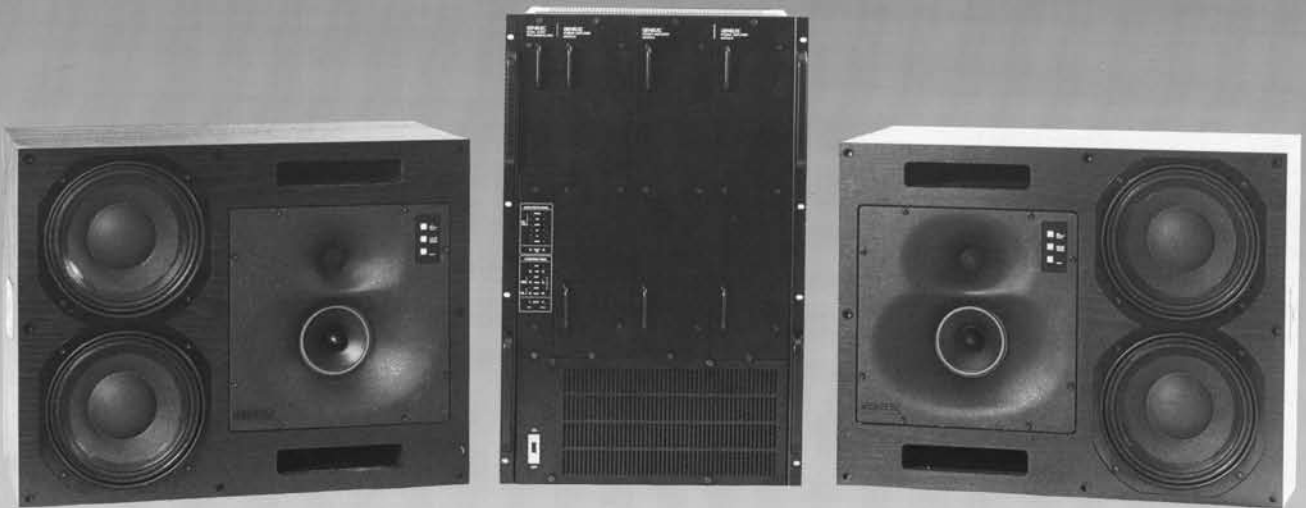


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DATA SHEET 1033-0107-1



GENELEC® 1033A CONTROL ROOM MONITOR

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1033A APPLICATIONS

- MAIN MONITOR FOR MEDIUM SIZE CONTROL ROOMS
- LARGE BROADCAST STUDIOS
- TELEVISION MUSIC PRODUCTION
- CD MASTERING
- CUTTING ROOMS

GENERAL DESCRIPTION

The GENELEC 1033A is designed for neutral audio reproduction at moderate SPL in medium size control rooms. The integrated system consists of two 173 litres (6.1 cu.ft.) speaker enclosures and a 19" rack mounted electronics system consisting of crossovers, three dual channel power amplifiers and a dual channel Audio Processing Unit. The system is designed for flush mounting in the control room wall, but it can also be used as a free standing speaker with the use of the built-in radiation space control (bass tilt).

DRIVERS

The low frequency system utilises two long-throw 10" woofers in a dual chamber configuration. The -3dB point is 37 Hz and the low frequency response extends to 29 Hz. The critical midrange frequencies are reproduced with a high sensitivity direct radiating driver with a Directivity Control Waveguide. The high frequency driver is a 1" metal dome. The tweeter has a frequency response extending to 22 kHz (-3 dB). The midrange and treble driver panel can be rotated 90 degrees for horizontal or vertical mounting.

AUDIO PROCESSING UNIT

The APU is a plug-in module and its main functional blocks are: Crossover Network, Diagnostics / Starting Sequencer and the Driver Unit Protection Processor (DPP). The active crossover network consists of three parallel band pass filters with a common symmetric input stage. All the active crossover filters are aligned for equal phase and group delay transfer characteristics across the crossover regions. The crossover frequencies are 410 Hz and 3.5 kHz. The filters are acoustically complementary and the slopes are 24 dB/octave. Bass, midrange and treble controls with 1 dB steps are included to adjust the balance between the drivers in different acoustic environments. The low frequency roll-off control, which is effective at 37 Hz, has four 2 dB steps to allow more refined equalization for different loudspeaker locations. In addition, the bass band has a four position "Tilt" control that is active below 150 Hz.

The self diagnostics / starting sequencer controls the operating status of the 1033A during the start-up and during normal operation. The system status is displayed on the APU front panel. For the operator, a summary of the real time condition of the APU is also shown on the loudspeaker enclosure status display. The DPP continuously monitors the safe operation area of the driver units. When safe limits are exceeded the DPP gives a warning to the user. If the overload continues, the gain of the entire channel is reduced to a safe level so the perceived balance does not change.

