

# elements



**HK AUDIO**

# Passion and Innovation



With ELEMENTS, I wanted the engineer in me to turn up what the musician in me had always dreamt of having – an audio rig that sounds great, adapts to my demands for size and power, and is ready to go in a flash. Since its market launch some two years ago, I discovered that others seem to have had that same dream, as the overwhelming response from musicians, PA companies and other users would attest.

This is most gratifying for all of us at HK AUDIO. But more than that, it is a compelling incentive to continue adapting ELEMENTS to make it an even better match for your needs. This is why we developed the E 835, an eight-unit array, and built the E 210 Sub AS, an even mightier subwoofer with an added power amp. With these components, you can now configure and set up even more powerful systems.

Ingeniously simple, simply ingenious – that, in a nutshell, is the philosophy behind ELEMENTS. You see it's not about engineering and technology, it's about you and your music!



*L. Stamer*

Dipl.-Ing. Lothar Stamer





## ELEMENTS

You're sure to love your ELEMENTS PA even before you hear the first tone. Its compact, lightweight components can be assembled almost instantly without having to fuss with cords. And you don't need an audio engineer to position your PA. Set it up just behind the band, and ELEMENTS will serve your audience as an awesome PA and you equally well as a monitor.

And once you hear ELEMENTS there will be no doubt that you have moved up to a whole new league of speaker system. ELEMENTS adapts flexibly as your needs change. Welcome to the world of HK AUDIO ELEMENTS.

The  
ingeniously  
different  
PA



## Ingeniously Different Sound

### Extended Sweet Spot

Featuring the latest-generation line array technology, ELEMENTS treats audiences and musicians to an unprecedented experience in natural sound. Listeners enjoy a remarkably well-defined audio image at every spot in the room. Pleasantly assertive without being aggressive, the signal is not too loud up front and not too soft in back.

### A Common Sound Field

What's more, an ELEMENTS system is remarkably unsusceptible to feedback, so it can be placed alongside and behind musicians. No longer forced to fuss with separate stage monitors, you finally get to enjoy an authentic audio experience. You hear what the audience hears. And you and your fellow musicians can intuitively vary volume and tone to blend together in a unified whole. Only ELEMENTS is as musically inspiring as that.

## Ingeniously Different Setup

The best cable is—no cable at all! With the ingenious E-Connect coupler/bus, most ELEMENTS systems are practically wireless devices, bar one mains and one signal cord.

ELEMENTS also relegates heavy speaker stands to history. There's less gear to carry and a lot less weight to heave up on a tall stand.

An ELEMENTS subwoofer also leaves a much smaller footprint than a tripod. You are free to site ELEMENTS wherever it serves your purposes best—before, beside or behind the band—without having to give feedback more than a passing thought.



## Ingeniously Different Portability

If you're wondering why ELEMENS components are so extraordinarily light for units as powerful as this and so easy for one person to carry, you need only to look to its advanced, ultra efficient speaker and power amp technologies for an answer. It's this remarkable compactness that has made ELEMENS the first bona fide PA to fit in an ordinary passenger car.

## Ingeniously Different Expandability

Do you regularly gig in pubs and clubs that hold up to 150 people? Then start out with a mono or stereo ELEMENS Easy Base system. Your gigs are getting bigger and you want to be more flexible? Then opt for the ELEMENS Smart Base and augment it with the ELEMENS Add-On subwoofers and mid/ high units.

Do you frequently play for 300 or more people? Then get in on the game with an ELEMENS Big Base rig made up of the new ELEMENS Plus components, and gradually extend it to a large PA with ELEMENS Add-Ons.

ELEMENS is the only columnar system that can be flexibly configured, reconfigured and extended. Why? Because ELEMENS – unlike other columnar systems – is a genuine line array engineered to accommodate and harmonize with add-on components.

ELEMENS is small. ELEMENS is large. ELEMENS is mono. ELEMENS is stereo. ELEMENS fits your needs today – and adapts to tomorrow's.

left to right:

ELEMENS can be positioned so that stage monitors are rarely if ever needed.

Quick setup: With the built-in signal bus and ingenious E-Connect coupler, there's no tangled mess of cables.

One trip to the stage is all it takes to set up an entire ELEMENS rig.

The band bus is history – with ELEMENS, a big PA fits in a normal passenger car.

Your band is growing; your gigs are getting bigger? ELEMENS grows as you go, leaving all your options open.

