

GENELEC®

Genelec HT205
Active Home Theater Systems

Operating
Manual



1. General description

System

The bi-amplified GENELEC HT205 is a two way active speaker designed for high quality Home Theater systems.

Designed as an active speaker, this unit contains drivers, power amplifiers, active crossover filters and protection circuitry. The Directivity Control Waveguide (DCW) technology used provides excellent frequency balance even in difficult acoustic environments.

Integrated Construction

As the amplifiers are built into the speaker enclosure, the only connections required are the mains supply and the line level input signal, making the HT205 very easy to set up and use. The integrated design allows the amplifiers and the drivers to be calibrated as a single unit in the factory. This eliminates the effects of component tolerances and ensures consistent quality. The cast aluminium cabinet has rounded corners and a hard-wearing painted outer surface.

Drivers

The bass frequencies are reproduced by a 130 mm (5") bass driver mounted in a 4.5 litre vented cabinet. The -3 dB point lies at 68 Hz and the frequency response extends down to 65 Hz (-6 dB).

The high frequency driver is a 19 mm ($\frac{3}{4}$ ") metal dome. Uniform dispersion control is achieved with the revolutionary DCW Technology pioneered by Genelec, which has also resulted in perfect phase and delay uniformity at the crossover frequency.

Both drivers are magnetically shielded.

Crossover

The amplifier unit contains an active crossover. This is the ideal method for dividing the input signal between the driver units, allowing the overall response of the system to be optimized to an extent impossible with a passive system. The active crossover controls ('treble tilt', 'bass tilt' and 'bass roll-off') allow the HT205 to be exactly matched to any application.

Amplifiers

The amplifier unit is built into the speaker

Speaker Mounting Position	Treble Tilt (Switch 1)	Bass Tilt (Switches 3 & 4)	Bass Roll-off (Switch 2)
Flat anechoic response	Off	Off	Off
Free standing in a damped room	Off	Off	Off
Free standing in a reverberant room	Off	-2 dB (Sw. 3 ON, Sw. 4 OFF)	Off
In a corner or in a cabinet	Off	-6 dB (Sw. 3 and 4 ON)	Off

Figure 1. Suggested tone control settings for differing acoustic environments

enclosure. The bass and treble amplifiers both produce 40 W of output power. The fast, low distortion amplifiers are capable of driving a stereo pair to peak output sound pressure levels in excess of 110 dB at 1 m. The unit incorporates special circuitry for driver overload protection. Variable input sensitivity allows for accurate level matching to the decoder or preamplifier.

2. Installation

Place the loudspeakers in their required positions, taking note of the line of the listening axis (see figure 2). Point the speakers to the center of the listening area. See chapter "Speaker placement" for further details.

Before connecting, ensure that the mains switch is off and the volume control (see figure 2) fully counter-clockwise. Check that the mains voltage selector is correctly set. Audio input is made via a 10 kOhm balanced

(XLR) or unbalanced (RCA) connector (see fig. 4). If the signal source has suitable balanced outputs, we recommend the use of the XLR connector and balanced interconnect cables due to their better resistance to interference. Once the connection has been made, the speakers are ready to be switched on.

Setting the volume control

The input sensitivity of the speakers can be matched to the output of the signal source by adjusting the volume control on the front panel (see figure 2).

Setting the tone controls

The response of the system usually has to be adjusted to match the acoustic environment. The adjustment is done by setting the tone control switches on the rear panel. The tone control has four switches, 'treble tilt' (sw. 1), 'bass roll-off.' (sw. 2) and 'bass tilt' (sw. 3 & 4).

