

## Kling & Freitag SEQUENZA 10 Sound Systems at Kampnagel in Hamburg

Author and photos: Peter Kaminski



The Kampnagel Internationale Kulturfabrik is a permanent name on the art and concert scene. It has established itself as an international centre for contemporary performing arts. Besides theatre and dance performances, it has also increasingly turned its attention toward concerts. The range offered in the temple of culture in the Hamburg district of Barmbek is therefore very broad.

Eisenwerk Nagel & Kaemp was founded in 1865 and specialised later in the production of loading engineering for ships. The production facilities were shut down in 1981 and the art business began with its use by the Deutsche Schauspielhaus. A diverse range of activities in performing arts followed. The city of Hamburg then decided on a structural reform into Kampnagel in 1998 and Kampnagel Internationale Kulturfabrik GmbH became the operator of the facilities from 2001.

Kampnagel provides venues in a whole range of sizes and forms in several buildings. At the start of 2012, a SEQUENZA 10 line array by Kling & Freitag was installed in Hall K6. In this article we would like to report on the system and the practical experiences with it at Kampnagel.

### SEQUENZA 10

The SEQUENZA 10 line array by Kling & Freitag was launched in 2008. It consists of the SEQUENZA 10 N with 77 degree horizontal coverage angle, the SEQUENZA 10 B subwoofer and the SystemRack.

Specially developed, horn loaded 10" neodymium chassis are used as drivers with the line array speakers. The dipole arrangement of the chassis and the bass reflex tubes located on the outsides create high directivity starting at 200 Hz. Side lobes are suppressed and the feedback tendency is reduced using FLC technology. This is achieved by one of the two 10" drivers being decoupled phase linear to high frequencies. Three 1" high frequency drivers are used as compression drivers, which create a planar wavefront up to over 16 kHz. The system is very compact but also powerful. Sound pressure of 150 dB SPL peak can be produced using four SEQUENZA 10.

The patented rigging system Snap&Fly is particular interesting from a practical point of view. You preset the angles between the individual speaker elements and then, when you fly the array, the individual elements automatically and safely snap into the correct angles.

The SEQUENZA 10 B subwoofer bass reflex allows you to configure the directional coverage (omnidirectional, cardioid and hypercardioid) in clusters of 3 subwoofers. Two 15" long excursion chassis with 100 mm voice coil with double centring and externally ventilation are used here as drivers. The manufacturer gives the nominal power handling as 1,800 W and the programme handling as 3,600 W. The subwoofer also has the afore-mentioned Snap&Fly rigging system.

The acoustic and static calculation of arrays is also supported by the CON:SEQUENZA program for Windows-operating systems, which provides both load simulation according to BVG C1 and DIN 18800, the calculation of load and rigging positions etc., the sound coverage of multiple arrays on different planes and the determination of frequency responses to arbitrary positions. All information can be exported in the form of reports as PDF documents.

### Hall K6

Back to Kampnagel. K6 is the largest hall at Kampnagel. It holds 830 spectators for theatre performances but can also be converted to a larger capacity, e.g. for concerts. Parts of the stage are then turned into seating areas and the curtain in front of the control room is raised. This then provides approx. 1,200 seats.

