



*THE SOUNDMAKERS*



# ELEMENTS

***THE INGENUOUSLY DIFFERENT PA >***

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## *THE INGENUOUSLY DIFFERENT PA* >

Are you a discerning musician, rental company operator, DJ or presenter who insists on a clean stage and a stylish setup? Do you want a PA system that combines an elegantly understated look with sound that remains crystal clear all the way to the back row?

Then you'll be delighted to discover ELEMENTS!

Setting up this PA is an exercise in speed. Remarkably versatile, ELEMENTS is readily extended to cover larger events. And it's so compact that you can easily transport it in any car.

Not too loud up front, not too soft in back: with the benefit of genuine line array technology that disperses sounds uniformly throughout the room, you are sure to captivate the crowd with superior audio quality. Whatever your mission – be it entertaining show-goers as a vocalist or engaging listeners as a presenter – your voice and message will always come across crisp and clear.

**Looks small, sounds huge. Always.**



# THE ELEMENTS ADVANTAGE

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## SIMPLY INGENIOUS SOUND

ELEMENTS excels at rendering audio images with astonishing transparency all the way up to the far reaches of the top end. And the fact that it does this without a single tweeter is something of an engineering marvel. The custom-designed 3.5" speakers come with modified diaphragms that significantly extend high frequency response. What's more, the speakers are spaced and tuned to serve as a genuine line array.

The benefits of this sensational advance in engineering are twofold. Firstly, your audience will enjoy an amazingly well-defined audio image wherever they are in the room; never too loud up front, never too soft in back.

Secondly, you can even place ELEMENTS behind and/or flanking a band, because feedback is so unlikely in the space within the speaker columns. Conjuring a common sound field for all to share, this is an inspirational sonic setting for musicians and an immersive musical experience for the audience. Nothing – apart from perhaps an acoustic session by the campfire – comes close to the immediacy and authenticity of ELEMENTS.



## INGENIOUSLY SIMPLE SETUP

The best cable is no cable at all. You can set up ELEMENTS in seconds flat thanks to the ingenious E-Connect coupler/bus.

And the days of heaving huge speakers up on heavy stands that take up far too much space are over. This lightweight system is ready to go with just a few simple twists of the wrist.

The ELEMENTS subwoofer's footprint is smaller than a tripod's, so you have a lot more choices as to where you want to set it. With feedback being such a negligible concern, you are free to place ELEMENTS where it best serves your purposes – in front of, behind or alongside the band.



## INGENIOUSLY SIMPLE PORTABILITY

Advanced, ultra-efficient speaker and power amp technologies – that’s why such an extraordinarily light PA is able to deliver such powerful performance. And transporting all those ELEMENTS components is an exercise in convenience, even if you’re on your own.

Handling is a breeze courtesy of the subwoofers’ ergonomic handles and practical carry bags for the mid/high units.

ELEMENTS’ dimensions are so compact that you can easily fit a complete PA system into your car. And that’s nothing short of revolutionary.



## INGENIOUSLY SIMPLE EXPANDABILITY

ELEMENTS is the only columnar PA that you can configure, reconfigure and extend with such extraordinary flexibility. The active subwoofers (AS) don’t just provide a solid bass foundation; they also serve up plenty of power for you to add more mid/high units and subwoofers as needed.

Unlike most other columnar systems, ELEMENTS provides you with all the benefits of genuine line array technology. The mid/high units’ signals merge to deliver all the acoustical advantages of line-source columns, conjuring a consistent audio image from systems of every size.

ELEMENTS is the PA that grows with your demands.



# THE ELEMENTS SYSTEMS

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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 Single is your first choice. This system is 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 Single 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 that all the attention will be on your performance and not on the PA. Best of all, they provide plenty of SPL for larger gigs.



## ELEMENTS EASY BASE SINGLE

The 600-watt Easy Base Single System is the perfect solution for no-fuss, no-muss sound reinforcement for one-man bands, presentations and speeches in enclosed spaces and small clubs. Comprised of the lightest ELEMENTS components and featuring a detachable mid/ high column (2x E 435), this extremely compact rig is a dream to transport.

### EASY BASE TWIN

A stereo setup – when paired with another Easy Base Single System – is ideal if your sound reinforcement scenarios remain much the same, so you are unlikely to need extensions 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.



