

CASE STUDY

Peter Roth Resonance Centre

KLANGWELT TOGGENBURG, SWITZERLAND

Genelec Powers Switzerland's First Sound Dome at the Peter Roth Resonance Centre



GENELEC®



THE WORLD OF SOUND

Set against the stunning backdrop of the Swiss Alps is [Klangwelt Toggenburg](#), a cultural centre that offers a unique blend of architecture, nature and sound. The journey began twenty years ago with [Klangweg](#) — a walking trail featuring 27 art and sound installations to discover. Evolving into a series of captivating locations, the new [Klanghaus](#) and [Peter Roth Resonance Centre](#) (Resonanzzentrum) invite visitors to engage with sound in an entirely new way. The Resonance Centre houses the Klangdom, Switzerland's first sound dome, equipped with thirty-three [Genelec Smart IP](#) loudspeakers to deliver a one-of-a-kind auditory journey.

Blending architecture with cutting-edge acoustic design, the Klangdom celebrates sound by capturing textures and rhythms typically found only in nature — from overtone singing to whistling wind — carefully designed through 3D recordings and spatial compositions to immerse listeners in the sonic environment of Toggenburg. The project was spearheaded by [Idee und Klang](#), a Swiss audio design company with a successful history of collaboration with





Klangwelt. “Our existing partnership resulted in us being invited to join the latest project,” says Ramon De Marco, Sound Sceneographer at Idee und Klang. “The concept was extraordinary, but bringing it to life presented a real challenge.

AUDIO MEETS ARCHITECTURE

“There were many discussions about what the project would be,” explains De Marco. The Peter Roth Resonance Centre is an introduction to Klanghaus and the world of sound. On the third floor, the Klangdom overlooks the spectacular views of the natural Swiss landscape and offers an interactive audio experience. “The Klangdom was conceived as a dedicated space for listening,” he states. “The aim is to guide visitors into the essence of sound — sometimes contemplative and meditative, sometimes ecological and cultural.

“We developed the technical concept, alongside Arev Imer, a freelance audio engineer,” De Marco continues. “Due to

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Sound Sceneographer



the architectural and acoustical complexities of the dome, a sound system was needed that could overcome these challenges. We specified [Genelec](#) from the very beginning. They deliver the perfect combination of studio-quality audio, precise performance, and enduring reliability.

The dome consists of three metal rings mounted with loudspeakers to create a dynamic listening environment. During the installation, the rings offered limited cable access, causing unexpected complexities. “Due to the motion of the rings, careful acoustic planning was essential to achieving the desired result,” reveals De Marco. “From experience, I know that planning is just as critical as the loudspeakers themselves. In this case, the Smart IP models proved invaluable thanks to their single-cable design.

Sculpting Immersive Soundscapes

Thirty-three [4430](#) Smart IP loudspeakers were strategically installed in the Klangdom, bringing to life an immersive three-dimensional soundscape. “I’ve been familiar with Genelec loudspeakers for a while,” remarks [Arev Imer](#). “I was excited

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to work with the 4430 model, particularly due to its [Dante](#) and AES67 networking capabilities.” Eight 4430s were mounted on each of the top and bottom rings, while sixteen were mounted on a larger ring in the middle. Plus, one central ‘Voice of God’ loudspeaker was installed at the top of the dome.

“The two lower rings are height-adjustable,” De Marco adds. “This makes it possible to create optimal listening positions for visitors, whether seated or lying down.” If needed for events, the rings can be lifted to the ceiling, therefore removing the dome and repurposing the entire space. “The combination of geometric design and mechanical flexibility allows the Klangdom to function as both a precise immersive instrument and a versatile performance space.”

“Each ring connects to a [NETGEAR M4250 AV](#) switch via a single CAT6 cable, with local distribution managed by PoE switches,” adds Imer. “Running just one cable per loudspeaker is a real game-changer. The wiring remained clean and completely unobtrusive.” In a space such as the Resonance Centre, where architecture, aesthetics, and acoustics are planned with millimetre precision — this discreet solution preserves the integrity of the design while delivering uncompromised sonic performance.

Loudspeakers were grouped into small hubs on the rings, with each hub delivering a distinct layer of audio that can grow into an immersive soundscape within the dome. “Using [Dante Controller](#) and [Virtual Soundcard](#), we identified, named, and routed the loudspeakers, and with the help of [Smart IP Manager](#), we achieved a flat frequency response complementing the room’s acoustic treatment,” describes Imer. “The channels can be controlled discreetly with pre-rendered content, or with the DAW Reaper, using a ready-made template that matches the setup.” Idee und Klang mixed all the audio for the Klangdom, utilising the loudspeaker hub configuration for precise and dynamic distribution of sound, enhancing the overall immersion and spatiality of the experience.





RESONANCE AND REFLECTION

The opening of the Peter Roth Resonance Centre represents a new chapter in Klangwelt Toggenburg's ambitious journey. Accommodating up to one hundred guests at a time, the Resonance Centre serves as an introduction to the 'world of sound'.

"Every hour, a 15-minute introduction is played through the loudspeakers, alternating between two different versions," says De Marco. "Both begin with a poetic journey — from the origin of sound to the present — combining custom 3D recordings with archival material." The first introduction draws the listener's attention to soundscapes and acoustic ecology, immersing them in the sonic environment of Toggenburg. The second emphasises natural music, such as overtone singing. "It is planned that the system will be used for spatial compositions, generative ambisonic textures, and commissioned works that explore the full 33-channel setup of the loudspeakers," he adds.

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Breathtaking views combined with the architectural brilliance of the Klangdom create a fascinating atmosphere, with the integration of Smart IP loudspeakers delivering an unparalleled immersive soundscape. “At the opening, we were approached by so many visitors about the impressive audio quality,” shares De Marco. “Our clients and other audio professionals in attendance had only positive things to say.”

“This project was an incredible opportunity to work on an immersive, publicly accessible multichannel listening space,” notes Imer. “Unlike conventional environments, this installation invites visitors into a space dedicated entirely to the art of listening.”

Reflecting on the philosophy of the Klangdom, De Marco concludes: “Free of visual distractions, the dome highlights listening as an embodied, collective act: one where space itself becomes the instrument and sound is a bridge between people, culture, and environment.”



THE DETAILS

Client

Klangwelt Toggenburg

Architect

Graber Pulver Architects

Audio Design

Idee und Klang

Integrator

Idee und Klang, Arev Imer

Loudspeakers

- 33 x 4430A

Network & Control:

Dante Controller

Dante Virtual Soundcard

NETGEAR M4250 AV Switch