1236A

Operating Manual 操作手册

Genelec 1236A
Smart Active Monitor

GENELEC®

Genelec 1236A Operating Manual

Introduction

Congratulations and thank you for choosing Genelec!

Since 1978, Genelec has been guided by a single idea – to make perfect active monitors that deliver neutral and accurate sound in every kind of acoustical environment. In Genelec's quest for this ultimate goal, our unrivalled commitment to research and development has led us to continuously develop innovative driver technology, electronic circuitry, enclosure designs and more. Our design philosophy is based on sustainability and environmental values, where industrial design serves our products' acoustical performance.

Your Genelec product has been designed and manufactured with care in our factory, in Finland, using environmentally efficient solutions to give you reliable operation over many years.

Please take the time to read this manual. Happy monitoring!

General Description

The Genelec 1236A Smart Active Monitor is designed for neutral sound reproduction at high SPL in large control rooms. The system comprises of a 430 litre enclosure and a RAM-XL 19 in 3U rack mount amplifier unit.

The monitor enclosure contains two 458 mm (18 in) bass drivers, two 130 mm (5 in) midranges, and a 50 mm (2 in) compression driver into a 25 mm (1 in) throat for treble frequencies. The midrange and treble drivers are mounted in a Genelec Directivity Control Waveguide™ (DCW™) which can be rotated through ±90° for either horizontal or vertical mounting. The system low frequency response extends down to 17.5 Hz (-6 dB). The high frequency response extends up to 21 kHz (-6 dB).

Digital signal processing in the RAM-XL 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.

The power amplifiers of the RAM-XL produce 2 x 1000 W, 2 x 400 W and 250 W of short term power in the bass, midrange, and treble channels respectively.

Delivery Content

The Genelec 1236A Smart Active Monitor is shipped in a box containing an enclosure, an individually calibrated RAM-XL amplifier unit, a mains connecting cable, an RJ45 cable and one Allen key.

Before installing the system, check all items for damage and omissions. If damage is found, contact directly the distributor and insurance agent. If there are any missing components, contact your local dealer.

Cables and Connectors

Each 1236A is delivered with the following cable kit:

- One mains cable
- Two 10 m (32 ft 9 in) 4-pole Speakon cables
- One 10 m (32 ft 9 in) RJ45 cable
- One 5 m (16 ft 4 in) RJ 45 cable

The 10 m cables are designed to go between the amplifier and the monitor enclosure. If you need to make custom length cables for this, please connect the Speakon cables pin to pin and see Table 1 for recommended wire gauges.

Amplifier Positioning

The RAM-XL amplifier is encased in a standard 19" 3U rack case. The cooling system circulates air into the amplifier from behind, so that it exits through the openings on the right side. Free flow of fresh air must be ensured and the space around the amplifier must be sufficiently ventilated to dissipate accumulating heat so that the temperature does not rise above 15-35 degrees Celsius (50-95°F). If the system overheats it will stop operating until a safe temperature is reached.

Make sure that the amplifier is positioned so that the monitor connecting cables will reach. A space 100 mm (4 in) deep should be left behind the rear panel of the amplifier unit to allow for the cable connectors and air circulation.

The RAM-XL amplifier is compatible with mains voltage supply of 100 - 120 VAC and 220 - 240 VAC 50/60 Hz.

Operating Environment

These monitors and their RAM-XL amplifiers are designed for indoor use only. The permissible ambient temperature is 15-35 degrees Celsius (50-95°F) and permissible relative humidity between 20% and 80%. Humidity condensation on the product is not allowed during use. For instance, if the product has been stored or transported in a cool environment and then taken into a warm room, it must be allowed to warm up to the ambient temperature before connecting to mains power.

Aligning the DCW

The 1236A monitor is designed to be flush mounted in either the vertical or horizontal configuration. The DCW should be rotated so that the treble and midrange drivers align vertically. This ensures that optimum stereo symmetry is obtained.

IMPORTANT-The DCW plate is heavy, care must therefore be taken when removing and replacing the DCW. To rotate the DCW plate, proceed as follows:

- Place the monitor in its intended listening orientation.
- Unscrew the eight M5 fixing screws on the edges of the plate using a 4 mm Allen key.
- Carefully pull the plate a small distance away from the enclosure. Rotate the DCW so that the midrange and treble drivers are aligned vertically (treble driver on top) and remount the DCW plate reversing the procedure above.

Flush Mounting of the Enclosure

Although the 1236A may be used successfully as a free standing monitor, flush mounting is strongly recommended for acoustical reasons. Flush mounting improves the bass response and efficiency and also enhances the midrange transient

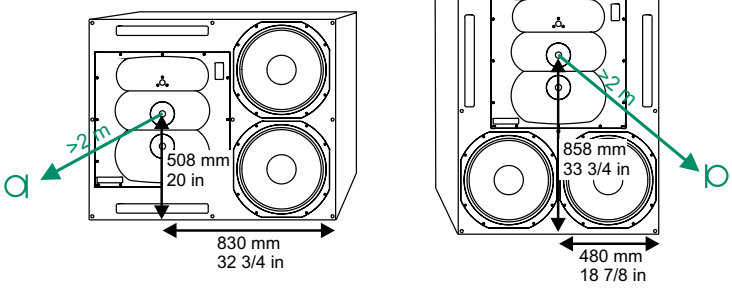

Figure 1. The location of the acoustic axis.

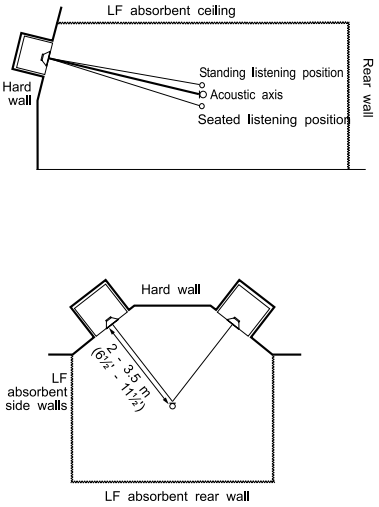

Figure 2. Monitor enclosure mounting.

