6020A

Operating Manual
Genelec 6020A
Active Home Theater System

GENELEC®

General description

The bi-amplified GENELEC 6020A is an extremely compact two way active loudspeaker designed for home theaters and multimedia applications. As an active loudspeaker, it contains drivers, power amplifiers, active crossover filters and protection circuitry. 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. If necessary, the bass response of the 6020A's can be extended with a Genelec 5050A subwoofer.

Positioning the loudspeaker

Each 6020A is supplied with an integrated amplifier unit, mains cable and an operating manual. After unpacking, place the loudspeaker in its required listening position, taking note of the line of the acoustic axis. The axes of all loudspeakers should converge at ear height at the listening position (see Figures 1 and 2).

Connections

Before connecting up, ensure that the volume control potentiometer on the front panel is turned fully counter-clockwise to the stand-by setting. Connect the loudspeaker to an earthed mains connection with the supplied mains cable. Never connect the loudspeaker to an unearthed mains supply or using an unearthed mains cable.

The 6020A has two parallel 10 kOhm audio input connectors: a balanced XLR and an unbalanced RCA. For longer cable connection lengths (>10 m or >30 ft) a balanced line connection is recommended as it offers better im-

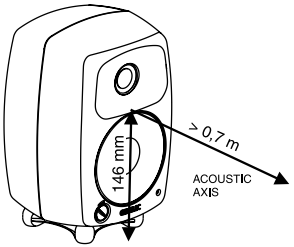

Figure 1: Location of the acoustic axis

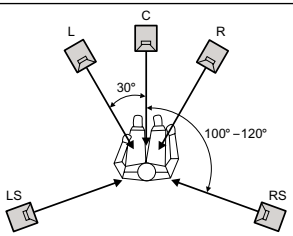

Figure 2: Correct alignment of the loudspeakers

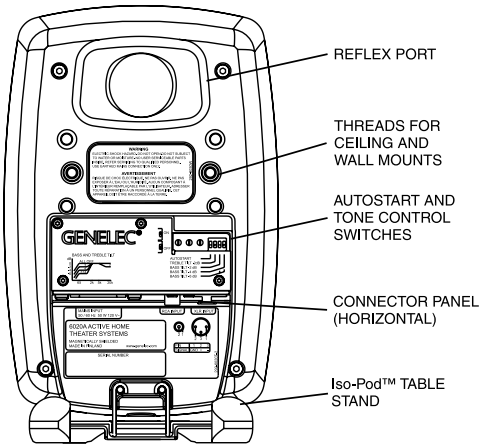

Figure 3: Control and connector layout on the rear panel of the 6020A.

munity to external interference. However, the RCA connection method is more commonly available and usually works as well for shorter connection lengths in less electrically noisy environments. Do not use both inputs at the same time. Consult your Genelec dealer for the choice of signal cables. Once the connections have been made, the loudspeakers are ready to be switched on.

Volume control, Autostart and stand-by switching

The input sensitivity of the loudspeakers can be matched to the output of the preamp/processor by adjusting the volume control on the front panel. When the volume control knob is turned fully counter-clockwise, the 6020A goes into stand-by mode. The loudspeaker can be left in stand-by mode whenever it is not used, however, it is only completely disconnected from the mains power when the mains cable is disconnected.

The 6020A is also equipped with a signal-sensing Autostart function for automatic switching between “on” and “stand-by” modes. Autostart is activated by turning switch 1 (AUTOSTART) on the back panel to “ON”. Autostart turns the amplifier to stand-by mode if there is no signal present for about 30 minutes. When the signal returns the amplifier switches on immediately and the loudspeaker functions normally.

Setting the tone controls

The frequency response of the Genelec 6020A can be adjusted to match the acoustic environment by setting the tone control switches on the rear panel. The controls are “Treble Tilt” and

Loudpeaker 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	-6 dB
In a corner or a cabinet	OFF	-6 dB

Table 1: Suggested tone control settings for differing acoustical environments

"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 above shows some examples of typical settings in various situations. Figure 4 shows the effect of the controls on the anechoic response.

Treble Tilt

Treble Tilt control (switch 2) 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

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 3 "ON"), -4 dB (switch 4 "ON") and -6 dB (both switches "ON").

The factory setting for all tone controls is "OFF" to give a flat anechoic response. Always start adjustment by setting all switches to "OFF" position. Measure or listen systematically through the different combinations of settings to find the best frequency balance.

Mounting considerations

Align the loudspeakers correctly

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

Maintain symmetry

Check that the loudspeakers are placed symmetrically and at an equal distance from the listening position. If possible, place the system so that the listening position is on the centerline of the room and the loudspeakers are placed at an equal distance from the centerline.

Minimise reflections

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

Minimum clearances

Sufficient cooling for 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 5 centimeters (2") behind, above and on both sides of the loudspeaker. The space adjacent to the amplifier must either be ventilated or sufficiently large to dissipate heat so that the ambient temperature does not rise above 35 degrees Celsius (95°F)

Mounting options

The 6020A offers several mounting options: The Iso-Pod™ (Isolation Positioner/Decoupler™) vibration insulating table stand allows tilting the loudspeaker for correct alignment of the acoustic axis. On the base of the loudspeaker is a 3/8" UNC threaded hole compatible with a standard microphone stand. On the rear there are two M6x10 mm threaded holes for Omnimount® size 20.5 brackets or the keyhole wall mount adapter provided with the loudspeaker.

Maintenance

No user serviceable parts are to be found within the amplifier unit. Any maintenance or repair of the 6020A unit should only be undertaken by qualified service personnel.

Safety considerations

Although the 6020A has been designed in accordance with international safety standards, the following warnings and cautions 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 use this product with an unearthed mains cable or an unearthed mains connection as this may compromise electrical safety.
- 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 one year against faults in materials or workmanship. Refer to supplier for full sales and guarantee terms.

