PROFESSIONAL AUDIO SYSTEM

HDA24

OPERATING MANUAL

Ver. HDA24-EN-1.1

LSS Advanced Speaker Systems
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NOTICE:

LSS products are manufactured for use according to proper procedures by a qualified operator and only for the purposes described in this manual.
The following conventions are used to indicate and classify precautions in this manual. Always heed the information provided with them. Failure to heed precautions can result in injury to people or damage to property.

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No patent liability is assumed with respect to the use of the information contained herein. Moreover, because LSS is constantly
striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual. Nevertheless, LSS assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication.

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INTRODUCTION

Congratulation on the purchase of your new LSS loudspeaker.
Quality innovation and versatility, this is a summary of the new system developed by LSS for professional sound users.
LSS produces professional audio products – the result of exceptional engineering and meticulous craftsmanship.
This manual is intended for use with LSS loudspeaker. This includes: safety precautions; installation, set-up and operating instruction.
Please read this manual plus any accompanying manual and follow all relevant precautions and instructions. This should allow you to obtain the maximum performance from your new loudspeaker.
Where there are conflicts or overlaps, the information in any accompanying manual supersedes the information in this manual.

SAFETY AND WARNING

IMPORTANT! SAFETY WARNING!

In the interest of their own and others' safety and to prevent voiding the warranty, we recommend a careful reading of this section before using the product.

- This product was designed and manufactured to be used as a speaker system in the context of a typical sound reinforcement system.

The use for any purpose other than these is not provided by the manufacturer and is therefore under the direct responsibility of the user / installer.

- This device complies with class I (must be connected to the outlet with a protective earthing connection).

TO AVOID THE RISK OF FIRE AND / OR ELECTRIC SHOCK*:

- Do not expose this system to rain or moisture. Do not expose the apparatus to dripping or splashing water. Do not place objects filled with liquids, such as drinks, on the apparatus.
- Before connecting the system, be sure the mains voltage corresponds to that stated on the product.
- Connect this appliance to a power outlet with earth contact, according to national security force, via a power cable of adequate section ends with a plug or connector that meets the applicable safety regulations.
- The unit is connected to the network even when the power switch is in position '0' (OFF). Before any maintenance, disconnect the power cable from the outlet.

*Risk of electric shock only for self-powered system.

IMPORTANT! SAFETY PRECAUTIONS!

Read This First.

Read and heed all warnings and safety instructions in this Manual before using the product.

Failure to follow all precautions can result in equipment damage and / or personal injury.

1. Read these instructions.
2. Keep these instructions
3. Heed all warnings and follow all instructions.
4. Use only attachments/accessories specified by the manufacturer.
5. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
6. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
7. LSS loudspeakers can produce sound levels capable of causing permanent hearing damage from prolonged exposure. The higher the sound level, the less exposure needed to cause such damage

CAUTION: This product is energized as long as it is connected to the AC.

CAUTION: Allow at least six inches of free space all around the amplifier for sufficient ventilation.

CONTROLS AND INSPECTIONS

This chapter contains important information about precautions to be taken about the suspension of a LSS line-array system.
Before proceeding with any operation for lifting the system , therefore recommend that you read this chapter and follow the tips and warnings it contains. The lifting of a line-array system must be made only by personnel familiar with proper preparation, experience and knowledge of the applicable safety standards.
The flow rates of suspension accessories provided by LSS are certified by a qualified consultant external to the Company.
The original document is available at the LSS office.
You must regularly inspect the facility and , in case of doubt, immediately replace all the material and all equipment used for the suspension.
This practice is essential to prevent damage to property and or person: no way you can overlook this rule and proceed by accepting a risk.
We strongly recommend , therefore , to follow a regular program of checks and inspections on all components , which must be documented by inspection reports compiled by the staff that has installed the system.
In case of accident , local codes may require proof documentation of audit reports and the corrective action in place following the detection of defects .
In some countries (including Italy) rules on the maintenance of lifting equipment (hoists , ropes and chains) require periodic checks and inspections carried out by a company or by Licensed professionals .
It is absolutely not permissible to accept the risks with regard to safety of public or staff!
When you suspend a system to support structures on the ceiling or roof, it must be ensured with extreme care, by calculation or, in some cases, by instrumental measurements, which do not exceed the maximum flow rate
of the structures themselves in order the installation is absolutely secure .
Do not install speakers or entire systems to unsafe structures . If necessary, consult licensed professional.
All suspension accessories NOT provided by LSS are under the responsibility of the user, that uses them at his own risk and peril.

APPLICATION

HDA24 is a high definition line array system designed specifically for vertical curvilinear array that provides high output, low distortion sound reinforcement for the entire range of pro audio application.
The 200 mm (8") low frequency cone with 51 mm (2") voice coil with Neodymium magnet and 75 mm (3") voice coil high frequency compression driver provides higher output and lower distortion plus enhanced power handling capabilities for better performance in both touring and permanently installed applications.
Powering mode is Bi-Amp with external digital processor.
The HDA24 was designed to support the widest possible range of pro audio applications. It is ideal for vertical curvilinear array systems, the minimum configuration of this system is four enclosures, for full performance eight or more are recommended.

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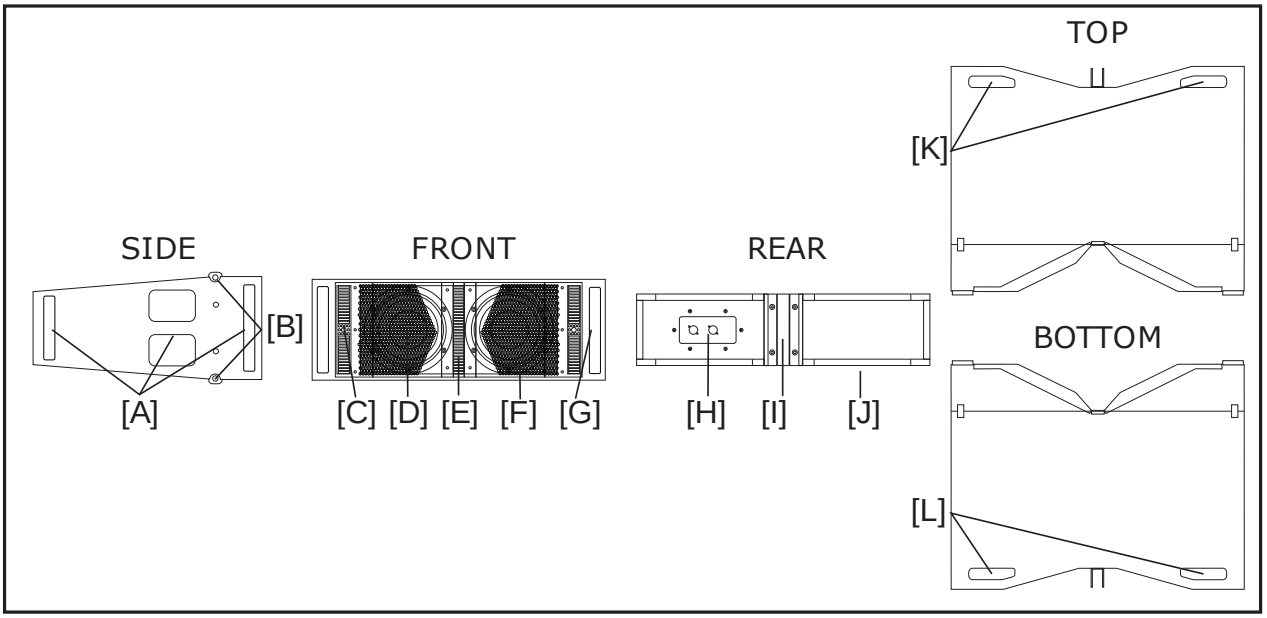
PHYSICAL DESCRIPTION



