8430A

GENELEC®

General Description

The Genelec 8430A is a two-way smart active monitors designed for demanding professional audio-over-IP applications using interoperable AES67 format.

Genelec Smart Active Monitor™ (SAM™) digital signal processing (DSP) built inside each smart active monitor with Genelec Loudspeaker Manager™ (GLM™) software provides unparalleled acoustic quality, ease of use, and high monitoring accuracy even in difficult acoustic environments. The high performance drivers are directly connected to dedicated Class D power amplifiers. System protection is implemented as a part of the SAM signal processing.

The MDE™ (Minimum Diffraction Enclosure™) enclosure is made of die-cast aluminium and shaped to reduce edge diffraction. Combined with the advanced Directivity Control Waveguide™ (DCW™), this design contributes to the excellent acoustic neutrality.

Delivery Contents

Each monitor is supplied with a mains cable, two 5 meter RJ45 cables and this operating manual.

Connections

When using analogue signal input, before connecting, switch off the monitors. Once all the analogue connections have been made, the monitors can be switched on.

Mains Power

The power switch is located on the back panel (see Figure 2). Connect to a mains socket having a protective earthed connection. These monitors can be connected to any mains voltage in the range 100-240 VAC, 50-60 Hz.

GLM Control Network

To run the acoustic setup process, the monitors and subwoofers are connected to a computer using the GLM Adapter. An RJ45 cable is supplied for this. Start control GLM control network cabling from the GLM Adapter and daisy-chain all monitors and subwoofers (see Figure 3). No special sequence is necessary.

Analog Audio Input

The analog audio input on both models accepts a balanced male XLR connector.

AES67 Audio-over-IP Input

The 8430A digital audio input accepts a Ethernet cable (RJ45 connector) carrying an AES67 formatted digital audio signal. The 8430 can be configured to receive one or two channels in an audio stream.

Setting up the Audio Stream

The audio stream is set up using the web page inside the 8430A product. Before attempting setup, connect the monitor to the IP network switch device. Also connect your computer to the same network. To display this setup page, open a web browser and write in the address field the product identifier printed in the back of the monitor (example of address field content http://8430A-xx-xx-xx.local./ for a monitor with the address 8430A-xx-xx-xx) or alternatively write the IP address the DHCP has assigned for the monitor. To use the product identifier printed in the back of the monitor you must have the Bonjour protocol installed in the computer you use for the setup. The Bonjour protocol software kits are available from several sources.

You will see a setup page. All 8430A monitors on the same network are visible as symbols on the top of the setup page. Select the monitor you want to set up by clicking on one of these. Then, use the fields in the bottom of the page to select the stream and the channel in the stream for this monitor. Work through all the speakers until you have assigned all the inputs to monitors. We recommend you assign a stream to input one. In some cases you may need to manually insert the SDP session descriptor of the stream and channel you want to reproduce.

After you have all the inputs set, start the GLM software and select the digital audio input. If you followed the recommendation above, select input channel A. To change to another audio stream, use the web page inside the monitor.

There are some requirements for the AE67 network. The network must run a clock source supporting the Precision Time Protocol according to the format defined in IEEE 1588-2008. Several audio sources and media IP switch devices can act as PTP clock sources for the network. It is also useful to make sure that the IP switches delivering the audio streams have been configured to prioritize the PTP clock messages and the RTP audio streams over other traffic.

The global receiver delay determines the time from the source device output to the time of reproduction at the destination device. If this time is too short, the samples will not arrive to the destination device in time because of network delay and the destination device will discard these samples. Too large a delay can cause the received samples to fall out of the receiver buffer and be discarded. The maximum delay is very large and depends on the network settings.

H = 190 mm (7 1/2 in)

Figure 1: Location of the acoustic axis
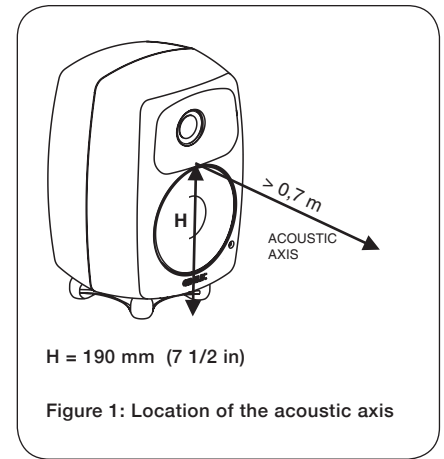
Settings and Acoustic Calibration

The Smart Active Monitors are extremely flexible in compensating the acoustic influences of the room and support automated setup using the GLM User Kit and software. The 8430A are compatible with GLM 2.0 and later.

The GLM software can be downloaded from Genelec web site (www.genelec.com/glm). The GLM 2.0 User Kit is needed for the acoustic setup and calibration. The GLM User Kit contains a GLM Adapter and GLM measurement microphone.

