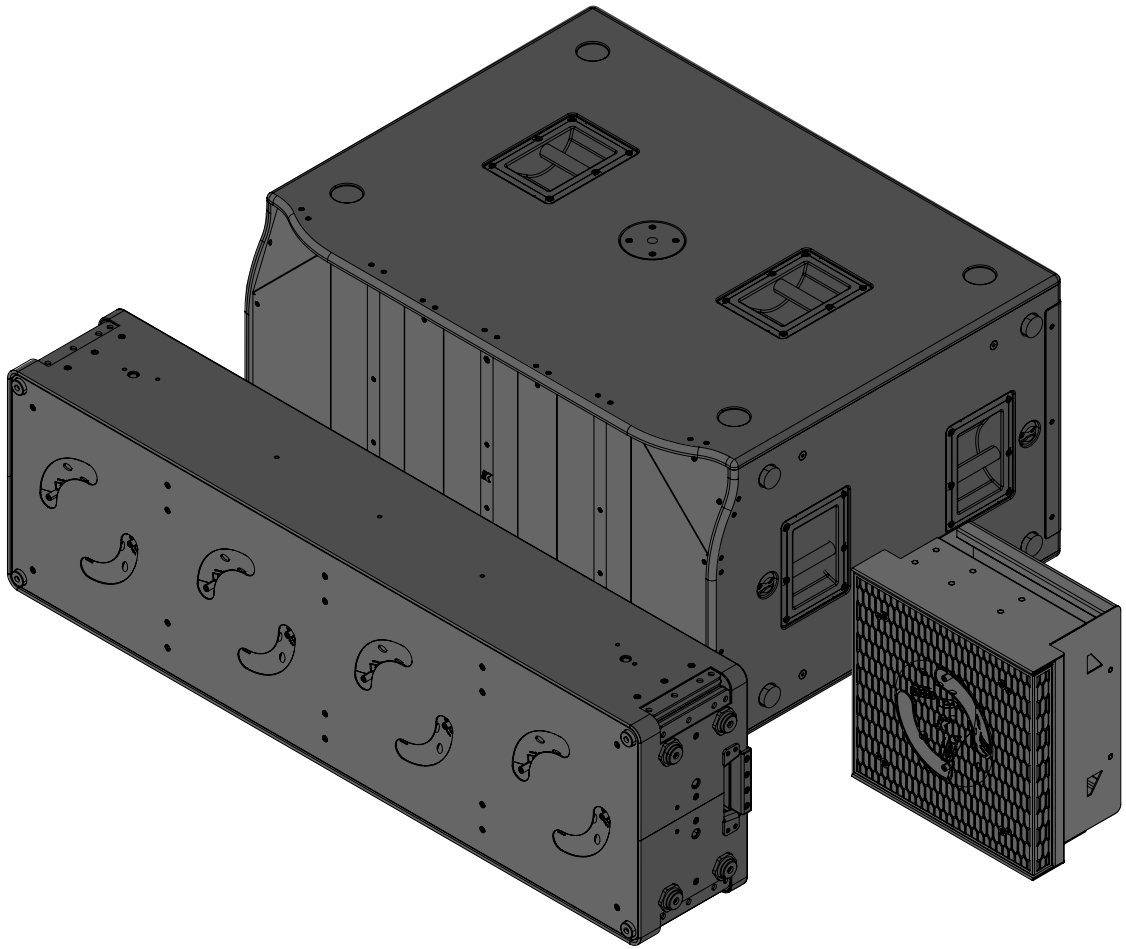
FIRENZE-SYSTEMS
KH7P1 KS7P1 KX12F1

USER GUIDE

•20260413•V3

State-of-the-art passive touring systems



K-ARRAY
Unique Audio Solutions

IMPORTANT SAFETY INSTRUCTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol alerts the user to the presence of recommendations about the product's use and maintenance.



The lighting flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated, dangerous voltage within the product enclosure that may be of magnitude to constitute a risk of electrical shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in this guide.



Operator's manual; operating instructions
This symbol identifies the operator's manual that relates to the operating instructions and indicates that the operating instructions should be considered when operating the device or control close to where the symbol is placed.



For indoor use only
This electrical equipment is designed primarily for indoor use.



WEEE
Please dispose of this product at the end of its operational lifetime by bringing it to your local collection point or recycling center for such equipment.



This device complies with Restriction of Hazardous Substances Directive.

WARNING



Failure to follow these safety instructions could result in fire, shock or other injury or damage to the device or other property.

General heed and warnings

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- Do not defeat the safety purpose of the polarized or grounding plug. A polarized plug has two blades with one wider than the other. A grounding plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Only use attachments/accessories specified by the manufacturer.
- Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where they exit from the apparatus.
- Clean the product only with a soft and dry fabric. Never use liquid cleaning products, as this may damage the products cosmetic surfaces.
- 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.



- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Avoid placing the product in a location under direct sunlight or near any appliance that generates UV (Ultra Violet) light, as this may change the product surface finishing and cause a change in color.
- 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.
- CAUTION: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.
- WARNING: Only use attachments/accessories specified or provided by the manufacturer (such as the exclusive supply adapter, battery, etc.).

This apparatus is intended for professional use.

Installation and commissioning may only be carried out by qualified and authorized personnel.

- Before turning the power on or off for all devices, set all volume levels to minimum.
- Use only speaker cables for connecting speakers to the speaker terminals. Be sure to observe the amplifier's rated load impedance particularly when connecting speakers in parallel. Connecting an impedance load outside the amplifier's rated range can damage the apparatus.
- K-array cannot be held responsible for damage caused by improper use of the loudspeakers.
- K-array will not shoulder any responsibilities for products modified without prior authorization.

CE Statement

K-array declares that this device is in compliance with applicable CE standards and regulations. Before putting the device into operation, please observe the respective country-specific regulations!

Canadian Statement

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- this device may not cause interference, and
- this device must accept any interference, including interference that may cause undesired operation of the device.

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Trademark Notice

Firenze-systems

User Guide

V3

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Thank you for choosing this K-array product!

To ensure proper operation, please carefully read the owner's manuals and safety instruction before using the products.
After reading this manual, be sure to keep it for future reference.

Should you have any questions about your new device please contact K-array customer service at support@k-array.com or contact the official K-array distributor in your country.

Introducing the new Firenze concert line in its fully controllable passive design. The system is built around the Firenze-KH7P I, a passive straight line array element featuring 4 coaxial 12" neodymium drivers with 3" voice coils and a 2" compression driver.

Thanks to advanced EBS (Electronic Beam Steering) technology, each coaxial transducer can be independently processed via FIR filters, delivering precise, directional coverage without mechanical tilt. A complete range of rigging accessories enables flexible vertical and horizontal array configurations.

The system is complemented by the Firenze-KS7P I subwoofer, equipped with dual 21" neodymium drivers and a fully sealed enclosure, ensuring tight, controlled low-frequency performance and cardioid capabilities. It can operate as a single unit or within array configurations.

To extend near-field coverage, the KX12F I down-fill element can be integrated into the system using dedicated brackets, providing fixed-angle deployment for precise coverage of closer listening areas.

Powered by Kommander-KALIVE amplifiers and managed via K-framework3, the system combines FIR processing, beam steering control, and streamlined CA-COM connectivity. The result is a compact, high-performance solution delivering full-range clarity and control, enhanced by Slim Array Technology.

Firenze-KH7P I

- Powerful touring straight line-array element
- Made of highly resistant and durable stainless steel
- 4x Coaxial 12" Neodymium magnet drivers with 3" voice coil + compression driver with 2" voice coil.
- 100° H / 30° V or 30° H / 100° V + digital adjustment with Electronic Beam Steering
- 148 dB_{peak} max SPL
- CA-COM IN - CA-COM LINK connections
- Recommended amplifier with EBS-mode - KA208LIVE
- 8Ω load impedance per channels
- Modular capabilities
- Visually discreet
- Dedicated joining and rigging hardwares for both vertical and horizontal cluster arrays

Firenze-KS7P I

- 2x 21" Neodymium magnet drivers with 5.31" voice coil
- Fully enclosed design to minimize air turbulence for a high precision impulse response.
- Gradient/cardioid dispersion pattern and end-fire configurations for advanced bass setups.
- Dedicated amplifier Kommander-KA208LIVE
- 146 dB_{peak} max SPL
- CA-COM IN - CA-COM LINK connections
- 8Ω load impedance per channels
- Extreme compactness and power
- Complete full-range system configuration with KH7P I line array element and Kommander-KA208LIVE amplifier
- Wood

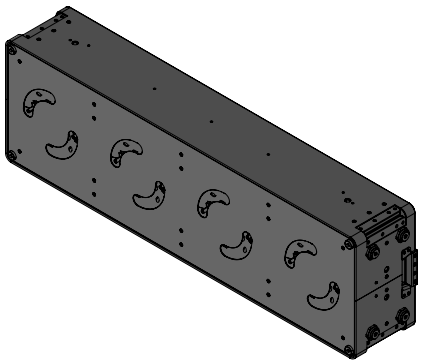
Dragon-KX12F I - Firenze edition

- Made of highly resistant and durable stainless steel
- Coaxial 12" neodymium woofer with 3" voice coil + compression driver with 1.7" voice coil coupled with horn-waveguide.
- 121 Hz – 18 kHz frequency response (-6 dB)
- 134 dB peak max SPL
- User-selectable directivity: 30° H / 90° V or 90° H / 30° V Passive design, optimized for Kommander amplification platforms
- 1200 W @ 8 Ω load impedance
- Dual SpeakON NL4 connectors (1+ 1- signal; 2+ 2- link-through)
- Modular capabilities
- Visually discreet design
- Easy removable grille
- Dedicated rigging accessories for fixed-angle deployment Designed for seamless integration as a down-fill element with Firenze-KH7P I

Unpacking

Each K-array product is built to the highest standard and thoroughly inspected before leaving the factory.
Upon arrival, carefully inspect the shipping carton, then examine and test your new device. If you find any damage, immediately notify the shipping company.

