

HK AUDIO ELEMENTS IN PRACTICAL APPLICATION (2)

Well Put Together



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The Workshop

This workshop series focuses on how line-source PA systems work using HK Audio Elements as an example. One special feature of this system is its modular setup, which adapts to different venues.

In this installment you will learn about the individual Elements modules and the typical systems that can be set up with these components. Next to concrete examples of line-source PAs in practical applications, you will get tips and tricks provided by musicians for musicians



The versatile way in which its modular components may be combined is one the key strengths of Elements, the line-source PA from HK Audio. The first installment of this workshop examined the theoretical basis for developing scalable line-source PAs; this installment looks at the system's individual modules and how they are combined in practical application to tackle the challenges of various sound reinforcement tasks.

Elements is a powered active PA system. The amplifiers are built into the system and can be directly connected to a standard mixing console. An Elements PA is made up of various powered and passive modules, depending on the given configuration. And the patented E-Connect couplers are the icing on the cake because no additional cords are needed to route the signal up through the column. This not only benefits the visuals, it also simplifies setup.

Length matters

A column for rendering midrange and high frequencies may be assembled with two different Elements modules: The smaller E435 module is equipped with four wide-range speakers; the E835 has twice that number, eight. According to the manufacturer, the load-handling capacity of a mid/high unit with four built-in 3.5" speakers is 150 watts and 300 watts for the eight-speaker module.

The speaker columns, which HK Audio also calls a line-source PA, can be configured in different lengths, whereby the height of the column affects performance, the near-field sound and the throw distance of a line-source PA. For more on this, see

the previous workshop in issue 13/05. A taller column projects the sound further into the room. Obviously, this is generally an advantage, but in small rooms you have to be careful that the rig doesn't project too much energy onto the opposite wall. This would have the adverse effect of powerful reflections interfering with the sound.

A powered module is then selected to suit the given column's height: The EA600 amp module is available to construct PAs purely for public address and for permanent installation. It looks much like the Elements E435 enclosure, but there are no speakers inside. It is strictly a power amp module. As the name suggests, the EA600 offers whopping 600 watts of power, enough for up to four E435 or two E835 modules.

The subwoofer serves up the music

This series' powered bass component serves to drive mid/high units, apart from when the system is used purely for public address. All bass modules are equipped with Elements 10" drivers. In contrast to the 15" or 18" speakers usually found in subwoofers, they're remarkably punchy, responding very quickly because there so much less mass to move. A combination of several bass units creates a bass array that delivers muscular low end with extraordinarily faithful transient response. The smallest powered bass module, the E110 Sub A, has a 10" speaker rated for 300 watts; the integrated amp provides another 300 watts of power for driving up to two E435 mid/high modules or one E835. Again, the signals are routed via E-Connect.

HK Audio will present the small E110 Sub AS subwoofer this fall with the marketing slogan „The Seventh Element.“ The „S“ stands for „system,“ which makes all the difference. This new ‚system‘ subwoofer’s audio specs and weight are the same as those of the E110 Sub A. However, its built-in digital amplifier, rated for 2 x 600 watts at 4 ohms, is able to drive up to four E435 mid/high units and passive E110 Sub bass units simultaneously. This seventh element makes it even easier to extend Elements because the dual 10“ E210 Sub AS subwoofer closes the gap to larger Elements systems.

Acoustics dictate that subwoofers should always be placed on the floor. Shorter columns are then mounted to an adjustable speaker extension pole. There are two variants: The EP1 pole extends from 95 to 160 cm, the EP2 from 44 to 60.5 cm. If the stage is high, you can also use the Elements base to set a mid/high unit on it and distribute the subwoofers below the stage.

Here’s a setup tip: The column should be centered at about the audience’s ear level. It does not have to be tilted because of the throw pattern’s powerful vertical beaming. Virtually no energy is dissipated towards the ceiling. The throw pattern looks like a slice of pie with the pointy end at the line source. Speaker poles with variable lengths are available so you can adjust the column’s height to aim it at the audience. The poles are also equipped with the e-Connect circuit for signal routing so there is no need to fuss with pesky cords. A cone connector concealed inside ensures there is no play at all in the patented E-Connect-



The wedge connector inserted between mid/high units to set up a column on the new E110 Subwoofer Sub AS provides a stable, form-fitting bond.



The smaller E435 line-source module is equipped with four wide-range speakers; the larger E835 with eight. Modules are also connected electrically when joined at the patented E-Connect coupler.

An Elements PA grows to rise to bigger challenges. As the number of musicians increases, the band can buy additional Elements modules to extend their system. The new powered E110 Sub AS subwoofer plays a key role here (pictured below and example setups pictured opposite)..



tor. Inserted between mid/high units to set up a column on the seventh component, the newly introduced wedge connector provides a stable, form-fitting bond.

