7350A

Operating Manual 操作手册

Genelec 7350A Smart Active Subwoofer
真力 7350A 智能有源超低音箱

GENELEC®

Genelec 7350A Smart Active Subwoofer

General Description

The Genelec 7350A smart active subwoofer is a very compact low frequency monitor, intended to extend the bass reproduction of Genelec 8320A active monitors in stereo or multichannel applications and 8330A in stereo applications. The 7350A can be used in multichannel applications with the 8330A when SPL capacity of the 7350A subwoofer suits the application. 7350A can be used a general purpose Smart Subwoofer solution with any analog or digital audio monitor.

Driver

The 7350A contains one 205 mm (8”) low frequency driver housed in a Genelec’s proprietary Laminar Spiral Enclosure™ (LSE™) bass reflex cabinet.

Amplifier

The D Class power amplifier outputs 150 W with very low THD and IM distortion. Driver overload, amplifier thermal overload, and driver short circuit protections are included in the amplifier electronics.

Installation

The subwoofer is supplied with a mains cable, a GLM network cable, and this operating manual. Inspect the subwoofer to ensure that it has not been damaged in transport. Check that the mains voltage marking on the device matches your local mains voltage. Before connecting turn off the subwoofer and the monitors. Once all connections have been made, the subwoofer and monitors can be powered up.

Audio Connections

Audio connections are made with balanced XLR cables. The 7350A has IN/OUT connector pairs for five analogue channels and an analogue LFE channel input. There is also one IN/OUT connector pair for AES/EBU digital audio signal.

Connect signal cables from your audio source to the female XLR "IN" connectors. Next, connect XLR cables from the corresponding "OUT" male XLR connectors to the input connector of each monitor.

Connect the "LFE IN" connector to the LFE or .1 output of a multichannel sound source.

The digital audio input (DIGITAL IN) accepts a male XLR connector carrying an AES/EBU formatted signal. The digital audio signal can be routed to the next monitor or subwoofer (DIGITAL OUT). The AES/EBU digital audio subframe A or B is selected using the GLM software. The default setting for the subframe selection A+B meaning that the subwoofer reproduces audio in both subframes.

GLM Network Connection

Using the GLM Adapter all monitors and subwoofers in the system are connected to a computer running the Genelec Loudspeaker Manager (GLM) software (See Figure 3.) A GLM network cable with RJ45 connectors is supplied with each monitor and subwoofer for this. Start control network cabling from the GLM Adapter to the first monitor or subwoofer. Continue daisy-chaining to all monitors and subwoofers in the system. No special sequence is necessary. You can choose the easiest control network cabling route.

Settings and Acoustic Calibration

The 7350A subwoofer and Smart Active Monitors are extremely flexible in compensating the acoustic influences of the room where the products have been installed and support automated setup using the GLM User Kit and software. The 7350A subwoofer is compatible with GLM 2.0 and later.

The GLM software can be downloaded from Genelec web site (www.genelec.com/glm). The GLM User Kit is needed for the setup. The User Kit contains the GLM Adapter and GLM measurement microphone.

The GLM Adapter is connected to the computer USB port and the GLM network. If the 7350A is the only smart device, the GLM Adapter is only connected to the subwoofer. The GLM measurement microphone is placed at the listening location.

Execute the setup process in the GLM software to align and set up the subwoofer and any other smart devices as a system on the GLM network. After calibration, keep the computer connected to maintain the settings or save the settings to the subwoofer using the GLM software.

ISS™ Autostart Function

Intelligent Signal Sensing™ (ISS™) enables less than 0.5 W standby power consumption.

As a factory default, the ISS function is disabled. The ISS function can be enabled and configured in the GLM software by clicking the “ISS Power Saving” pulldown menu. This menu also provides selection of the time before entering standby. Playback automatically resumes once an input signal is detected. There is a slight delay before playback resumes.

Placement in the Room

Subwoofer placement affects the frequency response and sound level dramatically. At low frequencies the acoustical effects of the room are strong. Even a slight change in the subwoofer's location can make a marked difference. The placement affects the frequeny response, phase difference between the monitors and subwoofer, as well as the subwoofer roll-off rate.

Place the subwoofer on the floor, slightly offset from the room centre line, at the front wall. Distance to the front wall should be less than 0.6 m (24 in) measured from the subwoofer's driver. Proximity to the wall can increase acoustic output and maximum sound level. Larger distance to the wall can cause acoustical cancellation and reduce subwoofer output.

