

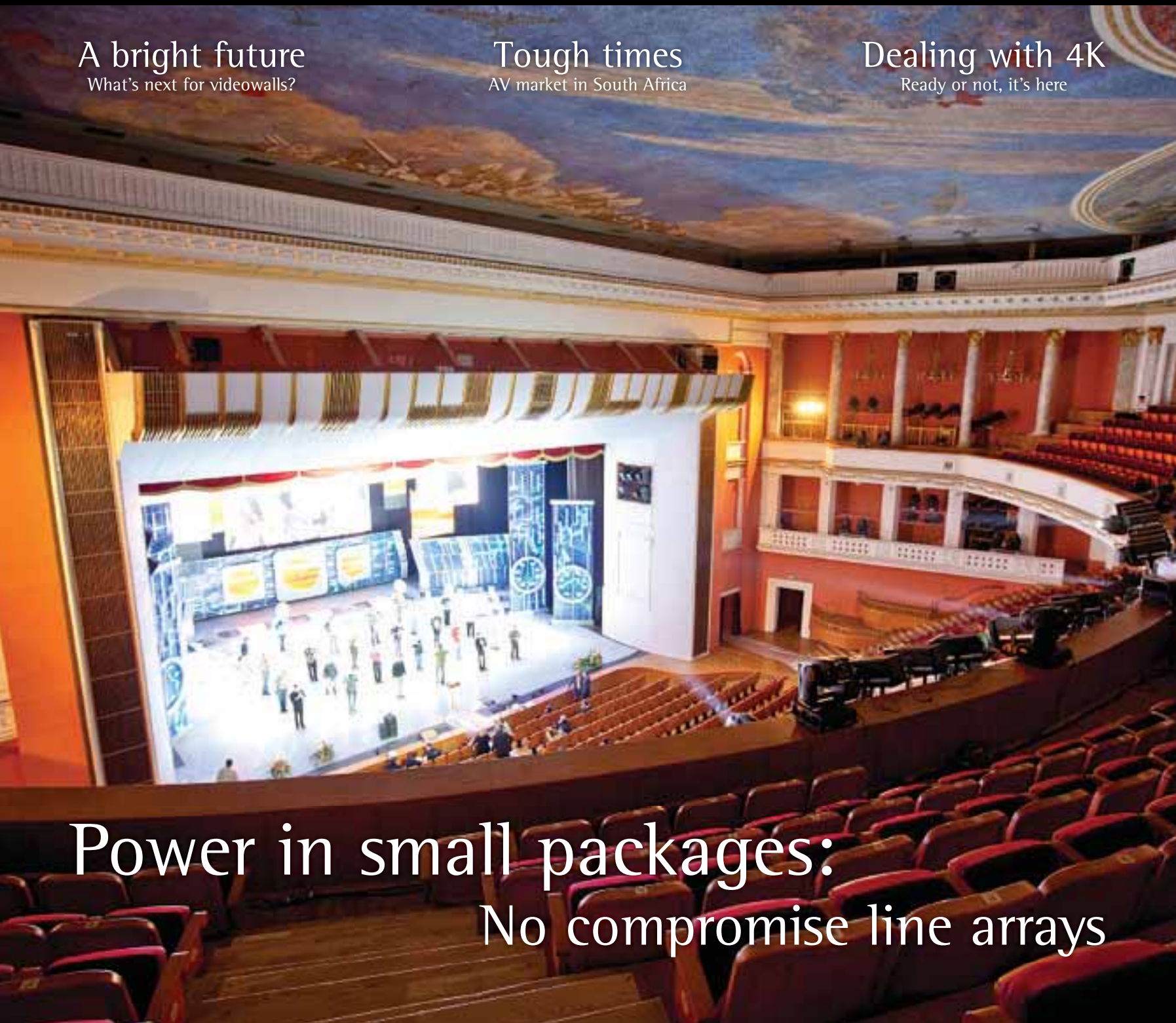
# INAVATE



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Swiss systems integrator Kilchenmann AG recently handled the audio overhaul of a historically significant cathedral in the company's home city. Nial Anderson sees how the company handled the installation.

