

1237A and 1238A

Operating Manual 操作手册
Genelec 1237A and 1238A
Smart Active Monitors

GENELEC®



Genelec 1237A and 1238A Operating Manual

Introduction

Congratulations and a thank-you for the purchase of this Genelec Smart Active Monitoring (SAM) Series DSP monitor loudspeaker.

This product should be set up using the fully automatic process in the Genelec Loudspeaker Manager GLM™ software. There are no setup controls on the amplifier panel.

This manual describes the basic setup of the monitor for use with the GLM software, as well as use in the Stand-alone mode without the GLM software in use or permanently connected for computer control.

Each monitor is supplied with a mains cable, one GLM control network cable, and an operating manual.

System

The Genelec 1237A and 1238A are three-way monitoring systems for medium sized control rooms. They perform well as free-standing monitors as well as flush-mounted in control room walls. They are suited for recording, film and video post-production, broadcast monitoring as well as for mastering.

The unique Directivity Control Waveguide™ (DCW™) technology by Genelec provides excellent stereo imaging and neutral frequency response even in difficult acoustics.

With program material at a 2 meter listening distance, the fast low distortion amplifiers drive a stereo system to peak sound levels in excess of 122 dB SPL (1237A) or 124 dB SPL (1238A).

The 1237A and 1238A are fully compatible with Genelec Loudspeaker Manager GLM™ and proprietary Genelec control network. They can be used with 8200-series SAM monitors and 7200-series SAM subwoofers in the same network.

Drivers and Cabinet Construction

The 1238A reproduces low frequencies with a 385 mm (15 in) woofer in a 110 litre bass reflex enclosure. The 1237A features a 305 mm (12 in) woofer in a 65 litre bass reflex enclosure. Both monitors use the same proprietary 130 mm (5 in) direct radiating mid-range driver, and a 25 mm (1 in) metal dome tweeter, both acoustically loaded by the pro-

prietary Directivity Control Waveguide. All drivers are magnetically shielded.

Amplifiers and Signal Processing

The 1237A and 1238A use the RAM-L amplifier unit. The RAM-L is mounted with vibration absorbers in the rear of the monitor enclosure, and can also be detached and mounted to a 19 inch rack. Digital signal processing in the RAM-L amplifier unit is done with high precision algorithms, and includes driver and amplifier overload protection. The room response compensations include highly flexible parametric filters, level alignment, and acoustic delay compensation. These allow accurate matching to all console output sections and room acoustics.

Mounting Considerations

Place monitors so that their acoustic axes are aimed towards the listening position (see Figures 1 and 2). Place monitors with left-right symmetry and at an equal distance from the listening position. Acoustic reflections from objects close to monitors and the listening position can cause colouration and blurring of the sound image. Symmetrical positioning of reflective objects maintains good stereo imaging. When soffit (flush) mounting, the wall surface should extend to the monitor, forming a continuous surface.

Minimum Clearances

The minimum clearance is 5 cm (2 in) behind, above and on both sides of the monitor, when the RAM-L amplifier is mounted on the enclosure. The ambient temperature around the amplifier must not exceed 35 degrees Celsius (95°F). When soffit mounting, sufficient ventilation should be arranged behind the monitor. This may require forced ventilation around the RAM-L amplifier.

When the RAM-L amplifier is mounted in a 19 in rack, the minimum free space is 1U both above and below the amplifier and both sides of the amplifier fully open to enable free movement of air. Use the included rack mount front plate to ensure sufficient space above and below the amplifier.

When the RAM-L is mounted on a table, shelf or similar solid surface, there must be a

free space of at least 250 mm (10 in) above and 10 cm (4 in) on both sides of the amplifier. Free air flow must be possible in the front side of the amplifier.

Set-up and Use

Monitor calibration and setup

The 1237A and 1238A are set up using the GLM software. The setup is fast and consists of the following steps:

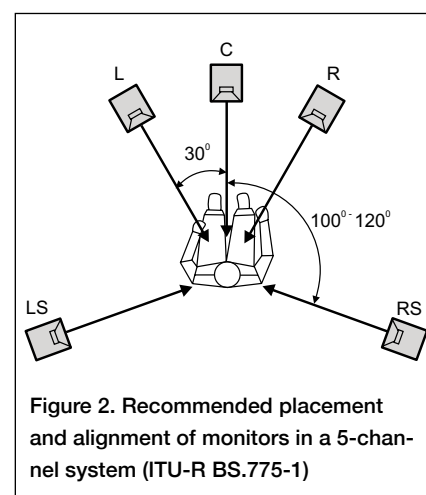
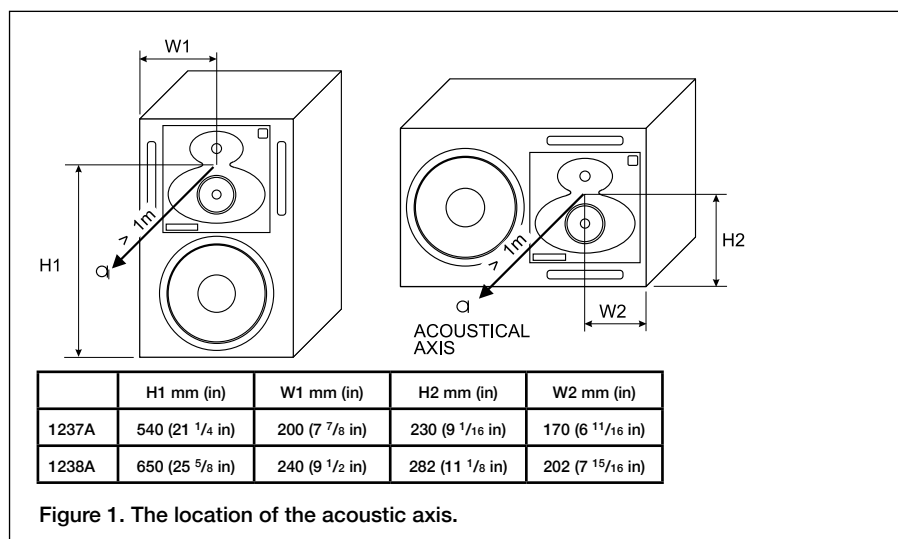
1. Run a CAT5 (RJ45) cable from the monitor control network to the next monitor.
2. Run the final cable to control network input of the GLM Adapter device.
3. Connect the GLM Adapter device to your computer USB connector. The cable is a part of the GLM User Kit.
4. Place the Genelec measurement microphone at the listening location of the engineer, on a stand, with the microphone pointing upwards and the microphone top at the height of the engineers ear in normal working position. The microphone is a part of the GLM User Kit.
5. Run the microphone cable to the microphone input in the GLM Adapter device.
6. Download GLM software at the Genelec web site (www.genelec.com). Install the GLM software.
7. Follow the GLM software instructions to measure and set up your monitors.
8. If you plan to not use a computer for controlling the monitors, use the GLM software to write the setting into the monitors ("Store the Settings").

Recommendations for AES/EBU Audio

For a digital input signal of -30 dB FS, the 1237A and 1238A monitors will produce a 100 dB sound level (SPL) at 1 meter distance, in free space. The sensitivity of the monitor system is set using the GLM software.

It is advantageous to keep the maximum incoming digital audio signal level high, near to 0 dBFS. It may be useful to lower the internal GLM level control. This enables maintaining high digital resolution in the digital source.

Single-wire mode of AES/EBU is the



analog input signal. The digital audio AES/EBU input is selected automatically when a valid digital audio signal is presented. Use GLM software to define the AES/EBU sub-frame to monitor.

“DIGITAL THRU AES/EBU” Connector

This output carries an unaltered copy of the digital audio signal and can be used for daisy-chaining the signal up to three additional SAM monitors or subwoofers.

“ANALOG IN” Connector

The maximum input level of the analog input is +25.0 dBu. The analog input must not be overloaded, otherwise distortion will result. When the maximum input is exceeded, the enclosure front panel light turns red, indicating the overload.

The sensitivity of the monitor system is set using the GLM software. Coming from the factory, the analog input is set to the highest sensitivity, resulting in a sound output of 100 dB SPL for a -6 dBu analog input signal.

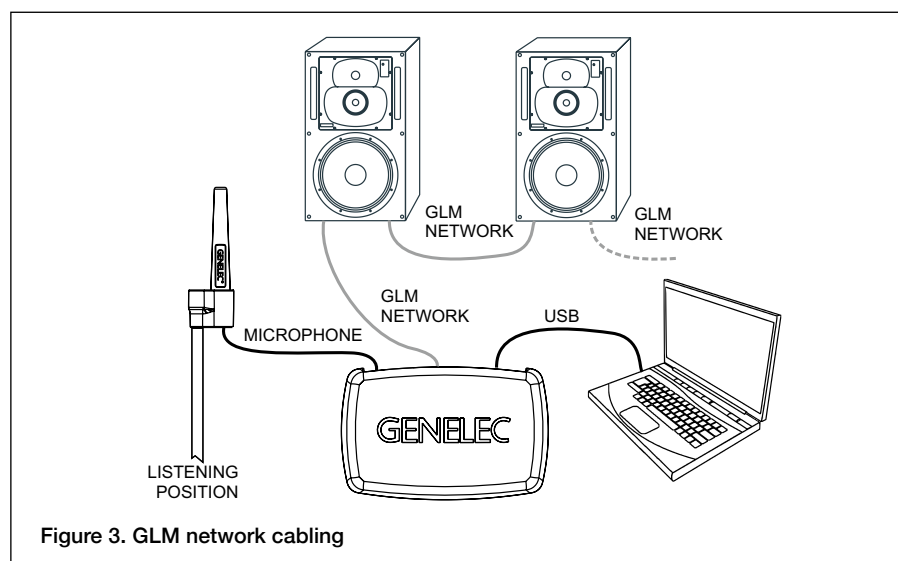
“CONTROL NETWORK” Connectors

The RJ-45 sockets connect the monitor to the proprietary Genelec Loudspeaker Manager™ (GLM™) network. Do not connect to Ethernet LAN.

“Loudspeaker Connectors” Group

These connectors are used when the RAM-L amplifier is mounted separately in an equipment rack.

1. “LED” Connector
This RJ-45 socket is a connection for



default and the older dual-wire mode is automatically detected if used at the source.

