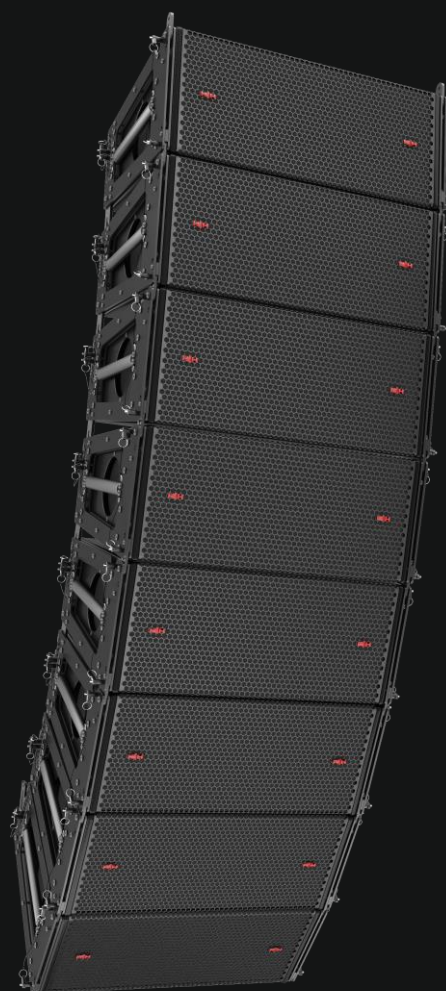




ROYAL
S E R I E S

L4-ARRAY
USER MANUAL



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Important Note

Warning!



Please read this user manual carefully before connecting, rigging or using this product. Do not discard this user manual; keep the user manual on hand for future reference. This manual is a key part of the product and is to be kept with the product should it change ownership to ensure installation guidance is followed and all safety precautions are adhered to.

HH Audio will not assume any responsibility for incorrect installation and/or use of this product.

The suspension or 'flying' of cabinets should be performed only by properly qualified persons, in compliance with all local laws. The position of installation is also bound by laws and regulations so must be taken into account in the initial planning stages.

Hardware used must be fully approved for its intended use and be rated to support weights greater than that of the cabinet.

If any of the hardware shows any signs of wear or damage, it should be replaced immediately. Failure to do so could result in serious injury or death!

This product is designed to be lifted above objects and people, it is essential to dedicate the utmost care and attention to the inspection of the product's mechanics, accessories and safety devices in order guarantee maximum reliability during use.

Before lifting, carefully examine all of the mechanics of the lifting apparatus including but not limited to hooks, chains, pins and anchor points. Ensure that they are fully functional, with no missing parts, that they are intact with no signs of damage, excessive wear or corrosion that could compromise safety during use.

If you have any doubts about the safety of the lifting mechanisms or accessories, do NOT lift the system. The use of a damaged or unsuitable equipment can cause serious injury to you or other people.

HH Audio is not responsible for incorrect use of this product caused by failure to comply with inspection, maintenance procedures or any other failure.

L4-Array-FLB and L4-Array are tested with a safe working load of 5:1 based on a maximum number of 16 x L4-Array Cabinets and 1 x L4-Array-FLB. This is equivalent to a safe working load of 10:1 when using only 8 x L4-Array and 1 x L4-Array-FLB.



Overview

The L4-Array is a passive 3-way dual 10" line array loudspeaker that comprises 4 specially crafted drive units. 2 x 10" carbon fibre cone low-frequency drivers, 1 x 6.5" Kevlar fibre cone mid-frequency driver, as well as 2 x 3" composite carbon fibre diaphragm tweeters combining to offer a maximum SPL of 142dB (Peak). The carbon fibre cones utilised in the 10" low-frequency drivers improve the overall transient response of the system, provide excellent phase response and perfect line source coupling resulting in a low-distortion high output system. The L4-Array has a frequency response of 55Hz - 20kHz (± 3 dB). The L4-Array has a horizontal coverage angle of 90° (optional 120°) and a vertical coverage angle of 10°. The 746mm wide enclosure features an integrated 4-point rigging system for seamlessly linking to additional L4-Array cabinets. Inter-cabinet angle adjustments range from 0° to 10°. The enclosure is composed of robust plywood, finished with hard-wearing black polyurea paint and fitted with a hexagonal mesh steel grille with acoustic foam backing.

