



elements

AN HK AUDIO MAGAZINE



HANDS-ON TIPS

How to configure ELEMENTS

THE BOSS SPEAKS

Helmut Zerlett on the road with ELEMENTS

PA SHOOTOUT

ELEMENTS vs. ACTOR DX

THE MAKING OF

An interview with Lothar Stamer



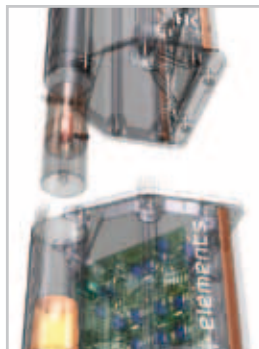
elements.

it's elementary



...open for visions

When HK Audio was launched 30 years ago, I was an engineer driven by the desire to create what I had always longed for as a musician - an audio system that sounds great, adapts to my demands for size and power, and is ready to go in no time at all. The first system worldwide to combine



the benefits of modern line array technology with the handling ease of ultra compact portable PAs, HK Audio Elements marks a milestone on this quest for perfection.

Lothar Stamer, CEO (CTO) HK Audio



The six elements: The E 435 mid/ high unit, EA 600 amp module, E 110 Sub, E 110 Sub A, EMP 1 pole, and EF 45 base



**Portable
Sound**

www.hkaudio.com

Dear Readers,

In the scant months since Elements hit the market, gigging life has grown a lot sweeter for many musicians and DJs. Never has a portable PA system been so versatile, so phenomenally easy to set up, and so very convenient to transport. And never has such a rig delivered such jaw-dropping sound. This magazine aims to share our enthusiasm for Elements with you and get you a little excited about the technology behind this remarkable sound reinforcement

solution. Read on to enjoy the intriguing story of Elements' origins and birth. Discover how the system fared in a shootout with an established band PA. And if you want to know how professionals feel about Elements, be sure to check out the interview with Helmut Zerlett on page 18. We hope you enjoy reading these articles as much as we enjoyed writing them.

Your myElements team

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Elements snippets

Space-saving storage

Does Elements really fit in a compact car? The Swedish HK Audio distributor put our claim to the test. The intrepid Norsemen commandeered a brand-new Volvo C30 and stacked a stereo rig with four mid/ high units, two subs, and two poles in front of it. Just minutes and a few skilful twists of their wrists later the Elements rig was snugly stowed in the tiny cargo hold, with plenty of space left on the back bench for the guitarist's gear.



Paco loves Elements

Australian audio product specialist Paco loves to put on a bit of a show for his customers. So if you hit Canberra (Australia), be sure to visit Pro Audio and see Paco's outstanding performance!



Elements enters mexico

Proaudio dealer Hi Tech Audio is the prime location to experience Elements in mexico. José Antonio Martínez Benita and his team located on Bolívar in mexico city in the historical centre are very proud to present Elements.



Opening of the Saar Music Festival

A classical gas with Elements

The 2011 Saar Music Festival, held in late October in a world cultural heritage site at Völklingen, kicked off with a rousing salute from



Austria. Elements spread the Danube Philharmonic Orchestra Vienna's sound through this unique venue where gas blast furnaces once forged steel. Clearly the promoters of this sophisticated event were unwilling to entertain neither visual nor sonic compromises.

A genuine gem

"It's tough to separate the chaff from the wheat nowadays," says Paul Nijssen of Feedback, a music store in Eindhoven, Netherlands. "But the Elements workstation helps me convince customers in a heartbeat. I start with a



small setup – a sub and mid/ high unit. That's already enough to bowl people over. And so it goes right up

to the final demonstration with a stereo system. Granted, Elements isn't cheap, but real gems never are!"



Accessories you won't want to do without

It's that same old song and dance musicians know and do so well: Today it's a pub gig, tomorrow a wedding, and the next night it's off to a company party. Your equipment needs protection on the road, and tailored Elements dust covers and bags ensure safe, speedy, and convenient transport.



Awesome audio at Audi

Elements put on a performance



at a product presentation in the Saarbrücken Audi Center that was either impressively inconspicuous or inconspicuously impressive. The host's announcements and singer's vocals and backing tracks came across crystal-clear throughout the sales floor, but bewildered visitors kept wondering where the PA might be. The mystery's solution: Two Elements systems with two mid/ high units and one sub each were discreetly tucked away in front of the stage.



Pictures © Livesound Showtechnik GmbH



elements

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Sights set on Elements

A man steps into a music store and asks for a PA system that is versatile, stylish, powerful, easy to transport and set up, and sounds even better than it looks. Not long ago this would have been the stuff of science fiction. But now Elements from HK Audio is here to work this little miracle.

Yesterday's compact sound systems were an either/or proposition. Some were inconspicuous and relatively easy to handle, but hardly suitable for larger venues. Others were powerful enough to cover a big beer tent, but they were also very bulky, glaringly conspicuous, and required a van to transport. And forget about configuring such 'closed' systems flexibly for every occasion from simple public address to full-blown gala gigs.

Elements is a breed apart. Based on the latest scientific insights and built with state-of-the-art engineering techniques, it makes the most of the line array technology that revolutionized

large PAs. Freely configurable up to 3.6 kilowatts, Elements is a club PA that easily fits into a mid-sized car. Now that's smart sound reinforcement for the 21st century.