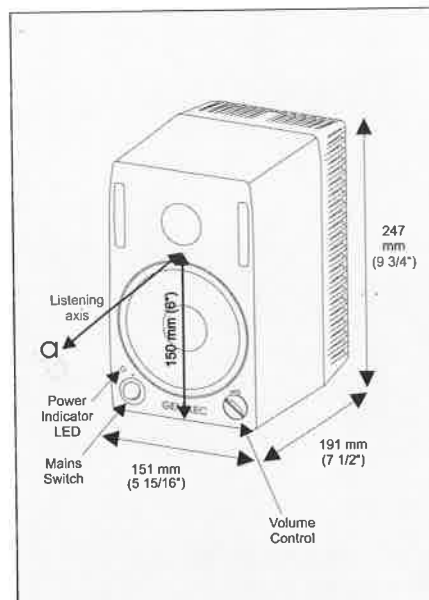


Figure 2: HT205 outer dimensions, with the reference axis between the bass and the treble drivers.

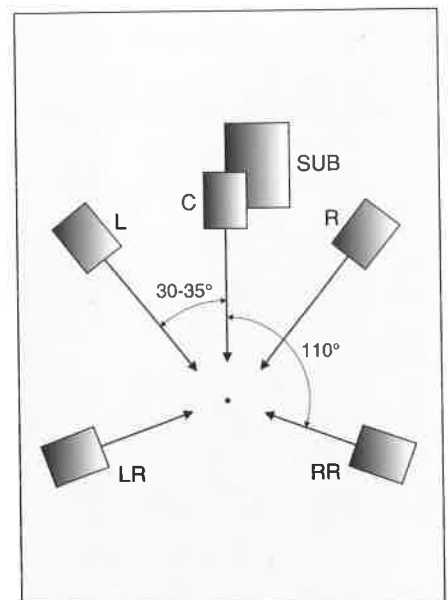


Figure 3: Suggested speaker placement and alignment in a 5.1-channel Surround system.

"Treble tilt" attenuates the high frequency response above 15 kHz by two decibels. The "bass tilt" switches provide three alternative attenuation levels (-2, -4 or -6 dB) for low frequency response below 150 Hz. "Bass roll-off" switch changes the bass roll-off frequency from 65 Hz to 85 Hz (-6 dB).

The factory setting is 'ALL OFF' to give a flat anechoic response. See Figure 1 for suggested tone control settings in differing acoustic environments. Figure 5 shows the effect of the controls on the anechoic response. Always start adjustment by setting all switches to 'OFF' position. Then set the switch if needed to the 'ON' position to select the response curve needed.

Speaker placement.

It is vital that the loudspeakers are correctly positioned in the room as this greatly affects their performance. To produce a true and accurate soundstage the speakers must have exactly similar frequency responses, which is true in free field conditions.

In a room the frequency responses will change because the sound reflects from the room's boundaries. We recommend that the speakers are positioned at the same height and also at the same distance from the front and side walls. Then the reflections, and therefore the changes to the frequency response, are as similar as possible.

The DCW increases the directivity of the loudspeaker; more sound is directed on-axis and less to the sides. Aim the loudspeakers towards the center of the listening area to reduce the effect of the room on the sound. This is because more direct sound is heard and reflections from walls which degrade the sound are minimised.

Mounting Options

Figure 4 shows the three possibilities for mounting the HT205. On the base of the speaker cabinet is a $\frac{3}{8}$ " UNC threaded hole which can accommodate a standard microphone stand.

There is a provision for Omnimount®

size 50 bracket, which can be attached to two threaded holes at the back of the loudspeaker with two M6x10 mm screws. There are also three keyhole slots for hanging the speaker on the wall horizontally or vertically on a 4 mm screw with a suitable wide head.

Enclosed is a bag containing four large, and four small friction pads. It is suggested that the larger pads are used on the base of the HT205, and if mounted horizontally, the smaller pads should be used on the side. There are recesses where the pads should be stuck.

3. Maintenance

No user serviceable parts are to be found within the amplifier unit. Any maintenance or repair of the HT205 unit should only be undertaken by qualified service personnel.

4. Safety Considerations

Servicing and adjustment should only be performed by qualified service personnel. The amplifier's rear panel must not be opened, except by qualified service personnel.

The speaker should not be placed in an enclosed position as there will be insufficient airflow to cool the amplifier.

Do not use this product with an unearthed mains cable as this may compromise electrical safety.

To prevent fire or electric shock, do not expose the unit to water or moisture.

WARNING!

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

5. 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.

