

# GENELEC®

Genelec HTS2  
Home Theater Subwoofer

Operating  
Manual



## General Description

The Genelec HTS2 active subwoofer is a powerful low frequency loudspeaker designed specially for high quality digital 5.1 channel Home Theater systems.

## Drivers

The HTS2 utilizes two front loaded 210 mm (8") cone drivers, housed in a 55 litre vented cabinet. A cavity over the drivers boosts the efficiency and acoustically attenuates possible distortion components.

## Crossovers

A subwoofer input connector allows for complete compatibility with digital 5.1 channel surround sound systems.

The crossover filter also provides calibrated 'Bass Roll-off' and 'Phase' controls, minimizing the effects of the room on the performance of the subwoofer.

## Amplifiers

The 180 W amplifier unit is mounted in the rear of the cabinet on quick release vibration isolators to ensure rattle free operation and long term reliability. The amplifier incorporates special protection circuitry for driver overload protection and convenient "autostart" and "softclip" functions.

## Softclip

When there are extremely high signal levels, the amplifiers will clip and produce audible distortion. This distortion can be minimized using the 'softclip' function. This reduces the level of the peaks in the signal before clipping can occur and hence no unpleasant audible distortion is heard. The 'softclip' function can be enabled or disabled as required.

## Autostart

The 'autostart' function turns off the amplifier if there is no signal present for about 5 minutes. When the signal returns the amplifier switches on immediately and the speaker functions normally. This function should be enabled when the speaker is left turned on even when not in use; power is saved when the amplifier is switched off. The 'autostart' function can be enabled or disabled as required.

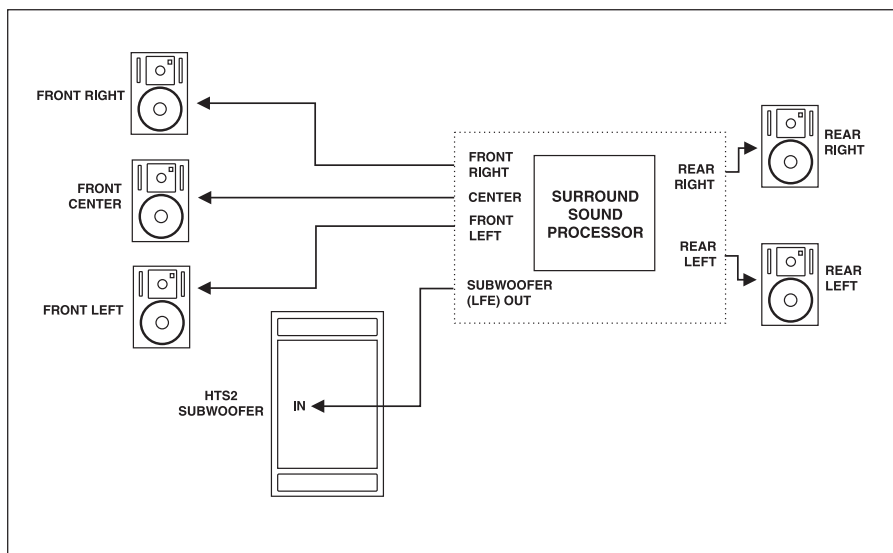


Figure 1. Connecting the HTS2 subwoofer.

## Installation

Once unpacked, place the subwoofer in a suitable position (for more details see the 'Positioning' section). Before connecting the audio signals, ensure that both the subwoofer and the main speakers are switched off. Check that the subwoofer voltage selector switch is set to the correct voltage and that the correct fuse for that voltage is fitted.

Connect the subwoofer to the decoder's line level Subwoofer Out (LFE channel) connector (See Fig. 1 above). Audio input is made via a 10 kOhm balanced (XLR) or unbalanced (RCA) connector. If the signal source has suitable balanced outputs, we recommend using the XLR connector and balanced interconnect cables due to their better resistance to interference.

## Input Sensitivity Setting

The input sensitivity control is located on the rear panel of the subwoofer. An input voltage of -6dBu with a -6dBu input sensitivity setting will produce 100dB SPL @ 1m. To obtain a 110dB SPL output an input voltage of +10dBu is required when the input sensitivity is set to 0dBu.

## Setting the Bass Roll-Off Switches

The acoustic response of the subwoofer may have to be matched to the characteristics of the room in which it will be used. To adjust the subwoofer to match these characteristics use the

"Bass Roll-off" control switches located on the rear panel of the subwoofer. Fig. 2 overleaf provides some suggestions for the 'Bass Roll-off' switch settings. When both roll-off switches are 'off', a flat anechoic response results.

