

GENELEC®

Genelec S30C
Monitoring Speakers

Operating
Manual



1. General description

System

The Genelec S30C is a three-way active monitoring system including drivers, amplifiers and active cross-overs. Designed for relatively small control rooms this system is ideal for general purpose broadcasting and television studios, digital workstations, post production facilities and mobile recording vehicles. The high output and absolute reproduction accuracy make the S30C an ultimate nearfield monitor for recording studios.

Featuring a proprietary ribbon tweeter S30C is a no compromise design. The fast low distortion amplifiers are capable of driving the stereo system to peak output levels in excess of 122 dB SPL at 1 m with program signals. Versatile crossover controls allow for precise matching of the speaker system to different acoustic conditions. Separate models exist for vertical and horizontal use.

Drivers

The bass frequencies are reproduced by an 210 mm (8") bass driver loaded with a 24 litres vented box. The bass driver has a very large magnet and long excursion capability. The -3dB point is 42 Hz and the low frequency response extends down to 35 Hz.

The midrange frequencies are reproduced with a very carefully designed 80 mm (3 1/2") cone driver specially impregnated to minimize coloration.

The high frequency driver is a proprietary ribbon tweeter with a moving mass of only 32 mg and frequency response extending into the ultrasonic range.

Crossover filters

The active crossover network consists of three parallel bandpass filters. The crossover frequencies are 420 Hz and 4 kHz. Bass, midrange and treble level controls, with 1 dB steps, are included in the crossover to change the balance between the drivers under different acoustic conditions. The low frequency tilt and roll-off controls both have four 2 dB steps to allow refined low frequency equalization. The crossover network is driven by an active balanced input stage. Variable input sensitivity al-

Speaker Mounting Position	Bass roll-off	Bass tilt	Bass level	Midrange level	Treble level
Free anechoic response	None	None	None	None	None
Free standing in a damped room	None	-2 dB	None	None	None
Free standing in a reverberant room	None	-4 dB	None	None	None
Near field or on console bridge	None	None	-4 dB	None	None
In a corner	-2 dB	-2 dB	-2 dB	None	None

Figure 1. Suggested tone control settings for different acoustic environments

lows for accurate level matching to the mixing console.

Amplifiers

The bass, midrange and treble amplifiers each produce 120 W of short term power with very low THD and IM distortion values. The system incorporates special circuitry for driver overload protection and amplifier thermal protection.

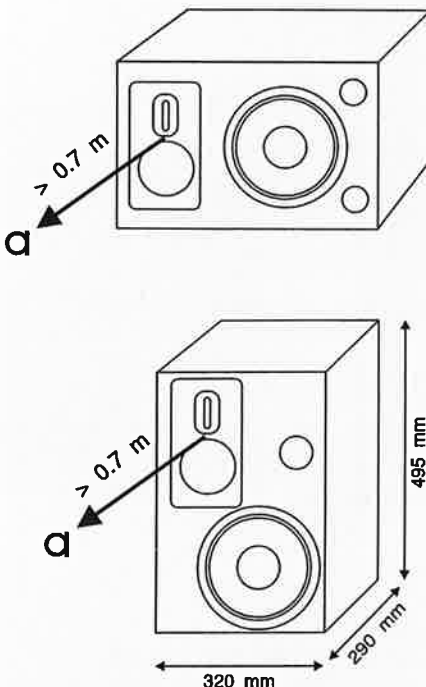


Figure 2. Speaker acoustic axis and dimensions in horizontal and vertical mounting positions.

2. Installation

Each S30C monitor is supplied with an integrated amplifier unit, a mains cable and an operating manual. Once unpacked, place the loudspeaker in its required listening position, taking note of the line of the listening axis (see figure 2). Before connecting up, ensure that the mains switch is off (see figure 4). Check that the mains voltage selector is correctly set and that the appropriate fuse is fitted. Audio input is made via a 10k Ohm balanced (XLR), but unbalanced leads may be used as long as pin 3 is grounded to pin 1 of the XLR (see figure 3). Once connection has been made, the speakers are ready to be powered-up.