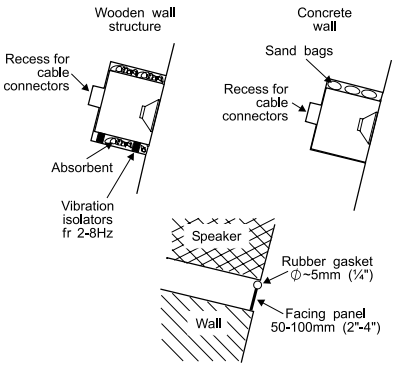

Figure 3. Monitor enclosure mounting details.

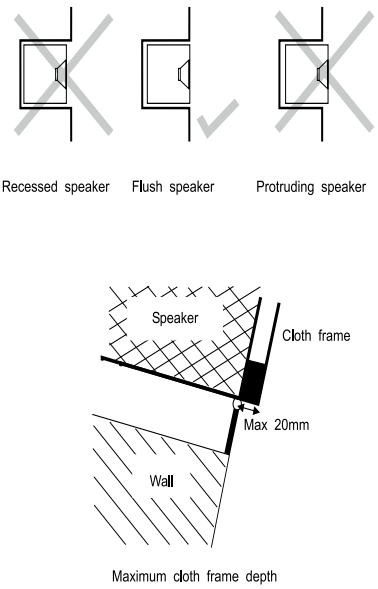

Figure 4. Eliminating discontinuities.

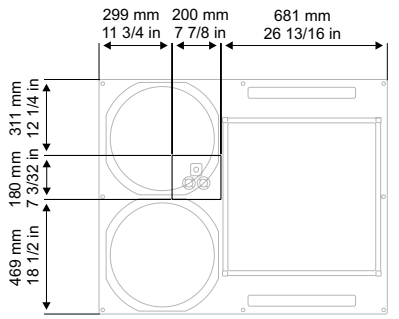

Figure 5. Recess needed for speaker cable connectors (front view).

Cable gauge	Max. length
2,0 mm² (14 AWG)	30 m (100 ft)
3,3 mm² (12 AWG)	40 m (130 ft)
5,3 mm² (10 AWG)	60 m (200 ft)

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

and frequency response.

The monitor enclosure has its acoustical axis midway between the midrange and treble drivers. This axis should be used as the listening and measuring axis of the system. (See Figure 1 and 2).

The typical listening distance varies between 2 and 3.5 m (6½ and 11½ ft) from the monitors. The monitor should be aimed so that the vertical acoustical axes of the two monitors meet midway between the standing and seated listening position (1.4 m – 4 ft 7 in from the floor). This allows the correct frequency response to be received by a standing or seated person. The monitors should not be mounted too high as this increases the required vertical tilt of the monitor and reduces the optimum listening area.

The ceiling, side walls and especially the rear wall should be acoustically absorbent at low frequencies. The monitor mounting wall should be acoustically hard and therefore reflective. The monitor mounting wall should be angled so that the monitors are correctly aimed. Great care should be taken over how the monitor is mounted into the solid and sturdy wall structure.

Note the following:

A space 50…100 mm (2…4 in) wide can be left around the monitor enclosure.

Cover the space around the enclosure with a facing panel, this should be fixed to the wall. Leave a gap of about 5…10 mm (¼…½ in) between the enclosure and the panel. Fill this gap with a soft rubber gasket to allow for possible enclosure movement. Ensure that the speaker cables can reach the rear of the enclosure. If a light (e.g. wooden), but heavily braced, wall is used, the monitor enclosure should be mounted on vibration isolators with a resonant frequency of around 2…8 Hz, to prevent vibrations from being transmitted to the wall and impairing the low frequency performance. The space around the enclosure should be filled with absorbent mineral wool or foam plastic. The walls must be well braced.

For a solid wall (e.g. concrete), the enclosure may be directly mounted to the wall without vibration isolators. The space around the enclosure should be filled with mineral wool or sand bags.

Discontinuities in the enclosure mounting

wall will cause diffraction, which leads to inferior frequency response and stereo image. Ensure that the enclosure is flush with the surface of the wall.

If a decorative cloth frame is used to cover the wall, make sure that the edges adjacent to the monitor are less than 20 mm (3/4 in) deep. The cloth must be very thin Tricot or acoustically transparent material, otherwise the high frequency response of the system will be adversely affected. Genelec approved cloth grilles are available.

Recess for Cable Connectors

The Speakon cable connectors extend 100 mm (4 in) from the rear panel of the monitor enclosure. Therefore, a recess at least 100 mm (4 in) deep must exist to allow for the cable behind the enclosure. The location of the recess is shown in Fig. 5. Note that the connectors are positioned off-centre. Therefore, if the enclosure is rotated for a left and right channel, the recess will be at different heights on the left and right side. This occurs when the enclosures are mounted in the horizontal configuration.

Connecting Speaker Cables

Insert the connectors into the appropriate sockets "WOOFER", "MIDRANGE/ TWEETER" and "LED CONNECTOR" found on the rear panel of the amplifier unit and the rear of the monitor enclosure. Note that each RAM-XL amplifier is individually calibrated for use with the enclosure that it is delivered with and marked with the same serial number. Do not mix these amplifier/ enclosure pairs.

Insert the connectors into the sockets and turn the connectors clockwise. The connectors lock automatically. The electrical connections are only made when the connectors are fully inserted.

To remove the signal connectors pull the release lever on the connector and turn the connector counterclockwise simultaneously. The connector can now be removed from the socket.