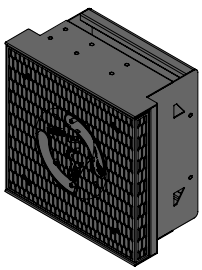
Passive line array element and passive loudspeaker
1x Passive Firenze-KH7P I line array element with rigging hardware



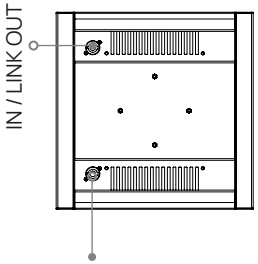


KH7P I Rear panel

1x Passive coaxial element Dragon-KX12F I Firenze edition

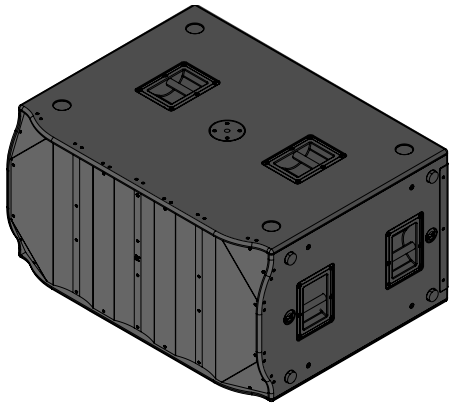


KX12F I Rear panel*



For complete wiring instructions and further information, please refer to the dedicated user guide KX12FI quick guide on K-array.com

Passive subwoofer
1x Passive Firenze-KS7P I subwoofer element





KS7P I Rear panel

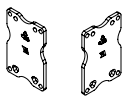
Default Rigging Hardware

KH7PI

Firenze-KHP I line array element is equipped with a dedicated rigging hardware that allows to join multiple elements in loudspeakers systems to be either suspended or ground stacked in vertical or horizontal arrays.

The default rigging hardware comprises:

A. 2x rigging brackets;
B. 8x Ø 8 mm x20mm L (Ø 0.31 in 0.70 in L) quick release pins with handle.

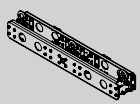
	A	B
KH7P I		

Rigging Accessories

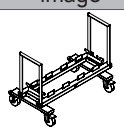
KH7P I

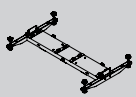
According to the actual configuration to be achieved, either the ground stack system accessories or the suspended system accessories shall be added to the loudspeaker system.

Suspended Installation Accessories

Name	Description	Image	Apply to
KH7-FLYV	Bumper Vertical suspension arrays		KH7P I
KH7-FLYH	Bumper Horizontal suspension arrays		

Ground Stack Installation and loading Accessories

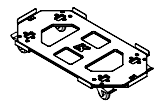
Name	Description	Image	Apply to
KH7-DOLLY4	Dolly for preparing 4x KH7P I in stack		KH7P I

Name	Description	Image	Apply to
KH7-BASE	Stacking hardware for 2x KH7P I vertical stack 3x KH7P I horizontal stack		KH7P I

KS7P I

The Firenze-KS7P I is equipped with anti-vibration screw-in feet to isolate it from the ground. It is recommended to use the accessory cart K-SK221 to safely move and transport the Firenze-KS7P I, as it facilitates the loading and transportation of a single unit.

Loading Equipment Accessories

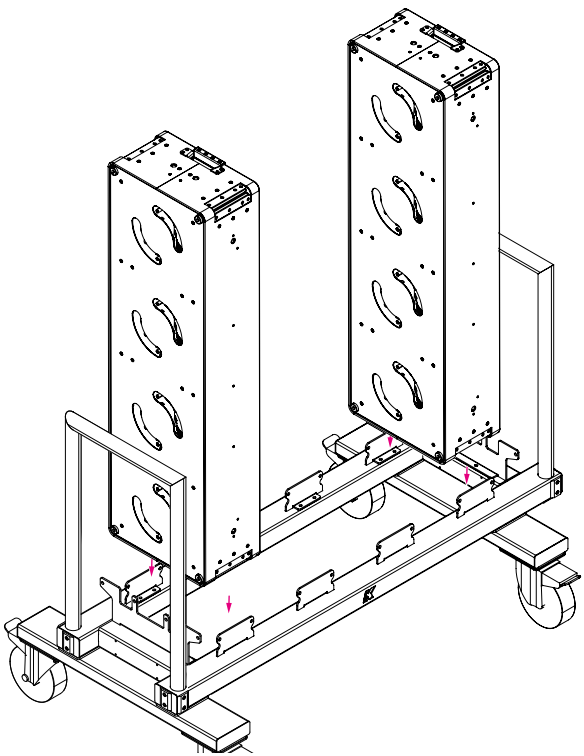
Name	Description	Image	Apply to
K-SK221	Skateboard for 1x KS7P I		KS7P I

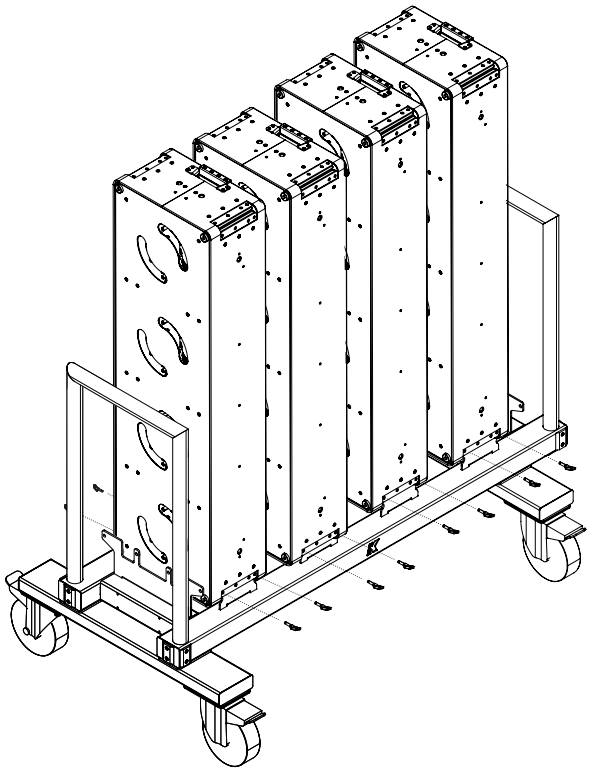
K-SK221 is designed to safely load a single KS7P I unit. Please do not exceed this capacity to prevent equipment damage.

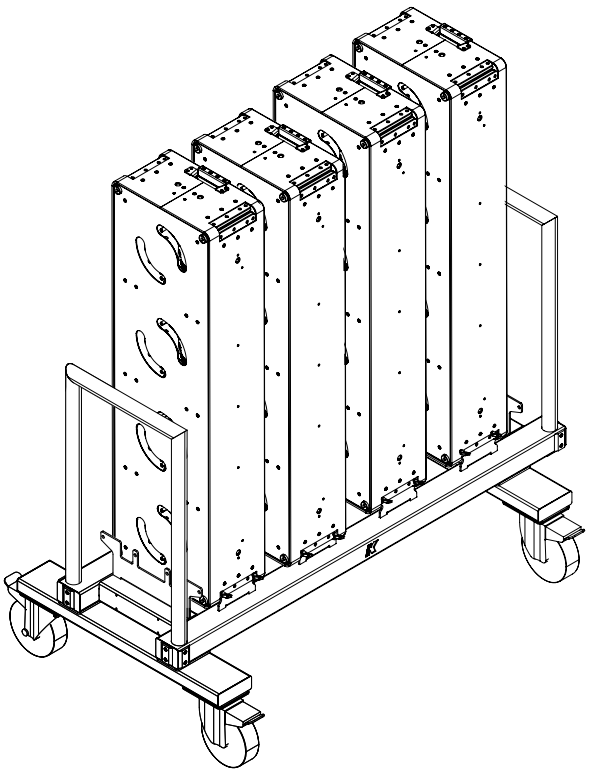
KH7-DOLLY4

Efficient system transport

- Facilitates transport: designed to ease the movement of the Firenze-KH7P I.
- Simplifies the loading and unloading operations of trucks.
- Precise positioning: allows accurate positioning of equipment up to rigging points.
- Efficiency and safety: thanks to dedicated pin fastening systems, the load is secured to the dolly, reducing the time and effort required for setup.
- Simplified wiring: Facilitates the wiring of each unit during setup.