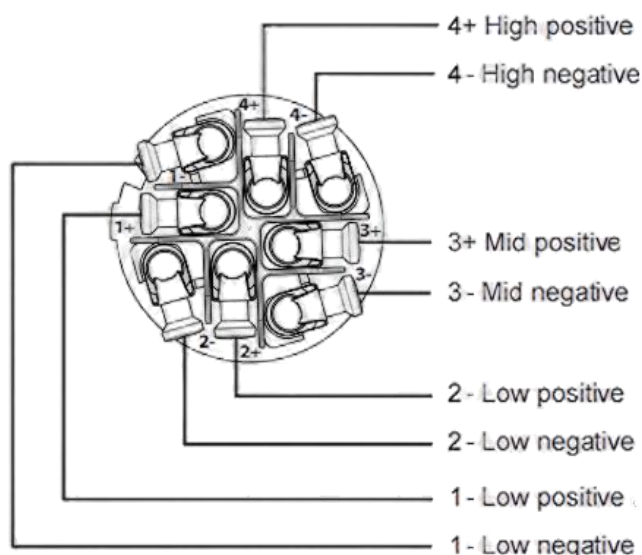
Connections

The L4-Array is a 3-way, 4-driver dual 10-inch line array speaker. Its unique 3-way design accurately divides the audio signal into high, mid, and low frequency bands. Through an NL8 connector, the LF1, LF2, MF and HF drivers are each driven separately. This ensures that each frequency band receives optimal processing and presentation. The 4-driver configuration provides powerful output, ensuring stable and dynamic sound performance.

1: INPUT: Connects to the output of your chosen amplifier. Check the amplifier's specifications to ensure it has adequate driving capability and output power. The speaker's input uses an NL8 connector.

2: LINK: Wired in parallel with the INPUT connector, allowing additional speaker cabinets to be added to the speaker chain.

The NL8 connectors are wired as follows:



Amplifier Precautions

The ROYAL ARRAY series speakers have been optimized for performance, and a full range of DSP presets suitable for various configurations can be downloaded from the HH website. These presets are pre-programmed with limiters, crossover points, correction delay alignment, and equalization to ensure optimal sound quality and long-term reliability. Upon request, parameters for use with third-party amplification and processing are also available.

The ROYAL ARRAY speaker enclosures should be driven by high-quality power amplifiers specifically designed for true professional applications. Using underpowered amplifiers must be avoided, as severely clipped signals can cause permanent damage to the speakers. For subwoofers, passive speakers, and the low/mid sections of multi-way active speakers, the amplifier should be capable of delivering 1.5 to 2 times the continuous rated power at the specified nominal impedance.

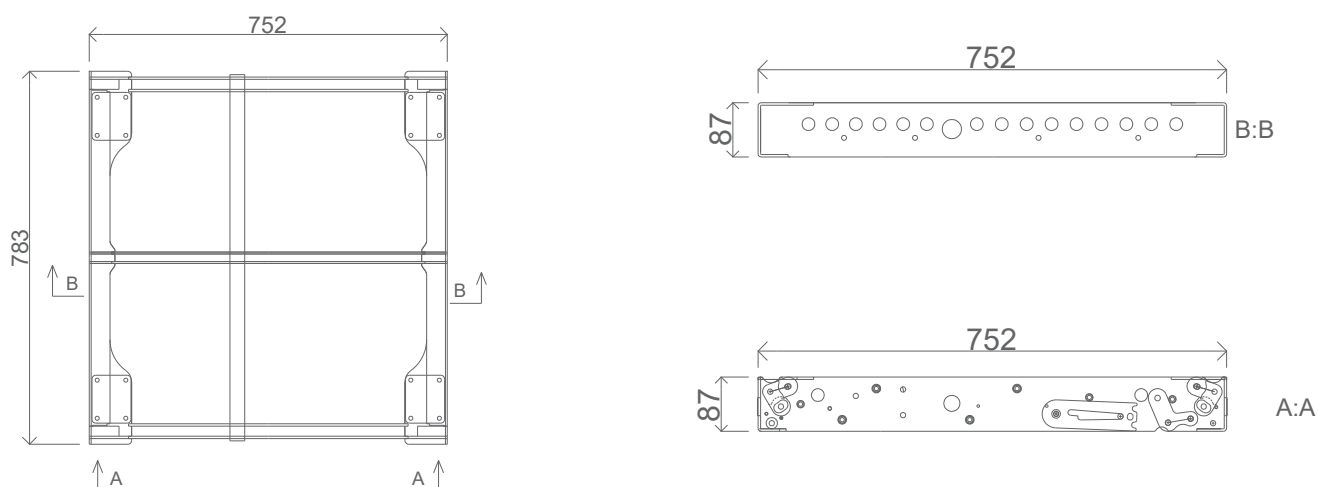
Suspension

WARNING: Only authorized and certified personnel are permitted to use the L4-Array-FLB/GSE-H-FLB flying frame or to purchase rigging and suspension accessories from officially authorized HH distributors.

