8040B Active Monitoring System

System

The Genelec 8040B is a compact bi-amplified active monitor system with performance comparable to much larger systems. The 8040B takes full advantage of the unconventional design and advanced technologies of Genelec's 8000 Series loudspeaker range. The all-aluminium Minimum Diffraction Enclosure™ (MDE™) and advanced Directivity Control Waveguide™ (DCW™) technologies are carefully matched with advanced amplifier and electronic circuitry and the latest drivers. Bass response has been widened down to 45 Hz (-3 dB) while distortion is substantially lower due to a uniquely new rear reflex port design. The system's excellent directivity characteristics and accurate imaging together with its compact size and flexible mounting options make the 8040B the perfect monitoring tool for a wide range of applications.

The 8040B has been specially designed to have a sufficient LF extension for most situations. However if greater SPL's and a lower cutoff frequency are required, it can be complemented with a Genelec subwoofer.

Integrated construction

The 8040B is very easy to set up and use, the only connections required are the mains supply and the line level input. The input is made via a balanced female XLR connector. The input sensitivity of the 8040B can be adjusted for easy level matching with other audio equipment.

The integrated design allows the amplifiers and the drivers to be calibrated as a single unit, eliminating the effects of component tolerances and ensuring consistent production quality.

Crossover filters

The amplifier unit contains an active crossover, a feature more commonly used in large and expensive control room monitors. This is the ideal method for dividing the input signal between the driver units. The active crossover allows the overall response of the system to be optimized to an extent impossible with a passive system. To maintain uniform frequency balance in differing acoustic environments, special calibrated controls are included in the active crossover network. These controls include "treble tilt", "bass tilt" and "bass roll-off" functions.

A new function, “desktop low frequency” control attenuates the bass frequencies around 160 Hz by 4 dB. This feature is designed to compensate for the boost often occurring at this frequency range when the loudspeaker is placed upon a meter bridge, table or a similar reflective horizontal surface.

Amplifiers

The bass and treble amplifiers produce 90 W of output power each, with very low THD and IM distortion values. Each amplifier is designed to precisely match the driver it is connected to, thus ensuring the highest subjective sound quality currently possible. The amplifier unit also contains a protection circuit that monitors the output levels and prevents any damage to the drivers. This makes the system immune to overloads and spurious signals.

Drivers

A 19 mm (3/4") metal dome tweeter is loaded by an advanced DCW™ waveguide, which is integrated into the one piece front baffle. The improved DCW™ provides superior directivity characteristics and perfect matching between the drivers.

The 165 mm (6.5") bass cone driver is mounted in a newly designed bass reflex enclosure. The long, flow optimized reflex tube has a large cross sectional area and terminates with a wide flare at the back of the enclosure.

Protective grilles are positioned in front of both drivers. Magnetic shielding is standard on the 8040B. Shielding is vital for applications such as video post production, where stray magnetic fields must be minimized.

ISS™ autostart function

When the power switch on the back panel of the loudspeaker is set to "ON", the Intelligent Signal Sensing™ (ISS™) autostart function of the 8040B is active. Automatic power-
ing down to standby mode happens after a
certain time when playback has ended. The
power consumption in standby mode is typi-
cally less than 0.5 watts. The playback will
automatically resume once an input signal is
detected from the source.

There is a slight delay in the automatic pow-
ering up. If this is undesirable, the ISS™
function can be disabled by setting the “ISS DISABLE”
switch on the back panel to “ON” position. In
this mode, the monitor is powered on and off
using the power switch on the back panel.

**MDE™ and DCW™ Technology**
The Minimum Diffraction Enclosure™
(MDE™) Technology increases the perfor-
manace of the Genelec 8000 Series loud-
speakers by minimizing edge diffraction and
improving frequency and power response.
The edges of the enclosure are rounded and
blend seamlessly into the enlarged Directiv-
ity Control Waveguide™. Surface disconti-
nuities that cause diffraction are minimized.
The curved walls of the die-cast aluminium
enclosure are thin but rigid, allowing maxi-
imum internal volume while also providing
improved EMC shielding and heat dissipa-
tion for the amplifiers. Locating the reflex
port to the back of the enclosure allows a
generously dimensioned reflex port for mini-
mal port noise and excellent bass articulation
while freeing the front baffle for an enlarged
and optimized DCW™.