Respect the KH7-DOLLY and K-SK221 loading limits



KH7-DOLLY4 can hold up to 4x KH7P I in vertical

KH7-DOLLY4 can hold up 2x KH7P I in horizontal, with a stack capacity of 3x units. Total of 6x KH7P units in horizontal

Wiring

Passive array element – Audio wiring

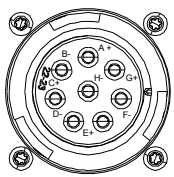
When connecting and operating the KH7P I with the amplifier, consider the following:

- Each KH7P I element has 4 coaxial 12" drivers, each with an 8Ω impedance and 2500W (peak) power rating.
- Each driver requires a separate amplifier channel.
- The KA208LIVE amplifier provides 8 x 2500W at 4Ω, suitable for powering the drivers.
- Four dedicated amplifier channels are needed for each KH7P I element.
- Use CA-COM connections for audio signals, control signals, and power supply - multichannel signal distribution.

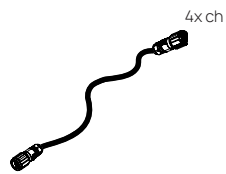
KH7P I	
Power handling	Quad-amp: CH1 - 2500 W_{peak} CH2 -2500 W_{peak} CH3 - 2500 W_{peak} CH4 - 2500 W_{peak}
Nominal Impedance	CH 1 - 8 Ω CH2 - 8 Ω CH3 - 8 Ω CH4 - 8 Ω
Connectors	Speaker input/parallel output CA-COM connections CH1 / CH2 CA-COM IN and CA-COM Link A+ B- C+ D- CH3 / CH4 CA-COM IN and CA-COM Link pin E+ F- G+ H-

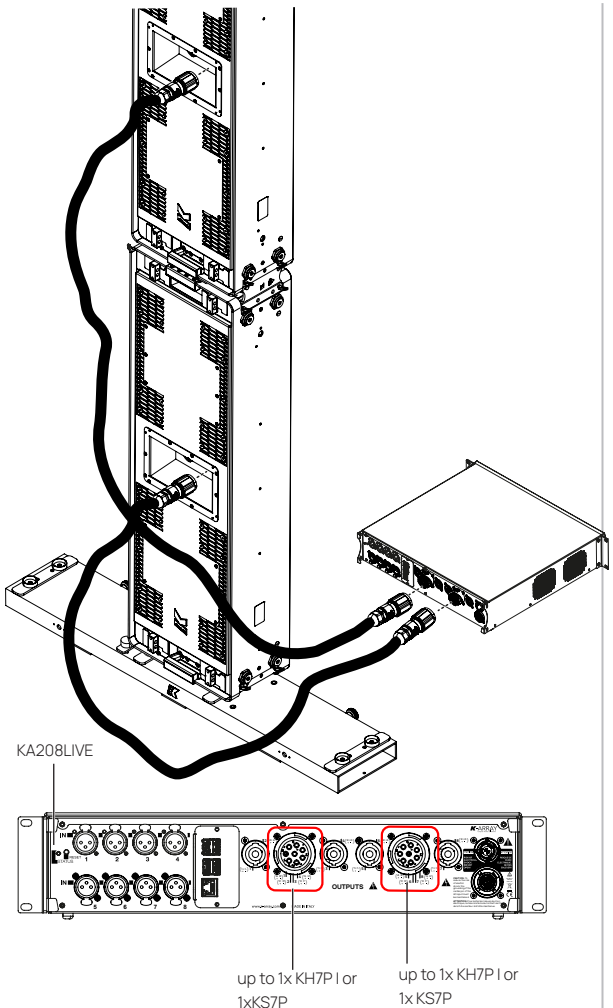
KH7P I Drivers	KH7P I CA-COM pins	Polarity	Amplifier CA-COM connector	KA104LIVE - KA208LIVE required channels	
1	A	CH1+	A	+	CH1
	B	CH1-	B	-	
2	C	CH2+	C	+	CH2
	D	CH2-	D	-	
3	E	CH3+	E	+	CH3
	F	CH3-	F	-	
4	G	CH4+	G	+	CH4
	H	CH4-	H	-	

CA-COM 8pin



Connection To the loudspeaker and to the KA104LIVE or KA208LIVE





Please note that four channels of the Kommander-KA208LIVE amplifier are required to drive one Firenze-KH7P I and another four channels are required to drive the Firenze-KS7P I

Passive subwoofer element – Audio wiring

The KS7P is composed of 2x 21" woofers with 3.31" voice coil with a rated power of 5000W and 8 Ω impedance each.

To properly drive a single Firenze-KS7P I subwoofer, 4 dedicated amplifier channels in bridge mode are required, one for each woofer. Kommader-KA208LIVE 8 x 2500W CA-COM connections facilitate the setup by carrying multiple channels of audio signals, control signals for speaker processing, and power supply.

KS7P I woofers	KS7P I CA-COM pins	Polarity	Amplifier CA-COM connector	KA104LIVE - KA208LIVE required channels	
1	A	CH1+	A	+	CH1
	B	CH1-	B	-	
	C	CH2+	C	+	CH2
	D	CH2-	D	-	
2	E	CH3+	E	+	CH3
	F	CH3-	F	-	
	G	CH4+	G	+	CH4
	H	CH4-	H	+	

Avoid units in parallel to the same amplifier channel

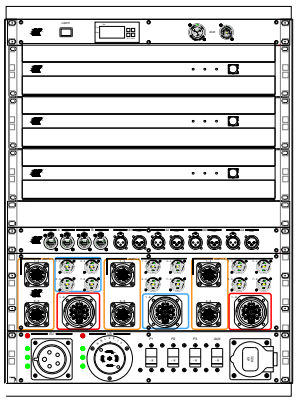
Ensure the load limits on the amplifier's dedicated channels are not exceeded. Consider impedance and power requirements to avoid overloads, which could cause system malfunction or damage.

K-RACK-M-208 I
Power And Signal Distributor

The K-RACK-M-208* is a complete power and signal distributor assembly designed to drive KH2P I, KH3P I and KH5P I passive array elements.

The K-RACK-M-208 is a 12 units rack with wheels containing:

- The power panel with 3-phase CEE 3P+N+T 32A 400V main socket and switches (EU / US) 2IN / 1OUT
- 3x Kommander-KA208+ 8-ch audio power amplifiers with DSP and IEB-Pro (expanded network connectivity),
- I/O data panel with:
  - 4x Ethercon RJ45 ports,
  - 4x XLR input with parallel output link;
  - 12x NL4 SpeakON connectors (32 channels).
  - 3x SOCApex + 6x CA-COM



INPUT ↓	KA208+ TOP	KA208 +MID	KA208+ BTM
A1	INPUT 1	INPUT 1	INPUT 1
A2	INPUT 2	INPUT 2	INPUT 2
A3	INPUT 3	INPUT 3	INPUT 3
A4	INPUT 4	INPUT 4	INPUT 4

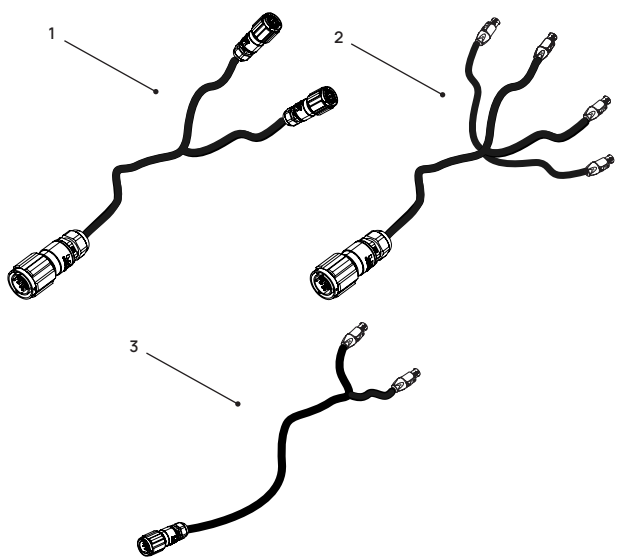
Each SOCApex connector on the rack panel is capable of transmitting multiple signals and multiple channels through a single cable, thanks to its multi-pin configuration (19-pin connector). This connector ensures:

- Durability: to withstand the rigors of professional use, including frequent plugging and unplugging, as well as harsh environmental conditions.
- Versatility: highly efficient and convenient for complex system configurations

Available cable accessories

There are various connection methods to transmit signals and link systems with both speakON and CA-COM connections, available as accessories for the Mugello and Firenze series (new passive versions).