The system comprises six ultra-compact components - the active E 110 Sub A, its passive counterpart the E 110 Sub, the E 435 mid/high unit, the EA 600 system amp, the EF 45 base, and the adjustable EP pole. In contrast to conventional portable PAs with horn-loaded mid/high units, Elements is a line array. The E 435 mid/high units interlock to create line segments. E-Connect, an ingenious system devised by HK Audio, provides

all the necessary electrical connections. With the signal bus built in, this system needs no outwardly visible speaker cords. The advantages of this design are obvious: For one, its look is sleek, subtle, and stylish enough for the most distinguished event. For the other, its projection and reach boggle the mind. It spreads higher frequencies evenly, with the volume remaining consistent far into the depths of the venue. And the higher the line array, the further this frequency range extends into the lower midrange.

Serving as the base and bass, so to speak, the E 110 Sub provides the mechanical and tonal foundation. The passive





and powered units share the same dimensions. Measuring just 36 x 48 x 46 cm, they leave a rather petite footprint for such a powerful subwoofer. At 16.5 kg, the passive unit's weight is quite manageable. Even the 2.5 kg heavier active unit, with its built-in 600-watt power amp, is easily handled. To put all of its prodigious power to productive use, simply connect a passive subwoofer in parallel to the internal speaker via Speakon cables, or connect two mid/high units via E-Connect. The enclosures are made of MDF (medium density fiberboard) with a black textured coating. They feature beveled edges as well as CNC-milled grips and twin slots for E-Connect sleeves, one on the side and one on top, so that subs may be stacked or placed sideways. Four rubber feet on the bottom prevent units from moving around on the floor, while two runners and matching grooves in the opposite panels prevent stacked units from sliding and tipping. The switched-mode

power supply and fan-cooled Class D power amp sit at the rear of the enclosure. The same goes for the control panel, which features the standard XLR In and Through ports for patching source signals in and on, as well as an EQ selector that slightly boosts higher frequencies, depending on whether one or two mid/high units are connected.

Unlike most enclosures, the mid/high unit's housing is made of an extruded aluminum frame. Panels crafted of the same material are bolted to the top and bottom of the frame. Each unit sports four vertically arrayed 3.5" inch wide-range speakers with 150 watts total load-handling capacity, an 8-cm shaft at the bottom, and a matching sleeve on top. To interlock two or more units and create a longer line segment, insert the shaft into the sleeve until the detent pin engages in the slot with an audible click. The 1/4" plug inside the sleeve automatically provides an electrical contact. Simply



The basic setup

For the most compact configuration, HK Audio recommends using two mid/high units in combination with a powered bass bin and an EP 1 pole to raise the mid/high units to the necessary height. To create a stereo setup, simply double up the components.

Audience size:
100/200 (stereo)

Power output:
600 watts/1,200 watts (stereo)

Recommended application:
Acoustic artists/bands,
entertainer combos, DJs

These setups were engineered to deliver the best audio results, which is why they are recommended. However, users are free to mix and match as they see fit. For example, presentations in smaller

Sights set on Elements



Expansion stage 1

To climb up to the next rung of the configuration ladder, step up to three mid/ high units per side and add another passive subwoofer. The active sub's power amp has to drive its passive counterpart, so this rig requires an added amp module.

Audience size:
300-400

Power output:
2,400 watts (stereo)

Recommended application:
Band, DJ

rooms can sound just fine without a subwoofer, so feel free to leave it at home. You may prefer to beef up the low end by adding a passive sub and the necessary amp module for the mid/ high units. Or



Expansion stage 2

To set up a full capacity rig, roll out four subs per side, with two each being active. It takes four mid/ high units to extend the column to its maximum height.

Audience size:
400-500

Power output:
3,600 watts (stereo)

Recommended application:
Bands, DJs

why not hit the road with four rather than eight subs when a more moderate bass foundation will do. Anything goes, and thanks to the technology behind Elements, it all sounds good.

press this detent pin to disconnect components or remove the unit from the subwoofer or pole. The savvy Elements customer also invests in dust covers for the subwoofers and tote bags for four mid/ high units each. The investment in these optional accessories pays by protecting Elements against the rigors of the road often encountered by the gigging musician.



The Making Of...

Compact, modular, and powerful:

When HK Audio unveiled Elements, a sound system based on a novel concept, it set off waves that rippled throughout the 2010 Musikmesse. We spoke to Lothar Stamer, the company's CEO and head of R&D, about the technology and the sometimes rocky road to its release.

myElements: 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.

myElements: 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.

myElements: 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.

myElements: 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 a lot less power in up front to get a lot more sound out in back.

myElements: 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 mid/ high units. This effect increases exponentially with the length of the line; that is, by distance squared.

myElements: So the mid/ high units' configuration as a line array is what makes Elements so flexible?

Lothar Stamer: It's certainly a key factor – in acoustical terms, only line sources are truly scalable!

myElements: Does line array technology offer any other benefits to the customer?

Lothar Stamer: Quite a few actually. The individual components are very easy to transport and may be mixed and matched almost at will. What's more, a line array spreads sound far more



Lothar Stamer is the
CEO and head of
R&D at HK Audio.

evenly throughout the auditorium, especially higher frequencies, which drop off far more sharply with conventional systems. The same goes for sound pressure levels. Consequently, vocals and speech are far more intelligible even at greater distances with Elements.

myElements: 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.

