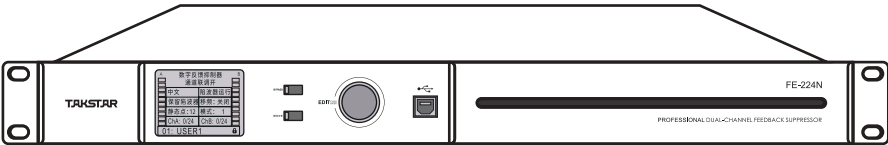


TAKSTAR® 得胜

用户手册 User manual



FE-224N

数字反馈抑制器

Digital Feedback Suppressor

前言

感谢您选用得胜FE-224N数字反馈抑制器，为了您能够更好的了解使用本产品，建议您在使用前仔细阅读本说明书。

若存在有疑问或者您有宝贵的建议，可通过拨打得胜官方服务热线4006828333或微信扫描二维码关注得胜官方公众号与我们联系。



产品特性

- 1.每路输入包含增益控制、24段参量均衡、噪声门、移频器、分频器和压缩器
- 2.LCD显示屏指示每个通道电平指示、各功能开关状态及功能等级显示、当前模式状态
- 3.2路XLR平衡输入、2路6.35平衡输入,2路XLR平衡输出、2路6.35平衡输出
- 4.配备的PC控制软件,可运行于Win10 64bit操作系统,通过USB接口,可灵活配置设备;并可实现单个或整体模式数据的导入
- 5.所有输入/输出接口都采用完善的RF及静电防护电路,保证设备的可靠运行

技术参数

测试条件: 正常工作环境, 平衡输入+4dBu@1kHz正弦模拟信号, 音量0dB, 所有功能BYPASS直通状态

频率响应: 20Hz~20kHz $\pm 0.3\text{dB}$

本底噪声 : $< -84\text{dBu}$

失真 (THD+N) : $< 0.03\%$ @1kHz

系统延时 : $< 2\text{ms}$

ADC&DAC动态范围: $> 115\text{dB}$

电源: $\sim 220\text{V}$, 50Hz/60Hz, 功耗 $< 20\text{W}$

输入阻抗 (平衡式) : $10\text{k}\Omega$

使用环境温度: $0^\circ\text{C} \sim +40^\circ\text{C}$

输出阻抗 (平衡式) : 100Ω

存储环境温度: $-10^\circ\text{C} \sim +60^\circ\text{C}$

隔离度: $< -100\text{dB}$ @1kHz

外观尺寸(W×D×H): $483 \times 268 \times 45\text{ (mm)}$

最大输入电平: $> 15\text{dBu}$ @1kHz

净重: 3.5kg

最大输出电平: $> 15\text{dBu}$ @1kHz

数字采样率及精度: 96kHz 24bit AD/DA 400MHz 32bit浮点DSP

注: 以上数据由得胜实验室测试得到, 并拥有最终解释权!

适用范围

会议、演出、演讲、报告厅等

标准配置

抑制器1台

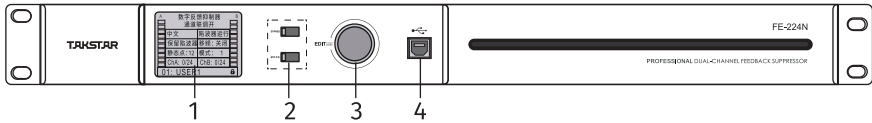
电源线1条

说明书1份

U盘1个

USB连接线1条

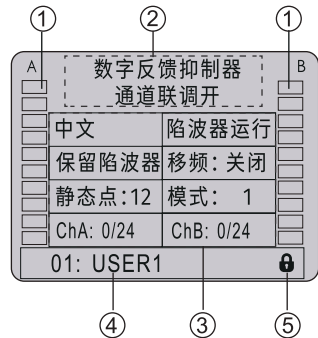
前面板介绍



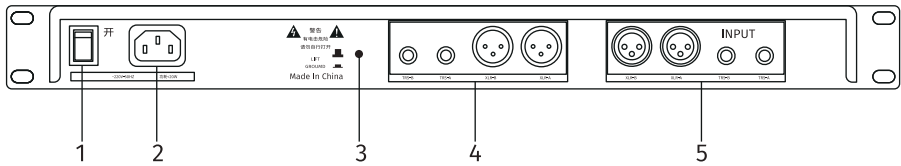
- 1.LCD显示屏：显示当前各通道的状态信息、音量信息及模式状态
- 2.功能按键：BYPASS状态按键、MODE切换按键，同时长按BYPASS按键和MODE按键约5秒，可保存当前捕捉到的啸叫点
- 3.编辑确认旋钮+按键：此旋钮带按键功能，顺时针旋转配合按键功能，配合显示屏光标位置编辑各功能模块
- 4.免驱USB接口：与PC端连接，通过专用PC端控制软件连接设备进行调试

