

1029A

Operating Manual
Genelec 1029A
Active Monitoring System

GENELEC®



1029A Active Monitoring System

General description

The bi-amplified GENELEC 1029A is a two way active monitoring speaker designed to be small but still have high output, low coloration, and broad bandwidth.

The 1029A is ideal for near field monitoring, mobile vans, broadcast and TV control rooms, surround sound systems, budget home studios, multimedia applications and also for use with computer soundcards. As an active speaker, it contains drivers, power amplifiers, active crossover filters and protection circuitry. The Directivity Control Waveguide™ (DCW™) technology used provides excellent frequency balance in difficult acoustic environments. If necessary, the bass response of the 1029A's can be extended with a Genelec 7050A or 7060A subwoofer.

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 1029A very easy to set up and use. The integrated design allows the amplifiers and the drivers to be calibrated as a single unit at 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 (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.

Magnetic shielding is standard on the 1029A. Shielding is vital for applications such as video post production, where stray magnetic fields must be minimized.

Crossover

The active crossover network consists of two parallel bandpass filters. Acoustically, the filters are complementary and the slopes are 24 - 32 dB/octave. The crossover frequency is 3.3 kHz. The active crossover controls ('treble tilt', 'bass tilt' and 'bass roll-off') allow this speaker to be exactly matched to any application.

Amplifiers

The amplifier unit is built into the speaker 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.

Installation

Each 1029A monitor 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 listening axis (see Figure 1). Before connecting up, ensure that the mains switch is off and the volume control fully counter-clockwise (see Figure 1). Check that the mains voltage selector is correctly set (models sold in Europe have a fixed 230V setting). Audio input is via a 10 kOhm balanced XLR connector or a 10 kOhm balanced 1/4" Jack. An unbalanced source may be used as long as pin 3 is grounded to pin 1 at the input (see Figure 2). 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 mixing desk or other source by adjusting the volume control on the front panel (see Figure 1).

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 and can adjust 'treble tilt', 'bass tilt' and 'bass roll-off.' The factory settings for these are 'ALL OFF' to give a flat anechoic response. See Table 1 for suggested tone control settings in differing acoustic environments. Figure 4 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.

Monitor placement Console top mounting

If the 1029A's are used for near field monitoring, avoid mounting them directly on the console top. Instead position the speakers slightly behind the console by using floor stands, wall mounts or microphone stands. This minimises the reflection from the console surface from colouring the sound.

Room placement

It is vital that the monitors are correctly positioned in the room as this greatly affects their performance. To produce a true and accurate stereo image the monitors must have exactly similar frequency responses, which is true in free field conditions. The frequency charts shown are for free field conditions. When placed in a room the response changes due to reflections of the wave from the room's boundaries. It is therefore necessary to place the monitors at the same height and also at the same distance from the front and side walls so that the reflections, and therefore the changes to the frequency response, are the same.

The distance from the front wall should be either less than 1 m, or alternatively more than 3 m to avoid an uneven frequency response due to reflections from the wall. If the speaker is placed close to the wall (<1 m) this will boost the lower frequencies and the tone controls should then be adjusted appropriately (see Table 1).

The monitors should be aimed toward the listening position. This is due to the effect of

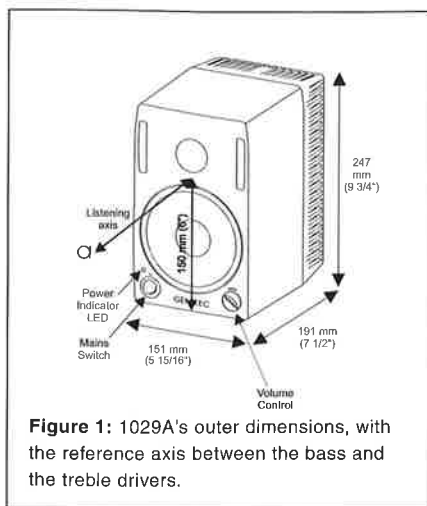


Figure 1: 1029A's outer dimensions, with the reference axis between the bass and the treble drivers.