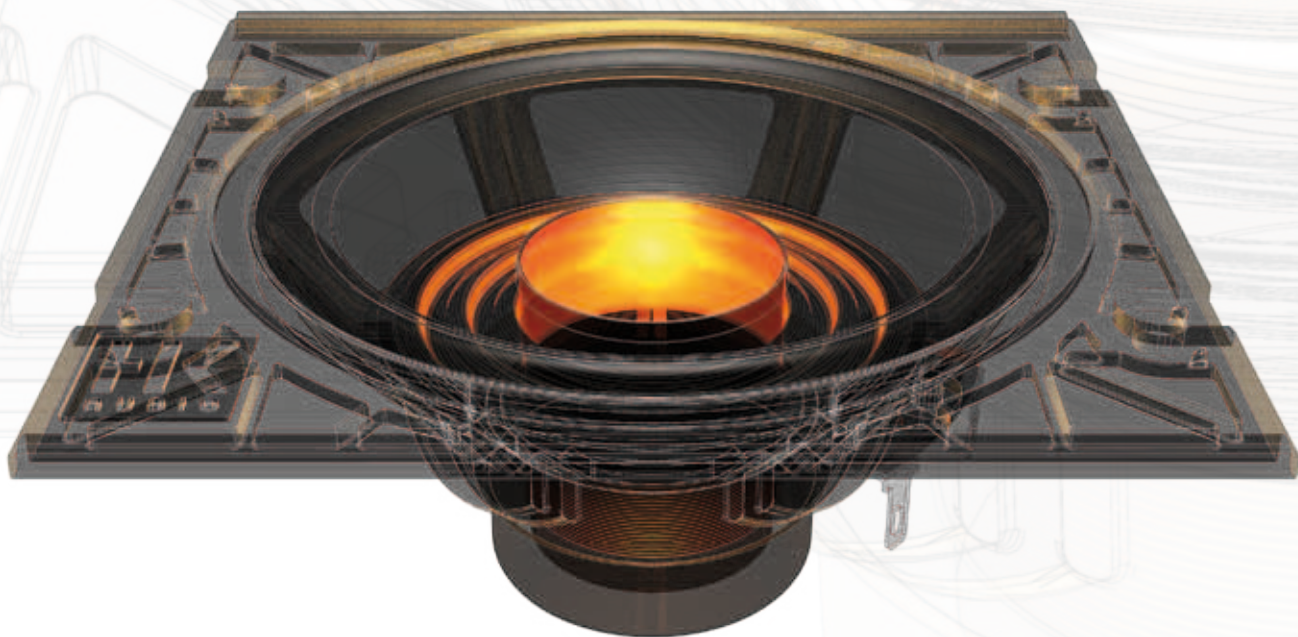
myElements: What were the biggest challenges?

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.

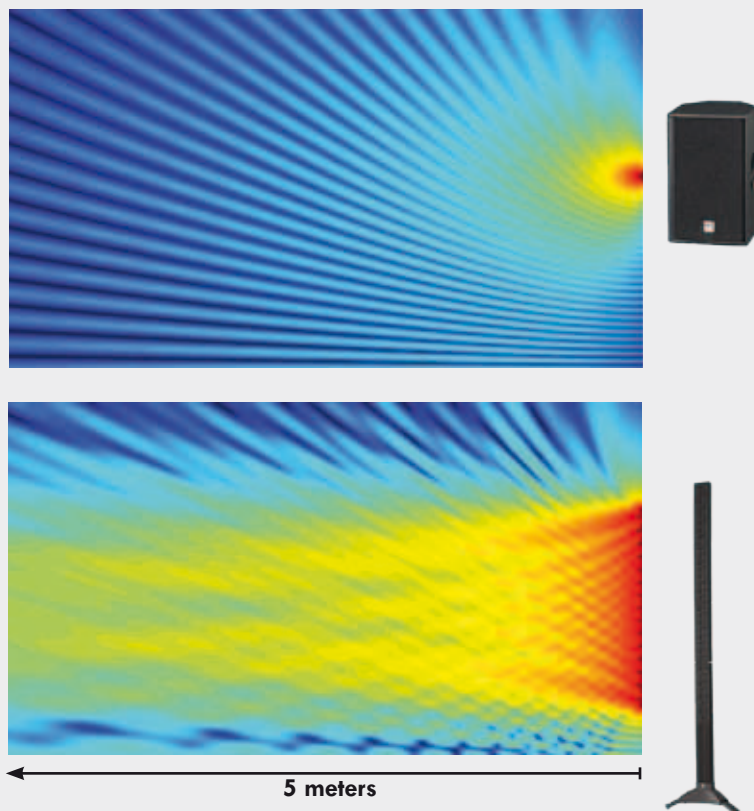
myElements: The ingenious E-Connect coupling system surely took some serious development effort.

Lothar Stamer: You're absolutely right. E-Connect required some real problem-solving because this type of system has to provide a firm connection without a lot of play, yet it has to plug in smoothly and easily. These conflicting properties demand mechanisms that are to some extent at odds. Reconciling all these factors was anything but a trivial task. Also, the signal bus required a lot of development effort. After all, we wanted a reliable system that will keep on working flawlessly even after a thousand gigs.



The 3.5" speaker in the Elements mid/ high unit is the product of intensive development effort.