显示屏内容介绍

- 1.A/B通道静音状态显示和输出信号条，信号条顶部红色表示信号CLIP过载(超过+18dBu)，黄色表示接近过载区(+12dBu)，绿色指示信号电平 -36dBu ~ +6dBu共8级(黄灯下第2个绿色指示正常工作电平0dBu)，6dB/级
- 2.通道联调开/关状态显示
- 3.功能区域
 - A.中英文切换功能
 - B.陷波器运行状态切换：直通/运行两种状态
 - C.陷波器设置：指示是否保留或者清除当前自动捕捉的反馈点
 - D.移频设置：OFF, 2Hz, 3Hz, 4Hz, 6Hz, 8Hz共6级
 - E.静态工作点设置：设置已被检测前端连续不被动态覆盖的陷波点个数
 - F.模式选择：用户模式选择，根据实际需要调用已保持的用户模式
 - G.ChA:0/24, ChB:0/24指示A/B道当前自动捕捉到的反馈点个数，最多24个。超过17个点会黄色显示
- 4.预设：显示预设号和预设名称
- 5.面板锁：面板锁定后闪烁显示，不允许面板操作(长按EDIT旋钮3秒可以解锁或上锁)



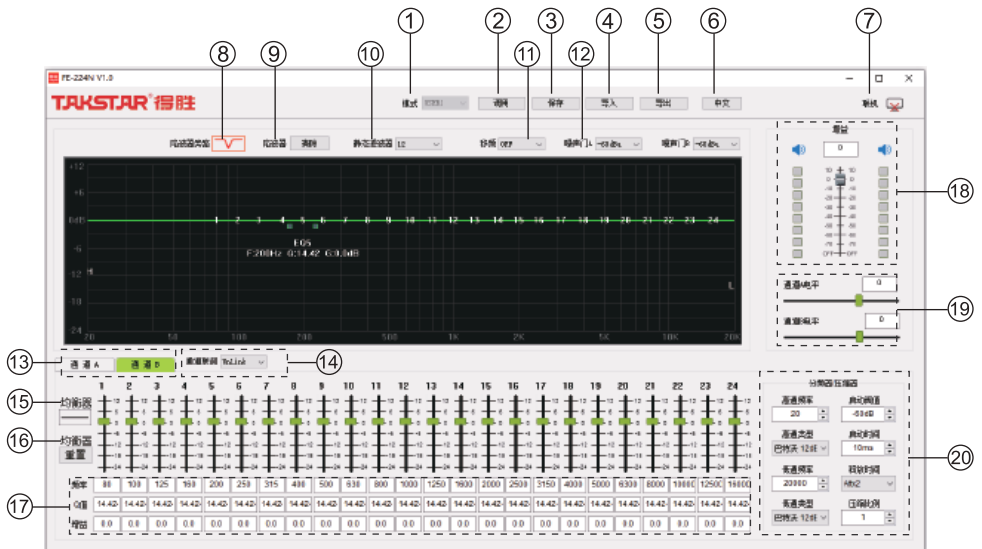
后面板示意图



- 1.电源开关:打开或者关闭电源
- 2.电源插座: AC220V交流电输入口
- 3.系统接地/悬空开关:按下状态为机壳与本机系统接地连通,弹起为系统接地与机壳直流悬空(用于解决整个音响系统接地造成的信号干扰)
- 4.输出通道:A/B通道输出端口,采用标准卡侬输出和6.35平衡输出
- 5.输入通道:A/B通道输入端口,采用标准卡侬输入和6.35平衡输