[A] Handles
[B] Rigging Holes
[C] Fixing Holes
[D] Woofer
[E] Wave Guide
[F] Steel protection grid
[G] Handle
[H] Connection panel
[I] Fixing brackets
[J] Enclosure Cabinet
[K] Handles
[L] Handles

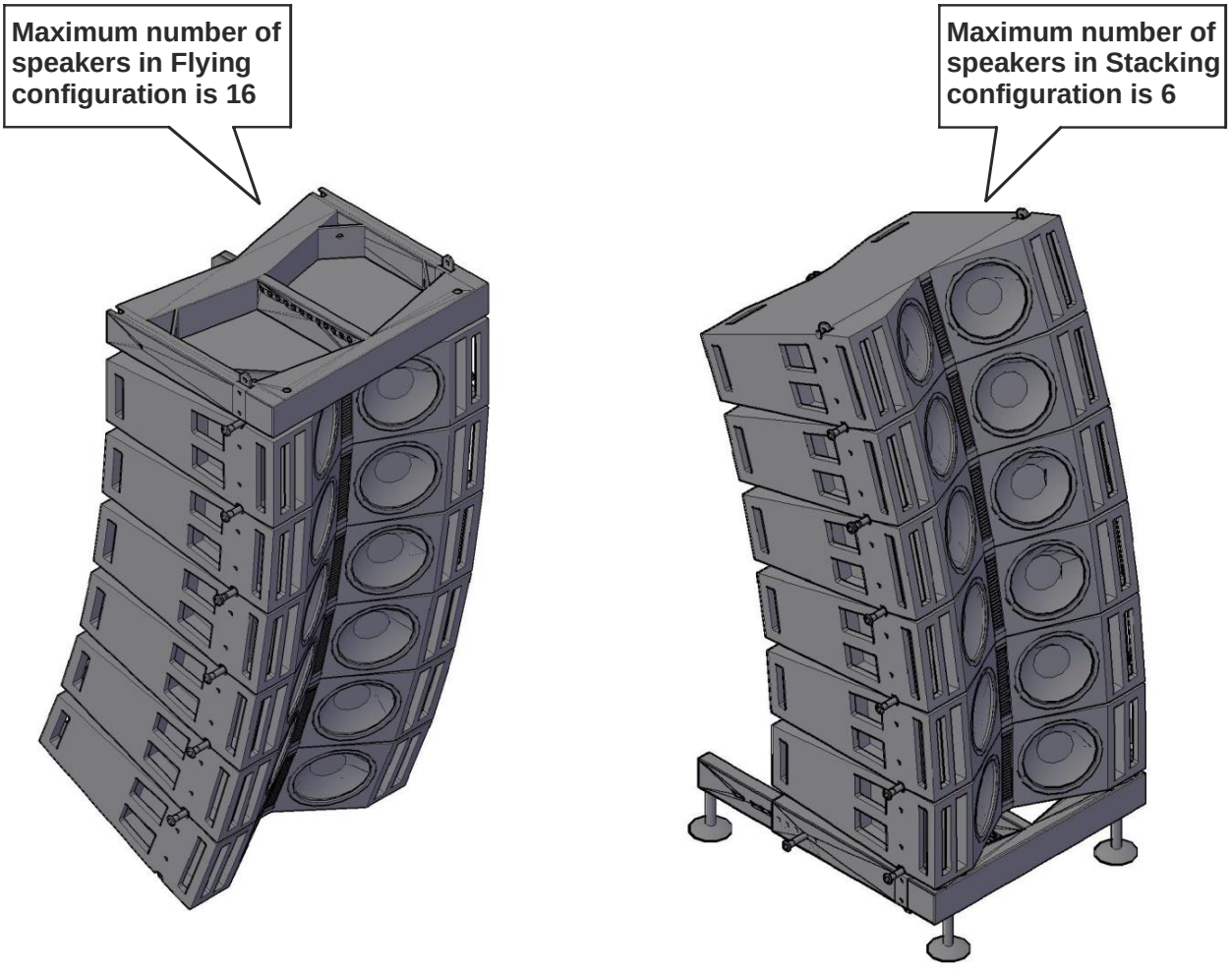
Materials and construction meet the highest professional standards to ensure maximum reliability

TECHNICAL SPECIFICATIONS

PHYSICAL	**Dimensions mm (±1 mm) [Inches]**	Width 700 [27.56'']
		Front Height 240 [9.45'']
		Rear Height 170 [6.69'']
		Depth 540 [21.26"]
		Trapezoid Angle (degrees) 5° per side
	Weight Kilograms	Net Weight 23
		Shipping Weight 30
SYSTEM PERFORMANCE	**Frequency Response**	±3 dB 50 Hz ~ 18 kHz
		-10 dB 45 Hz
	Sensitivity (1 Watt @ 1 m)	LF 96 dB
		HF 103 dB
	Max SPL Calculated (Power AES) [PEAK]	LF 124 dB [128 dB]
		HF 123 dB [126 dB]
	Nominal Input Impedance (Ω)	Full Range Passive 16 Ω
		LF 16 Ω
		HF 16 Ω
	Power Handling (Watt cont. AES) [PEAK]	LF 600 W [1600 W]
		HF 110 W [220 W]
	Nominal Dispersion (@ -6 dB)	Horizontal 120°
		Vertical 9°
MECHANYCAL	**Enclosure material**	Birch Plywood of 15 mm [0.59 inches]
	Finish	Texture poliurethanic black paint
	Grille	Powder coated perforated steel
	Connectors	2 Neutrik NL4 Speakon
	Accessories	Skates on wheels (optional), coupling and suspension hardware (included)

INSTALLATION AND WIRING

HDA24 is a line array system designed for vertical curvilinear array that can be used both in flying or stacking configuration.