The sophisticated BEM simulation, applied here at 3 kHz, clearly shows that line arrays (bottom) disperse sound far better than conventional systems (top). Red and yellow hues signify high sound pressure levels; dark blue indicates low levels.



BEM simulation at 3 kHz comparing Actor and Elements

myElements: Mr. Stamer, the Elements subwoofer certainly looks small.

Lothar Stamer: But it certainly delivers big sound, doesn't it?

myElements: Yes, and that's absolutely amazing! How do you do it?

Lothar Stamer: We have gained a great deal of experience with ultra compact subwoofers over the years. Again, the speaker is a key component. We use a custom-designed 10" speaker that – when placed in the right enclosure – delivers very dynamic and tight low-end response. The Elements subs have other advantages such as their light weight and modular design. Extending the low end is easy - simply add more passive or active units. The big system with eight mid/ high units and eight subs has to be heard to be believed. And the design of the housing also lets you configure a horizontal bass line array simply by placing several

subs side by side, which also boosts the system's efficiency. We have applied this principle with great success over the years with our COHEDRA series CDR 210 Sub.

myElements: In view of line array technology's many benefits, can we expect to be seeing more of it in HK Audio's Portable Sound offering?

Lothar Stamer: Elements certainly marks the beginning of new era for us, and the near future belongs to Elements! But everyone who knows us also knows we never rest on our laurels for too long.

David vs. Goliath

HK Audio Elements
and ACTOR DX in a PA
shootout



We wanted to find out how one of the most successful band PAs, HK Audio's ACTOR in the current DX version, would fare against that nifty newcomer Elements. So we set up a shootout between the two systems, measuring, auditioning, timing, and even weighing them to judge each on its relative merits.

Is this an unfair comparison? Perhaps at first glance. After all, ACTOR packs some heavy artillery with those big resonant



cabinets that weigh a whopping 103 kg. And the arsenal inside the enclosures is equally impressive with two 15" woofers in the bass bins and a 12" speaker and 1.4" horn in the mid/ high unit. This combination delivers 1.6 kilowatts per side. Elements, in contrast, weighs just 83 kg and



looks positively dainty with its four stacked mid/ high units. But appearances are indeed deceiving: Paired with four lean, mean 10" subs, two of which are active, this rig pumps out 1.8 kilowatts of power.

Out of the hall and into the blue Before we can put our ears and measuring apparatus to work, we have to engage in some manual labor to set the two systems up. Reflections are fewer and readings far more accurate when taken alfresco. So we decided

to measure the PAs outdoors and lugged the components from the company's test facility in hall 33 out into the great wide open.

Just one person was able to set up Elements in a matter of minutes. On his first trip, our chosen porter tucked four mid/high units, the amp module, and the base - which collectively weigh just 12 kg - under his arms, hauled them out to the selected site, and connected all this gear in just a few seconds via E-Connect. Then it was time to fetch the subs: They weigh just 16 and 19 kg apiece, so even the untrained Joe or Jill can carry two in one go. Elements was ready to run in less than ten minutes, including the short hikes to and fro.

There is less to carry around with ACTOR, but those three units promise quite a workout. The sub weighs in at a good 35 kg; the mid/ high unit is no featherweight either, tipping the scales at 32 kg. The bass bins roll easily on flat surfaces thanks to their casters, but heaving these babies out of the car and negotiating obstacles such as stairs requires a second pair of strong arms. ACTOR was also up and running in about ten minutes, but not without a helper and sweat beading on both bearers' brows.

Apropos cars: It takes more than even a very roomy station wagon to transport a complete ACTOR system; nothing less than a van or pickup truck will do. In contrast, even the biggest Elements rig - that is, our test setup twice over - easily fits into a VW Golf

Variant, which is basically a Rabbit stretched out to a wagon.

The contest commenced once both systems were up. As the saying goes, all the proof of a pudding is in the eating: Would the measurements bear out the line array's theoretical advantage over the conventional system? And does ACTOR's SPL and high frequency response really drop off far sooner than Elements'?

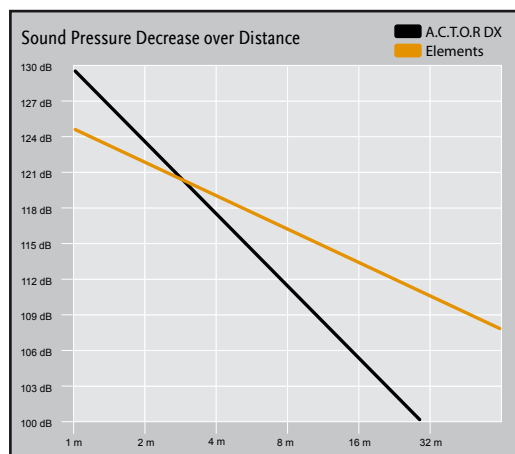
To answer these burning questions, we first set both systems to the same level, ensuring they are equally loud at 1 kHz and a distance of 1 meter. This point is marked as 0 dB in the measuring software. Both frequency curves intersect this zero reference point at 1 kHz during the initial measurement. This ensures the initial conditions are virtually identical for both systems. Also, the common reference point makes it easier to interpret measurement charts.