Set-up and Use

The 1236A is set up using the GLM software. The setup is fast and consists of the following steps:

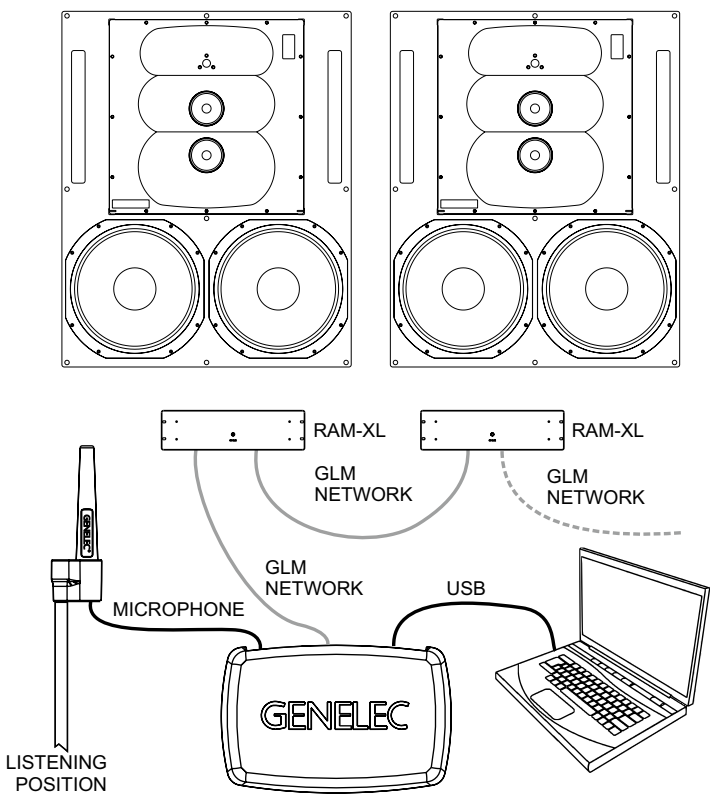

Figure 6. GLM network cabling (audio cabling not shown)

- Link all monitors and subwoofers in a daisy-chain by running CAT5 (RJ45) network cables from the Network Adaptor to the "CONTROL NETWORK" connectors of the RAM-XL modules, and then on to the remaining monitors in the controls room. The actual order of the daisy-chain is not important, such that if the computer is in the control room and the RAM-XL modules are in a machine room, they can be networked last in the chain.
- Run the final network cable to control network input of the GLM Adapter device.
- Connect the GLM Adapter device to your computer USB connector. The cable is a part of the GLM User Kit.
- 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.
- Run the microphone cable to the microphone input in the GLM Adapter device.
- Download GLM software at the Genelec web site (www.genelec.com). Install the GLM software.
- Follow the GLM software instructions to measure and set up your monitors.
- If you plan not to use a computer for controlling the monitors, use the GLM software to write the settings into the monitors ("Store the Settings").

Recommendations for AES/EBU Audio

For a digital input signal of –30 dB FS, the 1236A 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.

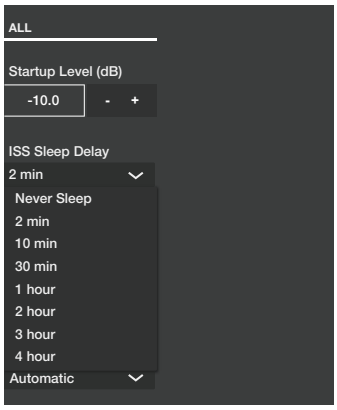

Figure 7. Selecting ISS setting.

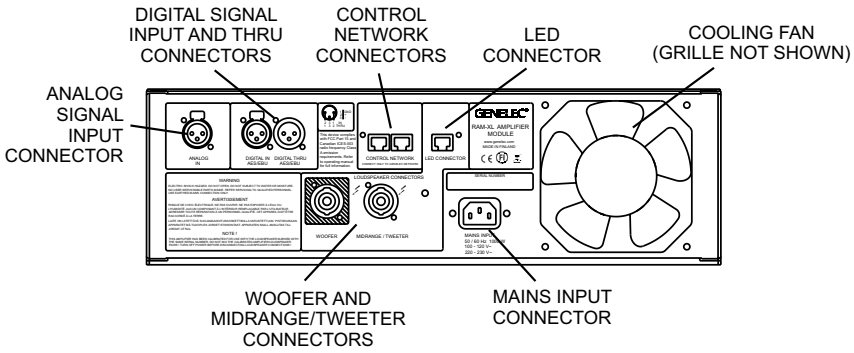

Figure 8. Connector panel of the RAM-XL amplifier.

Single-wire mode of AES/EBU is the 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-XL Amplifier Power Button

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

A short press of the power button turns the RAM-XL 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.

Connectors on the RAM-XL

"MAINS INPUT" Connector

Connect to the mains supply of 100 - 120 VAC or 220 - 240 VAC 50/60 Hz.

"DIGITAL IN AES/EBU" Connector

The monitor defaults to reproducing an 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 subframe 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 to 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 RJ45 sockets connect the monitor to the proprietary Genelec Loudspeaker Manager™ (GLM™) network. Do not connect to Ethernet LAN.

"Loudspeaker Connectors" Group

"LED" Connector

This RJ45 socket is a connection for the front panel warning LED.

"Woofer" Connector

A standard four-pole Speakon cable connects to the woofers.

"Midrange/Tweeter" Connector

A standard four-pole Speakon cable connects to the midrange and tweeter.

CAUTION! The "Woofer" and "Midrange/Tweeter" connectors on the RAM-XL amplifier can output hazardously high voltages. To ensure safety, the wiring connected to these connectors must be installed by a qualified and trained person.

Front Panel Light Functions

The green light on the DCW panel of a 1236A 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:

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

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

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-XL selects the special mode and starts playing. To exit the special mode turn off the amplifier.
Special mode: no press for 60 seconds	RAM-XL 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

Testing Mode

Once on, when the power button is pressed for a long time, the RAM-XL enters a mode for system testing. This special mode is intended for system debugging and testing. When the RAM-XL is turned off, the special mode is reset. Upon restarting the RAM-XL 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 the 1236A.

Maintenance

Periodically check that the protective grille on the cooling fan on the back panel of the RAM-XL amplifier is clear of blockages. Clean gently with a vacuum cleaner if necessary. Increased fan noise can be an indication of increased heat load due to a blockage. In an extreme case the amplifier may automatically shut off.

