GENELEC®

Genelec 1038A Monitoring Speaker

Operating Manual

1. General description

System

The Genelec 1038A is a three-way active monitoring system including drivers, multiple power amplifiers and active crossovers. The system is designed for medium sized control rooms and is ideal for project studios, general purpose broadcasting and television studios, digital workstations, post production facilities as well as CD mastering. The 1038A is designed to perform well both as a free-standing monitor and flush mounted into the control room wall.
The unique Directivity Control Waveguide (DCW) Technology used provides excellent stereo imaging and frequency balance even in difficult acoustics environments. The fast, low distortion amplifiers are capable of driving the stereo system to peak output levels in excess of 124 dB SPL at 2 m with program signals. Versatile crossover controls allow for precise matching of the speaker system to different acoustic conditions.

Drivers

The bass frequencies are reproduced by an 385 mm (15") bass driver loaded with a 110 litres vented box. The -3dB point is 33†Hz and the low frequency response extends down to 29 Hz. The midrange frequencies are reproduced by a proprietary 130 mm (5") direct radiating cone driver loaded with a proprietary DCW. The high frequency driver is a 25 mm (1") dome also loaded by a DCW.

Crossover filters

The active crossover network consists of three parallel bandpass filters. The crossover frequencies are 410 Hz and 3.0 kHz. Bass, midrange and treble level controls, with 1 dB steps, are included in the crossover to obtain uniform frequency balance in different acoustic conditions. The low frequency Tilt and Roll-off controls both have four 2 dB steps to allow refined low frequency response tailoring. The crossover network is driven by an active balanced input stage, fed by a 3 pin XLR. Variable input sensitivity allows for accurate level matching to the mixing console output signal.

Amplifiers

The bass, midrange and treble amplifiers each produce 400W, 120W and 120W, respectively of short term power with very low THD and IM distortion values. The negative output impedance of the woofers amplifiers improves acoustics transient. The system incorporates special circuitry for driver overload protection and amplifier thermal protection.

Speaker Mounting Position	Bass Roll-off	Bass Tilt	Bass Level	Midrange Level	Treble Level
Flat 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	-2 dB	-2 dB	None	None
Soffit mounted in a control room wall	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

2. Installation

Each 1038A 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.

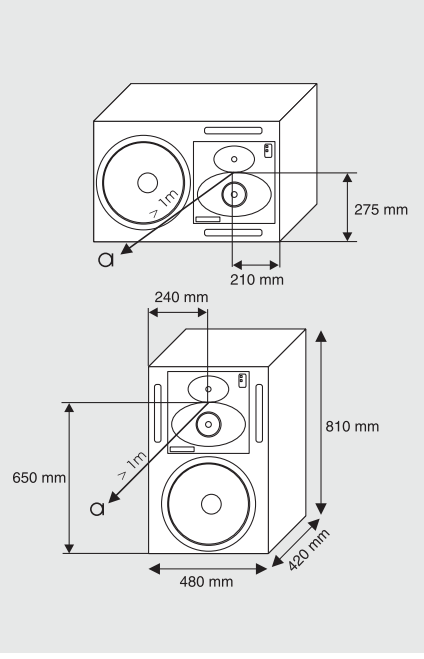

Figure 2. Speaker acoustic axis and dimensions in horizontal and vertical mounting positions.

Setting the input sensitivity

Adjustment of the input sensitivity of each speaker can be made to match that of the mixing desk or other sources, 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 120 dB SPL, an input level of +14 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.

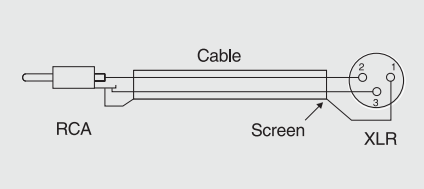

Figure 3 . XLR connection if unbalanced input is required.

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. If changing the speakers position the DCW plate can be rotated so that the mid-range driver remains always located at the bottom of the DCW. Remove the four corner screws of the DCW (use Allen key 4mm) 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.

Flush mounting

The 1038A can be used flushed mounted into the control room wall, offering then some acoustical benefits. No cabinet edge reflections should occur, resulting in an improved response, especially at midrange. Rear wall reflection behind the speaker can be avoided, which improves the bass frequency response and allows the bass drivers to work in half space conditions, thus improving low frequency efficiency. The speakers acoustical axis (See Figure 4.) should also point directly to the listening position.