AMPLIFIERS

The bass, midrange, and treble amplifiers produce 2 x 500, 2 x 270 and 2 x 270 watts, respectively, of peak power. All amplifier continuous power levels are constantly monitored by the DPP. The system is capable of peak acoustic levels of 123 dB SPL or greater. One amplifier case contains all amplifier modules needed for two speakers (stereo pair).

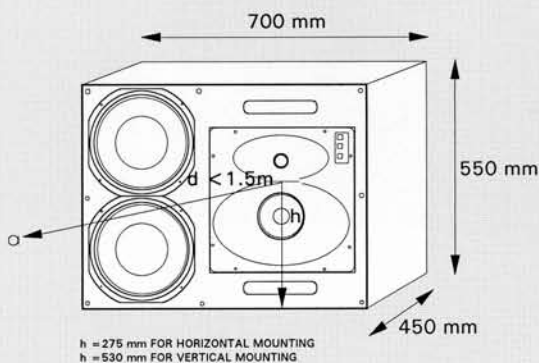
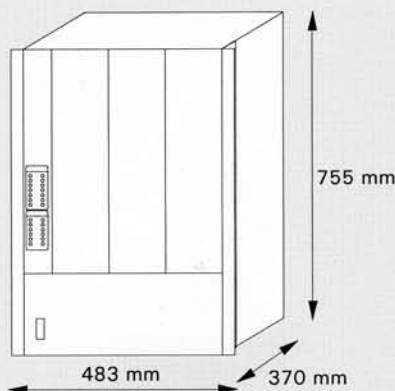


Figure 1. The upper curve shows the effects of the bass tilt control on the free field response. The lower curve shows the effect of the bass roll-off control and with the 10 dB attenuator activated.

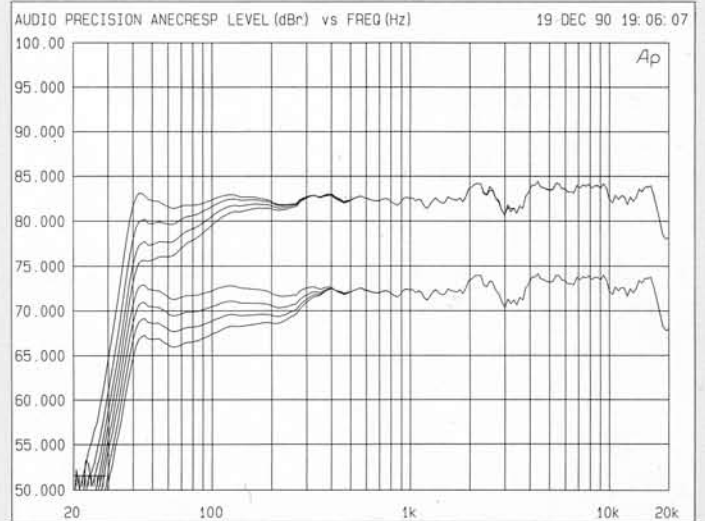


Figure 2. The upper curve shows the effects of the bass and treble level controls on the free field response. The lower curve shows the effect of the mid channel level control and with the 10 dB attenuator activated.

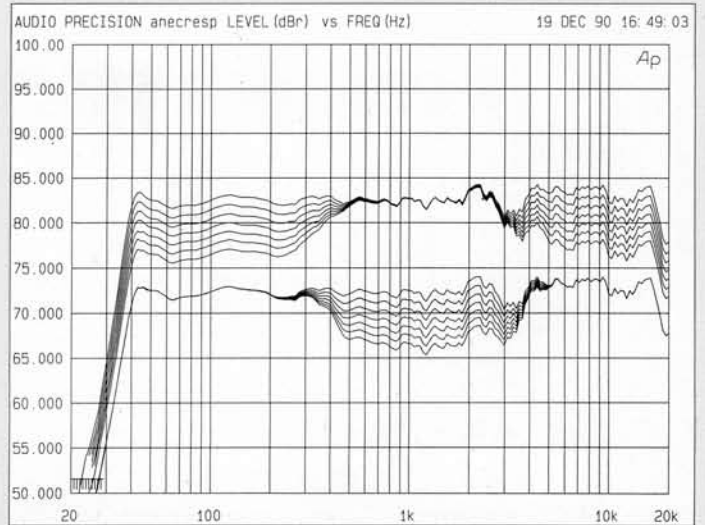
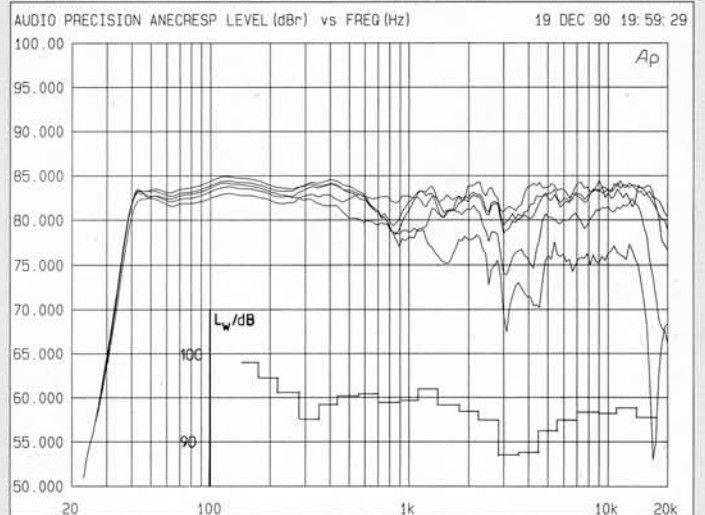