Setting the input sensitivity

Adjustment of the input sensitivity of each speaker can be made to match that of the mixing desk or other source, by use of the input sensitivity control on the rear panel (see figure 4). A small screw driver is needed for the adjustment. The manufacturer default setting for this control is -6 dBu (fully CW) which gives an SPL of 100 dB @ 1m with -6 dBu input level. Note that to get the full output level of 111 dB SPL, an input level of +5 dBu is needed at this setting.

Setting tone controls

The acoustic response of the system may also have to be adjusted to match the acoustic environment. The adjustment is done by setting the five tone control switches 'bass tilt', 'bass roll-off', 'bass level', 'mid level' and 'treble level' on the rear panel of the amplifier. The manufacturers default settings for these controls are

'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 the 'OFF' position. Then set only one switch to the 'ON' position to select the response curve required. If more than one switch is set to 'ON' (within one switch group) the attenuation value is no longer accurate.

Vertical / horizontal mounting

The speakers are delivered either for vertical or horizontal mounting. In the horizontal mounting position the bass drivers should point inwards to obtain a proper stereo image.

Console top mounting

If the S30C's are used for console top monitoring it is recommended not to mount the speakers directly on the console. Instead position the speakers slightly behind the console by using floor stand to the console rear side. This prevents the reflections from the console surface from colouring the sound.

Overload indicators

The speaker is provided with two warning LED's marked 'OVL' and 'ON'. The green ON-LED when lit indicates that the speaker is ready for use. The red OVL-LED indicates that the amplifier is overloaded or the driver protection circuit is activated. In both cases reduce the signal level so that the LED stops blinking. If the OVL-LED stays on constantly it indicates that the amplifier thermal protection is activated. Let the amplifier cool down and check that the ventilation at the rear side of the speaker is not blocked. There should be a clearance of more than 100 mm between the speaker rear and any solid surface at the back.

3. Maintenance

No user serviceable parts are to be found within the amplifier unit. Any maintenance or repair of the S30C 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 removal of the mains cable,

before fuse replacement.

4. Safety Considerations

Although the S30C has been designed in accordance with international safety standards, to ensure safe operation and to maintain the instrument under safe operating conditions, the following warnings and cautions should be observed.

Servicing and adjustment should only be performed by qualified service personnel. Opening the amplifier's rear panel is strictly prohibited except by qualified service personnel who are aware of the hazards involved. It is forbidden to use this product with an unearthed mains cable, which may lead to personal injury.

WARNING! This equipment is capable of delivering Sound Pressure Levels in excess of 85 dB, which may cause permanent hearing damage.

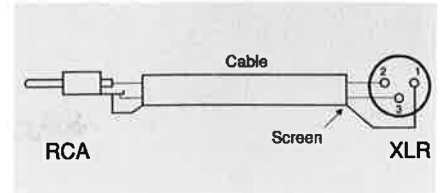


Figure 3 . XLR connection if unbalanced input is required.

5. Accessories

- Opt 01 -Flightcase
- Opt 03 -Magnetic shielding
- Opt 04 -Wall mount
- Opt 05 -Floor stand
- Opt 06 -Handles
- Opt 09 -Grille

6. Guarantee

This product is supplied with a ONE YEAR guarantee against manufacturing faults or defects that might alter the performance of the S30C unit. Refer to supplier for full sales and guarantee terms.