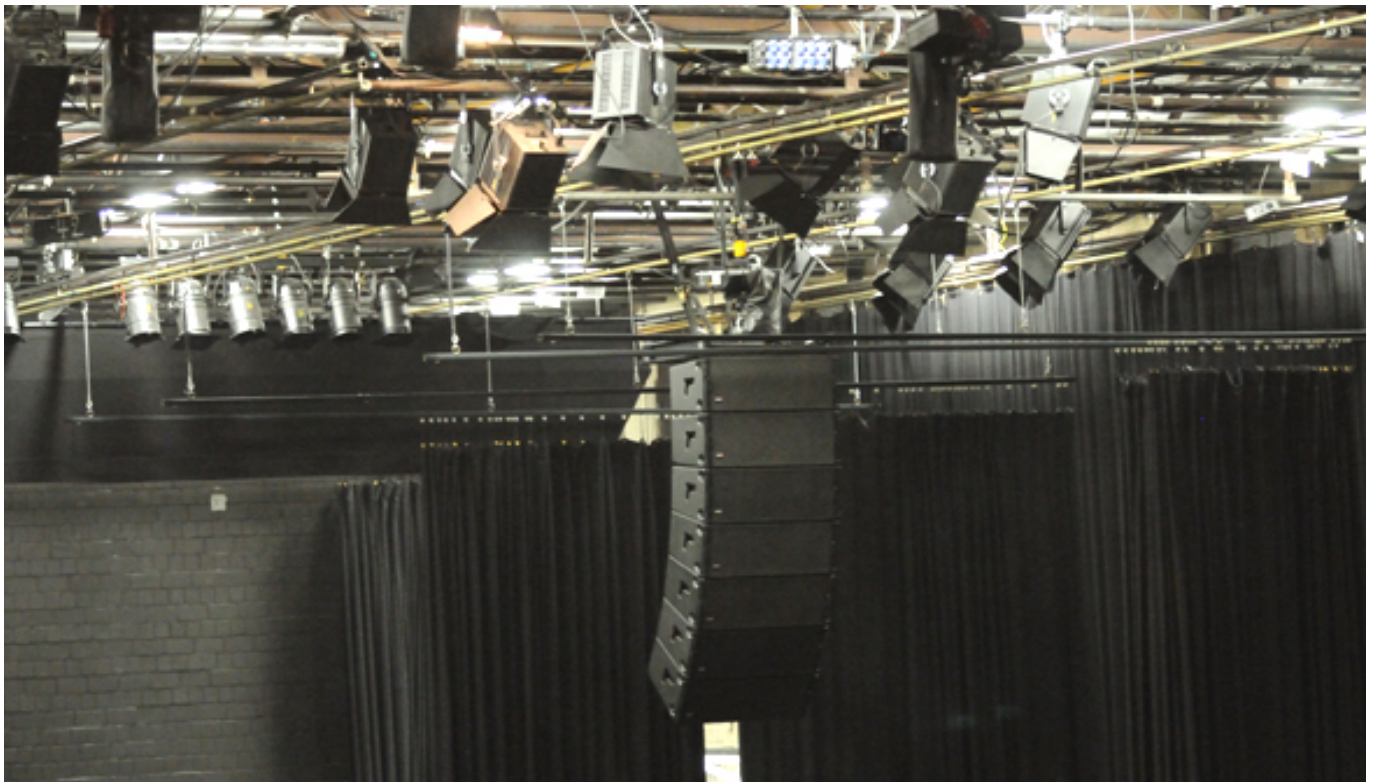
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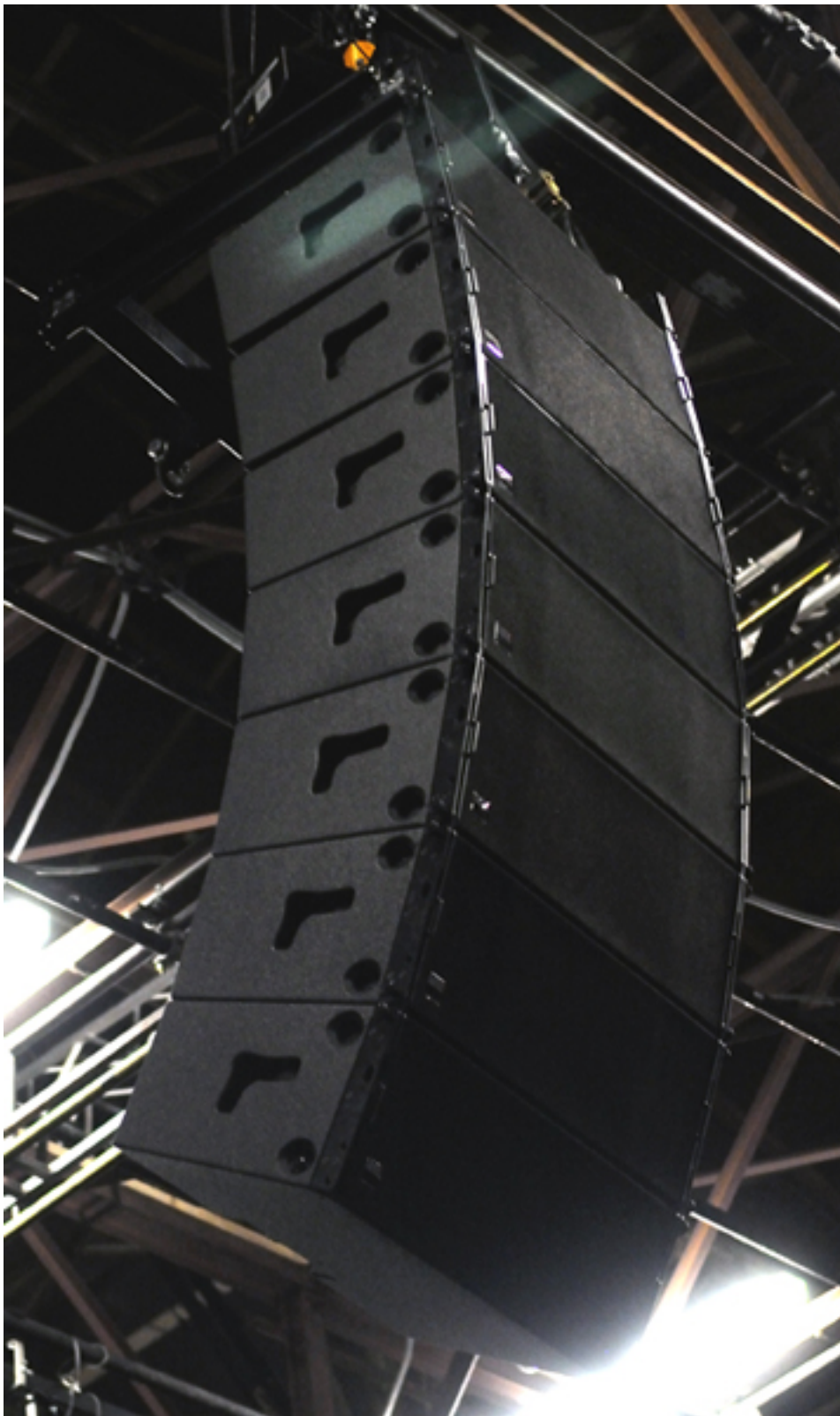


