

GENELEC®

Genelec 1031A
Monitoring Speaker

Operating
Manual



1. General description

System

The bi-amplified GENELEC 1031A is a two way active monitoring speaker designed for high output, low coloration and broad bandwidth. As the bigger brother of the 1030A, the 1031A offer extended low frequency response and higher output levels.

Due to its compact size, integrated construction, excellent dispersion and precise stereo imaging this speaker system is ideal for Near Field monitoring, mobile vans, broadcast, TV control rooms and home studios.

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

Drivers

The bass frequencies are reproduced by a 210 mm (8") bass driver loaded in a 15 litre vented cabinet. The -3dB point lies at 47 Hz and the low frequency response extends down to 43 Hz (-6dB).

The high frequency driver is a 25 mm (1") metal dome with pure piston behavior upto 23 kHz. The uniform dispersion control is achieved with the revolutionary DCW technology pioneered by Genelec. This has also resulted in perfect phase and delay uniformity at the crossover frequency. Both drivers are magnetically shielded.

Crossover

The active crossover network consists of two parallel bandpass filters. Acoustically the filters are complementary and the slopes are 24 dB/octave. The crossover frequency is set to 2.2 kHz. By use of active crossover controls ('treble tilt', 'bass tilt' and 'bass roll-off') this speaker may be exactly matched to any application.

Amplifiers

The amplifier unit is mounted to the rear of the speaker enclosure on quick release vibration isolators, to ensure rattle free operation and long term reliability. Both the bass and treble amplifier produce 120 W of short term power. The fast, low distortion amplifiers

Speaker Mounting Position	Treble Tilt	Bass Tilt	Bass Roll-off
Flat anechoic response	None	None	None
Free standing in a damped room	None	-2 dB	None
Free standing in a reverberant room	None	-4 dB	-2 dB
Near field or console bridge	None	-4 dB	None
In a corner	None	-4 dB	-4 dB

Figure 1. Suggested tone control setting for differing acoustic environments

are capable of driving the stereo system to peak output levels in excess of 120 dB SPL at 1 m. The unit incorporates special protection circuitry for driver overload protection and amplifier thermal overload protection. Variable input sensitivity allows for accurate level matching to the mixing console.

2. Installation

Each 1031A 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. 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 clockwise) which gives SPL of 100 dB @1m with -6 dBu input level. Note that to get the full output level of 110 dB SPL, an input level of +4 dBu is needed in 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 three tone control switches 'treble tilt', 'bass tilt' and 'bass roll-off' 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

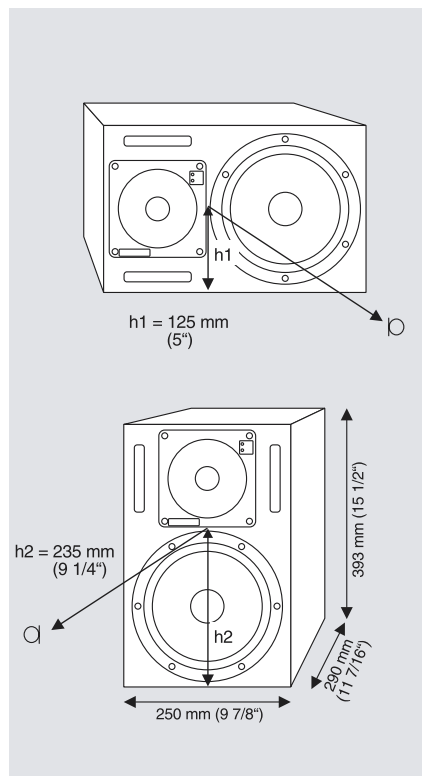


Figure 2. Speaker acoustic axis and dimensions in horizontal and vertical mounting positions.

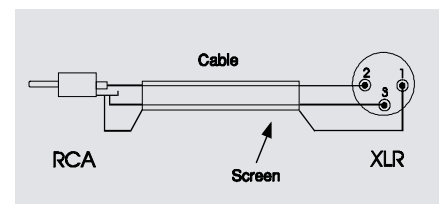


Figure 3 . XLR connection if unbalanced input is required.

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 response curve needed. If more than one switch is set to 'ON' (within one switch group) the attenuation value is not accurate.

Vertical / horizontal mounting

The speakers are normally delivered for vertical mounting. If horizontal mounting is needed the DCW plate can be rotated so that the GENELEC logo is located at the bottom left corner of the DCW. Remove the four corner screws of the DCW (use Pozidrive No. 2 screw driver) and pull the plate carefully out without stressing the wires and the gasket. Rotate the plate 90 degrees to the appropriate direction and remount the screws. Note that to obtain a mirror image pair the DCW's must be rotated 90° in opposite directions on both speakers. In horizontal mounting position the bass drivers should point inwards to get better low frequency summing.

Console top mounting

If the 1031A'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 or wall mount behind the console. This prevents the reflection from the console surface from coloring the sound.

Overload indicators

The speaker is provided with two status 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 4" (10cm) between speaker rear and any solid surface.

3. Maintenance

No user serviceable parts are to be found within the amplifier unit. Any

maintenance or repair of the 1031A unit should only be undertaken by qualified service personnel.