1. K-SOCA2CACOMOUT - SOCAPEX to CA-COM
2. K- SOCA4SPKOUT - SOCAPEX to SpeakON NL4
3. K-CACOM2SPKOUT - CA-COM to SpeakON NL4



Rigging Procedures

Suspended Array

Key rigging components must be inspected before each use.
Any rigging components found to be defective, or even suspect might be defective should be replaced with equivalent approved part.

Always use properly rated rigging hardware.

K-array is not responsible for any rigging equipment and accessories that are not manufactured by K-array.

K-array loudspeaker and hardware are intended for suspension from approved rigging points only.
Ensure that the total weight of the loudspeakers and additional hardware assembly in use is lower than the Working Load Limit (WLL) of the suspension points.

Rigging and flying loudspeaker systems shall be accomplished by knowledgeable and experienced professionals.

It is the user's responsibility to ensure that the use and suspension of heavy loudspeaker systems conform to all applicable laws and regulations in force at the time and location.

KH7P I

Needed equipment

Name	Description	Image	Apply to
KH7-FLYV	Bumper Vertical suspension arrays		KH7P I
KH7-FLYH	Bumper Horizontal + Vertical suspension arrays		

Suspending a cluster

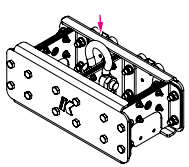
KH7-FLYH bumper is able to suspend Firenze-KH7P I units both horizontally (up to 12x units) and vertically (up to 7x units). The KH7-FLYV is able to suspend KH7P I in vertical only.
The steps below illustrates how to suspend a cluster of KH7PI units in vertical with the KH7-FLYV bumper accessory (the procedure to suspend a cluster in horizontal is not dissimilar.)

Suspending a cluster in vertical position

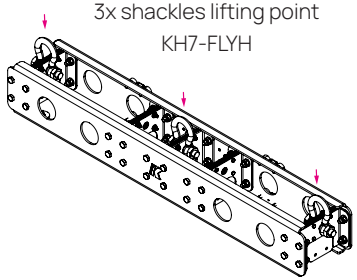
Rigging procedure: positioning the bumper

1. Set the bumper under the rigging position.
2. Set the shackle(s) in the proper pick-up hole positions according to the loading configuration.

Single shackle* lifting point
KH7-FLYV

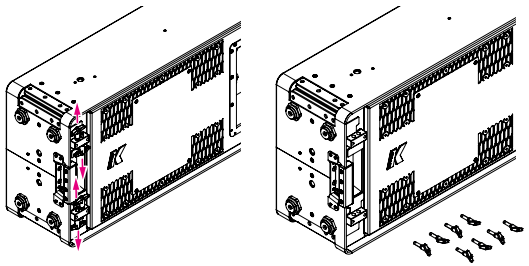


3x shackles lifting point
KH7-FLYH

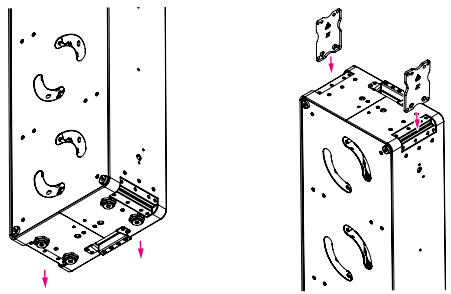


*Omega shackles supplied with the KH7-FLYH / KH7-FLYV Bumper package.
**Stainless steel hooks with security fastening (not supplied).

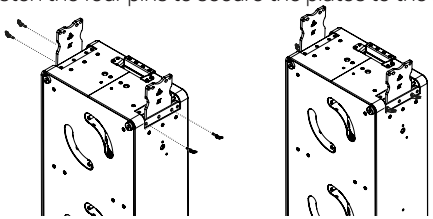
3. Pull out the 2x plates and the 8x pins situated at the back of each KH7PI unit (dedicated rigging hardware).



4. Position the first unit vertically with the four rubber feet facing downwards - the plates must be vertically oriented with the printed arrow facing upwards

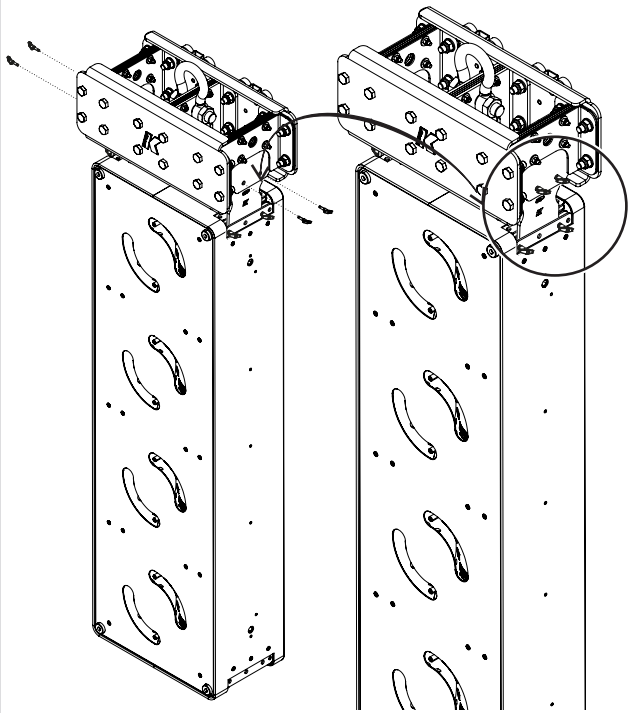


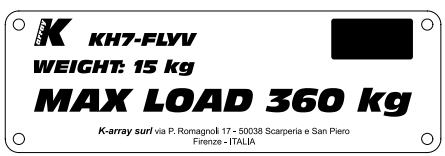
5. Fasten the four pins to secure the plates to the KH7PI



Never exceed the maximum weight limit
According to the load configuration.

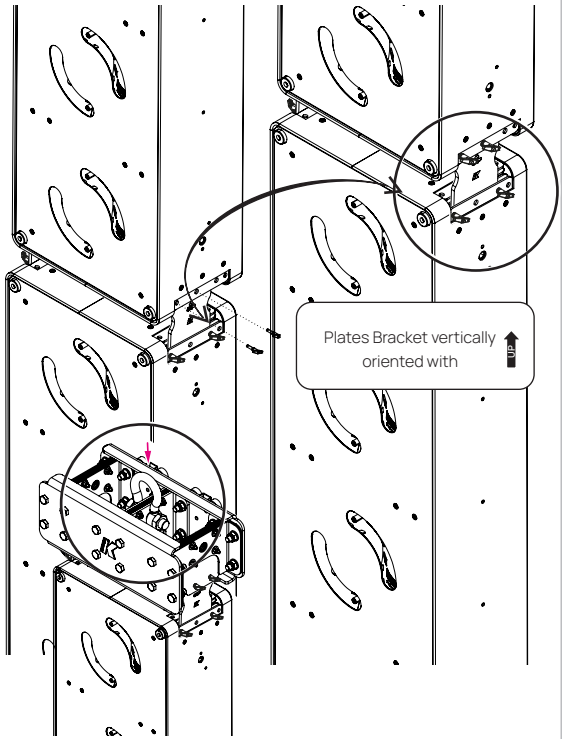
6. Position the fly bar above the unit
7. Secure the fly bar to the plates with the other four pins







8. Hook the bumper to the motor chain
9. Lift up the first KH7P I units just enough to put a second unit below. Connect the two units using the 2x plates and 8x the pins with the same procedure used to link the first unit to the bumper. Repeat for the next units.



Never exceed the maximum weight limit
According to the load configuration.

Do not suspend more than 7 units in vertical position
or more than 12 units in a horizontal position

Step Array configurations - downfill configurations

KX12F I under KH7P

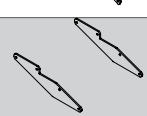
The KX12F I (KX12 Mark I – Firenze version) is a coaxial point-source loudspeaker designed to extend system coverage in complex deployment scenarios.

In this configuration, the KX12F I is used as a downfill or near-field element, paired with the KH7P main element, which is typically flown and installed in a straight orientation. Thanks to its compact form factor and controlled directivity, the KX12F I is positioned at an angle to effectively cover areas directly below the main array or in close proximity to the audience.

This approach enables precise coverage of front rows and under-balcony zones, where traditional main hangs may not provide sufficient clarity or SPL consistency.

The system supports multiple angular configurations, typically 25° and 45°, allowing for flexible adaptation to different venue geometries and step array designs. This makes the KX12F I an ideal solution for creating seamless vertical coverage transitions while maintaining tonal coherence with the main KH7P system.

