

The KSL System.

The journey.

SL-Series

d&b
audiotechnik 



Applied evolution.

The scope of the established SL-Series is broadened with the addition of the KSL System. A smaller sibling sharing the step change in system performance, broadband directivity control, significant headroom down to the lowest frequencies, and enhanced high frequency resolution. All packaged as a complete solution fitting snugly within the trusted d&b Workflow.

For the d&b team, the fixation for honing better and better directivity control has been a principal objective for many years. The pursuit being a stepwise voyage of discovery to find the wide range of methods and technologies necessary to create full bandwidth loudspeakers with accurate, even and predictable dispersion behavior. Along the way frequent leaps have been taken in the breadth of the audio bandwidth being tamed, or in the simplification and streamlining of an aspect of system performance and usability.

A vision emerges when this ambition couples with a full understanding of the applications for medium and large scale line arrays; the performance requirements, the tasks and challenges of deployment, the need for speed, efficiency, accuracy, and predictability. As well as the abilities and functionality audio system users and operators require to comfortably deliver the task of seamless performance.

Born from this journey, the SL-Series' systems are bestowed with comprehensive attributes carefully matched to fulfil every responsibility expected of them. Dependably strengthened by all that's come before, and all that's still to come. By their heritage and bloodline and by the steady advance of applied evolution.






Sound growth.

The SL-Series siblings share the same technological approach in their architecture; the GSL System is the largest line array module developed by d&b, while the smaller KSL reaffirms that size really isn't everything.

The KSL System employs a combination of techniques to achieve full bandwidth constant directivity pattern control. The low frequency geometry uses cardioid technology along with a driver and port layout to produce directivity matched perfectly with the coaxial arrangement of a highly efficient midrange horn and the waveguide mounted high frequency drivers. Complimented in the very low frequencies by the SL-SUB and SL-GSUB cardioid subwoofers, exceptional efficiency and headroom place the SL-Series well ahead of the pack. Furthermore, staying true to the holistic d&b system approach, the sonic performance and efficiency of this sibling team is matched harmoniously by its usability. From effective transport and handling to amplification and cabling; all intended for high speed deployment.

Full bandwidth directivity control with significant low frequency headroom delivers advantages both in front of the system as well as behind. Line array systems typically lose pattern control below 300 Hz resulting in the lower frequencies being dominant outside the intended coverage area. Accurate broadband pattern control, particularly in this low frequency band, is where the SL-Series delivers superior results. Lower frequency stimulus of the reverberant field behind the systems is lessened, as is spill onstage to open microphones. Together this delivers more accuracy and impact, with a directness that noticeably improves clarity, both for the audience and onstage. In open air deployment, the influence of such unique directivity control on noise immission will prove essential.





Higher performance performances, everywhere.

The SL-Series unity in design, system architecture and handling, coupled with the d&b infrastructure for planning, control, routing and cabling provides unparalleled flexibility. The scale of the KSL System enables deployment in venues ranging from clubs and theaters, all the way up to the largest stadiums and arenas. Comparatively little on the one side, while on the other, the biggest, most complex solutions are effectively addressed by seamless combinations of SL-Series systems.

The headroom and sound characteristics possessed by the KSL System accurately conveys any performance style, from a single voice, through the fine detail of acoustic and orchestral musical genres, all the way to the low end rich, high power requirements of dance and heavy metal. The ability to address such a breadth of application scales and styles, both indoors and out, facilitates high return on investment from wide ranging venue utilization and flexibility of deployment in mobile situations.



© Luke Dyson

KSL for Chemical Brothers, Alexandra Palace, London, UK

KSL for Klassik Open Air Monrepos, Ludwigsburg, Germany





KSL for Rock en Seine Festival, Paris, France

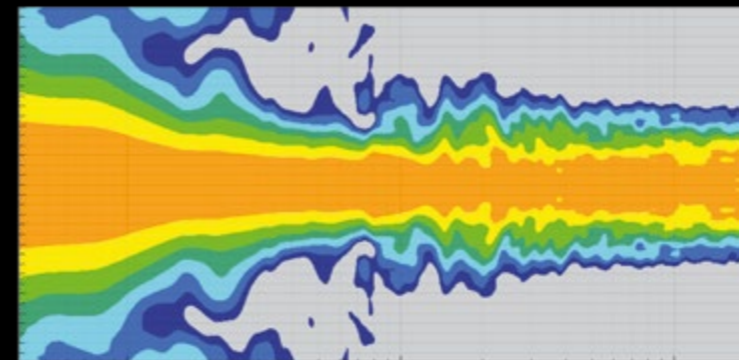
KSL for Love Family Park, Rüsselsheim am Main, Germany





A question of scale?

The SL-Series loudspeakers are the only modern large scale line array modules that deliver accurate horizontal pattern control down to the lowest frequencies they produce. The unique cabinet geometry of the KSL8 and KSL12 loudspeakers maintains seamless, full bandwidth directivity control. Two 10" LF drivers, coupled with two side facing 8" LF drivers, develop an extended response and extreme low frequency output, so much so that subwoofers do not always have to be flown with the main hangs. Midrange is delivered by a high sensitivity horn, loaded with an 8" driver, while the utilization of two custom designed 1.4" exit HF drivers with 3" voice coils in a compact format bring high output and resolution with an impeccable sonic quality. Powered in 2-Way Active mode by the D80 amplifier, one channel drives both 10" drivers, while all other components are passively crossed over and driven by a second amplifier channel.



