GENELEC®

4010A



Operating Manual

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Active Loudspeaker

General

The bi-amplified Genelec 4010A is an extremely compact two way active loudspeaker designed for fixed installations. It contains drivers, power amplifiers, active crossover filters and protection circuitry. The 4010A is designed for indoor use only, in temperatures between 15 to 35 degrees Celsius and relative humidity between 20 % and 90 %.

The MDE™ (Minimum Diffraction Enclosure™) loudspeaker enclosure is made of die-cast aluminium and shaped to reduce edge diffraction. Combined with the advanced Directivity Control Waveguide™ (DCW™), this design provides excellent frequency balance in difficult acoustic environments.

Delivery contents

Each 4010A is supplied with a mains cable, a 3-pin connector for audio signal, a keyhole type wallmount and an operating manual.

Connections

Connect the mains cables only after you have completed connecting audio signal cabling.

Audio input is via a 10 kOhm balanced connector. The pin sequence of the connector is shown in Figure 2.

Connect the signal cable to the 3-pole plug provided with the loudspeaker and secure the connections by tightening the screws on each pole. Push the plug into the connector on the loudspeaker.

Never connect the 4010A to the loudspeaker outputs of a power amplifier, integrated amplifier or receiver.

When all audio connections are completed, connect the loudspeakers to mains with the supplied mains cables. They will switch on automatically.

ISS™ Autostart

The 4010A is equipped with Intelligent Signal SensingTM (ISS™) Autostart function, which automatically turns the amplifier to Standby mode if an input signal has not been detected for approximately 1 hour. The power consumption in standby mode is typically less than 0.5 watts. The playback will automatically resume once an input signal is detected from the source.

There is a slight delay in the automatic powering up. If this is undesirable, the ISS™ function can be disabled by setting the “ISS DISABLE” switch on the back panel to “ON” position. In this mode, the loudspeaker is powered on and off using the power switch on the back panel.

Sensitivity control

The input sensitivity (playback level) of the 4010A has two alternative settings, normal and -10 dB. The normal setting is factory default and the lower, -10 dB setting can be selected by turning the “SENSITIVITY -10 dB” switch on the back panel to “ON”.

The output levels are 100 dB @ -6dBu and 90 dB @ -6 dBu respectively. Choose the setting that

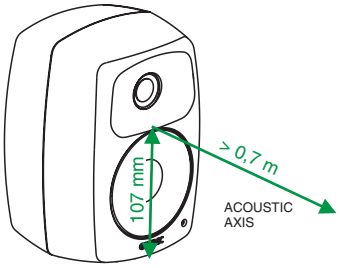


Figure 1. Location of the acoustic axis

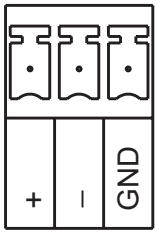


Figure 2. The pin sequence of the audio input connector.

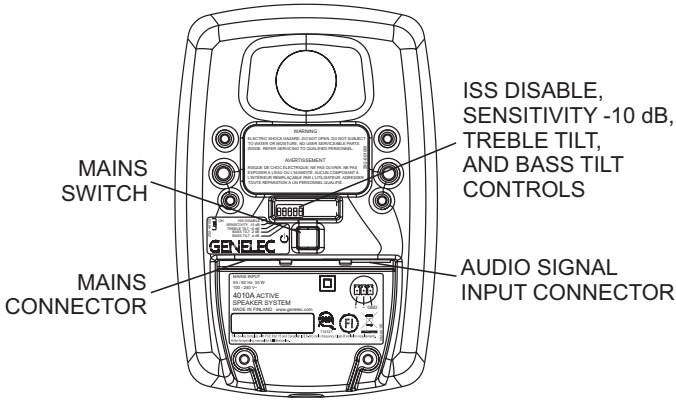


Figure 3. Control and connector layout on the rear panel of a 4010A.