Figure 3. The upper curve is the directivity characteristic of the 1033A in its horizontal configuration, measured at 1m. The five curves represent 0°, 15°, 30°, 45°, 60° from the listening axis, with an input level of -20 dBu. The lower curve is a 1/3 octave band power response, measured in an IEC approved reverberant chamber.



All frequency response curves were measured in a calibrated, 12m cube, anechoic chamber, at 1m using grade 1 measuring equipment. Input signal levels were set at -30 dBu ref 1 kHz.



SYSTEM SPECIFICATIONS

Lower cut-off frequency, -3dB: ≤ 37 Hz
 Upper cut-off frequency, -3dB: ≥ 22 kHz
 Free field frequency response tolerance of system: ± 3 dB

Maximum sine wave acoustic output @ 1 m on axis in a half space:

continuous (thermally limited) ≥ 118 dB SPL

short-term (200ms, amplifier output voltage limited) ≥ 123 dB SPL

Maximum continuous RMS acoustic output in same condition with IEC-weighted noise: ≥ 118 dB SPL

Maximum peak acoustic output per pair at engineer's site, speakers @ 2 m from the engineer, with music material ≥ 125 dB

A -20 dBu signal input will produce 107 dB SPL in free field @ 1 m on axis with all controls set at the "CAL" position. The "CAL" position is the 0 dB position of all tone controls and the maximum sensitivity position of the input level control. See specification in the Crossover Section.

Self generated noise level in free field @ 2 m on axis: ≤ 15 dB (A weighted)

Harmonic distortion at 100 dB SPL at 1 m on axis:
 $f \leq 200$ Hz ≤ 2 %
 $f \geq 200$ Hz ≤ 1 %

Horizontal directivity: see graphs

Drivers: 2 x 10" cone (250 mm)
 5" cone (120 mm)
 1" dome (25 mm)

Weight: Speaker 129 lb. (59 kg)
 Amplifier 120 lb. (55 kg)

Speaker dimensions:

Width 27 1/2" (700 mm)
 Height 21 5/8" (550 mm)
 Depth 17 3/4" (450 mm)

Amplifier dimensions:

Width 19" (483 mm)
 Height 29 3/4" (755 mm)
 Depth 14 9/16" (370 mm)

AMPLIFIER SECTION

Bass amplifier output power at 4 ohm load: momentary 2 x 500 W

Mid amplifier output power at 8 ohm load: momentary 2 x 270 W

Treble amplifier output power at 8 ohm load: momentary 2 x 270 W

Continuous output power is limited by the driver unit protection processor. Protection levels:

Bass 25 V RMS
 Mid 20 V RMS
 Treble 8 V RMS

Slew rate: 100 V/ μ s

Amplifier system distortion at nominal output:

THD < 0.05 %
 SMPTE-IM < 0.1 %
 CCIF-IM < 0.1 %
 DIM100 < 0.1 %

Signal to Noise ratio, from shorted system input to channel output, referred to full output:

bass 101 dB
 midrange 105 dB
 treble 106 dB

Mains voltage: 100/110/200/220/240VAC

Voltage operation tolerance ± 5 %

Power consumption:

idle 150 VA
 full output 2000 VA

CROSSOVER SECTION

Input connector: XLR female pin. 2 +
 pin. 3 -

Input impedance: 10 k balanced

Continuously variable input level for maximum output:
 @ 10 dB attenuation from +8 to +18 dBu
 @ 0 dB attenuation from -2 to +8 dBu

Subsonic filter: down 12 dB @ 18 Hz
 re 100 Hz level

Ultrasonic filter: down 12 dB @ 50 kHz
 re 10 kHz level

Crossover frequency:

bass/midrange 410 Hz
 midrange/treble 3.5 kHz

Tone control operation range in 1 dB steps:

bass from 0 dB to -6 dB
 midrange from 0 dB to -6 dB
 treble from 0 dB to -6 dB

The 0 dB position is the "CAL" position (switch position number 7)

Bass roll-off filter in 2 dB steps:
 from -6 dB to 0 dB @ 35 Hz

The 0 dB position is the "CAL" position (switch position number 4)

Bass tilt control in 2 dB steps:
 from 0 dB to -6 Db @ 50 Hz

The 0 dB position is the "CAL" position (switch position number 3)

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