Moving the subwoofer slightly to the left or right can improve the flatness of the frequency response. Positioning the subwoofer close to a corner can boost the bass level more but may cause asymmetrical sound imaging at low frequencies.

Use the GLM to automatically calibrate the frequency response of the subwoofer for maximal flatness. If the monitors are Smart Monitors, GLM also automatically aligns the output level and crossover phase in relation to the monitors.

Minimum Clearances to Walls or Other Objects

Do not cover the driver of the subwoofer. Allow at least 10 cm (4 in) of space in front of the driver grille.

Thick carpets under the subwoofer can block ventilation.

The bass reflex port (located opposite of

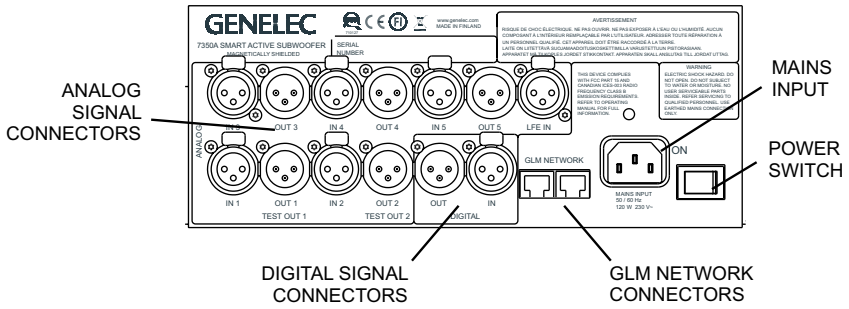

Figure 1. Connector panel of the 7350A

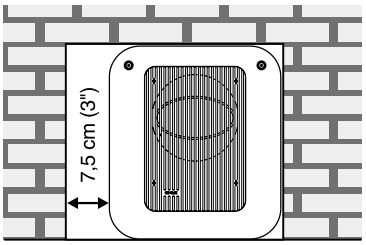

Figure 2. Flush mounting the subwoofer. Note the clearance needed on the reflex port side.

the connector panel) should have a minimum clearance of 7.5 cm (3 in) to ensure sufficient bass reflex system sound output.

Flush Mounting the Subwoofer

When the subwoofer is flush mounted into a recess in a wall or in a cabinet, ensure amplifier cooling and unrestricted airflow from the bass reflex port. Make the recess at least 7.5 cm (3 in) wider than the subwoofer. Place the subwoofer to the right side of the recess with the driver facing the room. This leaves sufficient space at the bass reflex port. The height and depth of the recess should not be bigger than what is needed to fit the subwoofer.

Safety Considerations

Genelec 7350A subwoofer has been designed in accordance with international safety standards. However, to ensure safe operation and maintain the unit in safe operating condition, the following warnings and cautions must be observed:

- Servicing and adjustment must only be performed by qualified service personnel. The subwoofer cabinet or electronics unit must not be opened.
- Do not use this subwoofer with an unearthed mains cable or an unearthed mains connection as this may compromise electrical safety.
- Do not expose the subwoofer to water or moisture. Do not place any objects filled with liquid, such as vases, on the subwoofer or near it.
- This subwoofer is capable of producing sound pressure levels in excess of 85 dB SPL, which may cause permanent hearing damage.
- Free flow of air around the subwoofer is necessary to maintain sufficient cooling. Do not obstruct airflow around the subwoofer.
- 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.