4. Safety Considerations

Although the 1031A 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 must be observed.

Servicing and adjustment must only be performed by qualified service personnel. Opening the amplifier's rear panel is strictly prohibited except by such persons 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.

5. Accessories

Flightcase	1031-401
Wall mount	1031-404 V/H*
Floor stand	1031-405 V/H*
Grille	1031-409

* State the desired speaker orientation V=vertical or H=horizontal when ordering these accessories.

6. Guarantee

This product is supplied with a ONE YEAR guarantee against manufacturing faults or defects that might alter the performance of the 1031A unit. Refer to supplier for full sales and guarantee terms.

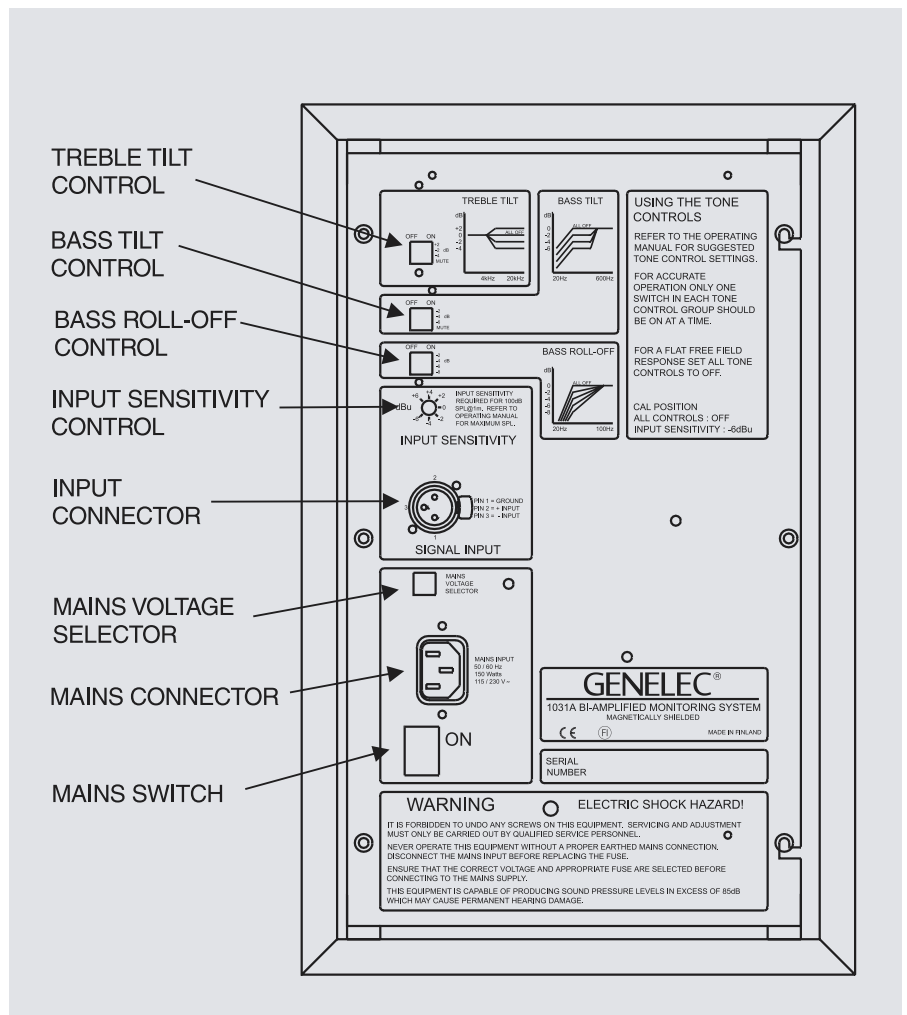


Figure 4. Rear panel layout.

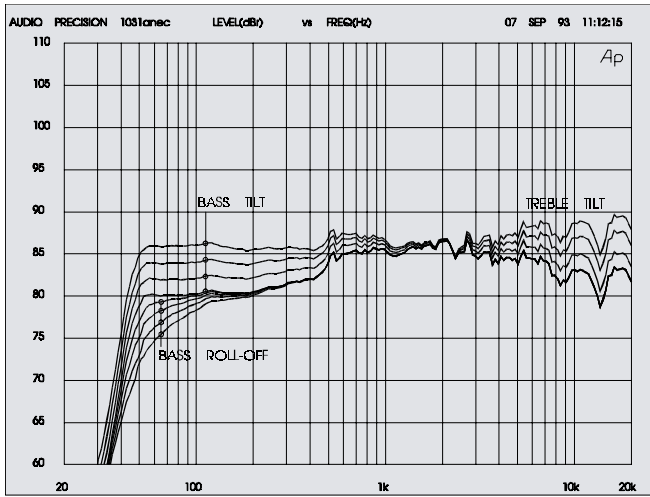


Figure 5. The curves above show the effect of the 'treble tilt', 'bass tilt' and 'bass roll-off' controls on the free field response.