Largest configuration: 1,200-watt  
Easy Base Twin

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#### Audience size:

- 50-100\*

#### Room size:

- Small

#### Example applications:

- Keyboards • DJ • Solo performers/entertainers
- Acoustic duo

#### System components:

- 2x E 435 Mid/High Units
- 1x Speaker Pole EP 1/EP 2
- 1x E 110 SUB A



## ELEMENTS SMART BASE SINGLE

The Smart Base Single is the most flexibly extendable system and therefore the perfect PA for everything from clubs to small openair events. A passive E SUB 110 subwoofer may be added on for DJ gigs that require more powerful bass response. A second E 835 mid/ high unit may be installed in place of the mounting pole for open-air stages that call for greater reach in the midrange and high frequencies.

### SUB EXTENSION

The ELEMENTS Smart Base Single System can be extended by an E 110 SUB that readily connects to the system's powered subwoofer 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 EXTENSION

The ELEMENTS Smart Base Single System can also be extended by an E 835 mid/high unit that increases 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.



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### Audience size:

- Up to 250\*

### Room size:

- Small to midsized rooms

### Example applications:

- Small bands • DJs • Entertainers
- Orchestral music

### System components:

- 1x E 835 Mid/High Unit
- 1x Speaker Pole EP 1/EP 2
- 1x E 110 SUB AS

## ELEMENTS LINE BASE SINGLE

The Line Base Single can do without a mounting pole bar because its column of two E 835 mid/high units delivers real long-throw performance for large rooms and open-air stages. And if the situation demands a bigger bass foundation, a passive E 110 SUB subwoofer is easily added to the system.

### SUB EXTENSION

The ELEMENTS Line Base Single System can be extended by an E 110 SUB that readily connects to the system's powered subwoofer via Speakon connectors. This not only increases the radiating surface area, but also boosts output power substantially. It's perfect for bigger rooms and small open air venues.



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#### Audience size:

- Up to 350\*

#### Room size:

- Midsized to bigger rooms, small openair stages

#### Example applications:

- Bands • DJs • Entertainers
- Orchestral music

#### System components:

- 2x E 835 Mid/High Units
- 1x E 110 SUB AS

## ELEMENTS BIG BASE SINGLE

The Big Base Single pairs the power and performance of a large PA with the audio and handling benefits of ELEMENTS. What's more, it is extendable. The 2,400-watt E 210 SUB AS subwoofer can drive up to three E 835 mid/high units and an added passive subwoofer.

### SUB EXTENSION

The ELEMENTS Big Base Single System can easily be extended by a passive dual 10"-L SUB 1200 subwoofer that readily connects to the system's powered subwoofer 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 EXTENSION

The ELEMENTS Big Base Single System can be extended by an E 835 mid/high unit that increases 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.



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### Audience size:

- Up to 500\*

### Room size:

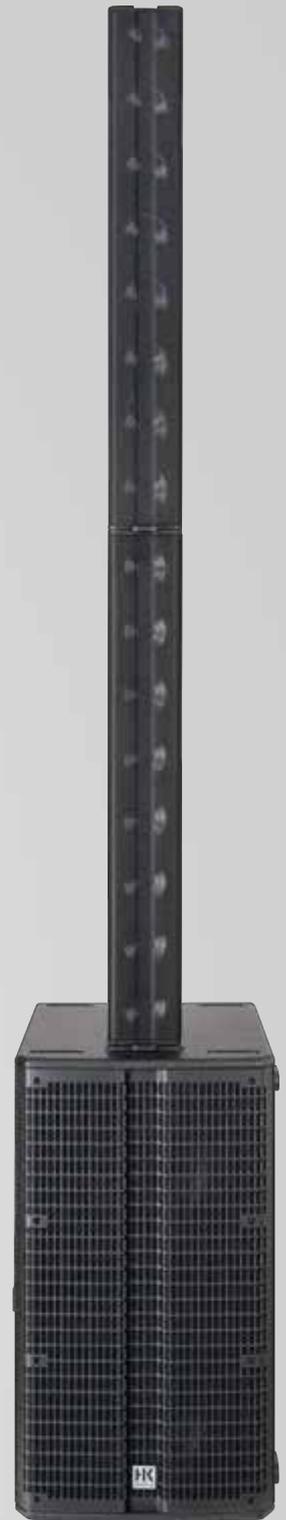
- Midsized stages in venues of varying size

### Example applications:

- Top 40 bands • Rock/pop bands
- Gala/cover bands
- Demanding DJ gigs

### System components:

- 2x E 835 Mid/High Units
- 1x E 210 SUB AS



# THE ELEMENTS PRODUCTS

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## 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 a fast, convenient means of linking it to other elements. The acoustical properties of two E 435 units operating together 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.