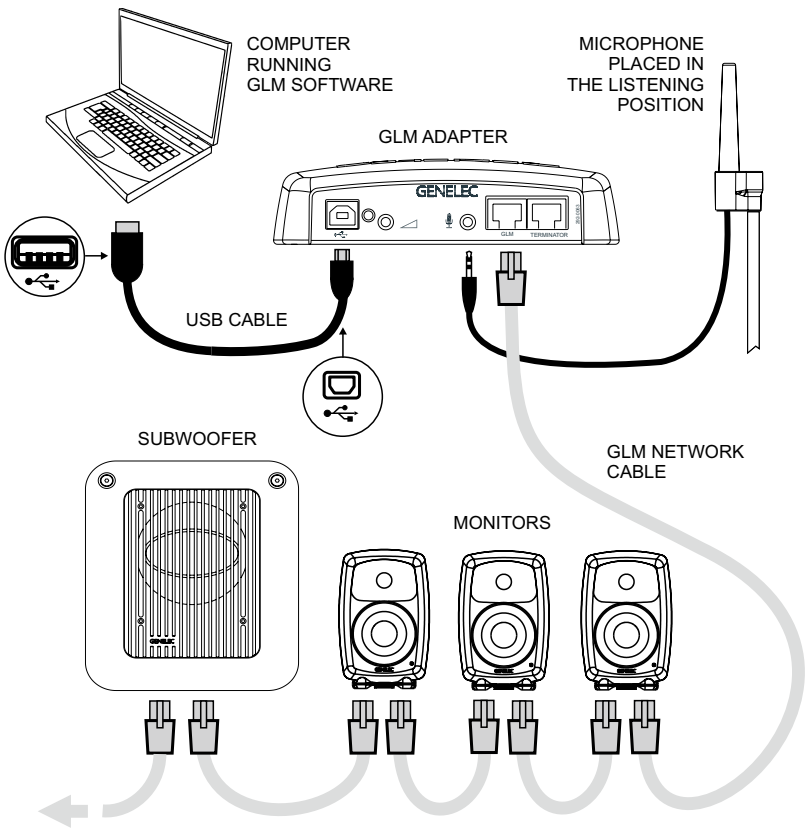

Figure 3. GLM Network cabling. Audio cabling not shown.

Warning!

This subwoofer is capable of delivering sound pressure levels in excess of 85 dB, which may cause permanent hearing damage.

Maintenance

No user serviceable parts are inside the subwoofer. Any maintenance of the unit may only be performed by qualified service personnel.

Guarantee

This product is supplied with a two year guarantee against manufacturing faults or defects that might alter the performance of the unit. Refer to supplier for full sales and guarantee terms.

7350A Operating Manual

SYSTEM SPECIFICATIONS

	7350A
Free field frequency response ± 3 dB main channels -6 dB LFE channel	 25 - 150 Hz 22 - 160 Hz
Maximum short term sine wave SPL output averaged from 30 to 85 Hz, measured in half space at 1 meter	≥ 104 dB
Self generated noise level in half space at 1 m on axis (A-weighted)	< 5 dB
Harmonic distortion at 90 dB SPL at 1 m on axis in half space 30… 85 Hz 2nd 3rd	 ≤ 4 % ≤ 1 %
Driver, magnetically shielded	205 mm (8")
Weight	19 kg (42 lbs)
Dimensions Height Width Depth	 410 mm (16 1/8 in) 350 mm (13 3/4 in) 319 mm (12 9/16 in)

SIGNAL PROCESSING

	7350A
Subsonic filter (18 dB/octave) below	20 Hz
LFE cutoff frequency	150 Hz
Midband rejection >400 Hz	≥ 50 dB
GLM software Auto Cal tools Parametric notch filters Delay adjustment Level adjustment	 20 160 ms 60 dB

Compliance with 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 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.

AMPLIFIER SECTION

	7350A
Amplifier short term output power (Long term output power is limited by driver unit protection circuitry)	150 W
Amplifier system THD at nominal output	≤ 0.005%
Mains voltage	100, 120 or 230 V
Power consumption (average) Standby (ISS active) Idle Full output	 < 0.5 W 8.5 W 150 W

CONNECTIONS

ANALOG	7350A
Input / Output connectors XLR female / male LFE Input connector XLR female	5 / 5 1
Pin sequence pin 1 pin 2 pin 3	 gnd + (non-inverting) - (inverting)
Input impedance	10 kohm balanced
Input level for 100 dB SPL output @ 1 m	-6 dBu (variable in GLM software)
Output gain	0 dB

The output connectors carry an unfiltered copy of the signal arriving into their respective Input connectors.

DIGITAL	7350A
Input / Output connectors XLR female / male	1 / 1
Signal format	AES/EBU single wire
Digital audio Word length Sample rate	 16 - 24 bits 32 - 192 kHz

GLM NETWORK	7350A
Input / Output RJ45	1 / 1

GENELEC®

International enquiries:
Genelec, Olvitie 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 Sweden
Genelec Sverige
Tureholmsvägen 12
125 35 Älvsjö
Sweden
Phone +46 8 449 5220
Email sweden@genelec.com

In China please contact:
Beijing Genelec Audio Co.Ltd
B33 - 101
Universal Business Park
No. 10 Jiuxianqiao Road
Chaoyang District
100015 Beijing, China
Phone +86 400 700 1978
Email genelec.china@genelec.com