The next steps entailed moving the microphones back from their audio sources to generate frequency charts at distances of four, eight, and sixteen meters. It didn't take an engineering degree to interpret the results. Even a novice could see that Elements is already outperforming ACTOR at the eight-meter mark. Although not glaring, the gap in the two system's drop-off in volume is certainly noticeable - about 3 dB across the entire frequency response curve. The effect was even more pronounced at 16 meters, where ACTOR's level



dipped a full 6 dB lower than Elements' level. In other words, Elements was 6 dB louder at that point.

ACTOR's charts also showed comb filtering effects that increased with distance and



The absolute sound pressure from ACTOR and Elements: Actor is ahead for the first few metres, then Elements moves ahead as distance increases.

can be attributed to reflections off the ground, among other causes (in enclosed rooms, by wall and ceiling reflections). Elements is a bona fide line array, so it is largely immune to this sort of problem. The Elements subwoofers' efficiency was a wellspring of amazement and wonder. Although at 16 meters

Elements had lost a bit more level than ACTOR at around 55 Hz, Elements quickly retook the lead at 60 Hz.

Elements did come up short in one performance category - absolute sound pressure in the

first few meters. ACTOR pumps out 129 dB at one meter distance with the system's power amps maxed out and the limiters itching to kick in. Elements, in turn, delivers 125 dB despite having 200 watts more power at its disposal. The two systems ran head to head in the SPL stakes at about four meters, with

Elements sprinting ahead at six meters.

Back into the hall

Once the measurements were all taken, we moved to hall 33, which accommodates a good 500 people. The musical crew was already standing by for an audition. This cover band was tasked to put on a live

performance demonstrating the strengths and weaknesses of both systems. Its five members manned the drums, two electric guitars, and one acoustic, with one singing lead and four providing backing vocals. Both systems were doubled up to create stereo rigs.

Elements aced the audition, delivering bold and authoritative sound from the first to the last row, at both softer and louder levels. The vocals' assertiveness and the clear stereo image merit special mention. The acoustic guitar lacked top-end shimmer, but a slight 10-to-12 kHz EQ boost sorted that out, and spruced up the sound of the cymbals to boot. Elements also delivered tight and precise renditions of scrappy rock numbers at imposing volume levels. However, a little more headroom in the subs would put some icing on the cake of those who like their kick-drums hard and heavy.

So what about ACTOR? It held

Crunching the numbers

Now we know that line arrays' ability to generate a coherent waveform gives them great advantages over conventional systems. A comparison of the radiating cones' surface area and the enclosures' volumes is sure to shed even more light on our two test subjects.

ACTOR uses one 15" subwoofer on each side. The speaker frame measures 15" or 38 cm, but the cone's diameter is actually 34 cm. The area of a circle is equal to Pi times the radius squared, or $A = \pi \cdot r^2$. Ignoring the fact that we're dealing with a cone rather than a circle, this comes to 907 cm² area per sub ($A = \pi \cdot (34/2)^2 = 3.14 \cdot 289 \text{ cm}^2 = 907.46 \text{ cm}^2$) and 1,814 cm² for both.

Our Elements system sports four 10" subwoofers per side. If we plug these numbers into the above formula, we get a cone surface area of 346 cm² each, which multiplied by four equals 1,384 cm². So the Elements subs have less total surface area than their ACTOR cousins, but their cones are able to travel a greater distance (X-max) and displace more air, which more than compensates for this deficit (volume displacement = X-max · area).

The 12" speaker in the ACTOR mid/ high unit provides about 520 cm² of membrane real estate. With 38.5 cm²

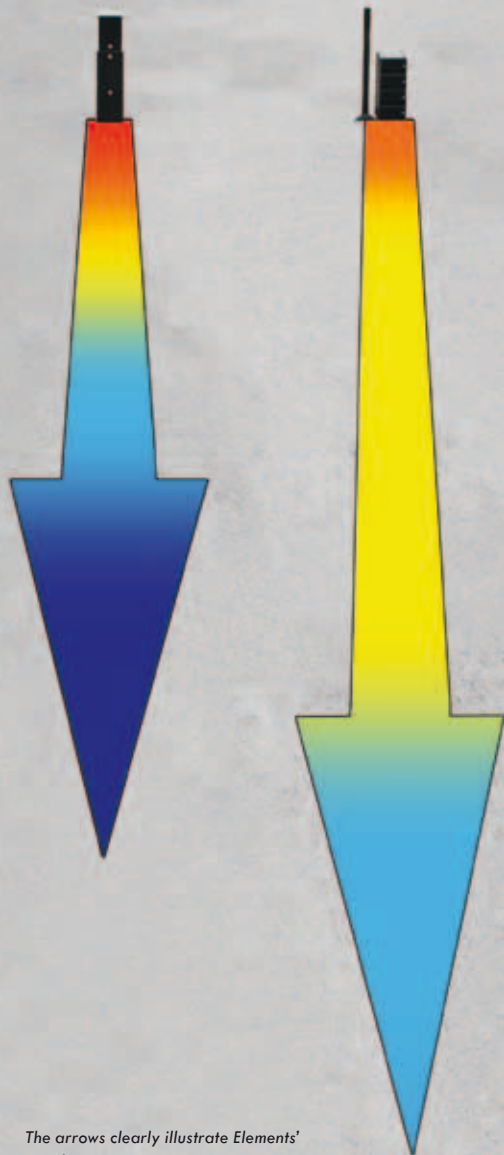
area each, the 16 wide-range Elements speaker cones have a total area of 616 cm², which is considerable.