Failure to follow these instructions may result in death or permanent injury.

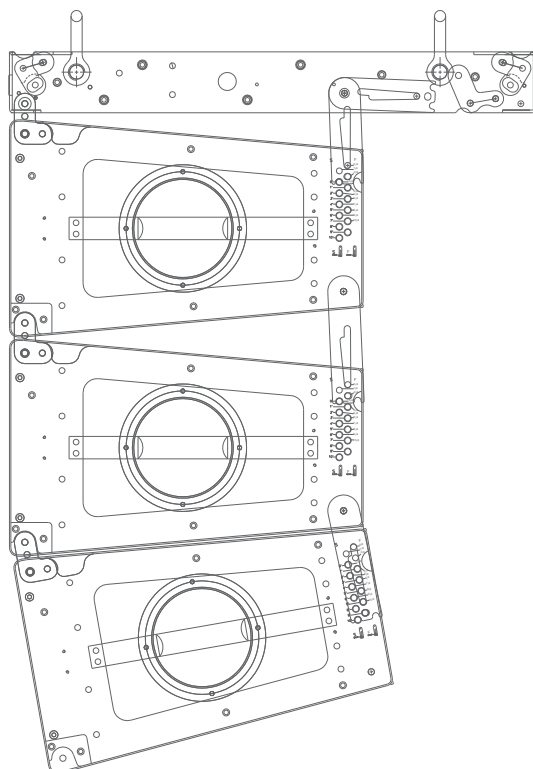
The L4-Array and L4-Array-FLB utilise a 4-point pin-based rigging system.

L4-ARRAY-FLB Dimensions



Example Setup

An example showing a suspended array of three L4-Array speakers, with the L4-Array-FLB used as the top flying frame.



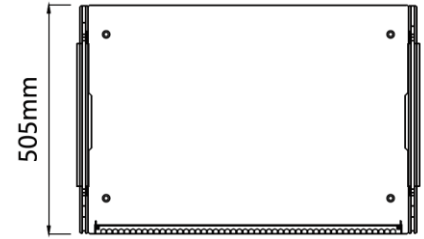
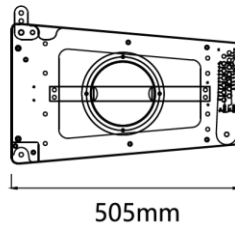
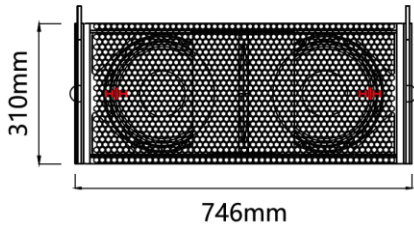


SPECIFICATIONS

Specifications	
Model	L4-Array
System type	Quad-Amp Dual 10" 3-way Line Array Loudspeaker
Frequency Response	55Hz - 20kHz (± 3 dB)
	43Hz - 20kHz (-10dB)
Horizontal Coverage Angle	90° (optional 120°)
Vertical Coverage Angle	10°
Power Rating	LF1:380W Continuous, 1520W Peak
	LF2:380W Continuous, 1520W Peak
	MF:250W Continuous, 1000W Peak
	HF:80W Continuous, 320W Peak
Maximum SPL	136dB Continuous, 142dB Peak
Sensitivity	LF1:103dB (1W@1m)
	LF2:103dB (1W@1m)
	MF:106dB (1W@1m)
	HF: 113dB (1W@1m)
Nominal Impedance	LF1:8 Ω , LF2:8 Ω , MF:8 Ω , HF:8 Ω
Speaker	
LF Driver	2 x 10" low-frequency driver
MF Driver	1 x 6.5" mid-frequency driver
HF Driver	1 x 2" high-frequency compression driver
Enclosure	
Cabinet	Robust all wood construction.
Finish	Hard wearing black polyurea paint.
Mounting Bracket	L4-Array-FLB for suspended mounting.
Grille	Hexagonal mesh black perforated steel with acoustic foam backing.
Fittings	2 x Side handles, pin-based rigging system.
Rigging	4-point rigging system with inter cabinet angle adjustments from 0° to 10°.
Connect	
Connectors	2 x Speakon NL8
Pin Connections (Input)	1+/- (LF1), 2+/- (LF2), 3+/- (MF) and 4+/- (HF)
Pin Connections (Link)	1+/-, 2+/-, 3+/- and 4+/-
Dimensions (H/W/D)	310 x 746 x 505mm
Weight	33kg



DIMENSIONS





SAFETY AND WARNINGS

To take full advantage of your new product and enjoy long and trouble-free performance, please read this owner's manual carefully, and keep it in a safe place for future reference.