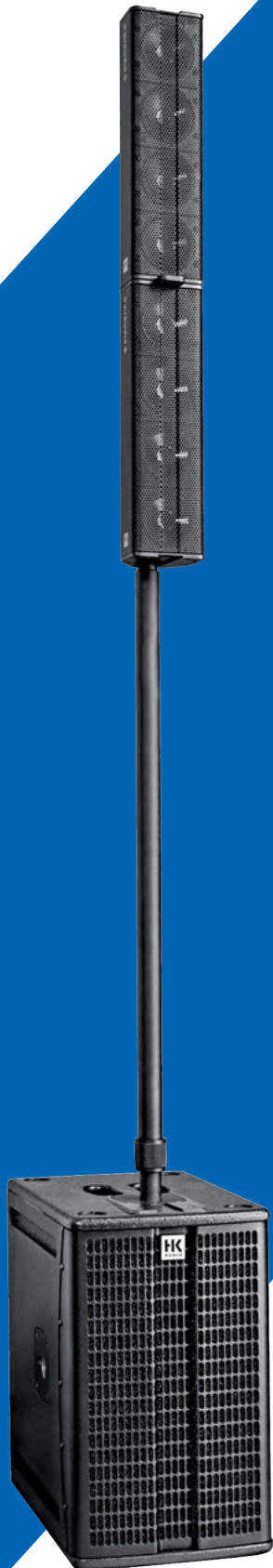
# The Systems

Getting started with an ELEMENTS PA is easy enough: Simply select the performance class that suits you best. If you need ultra compact, lightweight components, ELEMENTS Smart Base and Easy Base are your first choices. These systems are built on a powered 10" subwoofer that weighs just 19 kg. Its on-board amp also drives the mid/ high units or additional passive subwoofers.

If you want a mightier low-end punch because you regularly play for larger audiences, then the ELEMENTS Big Base PA is right for you. It features a dual 10" subwoofer powered by a muscular 2 x 1,200-watt amp. These amps also deliver plenty of power to add more mid/ high units and a passive subwoofer to comfortably cover audiences of up to 500.

The mid/ high units were designed specifically to port your music far into the audience for everyone to enjoy uncolored, crisp and highly defined audio images. Equipped with eight or four fullrange speakers and offering 140 Hz down to 20 kHz dynamic range, they deliver signals with a silky-smooth top end. The mid/ high units' visuals are also a treat with their stylish look of sleek elegance. Rest assured all the attention will be on your performance and not on the PA. Best of all, they provide plenty of SPL for larger gigs.





# Easy Base



## Easy Base

The ELEMENTS Easy Base PA gets the job done in many live situations. It's a great choice if you are not planning to add on those wonderfully flexible ELEMENTS extensions later down the line. A mono Easy Base PA format is the no-fuss, no-muss solution for applications where you can do without stereo sound, for example, presentations and speeches at corporate events, ensemble performances and one-man bands.



### Easy Base in stereo

The stereo version of ELEMENTS Easy Base is ideal if your sound reinforcement scenarios remain much the same so you are unlikely to need add-ons further up the road. A stereo Easy Base rig is perfect for sound sources such as keyboards or the master signals of smaller bands and ensembles' consoles.

Audience size:  
50-100\*

Room size:  
Small

Example applications:  
Keyboards  
DJ

Solo performers/  
entertainers  
Acoustic duo

About the audience size: Mere suggestions rather than recommendations, these numbers are more for your orientation. The actual coverage will depend on the room's size, layout, appointments and furnishings, as well as the area you want cover and the sound pressure levels you wish to achieve.



# Smart Base

## Smart Base

The name says it all: The new E110 Sub Bass AS subwoofer boasts not one but two 600-watt Class-D power amps so ELEMENTS Smart Base can be easily extended with other mid/ high units or passive subwoofers. Able to deliver 2,400 watts in total, the power amps provide plenty of headroom to play larger clubs or smaller open-air gigs. But even with all that power, ELEMENTS Smart Base still fits comfortably in a car or station wagon.