This tells us that the two systems move air in comparable amounts, even if our little numbers game did not factor ACTOR's high-frequency horn into the equation.



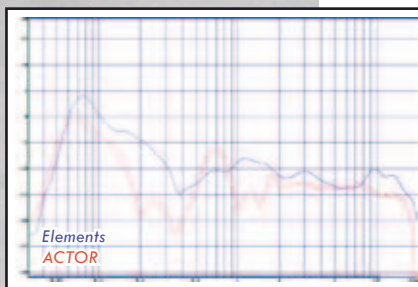
The differences get a little more dramatic when comparing enclosures' volumes. The ACTOR mid/ high unit holds 106 liters, while the four Elements cousins collectively contain a good 20 liters. Same story at the bass end: The two ACTOR subs accommodate a whopping 412 liters, while the four Elements subs make do with just 265 liters.

So it's a super-size 518 liters vs. a super-skinny 285 liters. Again, these stats are a glowing testament to Elements' remarkable efficiency.

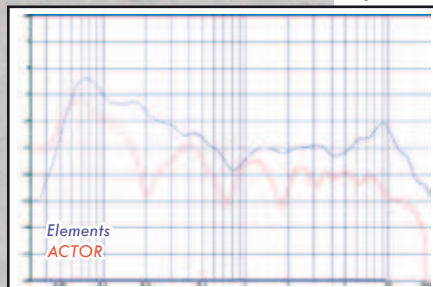


The arrows clearly illustrate Elements' greater range.

Both systems' levels are set so that they are equally loud at 1 m distance.



Elements is the frontrunner at 8 m with a 3 dB lead.



The gap has grown to 6 dB at 16 m.

its own, even outperforming Elements in the first meters by delivering higher SPL at the front of the stage. The 12"-speaker loaded mid/ high unit does that typically aggressive rock thing especially well in the short-throw range. However, this comes at the price of a less nuanced sonic image, the level of which drops off with increasing distance to the stage. The four subs were a little louder than their eight Elements cousins, and this extra headroom can be helpful in accommodating exceptionally dynamic signals. However, the 15" speaker did not pack the added punch that

many might expect of it, and the Elements subwoofers sounded big, tight, and punchy even at the back of the hall.

What was the musicians' verdict? Stefan Hauck, the combo's leader, waxes enthusiastically: "The big Elements setup's perceived volume level was impressive. I also felt that rock numbers sounded better over this system. Both the vocals and brilliance were breathtaking! I'm willing to accept a little less bass as a trade-off." Uwe Baris' upshot is even more concise: "I'm thrilled to be playing a

few more gigs with Elements this week. It won me over!" Even the band's sound technician is delighted with the rig: "I'm surprised at how directly Elements projects sound. It's a mystery to me: Standing 20 meters out from the enclosures and seeing those small columns, you can't help but be baffled. What's more, a little EQ tweaking was all it took to get a transparent audio image. It's simple, fast, and really good."

The Elements configuration tested here with eight subs (four being powered), eight mid/ high units, and two amp modules including poles and bases. The ACTOR

DX system consisted of four subs and two tops. Because the Elements system takes up a lot less space in comparison to the ACTOR, on stage and in the car which in turn makes transporting

the Elements system very easy as you can use any car. You can set-up the system very quickly without the risk of back injuries because the elements are so lightweight. In addition, the cash spent on Elements is invested in a system that scales up and down to suit the task, without the user having to settle for any tonal compromises. The bottom line is so sweet it deserves to be repeated: Elements, as a real line array, is at the leading edge of technology. And it spreads sound evenly throughout the auditorium, while rendering speech and vocals with utmost intelligibility.



Never less than the

Helmut Zerlett on the road with Elements

Undoubtedly one of Germany's most in-demand musicians, Helmut Zerlett tickled the ivories with the Jule Neigel Band, Westernhagen, and Wolf Maahn. His keyboards lent wings to Joachim Witt's Goldenen Reiter. Serving as talk show host Harald Schmidt's musical foil, he also writes highly successful movie and TV scores. And of late, he is an enthusiastic Elements user.

myElements: Hi Helmut; thanks for finding time for a chat. Most people know you from the TV or they own your soundtracks for movies such as *Der Wixxer* and the *Jerry Cotton* remake. What projects are you busy with now?

Helmut Zerlett: At the moment I'm playing lots of gigs with my trio, or more accurately, my quartet and occasional quintet. I use a Moog Taurus (a legendary bass synthesizer with a foot pedal) and my electric piano. This is a very versatile combination, particularly for live applications.



best

Pictures © suzaphoto.com

Elements from HK Audio is just what the doctor ordered: It delivers super hi-fi sound despite the fact that it is such a sleek, light system that doesn't clutter up the view with its bulk. The visuals are very stylish, which fits in nicely with my rather inconspicuous stage setup.

myElements: How did you find out about the system?

Helmut Zerlett: I had always been looking for something like this: small, portable – if need be in a normal car - yet still able to deliver great sound,

and with sharp looks to boot. When I heard that this was exactly what HK Audio, a company I had worked with for quite some time, was developing, I was of course curious to learn more. Given the opportunity to try out one of the first prototypes, I was amazed at the extremely cool sound that it produced. That's my path to Elements.

myElements: You used the system again just last weekend. What was the occasion?