In Japan
Genelec Japan Inc.
2-22-21 Akasaka,Minato-ku
07-0052,Tokyo
Phone +81-3-6441-0591
genelec.japan@genelec.com
Email genelec.japan@genelec.com

真力 7350A 智能有源超低音箱

概述

Genelec 真力 7350A 是一款紧凑型智能有源超低音箱，专为真力 8320A 在立体声或多声道系统中以及 8330A 在立体声系统中扩展低频而设计。当满足声压级要求时，7350A 也可搭配 8330A 应用于多声道系统。7350A 可以作为智能超低音箱的通用解决方案，搭配任何模拟或者数字全频音箱使用。

单元

7350A 为层状螺旋式箱体 (LSE™)，内部包含一个 205 毫米 (8 英寸) 的低音单元。

功放

音箱配备 D 类功放，其输出功率为 150 瓦，具有较低的总谐波失真和互调失真。功放电路中包含单元过载保护、功放过热保护以及单元短路保护。

安装

每只超低音箱配备 1 根电源线，1 根 GLM™ 网线，以及此操作手册。打开包装后，先检查音箱，确保其在运输过程中没有受到损坏。检查设备的电源标示，确保其电压与您当地的电源电压适配。所有线缆连接完成后，再启动音箱。

音频连接

使用平衡卡侬 (XLR) 线缆连接音箱。7350A 共有五组模拟输入/环出接口和一个模拟 LFE 输入接口，另外还有一组 AES/EBU 数字输入/环出接口。

将音源设备连接到超低音箱的模拟输入接口 (卡侬母座)，然后从对应的模拟环出接口 (卡侬公座) 连接至全频音箱输入接口。

将多声道音源设备的 LFE 声道 (.1) 连接至音箱的模拟 LFE 输入 (LFE IN) 接口。

数字输入接口 (DIGITAL IN) 为卡侬公座，用于接收 AES/EBU 数字音频信号。通过数字环出接口 (DIGITAL OUT) 将输入信号完整地输出给下一只音箱。需通过 GLM 软件来选择 AES/EBU 数字输入的 A 通道或 B 通道，默认设置为 A 通道与 B 通道叠加，此时超低音箱将同时重放两个通道的信号。

GLM 控制网络连接

系统中所有音箱通过 GLM 适配盒连接到运行了真力 GLM 音箱管理软件的电脑 (见图 3)。每只音箱都配备了 1 根 GLM 控制网线 (RJ45)。首先将 GLM 适配盒连接到第一只音箱，然后以菊花链的形式将系统中每只音箱串接起来。连接顺序无特殊要求，您可以根据实际情况选择最简便的连接方式。

设置及声学校准

包括 7350A 在内的真力智能有源系列音箱能够非常灵活的补偿房间声学带来的影响，使用 GLM 软件搭配 GLM 用户套件可以实现自动声学校准。7350A 支持 GLM 2.0 及更高版本。

GLM 软件可从真力官方网站 (www.genelec.cn 的“服务支持 > GLM 软件下载”页面) 下载。GLM 软件需要通过 GLM 用户套件对音箱进行设置和校准，用户套件中包含一个 GLM 适配盒和一支 GLM 校准话筒。

音箱通过网线连接到 GLM 适配盒，适配盒通过 USB 线连接到电脑的 USB 接口。如果 7350A 搭配其他非 SAM™ 系列音箱使用， GLM 适配盒只需连接 7350A。校准话筒需放置在听音位置。

系统中所有的 SAM 系列音箱 (包括超低音箱) 在 GLM 软件中将作为一个整体被设置和校准。校准完成后既可以保持 GLM 软件运行以控制相关设置，也可以将设置存储到音箱中，无需随时运行 GLM 软件。

智能休眠功能 (ISS™)

智能休眠功能 (ISS) 可实现超低待机功耗，待机功率小于 0.5 瓦。

智能休眠 (ISS) 出厂默认为关闭，可在 GLM 软件菜单栏中的“编组预设 (Group Preset) > 保存到音箱 (Store to Loudspeakers)”启用该功能，并可在该页面调整进入休眠状态的等待时间。当检测到输入信号时，音箱将自动回到工作状态。音箱回到工作状态会有轻微的延时。