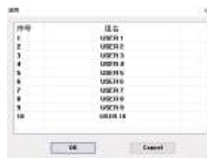
软件介绍

软件支持win7,win10以上操作系统,USB免驱动安装,点击运行程序,启动界面如图所示:

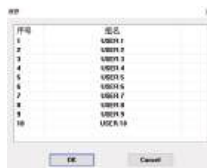


1.模式:显示当前设备处于哪种模式

2.如图,从已保存的模式清单中调用为当前模式,支持最大10种模式。



3.当前设备参数保存到指定模式,点击选中列表中的模式名称后点“OK”保存,双击模式名称弹出修改对话框可修改模式名称



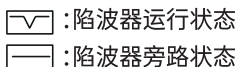
4.导入:导入保存在本地电脑的配置文件到当前设备,点击“导入”,弹出对话框,选则配置文件所在的文件夹,选中需导入的文件点击“打开”,配置文件将成功导入到设备。

5.导出:设备当前的配置导出到本地电脑保存,点击“导出”弹出对话框,选择好保存路径,重新命名文件名后点“保存”,配置文件成功将保存到本地指定目

6.中英文切换按钮:支持中英文两种语言

7.联机:设备与电脑USB线连接后,点击此按钮,连接成功后通过软件可以对设备进行调试

8.陷波器旁路:点击右边方框可以切换两种状态



9.陷波器:点击“清除”按钮,清除当前所有的陷波点,设备重新开始扫描啸叫点

10.静态滤波器:设置保护当前已扫描的陷波点个数,当最大24个陷波点用完后仍检测到新的动态啸叫点,设备捕捉陷波点将覆盖在设置数值之后的点;静态陷波点之前点固定保留不被覆盖。

11.移频:最大支持 8Hz移频范围

12.噪声门:根据当前系统噪声水平设置合适的噪声门阈值,注意设置过高的阈值可能会出现声音中断的情况

13.通道A/B:选择需要调试的通道

14.通道联调:设置AB通道级联调试或单独调试

15.均衡器状态按钮:  为均衡器启用状态,  为均衡器旁路状态。

16.均衡器重置:PEQ参数重置,点击“重置”按钮,重置当前调整的PEQ参数

17.均衡器EQ点参数:频率、Q值、增益;可手动输入调节

18.通道静音开关、增益调节、电平显示

19.A/B通道输出音量调节

20.分频器/压缩器:分频器可设置高低通截止频率及滤波器类型;压缩器可设置启动阈值、启动时间、释放时间、压缩比例参数

Preface

Dear Customer,

Thank you for purchasing Takstar FE-224N Digital Feedback Suppressor. In order to better understand and use the product, please read this manual carefully.

If you have any questions or suggestions, please contact our local dealer.

Product Features

1. Each input channel includes gain control, 24-band PEQ, noise gate, frequency shifter, crossover and compressor.
2. LCD screen shows info such as channel level, status of each function and current mode.
3. 2CH XLR balanced inputs, 2CH 6.35mm balanced inputs, 2CH XLR balanced outputs, and 2CH 6.35mm balanced outputs.
4. With PC control software to help you configure settings flexibly and import data for single/all channels via USB connection, compatible with Win10 64bit OS.
5. Well-rounded RF & electrostatic protection circuits on all input/output interfaces to ensure reliable performance.

FE-224N Digital Feedback Suppressor

Specifications

Test Conditions: normal working environment, balanced input +4dBu@1kHz sinusoidal analog signal, volume 0dB, all functions bypassed

Frequency Response: 20Hz~20kHz ± 0.3 dB

Distortion (THD+N): <0.03% @1kHz

ADC&DAC Dynamic Range: >115dB

Input Impedance (balanced): 10k Ω

Output Impedance (balanced): 100 Ω

Isolation: <-100dB@1kHz

Max Input Level: >15dBu@1kHz

Max Output Level: >15dBu@1kHz

Noise Floor: <-84dBu

System Delay: <2ms

Power Supply: ~220V, 50Hz/60Hz, consumption <20W

Dimensions (W×D×H): 483× 268×45 (mm)

Operating Ambient Temperature: 0°C~+40°C

Storage Ambient Temperature: -10°C~ + 60°C

Digital Sampling Rate & Depth: 96kHz 24bit AD/DA 400MHz 32bit floating point DSP

Net Weight: 3.5kg

Note: The above data are measured by Takstar laboratory which has the final interpretation right!