Safety Considerations

Although this product has been designed in accordance with international safety standards, to ensure safe operation and to maintain the monitor under safe operating conditions, the following warnings and precautions must be observed:

- Servicing and adjustment must only be performed by a certified Genelec service. The monitor enclosure or the RAM-XL amplifier unit must not be opened.
- Do not use this product with an unearthed mains cable or a mains connection without the protective earth contact as this may lead to personal injury.
- To prevent fire or electric shock, do not expose any part of the product to water or moisture.
- Do not place any objects filled with liquid, such as vases on or near any part of the product.
- The ”Woofer” and ”Midrange/Tweeter” connectors on the RAM-XL amplifier can output hazardously high voltages. To ensure safety, the wiring connected to these connectors must be installed by a qualified and trained person.
- 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. Easy access to either end of the power cord must be ensured at all times.
- Sufficient clearances and free flow of air around the RAM-XL amplifier as defined in chapters Amplifier Positioning and Operating Environment are necessary to maintain sufficient cooling.

Symbols


WEEE Directive 2012/19/EU


Power/standby switch

Compliance to FCC Rules

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

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

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

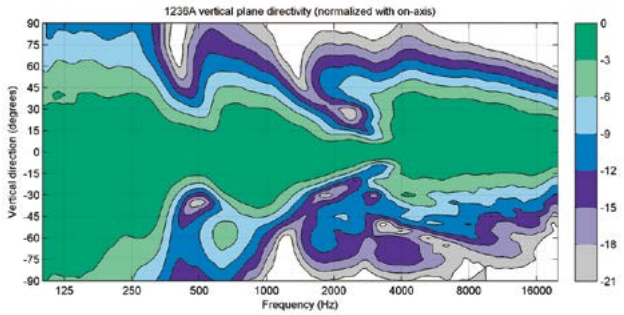

Figure 9. Vertical directivity characteristics of the 1236A.

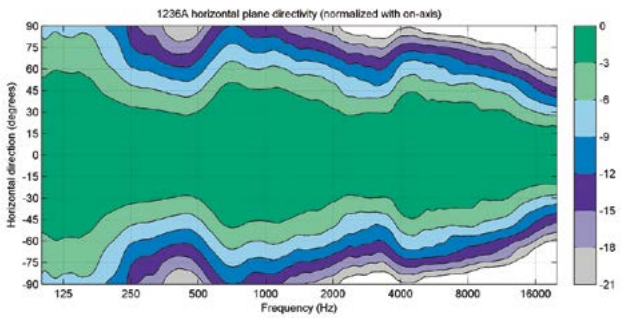

Figure 10. Horizontal directivity characteristics of the 1236A.

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:

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

Guarantee

This product is guaranteed for a period of two years against faults in materials or workmanship. The guarantee can be extended by three years by registering the product at www.genelec.com. Refer to supplier for full sales and guarantee terms.

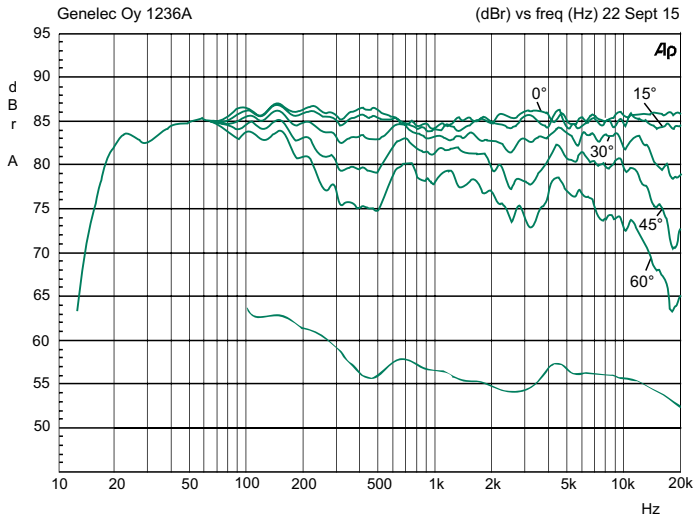

Figure 11. Horizontal directivity characteristics of the 1236A. The lower curve is the monitor's power response.

1236A Operating Manual

SYSTEM SPECIFICATIONS

	1236A
Lower cut-off frequency, –6 dB	≤ 17.5 Hz
Upper cut-off frequency, –6 dB	26 kHz
Accuracy of frequency response, ± 2.0 dB	21 Hz – 20 kHz
Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz at 1 m	130 dB SPL
Maximum long term RMS acoustic output in the same conditions with IEC weighted noise (limited by driver protection circuit) at 1 m	125 dB SPL
Maximum peak acoustic output per pair in a listening room with music material at 2 m	136 dB
Self generated noise level in free space at 2 m on axis (A-weighted)	≤ 5 dB
Harmonic distortion at 100 dB SPL at 1 m on axis	
Freq: 50…100 Hz	< 1 %
100 Hz...3 kHz	< 0.5 %
> 3 kHz	< 3 %
Drivers	
Bass	2 x 458 mm (18 in) cone
Midrange	2 x 125 mm (5 in) cone
Treble	Compression tweeter 50 mm (2 in) into 25 mm (1 in) throat
Monitor enclosure weight	182 kg (401 lb)
Amplifier weight	11.2 kg (25 lb)
Monitor enclosure dimensions	
Height	960 mm (37 3/4 in)
Width	1080 mm (46 1/2 in)
Depth	650 mm (25 5/8 in)
Amplifier dimensions	
Height	3U 132 mm (5 3/16 in)
Width (front plate)	483 mm (19 in)
Width (casing)	425 mm (16 3/4 in)
Depth	286 mm (11 1/4 in)

AMPLIFIER SECTION

	1236A
Bass amplifier short term output power	2 x 1000 W
Midrange amplifier short term output power	2 x 400 W
Treble amplifier short term output power	250 W
Long term output power is limited by driver protection circuitry	
Amplifier system THD at nominal output	<0.003 %
Signal to Noise ratio, referred to full output	
Bass	>116 dB
Midrange	>119 dB
Treble	>115 dB
Mains voltage	100-120, 220-240 VAC 50/60 Hz
Power consumption	
Standby	6 W
Idle	40 W
Full output, long term	1000 W
Full output, peak	2500 W