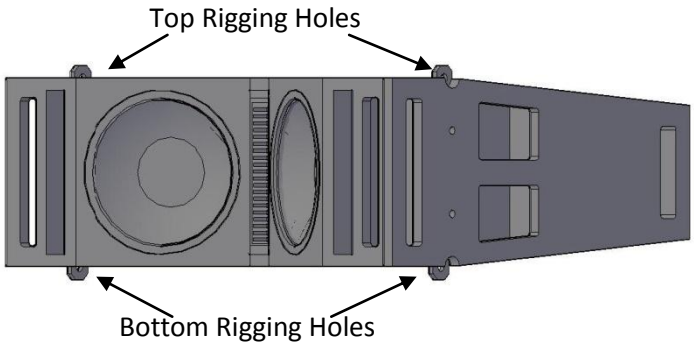


MOUNTING THE ARRAY

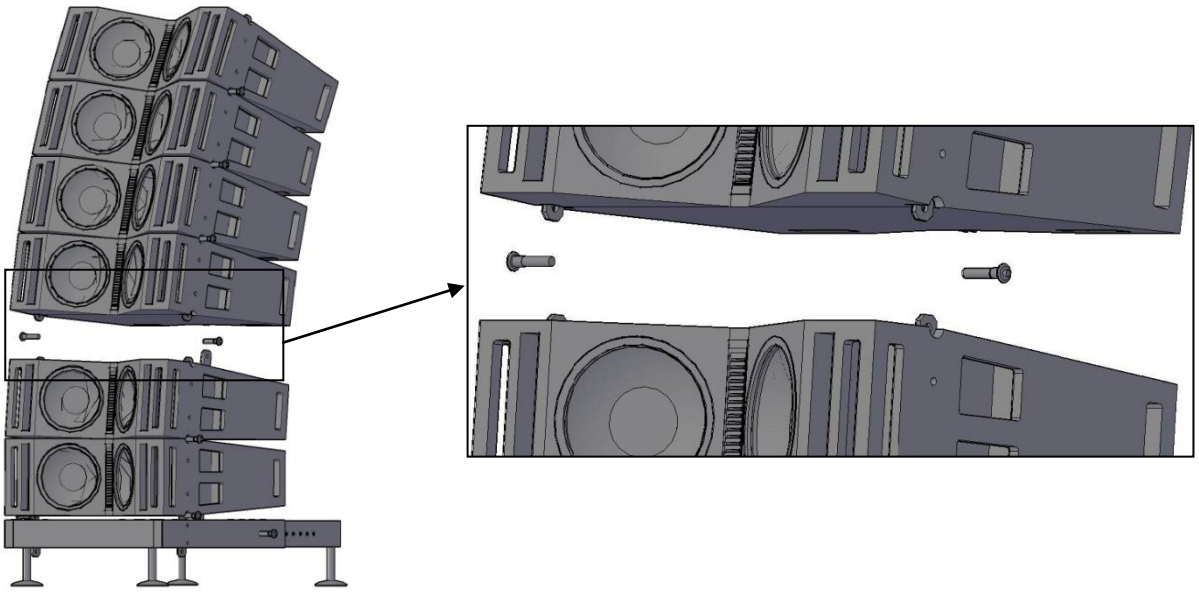
Each loudspeaker has a hardware that allows to be connected and secured to the other loudspeaker.

Hardware consist of three points System; two in the front side (Rigging Holes) used to lock the speaker, and one in the rear (Bracket) used to regulate the tilt.
Specular points are used to hook another speaker in order to create an array.

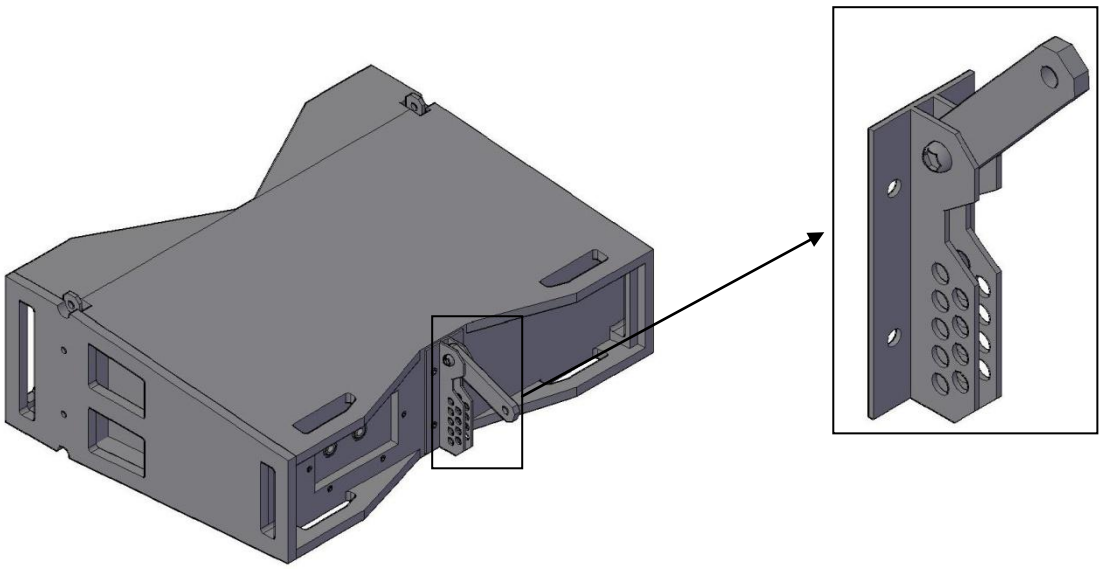
Rigging holes are in the top and in the bottom of the case:



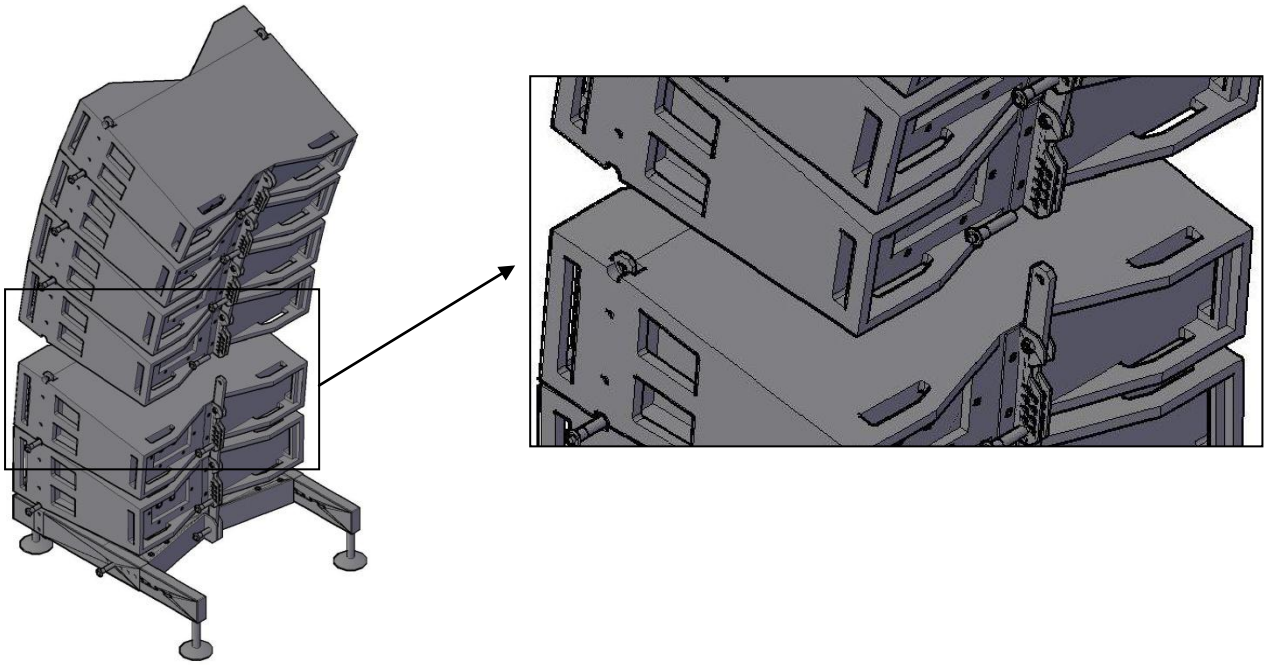
Overlap the speakers aligning the rigging holes, then secure them with the quick release pins.