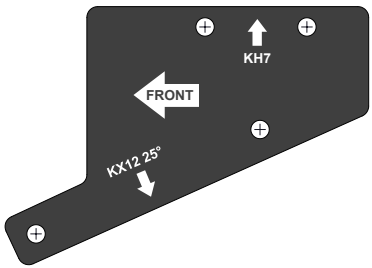
Needed equipment

Name	Description	Image	Apply to
K-STEPKX1225	25° Step Array Link (KX12F I–KH7) 2x plates + 8x self-locking pins		KH7P I
K-STEPKX1245	45° Step Array Link (KX12F I–KH7) 2x plates + 8x self-locking pins		KX12F I

K-STEPKX1225

The bracket features engraved orientation arrows and “Front” markings indicating the correct mounting direction.

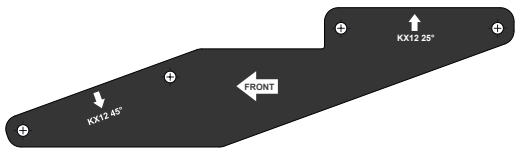
These markings apply to both connection sides, providing clear guidance for installation between the KH7P (upper element) and the KX12F I (lower element).



K-STEPKX1245

The bracket features engraved orientation arrows and “Front” markings indicating the correct mounting direction.

These markings apply to both connection sides, providing clear guidance for installation between the KH7P (upper element) and the KX12F I (lower element).



Step Array Assembly

1. After assembling all required elements to form the cluster, keep the last KH7P element suspended and positioned close to the lower audience area to be covered.
2. Attach the two K-STEPKX1225 brackets—one per side—to the designated connection points on the KH7P element. Secure each bracket using 2 self-locking pins per side. (flg.1).
3. Position the KX12F I below the KH7P and align it with the installed brackets. Fix the enclosure to the brackets using the provided connection points and self-locking pins. The connection is designed with a fixed 25° angle, defined by the bracket geometry, providing smooth coverage transition from the main array to the near-field area. (fig.2)
4. If extended downfill or near-field coverage is required, an additional KX12F I element can be installed below the first one. In this configuration, use two K-STEPKX1245 brackets—one per side—following the same mounting procedure described above.
   The K-STEPKX1245 brackets provide a fixed 45° angle, enabling more aggressive vertical coverage for areas closer to or directly beneath the array. (fig.3)
5. Before lifting or operating the system, ensure that all pins are correctly inserted and securely locked, and verify that the assembly is properly aligned.

fig.1

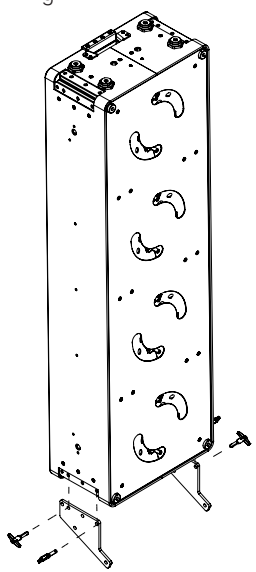


fig.2

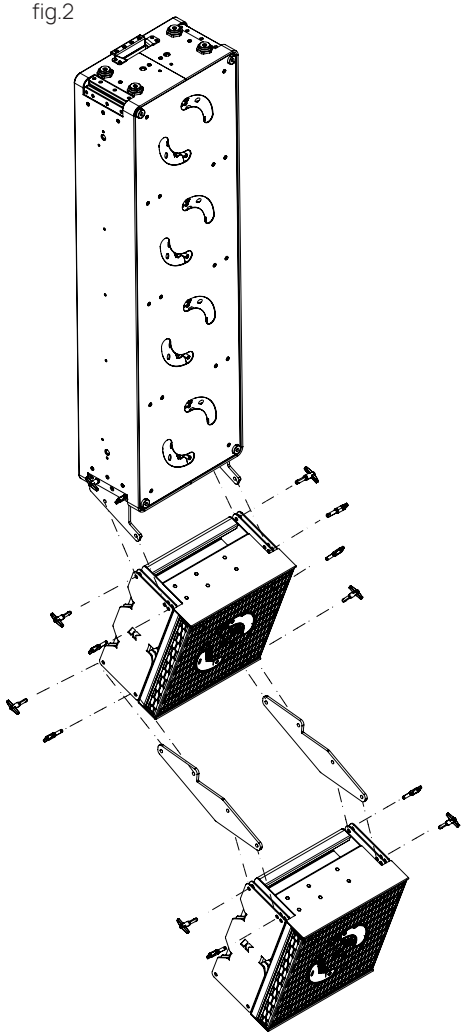
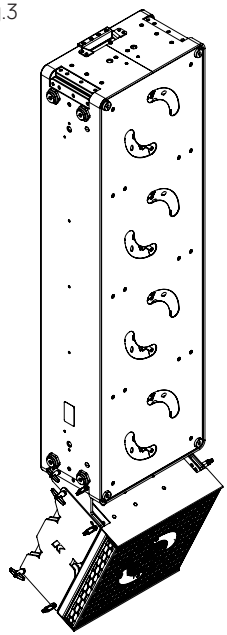


fig.3



Installation must be carried out by qualified personnel only.

Always ensure that the maximum load capacity of the suspension and rigging system is not exceeded

Suspending a cluster in horizontal position

The suspension of the Firenze-KH7P I in a horizontal cluster of multiple units follows a procedure similar to vertical suspension. However, it is crucial to pay attention to the following key points:

A. When attaching the brackets to the units, ensure they are oriented horizontally.
B. Make sure to use the rigging points at the ends of the bumper.

Always Ensure that the thread locking compound of omega shackles is in a locked position

Use stainless steel hooks with security fastening (not supplied). Check that the lock is securely fastened.

- Check that the security sphere of the piston pin is visible at the opposite end and cannot all out.
- The pin must only be released when the push button has been pressed.

Ground Stack Array

Key hardware components must be inspected before each use.
Any rigging components found to be defective, or even suspect might be defective should be replaced with equivalent approved part.

Always use properly rated installation hardware.

K-array is not responsible for any installing equipment and accessories that are not manufactured by K-array.

Check building codes for weight distribution requirements. Ensure that the total weight of the loudspeakers and additional hardware assembly in use is lower than the Working Load Limit (WLL).

Ground stacking the loudspeaker systems shall be accomplished by knowledgeable and experienced professionals.

Install the loudspeaker stack on a plain horizontal surface.

Ensure that the location for the loudspeakers stack and its support system provides for the minimum clearances required for safety.

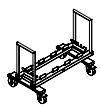
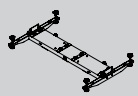
It is the user's responsibility to secure the loudspeakers stack and its support system to ground in order to avoid any damage or failure due to any unintended hits, gust of wind, vibrations or such.

Ground Stack Installation

KH7P I

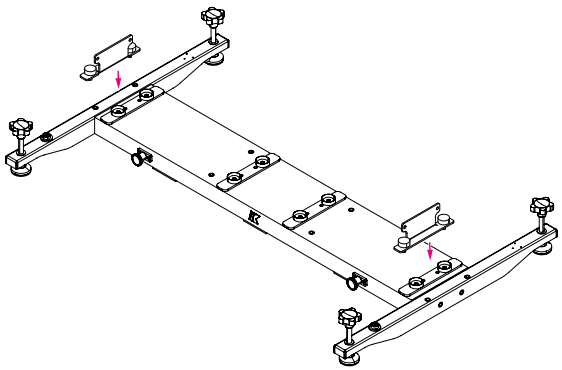
A single unit of KH7P I can be positioned on a flat surface in a horizontal position without any additional accessories. Ensure that the rubber feet are facing downwards. To put a single unit in vertical position or to ground stack a KH7P I cluster use the KH7-BASE accessory. Up to 3x units can be stacked in horizontal position and up to 2x units can be stacked in a vertical position.

Needed equipment

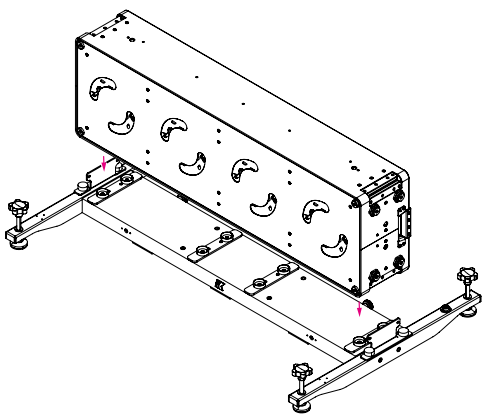
Name	Description	Image	Apply to
KH7-DOLLY4	Dolly for preparing 4x KH7P I in V stack up to 6x in H		
KH7-BASE	Stacking hardware for 2x KH7P I vertical stack 3x KH7P I horizontal stack		KH7P I

Ground stack horizontal cluster (3 Units)