Helmut Zerlett: It was a symposium for starred chefs - the perfect opportunity to combine my two passions for music and delicious food in one fab gig. We were given the opportunity to groove a little at the after-show party.

myElements: Which of your band's incarnations performed there?

Helmut Zerlett: My quartet - a guitarist, percussionist, DJ, and yours truly.

myElements: What do people say when you show up at events like this with Elements?

Helmut Zerlett: Usually they don't say anything at first because the system is so inconspicuous. Later they wonder where the music is coming from and

are then very impressed to discover that such a lean system delivers such powerful sound. And that, in a nutshell, is my philosophy. Jaki Liebezeit, at the time the drummer with Can, summed it best when he told me, "No one should play more gear than one man can carry."

myElements: That raises the question of how many trips the drummer should be allowed to take.

Helmut Zerlett: (laughs) That's why somewhere down the line Jaki started playing those tiny drum sets!

myElements: And what about your Hammond B3 at Harald Schmidt's show? That's something no one can carry alone.

Helmut Zerlett: True, which is why it stays in the studio. I've come to the point where I want the best and won't settle for anything less. By the way, do you mind if I go get some tea? I drink up to three liters of green tea a day.

(We're skyping. Helmut Zerlett returns a few moments later. Grinning, he holds a mug up to the webcam. Its inscription reads "Porsche Driver Training.")

myElements: Ah, you prefer a sporty ride!

Helmut Zerlett: I drove Porsches for years - just about every model there is. But I also felt that the driver safety training was extremely important. You see, I go for the best possible quality in everything that matters. I'm currently driving a VW, which is also an excellent car. Of course it's not the same as a Porsche, but it does exactly what I need it to do for me right now!

myElements: As far as cargo space goes, you could have continued driving a Porsche thanks to Elements. That midsized setup...

Helmut Zerlett: ...fits in 911 in a pinch. True enough, but it would be tight fit in a Boxster. However, a Panamera would offer plenty of space, not to mention a Cayenne (laughs).

myElements: What sound system did you use at your gigs before Elements?

Helmut Zerlett: It was also an HK Audio system. But it was pretty big and therefore not as easy to transport – we needed a van. I don't recall the type designation; you would have to ask my trusty technician Arnulf Muhl, who is practically a band member.

myElements: But if Arnulf happens to be unavailable, the prospects of setting up Elements on your own don't seem so scary, do they? Say if you had no other choice?

Helmut Zerlett: (laughs) Well, it's not as if I just stand around and never touch a thing. But you're right; the effort involved in setting up a system that sounds good has become quite manageable with Elements. The whole thing is just very, very well conceived.

myElements: Helmut, thank you so much for this chat. We wish you many more successful gigs with Elements!

Helmut Zerlett: Hold on, I have something more to say!

myElements: By all means, go ahead.

Helmut Zerlett: I just changed over to green electricity, which I want to recommend to everyone. Believe it or not, this saves me 600 euros a year, which I now donate to Greenpeace. And talking about cars: If there was a hydrogen-powered two-seater available, I'd be the first on board. After all, who really needs a Porsche Cayenne in Cologne?

myElements: But it has enough space for the biggest Elements setup.

Helmut Zerlett: So does my VW! (laughs)

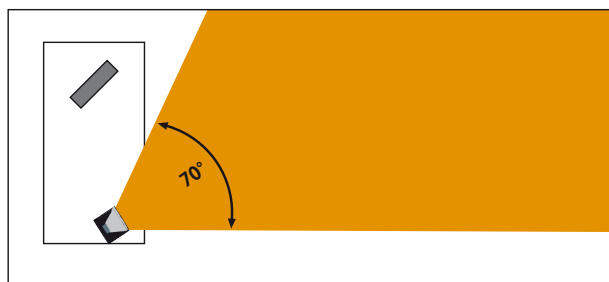


Hands-on tips

Setting up Elements is an exercise in convenience with the ingenious interlocking E-Connect system. But there are a few more tips and tricks that will help you make the most of your sound system. myElements wants to share these with you by answering some FAQs.

Q: Usually it's just me and my keyboard on stage. So what's the best place to set up my mono system?

A: The most advantageous spot for your Elements column is at the left or right edge of stage. Turn it in slightly towards the auditorium. This minimizes adverse reflections off walls and provides the best coverage for your audience.



Reflections off walls may be minimized by turning the enclosures in slightly towards the audience

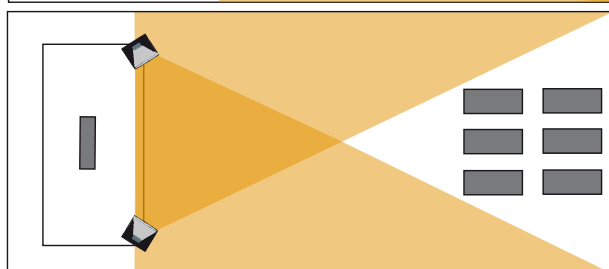
Q: I want the sound to be louder on the dance floor than in the rest of the venue. How do I achieve this?

A: You don't have to exploit Elements' ability to spread sound evenly throughout the room if you prefer to focus on a certain area. All you have to do concentrate its highest SPL on this area is turn the speakers towards or set up the system at the edge of and centered on the dance floor.



Q: If I drive just one mid/ high unit with the EA600 amp module, does this still give me the full 600 watts of power?