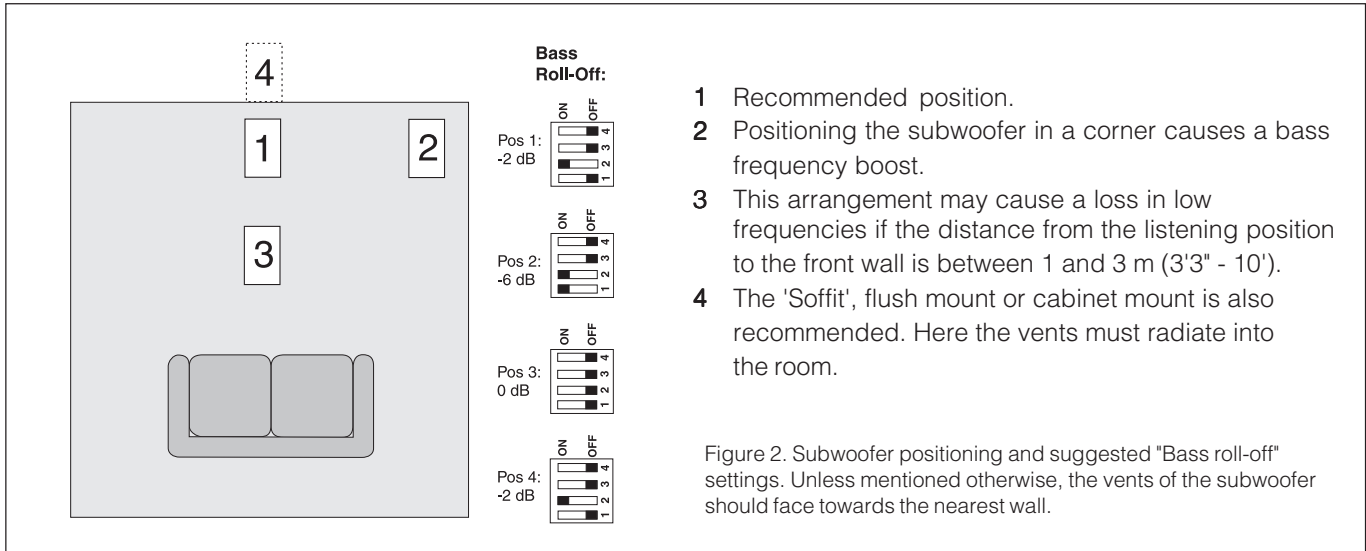
## Positioning in the Room

The placement of the subwoofer in the room will affect the overall frequency response of the system as the effects of the room are more apparent with low frequencies.

The subwoofer should be placed no further than 1 m (3' 3") from the nearest wall. The vents of the subwoofer (amplifier side) should face the wall. Leave at least 10 cm (4") of free space between the amplifier panel and any solid object to ensure sufficient cooling. The placement will affect the phase difference between the main speakers and the subwoofer, and also the bass roll-off rate. These effects can be compensated by the use of the controls in the amplifier unit but consideration should be made when placing the subwoofer.

Choose a central and symmetrical position for the subwoofer as this will give an even phase match between all main channels. Positioning the subwoofer close to a corner should be avoided as it will boost the bass level at lower frequencies and may cause asymmetrical spatial imaging.

See Fig. 2 'Subwoofer Positioning' overleaf for examples of recommended positions within a room.



## Setting the Phase Control

The effect of incorrect phase alignment between main speakers and subwoofer is a drop in the frequency response of the whole system at the crossover frequency. The graphs below (figure 3)

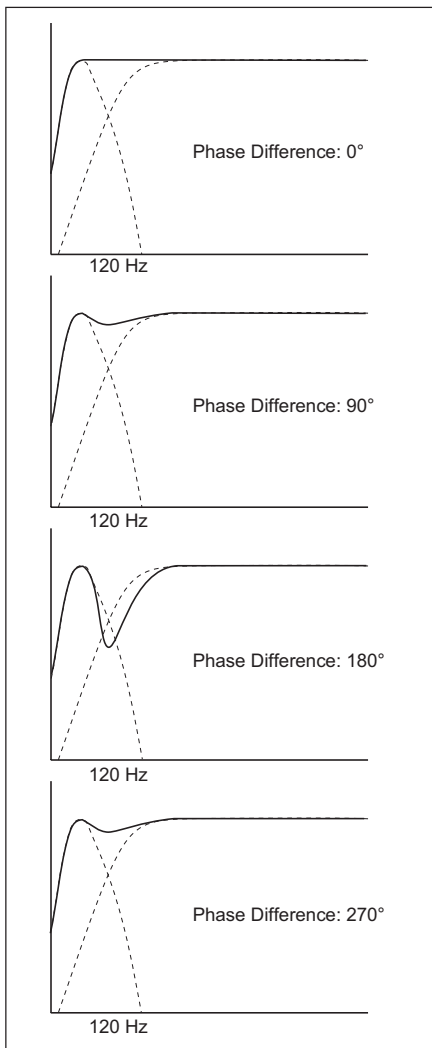


Figure 3. The effect of phase difference between the subwoofer and the main loudspeakers

show the effect of phase difference on the frequency response.