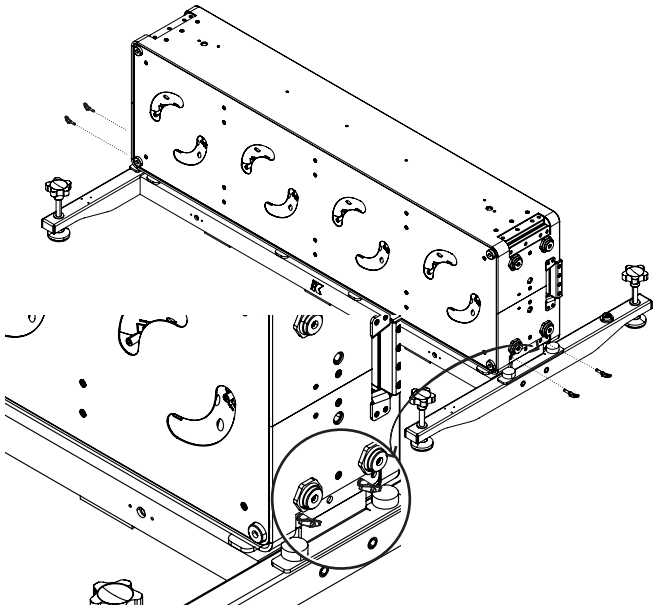
10. 1 Ensure that the plates are positioned as shown in the picture below:



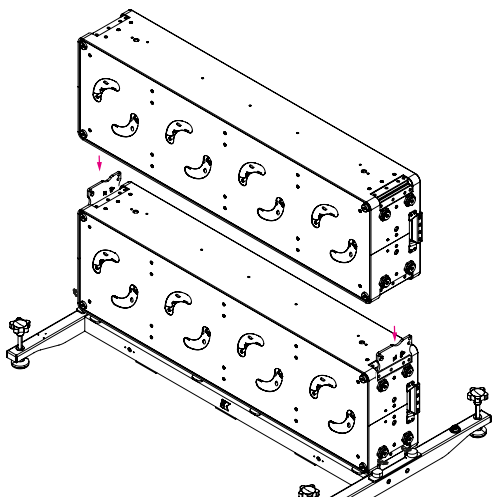
11. Position the first unit on the KH7-BASE accessory



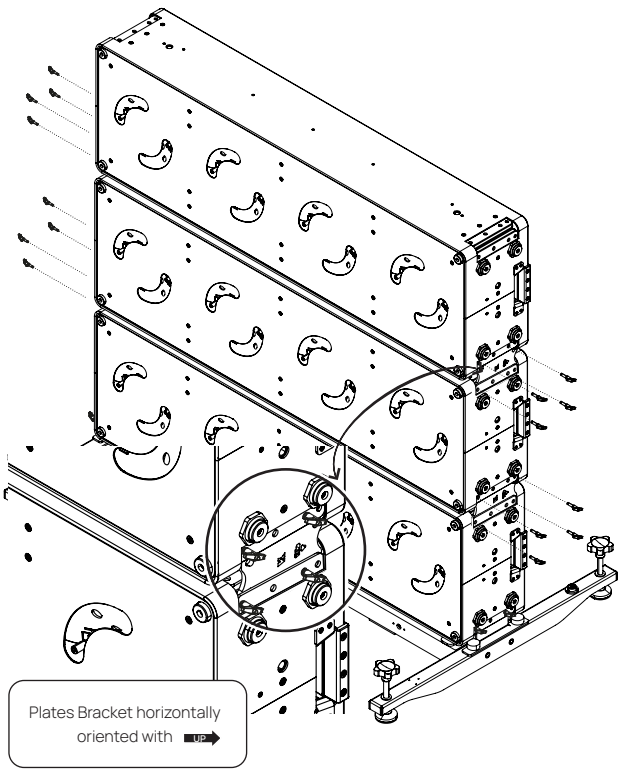
12. Fasten the four pins to secure the plates to the KH7 unit



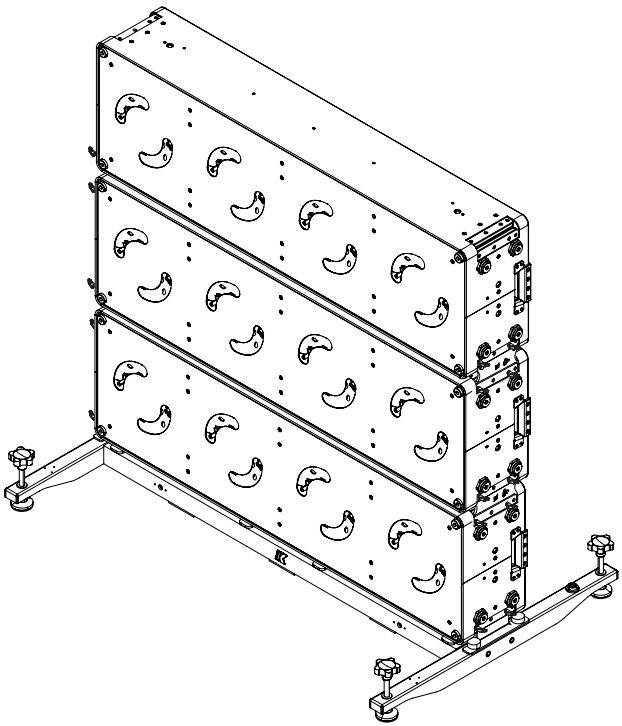
13. Position the second unit on the top of the first unit.



14. Fasten the plates for cluster mounting and secure it to the KH7 units, ensuring that the plates are inserted horizontally oriented.*

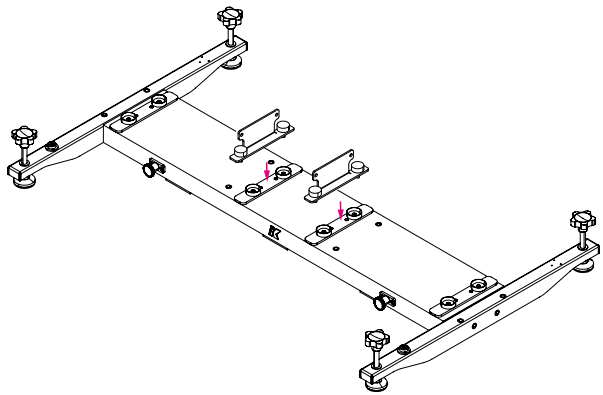


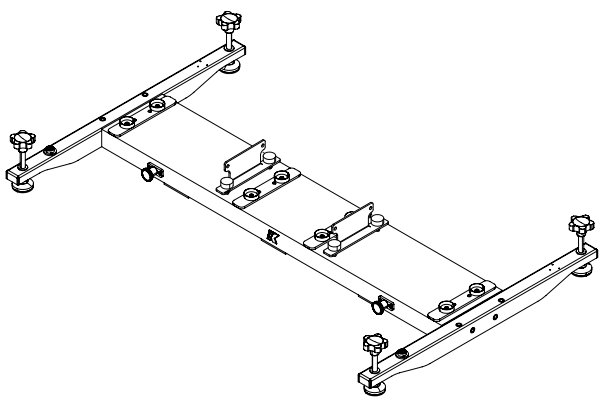
15. 3x Firenze-KH7P I units mounted on KH7-BASE in horizontal stack



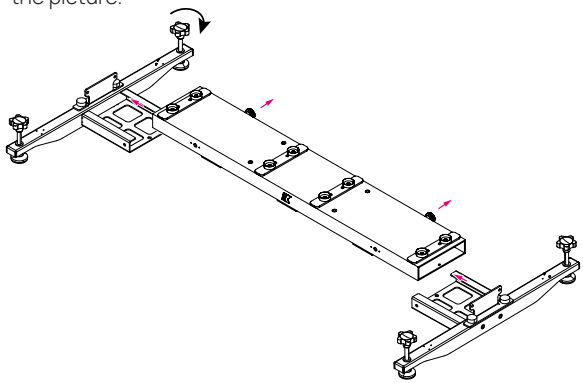
Ground stack vertical cluster (2 Units)

1. By default, the mounting brackets on the base are positioned on each side of the hardware. To mount the Firenze-KH7P I vertically, move the brackets to the center.