Overload indicators

The speaker is provided with two warning LED's marked 'CLIP PROTECT (FAULT)' and 'READY'. The green READY-LED when lit indicates that the speaker is ready for use. The red CLIP PROTECT (FAULT)-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 CLIP PROTECT (FAULT)-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 10 centimeters 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 1038A 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 1038A 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.

5. Accessories

Opt 01 -Flight Case
Opt 11 -Rack Adapter
Opt 03 -Magnetic Shielding*
Opt 06 -Handles
Opt 09 -Grille

*Magnetic shielding available as a factory-installed option only.

6. Guarantee

This product is supplied with a ONE YEAR guarantee against manufacturing faults or defects that might alter the performance of the 1038A unit. Refer to supplier for full sales and guarantee terms.

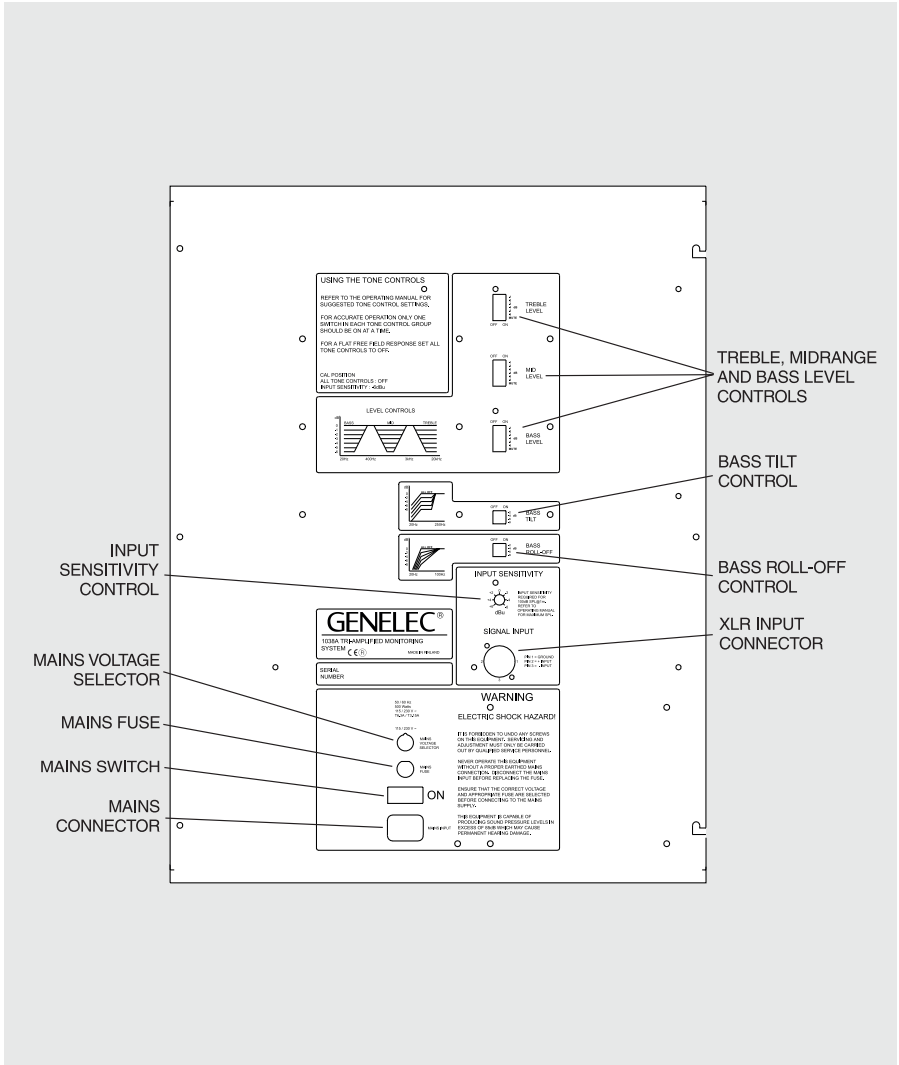

Figure 4. Rear panel layout.