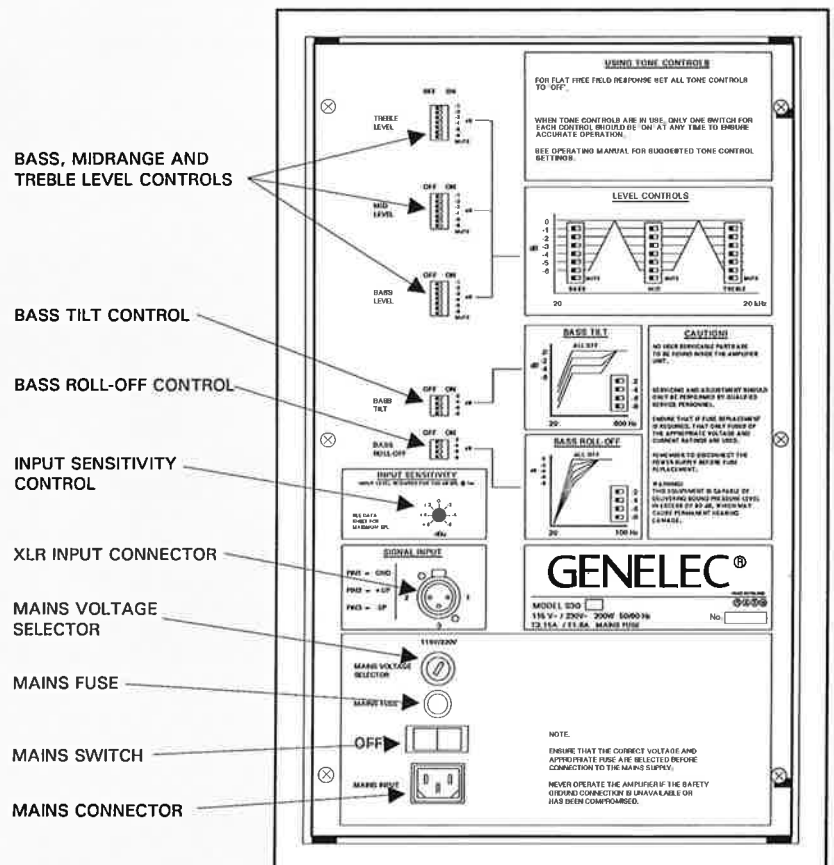


Figure 4. Rear panel layout.

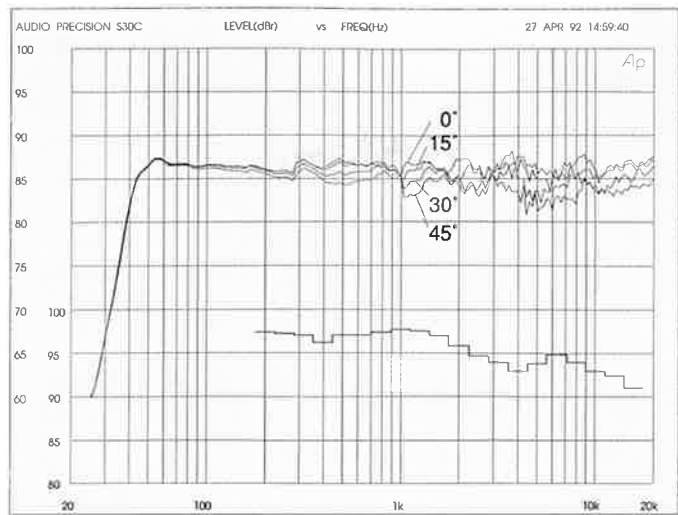
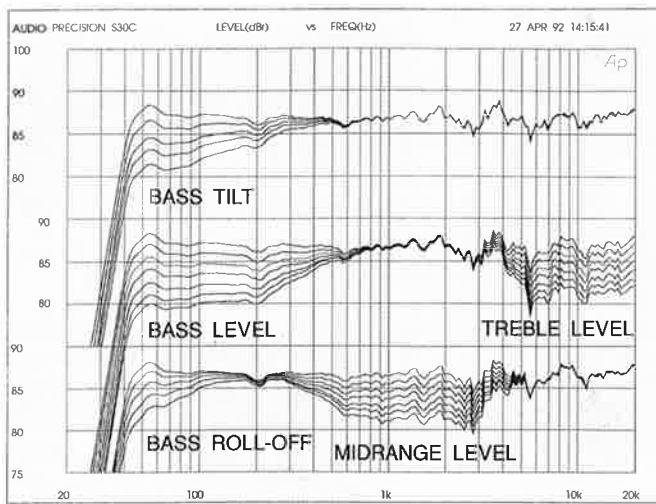