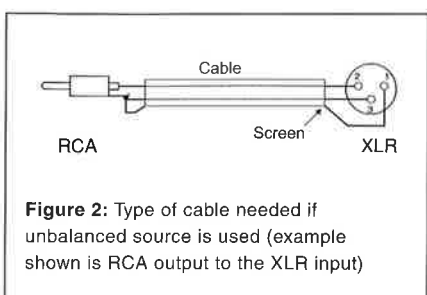


Figure 2: Type of cable needed if unbalanced source is used (example shown is RCA output to the XLR input)

the DCW which increases the directivity. If the ratio of direct sound to reflected sound is greater the listener is then able to listen to more of the material and less of the room effects. Subjectively this is perceived as superior stereo imaging.

Mounting options

The 1029A offers several mounting options: On the base of the monitor is a 3/8" UNC threaded hole which can accommodate a standard microphone stand. On the rear there is a provision for an Omnimount®, size 50, bracket, the hardware required is two M6x10mm screws. Alternatively, the speaker can be hung on a wall in a vertical or horizontal position by one of the three wall hanging points.

A set of friction pads is also provided for placing the 1029A on flat surfaces.

Maintenance

No user serviceable parts are to be found within the amplifier unit. Any maintenance or repair of the 1029A unit should only be undertaken by qualified service personnel.

Speaker Mounting Position	Treble Tilt	Bass Tilt	Bass Roll-Off
Flat Anechoic Response	OFF	OFF	OFF
Free standing in a damped room	OFF	OFF	OFF
Free standing in a reverberant room	OFF	-2 dB	OFF
Near field on console bridge	OFF	-4 dB	OFF
Near to a wall	OFF	-6 dB	OFF
With a 7050A or 1091A subwoofer	See above settings	See above settings	ON

Table 1: Suggested tone control settings for differing acoustical environments

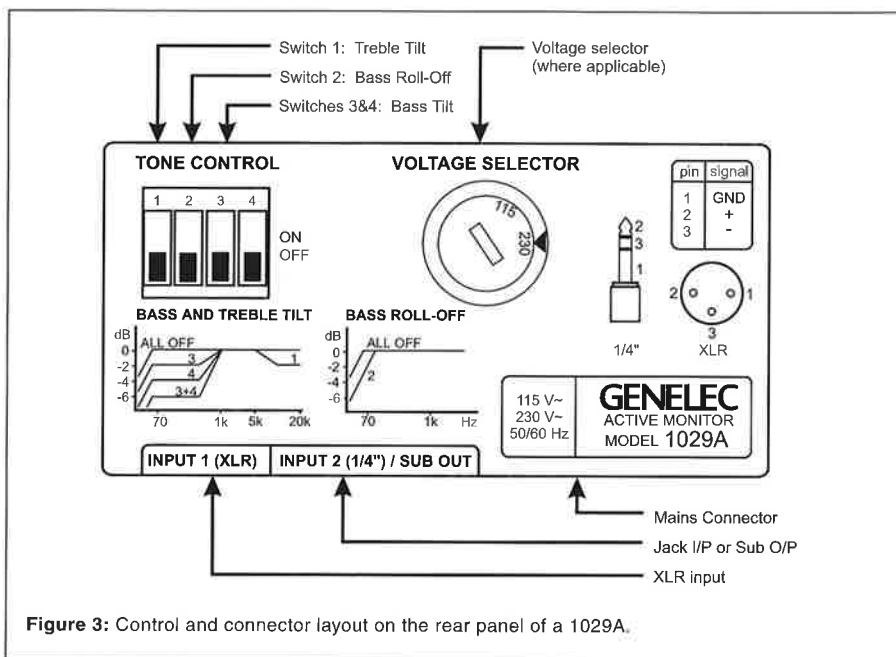


Figure 3: Control and connector layout on the rear panel of a 1029A.

Safety Considerations

Although the 1029A 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:

- Do not use this product with an unearthed mains cable 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 equipment 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 loudspeakers.