The standard AES/EBU cable carries two channels of audio, called A and B. As a default, both A and B subchannels are reproduced by the monitor. GLM software is used to set up the monitor to specific channel assignments.

RAM-L Amplifier Power Button

The power button in the middle of the RAM-L amplifier front panel controls several functions.

A short press of the power button turns RAM-L on or off. Turning on, the power button light flashes rapidly, and lights on steadily when the turn-on has been completed.

Testing modes are explained later in this manual.

Setting ISS™

The Intelligent Signal Sensing (ISS) puts the monitor to a power-saving stand-by mode automatically. The factory setting for ISS is “OFF.” The ISS can be activated using the GLM software (see Figure 5). When ISS is active, if no audio signal is sensed during the selected time, the monitor powers down. The monitor will power up again once a signal is detected. The ISS setting is applied to all ISS-enabled monitors in the currently selected Setup.

Connections

“MAINS INPUT” Connector

Connect to the mains supply.

“DIGITAL IN AES/EBU” Connector

The monitor defaults to reproducing an

the front panel warning LED.

2. “Woofers” Connector
A standard four-pole Speakon cable connects to the woofer.
3. Midrange/Tweeter” Connector
A standard four-pole Speakon cable connects to the the midrange and tweeter.

Front Panel Light Functions

Green light on the DCW panel of a 1237A or 1238A enclosure indicates normal operation. A yellow light indicates certain activities when the GLM control software is used. The light turns red in an overload condition. The overload light (red) is activated by several events:

1. Exceeding the maximum input of the analog input
2. Reaching close to the digital input maximum (high likelihood of digital clipping)
3. Overload of drivers or amplifier, or clipping in the power amplifier
4. An error detected in the AES/EBU audio data

If a red warning light appears on the monitor enclosure, turn the source level down. Ensure that there are no bit errors in the AES/EBU digital audio data transmission.

Mounting RAM-L Amplifier in a 19 Inch Rack

The RAM-L amplifier can be removed from the enclosure and installed in a standard 19 inch rack. The rack mount components (front plate, brackets, screws) are included with the monitor.

Preparation for rack mount is done with the following process:

1. Remove all signal cables and the mains cable from the amplifier.
2. Remove the two screws attaching the amplifier to the vibration isolating mounts at the left top and bottom.
3. Pull out the left side of the amplifier (see figure 6).
4. Detach the flat cable from the enclosure.
5. Undo the two screws on the right side isolating mounts. Remove the amplifier.
6. Remove the cover of the flat cable connector (see figure 7)
7. Pull out (detach) the flat cable from the amplifier unit.

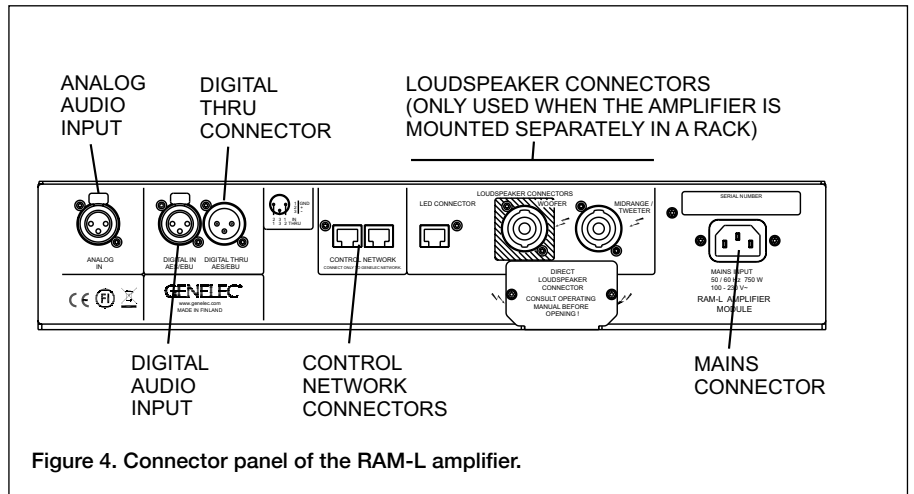


Figure 4. Connector panel of the RAM-L amplifier.

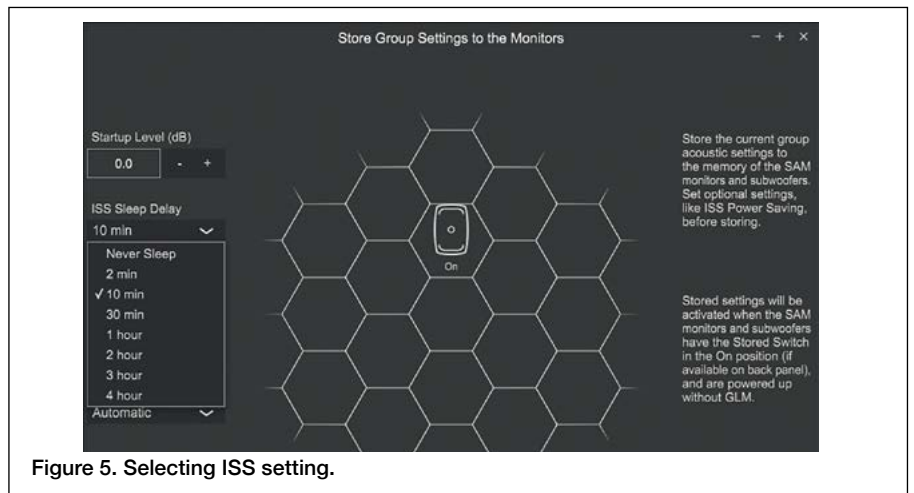


Figure 5. Selecting ISS setting.

8. Reattach the cover of the flat cable connector.
9. Remove the front mounting ears (see figure 8).
10. Attach two angled rack mount brackets (included). Attach the front plate (included) (see figures 9 and 10).
11. Attach the amplifier to a 19 inch rack.
12. Remove the plastic cover from the RJ45 connector. Attach two Speakon cables, and one RJ45 cable (LED CONNECTOR) between the amplifier and the cabinet.
13. Attach signal cables and the mains cable.

Flush Mounting the Monitor Enclosure

Flush mounting offers acoustical benefits. No cabinet edge diffraction will occur. Low frequency reflections from the wall behind the monitor can be avoided. The monitor's acoustical axis (Figure 1) should point to the seated listening position. The wall in which the monitors are mounted should be stiff and

Cable gauge	Max. length
2.0 mm ² (14 AWG)	30 m (100 ft)
3.3 mm ² (12 AWG)	40 m (130 ft)
5.3 mm ² (10 AWG)	60 m (200 ft)

Table 1. Recommended cable thicknesses for different lengths of signal cable

heavy. The monitors should not be mounted too high (maximum tilt angle < 15 degrees).

A space 50 to 100 mm (2 to 4”) wide can be left around the monitor but this space should be covered with a panel in the front. Leave a gap of 5 to 10 mm (¼ to ½”) between the monitor and the panel. Fill this gap with a soft rubber gasket (see figure 14). The monitor should be mounted on vibration isolators. The resonant frequency of movement for the mounted monitor should be between 2 to 8 Hz.

An empty cavity in the wall should be filled with absorbent mineral wool or foam plastic. A wooden wall structure must be heavily braced (see figure 11). In a solid (e.g. con-

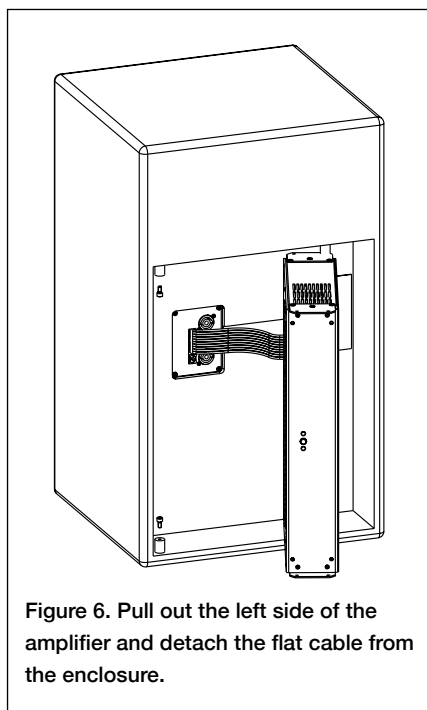


Figure 6. Pull out the left side of the amplifier and detach the flat cable from the enclosure.

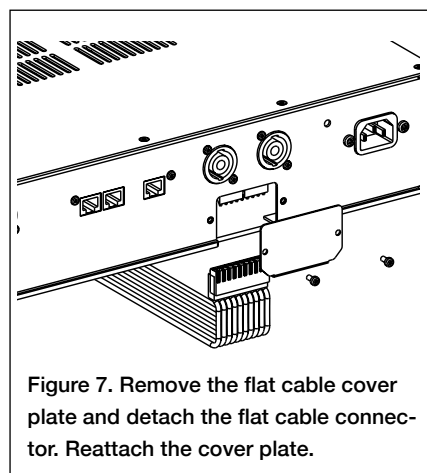


Figure 7. Remove the flat cable cover plate and detach the flat cable connector. Reattach the cover plate.

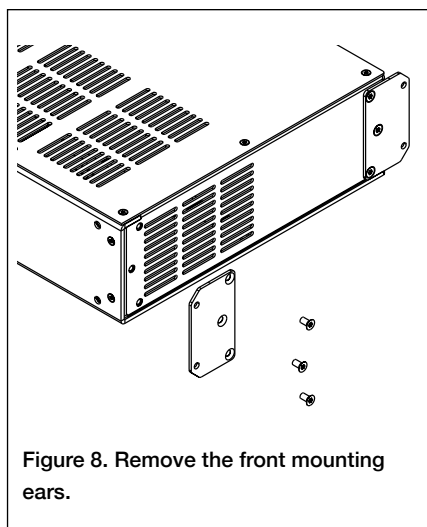


Figure 8. Remove the front mounting ears.