The bracket for the regulation of inclination is in the rear of the case.

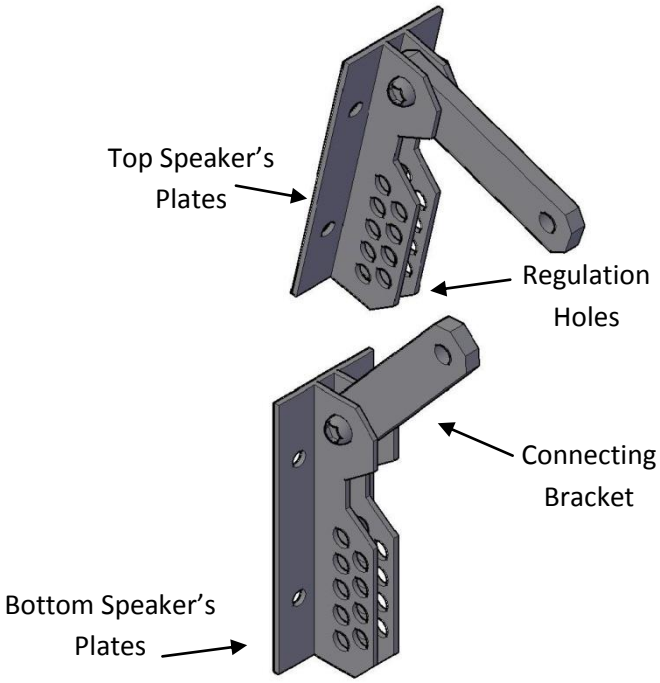


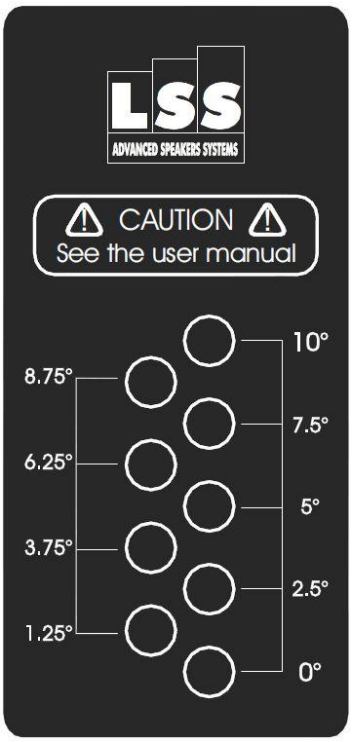
Plates of two overlapping speakers must be connected via the connecting bracket. Align the holes in the desired position, then secure them with the quick release pins.



The regulation holes of the bracket allow to choose the desired inclination of the top speaker than the bottom speaker.

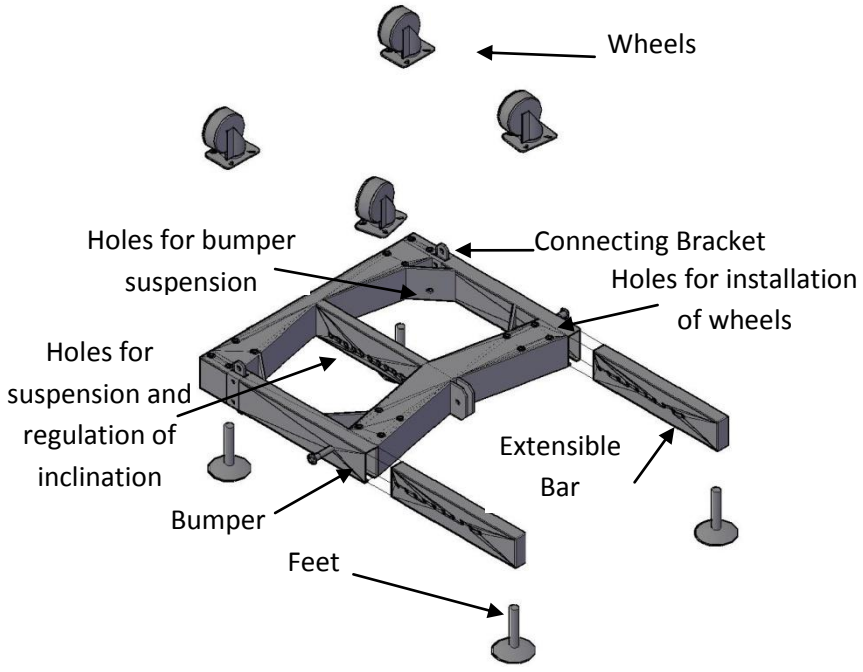
Value of the degrees of inclination for each hole are shown on the printed label on the plate: 0°-1.25°-2.5°-3.75°-5°-6.25°-7.5°-8.75°-10°.

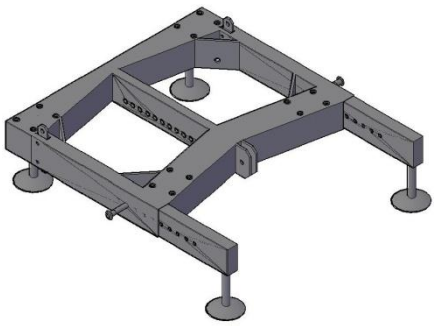




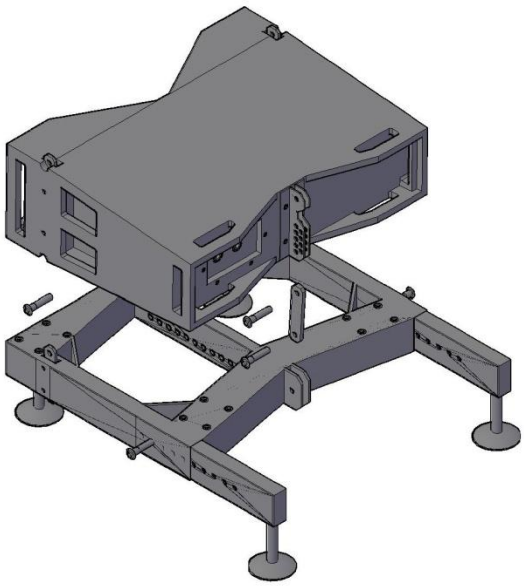
INSTALLATION ON BUMPER

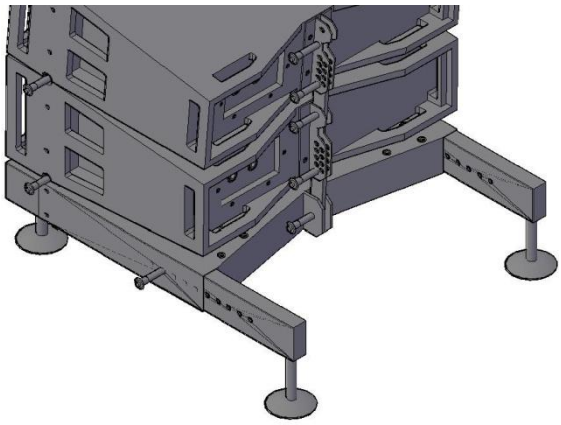
In both modes Stacking or Flying, it is necessary to use the dedicated hardware.