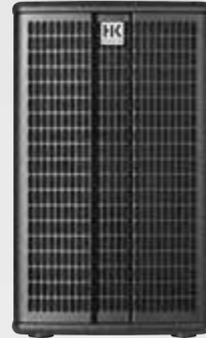
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## ACTIVE SUBWOOFERS

### E 110 SUB A

**Active Subwoofer** (600 watts)

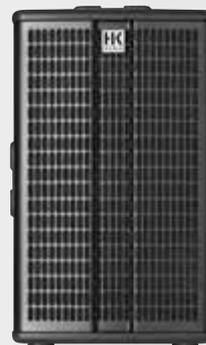
This surprisingly handy 10" subwoofer delivers a tight, low-ranging bass foundation. Its 600-watt, Class-D power amp can also drive two mid/high units or another passive subwoofer. Equipped with two E-Connect ports, the sub unit can be placed horizontally or vertically to serve as a base for further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



### E 110 SUB AS

**System Subwoofer** (1,200 watts)

The E 110 SUB AS is remarkably compact and light, yet its two onboard 600-watt power amps deliver twice the performance of the E 110 SUB A. And that makes this subwoofer the perfect choice if you wish to flexibly extend an ELEMENTS PA system. Go for the optional extensions 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** (2,400 watts)

The 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 835 units (or six E 435 units).



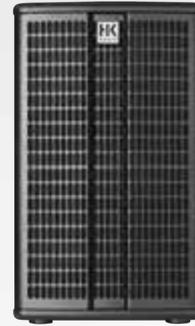
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## PASSIVE SUBWOOFERS

### E 110 SUB

#### Passive Subwoofer

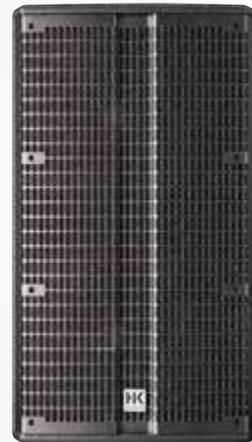
This passive subwoofer is the perfect extension for applications demanding even more powerful low-end response. It is powered by a connected E 110 SUB AS, E 110 SUB A or EA 600 amp module. It also sports an E-Connect port for mid/high units equipped with the amp module.



### L SUB 1200

#### Passive Subwoofer

This passive sub is the ideal extension 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.



## POWER AMP

### EA 600

#### Power Amp Unit

Sharing the mid/high unit's elegant design, the EA 600 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.



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## ACCESSORIES

### 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 units or four EA 600 amp units. 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.

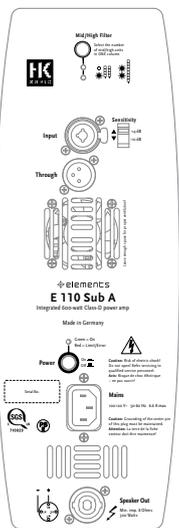




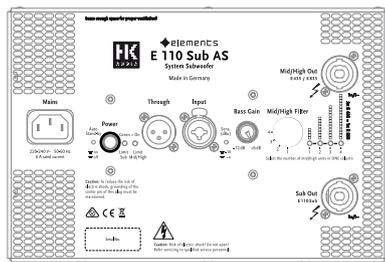
# TECHNICAL SPECIFICATIONS

	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			-	1,200 W RMS @ 8 Ω	250 W RMS @ 10 Ω	-
<b>Continuous power per amp Class-D</b>		-	2,400 W (1,200 W SUB, 1,200 W Mid/High Unit)	1,200 W (600 W SUB, 600 W Mid/High Unit)	600 W (300 W SUB, 300 W Mid/High Unit)		-	600 W
<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 - 15 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 1W @ 1m *</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>	1x E-Connect In 1x E-Connect Out	1x E-Connect In 1x E-Connect Out	1x XLR-Combo In 1x XLR-Through 2x Speakon Out (1x Sub + 1x Mid/High) 2x E-Connect Out	1x XLR-Combo In 1x XLR-Through 2x Speakon Out (1x Sub + 1x Mid/High) 2x E-Connect Out	1x XLR-Combo In 1x XLR-Through 1x Speakon Parallel Out 2x E-Connect Out	1x Speakon In 1x Speakon Out	1x Speakon In 1x Speakon Out 1x E-Connect Out	1x XLR-Combo In 1x XLR-Through 1x Speakon Parallel Out 1x 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