# Hearing history



Bern Minster, as seen from Münsterplatz

**B**ern Minster is a Swiss Reformed cathedral and one of the oldest and most important of its type in the country. Located in the Old City of Bern, construction began on the Gothic style building in 1421. The west façade of the cathedral dominates Münsterplatz – the Old City's plaza – and by the time construction had finished in 1893 it was, and still remains, the tallest cathedral in Switzerland.

With the last update of the cathedral's audio system being more than 30 years ago, it was well overdue for attention. Before bidding began on the project the EMPA – the Swiss Federal Laboratories for Materials Science and Technology – carried out an acoustic analysis in the cathedral. With challenging acoustics the norm for large houses of worship like this, the

preferred bid would be the one that delivered the greatest level of speech intelligibility, while also catering for musical performances.

Eric Jäggi, head of marketing for Kilchenmann AG, says that while the budget was obviously a consideration, it wasn't one of the most important aspects of

*“ We found out that although speech and music was a prerequisite, the main focus was on the speech intelligibility. ”*

*- Eric Jäggi, Kilchenmann*

the bid. Being such a well-known and celebrated site, funding was readily available from numerous sources under the banner of Foundation Berner Münster. The funding body is the Evangelical-Reformed religious community of the city of Berne, The Munster Cathedral Parish, The City of Berne, The Civic Community of Berne, The Canton (state) of Berne and the Swiss Confederation.

“As it was a neutral submission where every supplier could participate the budget was, and normally always is, a consideration, although in this case not the key criteria. We were free to design the system under the premise to fulfill the requirements and of course didn't go over the top in order to stay in the race.”

The main criteria to satisfy in the design of the audio system was to reach an STI measurement of 0.6 after the cathedral was tested and found to have a reverberation time of six seconds. Those bidding for

the project were given one opportunity to do testing of their preferred equipment to ensure it could meet or exceed the performance requirements set out by the client.

Jäggi explained that several types of DSP were considered before Kilchenmann chose Symetrix with integrated Dante modules to handle the DSP for the project.

“In every project we consider different products to find out what suits the need best,” explains Jäggi. “In this case we chose the Symetrix products after testing, because it would fulfill 100 per cent of the requirements. We also found it was the best value for money. We have many years of experience with Symetrix and used these products on different occasions, also on other church projects.”

As well as equalisation, time alignment and management of all outputs (speakers and induction

## Tech-Spec

- Audio
- Ampetronic hearing loop
- Fohhn speakers
- Fostex speakers
- Lab.gruppen amplifiers
- Panbeam speakers
- Sennheiser microphones
- Symetrix DSPs

The interior of Bern Minster with speakers installed



< loop), all of the input signals including microphone and playback devices are leveled and mixed by the DSPs and routed to the appropriate destinations.

Kilchenmann specified 33 PanBeam P8 speakers to deliver audio throughout the cathedral. The speakers were chosen due to the extremely wide angle of reflected beam of 140 degrees of optimum uniform coverage in the audience area.

"We found out that although speech and music was a prerequisite the main focus was on the speech intelligibility," Jäggi recalls. "There the Symetrix DSPs in combination with the PanBeam perfectly satisfied and no subwoofer was necessary. Next to the audio quality of the speakers their appearance was a significant

decision factor in us choosing the PanBeam P8s."


The original mounting positions for the speakers were not suitable for the P8s because of the dimensions of the new speakers being both longer and needing to be at a different height.

New mounting points had to be made and Panbeam mountings were used to attach the speakers to the pillars of the cathedral.

The zones were specified by the EMPA, the Swiss Federal Laboratories for Materials Science and Technology, who carried out the initial tests to establish the reverberation time. The system is split into 32 audio zones with five different operating modes (front, mid-front, back, side, nave balcony).

Creating such a high number of zones is not common in church installations, Jäggi says.

"The operation and choice of the zones takes place at the audio rack itself by a push button panel," he explains. "On the other hand the system can be fine-tuned with a laptop which can be plugged in at different locations. There is no Wi-Fi as such. Running on the laptop is Symetrix's own SymVue application that we programmed to give a simple access to the different programs and basic settings."

Jäggi reports that the feedback from the client has been positive overall, with the audio system now up to date and worthy of its place in the historical building. 

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\* Futaresearch report 2014