MANUFACTURER: HH AUDIO. STEELPARK ROAD, COOMBS WOOD
BUSINESS PARK WEST, HALESOWEN, B62 8HD, UK
support@hhaudio.com

- 1) **Unpacking:** On unpacking your product, please check carefully for any signs of damage that may have occurred whilst in transit from the HH factory to your dealer. In the unlikely event that there has been damage, please re-pack your unit in its original carton and consult your dealer. We strongly advise you to keep your original transit carton, since in the unlikely event that your unit should develop a fault, you will be able to return it to your dealer for rectification securely packed.
- 2) **Amplifier Connection:** To avoid damage, generally it is advisable to establish and follow a pattern for turning on and off your system. With all system parts connected, turn on source equipment, mixers, effects processors etc, BEFORE turning on your amplifier. Many products have large transient surges at turn on and off which can cause damage to your speakers. By turning on your amplifier LAST and making sure its level control is set to a minimum, any transients from other equipment should not reach your loudspeakers. Wait till all system parts have stabilised, usually a couple of seconds. Similarly, when turning off your system always turn down the level controls on your amplifier and then turn off its power before turning off other equipment.
- 3) **Cables:** Only use appropriately rated speaker cables. Never use shielded or microphone cable for any speaker connections as this will not be substantial enough to handle the amplifier load and could cause damage to your complete system.
- 4) **Servicing:** The user should not attempt to service these products. Refer all servicing to qualified service personnel.
- 5) Heed all warnings.
- 6) Follow all instructions.
- 7) **Avoid Contact with Water:** Do not expose this apparatus to rain, liquids, or excessive moisture unless rated for outdoor use (e.g. IP-rated enclosures).
- 8) Clean only with a dry cloth.
- 9) Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.
- 10) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 11) Only use attachments/accessories provided by the manufacturer.
- 12) **Risk of Falling / Crushing Hazard:** Loudspeakers can be heavy. Always use appropriate lifting techniques and handle with care. Avoid stacking units unless properly secured.
- 13) **Use Only Approved Rigging Hardware:** Always follow relevant standards such as (but not limited to) EN 60598-2-17, DIN 56950, and BGV C1, where applicable for flown or stage-mounted loudspeakers. If suspending or flying the loudspeaker, always use manufacturer-approved brackets, frames or rigging kits. Follow all local regulations (e.g. Machinery Directive 2006/42/EC, Regulation EU 2023/1230 or other applicable local laws).
- 14) **Surface Placement:** Ensure the loudspeaker is placed on a level and stable surface. Do not place on elevated platforms or shelves where vibration could cause movement or falls.
- 15) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when 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.
- 16) **Exposure to extremely high noise levels may cause a permanent hearing loss.** Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures: According to OSHA, any exposure more than the above permissible limits could result in some hearing loss. Earplugs or protectors to the ear canals or over the ears must be worn when operating this amplification system to prevent a permanent hearing loss, if exposure is more than the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.
In the EU, exposure is regulated under Directive 2003/10/EC. Prolonged exposure above 85 dB(A) can cause hearing damage. Hearing protection must be used when operating equipment capable of producing high sound pressure levels.
In the UK, the Control of Noise at Work Regulations 2005 apply.
Use hearing protection when operating loudspeakers at high volumes.
- 17) Always keep speaker output levels within safe exposure limits.
- 18) If your appliance features a tilting mechanism or a kickback style cabinet, please use this design feature with caution. Due to the ease with which the amplifier can be moved between straight and tilted back positions, only use the amplifier on a level, stable surface. DO NOT operate the amplifier on a desk, table, shelf or otherwise unsuitable non-stable platform.
- 19) **Surface Placement:** Ensure the loudspeaker is placed on a level and stable surface. Do not place on elevated platforms or shelves where vibration could cause movement or falls.
- 20) **Symbols & nomenclature used on the product and in the product manuals, intended to alert the operator to areas where extra caution may be necessary, are as follows:**

Duration Per Day in Hours	Sound Level dBA, slow response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ ou inférieur	115