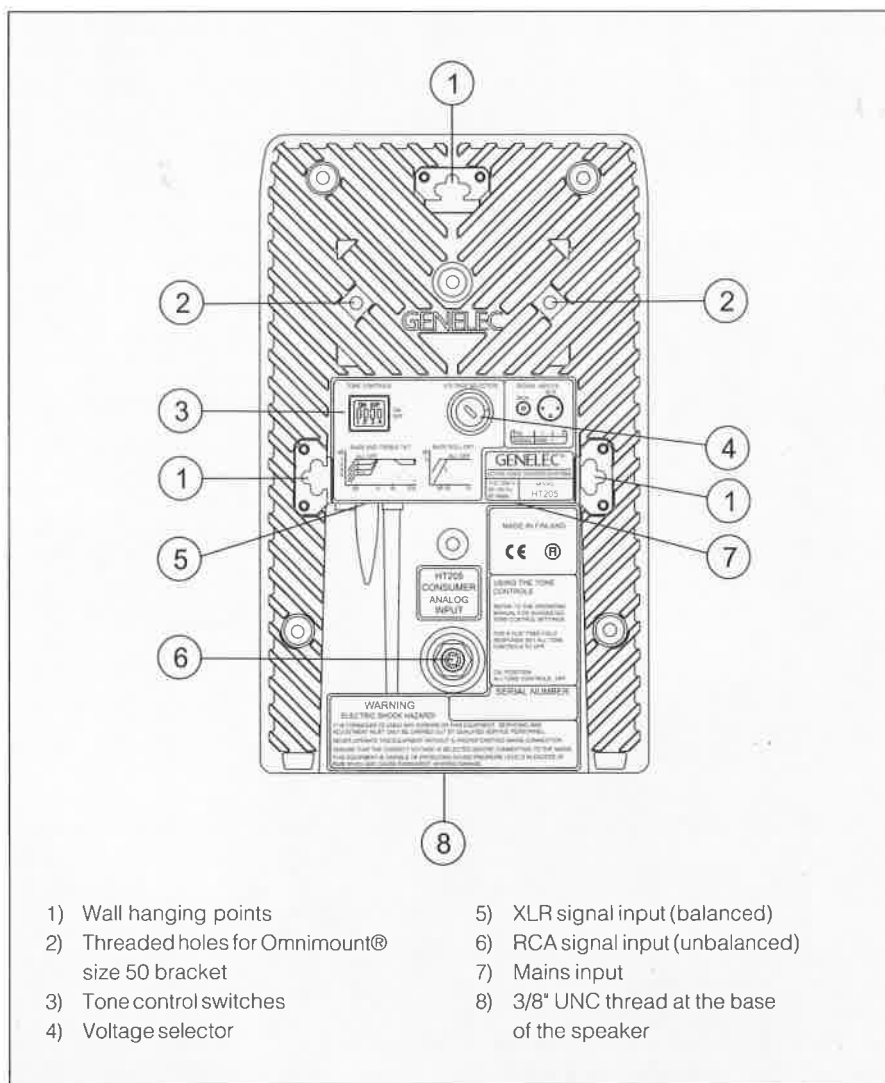


Figure 4: HT205 rear panel

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ACTIVE MONITORING

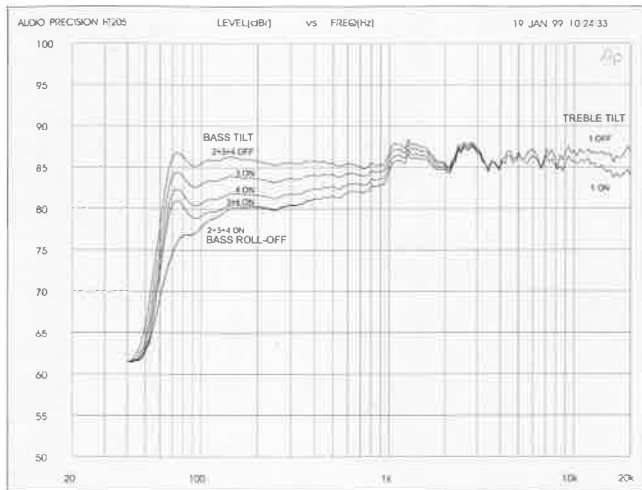


Figure 5: The curve above shows the effect of the 'treble tilt', 'bass tilt' and 'bass roll-off' controls on the free field response.