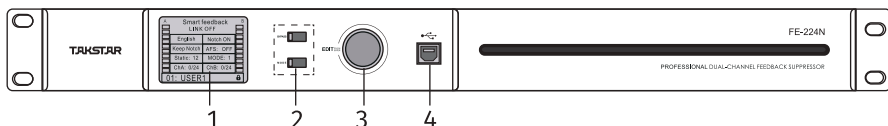
Application

Meetings, performances, lectures, report halls, etc.

Standard configuration

Digital Feedback Suppressor..... 1 PC. Power Cord..... 1 PC.
User Manual..... 1 PC. USB Drive..... 1 PC. USB Cable..... 1 PC.

Panel Description

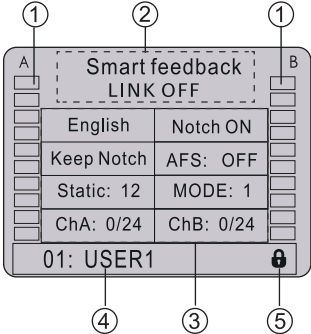


1. LCD screen: display the current status info, volume info and mode status of each channel.
2. Function buttons: BYPASS status button, MODE switching button. Press and hold both these buttons for 5 seconds to save the current captured feedback point.

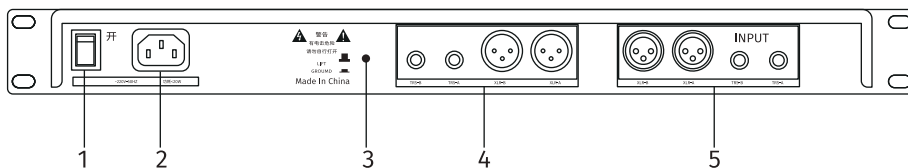
3. Editing wheel: with press-to-click function. Rotate counterclockwise to move the cursor position on the display screen and edit each function module.
Driver-free USB interface: connect to the PC for configuration through the
4. dedicated PC software.

Display Content Description

1. A/B channel mute status and output signal meter: red at the top of the signal meter indicates signal CLIP overload (over +18dBu), yellow indicates approaching overload zone (+12dBu), green indicates signal level -36dBu~+6dBu, 8 levels in total (the second green bar under the yellow light indicates normal working level 0dBu), 6dB/level.
2. Channel link on/off status
3. Function area
 - A. Chinese/English switch
 - B. Notch filter switch: BYPASS / ON
 - C. Notch filter setting: indicate whether to keep or clear the current auto-captured feedback point.
 - D. Audio frequency shift setting: OFF, 2Hz, 3Hz, 4Hz, 6Hz, 8Hz, a total of 6 levels.
 - E. Static working point setting: set the number of successive notch points detected that are not covered within dynamics
 - F. Mode selection: user mode selection, load the stored user mode as per your needs.
 - G. ChA:0/24, ChB:0/24: indicate the number of feedback points that are currently auto-captured by channel A/B, up to 24. It turns yellow if more than 17 points, and turns red if more than 21 points.
4. Preset: display preset number and preset name.
5. Panel lock: lock icon flashes when the panel is locked, disallowing any panel operation (press and hold the EDIT knob for 3 seconds to unlock or lock)ing