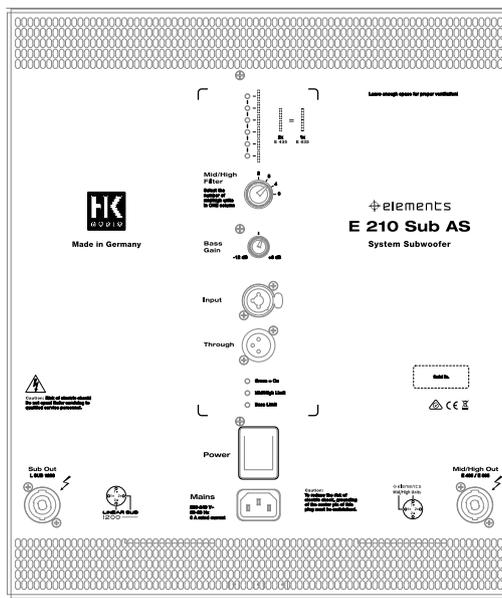
## BACK PANELS



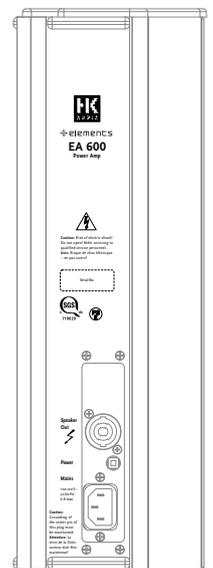
Panel E 110 SUB A



Panel E 110 SUB AS



Panel E 210 SUB AS



Panel EA 600 Amp

# COMPACT, MODULAR AND POWERFUL >

HK AUDIO HAS CREATED AN INGENUOUSLY 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.

*L. Stamer*

Dipl.-Ing. Lothar Stamer



## 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.



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

## 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.

## 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 the 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 E 435 units or use one E 835. 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?**

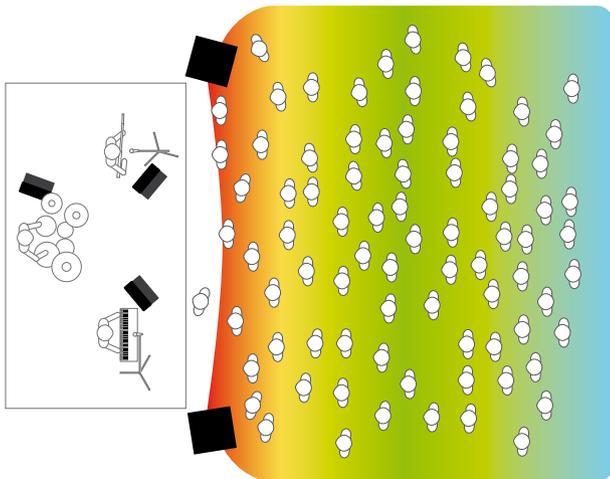
Lothar Stamer: The new type E835 mid/high units and of course the new E 210 SUB AS subwoofer make it much easier to assemble large setups. The largest ELEMENTS system now delivers 4.2 kilowatts, and with just ten components and minimum cabling effort at that.

**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?**

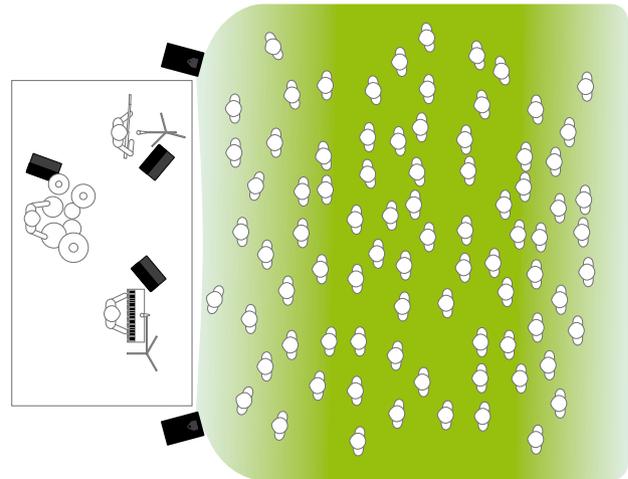
Lothar Stamer: This wide-range speaker is indeed one of the milestone achievements on the road to ELEMENTS. We spent nearly two years researching it in a joint effort with our long-standing partner Celestion, one of the world's most experienced manufacturers in this field. We developed, tested, and measured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



ELEMENTS setup



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