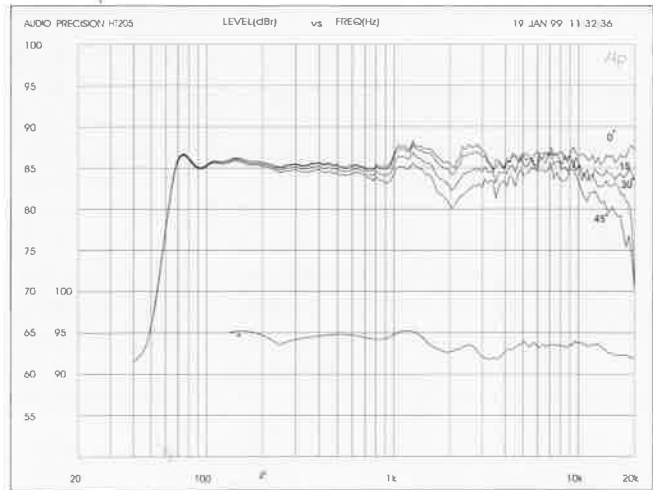


Figure 6: The curve group shows the horizontal directivity characteristics of HT205 in its vertical configuration measured at 1m. The lower curve shows the systems power response.

HT205 SYSTEM SPECIFICATIONS

Lower cutoff frequency, -3 dB:	≤ 68 Hz
Upper cutoff frequency, -3 dB:	≥ 20 kHz
Free field frequency response of system:	70 Hz - 18 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 ≥ 100 dB SPL @ 0.5 m ≥ 106 dB SPL
Maximum long term RMS acoustic output in same conditions with IEC weighted noise (limited by driver unit protection circuit):	@ 1 m ≥ 98 dB SPL @ 0.5 m ≥ 104 dB SPL
Maximum peak acoustic output per pair on top of console, @ 1 m from the engineer with music material:	≥ 110 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: 75...150 Hz < 3% > 150 Hz < 1%
Drivers:	Bass 130 mm (5") cone Treble 19 mm (3/4") metal dome Both drivers are magnetically shielded
Weight:	5.7 kg (12.5 lb)
Dimensions:	Height 247 mm (9 3/4") Width 151 mm (5 15/16") Depth 191 mm (7 1/2")

AMPLIFIER SECTION

Bass amplifier output power with an 8 Ohm load:	40 W
Treble amplifier output power with an 8 Ohm load:	40 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 ≥ 90 dB Treble ≥ 90 dB
Mains voltage:	100/200 or 115/230 V
Voltage operating range:	± 10%
Power consumption:	Idle 9 VA Full output 80 VA

CROSSOVER SECTION

Inputs:	Input 1: XLR female, balanced 10 kOhm Input 2: RCA female, unbalanced 10 kOhm
Volume control:	Variable from Mute to -6 dBu for 100 dB SPL output @ 1 m
Subsonic filter below 68 Hz :	18 dB/octave
Ultrasonic filter above 25 kHz:	12 dB/octave
Crossover frequency, Bass/Treble:	3.3 kHz
Crossover acoustical slopes:	24 - 32 dB/octave
Treble tilt control operating range:	0 to -2 dB @ 15 kHz
Bass roll-off control operating in a -6 dB step @ 85 Hz	
Bass tilt control operating range in -2 dB steps:	0 to -6 dB @ 150 Hz
The 'CAL' position is with all tone controls set to 'off' and the input sensitivity control to maximum (fully clockwise).	

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Note! All frequency response curves were measured in a calibrated, 12 m cube, anechoic chamber at 1 m using grade 1 measuring equipment. Input signal levels were set at -20 dBu. The anechoic chamber error in the free field response is less than 0.5 dB down to 60 Hz.

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