



KUDO MULTI-MODE WST ENCLOSURE

DESCRIPTION

KUDO® is a multi-mode Line Source Array operating on a frequency range from 40 Hz to 20 kHz. The frequency range can be extended to either 32 Hz or 25 Hz with the addition of the complimentary SBI 18 and SB28 subwoofers, respectively.

The KUDO® system is a 3-way, quad-amplified design and is equipped with 2 x 12" transducers in a bass-reflex tuned enclosure, and 4 x 5" high efficiency MF drivers. The HF section features 2 x 1.75" diaphragm HF components loaded onto a dual DOSC® waveguide. The cabinet incorporates K-LOUVER® Modular Directivity Technology (Patent pending) which allows for mechanical adjustment of the MF/HF directivity with 4 possible settings in the perpendicular plane relative to the DOSC® waveguide. The alliance of coplanar symmetry and DOSC® waveguide allows KUDO® to fulfil the 5 WST® criteria.

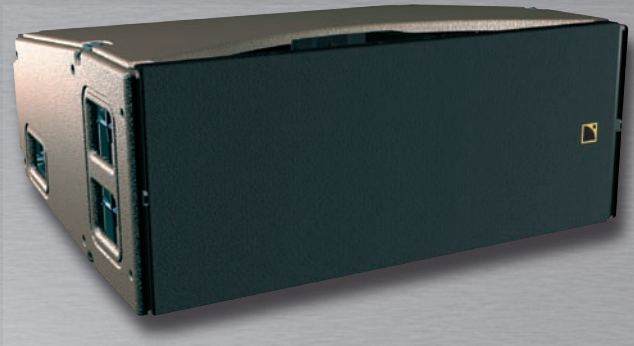
The KUDO® enclosure is made from first grade Baltic birch plywood to ensure maximum acoustic and mechanical integrity. The four point rigging system is entirely captive and almost invisible when recessed into the cabinet. It allows up to 21 KUDO® enclosures to be flown simultaneously when configured as a variable curvature vertical line source array (such as V-DOSC®) with an inter-element flexibility from 0° to 10° by 1° steps. The rigging system also permits KUDO® to be configured as a horizontal constant-curvature line source array (such as ARCS®) with fixed 10° inter-element angles.

The KUDO® system is driven by the dedicated LA8 amplified controller which ensures active system linearization, intelligent transducer protection, and optimization for two operating modes:

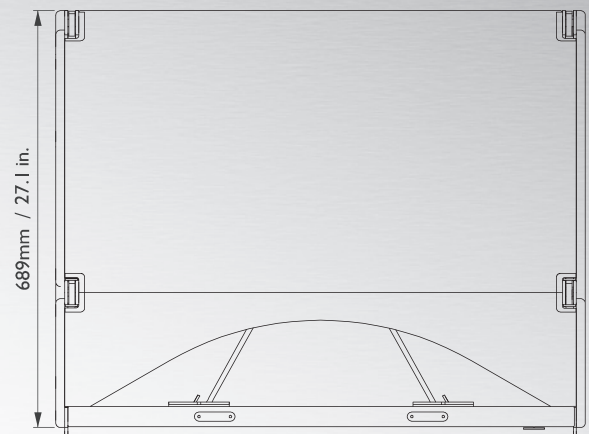
- The "FULL RANGE" mode designed for standalone KUDO® applications.
- The "HIGH-PASS" mode designed for applications with additional subwoofers.

Both modes offer three specific presets to optimize the KUDO® tonal balance according to the K-LOUVER® settings (50°, 80° or 110°).

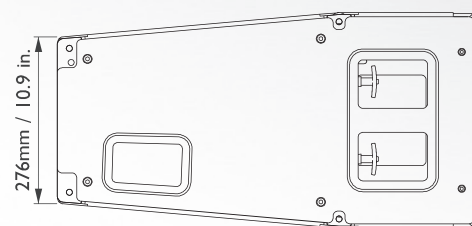
The performance of KUDO® depends on electronic presets and physical configuration.