音箱在房间中的摆位

超低音箱在房间中的摆位显著影响频率响应和声压级。房间声学对低频的影响极其强烈，即使音箱位置只发生细微变化，也会引起显著差异。音箱的摆位不仅影响频率响应，也会引起全频音箱和超低音箱之间的相位差异，以及超低音箱滚降斜率的变化。

将超低音箱摆放在靠近房间前墙的地板上，略微偏离房间左右的中轴线。超低音箱的单元到前墙的距离应小于 0.6 米 (24 英寸)。靠近墙面可以提高低频的声学输出和最大声压级。如果超低音箱距离墙面过远，会导致低频产生抵消，降低音箱的低频输出。

左右轻微移动超低音箱，有助于找到更合适的摆位，使频率响应更加平直。超低音箱靠近角落摆放时，会让低频能量显著增加，但可能会导致低频声像不对称。

使用 GLM 软件的自动校准功能可以最大化提高超低音箱频率响应的平坦度。如果全频音箱也是智能有源系列音箱，GLM 软件还会自动平衡全频音箱和超低音箱之间的输出电平和相位耦合。

与墙面或其他物体之间的最小距离

请勿遮盖音箱单元。请在音箱格栅前方留出不小于 10 厘米 (4 英寸) 的开放空间。

将超低音箱放置在厚重的地毯上可能会影响散热。

为确保超低音箱的倒相孔的正常工作，请在箱体的倒相孔一侧 (接口面板的对侧) 留出不小于 7.5 厘米 (3 英寸) 的空隙。

嵌入式安装

当将超低音箱嵌入墙中或柜体安装时，请为功放留出足够的散热空间，并确保倒相孔附近空气正常流通。嵌入槽或柜体的宽度需比音箱宽度多出至少 7.5 厘米 (3 英寸)。请注意正确的安装方向，音箱单元面向房间内部，并在嵌入槽中靠右放置，以便为倒相孔留出足够空间。嵌入槽或柜体的高度和深度不应远大于音箱的尺寸。

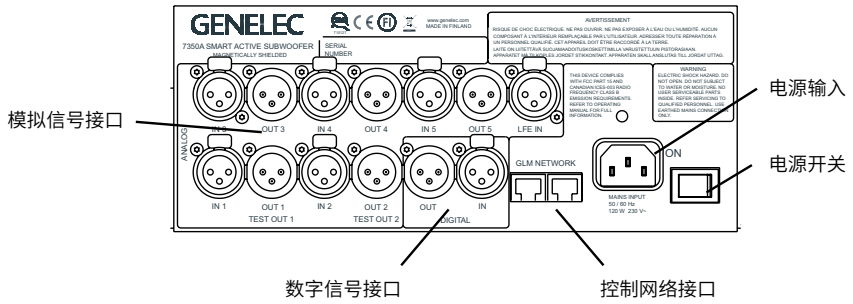

图 1. 7350A 的接口面板。

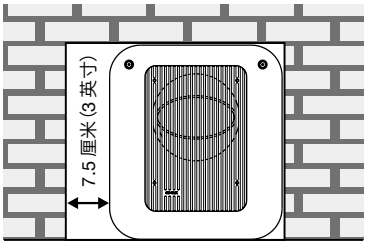

图 2. 超低音箱嵌入式安装。请注意倒相孔一侧需预留的空隙。

安全注意事项

尽管 7350A 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子装置。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，切勿在音箱上或其附近摆放装有液体的物品，例如花瓶。
- 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。
- 确保音箱后方有足够的空气流动，使音箱能够充分冷却。切勿阻挡音箱周围的气流。
- 请注意，本设备采用电源插头作为断开装置。除非将电源线从音箱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。

警告!