### Sub Add-On



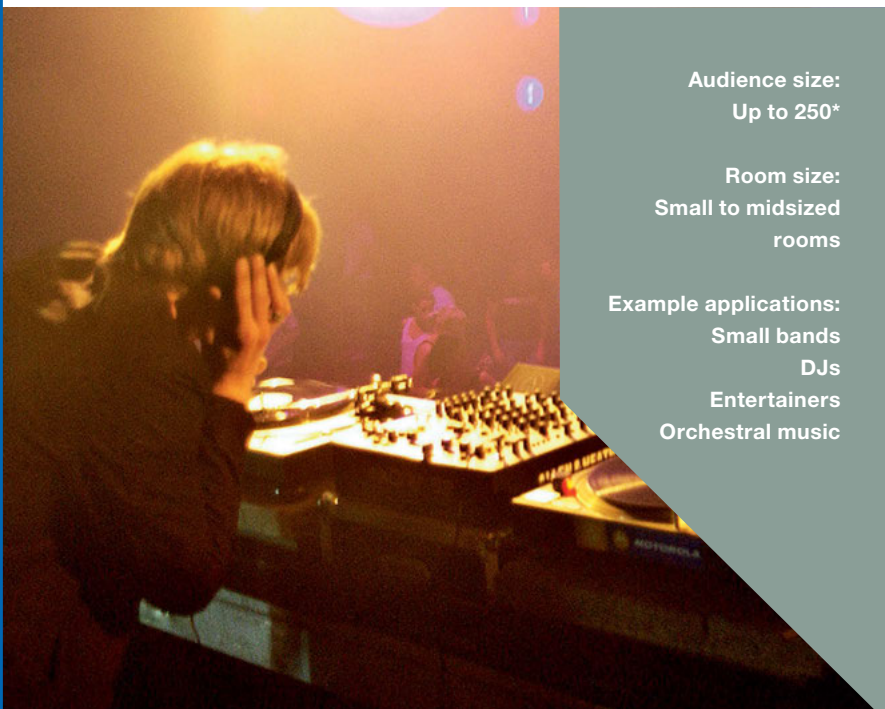
This ELEMENTS Sub Add-On consists of two E110 subwoofers that readily connect to ELEMENTS Smart Base's powered subwoofers via Speakon connectors. This not only increases the radiating surface area, but also boosts output power substantially. It's perfect for bands and DJs.

### Top Add-On



This midrange and top-end expansion pack consists of two E835 mid/ high units that increase the radiating surface area, performance and the benefits of the line-array effect. The outcome is an assertive sonic image with extraordinary reach that is always transparent and cohesive even at great distance.

These two Add-Ons can be combined to enjoy all their many benefits.



**Audience size:**  
Up to 250\*

**Room size:**  
Small to mid-sized  
rooms

**Example applications:**  
Small bands  
DJs  
Entertainers  
Orchestral music





Audience size:  
up to 500\*

Room size:  
Midsized stages in  
venues of varying size

Example applications:  
Top-40 bands  
Rock/ pop bands  
Gala/ cover bands  
Demanding DJ gigs

## Big Base

Do you need the headroom of a large PA but refuse to do without that trademark ELEMENTS sound and handling ease? Then ELEMENTS Big Base fits the bill. With a whopping 4,800 watts total output power, you can drive up to four dual 10" subwoofers and six E835 mid/ high units. That's enough acoustical energy to keep several hundred listeners happy. With over two meters line length in the largest configuration, this rig is able to throw midrange and high frequencies across distances that conventional systems can only reach with the help of multiple delay cabinets.



### Big Sub Add-on

This ELEMENTS Sub Add-On consists of two passive dual 10" subwoofers L SUB 1200 that readily connect to ELEMENTS Big Base's powered subwoofers via Speakon connectors. This not only increases the radiating surface area, but also boosts output power substantially. It's perfect for bands and DJs.



### Top Add-On

This midrange and top-end expansion pack consists of two E835 mid/ high units that increase the radiating surface area, performance and the benefits of the line-array effect. The outcome is an assertive sonic image with extraordinary reach that is always transparent and cohesive even at great distance.

These two Add-Ons can be combined to enjoy all their many benefits.



Base  
Big



About the audience size: Mere suggestions rather than recommendations, these numbers are more for your orientation. The actual coverage will depend on the room's size, layout, appointments and furnishings, as well as the area you want cover and the sound pressure levels you wish to achieve.

# Active Subwoofers

## E 110 SUB A Active Subwoofer

The surprisingly handy 10" subwoofer delivers a tight, low-ranging bass foundation. Its 600-watt, Class-D power amp can also drive two mid/ high units or another passive subwoofer. Equipped with two E-Connect ports, the sub unit can be placed horizontally or vertically to serve as a base for further components. The ergonomic carrying handle on the top panel makes it easy to tote.



## E 110 Sub AS System-Subwoofer

The E110 sub AS is remarkably compact and light, yet its two onboard 600-watt power amps deliver twice the performance of the E110 Sub A. And that makes this subwoofer the perfect choice if you wish to flexibly extend an ELEMENTS PA system. Go for the optional Add-Ons and you can run up to two subwoofers and mid / high units for a total of 16 fullrange speakers per stereo side.



## E 210 Sub AS System Subwoofer

The new E 210 SUB AS system subwoofer comes with two 1,200-watt amps in its engine room. Power amp number one drives the two internal 10" woofers, with plenty of juice left over to run an external passive type L Sub 1200. The second power amp delivers 900 watts at 2.6 ohms to drive up to three E 835s (or six E 435s).