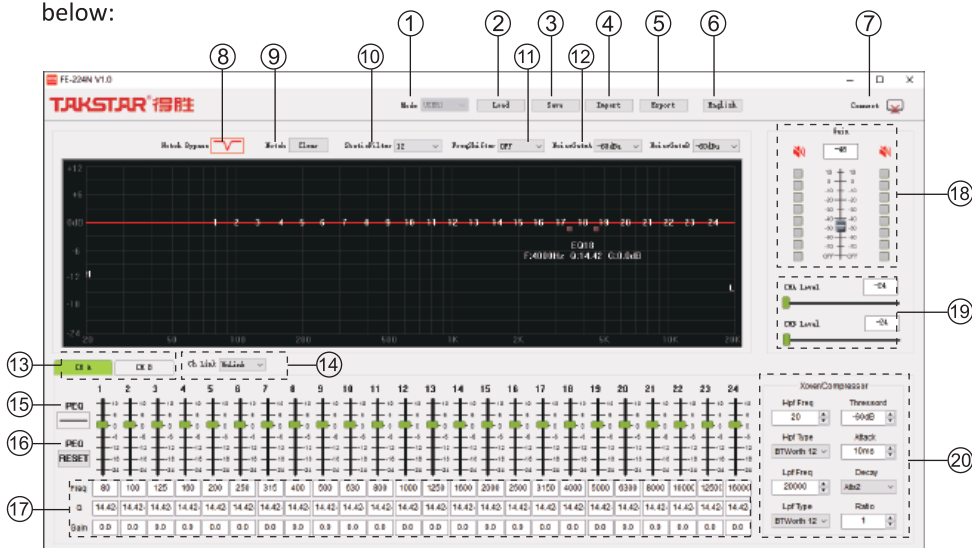
Rear Panel Description



1. Power switch: turn on or off the power
2. Power socket: AC220V AC input port
3. Ground lift switch: case grounded if the switch is depressed; ground lift if raised. (Ground lift is a technique used to reduce or eliminate ground-related noise arising from ground loops in audio system)
4. Output channel: A/B channel output ports, including standard XLR outputs and 6.35mm balanced outputs
5. Input channel: A/B channel input ports, including standard XLR inputs and 6.35mm balanced inputs

Software Description

The software supports win7, win10 and above operating systems, as well as USB driver-free installation. Click to run the program, the startup interface is shown below:

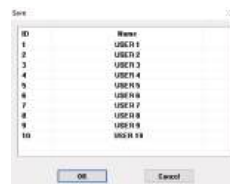


Software Description

1. Mode: show which mode the current device is in.
2. Load: as shown in the picture, you can load a specific mode from the saved mode list. The list can have up to 10 modes.
3. Save: save the current device parameters to a specific mode by selecting any of the mode name in the list and clicking "OK" to save. Double-click a mode name to modify the mode name in a pop-up dialog.
4. Power switch: turn on or off the power
5. Power socket: AC220V AC input port
6. Ground lift switch: case grounded if the switch is depressed; ground lift if raised. (Ground lift is a technique used to reduce or eliminate ground-related noise arising from ground loops in audio system)
7. Output channel: A/B channel output ports, including standard XLR outputs and 6.35mm balanced outputs
8. Input channel: A/B channel input ports, including standard XLR inputs and 6.35mm balanced inputs

☒ : notch filter running

☐ : notch filter bypass



Software Description

9. Notch filter: click the "Clear" button to clear all current notch points, and the device will start scanning feedback points again.
10. Static filter: set the number of currently scanned notch points for protection. When a new dynamic feedback point is still detected after the maximum 24 notch points are used up, the device will capture the notch points after the set value. The points before the static notch point are retained and not overwritten.
11. Frequency shift: support 8Hz frequency shift range at max.
12. Noise gate: set the appropriate noise gate threshold according to the current system noise level. Beware the possibility of sound interruption if the threshold is set too high.
13. Channel A/B: select the channel to configure.
14. Channel link: set AB channel linked or separate configuration.
15. PEQ status button:  means PEQ is enabled, and  means PEQ is bypassed.
16. PEQ reset: PEQ parameter reset, click the "Reset" button to reset the current PEQ parameters
17. PEQ point parameters: frequency, Q value, gain; can be manually input and adjusted.
18. Channel mute switch, gain control, level meter
19. Channel A/B output volume control
20. Crossover/Compressor: crossover can set high/low-pass cut-off frequency and filter type; compressor can set start threshold, attack time, release time and compression ratio.

注意事项:

- 1. 本单为保修凭证，请用户妥善保管，如有遗失，恕不保修或退换。
- 2. 保修期限制：购买之日起十二个月内。
- 3. 除了不可抗力事件损坏外，由本公司负责，免费维修。
- 4. 如属保管不善或使用不当造成的损坏，维修点将酌情收费。
- 5. 擅自拆卸维修者，不予保修。
- 6. 以上保修条款仅限于中国市场适用（不包含港澳台地区）。

产品服务保证书

姓名: _____ 电话: _____ 地址: _____
商品: _____ 型号: _____ 购买日期: _____ 年 ____ 月 ____ 日

维修记录栏(由维修员填写)	维修员签名	日期



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