

The right speaker set-up

Genelec Oy's education and training manager *Christophe Anet* explains how correct loudspeaker selection is important for achieving a successful audio installation.

>>> The way loudspeakers interact with rooms defines the overall quality and precision of the audio reproduction in a particular installation. Loudspeaker placement in relation to boundaries, furniture design and layout, room shapes and acoustic treatments, are all critical parameters which affect the sound field.

To achieve a successful audio installation one needs to use precise and reliable loudspeaker systems that reproduce sound sources neutrally. An active loudspeaker that is capable of adapting to acoustical environments automatically and correcting for levels, delays and room calibration is an indispensable tool for a professional installer.

Controlled via a digital network, Genelec Smart Active Monitor, SAM™, systems address all these tasks.

Our proprietary bi-directional network uses the physical layer of Cat 5 cable, RJ45 connectors and related electronics. The Genelec Loudspeaker Manager - GLM™ - software which runs on both PC and Mac platforms can control up to 30 loudspeakers and subwoofers. It manages connectivity to all loudspeakers on the network, from cabling and labeling to complete loudspeaker definitions. The user has access to loudspeaker volume control, user-definable preset levels, individual channel mute and solo functions, bass management bypass as well as system mute and dim commands. All system



Correct loudspeaker placement and calibration is essential to achieve successful installations.



Genelec In-Walls active loudspeakers provide outstanding sound reproduction while being aesthetically elegant and unobtrusive.

calibration information are saved in a single system set-up file that can be recalled in less than a second.

At the heart of GLM is AutoCal™, a fully automated acoustical calibration tool for a single room, multiple loudspeaker system. It uses loudspeaker-generated log-sweep sine signals recorded by a calibrated high quality microphone to determine the correct acoustical alignment for every loudspeaker and subwoofer on the GLM network. One (SinglePoint™) or more (MultiPoint™) measurement positions can be selected.

MultiPoint is especially useful for rooms with several critical listening positions. Once the frequency response of every loudspeaker and subwoofer is calculated, AutoCal determines the correct acoustical settings for flat frequency response at the listening position (or an average over the MultiPoint area) and aligns for equal delay between all loudspeakers and the primary listening position. If one, or more, subwoofer is present on the network AutoCal will also align output levels and the subwoofer/main loudspeaker crossover phase.

All applications do not require full control of all parameters all the time. GLM features an operational standalone (stored settings) mode which can be used with analogue or digital signal sources. At the end of the system calibration, the Stored Settings mode allows GLM to store data into each loudspeakers and subwoofers. The network can then be shut down or disconnected.

The technology in SAM systems provides efficient, consistent and effective tools to integrate loudspeakers into the acoustics of listening environments. If there are poor acoustical agreements between rooms, the sound reproduction quality will suffer from large variations. SAM systems will improve the similarity between rooms

which means better transportability of content between environments with minimum quality variations. Also, the ability to generate unlimited numbers of System Setup calibration files allows audio installations to be easily re-purposed, or to optimise multiple positions in the same room.

The 8240A and 8250A two-way SAM systems are designed for small to mid-sized rooms. The three-way models 8260A, 1237A, 1238A and 1238CF extend the applications to large rooms and high sound levels.

To complement its loudspeakers, Genelec has developed three SAM subwoofers, the 7260A, 7270A and 7271A which deliver articulate and precise low frequency reproduction. To offer full versatility, the Genelec AD9200 analog-to-digital converter supports SAM subwoofers with analog signal sources

SAM systems offer real benefits to both integrators and end users. Together with GLM and AutoCal technologies, active loudspeakers can be integrated easily into complicated installations and challenging acoustic environments. ■

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