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。

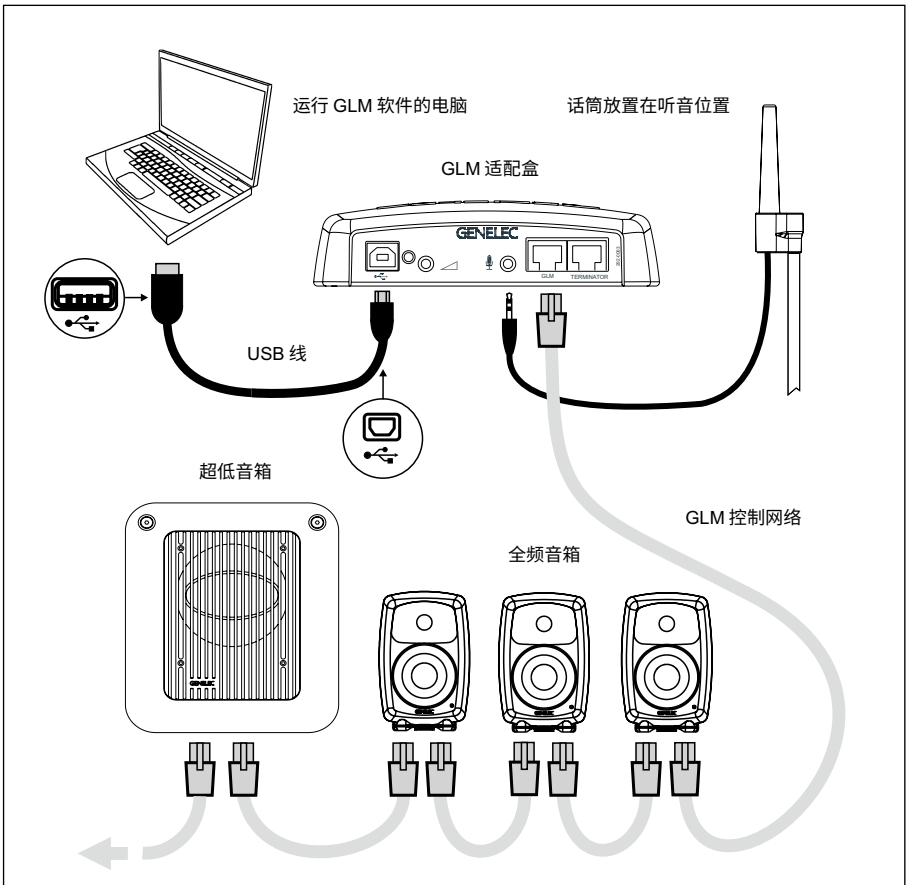

图3. GLM 控制网络连接示意图。图中未展示音频信号连接。

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。

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；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。

7350A 操作手册

系统参数

	7350A
自由场内频率响应 ± 3 dB - 6 dB	 25 - 150 Hz 22 - 160 Hz
半开放空间内，轴上最大短时正弦波声学输出，30 Hz - 85 Hz 均值 @1米	≥ 104 dB
半开放空间内，自身噪声电平 @ 1米 轴上 (A 计权)	< 5 dB
半开放空间内，总谐波失真 @90 dB SPL @1米 轴上 30…85 Hz 2 次 3 次	 ≤ 4 % ≤ 1 %
驱动单元（带有磁屏蔽）	205 毫米 (8 英寸)
重量	19 千克 (42 磅)
尺寸 高度 宽度 深度	 410 毫米 ($16^{1}/_{8}$ 英寸) 350 毫米 ($13^{3}/_{4}$ 英寸) 319 毫米 ($12^{9}/_{16}$ 英寸)

信号处理

	7350A
超低频滤波器（18 dB/倍频程）低于	20 Hz
LFE 通道截止频率	150 Hz
中频抑制 > 400 Hz	≥ 50 dB
GLM软件自动校准工具 参量陷波滤波器 延时调整 电平调整	 20 段 160 毫秒 60 dB

功放部分

	7350A
功放短期输出功率 (长期输出功率受限于单元保护电路)	150 瓦
在标称输出功率下的功放系统失真参数	≤ 0.005%
电源电压	100，120 及 230 伏
功耗（平均） 待机状态（ISS 开启） 空闲 满输出	 < 0.5 瓦 8.5 瓦 150 瓦

信号连接

模拟	7350A
输入/环出接口（卡侬（XLR）母座/公座） LFE 输入接口（卡侬（XLR）母座）	5 / 5 1
针脚顺序 针脚 1 针脚 2 针脚 3	 地 正极 负极
输入阻抗	10K 欧姆 平衡式
获得 100 dB SPL 声学输出所需的输入电平 @1 米	- 6 dBu （可在 GLM 软件中调节）
环出电平	0 dB

输入接口的信号不经过任何处理从其对应的环出接口输出

数字	7350A
输入/环出接口（卡侬（XLR）母座/公座）	1 / 1
信号格式	AES/EBU 单线
数字音频信号 量化精度 采样范围	 16 - 24 bits 32 - 192 kHz

GLM 控制网络	7350A
输入/输出（RJ45）	1 / 1

www.genelec.com

GENELEC®

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