SIGNAL PROCESSING SECTION

	1236A
Analog signal input connector XLR female, balanced 10 kOhm	pin 1 gnd pin 2 non-inverting, pin 3 inverting
Maximum analog input signal	+25.0 dBu
Analog input sensitivity (100 dB SPL at 1 m)	-6 dBu
Analog input gain selection	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	AES/EBU Single Wire or Dual Wire
Digital audio input	
Word length	16 - 24 bits
Sample rate	32 - 192 kHz
Digital input sensitivity (100 dB SPL at 1 m)	-30 dBFS
Digital input gain selection	0, +6, +12, +18 dB
Control network	
Type	Proprietary GLM™ network
Connection	2 RJ45, CAT5 cables
Crossover frequency	
Bass/Mid	420 Hz
Mid/Treble	3.2 kHz
GLM™ software frequency response adjustment	
Notch filters	4 LF and 2 HF
Shelving filters	2 LF and 2 HF
System calibration	Genelec GLM AutoCal™

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Genelec 1236A 操作手册

介绍

感谢您选择 Genelec 真力!

自 1978 年成立以来，我们一直遵循着一个理念——设计和制造最好的有源音箱，在各类声学环境中，提供真实、自然、精准的声音重放。在不懈追求这一终极目标的过程中，真力重视研发投入，不断开发创新音箱单元技术、电子电路、箱体设计等。我们一直秉承可持续发展和绿色环保的理念，产品的工业设计服务于声学性能。

每一只监听音箱，都于芬兰工厂中精心设计和制造，为您提供可长期稳定运行的真力监听音箱。

请认真阅读此操作手册，祝您拥有一段美好的听觉体验!

概述

真力 1236A 有源智能监听音箱，专为在大型控制室中提供高声压级的中性声音重放而设计。音箱包含一只容量为 430 升的箱体和一台 19 英寸宽，3U 高度的 RAM-XL 功放。

箱体内包含两个 458 毫米 (18 英寸) 的低音单元、两个 130 毫米 (5 英寸) 的中音单元和一个 50 毫米 (2 英寸) 高音压缩单元，压缩单元连接到 25 毫米 (1 英寸) 的喉部结构以重放高音。中音单元和高音单元安装在指向性控制波导 (DCW™) 中，控制波导可旋转 ±90° 以支持箱体纵置或者横置安装。系统的低频响应低至 17.5 Hz (-6 dB)，高频响应高达 21 kHz (-6dB)。

RAM-XL 功放的数字信号处理部分采用高精度算法，并包含驱动单元和功放的过载保护。房间声学响应补偿包括高度灵活的参量滤波器、电平对齐和声学延时补偿。通过这些本产品可精准匹配所有调音台的输出部分及各类房间声学条件。

RAM-XL 功放的低音、中音和高音通道的短期输出功率分别为 2 x 1000 瓦、2 x 400 瓦和 250 瓦。

包装

真力 1236A 包装箱中包含 1 只箱体、1 台专属的 RAM-XL 功放、1 根电源线、1 根网线 (RJ45) 以及 1 副内六角扳手。

在安装音箱前，请检查包装箱内所有物品是否损坏或遗漏。如发现损坏，请联系您的经销商或保险代理人；如缺少部件，请联系您的经销商。

线缆及接插件

每只 1236A 的包装箱中配备以下线缆：

- 1 根电源线
- 2 根长度 10 米 (32 英尺 9 英寸) 的四芯音箱线 (Speakon)
- 1 根长度 10 米 (32 英尺 9 英寸) 的网线 (RJ45)
- 1 根长度 5 米 (16 英尺 4 英寸) 的网线 (RJ45)

长度为 10 米的线缆用于连接箱体和功放。如需为此制作定制长度的线缆，请确保线缆两端音箱插头 (Speakon) 的针脚一一对应，并参阅表 1 了解不同长度音箱线的建议规格。

功放安装位置

RAM-XL 功放机箱的宽度为标准的 19 英寸，高度为 3U。通过散热系统，空气从功放后方进入功放，再通过功放右侧开口排出，以此循环。请确保新鲜空气自由流通，并且功放周围有足够的通风空间以供散热，使得环境温度保持在 15-35°C (50-95°F)。当功放过热时，它将停止工作，直至温度降至安全范围。

请确保线缆能够铺设到功放安装的位置。请在功放后方预留 100 毫米 (4 英寸) 的净空，用于连接线缆及空气流通。

RAM-XL 功放支持的电源电压为 100-120 伏或者 220-240 伏、50/60 Hz 的交流电。

使用环境

音箱及其 RAM-XL 功放仅限室内使用。允许的环境温度为 15-35°C (50-95°F)，相对湿度为 20% 至 80%。当产品出现冷凝现象时，请勿使用。例如，当产品从温度较低的储存或运输环境转移至温暖的环境中时，待产品的温度升至室温后再通电开机使用。

调整指向性控制波导

1236A 监听音箱可以纵置或者横置嵌入安装。应旋转指向性控制波导，确保高音和中音单元保持垂直方向，以获得最佳的立体声对称性。

重要提示：指向性控制波导面板较重，请小心拆卸、更换。如需旋转该面板，请按照以下步骤操作：

- 将音箱按照预期方向摆放
- 使用 4 毫米内六角扳手拧下面板边缘的 8 颗 M5 固定螺丝
- 将面板小心拉离箱体一小段距离并旋转，使中音和高音单元保持垂直方向 (高音单元在上方)，并按照与上述步骤相反的顺序重新安装指向性控制波导面板。