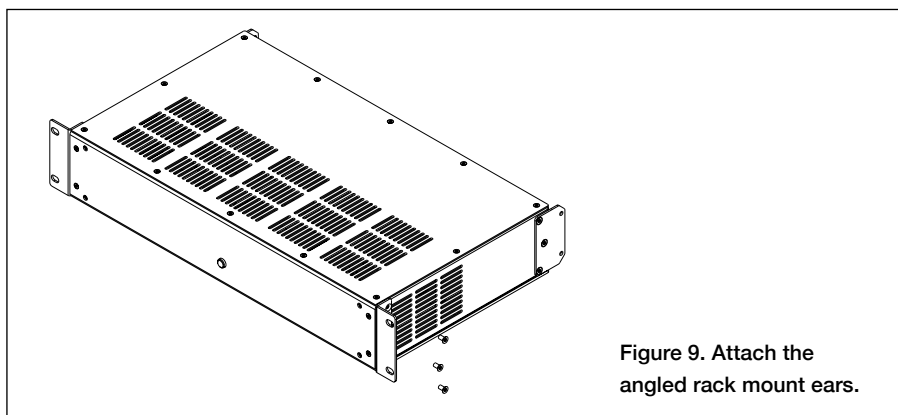


Figure 9. Attach the angled rack mount ears.

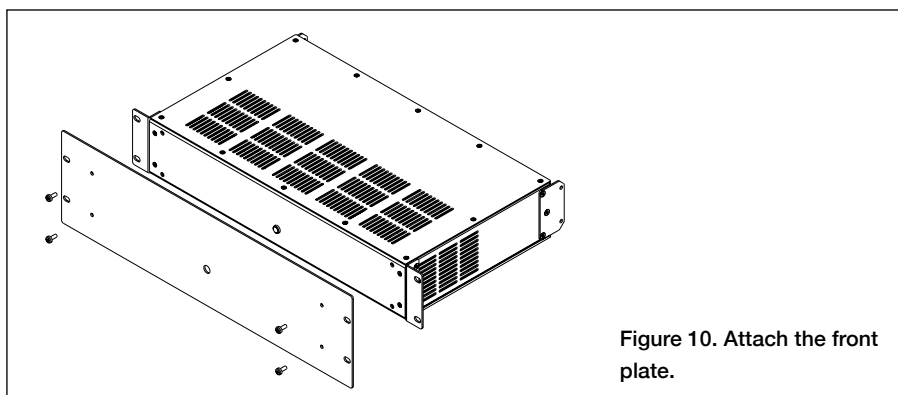


Figure 10. Attach the front plate.

crete) wall structure, the space around the cabinet should be filled with absorbent mineral wool or sand bags (see Figure 12).

Ensure that the cabinet is flush with the surface of the wall. If a decorative cloth frame is used the edges adjacent to the monitors must be less than 20 mm (3/4 in) deep. The cloth must be acoustically transparent. Genelec-approved cloth grilles are available.

Testing Mode

Once on, when the power button is pressed for a long time, the RAM-L enters a mode for system testing. This special mode is intended for system debugging and testing. When the RAM-L is turned off, the special mode is reset. Upon restarting the RAM-L the current standard settings stored by GLM software are restored.

Test mode selection blinks the power button light (see Table 2). A special mode is activated by a long press on the power button. In a special mode the power button light remains on but blinks off 1-4 times indicating the mode currently selected.

The testing modes are not intended for continued operation. Use GLM software to set up permanent settings for 1237A and 1238A.

Safety Considerations

The 1237A and 1238A have been designed in accordance with international safety standards. To ensure continued safe operation and to maintain the monitor under safe operating conditions, the following warnings and precautions must be observed:

1. Servicing and adjustment must only be performed by qualified service personnel. The monitor enclosure or the amplifier enclosure must not be opened.
2. Do not use this product with a mains cable with no protective earth conductor, or a mains connection without the protective earth contact, as this may lead to personal injury.
3. To prevent fire or electric shock, do not expose the unit to water or moisture.
4. Do not place any objects filled with liquid, such as vases or water pipes on the monitor or near it.
5. Note that the amplifier is not completely disconnected from the AC mains service unless the mains power cord is removed from the amplifier or the mains outlet.
6. Free flow of air behind the monitor is

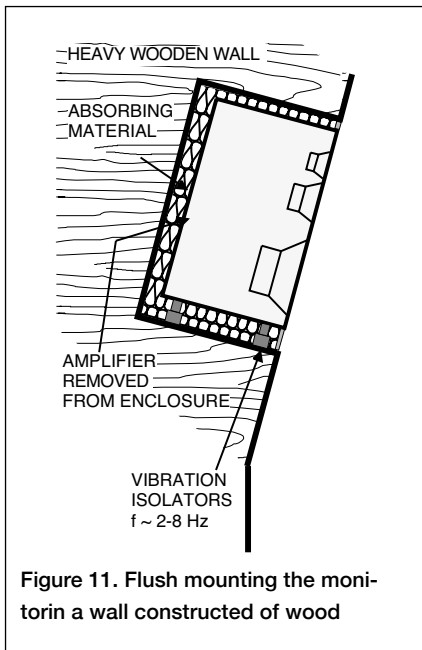


Figure 11. Flush mounting the monitor in a wall constructed of wood

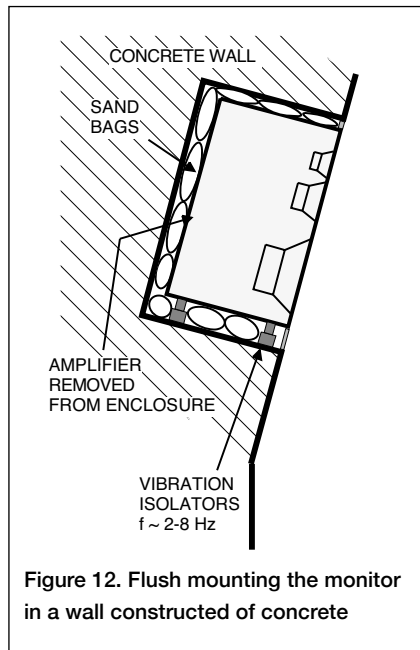


Figure 12. Flush mounting the monitor in a wall constructed of concrete

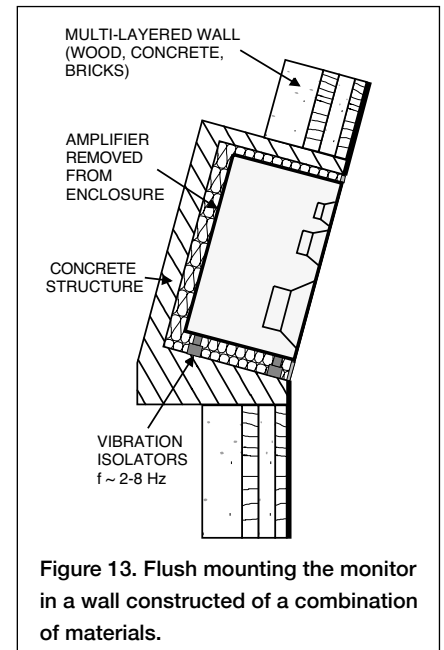


Figure 13. Flush mounting the monitor in a wall constructed of a combination of materials.

Button press	Function	Notes
Short press	Power on, power off	
Long press	Enter special mode, exit special mode	Press longer than 5 seconds
Special mode: one short press	Mode 1: AES/EBU channel A selected, room-related calibration in use	Power button light blinks once every few seconds
Short press advances	Mode 2: AES/EBU channel B selected, room-related calibration in use	Power button light blinks twice every few seconds
Short press advances	Mode 3: AES/EBU channel A selected, factory calibration in use	Power button light blinks three times every few seconds
Short press advances	Mode 4: AES/EBU channel B selected, factory calibration in use	Power button blinks four times every few seconds
Special selection: long press	Once a special mode 1-4 has been selected, a long press selects the special mode	Press longer than 5 seconds; the RAM-L selects the special mode and starts playing. To exit the special mode turn off the amplifier.
Special mode: no press for 60 seconds	RAM-L exits the special mode and turns off	Automatically happens if user does not press the power button

Table 2. Power button actions to activate testing modes

necessary to maintain sufficient cooling. Do not obstruct airflow around the monitors.

WARNING!

The Genelec 1237A and 1238A monitors are capable of producing sound pressure levels in excess of 85 dB, which may cause permanent hearing damage.

Maintenance

No user serviceable parts are to be found within the monitor enclosure or the RAM-L amplifier unit. Any maintenance or repair of the monitor should only be undertaken by qualified service personnel.

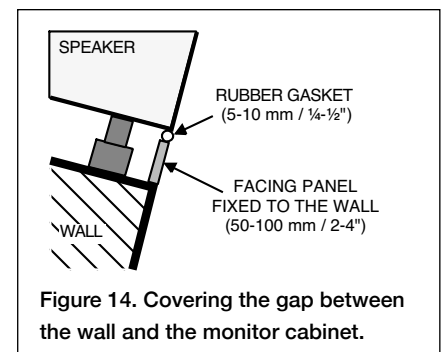


Figure 14. Covering the gap between the wall and the monitor cabinet.

Guarantee

Genelec 1237A and 1238A are supplied with a two year guarantee against manufacturing faults or defects that might alter the performance of the monitors. Refer to supplier for full sales and guarantee terms.

Accessories

A wide selection of accessories is available for Genelec monitors. Consult the Accessories Catalogue on www.genelec.com or your local distributor/dealer for up-to-date information.

Compliance to FCC Rules

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

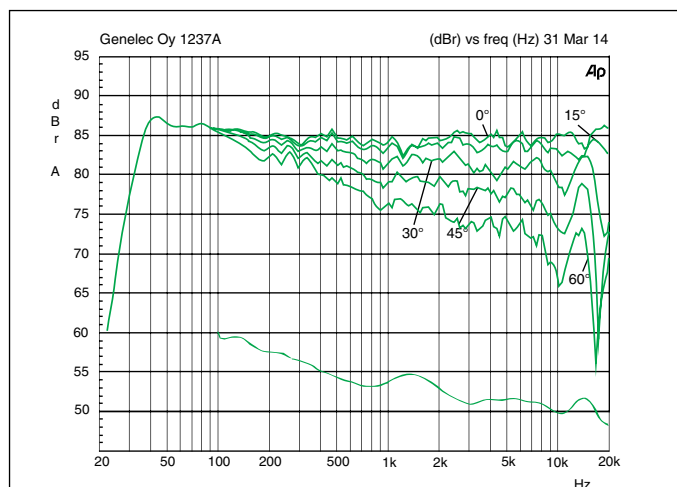


Figure 15. The upper curve group shows the horizontal directivity characteristics of the 1237A in its vertical configuration measured at 2 m. The lower curve is a 1/6 octave smoothed power response.