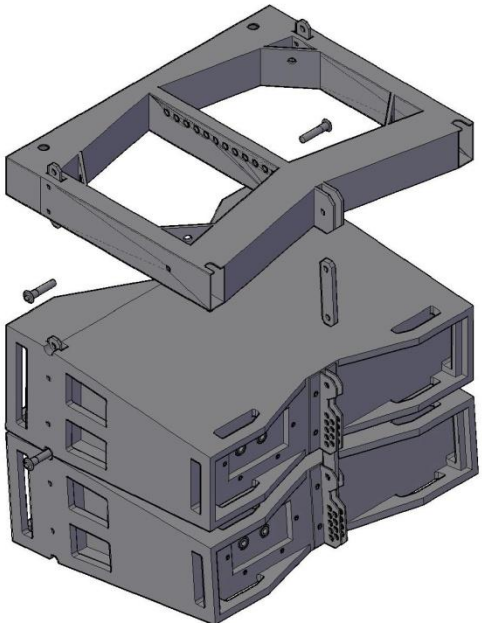


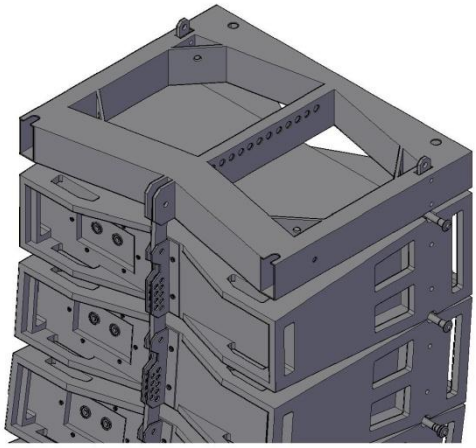
In case of installation in Stacking mode, extend the extensible bars in order to increase the stability of the system, then install the feet and mount the speakers one at a time.
The fixing method of the first case to the bumper takes place in the same way of fastening between multiple speakers: attach the speaker to the sides via connecting bracket, then connect the rear bracket adjusting the inclination.





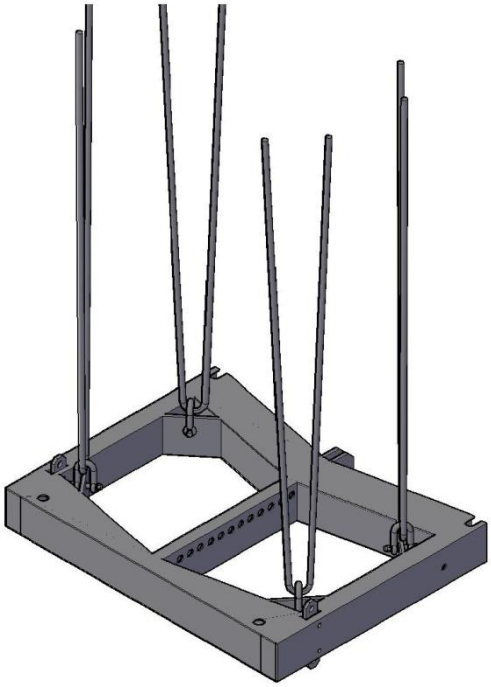
In case of installation in Flying mode, use the bumper without extensible bars and feet, attach the speaker to the sides via connecting bracket, then connect the rear bracket adjusting the inclination.

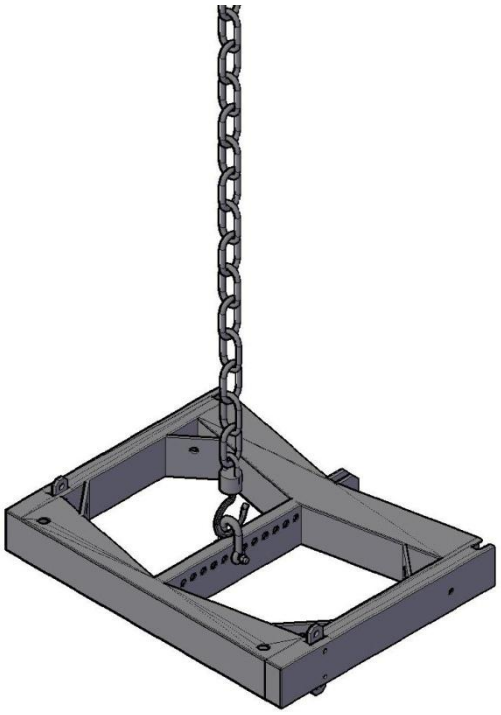




BUMPER AND SYSTEM HANGING

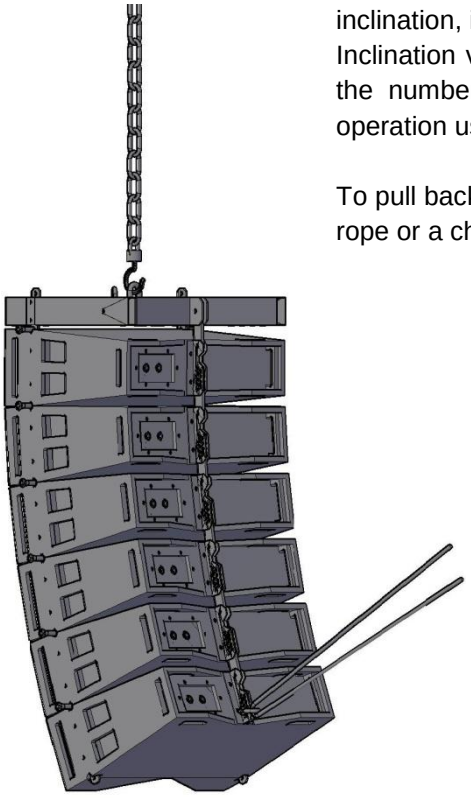
Bumper can be fixed to the ceiling or other supports via holes for bumper suspension or the holes for suspension and regulation of inclination using eyebolts and a chain or a rope able to support the weight of the entire apparatus.

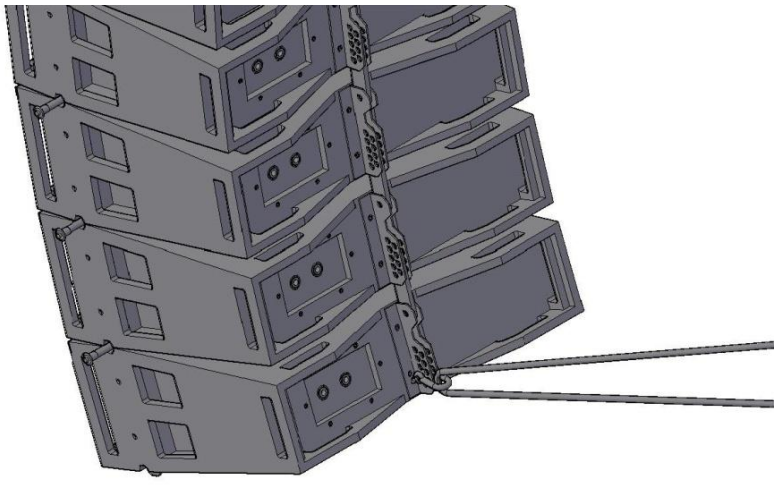




Suspending the bumper from holes for suspension and regulation of inclination, it is possible to determine the inclination of the entire system.
Inclination value depends from hole and speakers used because of varying the number of speakers, change the center of gravity, so for an exact operation use an inclinometer.

To pull back the system, connect an eyebolt to the rear speaker plates and a rope or a chain, then manage the inclination.