Loudspeaker Mounting Position	Treble Tilt	Bass Tilt
Flat anechoic response	OFF	OFF
Free standing in a damped room	OFF	OFF
Free standing in a reverberant room	OFF	-2 dB
Near to a wall	OFF	-4 dB
In a corner	OFF	-6 dB

Table 1: Suggested tone control settings for various acoustical environments

gives the desired playback level and good resolution of the volume control.

Setting the tone controls

The frequency response of the Genelec 4010A can be adjusted to match the acoustic environment by setting the tone control switches on the rear panel. The controls are “Treble Tilt” and “Bass Tilt”. An acoustic measuring system such as WinMLS or comparable is recommended for analyzing the effects of the adjustments, however, careful listening with suitable test recordings can also lead to good results if a test system is not available. Table 1 shows some examples of typical settings in various situations. Figure 4 shows the effect of the controls on the anechoic response.

Treble Tilt
The Treble Tilt control (switch 3) attenuates the treble response of the loudspeaker at frequencies above 5 kHz by 2 dB, which can be used for smoothening down an excessively bright sounding system.

Bass Tilt
The Bass Tilt control offers three attenuation levels for the bass response of the loudspeaker below 2 kHz, usually necessary when the loudspeakers are placed near a wall or other room boundaries. The attenuation levels are -2 dB (switch 4 “ON”), -4 dB (switch 5 “ON”) and -6 dB (both switches “ON”).

Mounting considerations

Align the loudspeakers correctly
Always place the loudspeakers so that their acoustic axes (see figure 1) are aimed towards the center of the listening area. Only vertical placement is preferred, as it minimises acoustical cancellation problems around the crossover frequency.

Minimise reflections
Acoustic reflections from objects close to the loudspeakers like walls, cabinets etc. can cause unwanted colouration of the sound image. These can be minimised by placing the loudspeaker clear of reflective surfaces.

Minimum clearances

Sufficient clearance for cooling of the amplifier and functioning of the reflex port must be ensured if the loudspeaker is installed in a restricted space such as a cabinet or integrated into a wall structure. The surroundings of the loudspeaker must always be open to the listening room with a minimum clearance of 3 centimeters ($1^{3}/_{16}$”) behind, above and on both sides of the loudspeaker. The space adjacent to the amplifier must either be ven-

tilated or sufficiently large to dissipate heat so that the ambient temperature does not rise above 35 degrees Celsius (95°F)

Mounting options

The Genelec 4010A offers several mounting options: On the base of the loudspeaker is a 3/8" UNC threaded hole compatible with a standard microphone stand. On the rear, there are three pairs of threaded holes compatible with Omni-mount®, VESA, and Sanus brackets. A rigid wall bracket provided with the 4010A allows suspending the loudspeaker on a wall in two different angles. See Genelec Accessories Catalogue on www.genelec.com for a complete list of mounting hardware options.

Maintenance

There are no user serviceable parts within the loudspeaker. Any maintenance or repair of the 4010A should only be done by qualified service personnel.

Safety considerations

Although the 4010A has been designed in accordance with international safety standards, the following warnings should be observed to ensure safe operation and to maintain the loudspeaker under safe operating conditions:

- Servicing and adjustment must only be performed by qualified service personnel. The loudspeaker must not be opened.
- Do not expose the loudspeaker to water or moisture. Do not place any objects filled with liquid, such as vases on the loudspeaker or near it.
- This loudspeaker is capable of producing sound pressure levels in excess of 85 dB, which may cause permanent hearing damage.
- Free flow of air behind the loudspeaker is necessary to maintain sufficient cooling. Do not obstruct airflow around the loudspeaker.
- 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.

Guarantee

This product is guaranteed for a period of two years against faults in materials or workmanship. Refer to supplier for full sales and guarantee terms.