FRONT



TOP



SIDE

CHARACTERISTICS

Usable bandwidth (-10dB) 40 - 20k Hz, "FULL RANGE" mode

Nominal Directivity (vertical line source) (-6dB)

Horizontal: Symmetric, 50° or 110° (± 5°, from 1 to 10 kHz)
Asymmetric, 25°/55° or 55°/25° (± 5°, from 1 to 10 kHz)

Vertical: Defined by number of elements in the array and inter element angles
From 0° to 10° with 1° steps

Long term RMS handling capacity

LF: 2 x 450 W
MF: 312 W
HF: 75 W

Maximum SPL¹ 140 dB ([KUDO50] preset)

Components

LF: 2 x 12" weather-resistant, 2 x 8 ohms impedance
MF: 4 x 5" high efficiency, 8 ohms impedance
HF: 2 x 1.75" diaphragm HF compression, 8 ohms impedance

Rigging² Entirely captive, high grade steel

Vertical: Angles from 0° to 10° (1° steps), certified for up to 21 KUDO®
Horizontal: Fixed angles of 10°, certified for up to 6 KUDO® per K-LIFT

Enclosure

W x H x D: 876 x 356 x 689 mm 34.5 x 14 x 27.1 in
Weight (net): 87 kg 191.8 lb.
Connexions: 2 x 8-point PA-COM® sockets
Materials: Baltic Birch Plywood, 15, 18 and 30 mm
Finish: grayish-brown RAL 8019®
Front: sandblast-coated steel grill, acoustically transparent "Airmet" fabric
Rigging: integrated flying hardware and handles

¹ Peak level measured at 1m under free field conditions using 10 dB crest factor pink noise with specified preset and corresponding EQ settings.

² Refer to the user manual and the SOUNDVISION simulation software regarding limits of use.

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KUDO SYSTEM

WAVEFRONT SCULPTURE TECHNOLOGY

L-ACOUSTICS KUDO® is a new generation of line source array offering far more flexibility and possibilities than any other system to date. KUDO® establishes a new landmark in the evolution of Wavefront Sculpture Technology as WST® is now combined with the new and exclusive L-ACOUSTICS® K-LOUVER® technology. The combination of these pioneering technologies allows for directivity adjustments in both the horizontal and vertical planes simultaneously.

KUDO® is suited to permanent installation and touring applications. The main system components are as follows:

- Three way active, quad-amplified KUDO® enclosure (operating bandwidth of 40 - 20k Hz)
- SB118 low frequency extension (LF limit 32 Hz)
- SB28 low frequency extension (LF limit 25 Hz)
- The dedicated LA8 amplified controller.

KUDO® features both a dual DOSC® HF waveguide and the integral "K-Louver® Modular Directivity Technology" system (patent pending) which provides directivity control in the perpendicular plane relative to the DOSC® waveguide. As a result KUDO® can be reconfigured with four different coverage pattern settings: 50° (symmetric); 110° (symmetric); 25° x 55° (asymmetric) or 55° x 25° (asymmetric) in both vertical and horizontal applications.

KUDO® combines all the functions of a variable-curvature vertical line source array (like V-DOSC®) with a 10° maximum inter-enclosure angle, and a constant-curvature horizontal line source array (like ARCS®). Given the choice of 4 directivity settings and 2 orientation modes, KUDO® provides a performance identical to having 8 different loudspeakers in a single ergonomic package.

The system features a 3-way, quad amplified design and the installed transducers and components are derived from the latest generation technologies. The advanced tuning of the enclosure allows for exceptional LF response and rock solid low-end performance. This gives KUDO® an exceptional ability to perform in many applications without the need for additional subwoofers. The combination of low-end performance and exceptional modularity allows KUDO® to fulfil multiple application requirements in terms of audience geometry, type of event, and program material. Whether permanently installed or on the road, KUDO® naturally deploys all the power of WST® with an unrivalled clarity and precision, offering a unique near-field listening experience throughout the audience geometry. Offering a record-breaking performance/size ratio and fitted with an on board captive rigging system, KUDO® allows for easy storage and ultra fast set-up times.

The KUDO® system performance is acoustically optimized thanks to a dedicated preset library specifically engineered for the LA8 amplified controller. A wide variety of system configurations are offered to the sound designer and engineer, allowing for exceptional creative freedom.

Besides delivering award-winning audio quality, the LA8 amplified controller allows for intelligent driver protection and advanced signal processing. The unique CONTOUR EQ tool allows for ultra fast and accurate adjustment of the line source array tonal balance. The LA8 architecture also allows for full optimization of its 4 output channels when powering KUDO®, therefore contributing to significant cost savings and reductions in system size and weight for transport and storage.

KUDO® configurations can be acoustically and mechanically studied and modelled using SOUNDVISION the proprietary L-ACOUSTICS® 3D simulation software. Its predictions are calibrated according to system parameters which are provided by the amplified controllers. In addition, setting up complex installations is made possible through the use of an Ethernet-based network which can support up to 253 amplified controllers. The L-ACOUSTICS® LA NETWORK MANAGER allows for real time control and monitoring of the units via an ergonomic and user-friendly graphic interface.