嵌入安装

尽管 1236A 可以独立摆放监听，但为了更好的声学效果，强烈建议将音箱嵌入安装。嵌入安装能提高低频响应和效率，并增强中频的瞬态和频率响应。

音箱的声轴位于中音和高音单元之间，该声轴可以用于系统的监听和测量 (见图 1 和图 2)。

1236A 的建议听音距离为 2 至 3.5 米 (6½-11½ 英尺)，左右音箱垂直方向的声轴应指向站姿和坐姿两者监听高度的中间位置 (离地约 1.4 米，即 4 英尺 7 英寸)，这使得站着和坐着的听音者都能得到正确的频率响应。音箱不宜安装过高，这会增大音箱的垂直倾斜角度，并减少最佳听音区域面积。

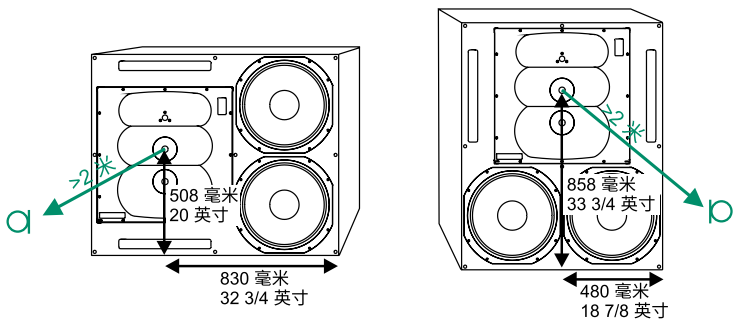

图 1. 声轴的位置。

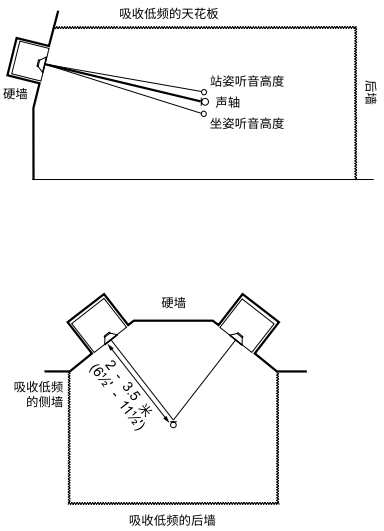

图 2. 音箱箱体安装。

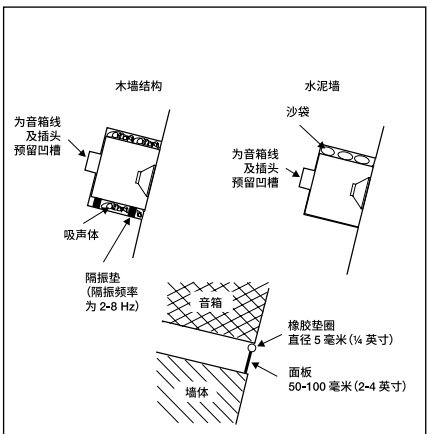

图 3. 音箱箱体安装细节。

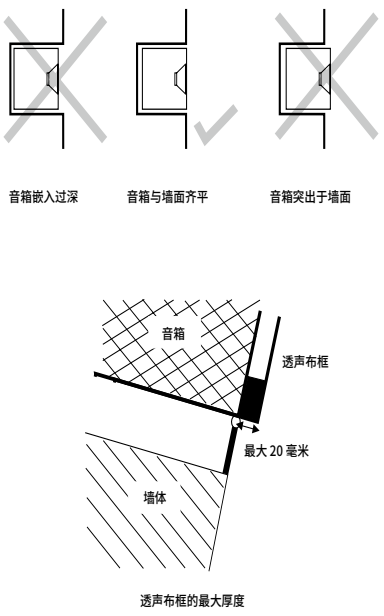

图 4. 音箱与墙面齐平安装。

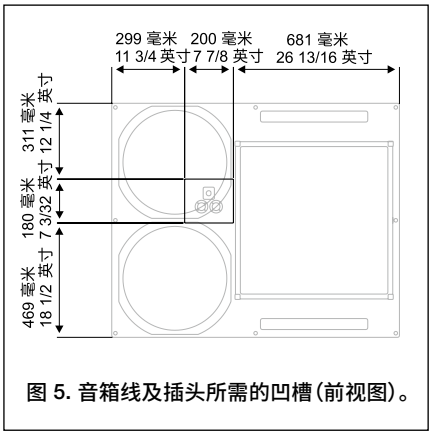

图 5. 音箱线及插头所需的凹槽(前视图)。

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

天花板、侧墙尤其是后墙应该能够吸收低频。音箱应安装在具有反射性的声学硬墙上。安装音箱的墙面应略微倾斜，以确保音箱的精确指向。应特别注意音箱在坚固墙壁结构中的安装方式。

请注意以下事项:

请在音箱箱体周围留出 50-100 毫米 (2-4 英寸) 的空隙。

请使用面板将箱体周围的空隙覆盖，并固定在墙面上。箱体和盖板之间应留出 5-10 毫米 (¼-½ 英寸) 的间隙，并填充软橡胶垫圈，以允许箱体能够轻微移动。请确保音箱线材能够连接至箱体后方。如果将音箱安装在轻型 (如木质) 但具有强支撑性的墙壁上时，音箱箱体应安装在谐振频率约为 2-8 Hz 的隔振垫上，以防止带动墙体共振并损失低频的性能。箱体与墙体之间空腔内应填充吸声岩棉或泡沫塑料。请确保墙壁支撑牢固。

如安装在实心墙 (如混凝土) 上，箱体可以直接安装在墙上而无需安装隔振垫。箱体周围的空隙应填充岩棉或沙袋。

箱体表面和墙面之间的不连续性会引起衍射，从而破坏频率响应和立体声声像。请确保音箱与墙面齐平。

如使用装饰布框遮盖墙壁，请确保布框与音箱相邻的边缘厚度小于 20 毫米 (3/4 英寸)。选择薄质经编织物或透声材料作为布料，避免对系统的高频响应产生不利影响，并选用真力认可的布格栅。

为音箱线及插头预留凹槽

音箱线的 Speakon 插头连接到音箱背板上后相对箱体会突出 100 毫米 (4 英寸)。因此，箱体后方墙体必须为音箱线和插头预留至少 100 毫米 (4 英寸) 深的凹槽。凹槽的位置如图 5 所示。请注意，接口位置偏离箱体的中心。因此，当箱体横置安装时，为左右声道音箱预留凹槽的高度将不同。