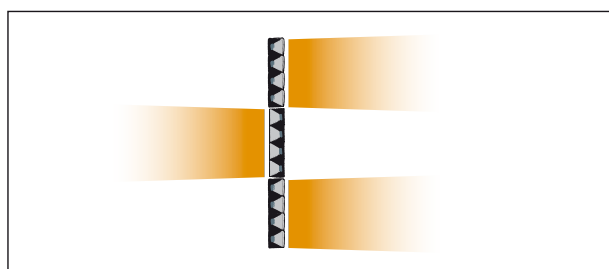
A: No. An E 435's impedance is 16 ohms. The amp module delivers 150 watts to this load – which is precisely the amount just one E 435 can take. The impedance is 8 ohms with two mid/ high units connected, and the power amp delivers 300 watts. So you have to connect four mid/ high units to achieve the full 600 watts.



Sound may be focused on a specific area by turning the mid/ high units inwards

Q: Can I turn mid/ high units that are normally aligned so they face in different directions?

A: In principle, yes. But turning individual mid/ high units off axis degrades the line effect. The smaller the angle, the stronger the interferences: This means you get less of a coupling effect, lower SPL, and a more limited range. Also, you have to disengage the locking mechanism to turn the speaker, which can interrupt the signal flow.



Turning the mid/ high units in different directions degrades the line-array effect

Q: I have an Elements system with several subwoofers. How do I best set them up at an open-air event?

A: The biggest problem with outdoor applications is the classic two-point array with the subwoofers sited on the left and right of the stage. If you happen to be standing at a particularly unfavorable spot, the difference in delay between the left and right stack can be half a wavelength so that the wave is almost entirely cancelled out (blue area).

This throw pattern can be improved considerably with a simple line array, for example, below the stage. The two figures depict an area of 16 x 20 m. The dispersion pattern can be widened and narrowed quite effectively with a concave curved array.

See figures 1, 2, and 3.

Q: I don't see any tweeters in the Elements mid/high unit, so where do the high frequencies come from?

A: Elements is loaded with wide-range speakers that were engineered to maximize the line array effect and render high frequencies. The smaller the loudspeakers, the higher their frequency response: Equipped with a custom-developed 3.5" speaker, the mid/ high unit renders frequencies from 140 to 20,000 Hz (-10 dB, via a built-in active crossover).

Q: May I use another power amp to drive the mid/ high units?

A: No, because Elements' amp modules, electronic components, and protective circuits were painstakingly tuned to match the mid/ high units and subs. Also, you would have to do without the E-Connect signal bus.

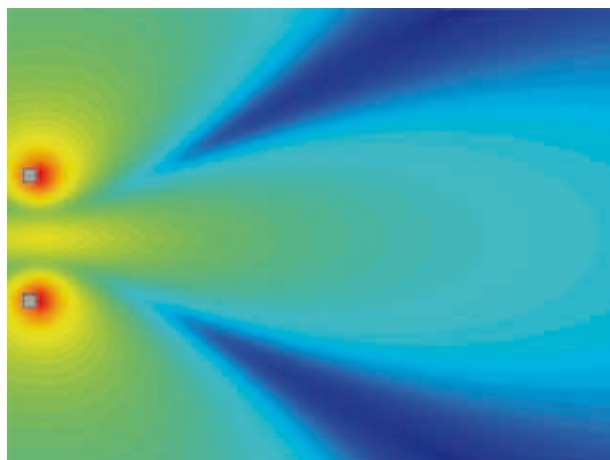


Figure 1: Outdoor two-point array @ 80 Hz

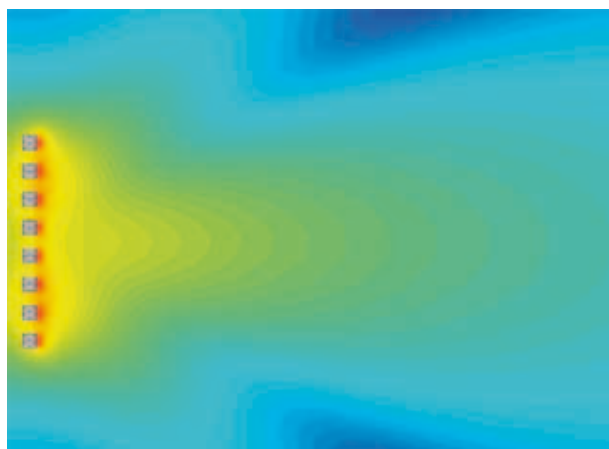


Figure 2: Outdoor bass array 1 @ 80 Hz

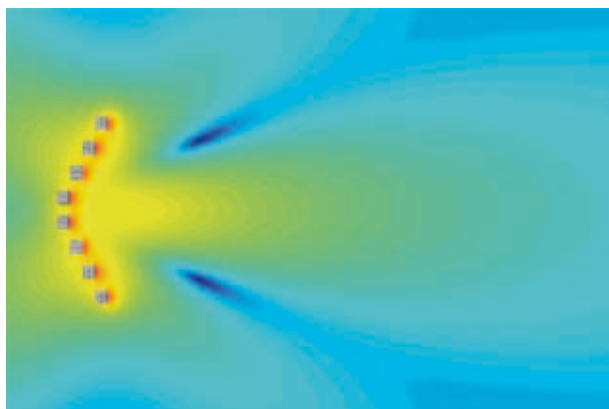


Figure 3: Concave array @ 80 Hz



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