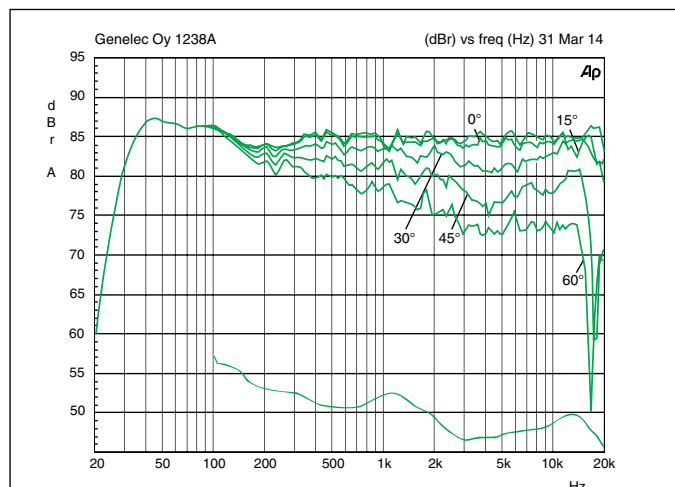


Figure 16. The upper curve group shows the horizontal directivity characteristics of the 1238A in its vertical configuration measured at 2 m. The lower curve is a 1/6 octave smoothed power response.

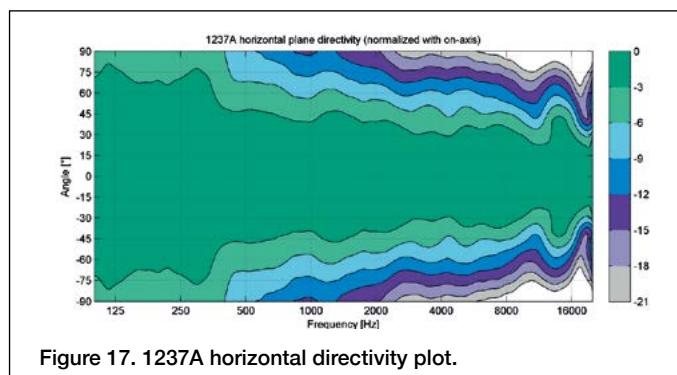


Figure 17. 1237A horizontal directivity plot.

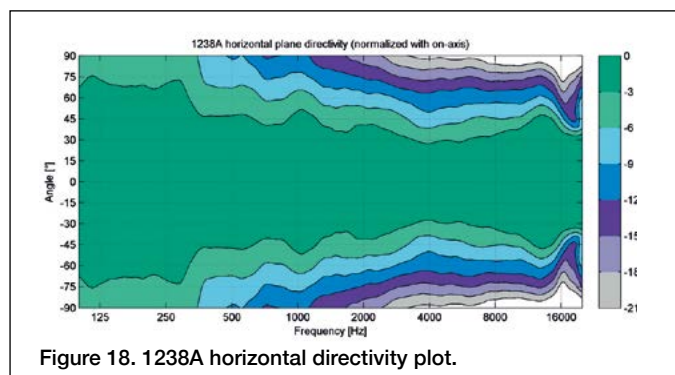


Figure 18. 1238A horizontal directivity plot.

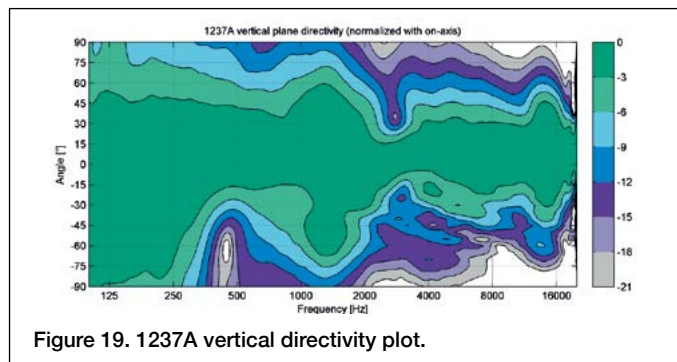


Figure 19. 1237A vertical directivity plot.

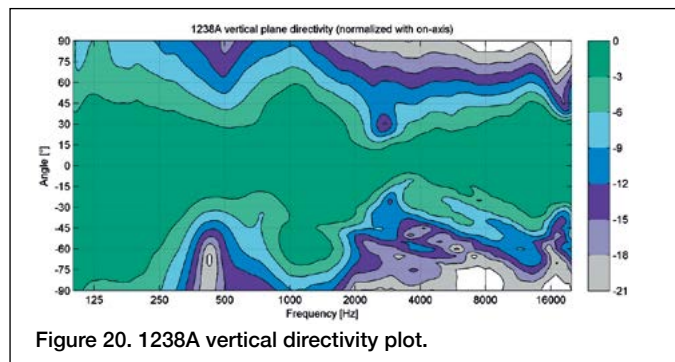


Figure 20. 1238A vertical directivity plot.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If

this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the

receiver is connected.

4. Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

1237A and 1238A Operating Manual

SYSTEM SPECIFICATIONS		
	1237A	1238A
Lower cut-off frequency, -3 dB	< 35 Hz	< 33 Hz
Upper cut-off frequency, -3 dB	> 21 kHz	> 21 kHz
Accuracy of frequency response, ± 2.5 dB	37 Hz – 20 kHz	35 Hz – 20 kHz
Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz @ 1 m	> 118 dB SPL	> 121 dB SPL
Maximum long term RMS acoustic output in the same conditions with IEC weighted noise (limited by driver protection circuit) @ 1 m	> 112 dB SPL	> 116 dB SPL
Maximum peak acoustic output per pair in a listening room with music material @ 2 m	> 122 dB	> 124 dB
Self generated noise level in free space at 1 m on axis (A-weighted)	< 10 dB	< 10 dB
Harmonic distortion at 95 dB SPL at 1 m on axis Freq: 50...200 Hz > 200 Hz	< 3 % < 0.5 %	< 1 % < 0.5 %
Drivers Bass Midrange Treble	305 mm (12 in) cone 125 mm (5 in) cone 25 mm (1 in) metal dome	385 mm (15 in) cone 125 mm (5 in) cone 25 mm (1 in) metal dome
All drivers are magnetically shielded		
Weight (monitor with integrated amplifier)	42 kg (93 lb)	57 kg (126 lb)
Weight (monitor with amplifier removed)	36 kg (80 lb)	51 kg (113 lb)
Amplifier weight	6 kg (13 lb)	
Dimensions (monitor enclosure) Height Width Depth	680 mm (26 ³ / ₄ in) 400 mm (15 ³ / ₄ in) 380 mm (15 in)	810 mm (32 in) 480 mm (19 in) 420 mm (16 ¹ / ₂ in)
Amplifier dimensions (in rack mount configuration) Height (front panel) Height (amplifier casing) Width (front panel) Width (amplifier casing) Depth	3U 132 mm (5 ¹ / ₈ in) 80 mm (3 ¹ / ₈ in) 483 mm (19 in) 425 mm (16 ³ / ₄ in) 252 mm (9 ¹⁵ / ₁₆ in)	

AMPLIFIER SECTION		
	1237A	1238A
Bass amplifier short term output power	500 W	
Midrange amplifier short term output power	250 W	
Treble amplifier short term output power	200 W	
Long term output power is limited by driver protection circuitry		
Amplifier system THD at nominal output	< 0.01 %	
Signal to Noise ratio, referred to full output Bass Midrange Treble	>115 dB >115 dB >115 dB	
Mains voltage	100-240 VAC, 50/60 Hz	
Power consumption Standby Idle Full output	<0.5 W 25 W 750 W	

SIGNAL PROCESSING SECTION		
	1237A	1238A
Analog signal input connector XLR female, balanced 10 kOhm	pin 1 gnd pin 2 non-inverting, pin 3 inverting	
Maximum analog input signal Analog input sensitivity (100 dB SPL at 1 m) Analog input gain selection	+25.0 dBu -6 dBu 0, +6, +12, +18 dB	
Digital signal input connector XLR female 110 Ohm	AES/EBU Single Wire or Dual Wire	
Digital signal output / Thru connector XLR male 110 Ohm Digital audio input Word length Sample rate Digital input sensitivity (100 dB SPL at 1 m) Digital input gain selection	AES/EBU Single Wire or Dual Wire 16 - 24 bits 32 - 192 kHz -30 dBFS 0, +6, +12, +18 dB	
Control network Type Connection	Proprietary GLM™ network 2 RJ45, CAT5 cables	
Crossover frequency Bass/Mid Mid/Treble	450 Hz 3.0 kHz	420 Hz 3.0 kHz
GLM™ software frequency response adjustment Notch filters Shelving filters	4 LF and 2 HF 2 LF and 2 HF	
System calibration	Genelec GLM AutoCal™	

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International enquiries:
Genelec, Oivitie 5
FIN-74100, Iisalmi, Finland
Phone +358 17 83881
Fax +358 17 812 267
Email genelec@genelec.com

In the U.S. please contact:
Genelec, Inc., 7 Tech Circle
Natick, MA 01760, USA
Phone +1 508 652 0900
Fax +1 508 652 0909
Email genelec.usa@genelec.com

In China please contact:
Beijing Genelec Audio Co.Ltd
Room 101, 1st floor
Building 71 B33, Universal Business Park
No. 10 Jiuxiangqiao Road, Chaoyang District
Beijing, China
Phone +86 (10) 5823 2014
Post code: 100015
Email genelec.china@genelec.com

Genelec 1237A and 1238A 操作手册

介绍

感谢您选择 Genelec 真力智能有源监听音箱 (SAM™)。

音箱的功放接口板上未设置控制开关, 可通过真力音箱管理软件 (GLM™) 进行自动配置。

本手册将为您介绍音箱连接 GLM 软件使用, 以及音箱脱离 GLM 时的单机模式下的基本设置和使用方法。

每只音箱配备 1 根电源线、1 根 GLM 网线, 以及此操作手册。

系统特征

真力 1237A 和 1238A 为三分频监听音箱, 适用于中型控制室。无论是独立摆放或者嵌入到墙体内 (音箱面与墙面齐平) 都能获得良好的性能。它们适用于录音、影视后期、转播以及母带制作等专业应用场景。