Even greater scalability

My current system for events with up to 100 people consists of two powered Sub E110 Sub A bass units, two E835-mid/high units and two EP1 speaker extension poles. I also use two EF45 ba-

ses and then stack the two powered bass units. One base has a Speakon jack that is connected to the lower of the two bass units. The two 10" subwoofers in the bass array provide plenty of sound pressure and the slim column of speakers on the base is inconspicuous even when situated right next to the buffet. Matching covers for the bass units and tote bags holding two E835s (or four E435s) alongside extension poles and one EF45 base are also available.

Opportunities to extend my Elements system have been significantly improved with the new E110 Sub AS subwoofer's release as the seventh component (see the picture on the left and box on the right). The capacity to drive even taller columns and greater flexibility for future bass expansions are truly convincing arguments in my book.

A tip in closing: Once you have acquired a basic stock of Elements modules, you are probably equipped to handle 90 percent of your gigs. Nevertheless, there will be times when you want to play a larger event. In these cases, it's a great option to be able to share Elements modules with other musicians. What would end in a sonic disaster with conventional PAs is part of the Elements plan: Taken together, your Elements and mine form a larger, more powerful system.

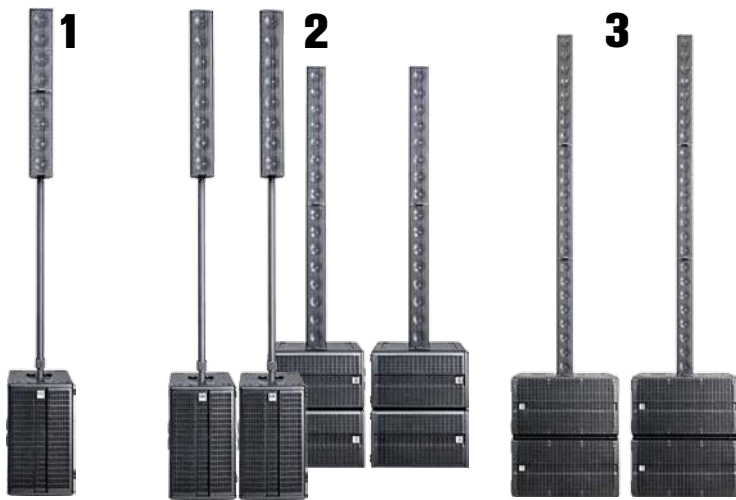
Tobias Jacobs 



New features on the E110 Sub AS's connector panel include the Sub Out jack for connecting one passive subwoofer (3). The Bass Gain control (1) adjusts the balance between the bass and mid/high units' volume levels, while Mid/High Filter (2) adjusts the high frequency amount. Its setting depends mainly on the number of components used.

Systems in the Elements product line

Dank der sieben verschiedenen Lautsprecher-Module lässt sich mit HK Audio Elements für praktisch jede Beschallungsaufgabe das richtige Werkzeug finden. Der Anwender muss sich nicht mit Überlegungen zur Impedanz plagen, sondern addiert einfach die Leistungsaufnahme der passiven Module, wählt den passenden Subwoofer als Antrieb wählen –und los geht's . Durch die Einführung des neuen System-Bass-Moduls E 110 Sub AS als 7. Element ändert sich auch die Systematik der Elements-Produktlinie:



Easy Base:

The smallest Elements system consists of the powered 10" subwoofer (E110 Sub A) with 2 x 300 watts output and two E435 line-source speakers. It may be extended to a stereo system with a total of two E110 Sub As and four E435 line-source modules.

Smart Base: This is the name given to the next Elements entry-level setup (top left).

Although this system's specs are identical to that of an Easy Base stereo setup, its performance may be doubled using mid/high and subwoofer add-ons. The new E110 Sub AS subwoofer lets you do this without having to deploy the EA600 amp module. Smart Base also comes with the taller E835 mid/high units. The configuration shown at the top right consists of one E110 Sub AS on each side; its power amp drives the added (110 Sub passive) subwoofer and two E835s with a total of 16 wide-range speakers.

Big Base: This option lets you get into the systems game with the most powerful rig available. It is built from the ground up on the E210 Sub AS subwoofer, plus two E835 mid/high units each on the left and right. With the two mid/high and bass add-on packages, Big Base can be scaled up to a full-fledged rock ,n' roll PA with the following specifications: Two columns standing as tall as 2.2 m (resulting in a pronounced line array effect) and consisting of 48 3.5" speakers with 1.8 kW power for the mid/high range and four dual 10" subwoofers with 4.8 kW output for the low end. It satisfies practically every demand, even for events with more than 500 people.