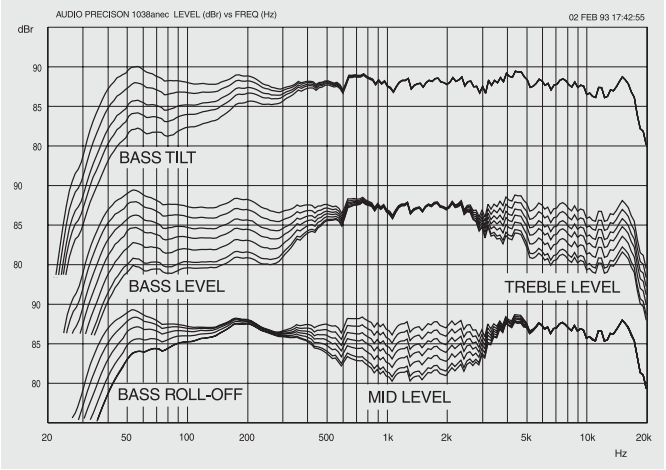

Figure 5. The curves above left show the effect of the 'bass tilt', 'bass level' and 'bass roll-off' controls on the free field response. The curves to the right show the effect of the treble and midrange 'level' controls.

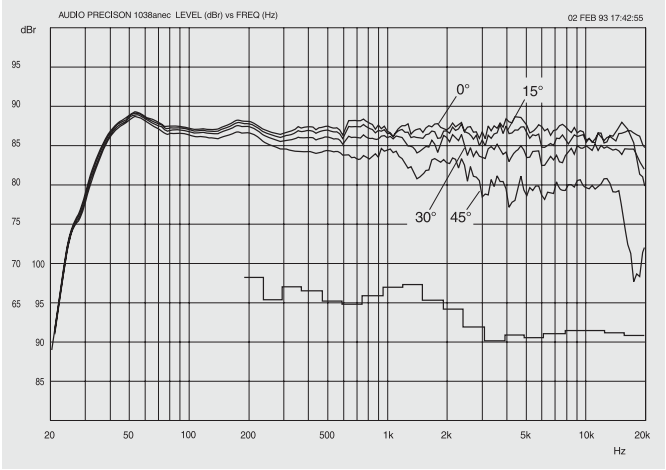

Figure 6. The upper curve group shows the horizontal directivity characteristics of 1038A in its vertical configuration measured at 1m. The lower curve is a 1/3 octave band power response, measured in an IEC approved reverberation chamber.

SYSTEM SPECIFICATIONS

Lower cut-off frequency, -3 dB: ≤33 Hz
Upper cut-off frequency, -3 dB: ≥20 kHz
Free field frequency response of system: 35 Hz - 20 kHz (±2.5 dB)

Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz:

@1m	≥120 dB SPL
@0.5m	≥126 dB SPL

Maximum long term RMS acoustic output in same conditions with IEC-weighted noise (limited by driver unit protection circuit):

@1m	≥116 dB SPL
@0.5m	≥122 dB SPL

Maximum peak acoustic output per pair on top of console, @ 2m from the engineer with music material: ≥124 dB

Self generated noise level in free field @1m on axis: ≤15 dB (A weighted)

Harmonic distortion at 95 dB SPL at 1m on axis:

freq. 50...100 Hz	<1%
freq. >100 Hz	<0.5%

Drivers:

Bass	385mm (15") cone
Midrange	130mm (5") cone
Treble	25mm (1") metal dome

Weight: 60 kg (130 lb)

Dimensions:

Height	810 mm (32")
Width	480 mm (18 9/10")
Depth	420 mm (16 1/2")

AMPLIFIER SECTION

Bass amplifier output power with a 8 Ohm load: Short term 400W

Midrange amplifier output power with a 8 Ohm load: Short term 120W

Treble amplifier output power with a 8 Ohm load: Short term 120W

Long term output power is limited by driver unit protection circuitry.

Slew rate: 80V/μs

Amplifier system distortion at nominal output:

THD	≤0.05%
SMPTE-IM	≤0.05%
CCIF-IM	≤0.05%
DIM 100	≤0.05%

Signal to Noise ratio, referred to full output:

Bass	≥100 dB
Midrange	≥100 dB
Treble	≥100 dB

Mains voltage: 100/200V or 115/230V
Voltage operating range: nominal ±10%

Power consumption:

Idle	60W
Full output	500W

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.

CROSSOVER SECTION

Input connector: XLR female

pin1	gnd
pin2	+
pin3	-

Input impedance: 10 kOhm

Input level for 100 dB SPL output @1m: variable from +6 to -6 dBu

Input level for maximum short term output of 120 dB SPL @1m: variable from +26 to +14 dBu

Subsonic filter below 33 Hz : 18 dB/octave

Ultrasonic filter above 25 kHz: 12 dB/octave

Crossover frequency:

Bass/Mid	410 Hz
Mid/Treble	3 kHz

Crossover acoustical slopes: 24 - 32 dB/octave

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

Bass roll-off control in 2 dB steps: from 0 to -8 dB @33 Hz

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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