With regards to the sound system, this means that different requirements are placed on the technology. With the small version, the PA is rigged almost at zero. With concerts, the line array is rigged and measured according to the stage situation.





The line array's five top speakers emit at a narrower angle (SEQUENZA 10 N) whilst the two at the bottom emit at a wider angle (SEQUENZA 10 W). If necessary, another three subwoofers (SEQUENZA 10 B with cardioid directional coverage) are used on each side.



Other speakers in Hall K6 are the two GRAVIS 12 N as nearfills, two CA 1001 as delays and two more CA 1001 as nearfills or monitors etc. The system is supplied by five Kling & Freitag SystemRacks.

### Hall K2 and the rehearsal stage

Speakers by Kling & Freitag can also be found in two other venues at Kampnagel. For example, in Hall K2, a medium-sized venue for approx. 300 spectators. Four CA 1515-9 SP are installed here (see photo below).



Kling & Freitag speakers are also present in the rehearsal stage hall (photo below), which is also used for experimental theatre; two CA 1001 SP as the hall sound system (self-powered) and two more as delays or for monitoring (control using SystemRack).





### Interview with Karl-Heinz Schöppner

We spoke to Karl-Heinz Schöppner, Head of Audio & Video Engineering at Kampnagel, about his experiences with SEQUENZA 10.

proaudio.de: What made you decide to use SEQUENZA 10?

Karl-Heinz Schöppner: Our old system was getting on a bit and we had to look around for new systems. First of all the smaller halls were equipped with Kling & Freitag speakers. Price also played a part here. The conversion to Kling & Freitag systems began in 2010. The SEQUENZA 10 line array has been used since the start of 2012. The basic starting point was to find a manufacturer, which we could trust as far as professional competence is concerned and where you get quality at an affordable price. Many products are simply not financially viable for a theatre in our financial position.

proaudio.de: What experiences have you had with it in practice so far?

Karl-Heinz Schöppner: The speakers' workmanship is immaculate. This impression has been confirmed over the last few years with the small speakers and over the last few months with the array. It has been shown that we made the right choice and that applies both to the self-powered models and the controlled systems. When we knew that we had to gradually update, Jürgen Freitag made the effort to visit and advise us personally. Kling & Freitag also showed great interest in the content

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and circumstances. This resulted in a really remarkable relationship. We therefore enjoyed very fair and individual support from Kling & Freitag and it was noticeable that they took everything very seriously. The support is really exceptionally impressive.



After deliberations and advice, it also became evident that the SEQUENZA 10 is



ideally suited to Hall K6, which was then also fully confirmed in practice. We have a very special hall here with a steep gallery. Ultimately, a line array does not necessarily have to be the solution in a converted factory that is now a theatre. The great thing about the SEQUENZA 10 is that if for example we have a reading or a chanson evening, we can also run the system without the subwoofer, as it delivers excellent bass. When the place is rocking, we add the subwoofers as well.

The other thing we have to mention from a practical point of view is that the SEQUENZA 10 is a line array that can be rigged and set up extremely quickly. This is also a reason why we decided on the system. At the end of the day, sometimes we have to re-rig the system three times in a week. We established the possible rigging points using measurements and auditory experiments, although many positions also result due to the specific performing situations. We have appropriate presettings for all these points in the controller and it really takes no time at all to set up the system.

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