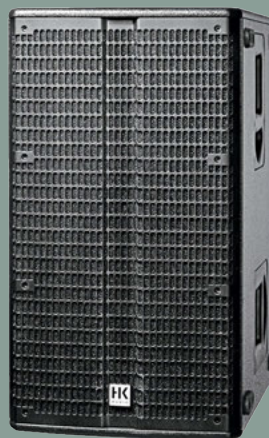


# Accessories



## E 110 SUB Passive Subwoofer

This passive subwoofer is the perfect add-on for applications demanding even more powerful low-end response. It is powered by a connected E 110 Sub AS, E 110 Sub A or EA 600 amp module. It also sports an E-Connect port for mid/ high units equipped with the amp module.



## L Sub 1200 Passive Subwoofer

This passive sub is the ideal add-on for applications that demand even more muscular low-end performance. It sources its power from the E 210 Sub A active subwoofer. A subwoofer with two 10" woofers housed in a bass reflex enclosure, the L Sub 1200's hair-trigger response delivers tight, punchy bass signals ranging down to 38 Hz.



## EA 600 Power Amp

Sharing the mid/ high unit's elegant design, the power amp is a perfect visual and mechanical match. Its 600-watt, Class-D power amp provides plenty of juice to drive four E 435 mid/ high units or a passive E 110 SUB and two E 435 mid/ high units.

# Mid/High Units

## E 435

### Mid/ High Unit

Made of extruded aluminum and featuring true line array technology, the mid/ high unit delivers homogeneous, natural-sounding response, rendering voices and instruments with astonishing authenticity.

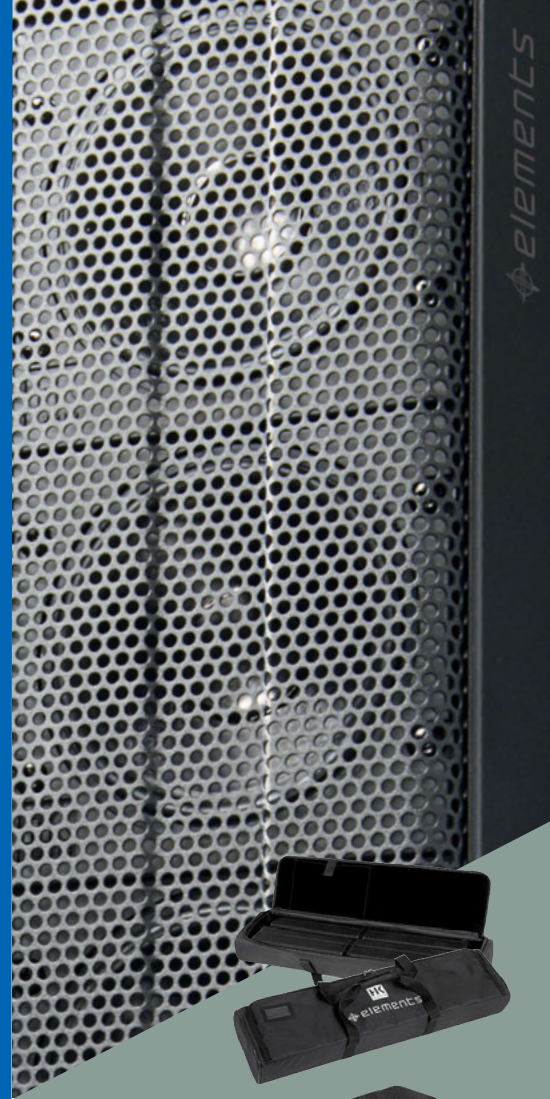
A novel coupler/ bus combination called E-Connect provides fast, convenient means of linking it to other elements. The acoustical properties of two E 435s are identical to those of one E 835.



## E 835

### Mid/ High Unit

Our engineers developed the E 835 mid/ high unit to afford you even greater flexibility when you want to set up bigger systems. Loaded with eight speakers, it can handle 300 watts at 8 ohms impedance. The E 835 comes highly recommended when you want to minimize the number of mechanical connections. The E 835 and E 435 mid/ high units' design and tuning are identical, so feel free to combine them.



## EF 45

### Base

The base accommodates the mid/ high units, amp module, and mounting pole. Its extendible feet ensure the mounted elements sit on a stable, secure platform.

- Stable system base with a small footprint
- Integrated E-Connect bus
- Two parallel NL4 ports
- 45-51 x 31 x 12.5 cm; 7.7 kg



## EP 1/EP 2

### Speaker Poles

These speaker poles are unlike any other. They enable simple, speedy setup for smaller configurations. Freely adjustable, they forward the signal to the top-mounted mid/ high units via the internal E-Connect coupler/ bus – no speaker cords necessary.

- Anodized aluminum with twist-lock fastener
- EP 1: Adjustable height from 95 to 160 cm
- EP 2: from 44 to 60.5 cm
- Integrated E-Connect bus
- Exceedingly light weight: EP 1 = 0.8 kg, EP 2 = 0.5 kg

## Soft Bag

The padded case can accommodate four E 435 or two E 835 mid/high elements or four EA 600 amp elements. In addition, a spacer stem can also be fitted.