 CAUTION:	Intended to alert the user to the presence of uninsulated 'Dangerous Voltage' within the products enclosure that may be sufficient to constitute a risk of electrical shock to persons. Ce symbole est utilisé pur indiquer a l'utilisateur de ce produit de tension non-isolée dangereuse pouvant être d'intensité suffisante pour constituer un risque de choc électrique. Este símbolo tiene el propósito de alertar al usuario de la presencia de '(voltaje) peligroso' que no tiene aislamiento dentro de la caja del producto que puede tener una magnitud suficiente como para constituir riesgo de corrientazo. Dieses Symbol soll den Anwender vor unisolierten gefährlichen Spannungen innerhalb des Gehäuses warnen, die von ausreichender Stärke sind, um einen elektrischen Schlag verursachen zu können.
 WARNING:	Intended to alert the user of the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product. Destiné à alerter l'utilisateur de la présence d'instructions importantes d'exploitation et de maintenance (entretien) dans la documentation accompagnant le produit. Este símbolo tiene el propósito de la alertar al usuario de las presencias de instrucciones importantes sobre la operación y mantenimiento en la literatura que viene con el producto. Dieses Symbol soll den Benutzer auf wichtige Instruktionen in der Bedienungsanleitung aufmerksam machen, die Handhabung und Wartung des Produkts betreffen.
CAUTION: ATTENTION : PRECAUCION: VORSICHT:	Risk of electrical shock - DO NOT OPEN. To reduce the risk of electrical shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified personnel. Risques de choc électrique - NE PAS OUVRIR. Afin de réduire le risque de choc électrique, ne pas enlever le couvercle. Il ne se trouve a l'intérieur aucune pièce pouvant être réparée par l'utilisateur. Confier l'entretien a un personnel qualifié. Riesgo de descarga eléctrica - NO ABRIR. Para reducir el riesgo de descarga eléctrica, no quite la cubierta. No hay piezas reparables por el usuario en el interior. Remita el servicio a personal calificado. Risiko - Elektrischer Schlag! Nicht offen! Um das Risiko eines elektrischen Schlages zu vermeiden, nicht die Abdeckung entfernen. Es befinden sich keine Teile darin, die vor Anwender repariert werden konnten. Reparaturen nur von qualifiziertem Fachpersonal durchführen lassen.
WARNING: ADVERTISSEMENT : ADVERTENCIA: ACHTUNG:	To prevent electrical shock or fire hazard, do not expose this appliance to rain or moisture. Before using this appliance, please read the operating instructions for further warnings. Afin de prévenir les risques de décharge électrique ou de feu, n'exposez pas cet appareil a la pluie ou a l'humidité. Avant d'utiliser cet appareil, lisez les avertissements supplantaits situes dans le guide. Para evitar descargas eléctricas o peligro de incendio, no exponga este aparato a la lluvia ni a la humedad. Antes de usar este aparato, lea las instrucciones de funcionamiento para conocer más advertencias. Um einen elektrischen Schlag oder Feuergefahr zu vermeiden, sollte dieses Gerät nicht dem Regen oder Feuchtigkeit ausgesetzt werden. Vor Inbetriebnahme unbedingt die Bedienungsanleitung lesen.
	This device complies with Part 15 of the FCC rules Operation is subject to the following two conditions: 1) This device may not cause harmful interference. 2) This device must accept any interference received, that may cause undesired operation. Warning: Changes or modification to the equipment not approved by HH can void the user's authority to use the equipment. Note: This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures. Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.
	Declaration of Conformity (Simplified) This product conforms to the requirements of the following European Regulations, Directives & Rules: CE Mark (93/68/EEC), RoHS (2011/65/EU), General Product Safety Directive (2001/95/EC), WEEE Directive (2012/19/EU) Full text of the EU declaration of conformity is available at the following internet address: http://support.hhaudio.com/approvals
	The object of the declaration described above is in conformity with the relevant statutory requirement Electrical Equipment (Safety) Regulations 2016, Electromagnetic Compatibility Regulations 2016, The Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, The Ecodesign for Energy-Related Products and Energy Information, (Amendment) (EU Exit) Regulations 2012
	In order to reduce environmental damage, at the end of its useful life, this product must not be disposed of along with normal household waste to landfill sites. It must be taken to an approved recycling centre according to the recommendations of the WEEE (Waste Electrical and Electronic Equipment) directive applicable in your country.

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WWW.HHAUDIO.COM

**IN THE INTEREST OF CONTINUED DEVELOPMENT, HH RESERVES THE RIGHT TO AMEND PRODUCT SPECIFICATION
WITHOUT PRIOR NOTIFICATION.**