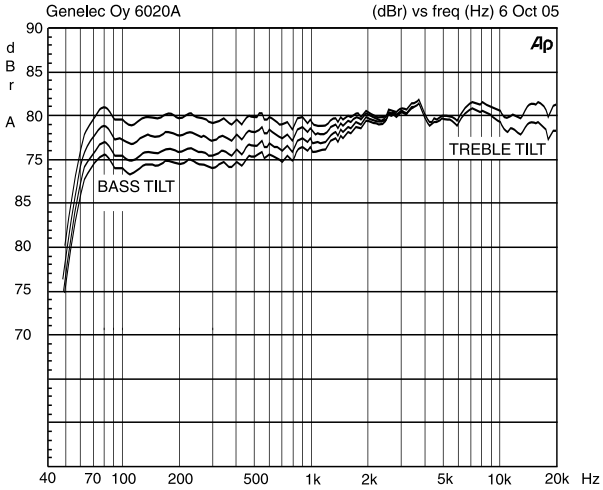

Figure 4. The curves above show the effect of the “Bass Tilt” and “Treble Tilt” controls on the free field response of the 6020A.

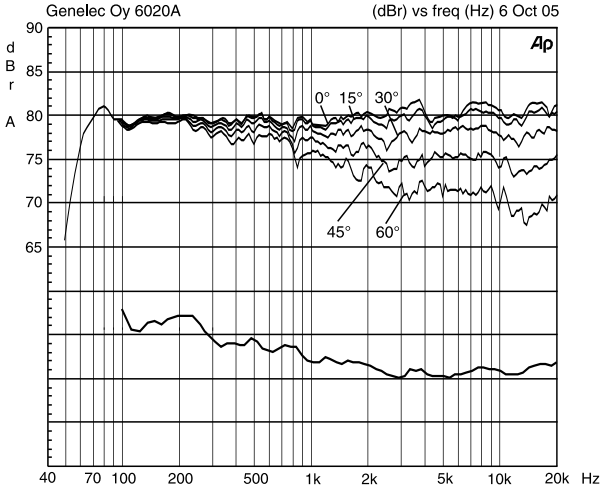

Figure 5. The upper curve group shows the horizontal directivity characteristics of the 6020A measured at 1 m. The lower curve shows the system's power response.

SYSTEM SPECIFICATIONS

Lower cut-off frequency, –3 dB: ≤ 65 Hz

Upper cut-off frequency, –3 dB: ≥ 21 kHz

Free field frequency response of system:
66 Hz – 20 kHz (± 2.5 dB)

Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz:
@ 1 m ≥ 96 dB SPL
@ 0.5 m ≥ 102 dB SPL

Maximum long term RMS acoustic output in same conditions with IEC weighted noise (limited by driver unit protection circuit): @ 1 m ≥ 95 dB SPL

Maximum peak acoustic output per pair on top of console, @ 1 m from the engineer with music material:
≥ 105 dB

Self generated noise level in free field @ 1m on axis:
≤ 10 dB (A-weighted)

Harmonic distortion at 85 dB SPL @ 1m on axis:

Freq:	50…100 Hz	< 3 %
	> 100 Hz	< 0.5 %

Drivers:	Bass	105 mm (4") cone
	Treble	19 mm ($^3/_4$") metal dome
		Both drivers are magnetically shielded

Weight: 3.7 kg (8.1 lb)

Dimensions:	Height	242 mm ($9^1/_2$")
	(including Iso-Pod™ table stand)	
	Height	230 mm ($9^1/_{16}$")
	(without Iso-Pod™ table stand)	
	Width	151 mm (6")
	Depth	142 mm ($5^5/_8$")

EC Declaration of Conformity

This is to certify that the Genelec Home Theater System 6020A conforms to the following standards:

Safety:
EN 60065: 2002 / IEC 60065:2001 7th Edition
EMC:
EN 55020 : 2002 + A1 : 2003
EN 55013: (2001)
EN 61000-3-2 (2000)
EN 61000-3-3 (1995)

The product herewith complies with the requirements of The Low Voltage Directive73/23/EEC, EMC Directive 89/336/EEC and 93/68/EEC

Signed: 
Ilpo Martikainen
Position: Managing Director
Date: 4-October-2005

CROSSOVER SECTION

Connectors:
XLR female, balanced 10 kOhm,
pin 1 gnd, pin 2 +, pin 3 -

RCA female, unbalanced 10 kOhm,
pin +, sleeve -

Input level for 100 dB SPL output at 1 m:
-6 dBu at volume control max

Volume control range:
-80 dB relative to max output

Output signal level is 0 dB relative to input signal level but adjustable by volume control

Crossover frequency, Bass/Treble: 3.0 kHz

Treble Tilt control operating range:
0 to –2 dB @ 15 kHz

Bass Tilt control operating range in –2 dB steps:
0 to –6 dB @ 100 Hz

The 'CAL' position is with all tone controls set to 'off' and the input sensitivity control to maximum (fully clockwise).

AMPLIFIER SECTION

Bass amplifier output power with an 8 Ohm load: 20 W

Treble amplifier output power with an 8 Ohm load: 20 W

Long term output power is limited by driver unit protection circuitry.

Amplifier system distortion at nominal output:

THD	≤ 0.08 %
SMPTE-IM	≤ 0.08 %
CCIF-IM	≤ 0.08 %
DIM 100	≤ 0.08 %

Signal to Noise ratio, referred to full output:

Bass	≥ 95 dB
Treble	≥ 95 dB

Mains voltage:
100, 120, 220 or 230 V
according to region

Voltage operating range: ±10 %

Power consumption:	Idle	5 VA
	Full output	50 VA

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