## Base Bag

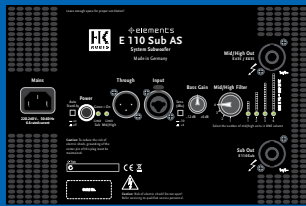
The Base Bag is tailored to fit the ELEMENTS EF 45 base. Equipped with a handy carrying strap, it accommodates one base.

## Subwoofer Cover

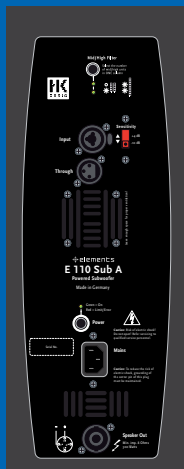
This cover provides twice the padding to protect active and passive subs. It's especially effective in preventing damage in transit.

# Technical Specifications

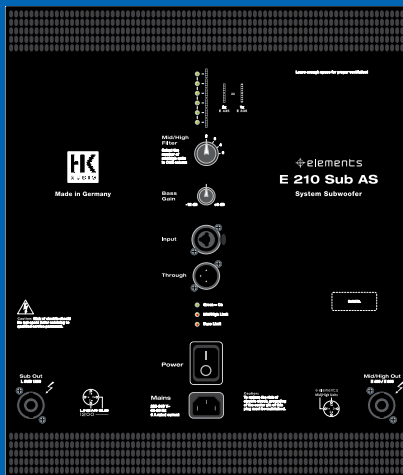
	E 835	E 435	E 210 Sub AS	E 110 Sub AS	E 110 Sub A	L Sub 1200	E 110 Sub	EA 600
<b>Power handling, nominal</b>	300 W RMS @ 8 Ω	150 W RMS @ 16 Ω			-	1200 W RMS @ 8 Ω	250 W RMS @ 10 Ω	-
<b>Continuous power per amp</b>		-	1200 W Class-D @ 4 Ω (Subs) / 1200 W Class-D @ 4 Ω (Mid/High)	600 W Class-D @ 4 Ω (Subs) / 600 W Class-D @ 4 Ω (Mid/High)	600 W Class-D @ 4 Ω		-	600 W Class-D @ 4 Ω
<b>Frequency response -10 dB</b>	140 Hz – 20 kHz via active system filter	140 Hz – 20 kHz via active system filter	38 Hz – 150 Hz via active system x-over	45 Hz – 150 Hz via active system x-over	45 Hz – 150 Hz via active system x-over	38 Hz – 150 Hz via active system x-over	45 Hz – 150 Hz via active system x-over	-
<b>Nominal impedance</b>	8 Ω	16 Ω	8 Ω	10 Ω	10 Ω	8 Ω	10 Ω	-
<b>Axial sensitivity 1 W @ 1 m *</b>	100 dB	97 dB			-		-	-
<b>Active protective circuits</b>		-	RMS limiter, subsonic filter; DC, load, & thermal (temp.- controlled fan)	RMS limiter, subsonic filter; DC, load, & thermal (temp.- controlled fan)	RMS limiter, subsonic filter; DC, load, & thermal (temp.- controlled fan)		-	RMS limiter, subsonic filter; DC, load, & thermal (temp.- controlled fan)
<b>Input sensitivity</b>		-	+4 dBu	+4 dBu / -10 dBu (switchable)	+4 dBu / -10 dBu (switchable)		-	+4 dBu / -10 dBu (switchable)
<b>Connectors</b>	1 x E-Connect In 1 x E-Connect Out	1 x E-Connect In 1 x E-Connect Out	1 x XLR-Combo In 1 x XLR-Through 2 x Speakon Out (1 x Sub + 1 x Mid-High) 2 x E-Connect Out	1 x XLR-Combo In 1 x XLR-Through 2 x Speakon Out (1 x Sub + 1 x Mid-High) 2 x E-Connect Out	1 x XLR-Combo In 1 x XLR-Through 1 x Speakon Parallel Out 2 x E-Connect Out	1 x Speakon In 1 x Speakon Out	1 x Speakon In 1 x Speakon Out 1 x E-Connect Out	1 x XLR-Combo In 1 x XLR-Through 1 x Speakon Parallel Out 1 x E-Connect Out
<b>Speakers</b>	8 x 3.5" broadband	4 x 3.5" broadband			-		-	-
<b>Woofers</b>		-	2 x 10" (2.5" voice coil)	1 x 10" (2" voice coil)	1 x 10" (2" voice coil)	2 x 10" (2.5" voice coil)	1 x 10" (2" voice coil)	-
<b>Directivity</b>	70° horizontal	70° horizontal			-		-	-
<b>Corner frequency, passive x-over</b>	140 Hz, 12 dB/oct.	140 Hz, 12 dB/oct.			-		-	-
<b>Pole mount</b>		-	2 x E-Connect coupler	2 x E-Connect coupler	2 x E-Connect coupler	2 x M20	1 x E-Connect coupler	-
<b>Dimensions (W x H x D)</b>	11 x 74.5 x 12 cm (w/o E-Connect sleeves)	11 x 38 x 12 cm (w/o E-Connect sleeves)	38 x 66.8 x 56 cm	30 x 48 x 46 cm	30 x 48 x 46 cm	38 x 66.8 x 56 cm	30 x 48 x 46 cm	11 x 38 x 12 cm (w/o E-Connect sleeves)
<b>Weight</b>	4.5 kg	2.35 kg	32 kg	18.5 kg	19 kg	29 kg	16.5 kg	2.75 kg



