



# GENELEC 8040B Active Monitoring Systems User Manual

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# GENELEC®

**GENELEC 8040B Active Monitoring Systems**



## Product Information

The GENELEC 8040B and 8050B are two-way active monitoring loudspeakers designed to produce high SPL output, low coloration, and broad bandwidth in a small enclosure size. They are suitable for a wide variety of tasks, such as near field monitoring, mobile vans, broadcast and TV control rooms, surround sound systems, and home studios. The speakers are designed as active loudspeakers, meaning they contain drivers, power amplifiers, active crossover filters, and protection circuitry. The Minimum Diffraction Enclosure™ (MDET™) and advanced Directivity Control Waveguide™ (DCWT™) technologies provide excellent frequency balance even in difficult acoustic environments.

## Product Usage Instructions

- **Step 1:** Align the loudspeakers correctly. Always place the loudspeakers so that their acoustic axes are aimed towards the listening position. Vertical placement is preferable to minimize acoustical cancellation problems.
- **Step 2:** Maintain symmetry. Check that the loudspeakers are placed symmetrically and at an equal distance from the listening position. Ideally, place the system so that the listening position is on the centerline of the room and the loudspeakers are equidistant from the centerline.

- **Step 3:** Minimize reflections. Acoustic reflections from objects close to the loudspeakers can cause unwanted coloration and blurring of the sound image. Place the loudspeakers clear of reflective surfaces, such as desks, cabinets, and computer monitors. Placing the loudspeakers on stands behind and above the mixing console usually gives better results than placing them on the meter bridge.
- **Step 4:** Connect the loudspeakers. Each loudspeaker is supplied with a mains cable and an operating manual. Before connecting, ensure that the mains switch is off. Audio input is via a 10 kOhm balanced XLR connector, but unbalanced leads may be used as long as pin 3 is grounded to pin 1 of the XLR. Once the connections have been made, the loudspeakers are ready to be switched on.

**Note:** The amplifier unit is mounted in the rear of the loudspeaker enclosure and incorporates special circuitry for driver thermal overload protection. The active crossover controls allow precise matching of the loudspeakers to any room environment.

## **Genelec 8040B and 8050B Active Monitoring Systems**

### **System**

The GENELEC 8040B and 8050B are two way active monitoring loudspeakers designed to produce high SPL output, low coloration and broad bandwidth in a small enclosure size. They are suitable for a wide variety of tasks, such as near field monitoring, mobile vans, broadcast and TV control rooms, surround sound systems and home studios. Designed as active loudspeakers, they contain drivers, power amplifiers, active crossover filters and protection circuitry. The Minimum Diffraction Enclosure™ (MDE™) and advanced Directivity Control Waveguide™ (DCW™) technologies provide excellent frequency balance even in difficult acoustic environments.

### **Drivers**

The bass driver dimensions are 165 mm (6 1/2") and 205 mm (8") for 8040B and 8050B respectively. The long, flow optimized reflex tube has a large cross sectional area and terminates with a wide flare at the back of the enclosure. The high frequency driver is a 19 mm (3/4") metal dome on the 8040B and a 25 mm (1") metal dome on the 8050B. Both drivers are magnetically shielded.

### **Crossover**

The active crossover network consists of two parallel bandpass filters. The crossover frequency is 3.0 kHz on the 8040B and 1.8 kHz on the 8050B. The active crossover controls ("treble tilt", "desktop low frequency", "bass tilt" and "bass roll-off") allow precise matching of the loudspeakers to any room environment.

### **Amplifiers**

The amplifier unit is mounted in the rear of the loudspeaker enclosure. The unit incorporates special circuitry for driver thermal overload protection. Variable input sensitivity allows accurate level matching to console output section.

### **Connections**

Each loudspeaker is supplied with a mains cable and an operating manual. Before connecting up, ensure that the mains switch is off (see figure 1). Audio input is via a 10 kOhm balanced XLR connector, but unbalanced leads may be used as long as pin 3 is grounded to pin 1 of the XLR (see figure 3). Once the connections have been made, the loudspeakers are ready to be switched on.