ARRAY SIMULATOR SOFTWARE

The angle of tilt of the single speaker, as well as the inclination of the entire system depends on the location of installation and the listening audience.

To know exactly these angles for optimal installation, equip with an inclinometer and use the software ‘Array Simulator’* of LSS.

After inserting the information of the speakers system and installation location, ‘Array Simulator’ software* allows to:
- Display of pointing and layer maps.
- Display the structure of the hanging system .
- Print complete reports.
- Display levels on the areas of listening.
- Calculation of the angle of inclination to the chosen point of suspension.
- Preset for the areas of listening and the setup of the array.
- Display Pressure Levels (SPL).

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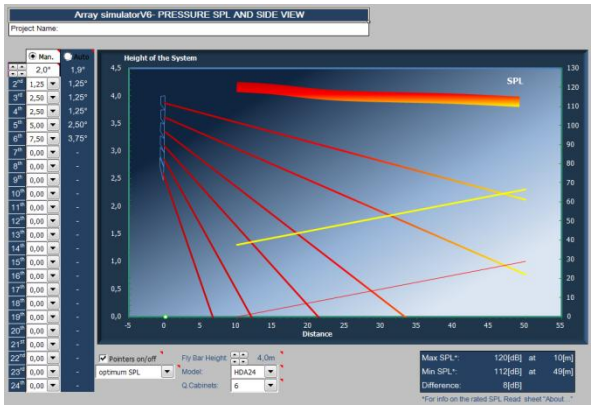
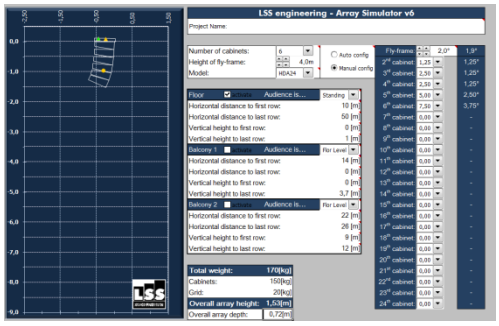
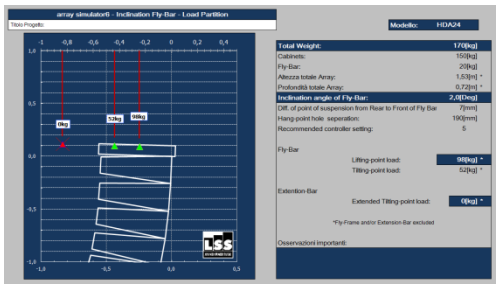


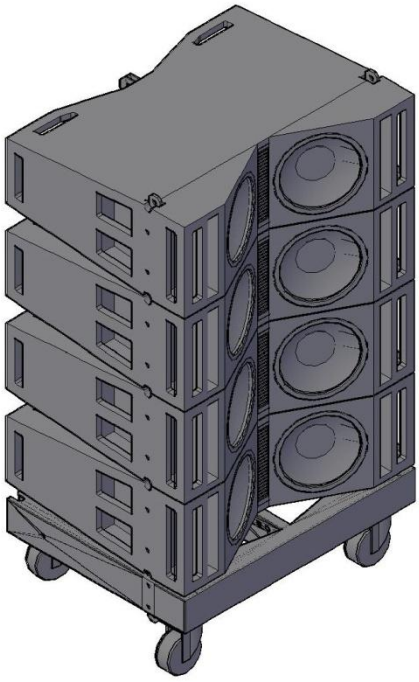




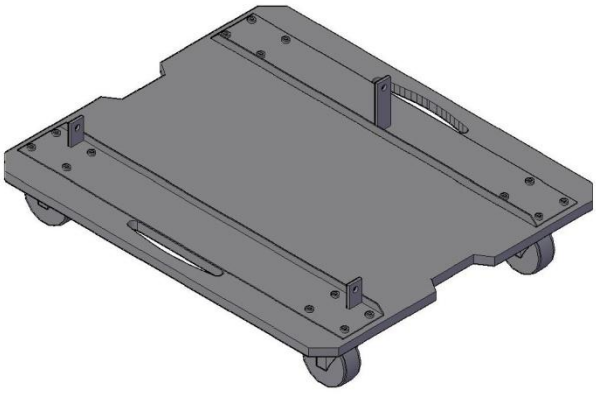
*To receive the software or to have more information, contact your LSS distributors or send an email to tech@lss.it.

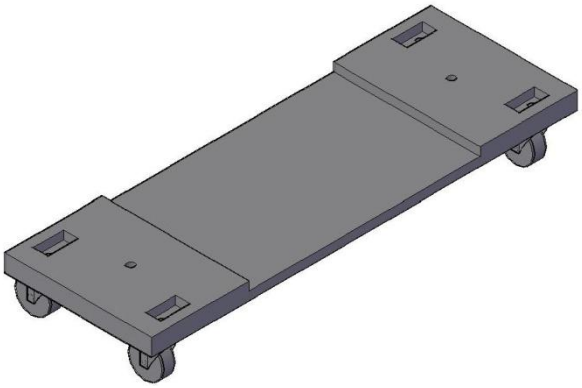
TRANSPORT OF SPEAKERS

If you need to move the speakers after installing, it is possible to mount the wheels on the bumper thus allowing the transport.
Maximum number of speakers transportable on bumper is four.

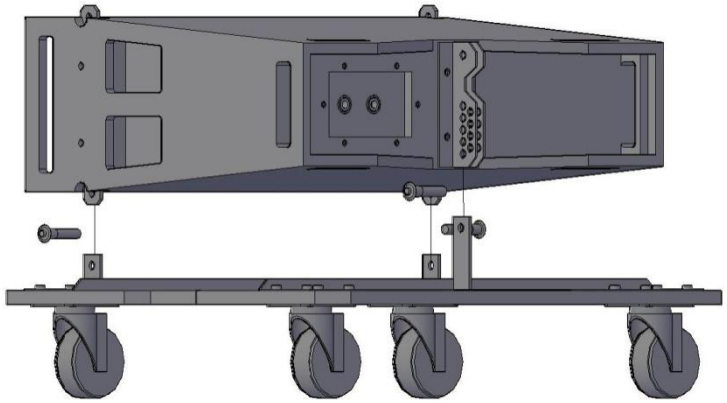


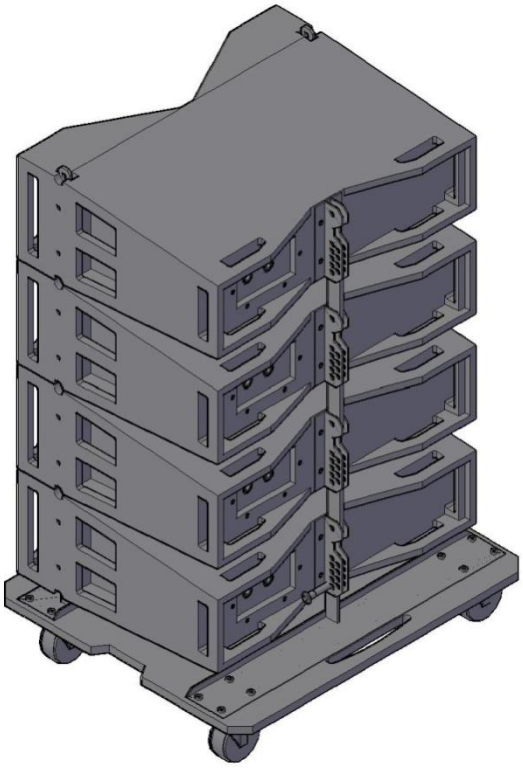
To transport the speakers, there are two skates on wheels. One of them allow to move up to four speaker, the other one allow to move only one speaker.

