CASE STUDY

G LIVELAB CALLS ON GENELEC TO DELIVER A LIVE SOUND EXPERIENCE LIKE NO OTHER

When Livelaboratorio Oy set about offering a fresh take on the live music venue, the importance of a superior sound system became its top priority. The new organisation – owned by The Finnish Musicians Union – aimed to tackle a challenging industry climate by bringing an unrivalled audio experience to the scene. Having opened its doors at the end of August 2016, G Livelab is a stunning 150-seat venue in Helsinki which is designed to cater to all musical genres. The venue is fully equipped with a flexible bespoke Genelec sound solution, including the first Finnish install of the new 1236A SAM™ Studio Monitors, as well as the 8430A IP Studio Monitors, the first commercially available audio-over-IP studio monitor.

"As we have seen a slight overall decline in music club audiences in Finland and elsewhere, we wanted to dig a little deeper into what the reasons might be and what could be done to improve the situation," says Ahti Vänttinen, Chairman of the Board of Livelaboratorio Oy . "First of all, we were convinced that music hasn't turned bad. Instead, the level of expectations of the audience has probably gone up in many ways. People are used to a pretty good audio quality as a lot of us go around wearing headphones. Many seem to be unhappy with the general standard of live audio today."

> "A great big thanks to the guys at Genelec for their patience and flexibility as we worked our way towards the perfect end result."

Noting these raised standards in audio, Livelaboratorio Oy first examined what options were available to them in order to deliver an experience that would exceed expectations. "We were not happy with the commercial live audio solutions offered by the major players of the business, as their main objective seems to be to focus as much sound pressure as possible to far away from

the speakers, i.e. to cover the whole listening area with as few speakers as possible and do it as cost-effectively as possible. Our starting point was only the best possible sound quality for the whole audience. We soon realized that the logic of the live audio systems will not work, as we would need to provide the audience with direct sound, not reflections. The only way to do this seemed to be with a lot of speakers arranged so that everyone in the audience could get – as much as possible – a near-field speaker exposure."

Having set such exacting requirements, the next question for the venue was to decide which speakers to install, and Livelaboratorio Oy felt that Genelec was the perfect fit for its audio ambitions. "Musicians seem to consider Genelec an industry standard which they are used to listening to, especially in recording studio situations," adds Ahti. "Genelec stands for neutral, transparent sound, which suited our idea of leaving the decision of how the music should sound like to the musicians. In addition, many music professionals involved in the creation of G Livelab had been using Genelec for a long time in various situations. As there is a high emphasis on design in G Livelab, we also think that Genelec speakers represent Finnish design in a great way." The install took full advantage of Genelec's extensive range, including the 8430A IP Studio Monitors, which contractors Bright Sales & Installation Oy selected.

"The Genelec 8430 IP SAM™ Studio Monitors with AES67 network offer a huge variety of possibilities for sound designers in the newly opened club G Livelab

in Helsinki," says Santtu Sipilä, Head of Installation of Bright Sales & Installation Oy. "The original specification for the club's 'Lokki' virtual acoustic system was with Genelec 8030B Studio Monitors, but the networked approach quickly became the first choice for AV contractor Bright Sales & Installation Oy. The 'Lokki' virtual acoustic system was designed by Tapio Lokki, professor at Aalto University.

"The design team of Bright has a long history with audio networks including Dante and Q-Lan, both of which to soon have AES67 compatibility. Easier cabling and integration and future possibilities to route any audio channel to any loudspeaker were the key decision points in choosing the networked loudspeakers. The future of installed audio is in the network and it is great to see Genelec as one of the first manufacturers to offer networked loudspeakers for these kinds of applications."

Whilst the potential to create a new live music experience for Helsinki was an exciting opportunity,

there were a series of challenges to overcome in order to achieve such a bold and innovative install, including a need to change perceptions. “The first major challenge was the attitude of the live audio gurus we initially talked to. Some of them said that this cannot and should not be done. A common object of mistrust was the directional capabilities of Genelec speakers. Later that proved to be entirely unfounded,” says Ahti. “Another challenge was making sure there was enough headroom for amplified rhythm music, especially the drum set. In the end, it was a surprise how much power is needed to reproduce in sufficient SPL a rhythm section. Although the multi-speaker system with delay lines makes it possible to keep the overall volume lower than usual, we still needed to use the biggest main speakers Genelec makes.”