The advanced DCW™ is designed to
match the performance of the drivers in
terms of both frequency response and direc-
tivity. This results in a smoother overall fre-
quency response on and off axis. In addition,
the improved directivity control causes more
direct sound and less reflected sound to be
received at the listening position, providing
improved imaging and reducing the effects
of room acoustics. The DCW™ improves the
drive unit sensitivity by +2 to +6 dB, thus also
increasing the available system maximum
sound pressure level.

**Mounting**
The 8040B offers several mounting options:
The vibration insulating Isolation Positioner/
Decoupler™ (Iso-Pod™) table stand allows
tilting the speaker for correct alignment of the
acoustic axis. The stand can be attached to
three mounting points allowing vertical and
symmetrical horizontal positioning. On the rear
of the enclosure there are two sets of M6x10
mm threaded holes to accommodate an Omni-
mount™ size 30.0 bracket or a K&M 24180
wall mount. On the base of the enclosure is a
M10x10 mm threaded hole which can be used
for securing the loudspeaker to its base.

**Guarantee**
The 8040B is guaranteed for a period of two
years against faults in materials or workman-
ship.
Figure 3: The upper curve group shows the horizontal directivity characteristics of the 8040B measured at 1 m. The lower curve shows the systems power response.

Figure 4: The curves above show the effect of the “bass tilt”, “treble tilt”, “desktop low frequency” and “bass roll-off” controls on the free field response.

SYSTEM SPECIFICATIONS

8040B

Lower cut-off frequency, -3 dB
Upper cut-off frequency, -3 dB
Free field frequency response of system (± 2.0 dB)
Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz
@ 1 m
@ 0.5 m
Maximum long term RMS acoustic output in same conditions with IEC weighted noise (limited by driver unit protection circuit) @ 1 m
Maximum peak acoustic output per pair above console top, @ 1 m from the listening position with music material
Self generated noise level in free field @ 1m (A-weighted)
Harmonic distortion at 90 dB SPL @ 1m on axis
Freq: 50 to 100 Hz
> 100 Hz
Drivers:
Bass
Treble
Both drivers are magnetically shielded
Weight:
9.4 kg (20.7 lbs)
Dimensions:
Height (without Iso-Pod table support)
Height (including Iso-Pod table support)
Width
Depth
350 mm (13⅞ in)
365 mm (14⅞ in)
237 mm (9⅛ in)
223 mm (8⅜ in)

AMPLIFIER SECTION

8040B

Bass amplifier short term output power
Treble amplifier short term output power
Long term output power is limited by driver unit protection circuitry
Amplifier system distortion at nominal output
THD
SMPTE-IM
CCIF-IM
DIM 100
Signal to Noise ratio, referred to full output
Bass
Treble
Mains voltage
100, 120, 220 or 230 V
according to region
Voltage operating range
±10 %
Power consumption
Standby
Idle
Full output
<0.5 W
10 W
110 W

CROSSOVER SECTION

8040B

Input connector XLR female
Pin 1 gnd, pin 2 +, pin 3 -
Input impedance
10 kOhm balanced
Input level for maximum short term output of 100 dB SPL @ 1m
Variable from +6 to -6 dBu
Crossover frequency, Bass/Treble
3.0 kHz
Treble tilt control operating range in 2 dB steps
From +2 to -4 dB & MUTE @ 15 kHz
Desktop low frequency control operating range
-4 dB @ 160 Hz
Bass roll-off control operating range in 2 dB steps
From 0 to -6 dB @ 45 Hz
Bass tilt control operating range in 2 dB steps
From 0 to -6 dB & MUTE @ 100 Hz

The ’CAL’ position is with all tone controls set to ’off’ and the input sensitivity control to maximum (fully clockwise)