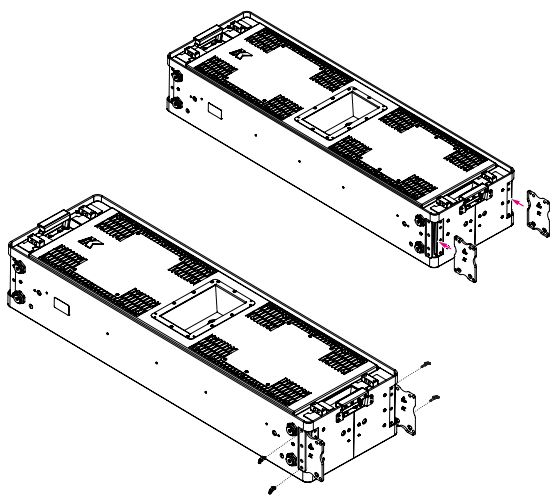




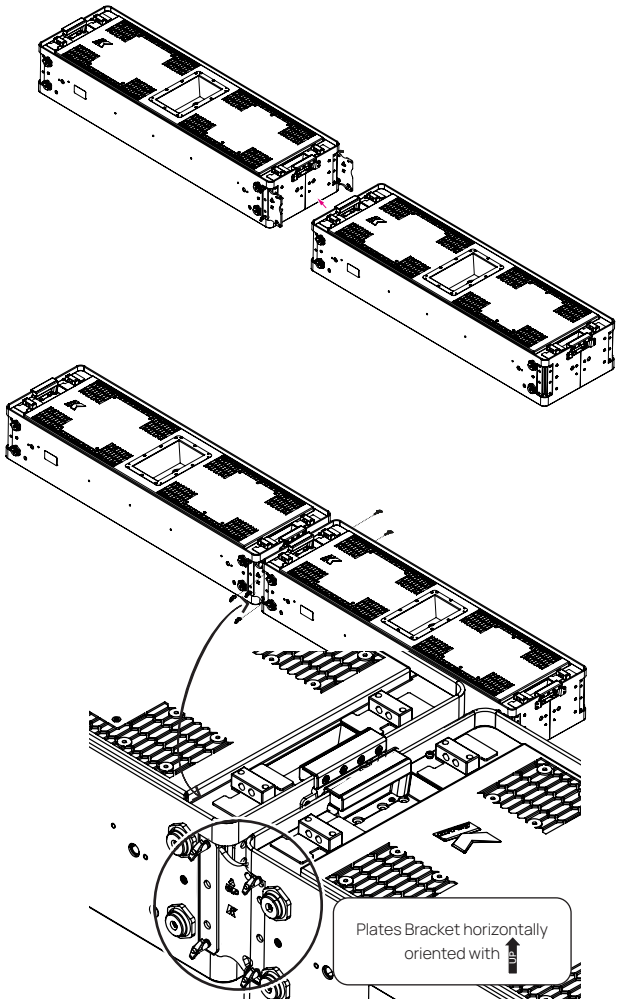
2. It is recommended to detach the base from the side supports and place it on the ground. Unscrew the four feet, pull the pommels and remove the end pieces as shown in the picture.



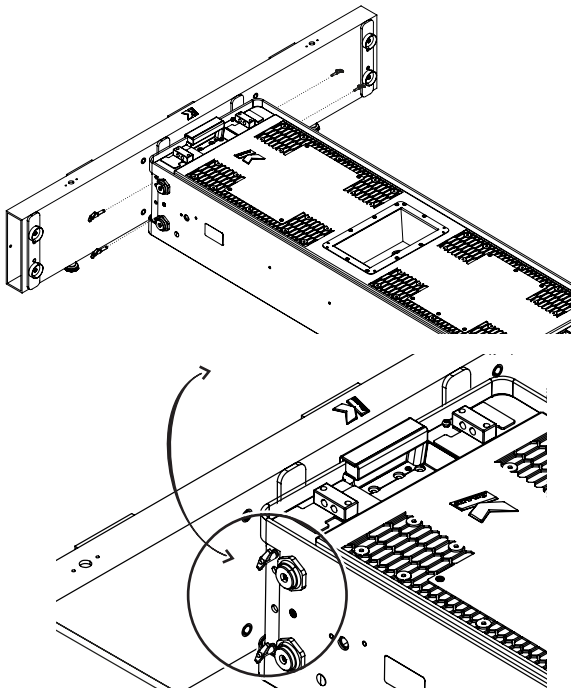
3. Place the first Firenze-KH7P I units on the floor.
4. Insert the bracket plates as shown in the picture below. Similar to the previous chapter, 'Ground Stack Horizontal Cluster,' the plates must be inserted with a horizontal orientation.



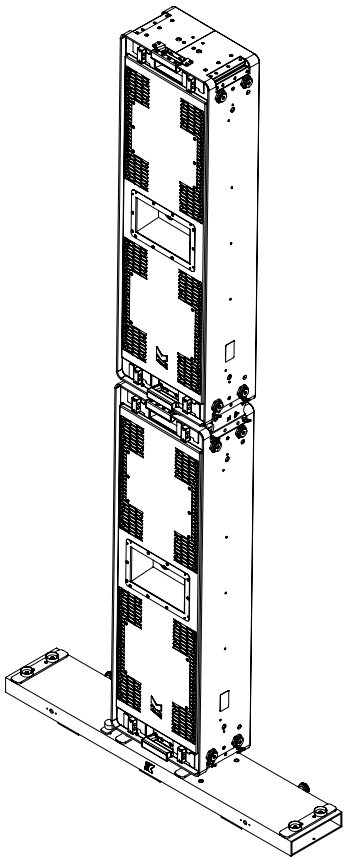
5. Fasten the pins to secure the plates to KH7P I
6. Join the two units together with the same procedure shown in the previous chapter.



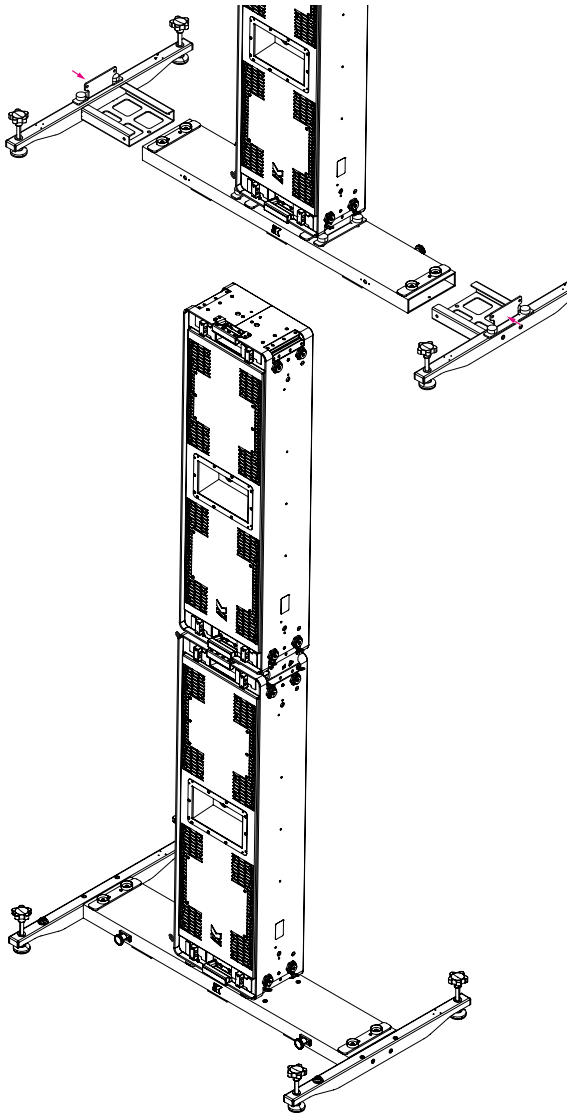
7. Then connect the KH7-BASE hardware accessory to the first unit fasting the pins to secure the base brackets to the unit.



8. Stand the system upright.



9. Pull the pommels on the base and reattach the end pieces of the base like shown in the picture.

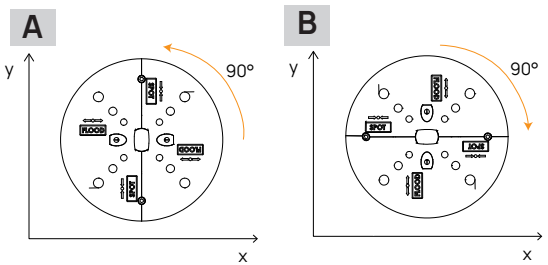


Configurations

Adabtable coverage

KH7PI and KX12FI

Each KH7P I coaxial element is coupled to an asymmetric waveguide, as in the KX12F I, enabling different dispersion patterns along its axes. The dispersion is wide along the x-axis (FLOOD) and narrow along the y-axis (SPOT).