The GLM Adapter is connected to the computer USB port and the GLM network. The GLM measurement microphone is placed at the listening location. Follow the instructions in the GLM software to acoustically calibrate the monitors.

ISS™ Autostart Function

Intelligent Signal Sensing™ (ISS™) enables very low standby power consumption, less than 0.5 watts.

The ISS function can be enabled by clicking the "ISS Power Saving" pulldown menu in the GLM software. This menu also provides a selection of the time before entering standby. The playback resumes once an input signal is detected. There is a slight delay before playback resumes.

Mounting Considerations

Align the Monitors Correctly

Place and point the monitors so that their acoustic axes (see figure 1) are aimed towards the listening position. Vertical orientation is preferred, as this minimises the sound colour change around the crossover frequency when the listener is moving horizontally.
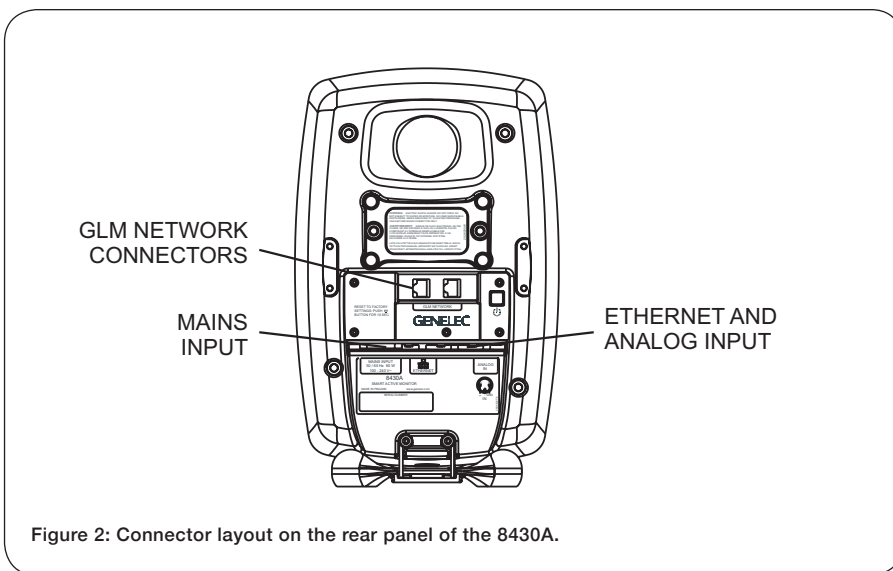
Figure 2: Connector layout on the rear panel of the 8430A.

GLM NETWORK CONNECTORS

MAINS INPUT

ETHERNET AND ANALOG INPUT

Figure 3: Connector panel of the 8430A.

Maintain Symmetry
Place the monitors at an equal distance from the listening position and symmetrically relative to the room walls. Place the listening position on the room front-back centreline and the monitors at an equal distance from this centreline.

Minimise Reflections
Acoustic reflections are created by objects close to the monitors. Such objects can be desks, cabinets, computer monitors etc. Acoustic reflections can cause unwanted sound colouration and sound image instability. These can be minimised by placing the monitors and the listening position clear of reflective surfaces.

Minimum Clearances
Ensure sufficient clearance for amplifier cooling and reflex port function. The minimum clearance is 3 cm (13/16 in) behind, above, and on both sides of the monitor. The ambient temperature should be less than 35 degrees Celsius (95°F.)

Mounting Options

The Genelec 8430A offers the Iso-Pod™ (Isolation Positioner/Decoupler™) vibration insulating stand allowing tilting of the monitor acoustic axis towards the listener. The bottom of the monitor has a 3/8 in UNC thread. The rear has two M6 x 10 mm threads for wall or ceiling mounts. Genelec offers a selection of mounting accessories.

Safety Considerations

Servicing must only be performed by qualified service personnel. The monitor must not be opened.

• Do not use the monitor with an unearthed mains cable or an unearthed mains connection.
• Do not expose the monitor to water or moisture. Do not place any objects filled with liquid, such as vases, on the monitor or near it.
• This monitor is capable of producing sound pressure levels in excess of 85 dB, which may cause permanent hearing damage.
• Free flow of air behind the monitor is necessary to maintain sufficient cooling. Do not obstruct airflow around the monitor.
• The device is not completely disconnected from the AC mains service unless the mains power cord is detached from the device or the mains outlet.