Panel E 110 Sub AS



Panel E 110 Sub A



Panel E 210 SUB AS



Panel EA 600 Amp



# Compact, modular and powerful

HK Audio unveiled an ingeniously simple and simply ingenious concept in sound reinforcement - ELEMENTS. Lothar Stamer, CEO and head of R&D, talks about the technology and the sometimes rocky road to its fruition.

## Mr. Stamer, what sparked the development of ELEMENTS?

Lothar Stamer: We had wanted to build a system like ELEMENTS for a very long time. Our goal was to come up with a sound reinforcement solution that adapts conveniently to the many different needs of musicians and demands of venues. What's more, it would have to be easy to transport and set up. But a system with conventional, horn-loaded cabinets only scales up or down to a limited extent, if at all.

## Why is that?

Lothar Stamer: It's in the nature of their design. Cabinets cannot be stacked or arrayed side by side at will without creating phase cancellations that have a tremendously adverse impact on sound quality.



## How did you work around this problem?

Lothar Stamer: Logic dictated that we go with line array technology, which we had been using for quite some time for large PAs such as COHEDRA and COHEDRA Compact.

Elements features the same line array technology used for large concerts and open-air festivals.

## Can you explain to us in a few words what a line array is all about?

Lothar Stamer: A line array exploits a physical phenomenon whereby adjacent speakers form a common wave front - specialists call this a coherent wave front. The speakers' diameter and distance from each other determines how far up the frequency range this effect reaches - the smaller the speaker and closer the distance, the higher the peak frequency. The line array's advantage over several point sources that interfere with one another is that it creates a single, consistent line source that delivers purer sound with far greater efficiency. Put simply, you have to put in a lot less power to get out a lot more sound.

## So an ELEMENTS mid/ high unit actually constitutes a line array?

Lothar Stamer: In principle, the four vertically arrayed wide-range speakers are indeed a line array. However, the typical line array effect is not audible until you combine two E435s or use one E835. This effect increases exponentially with the length of the line; that is, by distance squared.

## So what's up with the new array of eight units?

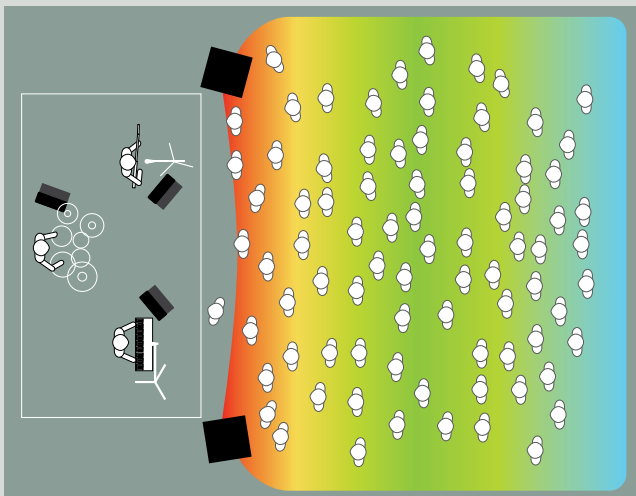
Lothar Stamer: The new type E835 mid/ high units and of course the new E 210 Sub AS subwoofer make it much easier to assemble large setups. The largest ELEMENTS system now delivers 4.2 kilowatts, and with just ten components and minimum cabling effort at that.

## ELEMENTS mid/ high units are loaded with four 3.5" speakers. On the face of it, it seems unlikely that they are able to render the entire spectrum down to the frequency where subwoofers kick in. What's the trick?