KSL8 isobar plot, 30 Hz to 18 kHz

The SL-SUB / SL-GSUB produce cardioid subwoofer behavior with exceptional performance to size ratio, handling, storage and transportability. Two 21" high excursion drivers face forwards, while a further 21" driver radiates to the rear; these are driven in 2-Way Active mode from two channels of the D80 amplifier. The two subwoofers differ only in rigging hardware: the SL-SUB can be flown, while the SL-GSUB is designed for ground stacked applications only.

The KSL8, KSL12, SL-SUB and SL-GSUB.



KSL8



KSL12



SL-SUB



SL-GSUB

Components	2 x 10" Front LF 2 x 8" Side LF 1 x 8" MF 2 x 1.4" exit HF 3" coil	2 x 10" Front LF 2 x 8" Side LF 1 x 8" MF 2 x 1.4" exit HF 3" coil	3 x 21" driver	3 x 21" driver
Output (1 m)¹	145 dB SPL	144 dB SPL	144 dB SPL	144 dB SPL
Power rating² Front LF	450 / 1800 W	450 / 1800 W		
Power rating² Side LF/MF/HF	250 / 1000 W	250 / 1000 W		
Power rating² Front/Rear			1000 / 4000 W ³ , 500 / 2000 W ⁴	1000 / 4000 W ³ , 500 / 2000 W ⁴
Frequency response (-5 dB)	54 Hz- 18 kHz	54 Hz- 18 kHz	33 Hz-84 Hz	33 Hz-84 Hz
Dispersion (H)	80° ⁵	120° ⁵	cardioid	cardioid
Splay angle settings	0° - 10° (1° increments)	0° - 10° (1° increments)		
Cabinets per D80 (2-Way Active)	2 (with ArrayProcessing) 4 (with Arc / Line mode)	2 (with ArrayProcessing) 4 (with Arc / Line mode)	2	2
Dimensions mm (H x W x D)	330 x 1000 x 597	330 x 1000 x 597	585 x 1300 x 975 ⁶	585 x 1300 x 975 ⁶
Weight kg	58	58	138	132
Dimensions inch (H x W x D)	13 x 39.4 x 23.5	13 x 39.4 x 23.5	23 x 51.2 x 38.4 ⁶	23 x 51.2 x 38.4 ⁶
Weight lb	128	128	304	291

¹ SPLmax: Broadband signal IEC 60268, test signal: pink noise with crest factor 4 ² RMS / peak ³ Front drivers

⁴ Rear driver ⁵ ≥150 Hz ⁶ Dimensions without wheels



Box of tricks.

The SL-Series system architecture, amplification, packaging, rigging and transportation has been optimized for every eventuality. At the heart of the SL-Series is the D80 Touring rack housing three or six amplifiers and utilizing the MC24 LKA25 loudspeaker multicore solution. Each loudspeaker multicore feeds twelve amplifier channels to power an array of six KSL loudspeakers driven with ArrayProcessing, or an array of twelve KSL loudspeakers when driven in pairs with the Arc / Line mode.

The patented SL-Series flying hardware and method incorporates both tension and compression rigging modes. Tension mode uses the well established d&b three-point rigging approach, while the compression mode needs a smaller footprint and is faster and safer for large arrays. Using compression mode, the loudspeakers are first flown as straight arrays, then compressed to produce the coverage defined by the splay angle settings. Mounted directly on the Flying frame, the d&b ArraySight laser inclinometer contains temperature and humidity sensors, the data for which is relayed via OCA / AES70 to the R1 Remote control software or the handheld ArraySight meter unit.

Designed to be easily accommodated in standard truck widths and shipping containers, the Touring cart enables efficient transportation. To form an array, the loudspeakers are lifted directly from the cart. The Flying frame remains attached to the loudspeakers on the cart for transportation, while the Load beam is stored on the top of the Flying frame. Covers are available to protect the systems during transportation.

The full functionality of any d&b system is instantly inherited from the software and hardware suite for planning, simulation and control. This includes ArrayCalc, ArrayProcessing, NoizCalc, Dante and Milan audio network transport via the DS10 and DS20 Audio network bridges, OCA / AES70, and the R1 Remote control software. All completely integrated as part of the d&b Workflow.



Persistence endures.

Applied evolution is in practice a joined up wholehearted commitment to perfecting components; refining the design of cabinet geometry and the construction of mechanical solutions, to make effective and flexible loudspeakers. Yet this is only part of the whole.

The development of d&b amplifiers with powerful integrated digital signal processing capabilities made possible the platforms on which to build a range of enabling technologies. An arsenal of tools designed to tackle today's most challenging professional audio issues creatively and consistently.

But nothing at d&b happens in isolation. Every evolution is incorporated, as part of a much bigger vision, into the holistic d&b system approach. Here all embracing digital technologies seamlessly join the planning capabilities of the ArrayCalc simulation software, the R1 Remote control software, digital signal routing and distribution, the ArraySight inclinometer, ArrayProcessing for optimization and NoizCalc for simulating immissions in the far field.

The systems of the d&b SL-Series are born into this comfortably thought through reality. Each a complete package delivering consistency in transport, cabling, amplification, rigging and operation, with all the performance and reliability advantages expected and more.

They say this package approach makes the SL-Series the most rider friendly option across the globe, streamlining cross-hire between rental companies and dependably delivering, from performance to performance to performance, whatever or wherever the action might be.

The KSL System. By no means a happy accident. Just another blissful consequence of the journey through applied evolution.

sl-series.com

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More art. Less noise.