Guarantee

This product is guaranteed for a period of two years against faults in materials or workmanship. 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:
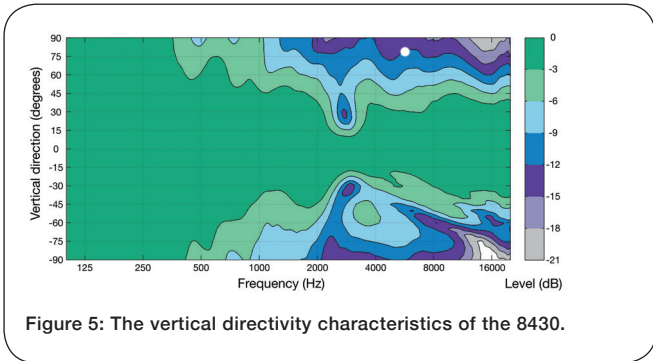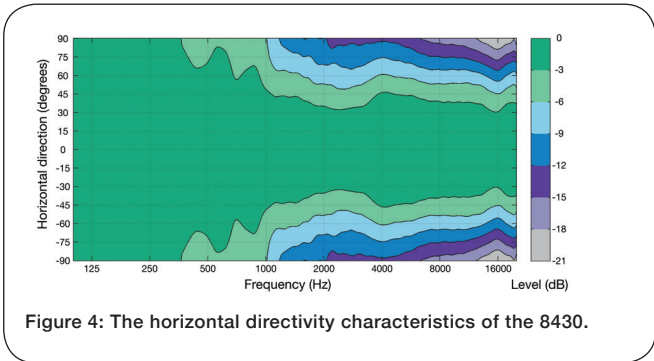
This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

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:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.

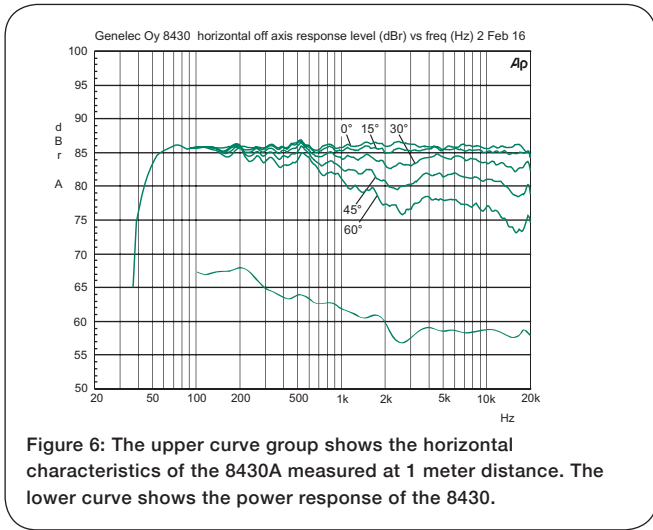Figure 4: The horizontal directivity characteristics of the 8430.

Figure 5: The vertical directivity characteristics of the 8430.

SYSTEM SPECIFICATIONS

Frequency range –6 dB:	45 Hz – 23 kHz
Accuracy of frequency response:	±1.5 dB (58 Hz – 20 kHz)
Maximum short term sine wave acoustic output on axis in half space, averaged from 100 Hz to 3 kHz:	> 104 dB SPL
Maximum long term RMS acoustic output in same conditions with IEC weighted noise (limited by driver unit protection circuit):	> 96 dB SPL
Maximum peak acoustic output per pair, 1 m distance with music material:	> 110 dB
Self generated noise level in free field on axis:	< 5 dB (A weighted)
Harmonic distortion at 85 dB SPL on axis:	50…100 Hz $\leq$ 2 % >100 Hz $\leq$ 0.5 %
Drivers: Woofer Tweeter Both drivers are magnetically shielded	 130 mm (5 in) cone 19 mm ($^3/_4$ in) metal dome
Weight:	5.5 kg (12.1 lb)
Dimensions: Height including Iso-Pod™ table stand Height without Iso-Pod™ table stand Width Depth	 299 mm (11$^{13}/_{16}$ in) 285 mm (11$^1/_4$ in) 189 mm (7$^7/_{16}$ in) 178 mm (7 in)

AMPLIFIER SECTION

Bass amplifier short term output power Treble amplifier short term output power	50 W 50 W
Total harmonic distortion at nominal output	<0.05%
Mains voltage	100-240 VAC, 50-60 Hz
Power consumption (ISS active / idle / maximum)	< 0.5 W / 3.0 W / 50 W

Figure 6: The upper curve group shows the horizontal characteristics of the 8430A measured at 1 meter distance. The lower curve shows the power response of the 8430.

INPUT SECTION

Audio-over-IP format and input connector	AES67 and RAVENNA RJ45 connector with or without an XLR shell Fast Ethernet 100BASE-TX (IEEE 802.3)
Audio-over-IP input word length and format	L16 (16 bits), fixed point linear PCM fraction (RFC1890) L24 (24 bits), fixed point linear PCM fraction (RFC3190)
Audio-over-IP Input sampling rate	44.1, 48, 88.2, 96 kHz
Crossover frequency	2.9 kHz
Analog input (load impedance)	XLR female (10 kOhm, balanced)
Analog input level for 100 dB SPL output at 1 meter	-6 dBu (adjustable in GLM software)
Maximum analog input	24 dBu
GLM Control network connectors	2 x RJ45

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