### **Mounting considerations**

Align the loudspeakers correctly

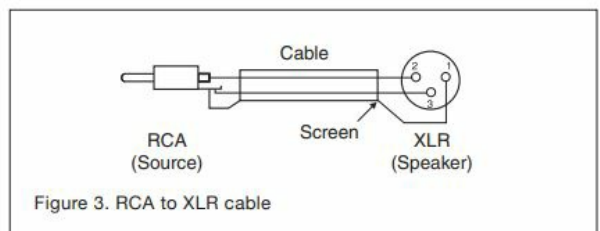
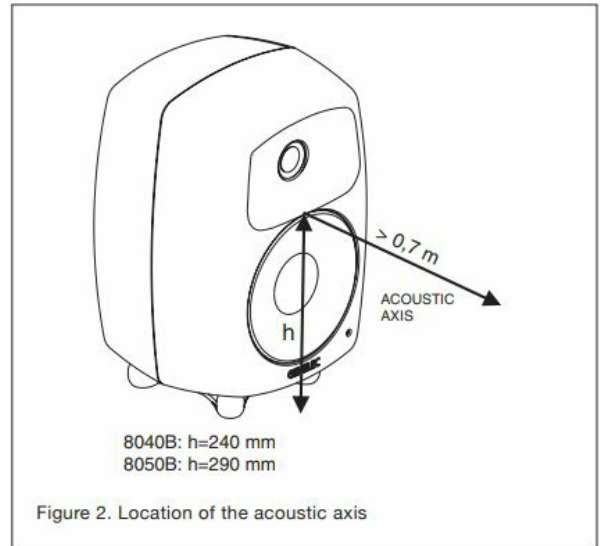
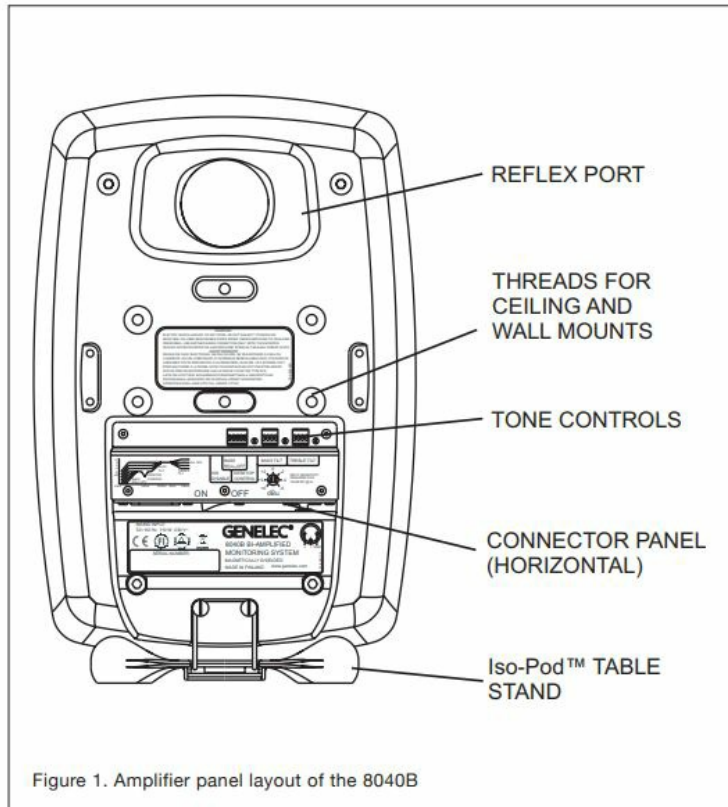
Always place the loudspeakers so that their acoustic axes (see figure 2) are aimed towards the listening position. Vertical placement is preferable, as it minimises acoustical cancellation problems around the crossover frequency.

### **Maintain symmetry**

Check that the loudspeakers are placed symmetrically and at an equal distance from the listening position. If possible, place the system so that the listening position is on the centerline of the room and the loudspeakers are placed at an equal distance from the centerline.

### Minimise reflections

Acoustic reflections from objects close to the loudspeakers like desks, cabinets, computer monitors etc. can cause unwanted colouration and blurring of the sound image. These can be minimised by placing the loudspeaker clear of reflective surfaces. For instance, putting the loudspeakers on stands behind and above the mixing console usually gives a better result than placing them on the meter bridge.