线缆连接

将功放后面板与音箱背板上的“低音单元”、“中音/ 高音单元”、“LED 接口”插座通过音箱线和网线对应连接。请注意，每只音箱与其专属的RAM-XL 功放在出厂时经过匹配校准，并标有相同序列号，切勿混用。

将 Speakon 插头插入插座并顺时针旋转，插头将自动锁定。只有当插头完全插入并旋转锁定后，功放和音箱之间才会连通。

如需拔除 Speakon 插头，请拨动插头上的释放杆并逆时针旋转插头，即可将插头从插座上移除。

设置和使用

真力 1236A 超低音箱通过 GLM 软件进行设置，设置过程十分便捷，包括以下步骤：

- 使用 5 类 (RJ45) 网线将所有音箱以菊花链方式连接起来，从 GLM 适配盒到 RAM-XL 功放的“控制网络”接口以及控制室中的其余音箱。菊花链的实际顺序并不重要。如果计算机位于控制室，而 RAM-XL 功放位于机房，则可将其作为菊花链末端连接；
- 将来自最后一只音箱的网线连接到 GLM 适配盒；
- 将 GLM 适配盒通过 USB 线 (包含在 GLM 套件中) 连接到电脑 USB 接口；
- 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。
- 将话筒连接到 GLM 适配盒的话筒输入接口；
- 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；
- 根据软件提示进行音箱设置和校准；
- 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 1236A 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。

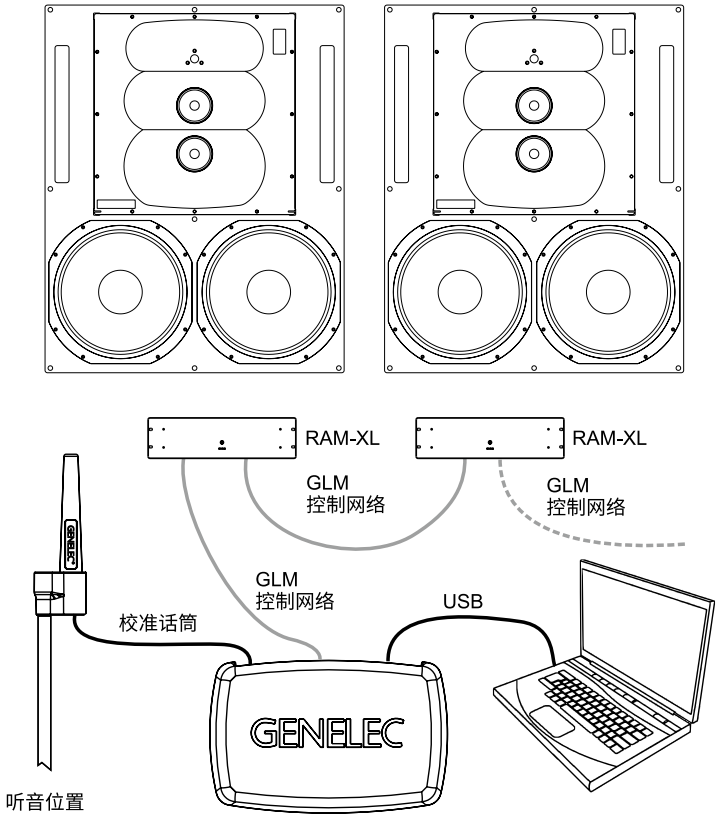

图 6. GLM 控制网络连接示意图。图中未展示音频信号连接

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。

RAM-XL 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 7)。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。当再次检测到输入信号时，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上。

RAM-XL 功放接口

电源输入 (MAIINS INPUT)

连接至 100-120 伏或 220-240 伏，50-60 Hz 交流电电源。

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)。

图 7. 智能休眠功能 (ISS) 的设置选项。

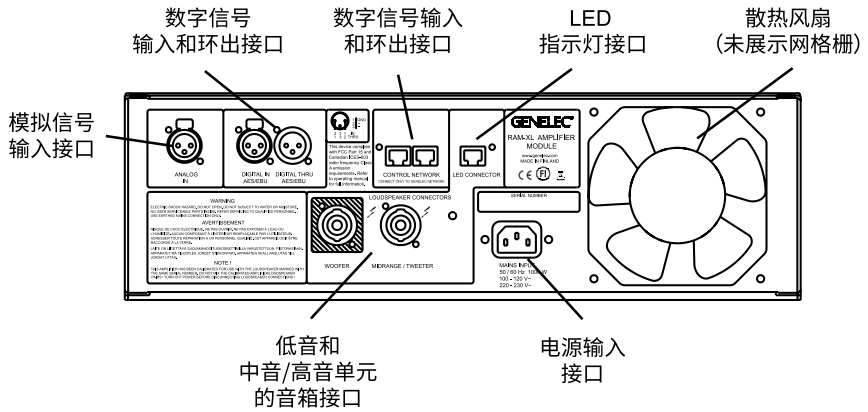

图 8. RAM-XL 功放的接口面板。

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

LED 接口

这个RJ45 接口用于连接音箱前面板电源指示灯。

低音单元接口 (Woofer)

标准四芯 Speakon 接口，用于连接低音单元。

中音/高音单元接口 (Midrange/Tweeter)

标准四芯 Speakon 接口，用于连接至中音单元和高音单元。

警告! RAM-XL 功放上的 “低音单元” 接口和 “中音/高音单元” 接口会输出危险的高电压。为确保安全，必须由经过合格培训的人员进行插头与接口的连接安装。

音箱前面板指示灯功能

1236A 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：

- 当前输入的模拟信号超过音箱最大模拟信号输入电平。
- 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) 。
- 音箱单元或功放过载，或功放产生削波。
- 在 AES/EBU 数字音频信号中检测到错误。

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。

测试模式

RAM-XL 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-XL关机后，测试模式会被重置。重新启动 RAM-XL 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 1236A 进行永久设置。