The phase difference between the main speakers and subwoofer at the listening position is dependent upon the positioning of the subwoofer. To avoid phase differences between the left and right channels and the subwoofer, the subwoofer should be placed at the center of the front speaker array.

## Coarse Phase Correction Method

- Configure the processor so that the main speakers (L, C, R) are set to "small" or HPF @ 120 Hz.

- Connect an audio frequency signal generator to one of the input channels used in the system.

- Set the frequency generator to 120Hz. If a signal generator is not available then it is possible to use an audio test recording with a test frequency in the range 105 Hz to 135Hz.

- Toggle the -180° phase switch 'on' and 'off' and set it to the position which gives the lowest sound level at the listening position.



- Next toggle the -90° phase switch 'on' and 'off', and again set it to the position which gives the lowest sound level.



- Finally, set the -180° phase switch to the opposite setting.



configuration on the processor to its original settings.

## Safety Considerations

- Servicing and adjustment should only be performed by qualified service personnel.
- Opening the amplifier's rear panel is strictly prohibited.
- It is forbidden to use this product with an unearthed mains cable, which may lead to personal injury.
- Do not expose the unit to water or moisture.

## Warning!

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

## Maintenance

No user serviceable parts are to be found within the amplifier unit. Any maintenance of the unit should only be undertaken by qualified service personnel. Ensure that if fuse replacement is required, only fuses of the appropriate voltage and current ratings are used. REMEMBER to disconnect the power supply by removing the mains cable before fuse replacement.

## 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.

After the phase setting has been completed, return the speaker

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A C T I V E M O N I T O R I N G

## HTS2 SYSTEM SPECIFICATIONS

Free field frequency response of system ( $\pm 2.5$ dB):	32 - 120 Hz
Maximum short term sine wave acoustic output in half space, averaged from 35 Hz to 120 Hz @ 1 m:	$\geq 115$ dB SPL
Self generated noise level in free field @ 1m on axis (A-weighted)	$\leq 10$ dB
Harmonic distortion at 100 dB SPL @ 1m on axis in half space (30...100 Hz):	$< 4\%$
Drivers:	2 x 210 mm (2 x 8") magnetically shielded cone drivers
Weight:	30 kg (66 lb)
Dimensions:	Height 615 mm (24 <sup>3</sup> / <sub>16</sub> ")
	Width 320 mm (12 <sup>5</sup> / <sub>8</sub> ")
	Depth 510 mm (20 <sup>1</sup> / <sub>16</sub> ")

## CROSSOVER SECTION

Crossover acoustical slope	
Lowpass:	28 dB/octave
Highpass:	12 dB/octave
Midband rejection, freq. $\geq 400$ Hz:	$\geq 50$ dB
Bass roll-off control operating range in 2 dB steps:	from 0 to -6 dB @ 33 Hz
Phase matching control in 90° steps:	from 0° to -270° @ 120 Hz

## AMPLIFIER SECTION

Short term amplifier output power:	180 W (4 Ohm)
(Long term output power is limited by driver unit protection circuitry.)	
Amplifier system distortion at nominal output:	
THD	$\leq 0.08\%$
SMPTE-IM	$\leq 0.08\%$
CCIF-IM	$\leq 0.08\%$
DIM 100	$\leq 0.08\%$
Signal to Noise ratio, referred to full output:	$\geq 100$ dB
Mains voltage:	100/200 or 115/230V
Voltage operating range:	$\pm 10\%$
Power consumption (average):	
Idle	50 VA
Full output	300 VA

## INPUT SECTION

Input connectors:	XLR balanced RCA unbalanced
Input impedance:	10 kOhm
Input level for 100 dB SPL output @ 1 m:	variable from +6 to -6 dBu

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Genelec Oy, Olvitie 5  
FIN - 74100 IISALMI, FINLAND  
Phone: + 358 17 813311  
Fax: + 358 17 812267  
Email: genelec@genelec.com  
Web: www.genelec.com

Genelec Inc., 7 Tech Circle  
NATICK, MA 01760, U.S.A.  
Phone: +1 508 652 0900  
Fax: +1 508 652 0909  
Email: genelec@compuserve.com



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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