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.

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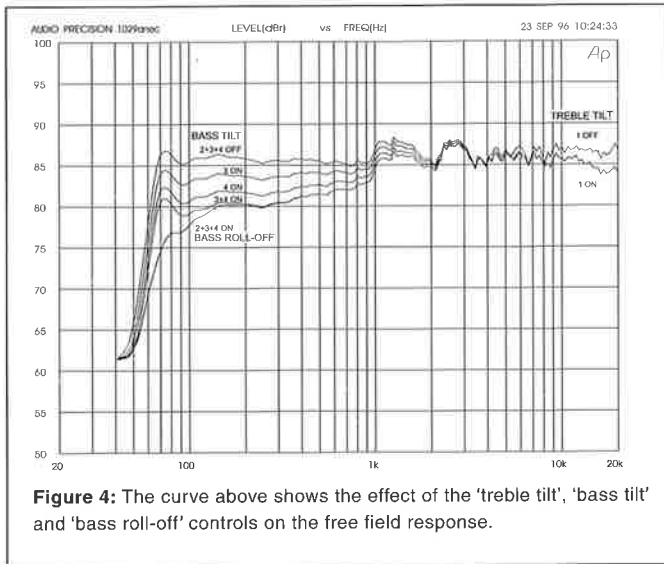


Figure 4: The curve above shows the effect of the 'treble tilt', 'bass tilt' and 'bass roll-off' controls on the free field response.

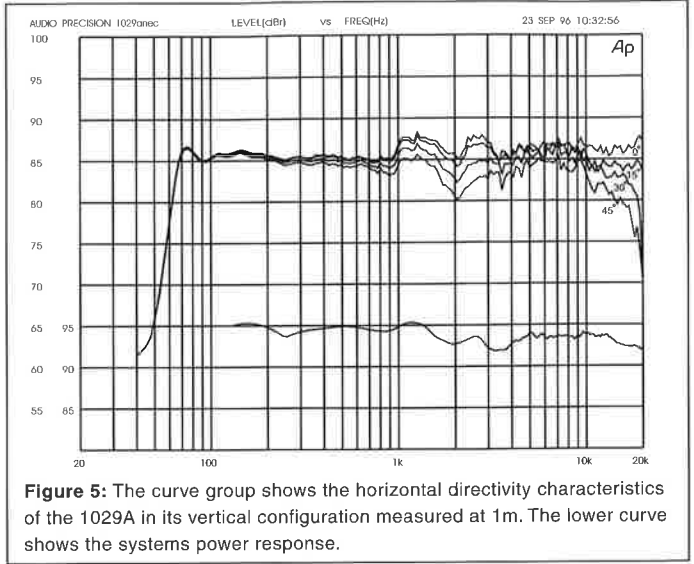


Figure 5: The curve group shows the horizontal directivity characteristics of the 1029A in its vertical configuration measured at 1m. The lower curve shows the systems power response.

SYSTEM SPECIFICATIONS

Lower cut-off frequency, -3 dB:	≤ 68 Hz
Upper cut-off 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:	@ 1m ≥ 100 dB SPL @ 0,5m ≥ 106 dB SPL
Maximum long term RMS acoustic output in same conditions with IEC weighted noise (limited by driver unit protection circuit):	@ 1m ≥ 98 dB SPL @ 0,5m ≥ 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")

CROSSOVER SECTION

Inputs:	Input 1: XLR female, balanced 10 kOhm Input 2: 1/4" Jack socket, balanced 10 kOhm
Input level for 100 dB SPL output at 1 m:	-6 dBu at volume control max
Volume control range:	-65 dB relative to max output
Subsonic filter below 68 Hz :	18 dB/octave
1091A/7050A Subwoofer output (input 2) at 100db SPL:	-23 dBu into 33kOhm load
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 (to be used in conjunction with 1091A or 7050A subwoofer)	
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).	

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, 115/230 or 230 V according to region
Voltage operating range:	±10%
Power consumption:	Idle 9 VA Full output 80 VA

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