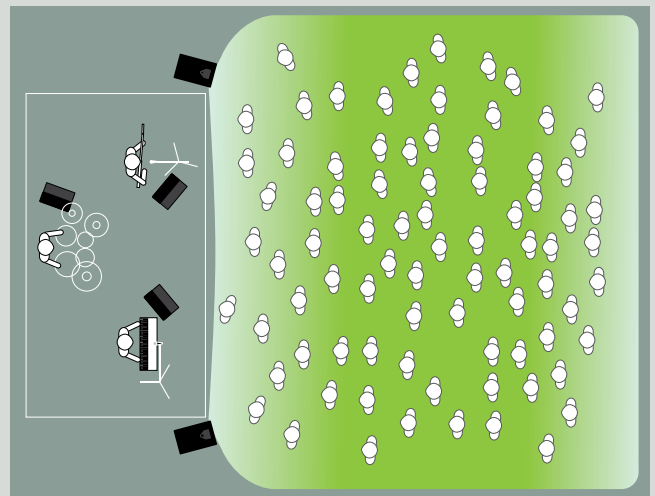
Lothar Stamer: This wide-range speaker is indeed one of the milestone achievements on the road to ELEMENTS. We spent nearly two years researching it in a joint effort with our long-standing partner Celestion, one of the world's most experienced manufacturers in this field. We developed, tested, and measured many prototypes until we finally ended up with the version we have now.

## What were the biggest challenges?

Lothar Stamer: For one, there was the issue you had touched on, the width of the frequency band. ELEMENTS has to deliver the most linear frequency response possible across the entire spectrum, regardless of whether it is operating at its limits or merely rendering background music at moderate levels. For the other, this breed of speaker has to be tough enough to take some real punishment. We had to start practically from scratch to pack all the essential properties into one speaker. Everything about this speaker, from the cone and suspension system to the magnet and lightweight design, is a high-end, custom job.



Conventional sound reinforcement, for example, with 12"/1" cabs plus subs



ELEMENTS PA with an extended sweet spot

# Elements Install

The ELEMENTS Install Kit, in combination with ELEMENTS E 435 and E 835 units, gives you a highly scalable line array. Engineered to deliver wide-ranging frequency response, its 3.5" high-performance broadband speakers deliver a richly detailed sonic image across the spectrum. Its high-definition signals render the human voice and top-end frequencies with utmost fidelity and outstanding speech intelligibility. And courtesy of its remarkable load-handling capacity, ELEMENTS delivers plenty of SPL to cover large rooms.



## E 435 Install Kit Mid/ High Unit

Our engineers developed the ELEMENTS Install Kit to make inconspicuous installation an exercise in speed, efficiency and convenience. It consists of two modified E 435 mid/ high units and mounting fixtures. Up to six mid/ high units (including wall-mount kit) may be combined. An installed ELEMENTS system swivels 180° horizontally for alignment purposes. Once aimed, the units are bolted in place simply by tightening two Allen screws.

## E 435 A Install Kit Mid/ High Unit with Amp Module

The powered Install kit is much the same as the E 435 IL except that it features an EA 600 with mounting fixtures in place of the passive kit's top mid/ high unit. The amp module is powerful enough to drive three more E 435 mid/ high units, or a combination of one E 435 and one E 835.