### Minimum clearances

Sufficient cooling for the amplifier and functioning of the reflex port must be ensured if the loudspeaker is installed in a restricted space such as a cabinet, or integrated into a wall structure. The surroundings of the loudspeaker must always be open to the listening room with a minimum clearance of 5 centimeters (2") behind, above and on both sides of the loudspeaker. The space adjacent to the amplifier must either be ventilated or sufficiently large to dissipate heat so that the ambient temperature does not rise above 35 degrees Celsius (95°F).

### Mounting options

The vibration insulating Isolation Positioner/Decoupler™ (Iso-Pod™) table stand allows tilting of the loudspeaker for correct alignment of the acoustic axis. The stand can be attached to three mounting points allowing vertical and symmetrical horizontal positioning (see figures 1 and 5). Genelec 8040B and 8050B can be fitted to Omnimount® Series 30 (8040B) and 60 (8050B) and König & Meyer loudspeaker mounts on two sets of M6x10 mm threaded holes on the back of the enclosure. On the base of the enclosure is an M10x10 mm threaded hole which can be used for securing the loudspeaker to its base. Do not use this thread for mounting the loudspeaker on a microphone stand which has a 3/8" UNC thread.

### Setting the input sensitivity

The input sensitivity of the loudspeakers can be matched to the output of the mixing console, or other source, by adjusting the input sensitivity control on the rear panel (see figure 1). A screwdriver is needed for the adjustment. The manufacturer's default setting for this control is -6 dBu (fully clock-wise) which gives an SPL of 100 dB @1m with -6 dBu input level.

**ISSTM autostart function**

When the power switch on the loudspeaker is set to “ON”, the Intelligent Signal Sens-ing™ (ISSTM) autostart function of the loud-speaker is active. Automatic powering down to standby mode happens after a certain time when playback has ended. The power con-sumption in standby mode is typically less than 0.5 watts. The playback will automati-cally resume once an input signal is detected from the source.

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

**Setting the tone controls**

The frequency response of the system may also have to be adjusted to match the acous-tic environment. The adjustment is carried out by setting the three tone control switch groups “treble tilt”, “bass tilt” and “bass roll-off” on the rear panel of the amplifier. There is also a special “desktop low frequency” tone control which gives an attenuation of 4 dB at 160 Hz to compensate the effect of a mixing console, desk or other reflective surface between the listener and the loudspeaker. The factory settings for these controls are all “OFF” to give a flat anechoic response.

**Bass roll-off control**

Bass roll-off (first switch group from the left) affects the low frequency roll-off of the loud-speaker and attenuates its energy output near the cut-off frequency. Attenuation levels of -2, -4 or -6 dB can be selected.

Speaker Mounting Position	Treble tilt	Bass tilt	Bass roll-off	Desktop LF
Flat anechoic response	None	None	None	None
Free standing in a damped room	None	-2 dB	None	None
Free standing in a reverberant room	None	-4 dB	None	None
Near field on a reflective surface	None	-2 dB	None	-4 dB
In a corner	None	-4 dB	-4 dB	None



Figure 4. K&M type wall mount

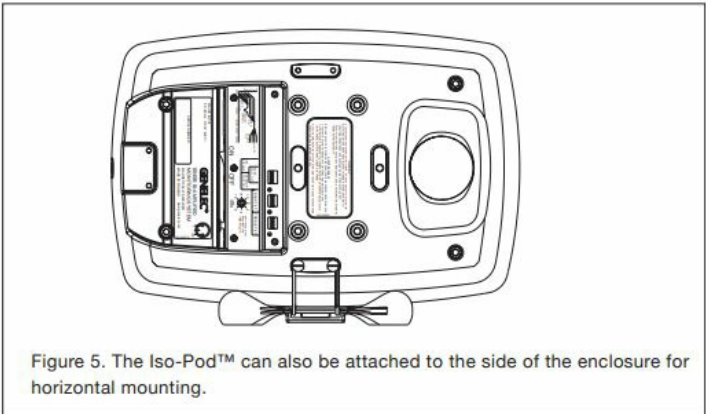


Figure 5. The Iso-Pod™ can also be attached to the side of the enclosure for horizontal mounting.