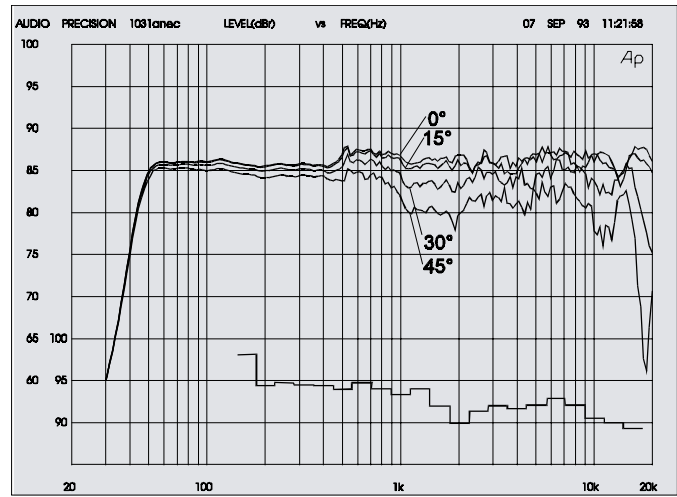


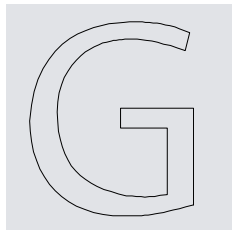
Figure 6. The curve group shows the horizontal directivity characteristics of 1031A in its vertical configuration measured at 1m. The lower curve shows the systems power response.

SYSTEM SPECIFICATIONS	AMPLIFIER SECTION	CROSSOVER SECTION
<p>Lower cut-off frequency, -3 dB: ≤ 47 Hz</p> <p>Upper cut-off frequency, -3 dB: ≥ 22 kHz</p> <p>Free field frequency response of system: 48 Hz - 22 kHz (± 2 dB)</p> <p>Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz:</p> <ul style="list-style-type: none"> @1m ≥ 110 dB SPL @0.5m ≥ 116 dB SPL <p>Maximum long term RMS acoustic output in same conditions with IEC-weighted noise (limited by driver unit protection circuit):</p> <ul style="list-style-type: none"> @1m ≥ 101 dB SPL @0.5m ≥ 107 dB SPL <p>Maximum peak acoustic output per pair on top of console, @ 1m from the engineer with music material: ≥ 120 dB SPL</p> <p>Self generated noise level in free field @ 1m on axis: ≤ 10 dBA</p> <p>Harmonic distortion at 90 dB SPL at 1m on axis:</p> <ul style="list-style-type: none"> 50Hz...100 Hz $< 1\%$ freq. >100 Hz $< 0.5\%$ <p>Drivers: Bass 210 mm (8")</p> <p>Treble 25 mm (1") metal dome</p> <p>Both drivers are magnetically shielded</p> <p>Weight: 12,7 kg (28 lb.)</p> <p>Dimensions:</p> <ul style="list-style-type: none"> Height 393 mm (15 1/2") Width 250 mm (9 7/8") Depth 290 mm (11 7/16") 	<p>Bass amplifier output power with a 8 Ohm load:</p> <ul style="list-style-type: none"> Short term 120W <p>Treble amplifier output power with a 8 Ohm load:</p> <ul style="list-style-type: none"> Short term 120W <p>Long term output power is limited by driver unit protection circuitry.</p> <p>Slew rate : 80V/μs</p> <p>Amplifier system distortion at nominal output:</p> <ul style="list-style-type: none"> THD $\leq 0.05\%$ SMPTE-IM $\leq 0.05\%$ CCIF-IM $\leq 0.05\%$ DIM 100 $\leq 0.05\%$ <p>Signal to Noise ratio, referred to full output:</p> <ul style="list-style-type: none"> Bass ≥ 100 dB Treble ≥ 100 dB <p>Mains voltage: 100/200V or 115/230V</p> <p>Voltage operating range at 115V setting: 104 - 126V ($\pm 10\%$)</p> <p>230V setting: 207 - 253V ($\pm 10\%$)</p> <p>Power consumption:</p> <ul style="list-style-type: none"> Idle 30W Full output 160W 	<p>Input connector: XLR female</p> <ul style="list-style-type: none"> pin1 gnd pin2 + pin3 - <p>Input impedance: 10 kOhm</p> <p>Input level for 100 dB SPL output @1m: Variable from +6 to -6 dBu</p> <p>Input level for maximum short term output of 110 dB SPL @1m: Variable from +16 to +4 dBu</p> <p>Subsonic filter below 45 Hz : 18 dB/octave</p> <p>Ultrasonic filter above 25 kHz: 12 dB/octave</p> <p>Crossover frequency: 2.2 kHz</p> <p>Crossover acoustical slopes: 24 dB/octave</p> <p>Treble tilt control operating range in 2dB steps: From +2 to -4dB & MUTE</p> <p>Bass roll-off control in 2 dB steps: From 0 to -8 dB @40 Hz</p> <p>Bass tilt control in 2 dB steps: From 0 to -6 dB & MUTE @80 Hz</p> <p>The 'CAL' position is with all tone controls set to 'off' and input sensitivity control to maximum.</p>

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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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