# Technical Specifications

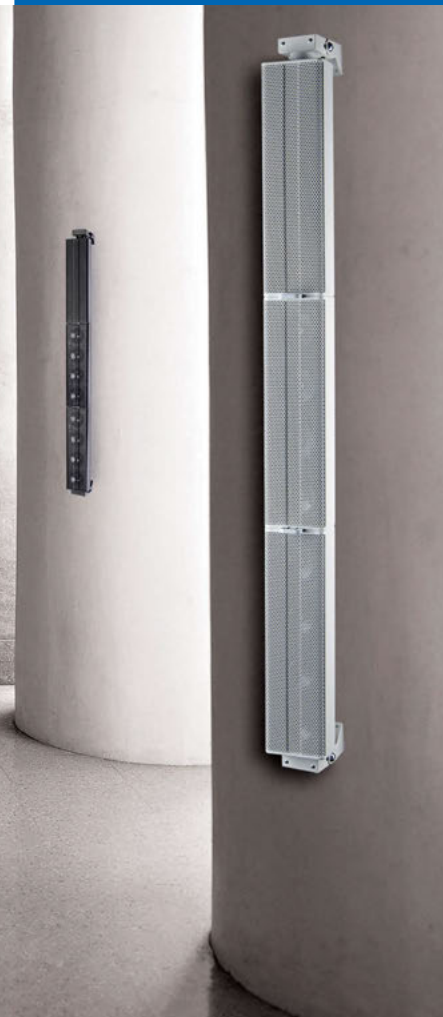
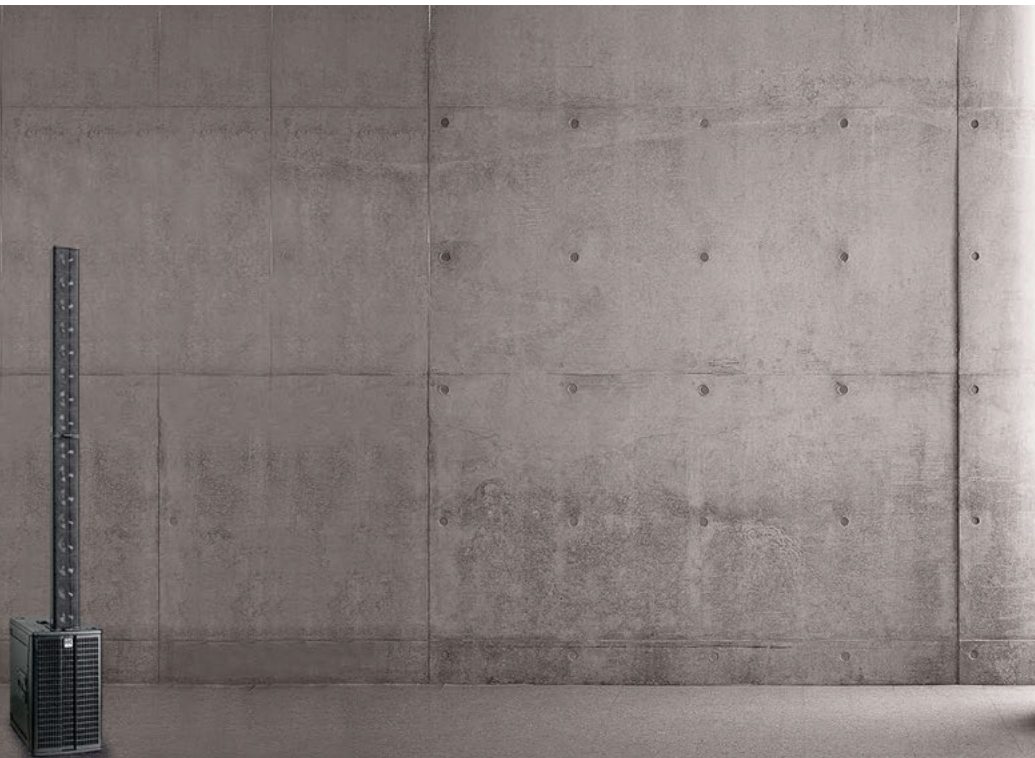
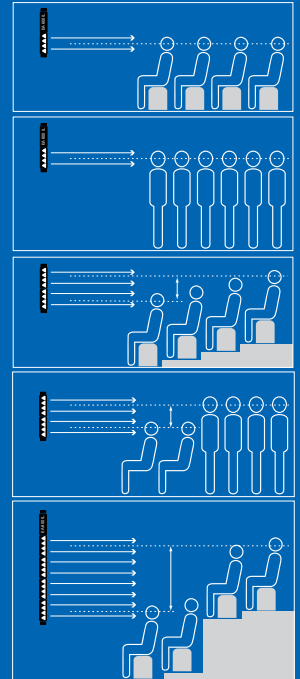
	E 435 Install Kit	E 435 A Install Kit
<b>Power handling, nominal</b>	300W RMS @ 8 Ω *	150W RMS @ 16Ω
<b>Continuous power per channel</b>		600W Class D @ 4 Ω
<b>Frequency response -10 dB</b>	140 Hz – 20 kHz via controller	140 Hz – 20 kHz, via active system filter
<b>Nominal impedance</b>	8 Ω	16 Ω
<b>Axial sensitivity 1 W @ 1m ****</b>	100 dB	97 dB***
<b>Active protective circuits</b>		RMS limiter subsonic filter DC, load, & thermal (temp.- controlled fan)
<b>Input sensitivity</b>		+ 4 dBu / -10 dBu (switchable)
<b>Connectors</b>	1 x 1/4" (6.3 mm) In jack	1 x XLR Combo In 1 x XLR Through 1 x Speakon Parallel Out
<b>Speakers</b>	8 x 3.5" broadband	4 x 3.5" broadband
<b>Dispersion pattern</b>	70° horizontal	70° horizontal
<b>Corner frequency, passive x-over</b>	140 Hz, 12 dB/oct.	140 Hz, 12 dB/oct.
<b>Dimensions (W x H x D)</b>	11 x 85 x 13 - 17 cm (incl. mounting brackets)	11 x 85 x 13 - 17 cm (incl. mounting brackets)
<b>Weight</b>	5.2 kg, 11.5 lbs	5.6 kg, 12.3 lbs

\*) extendable with up to four E 435s or two E 835s depending on the amp's minimum impedance

\*\*) extendable with three E 435s or one E 435 + one E 835 \*\*\*) with one E 435 \*\*\*\*) half-space



This makes planning that much easier: You can tailor the length of the near field and align the listening zone to the audience's position simply by varying the line length. This also lets you minimize undesirable reflections from the floor and ceiling.



# elements

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