Figure 6. Carrying bag for a pair of 8040B loudspeakers.

### **Desktop low frequency control**

The desktop low frequency control (fifth switch of first switch group from the left) attenuates the bass frequencies around 160 Hz by 4 dB (see figures 7 and 9). 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 similar reflective surface.

### **Bass tilt control**

The bass tilt control switches (second switch group from the left) offer three attenuation levels for the bass response below 800 Hz, usually necessary when the loudspeakers are placed near room boundaries. The attenuation levels are -2 dB, -4 dB and -6 dB.

### **Treble tilt control**

Treble tilt (third switch group from the left) allows adjusting the treble response above 5 kHz by +2, -2, or -4 dB, which can be used for correcting an excessively bright or dull sounding system. An acoustic measuring system such as WinMLS is recommended for analyzing the effects of the adjustments, however, careful listening with suitable test recordings can also lead to good results if a test system is not available. Table 1 shows some typical settings in various situations. Figures 7 and 9 show the effect of the controls on the anechoic response. Always start adjustment by setting all switches to "OFF" position. Then set only one switch per group to the "ON" position to select the desired adjustment. If more than one switch is set to "ON" (within one switch group) the attenuation value is not accurate. Measure or listen systematically through the different combinations of settings to find the best frequency balance.

## **Maintenance**

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

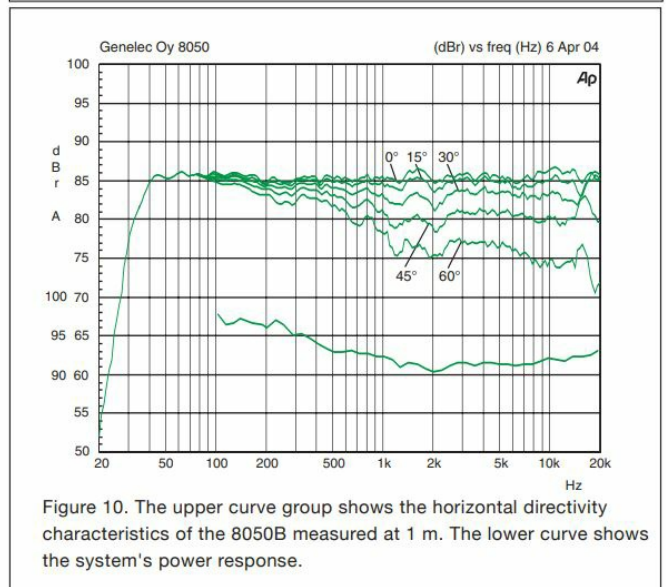
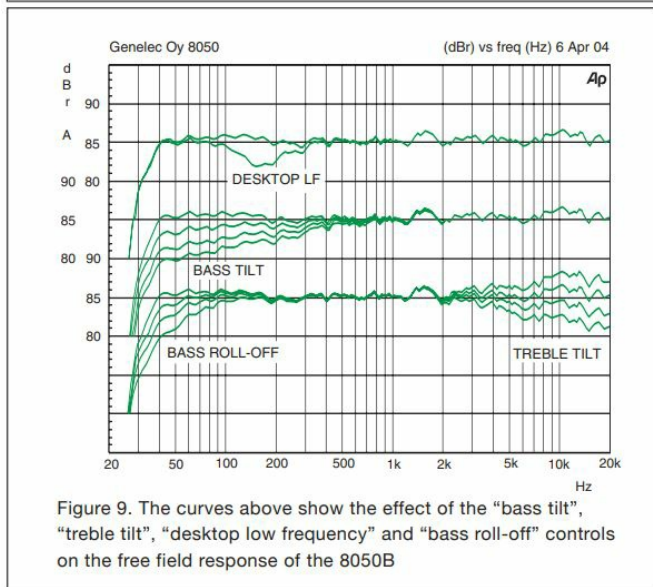
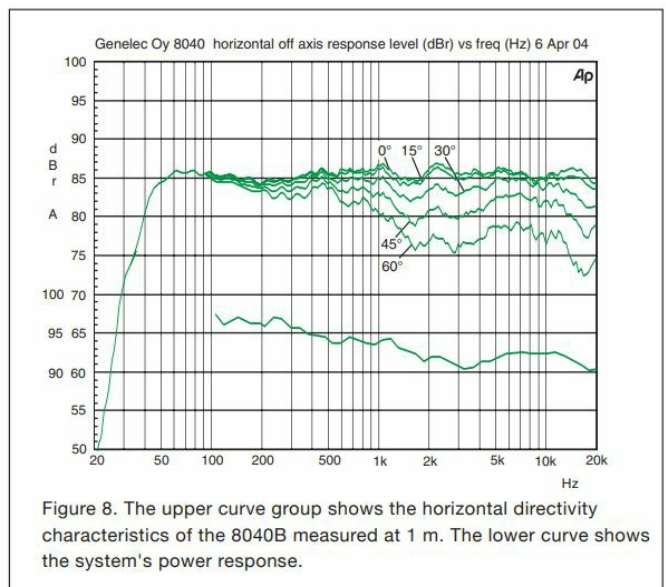
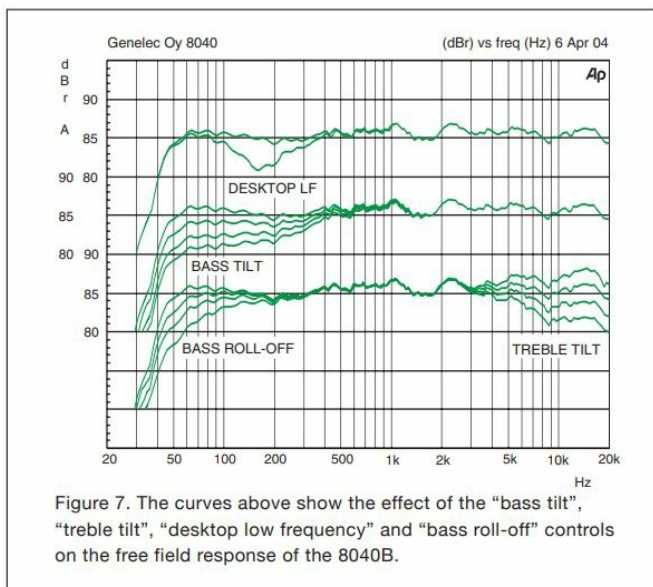
## **Safety considerations**