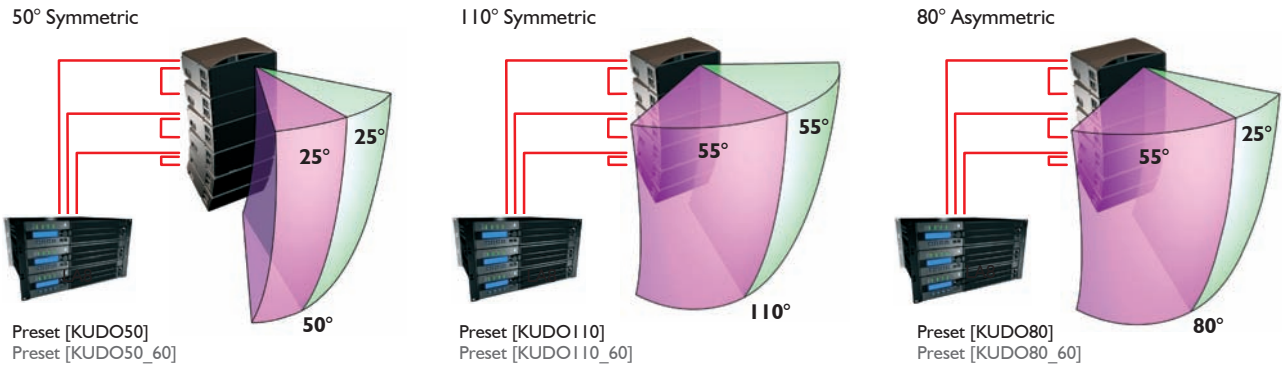
- KUDO**
 Active 3-way enclosure, quad-amplified, 40 - 20k Hz
 2 x 12" LF + 4 x 5" MF + 2 x 1.75" DOSC® HF
 WST Vertical Line Source: Horizontal Directivity of 50° or 110°
 Symmetric, 80° (25°/55° or 55°/25°) Asymmetric;
 Vertical flexibility of 10° max by 1° increments.
 Weight: 87 kg 191.8 lb.
- K-BUMP**
 Bumper for vertically rigging or stacking KUDO.
 Certified for a maximum of 21 KUDO.
- K-LIFT**
 Accessory for rigging KUDO horizontally
 Certified for up to 6 KUDO per K-LIFT.
- K-JACK**
 K-BUMP site angle adjustment accessory for stacked KUDO system
- LA8**
 Amplified Controller
 2 analogue inputs and 4 amplifier outputs
 4 x 1800W @ 4 ohms
 KUDO dedicated preset library
 LA NETWORK MANAGER software
- SBI18**
 Compact subwoofer enclosure, LF limit 32 Hz
 1 x 18" LF
 Weight: 61 kg 134.5 lb
- SB28**
 Reference subwoofer enclosure, LF limit 25 Hz
 2 x 18" LF
 Weight: 93 kg 205 lb
- SOUNDVISION**
 Windows® based 3D electro-acoustic and mechanical simulation software dedicated to L-ACOUSTICS products

SYSTEM CONFIGURATION

The system can be operated either in "FULL RANGE" or "HIGH-PASS" mode, hence the existence of two families of KUDO presets.

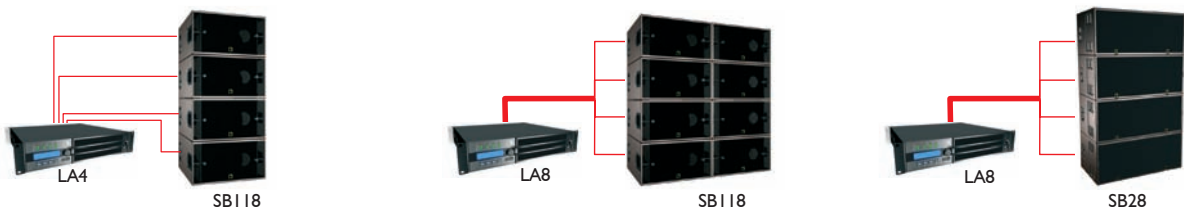
- The "FULL RANGE" mode is designed for many applications allowing KUDO® to be operated as a standalone system with a significant presence of low-end energy. A single LA8 can drive up to 3 KUDO® cabinets from a mono input feed (refer to user manual for conditions of use). Three specific presets are provided to optimize the frequency response according to the value of K-LOUVER® settings of 50°, 80° or 110°.

KUDO® configuration examples and related K-LOUVER® presets



- The "HIGH-PASS" mode is designed for applications when KUDO® is operated with additional subwoofers (managed by additional amplified controllers, see examples below). The presets are identical as above but include a 60 Hz high-pass filter.

Examples of complimentary subwoofer configurations



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