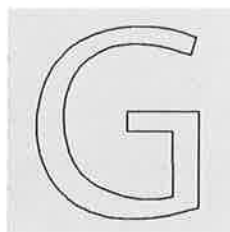
Figure 5. The curves above left show the effect of the 'bass tilt', 'bass level' and 'bass roll-off' controls on the free field response. The curves to the right show the effect of the treble and midrange 'level' controls.

Figure 6. The upper curve group shows the horizontal directivity characteristics of S30C in its vertical configuration measured at 1 m. The lower curve is a 1/3 octave band power response, measured in an IEC approved reverberation chamber.

SYSTEM SPECIFICATIONS	AMPLIFIER SECTION	CROSSOVER SECTION
Lower cut-off frequency, -3 dB: ≤ 42 Hz	Bass amplifier output power with a 8 Ohm load: Short term 120W	Input connector: XLR female pin1 gnd pin2 + pin3 -
Upper cut-off frequency, -3 dB: ≥ 25 kHz	Midrange amplifier output power with a 8 Ohm load: Short term 120W	Input impedance: 10 kOhm
Free field frequency response of system: 43 Hz - 25 kHz (± 2.5 dB)	Treble amplifier output power with a 8 Ohm load: Short term 120W	Input level for 100 dB SPL output @1m: variable from +6 to -6 dBu
Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz: @1m ≥ 111 dB SPL @0.5m ≥ 117 dB SPL	Long term output power is limited by driver unit protection circuitry.	Input level for maximum short term output of 111 dB SPL @1m: variable from +17 to +5 dBu
Maximum long term RMS acoustic output in same conditions with IEC-weighted noise (limited by driver unit protection circuit): @1m ≥ 102 dB SPL @0.5m ≥ 108 dB SPL	Slew rate: 80V/ μ s	Subsonic filter below 38 Hz : 18 dB/octave
Maximum peak acoustic output per pair on top of console, @ 1m from the engineer with music material: ≥ 122 dB	Amplifier system distortion at nominal output: THD $\leq 0.05\%$ SMPTE-IM $\leq 0.05\%$ CCIF-IM $\leq 0.05\%$ DIM 100 $\leq 0.05\%$	Ultrasonic filter above 25 kHz: 12 dB/octave
Self generated noise level in free field @ 1m on axis: ≤ 10 dB (A weighted)	Signal to Noise ratio, referred to full output: Bass ≥ 100 dB Midrange ≥ 100 dB Treble ≥ 100 dB	Crossover frequency: Bass/Mid 420 Hz Mid/Treble 4 kHz
Harmonic distortion at 90 dB SPL at 1m on axis: freq. ≤ 200 Hz $< 2\%$ freq. > 200 Hz $< 1\%$	Mains voltage: 100/200V or 115/230V	Crossover acoustical slopes: 18 - 24 dB/octave
Drivers: Bass 210mm (8") cone Midrange 80 mm (3 1/2") cone Treble 9x65 mm (3/8"x2 1/2") ribbon	Voltage operating range at 230V setting: 207 - 253V ($\pm 10\%$)	Crossover level control operating range in 1 dB steps: Bass from 0 to -6 dB Mid from 0 to -6 dB Treble from 0 to -6 dB
Weight: 20 Kg (44 lb)	Power consumption: Idle 30W Full output 200W	Bass roll-off control in 2 dB steps: from 0 to -8 dB @42 Hz
Dimensions: Height 495mm (19 1/2") Width 320mm (12 5/8") Depth 290mm (11 1/3")		Bass tilt control in 2 dB steps: from 0 to -8 dB @80 Hz
		The 'CAL' position is with all tone controls set to 'off' and input sensitivity control to maximum.

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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.