维护

请定期检查 RAM-XL 功放后面板上的散热风扇保护格栅是否堵塞。必要时可用吸尘器轻轻清洁。堵塞会引起热负荷增加，这可能会使风扇噪音增大。在极端情况下，功放可能会自动关闭。

安全注意事项

尽管 1236A 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。
- RAM-XL 功放上的 “低音单元” 接口和 “中音/高音单元” 接口会输出危险的高电压。为确保安全，必须由经过合格培训的人员进行插头与接口的连接安装。

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-XL 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-XL 功放退出测试模式并关机	如果不按动电源键，此过程则自动完成。

表 2. 通过电源键启用测试模式

- 请注意，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。必须始终确保可轻松拔掉电源线的任意一端。
- 切勿阻挡 RAM-XL 功放周围的气流。确保功放后方有足够的空气流动，使功放能够充分冷却。

图标


欧洲议会和理事会关于废弃电子电气设备的第2012/19/EU号指令


电源/待机开关

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：

- 此设备不造成有害干扰。
- 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：

- 重新调整天线的方向和位置。
- 增加该设备与接收器之间的距离。
- 将该设备和接收器分别连接到不同电路的插座上。
- 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。

质保

产品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。

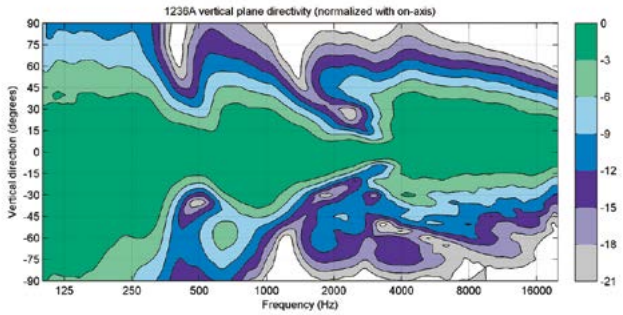

图 9. 1236A 垂直面指向特性。

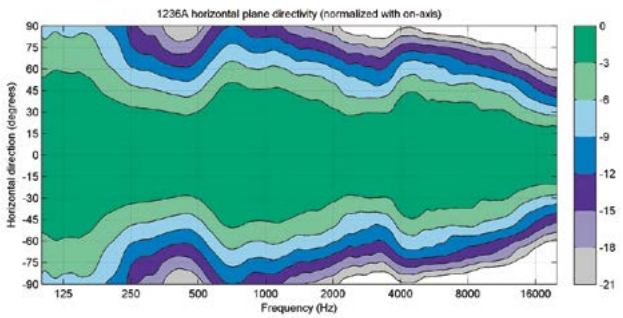

图 10. 1236A 水平面指向特性。

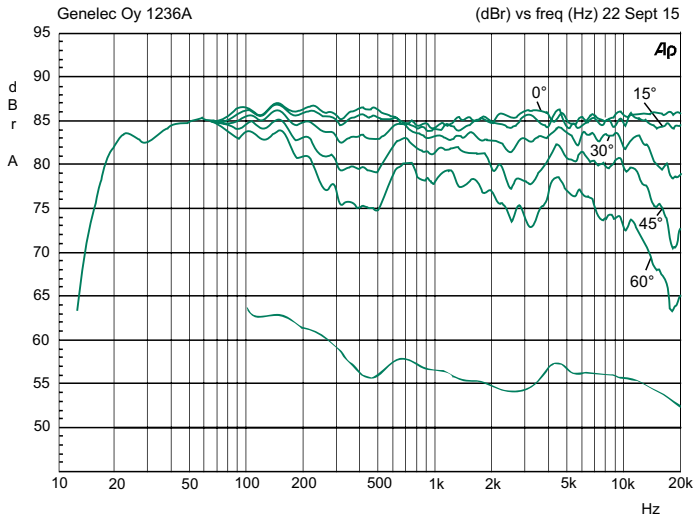

图 11. 上方曲线表示 1236A 的水平面指向特性；下方曲线表示音箱的功率响应。

系统参数

	1236A
低频截止频率，–6 dB	≤ 17.5 Hz
高频截止频率，–6 dB	26 kHz
频率响应精确度，± 2.0 dB	21 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	130 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	125 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	136 dB
自由场内自身噪声电平 @2 米，轴向 (A 计权)	≤ 5 dB
总谐波失真 @ 100 dB SPL @1 米，轴向（A 计权） 频率：50…100 Hz 100 Hz...3 kHz > 3 kHz	 < 1 % < 0.5 % < 3 %
驱动单元 低音 中音 高音	 2 x 458 毫米（18 英寸）锥体 2 x 125 毫米（5 英寸）锥体 50 毫米（2 英寸）的高音压缩单元连接到 25 毫米（1 英寸）喉部结构
音箱箱体重量	182 千克（401 磅）
功放重量	11.2 千克（25 磅）
音箱箱体尺寸 高度 宽度 深度	 960 毫米（37¾ 英寸） 1180 毫米（46½ 英寸） 650 毫米（25⅝ 英寸）
功放尺寸 高度 宽度（前面板） 宽度（功放外壳） 深度	 3U 132 毫米（$5^{3}/_{16}$ 英寸） 483 毫米（19 英寸） 425 毫米（$16^{3}/_{4}$ 英寸） 286 毫米（$11^{1}/_{4}$ 英寸）

功放部分

	1236A
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	2 x 1000 瓦 2 x 400 瓦 250 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	<0.003 %
满输出状态下信噪比 低频 中频 高频	 >116 dB >119 dB >115 dB
电源电压	100-120, 220-240 伏交流电 50/60 Hz
功耗 待机 空闲 满输出，长期 满输出，峰值	 6 瓦 40 瓦 1000 瓦 2500 瓦

信号处理部分

	1236A
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）	AES/EBU 单线或双线
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	 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 个 RJ45 接口，5 类网线
分频点 低频/中频 中频/高频	 420 Hz 3.2 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

1236A 操作手册

www.genelec.cn

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