借助真力特有的指向性控制波导技术 (DCW™), 即使在复杂的声学环境中, 音箱也能为您提供出色的声像定位和中性的频率响应。

在距离音箱 2 米处监听音乐素材时, 失真极低的功放可驱动以 1237A 或 1238A 组成的立体声监听系统, 重放出超过 122 dB SPL (1237A) 和 124 dB SPL (1238A) 的声音。

1237A 和 1238A 可与真力音箱管理软件 (GLM™) 以及真力音箱控制网络完美兼容, 并可以与 8200 系列和 7200 系列音箱在同一网络中使用。

驱动单元与箱体结构

1238A 的 110 升倒相式箱体内包含一个 385 毫米 (15 英寸) 的低音单元。1237A 65 升的倒相式箱体内包含一个 305 毫米 (12 英寸) 的低音单元。两款音箱同样都使用专有的 130 毫米 (5 英寸) 直接辐射式中音单元和一个 25 毫米 (1 英寸) 金属球顶高音单元, 并搭配真力专有的指向性控制波导。音箱内所有单元均经过磁屏蔽。

功放与信号处理

1237A 和 1238A 搭载 RAM-L 功率放大器。RAM-L 功放通过隔振支架安装在箱体背面, 也可拆卸后独立安装在 19 英寸机柜中。RAM-L 功放的数字信号处理部分采用高精度算法, 功放内部包含驱动单元和功放过载保护电路。房间声学响应补偿包括极为灵活的参量滤波器、电平补偿和声学延时补偿。通过这些可精准匹配所有调音台的输出部分及各类房间声学环境。

安装注意事项

请将音箱的声轴 (见图 1、2) 指向听音位置, 将音箱左右对称摆放, 并确保每只音箱到听音位置的距离相等。靠近音箱和听音位置的物体产生的声反射, 会造成声染色和声像定位模糊。将反射体对称摆放, 有助于保持良好的立体声像。嵌入安装时, 音箱表面应与墙面保持齐平, 使其形成一个连续的平面。

与墙面或其他物体之间的最小距离

当 RAM-L 功放安装在箱体背面时, 请为箱体后方、上方以及两侧留出不少于 5 厘米 (2 英寸) 的空间。功放周围的环境温度不得超过 35 摄氏度 (95 华氏度)。嵌入安装时, 箱体后方应有足够的通风。这可能需要在 RAM-L 功放周围安装强制通风装置。

当 RAM-L 功放安装在 19 英寸机柜中时, 功放上下方需留出至少 1U 的空间, 两侧须完全开放以确保空气流动。安装时, 请使用包装箱中附带的机架安装面板, 以确保功放上下方有足够的空间。

当 RAM-L 功放安装在桌子、架子或类似的硬表面上时, 功放上方须留有至少 25 厘米 (10 英寸) 的空间, 并为两侧留出 10 厘米 (4 英寸) 的空间。功放的前方应确保空气流动。

设置和使用

音箱的自动校准和设置

真力 1237A 和 1238A 需通过 GLM 软件进行设置, 设置过程十分便捷, 包括以下步骤:

1. 使用 5 类网线 (RJ45) 将每只音箱的控制网络接口串接起来;
2. 将最后一只音箱连接到 GLM 适配盒的控制网络输入接口;
3. 将 GLM 适配盒通过 USB 线 (包含在 GLM 套件中) 连接到电脑 USB 接口;
4. 使用话筒支架, 将真力校准话筒 (包含在 GLM 套件中) 置于听音位置。校准话筒朝上, 话筒顶部与听音者耳朵齐平。
5. 将话筒连接到 GLM 适配盒的话筒输入接口;
6. 从真力官方网站 (www.genelec.cn 的 “服务支持 > GLM 软件下载” 页面) 下载最新的 GLM 软件并安装;
7. 根据软件提示进行音箱设置和校准;
8. 如果您不需要随时在电脑上运行 GLM 软件来控制音箱, 可以利用软件菜单选项中的 “编组预设 (Group Preset) | 保存到音箱 (Store to Loudspeakers)” 将相关配置存储到音箱中。

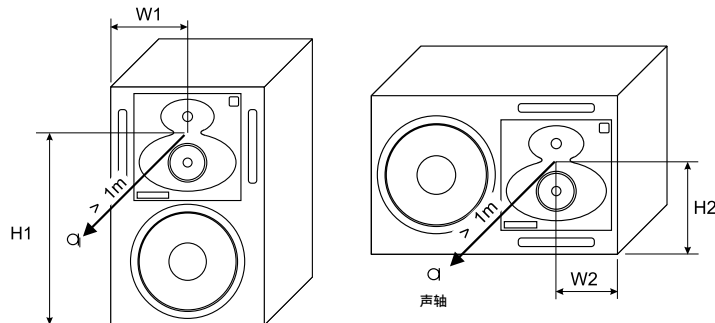
建议使用 AES/EBU 数字音频信号

当为 1237A 和 1238A 输入 -30 dBFS 的数字信号时, 可在自由场中距离音箱 1 米处得到 100 dB 的声压级。可在 GLM 软件中对音箱的灵敏度进行设置。

在使用数字输入时, 建议输入信号保持在接近 0 dBFS, 此时通过在 GLM 软件中降低音箱的输出音量。这使得数字音源能够保持更高的数字精度。

数字输入接口默认为单线 (single-wire) 模式, 当前级设备输出较旧的双线 (dual-mode) 模式信号时, 音箱也可自动识别。

一根标准 AES/EBU 线缆传输两通道音频信号, 分别为通道 A 和通道 B。默认情况下, 音箱同时重放通道 A 和通道 B 的信号, 可在 GLM 软件中为每只音箱分配特定的通道。



	H1 毫米 (英寸)	W1 毫米 (英寸)	H2 毫米 (英寸)	W2 毫米 (英寸)
1237A	540 (21 1/4 英寸)	200 (7 7/8 英寸)	230 (9 1/16 英寸)	170 (6 11/16 英寸)
1238A	650 (25 5/8 英寸)	240 (9 1/2 英寸)	282 (11 1/8 英寸)	202 (7 15/16 英寸)

图 1. 声轴的位置。

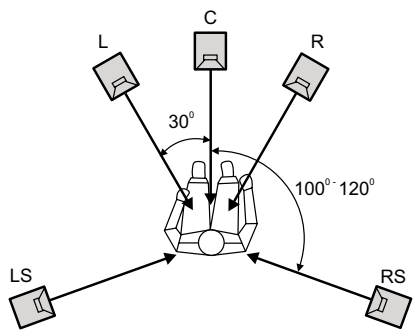


图 2. 多声道音箱系统推荐的摆位方式 (ITU-R BS.775-1)。

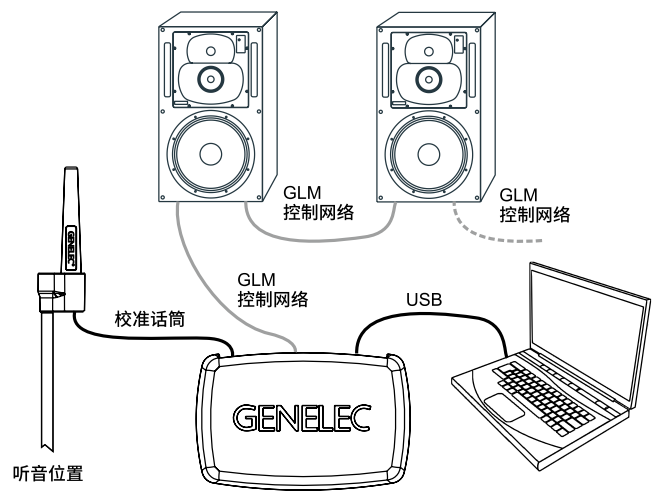


图 3. GLM 控制网络连接示意图。

RAM-L 功放电源键

RAM-L 功放前面板中间的电源键可控制若干功能。

短按电源键可开关RAM-L功放。开机过程中，电源键上的指示灯会快速闪烁；开机完成后，指示灯会常亮。

另可通过电源键进入测试模式，在本手册后续部分将进行说明。

设置智能休眠功能 (ISS™)

启用智能休眠功能 (ISS™) 后，音箱将自动进入待机模式。智能休眠功能出厂默认为关闭，可在 GLM 软件中启用该功能 (见图5)。智能

休眠功能启用后，音箱在一段时间内未检测到输入信号时，将自动进入待机模式。当检测到输入信号时，音箱将自动回到工作状态。软件中的 ISS 设置将应用在所有已启用该功能的音箱。

接口

电源输入 (MAINS INPUT)

连接至电源。

数字输入 (DIGITAL IN AES/EBU)

音箱默认重放模拟输入信号，当检测到有效的数字音频信号时，音箱会自动切换至 AES/EBU 数字输入。您可以在 GLM 软件中设置

重放的 AES/EBU 通道 (通道 A 或通道 B)。

数字环出 (DIGITAL THRU AES/EBU)

当以菊花链方式连接多只音箱时，此接口用于将数字输入信号直通输出至下一只音箱，最多可额外连接三只 SAM 系列音箱。

模拟输入 (ANALOG IN)

音箱的最大模拟信号输入电平为 +25 dBu，超过此范围会导致失真。当音箱的输入信号超过最大输入电平时，音箱前面板的电源指示灯会变成红色，表示此时信号过载。

您可通过 GLM 软件设置音箱的灵敏度。出厂时，模拟输入的灵敏度默认设置为最大：当模拟信号的输入电平为 -6 dBu 时，可在自由场中距离音箱 1 米处得到 100 dB SPL 的声压级。

GLM 网络接口 (CONTROL NETWORK)

RJ45 网络接口，用于连接 GLM 控制网络。请勿将其连接至路由器、交换机等局域网设备。

音箱接口

当 RAM-L 功放单独安装在设备机柜中时，将会使用这些接口。

1. LED 接口

这个 RJ45 接口用于连接音箱前面板电源指示灯。

2. 低音单元接口 (Woofer)

标准四芯 Speakon 接口，用于连接低音单元。

3. 中音/高音单元接口 (Midrange/Tweeter)
标准四芯 Speakon 接口, 用于连接中音单元和高音单元。

音箱前面板指示灯功能

1237A 和 1238A 音箱前面板的指示灯通常为绿色, 表示音箱处于正常工作状态。当使用 GLM 软件控制音箱进行某些操作时, 指示灯会变为黄色。当音箱过载时, 指示灯会变为红色。以下几种原因会导致音箱过载:

- 1. 当前输入的模拟信号超过音箱最大模拟信号输入电平。
- 2. 当前输入的数字信号接近音箱最大数字信号输入电平 (可能引起数字削波失真)。
- 3. 音箱单元或功放过载, 或功放产生削波。
- 4. 检测到 AES/EBU 数字音频信号存在错误。

如果音箱前面板上的指示灯亮红灯, 请降低音源设备的输出电平, 并确保 AES/EBU 数字音频信号传输没有误码。

将 RAM-L 功放安装在 19 英寸机柜中

RAM-L 功放可以脱离箱体, 并安装在标准的 19 英寸机柜中。音箱包装箱中附带机架安装配件 (前面板、支架和螺丝)。

将功放安装在机柜中, 共包括以下步骤:

- 1. 断开功放上所有信号线和电源线。
- 2. 拆除箱体背面凹槽内将功放固定在左侧顶部和底部隔振垫上的螺丝。
- 3. 拉出功放左侧部分 (见图 6)。
- 4. 拆下箱体上与功放连接的排线。
- 5. 松开凹槽右侧顶部和底部隔振垫上的螺丝, 并拆下功放。
- 6. 取下功放上的排线盖板 (见图 7)。
- 7. 将排线从功放上拆除。
- 8. 重新盖上功放的排线盖板。

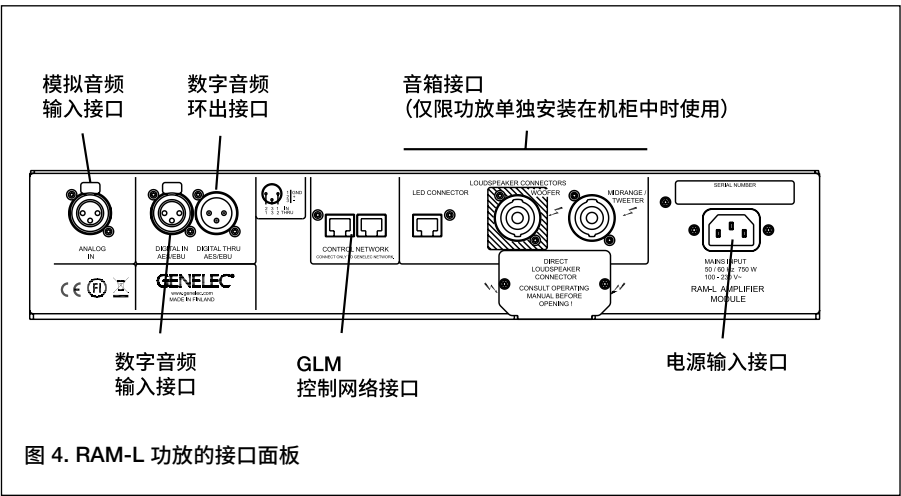


图 4. RAM-L 功放的接口面板

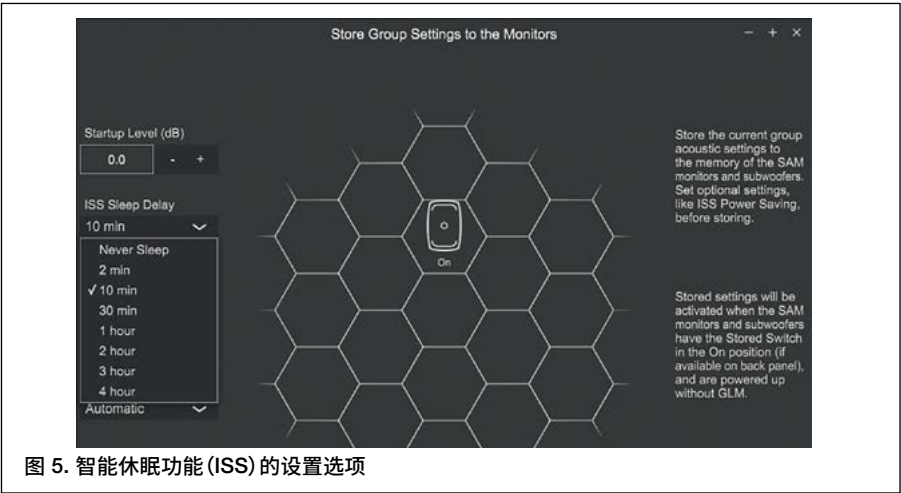


图 5. 智能休眠功能 (ISS) 的设置选项

- 9. 拆下功放前部的挂耳支架 (见图 8)。
- 10. 将两个 L 型挂耳支架以及功放前面板安装在功放上 (包装箱内附带, 见图 9 和图 10)。
- 11. 将功放安装在 19 英寸机柜中。
- 12. 取下功放上网口的塑料盖板, 使用两根 BNC 音箱线和一根网线 (LED 接口) 连接箱体和功放。
- 13. 连接信号线和电源线。

箱体嵌入安装

将音箱嵌入墙内安装, 在声学上具有一定优势: 可消除箱体边缘的衍射, 并避免音箱背后墙体对低频部分的反射。音箱的声轴 (见图 1) 应指向听音位置。安装音箱的墙体需足够坚硬且厚重。请勿将音箱安装过高 (最大倾斜角应小于 15 度)。

线缆规格	最大长度
2.0 平方毫米 (14 AWG)	30 米 (100 英尺)
3.3 平方毫米 (12 AWG)	40 米 (130 英尺)
5.3 平方毫米 (10 AWG)	60 米 (200 英尺)

表 1. 不同长度线缆对应的建议线规

音箱四周可留有 50-100 毫米 (2-4 英寸) 的空间, 但需要在前面用面板覆盖。音箱和盖板之间留出 5-10 毫米 (1/4 - 1/2 英寸) 的间隙, 并填充软橡胶垫圈 (见图 14)。所安装音箱的移动谐振频率在 2-8 Hz 之间, 应将音箱安装在对应的隔振垫上。

箱体和墙体之间的空隙应填充吸声岩棉或泡沫塑料。木墙必须有牢固的支撑 (见图 11)。在实心墙 (如混凝土) 结构中, 箱体周围的空隙应填充吸声岩棉或沙袋 (见图 12)。

请确保音箱与墙面齐平。如使用装饰布框, 布框与音箱相邻的边缘厚度必须小于 20 毫米 (3/4 英寸)。布料必须透声, 并选用真力认可的布格栅。

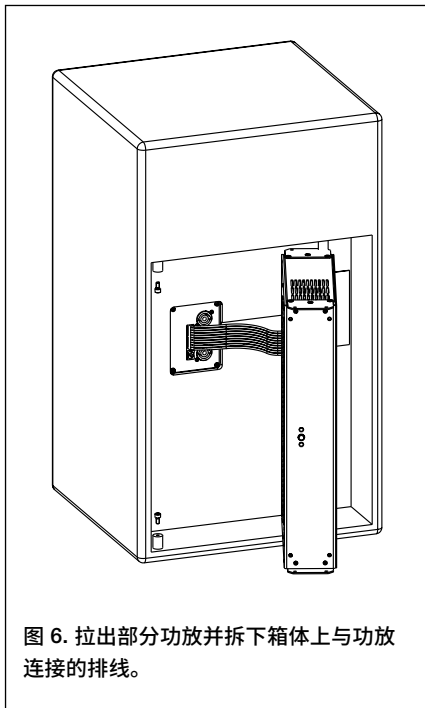


图 6. 拉出部分功放并拆下箱体上与功放连接的排线。

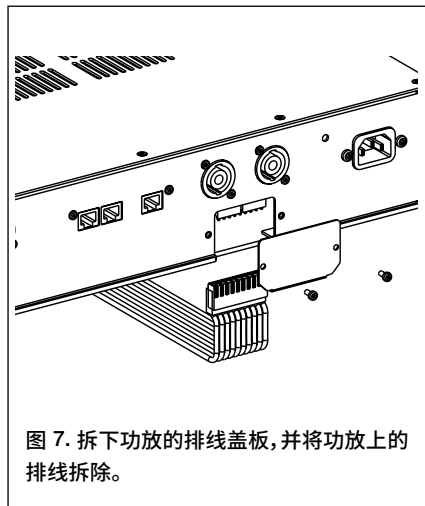


图 7. 拆下功放的排线盖板，并将功放上的排线拆除。

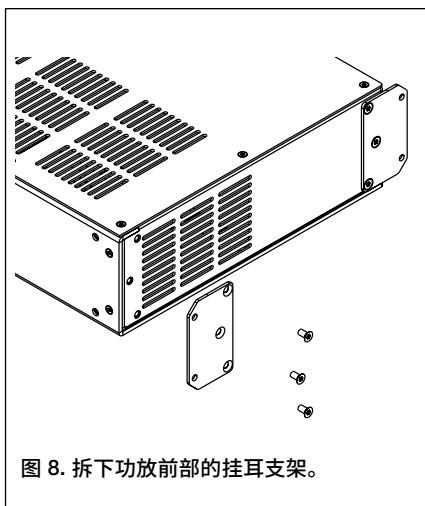


图 8. 拆下功放前部的挂耳支架。

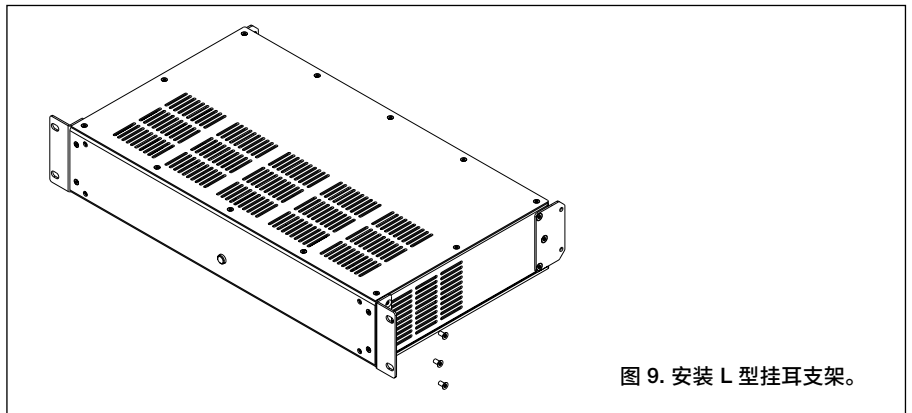


图 9. 安装 L 型挂耳支架。

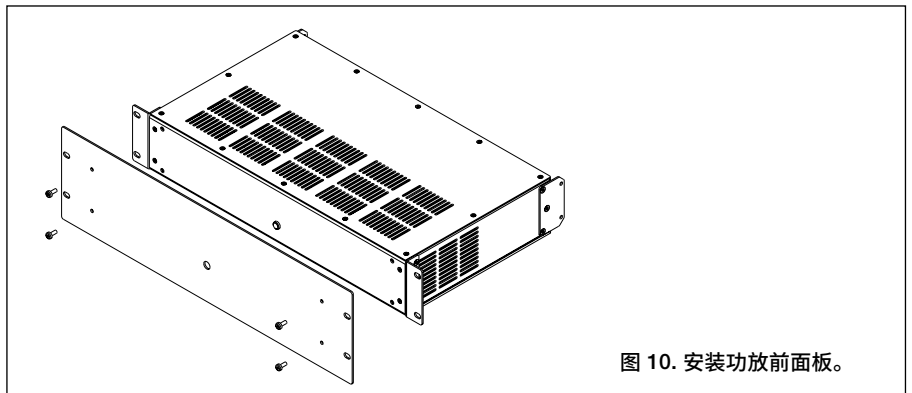


图 10. 安装功放前面板。

测试模式

RAM-L 功放开机后，长按电源键会进入测试模式。该测试模式用于系统调试及测试。当 RAM-L 关机后，测试模式会被重置。重新启动 RAM-L 功放后，通过 GLM 软件存储在功放内的配置将恢复。