Compliance to FCC rules

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

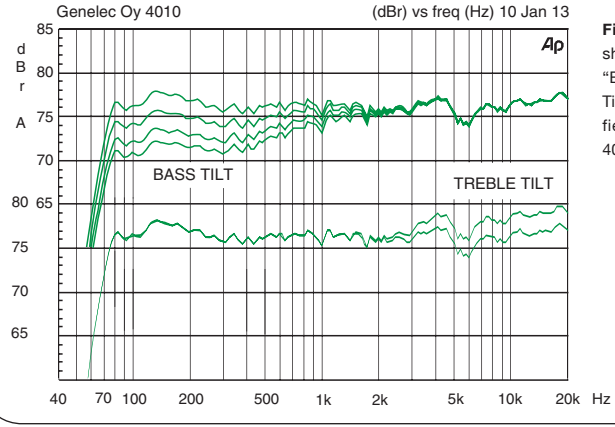


Figure 4. The curves show the effect of the "Bass Tilt" and "Treble Tilt" controls on the free field response of the 4010A

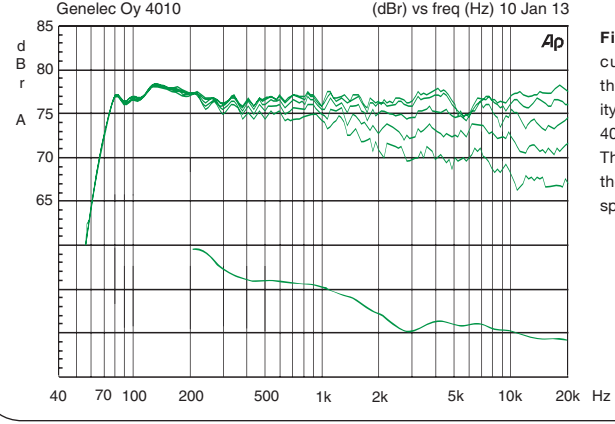


Figure 5. The upper curve group shows the horizontal directivity characteristics of the 4010A measured at 1 m. The lower curve shows the system's power response.

SYSTEM SPECIFICATIONS

Lower cut-off frequency, –6 dB:	≤ 67 Hz
Upper cut-off frequency, –6 dB:	≥ 25 kHz
Free field frequency response (± 2.5 dB):	74 Hz–20 kHz
Max. short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz	
at 1 m distance	≥ 96 dB SPL
at 0.5 distance	≥ 102 dB SPL
Maximum long term RMS acoustic output in same conditions with IEC 60268-5 simulated programme signal (limited by driver unit protection circuit) at 1 m:	≥ 91 dB SPL
Maximum peak acoustic output per pair at 1 m distance with music material:	≥ 105 dB
Self generated noise level in free field at 1 m on axis (A-weighted):	≤ 5 dB
Harmonic distortion at 80 dB SPL at 1 m on axis	
Freq: 70…400 Hz	< 3 %
>400 Hz	< 0.5 %
Drivers:	
Bass	76 mm (3 in) cone
Treble	19 mm ($^3/_4$ in) metal dome
Weight:	1.5 kg (3.3 lb)
Dimensions:	
Height	181 mm ($7^1/_8$ in)
Width	121 mm ($4^3/_4$ in)
Depth	115 mm ($4^1/_2$ in)

CROSSOVER SECTION

Input connector 7 kOhm:	pin 1 +, pin 2 - pin 3 gnd
Input level for 100 dB SPL output at 1 m:	-6 dBu (Sensitivity -10 dB off)
Level control range relative to max output:	-10 dB (Sensitivity -10 dB on)
Desktop control operating range:	0 to –4 dB @ 200 Hz
Crossover frequency, Bass/Treble:	3.0 kHz
Bass Tilt control operating range in –2 dB steps:	0 to –6 dB @ 100 Hz

The 'CAL' position is with all tone controls and Sensitivity -10 dB function set to 'off'

AMPLIFIER SECTION

Bass amplifier power with an 8 Ohm load:	25 W
Treble amplifier power with an 8 Ohm load:	25 W
Long term output power is limited by overload protection circuitry	
Amplifier system distortion at nominal output THD+N:	≤ 0.08 %
Mains voltage:	100 - 240 V AC
Voltage operating range:	±10 %
Power consumption	
Standby	<0.5 W
Idle	5 W
Full output	30 W

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