The virtual acoustics system at G Livelab is unlike any other in existence. It consists of 40 Genelec 8430 IP SAM™ loudspeakers, eight of which are on the stage area and 32 in the audience area. The system takes input from six microphones in the ceiling of the stage or from the stereo auxiliary output directly from the desk. Thus, the virtual acoustics can be used with purely acoustic acts, but also with amplified acts together with the normal PA system. The input signals are fed to a custom made 64-channel time-variant feedback delay network that generates natural reverberation, which is routed to the 40 virtual acoustics loudspeakers. The outputs are delayed according to the position of each loudspeaker to guarantee the proper localization of sound sources on the stage. The reverberation can be adjusted so that the space sounds like anything from a bar environment all the way up to a cathedral. In addition, the levels of reverberation on the stage and in the audience area can be separately adjusted to optimize both the support for the musicians and the spatial sound for the audience.

When the virtual acoustics system is properly used, it is imperceptible to the spectators of a live gig. The space merely feels live and intimate to those watching on, while the focus stays on the act on the stage. The virtual acoustics help the mixing engineers to keep the main PA signals clear, as the system allows the distribution of reverb equally to the whole audience area. Therefore, each act from a string quartet to a hard core metal band can be optimally mixed to fit in to the venue.

Theatre Consultant Tapio Ilomäki, from Akukon Oy, summarised the system: “The signal path of the sound system is fully digital from mic preamps to Genelec monitors. In addition, it is fully possible to connect an analogue audio sound console in parallel with the digital.
“The console and the A/D converters are Yamaha CL5 and Rio Series. The analogue console is connected to the system via Klark Teknik mic splitters and RIO A/D converters. Broadcast companies can easily use this system and connect also by using a MADI interface. For example, a Finnish national broadcasting company has been interested in this. At the moment the system supports 56 channels but in the near future the capability may increase to 96 channels.
“The system processing and routing are handled via QSC´s DSP. The QSC also works as a processor in AV use when the console is not needed. For people with hearing problems, the signal distribution has been made with Sennheiser´s IR system, which can also be used for interpretation purposes.
“The audio signal is divided into the main audience area, Genelec monitors are used in backstage, in office spaces as well as in the toilets, all delayed to match the main PA system.

“Both audio and HD quality video can be recorded as multi track versions to 64 channel hard disk. This material can be sent to the artist or performer as a memory or to be finished with post production work. Audio and video can also be distributed online via a live Pobit system. Thus for example, sitting on the terrace, one can watch performances with their own smart phone or tablet.
“The venue is also equipped with a 5.1 sound system for watching movies. The screen is naturally perforated to enable the best audio experience. The venue’s microphone selection covers all needs starting from small classical or acoustic performances to large scale Big Band recordings.
“The video system of the venue is implemented with HD resolution but the infrastructure allows also 4K. The video system enables the use of two different stage spaces for presentations. In addition to that, the performers’ audio and video can be broadcast outside the venue. All the cameras fulfil the needs of broadcast. The HD video is distributed to backstage and office spaces as well.
“Acoustically the venue is almost fully disconnected from the rest of the house and outside world. The

acoustics of the venue is reasonably neutral throughout the audience area. This has been tested by listening to a natural violin sound in all listening places. The sound stays neutral and carries nicely into every last corner of the venue. The Genelec SAM monitors with their automated calibration system have been a great help with this as well."

The end result is a venue which delivers a live sound unlike any other. The flat, neutral response of the Genelec speakers is perfectly complemented by the venue's interior, which was designed by Marco Casagrande, and incorporates urban materials – including brick, concrete, asphalt, glass, copper, steel, leather and ceramics – into its stylish design. G Livelab now proudly sits within the rich cultural landscape of Helsinki, and makes a unique contribution to its music scene by hosting a string of stellar acts – both Finnish and international.

"After a couple of weeks of performances with different types of music from classical, to pop, jazz and rap, the audience response has been very enthusiastic," adds Ahti at Livelaboratorio Oy. "Music professionals say they have never heard anything like this in a live setting, where you can hear all the nuances of music

even in the last seat in the bar. The rest of the audience are also noticing the difference, as they can hear everything wherever they sit, and the music does not need to be as loud as it very often is. There are also other types of benefits. Even discussion during a soft or acoustic performance is not as annoying as it might be, as there is usually a speaker closer to your ear than those who speak.

"Personally, as the one responsible for the whole project and especially the speaker concept, I couldn't be happier. At some point there was some uncertainty and stress, as the final result was not yet at hand. We were clearly taking a risk, as nothing quite like this had been tried before. But now I think we can say that we changed the rules of live audio to some extent. I hope this can serve as a model for future development in other venues.

"A great big thanks to the guys at Genelec for their patience and flexibility as we worked our way towards the perfect end result. It took some time and effort, but was definitely worth it."

KIT LIST

- 2 x 1236
- 14 x 1237
- 42 x 8430
- 4 x 8030
- 7 x 4020
- 6 x G One
- 2 x F One

Genelec Oy
Olvitie 5
74100 Iisalmi,
Finland
Tel. +358 17 8388
enquiries@genelec.com