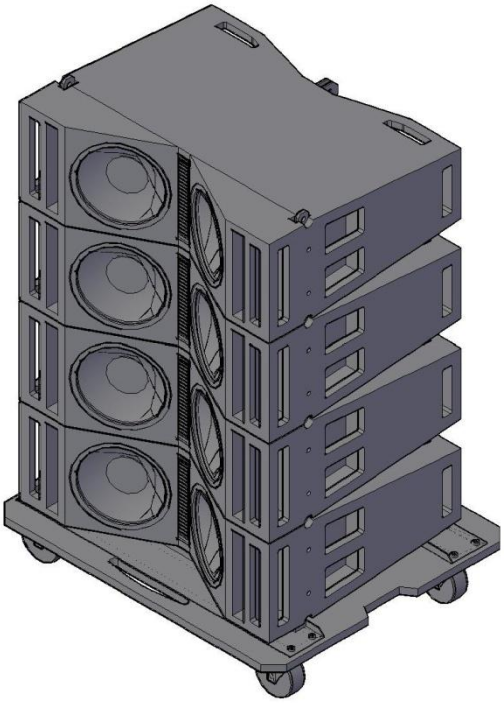




To use the skates for four speakers, insert the first speaker on skate and lock it on the skate's brackets using the quick release pins, then add the other speakers.

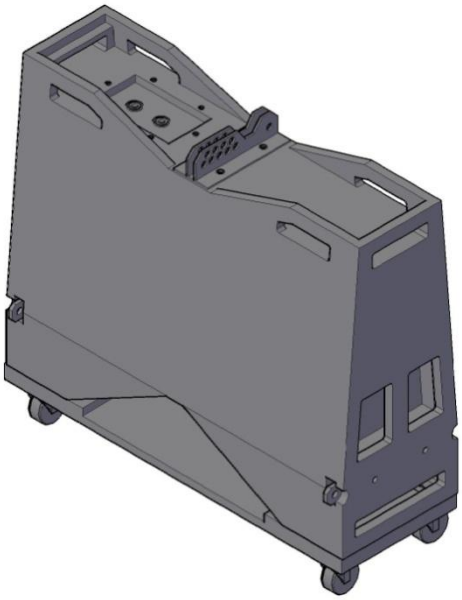


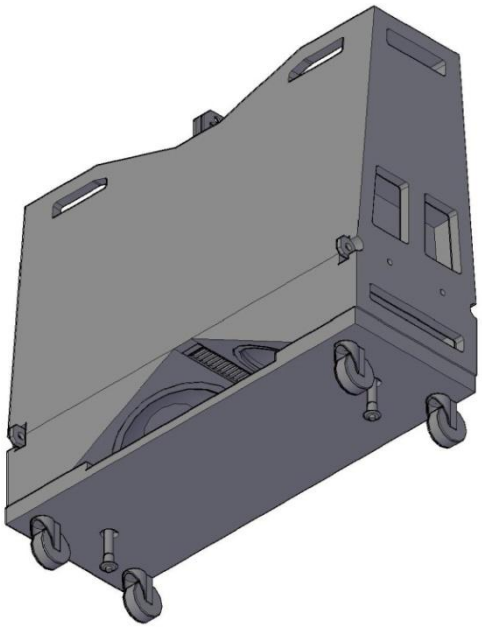




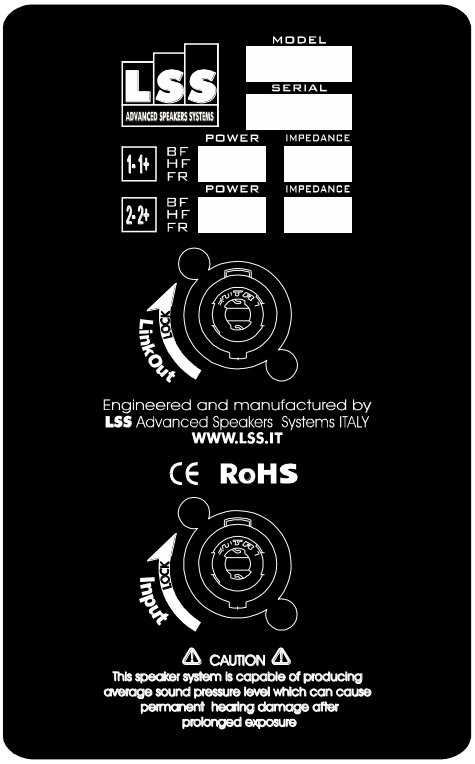
It is possible to protect the speakers during transport using a soft bag to cover them.

To use the single speaker's skate, place the speaker on the skate with the grid downwards, then fix it with quick release pins from the bottom side of skate.

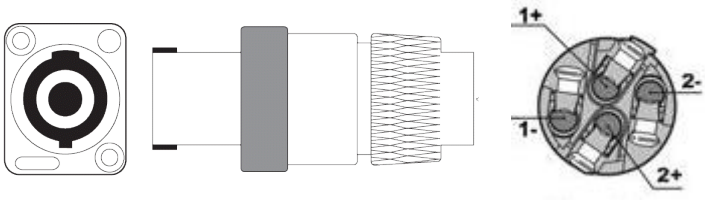




ELECTRICAL CONNECTION

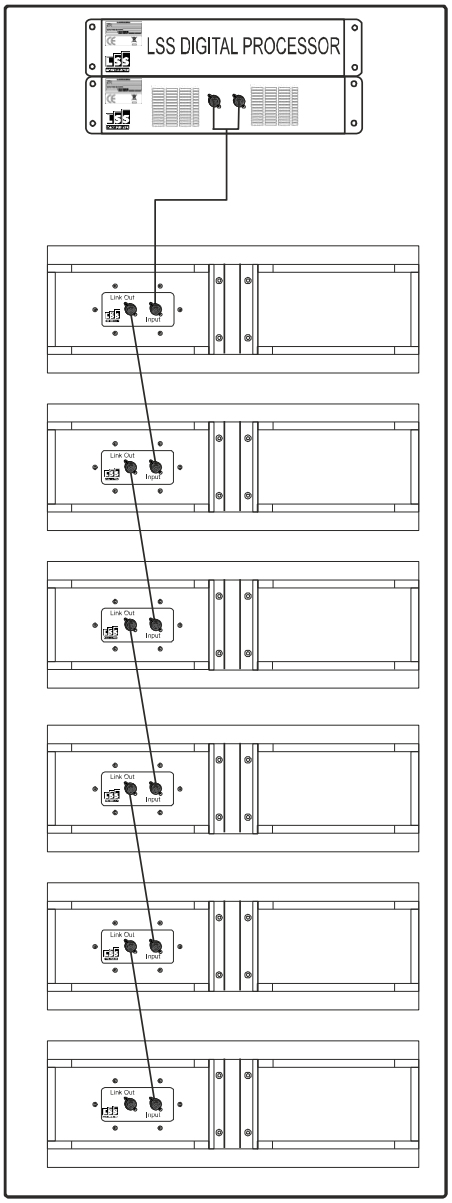


In the connection panel there are two Speakon NL4 connectors referred as 'INPUT' and 'LINKOUT'.
INPUT is the input connector and must be connected to the amplifier, 'LINKOUT' can be used to connected other systems.