选择测试模式时，电源键指示灯会发生闪烁（见表 2）。长按电源键可启用当前所选择的测试模式。在测试模式下，电源键指示灯会保持亮起，并闪烁 1-4 次以表示当前选择的模式。

测试模式只能做为临时设置用于系统调试及测试。请使用 GLM 软件对 1237A 和 1238A 进行永久设置。

安全注意事项

尽管 1237A 和 1238A 严格按照国际安全标准设计，仍应注意以下警告和注意事项，确保安全操作以及安全的音箱工作条件：

- 切勿自行拆开音箱箱体和电路单元。任何关于音箱的维护或维修都应由真力授权的维修服务人员来完成。
- 切勿使用未连接保护地的电源，这可能会危及电气安全。

- 切勿将音箱暴露在水中或潮湿环境，这可能会导致火灾或触电。
- 切勿在音箱上或其附近摆放装有液体的物品，例如花瓶和水管。
- 请注意，本设备采用电源插头作为断开装置。除非将电源线从功率放大器上或电源插座上拔掉，否则设备并未完全与交流电源断开连接。
- 切勿阻挡音箱周围的气流。确保音箱后方有足够的空气流动，使音箱能够充分冷却。

警告！

1237A 和 1238A 音箱可以产生超过 85dB 的声压级，这可能会引起永久性听力损伤。

维护

在音箱箱体和 RAM-L 功放内部没有任何用户可自行维护的部分。任何关于音箱的维护或维修都应由真力授权的维修服务人员来完成。

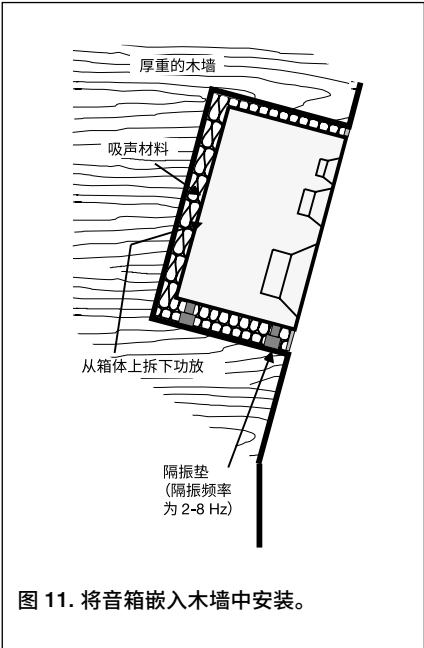


图 11. 将音箱嵌入木墙中安装。

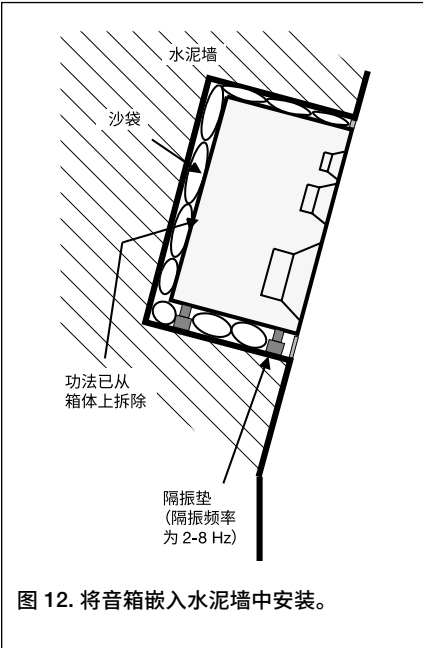


图 12. 将音箱嵌入水泥墙中安装。

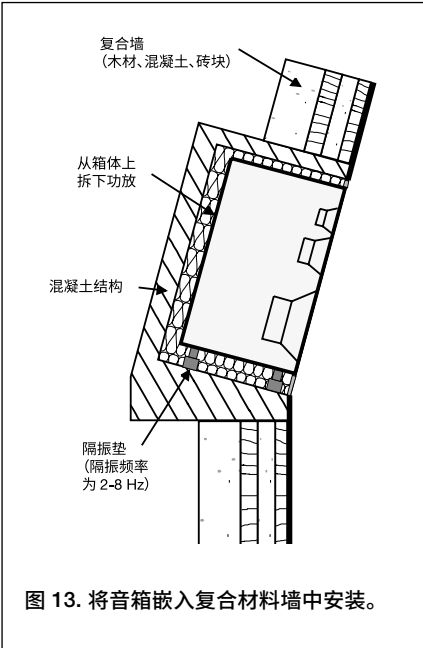


图 13. 将音箱嵌入复合材料墙中安装。

按键操作	功能	说明
短按	开机、关机	
长按	进入测试模式, 退出测试模式	长按 5 秒以上
进入测试模式后: 短按一次	模式 1 : 选择 AES/EBU 信号的通道 A, 使用房间相关的校准设置	电源键指示灯每隔几秒闪烁 1 次
再次短按	模式 2 : 选择 AES/EBU 信号的通道 B, 使用房间相关的校准设置	电源键指示灯每隔几秒闪烁 2 次
再次短按	模式 3 : 选择 AES/EBU 信号的通道 A, 恢复出厂设置	电源键指示灯每隔几秒闪烁 3 次
再次短按	模式 4 : 选择 AES/EBU 信号的通道 B, 恢复出厂设置	电源键指示灯每隔几秒闪烁 4 次
启动测试模式: 长按	选择其中一种测试模式后, 长按电源键启用该模式	长按 5 秒以上, RAM-L 功放启用该测试模式并开始工作。如需要退出测试模式, 请关闭功放。
进入测试模式后: 60 秒内不进行任何操作	RAM-L 功放退出测试模式并关机	如果不按电源键, 此过程则自动完成。

表 2. 通过电源键启用测试模式

质保

真力 1237A 和 1238A 针对材料和工艺上的质量问题提供 2 年的质保服务。通过扫描包装箱上的二维码注册您的音箱, 可将质保期延长至 5 年。详细质保条款可在 www.genelec.cn 的“服务支持 > 维修与延保服务”页面查看。

配件

真力音箱有多种类型配件可供选择。可通过查阅真力网站 www.genelec.cn 上的《真力配件目录 (Genelec Accessories Catalogue)》或者咨询经销商获取更多信息。

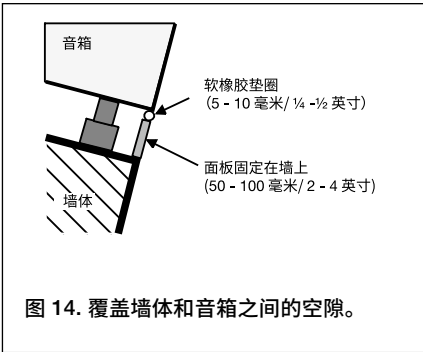


图 14. 覆盖墙体和音箱之间的空隙。

FCC 符合性声明

该设备符合 FCC 标准第 15 部分的要求, 操作必须符合以下两个条件:

1. 此设备不造成有害干扰。
2. 此设备必须接收所收到的干扰, 包括可能导致意外操作的干扰。

注意: 该设备已经过测试, 符合 B 类数字设备的限制, 且符合 FCC 标准第 15 部分的要求。这些限制旨在提供合理的保护, 防止在住宅区安装时产生有害干扰。该设备会产生、使用并辐射射频能量, 如果未按照说明安装和使用, 则可能对无线通信造成有害干扰。但是, 我们无法保证在特定安装中不产生干扰。如果设备对无线电和电视的接收产生有害的干扰, 用户可通过开关该设备进行验证, 我们建议用户采用下述一种或多种手段消除干扰:

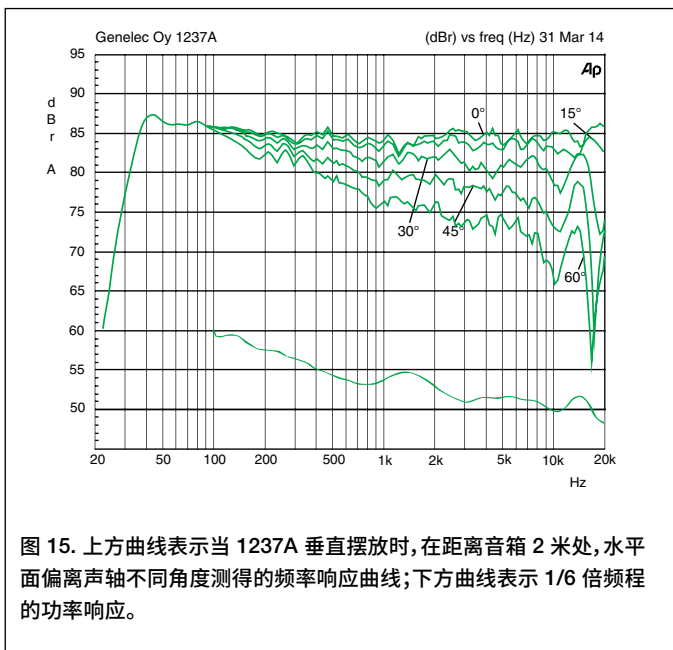


图 15. 上方曲线表示当 1237A 垂直摆放时,在距离音箱 2 米处,水平面偏离声轴不同角度测得的频率响应曲线;下方曲线表示 1/6 倍频程的功率响应。

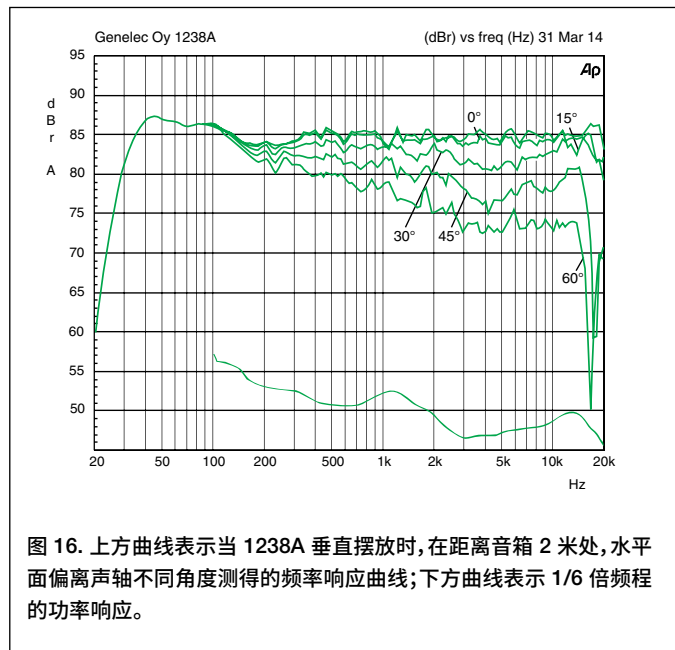


图 16. 上方曲线表示当 1238A 垂直摆放时,在距离音箱 2 米处,水平面偏离声轴不同角度测得的频率响应曲线;下方曲线表示 1/6 倍频程的功率响应。

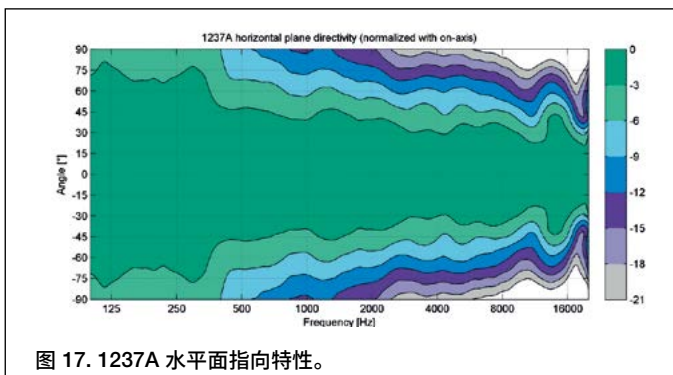


图 17. 1237A 水平面指向特性。

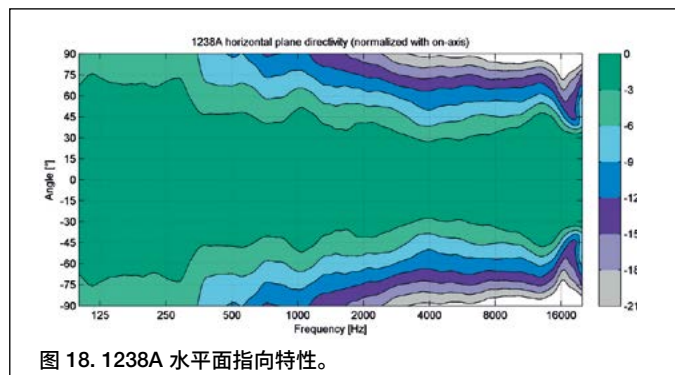


图 18. 1238A 水平面指向特性。

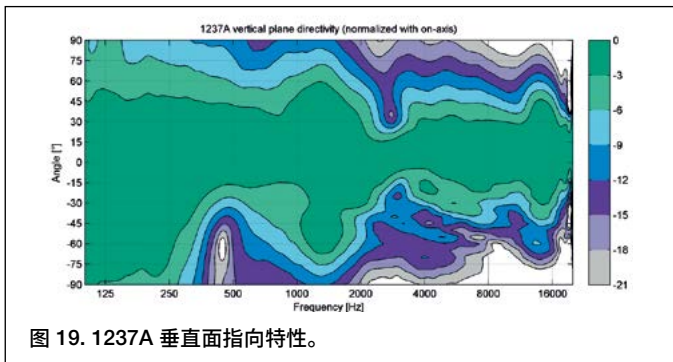


图 19. 1237A 垂直面指向特性。

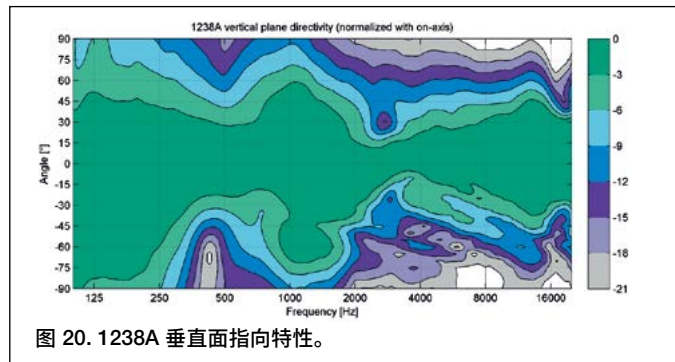


图 20. 1238A 垂直面指向特性。

1. 重新调整天线的方向和位置。
2. 增加该设备与接收器之间的距离。
3. 将该设备和接收器分别连接到不同电路的插座上。
4. 向经销商或有经验的无线电/电视技术人员寻求帮助。

任何未经制造商许可的改动都将让用户丧失在 FCC 规定下操作设备的权力。

系统参数		
	1237A	1238A
低频截止频率, -3 dB	< 35 Hz	< 33 Hz
高频截止频率, -3 dB	> 21 kHz	> 21 kHz
自由场频率响应, ± 2.5 dB	37 Hz – 20 kHz	35 Hz – 20 kHz
半开放空间内, 轴上最大短时正弦波声学输出, 100 Hz - 3k Hz 均值 @1 米	> 118 dB SPL	> 121 dB SPL
在相同条件下, 使用 IEC 计权噪声测试最大长期 RMS 声学输出 (受驱动单元保护电路限制) @1 米	> 112 dB SPL	> 116 dB SPL
在听音室内, 使用音乐素材进行测试, 在距音箱 2 米处每对音箱最大峰值声学输出	> 122 dB	> 124 dB
自由场内自身噪声电平 @1 米, 轴上 (A 计权)	< 10 dB	< 10 dB
总谐波失真 @95 dB SPL @1 米, 轴上频率: 50...200 Hz > 200 Hz	< 3 % < 0.5 %	< 1 % < 0.5 %
驱动单元 低音 中音 高音	305 毫米 (12 英寸) 锥体 125 毫米 (5 英寸) 锥体 25 毫米 (1 英寸) 金属球顶	385 毫米 (15 英寸) 锥体 125 毫米 (5 英寸) 锥体 25 毫米 (1 英寸) 金属球顶
所有驱动单元均经过磁屏蔽		
重量 (带功放)	42 千克 (93 磅)	57 千克 (126 磅)
重量 (不带功放)	36 千克 (80 磅)	51 千克 (113 磅)
功放重量	6 千克 (13 磅)	
尺寸 (音箱箱体) 高度 宽度 深度	680 毫米 (26¾ 英寸) 400 毫米 (15¾ 英寸) 380 毫米 (15 英寸)	810 毫米 (32 英寸) 480 毫米 (19 英寸) 420 毫米 (16½ 英寸)
功率放大器尺寸 (安装在机柜中) 高度 (前面板) 高度 (功放外壳) 宽度 (前面板) 宽度 (功放外壳) 深度	3U 132 毫米 (5⅝ 英寸) 80 毫米 (3⅛ 英寸) 483 毫米 (19 英寸) 425 毫米 (16¾ 英寸) 252 毫米 (9⅞ 英寸)	

功放部分		
	1237A	1238A
低音功放短期输出功率 中音功放短期输出功率 高音功放短期输出功率	500 瓦 250 瓦 200 瓦	
长期输出功率受驱动单元保护电路限制		
在标称输出功率下功放系统失真参数	< 0.01 %	
满输出状态下信噪比 低频 中频 高频	>115 dB >115 dB >115 dB	
电源电压	100-240 伏交流电 50/60 Hz	
功耗 待机 空闲 满输出	< 0.5 瓦 25 瓦 750 瓦	

信号处理部分		
	1237A	1238A
模拟信号输入接口: XLR 母座 (平衡式 10k 欧姆)	针脚 1 : 地 针脚 2 : 正极 针脚 3 : 负极	
最大模拟信号输入电平 模拟输入灵敏度 (100 dB SPL 在 1 米处) 模拟输入灵敏度选择	+25.0 dBu -6 dBu 0, +6, +12, +18 dB	
数字信号输入接口: XLR 母座 (110 欧)	AES/EBU 单线或双线	
数字信号输出 / 环出接口: XLR 公座 (110 欧) 数字信号输入 量化精度 采样范围 数字输入灵敏度 (100 dB SPL 在 1 米处) 数字输入灵敏度选择	AES/EBU 单线或双线 16 - 24 bits 32 - 192 kHz -30 dBFS 0, +6, +12, +18 dB	
控制网络 类型 连接方式	专用的真力 GLM™ 控制网络 2 条 5 类网线 (RJ45)	
分频点 低频/中频 中频/高频	450 Hz 3.0 kHz	420 Hz 3.0 kHz
GLM™ 软件频率响应调整 参量陷波器 搁架滤波器	4 个低频, 2 个高频 2 个低频, 2 个高频	
系统房间响应校准	使用真力 GLM 软件进行自动或手动校准	

1237A and 1238A 操作手册

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GENELEC®

www.genelec.cn

真力中国
北京市朝阳区酒仙桥路 10 号
恒通商务园 B33 - 101
电话 400 700 1978
微信 真力GENELEC
Email genelec.china@genelec.com