Although the 8040B and 8050B have been designed in accordance with international safety standards, to ensure safe operation and to maintain the loudspeaker under safe operating conditions, the following warnings and cautions must be observed:

- Servicing and adjustment must only be performed by qualified service personnel. The loudspeaker must not be opened.
- Do not use this product with an unearthed mains cable as this may lead to personal injury.
- To prevent fire or electric shock, do not expose the unit to water or moisture. Do not place any objects filled with liquid, such as vases on the loudspeaker or near it.
- Note that the amplifier is not completely disconnected from the AC mains service unless the mains power cord is removed from the amplifier or the mains outlet.
- Free flow of air behind the loudspeaker is necessary to maintain sufficient cooling. Do not obstruct airflow around the loudspeakers.
- 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.

**WARNING!** Genelec 8040B and 8050B loudspeakers are capable of producing sound pressure levels in excess of 85 dB, which may cause permanent hearing damage.





## Guarantee

Genelec 8040B and 8050B are supplied with two year guarantee against manufacturing faults or defects that might alter the performance of the loudspeakers. Refer to supplier for full sales and guarantee terms.

## Compliance to FCC rules

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver.
2. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

3. Consult the dealer or an experienced radio/ TV technician for help
4. Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

<b>SYSTEM SPECIFICATIONS</b>		
	<b>8040B</b>	<b>8050B</b>
Lower cut-off frequency, -3 dB Upper cut-off frequency, -3 dB	$\leq 45 \text{ Hz}$ $\geq 21 \text{ kHz}$	$\leq 35 \text{ Hz}$ $\geq 21 \text{ kHz}$
Free field frequency response of system ( $\pm 2.0 \text{ dB}$ )	48 Hz – 20 kHz	38 Hz – 20 kHz
Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz  @ 1 m  @ 0.5 m	$\geq 105 \text{ dB SPL}$ $\geq 111 \text{ dB SPL}$	$\geq 110 \text{ dB SPL}$ $\geq 116 \text{ dB SPL}$
Maximum long term RMS acoustic output in same conditions with IEC weighted noise (limited by driver unit protection circuit) @ 1 m	$\geq 99 \text{ dB SPL}$	$\geq 101 \text{ dB SPL}$
Maximum peak acoustic output per pair above console top, @ 1 m distance with music material	$\geq 115 \text{ dB SPL}$	$\geq 120 \text{ dB SPL}$
Self generated noise level in free field @ 1m on axis (A-weighted)	$\leq 10 \text{ dB}$	$\leq 10 \text{ dB}$
Harmonic distortion at 90 dB SPL @ 1m on axis  Freq. 50 to 100 Hz  > 100 Hz	$< 2 \%$ $< 0.5 \%$	$< 2 \%$ $< 0.5 \%$



<p>Drivers:</p> <p>Bass Treble</p> <p>Both drivers are magnetically shielded</p>	<p>165 mm (6 1/2 in) 19 mm (3/4 in) metal dome</p>	<p>205 mm (8 in)</p> <p>25 mm (1 in) metal dome</p>
<p>Weight:</p>	<p>9.4 kg (20.7 lbs)</p>	<p>14.4 kg (31.7 lbs)</p>
<p>Dimensions:</p> <p>Height (without table support Height (including table support) Width</p> <p>Depth</p>	<p>350 mm (13 13/16 in)</p> <p>365 mm (14 3/8 in) 237 mm (9 3/8 in)</p> <p>223 mm (8 13/16 in)</p>	<p>433 mm (17 1/16 in)</p> <p>452 mm (17 13/16 in)</p> <p>286 mm (11 1/4 in)</p> <p>278 mm (10 15/16 in)</p>

<b>CROSSOVER SECTION</b>		
	<b>8040B</b>	<b>8050B</b>
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:	Adjustable from +6 to -6 dBu	
Crossover frequency, Bass/Treble	3.0 kHz	1.8 kHz
Treble tilt control operating range in 2 dB steps	From +2 to -4 dB & MUTE @ 15 kHz	From +2 to -4 dB & MUTE @ 15 kHz
Desktop low frequency control operating range	-4 dB @ 160 Hz	-4 dB @ 160 Hz
Bass roll-off control operating range in 2 dB steps	From 0 to -6 dB @ 45 Hz	From 0 to -6 dB @ 35 Hz
Bass tilt control operating range in 2 dB steps	From 0 to -6 dB @ 100 Hz & MUTE	From 0 to -6 dB @ 100 Hz & MUTE
	The 'CAL' position is with all tone controls set to 'off' and the input sensitivity control to maximum (fully clockwise)	

AMPLIFIER SECTION		
	8040B	8050B
Bass amplifier short term output power Treble amplifier short term output power	90 W	150 W
Long term output power is limited by driver unit protection circuitry	90 W	120 W
Amplifier system distortion at nominal output	≤ 0.05 %	≤ 0.05 %
THD SMPTE-IM CCIF-IM DIM 100	≤ 0.05 %	≤ 0.05 %
	≤ 0.05 %	≤ 0.05 %
	≤ 0.05 %	≤ 0.05 %
Signal to Noise ratio, referred to full output		
Bass Treble	≥ 100 dB	≥ 100 dB
	≥ 100 dB	≥ 100 dB
Mains voltage	100, 120, 220 or 230 V according to region	
Voltage operating range	±10 %	±10 %
Power consumption Idle	10 W	10 W
Standby Full output	< 0.5 W	<0.5 W
	110 W	170 W

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**Documents / Resources**

	<p><a href="#">GENELEC 8040B Active Monitoring Systems</a> [pdf] User Manual</p> <p>8040B Active Monitoring Systems, 8040B, Active Monitoring Systems, Monitoring Systems, Systems</p>
	<p><a href="#">GENELEC 8040B Active Monitoring Systems</a> [pdf] User Manual</p> <p>8040B Active Monitoring Systems, 8040B, Active Monitoring Systems, Monitoring Systems</p>

**References**

- [G World Leader in Studio Monitors - Genelec.com](#)