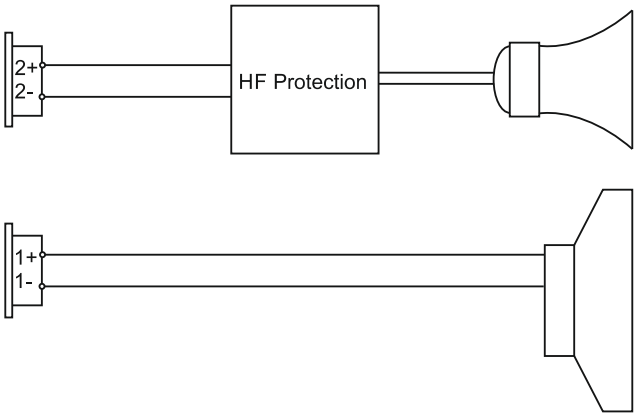


For a correct operation, use a 4-poles cable. Two different channels are necessary to make speakers work. One channel for LF and another one for HF. Internal connection are made as follow:

Speakon Pinout	1+	1-	2+	2-
Transducer connector	LF+	LF-	HF+	HF-



HDA24 system operating mode is only Bi-Amp (LF 1- 1+; HF 2- 2+) and needs an external digital processor with custom setup provided by LSS. If your amplifier can manage a 2 Ohms Load and has sufficient power, it is possible to connect a maximum of 6 speaker in parallel (total impedance will be 2 Ohms).



Choose a safe mounting location, so as to prevent the cables can be stepped on or create tripping hazards.

Before making connections between mixer and speakers, make sure the mixer volume is turned down.

You can now use the system.

WEEE DIRECTIVE

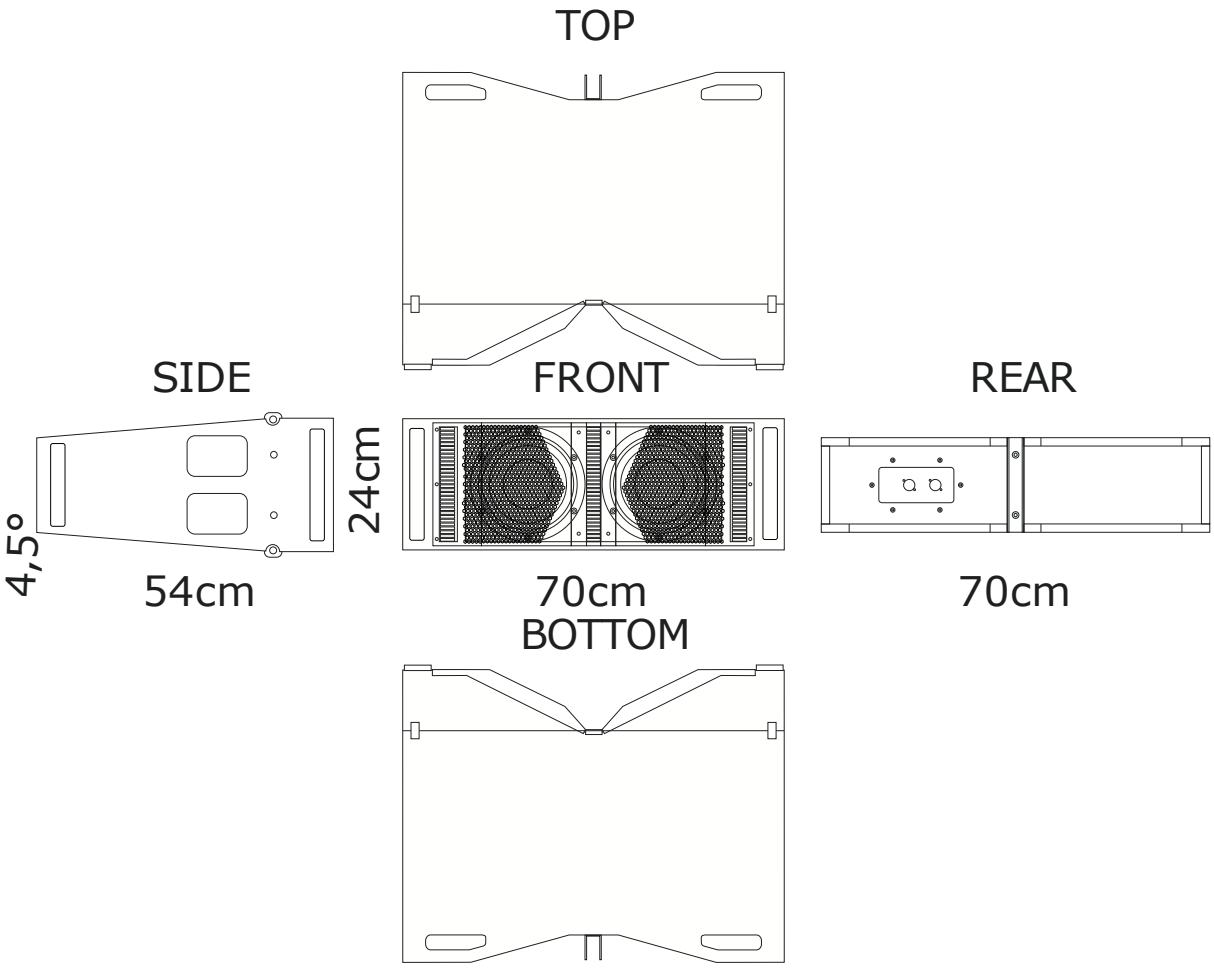
WEEE Directive
Warning!
The product is marked with this symbol which indicates not to discard electrical and electronic equipment via the normal procedure for disposal of household waste. For these products there is a diverse collection system in accordance with legislation that requires proper treatment, recovery and recycling of used products. For more information please contact the appropriate local authority.
The black bar underneath indicates that the product was placed on the market after 13 August 2005.

INFORMATION FOR PROPER DISPOSAL
For home users
In the European Union
Warning: To dispose of this equipment, do not use the ordinary dust bin!
The electrical and electronic equipment must be treated separately and in accordance with legislation that requires proper treatment, recovery and recycling of used products. Following the implementation by member states, private households within the EU can give free electrical and electronic equipment to designated collection facilities *.
In some countries (*), your local retailer may withdraw the old product for free if you purchase a new one of similar type.

* For more information please contact the appropriate local authority.

In countries outside the EU: please contact your local authorities and ask for the correct method of disposal.
In Switzerland: Used electrical or electronic equipment can be returned free of charge to the dealer, even if you do not purchase a new product.
Further collection facilities are listed on the homepage or www.swico.ch. www.sens.ch.
For professional users
In the European Union
Warning: If the product is used for business purposes, the following steps to delete it:
contact your LSS dealer for information about the product recall.
Might be charged for the costs of collection and recycling. Small products (and amounts) might be taken back by your local collection facilities.
In Spain: contact the established collection system or the local authority for collection of used products.
In countries outside the EU: please contact your local authorities and ask for the correct method of disposal.

DIMENSIONS



NOTES

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