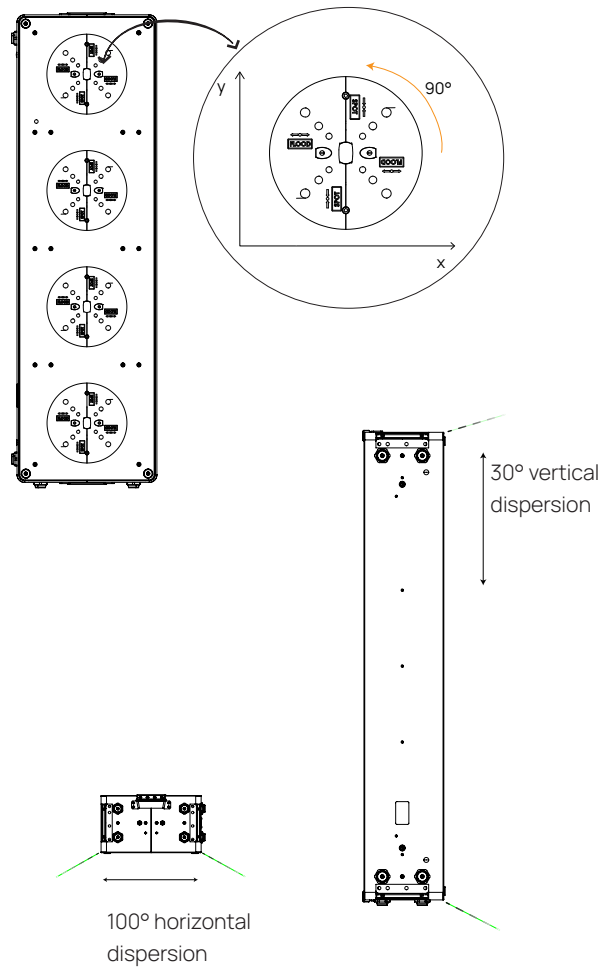


A. in this position the sound dispersion is narrow in respect to the x-axis and wide in respect to the y-axis
B. in this position the sound dispersion is wide in respect to the x-axis and narow in respect to the y-axis

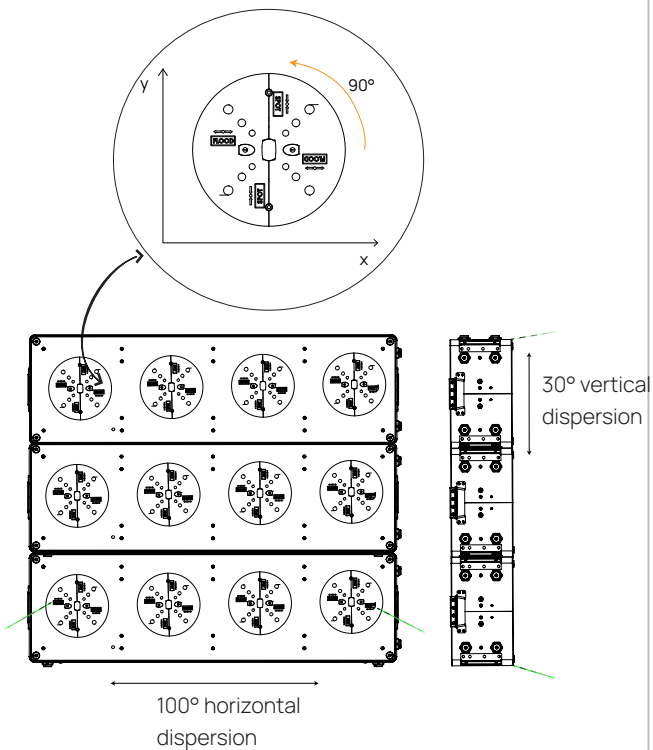
Manually rotate the horn by 90° using the handles at the front.

The combination of narrow vertical dispersion and wide horizontal coverage ensures controlled sound distribution and extended throw, particularly in array configurations.

Vertical KH7P I with vertically oriented horns



Horizontal KH7P I with vertically oriented horns.



The ability to orient the waveguide based on the required coverage, together with electronic beam steering, optimizes overall frequency response and ensures consistent dispersion in both vertical and horizontal array configurations.

Electronic beam steering

Traditional line array elements are appreciated for their narrow on-axis directivity; the Firenze-KH7P I breaks this paradigm, eliminating the need for specific mechanical angling.

The Firenze-KH7P I features four coaxial 12" neodymium magnet drivers with 3" voice coils. Each element can be independently controlled and digitally tilted along the vertical axis to match specific listening area requirements, thanks to EBS technology. This technology implements FIR filters for precise control across different frequency bands, enabling accurate beam shaping and emission control.

Thanks to EBS, the entire cluster can be mounted straight, without the need for additional mechanical tilting hardware. This simplifies installation—especially in multi-element arrays—while ensuring more precise sound control.

To further reduce weight and enhance Slim Array Technology, the Firenze-KH7P I is now fully passive and no longer equipped with on-board amplification. However, this does not represent a limitation, as dedicated amplifiers such as the Kommander-KA104LIVE or Kommander-KA208LIVE can be used to manage each individual element (4 amplification channels per module). In systems including subwoofer elements, the Kommander-KA208LIVE can be used as a complete solution.

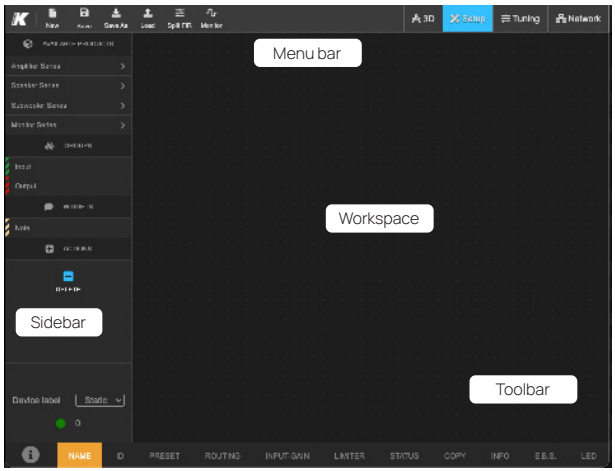
EBS processing requires separately amplifier channels
Ensure the correct amp. assignment and their respective channels.

K-framework3

The Firenze-systems (passive) can be remotely controlled with the dedicated K-framework3 software available for PC and MAC on K-array website.

The K-framework3 is the managing and control software dedicated to professionals and operators looking for a powerful tool for designing and managing a large number of units in demanding applications.

WINDOWS and OSX softwares
K-framework3



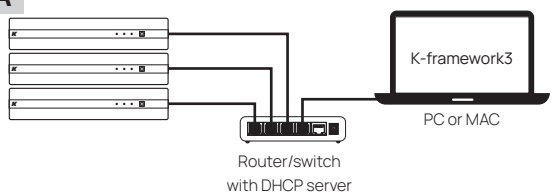
The K-framework3 operates in three modes:

- 3D – Design a loudspeaker system for your venue in a fully 3D environment and make free field acoustic simulations; In this mode, it is also possible to load FIR filters for the EBS function and view the actual simulation of the sound beam orientation based on the target listening area (target frequency response.)
- SETUP – import from the 3D design the active components into the workspace or build from scratch a PA system composed of active loudspeakers and amplifiers; use the input and output groups to allow full control of the system;
- TUNING – Manage and control the loudspeaker system in real time: optimize the performance of the loudspeaker system during the tuning session and control its behavior in live events.

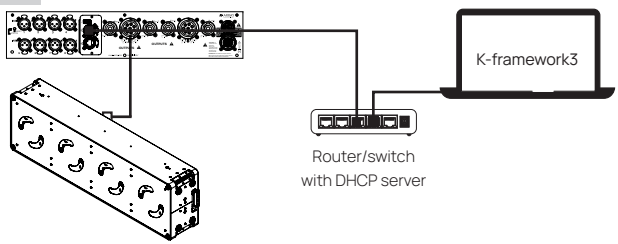
The K-framework3 can work either off-line with virtual devices or on-line with real active loudspeakers and amplifiers connected over the same Ethernet network.

The K-framework3 allows you to start designing the PA system off-line and sync the virtual devices to the real ones on site, when the devices are available. Alternatively you can import from scratch in the workspace the real passive loudspeakers connected to the amplifiers available on the network. In both cases, in order to discover and sync the active devices, both the PC or Mac running the K-framework3 and the real units shall be properly connected to the same Local Area Network – LAN – with star topology in the same subnet.

A



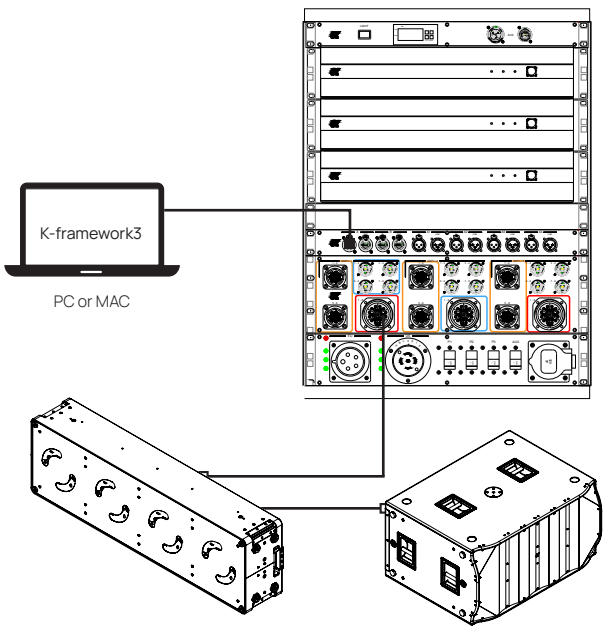
B



The network shall comprise:

- single PC or MAC, running the K-framework3 software with network interface 100Mbps (or higher);
- router with DHCP server 100Mbps (or higher);
- Ethernet switch (usually integrated into the router) 100Mbps (or higher);
- Cat5 (or higher) Ethernet cables.

Since the Firenze system components are passive, they do not include built-in amplifiers, control interfaces, or network ports. To connect, a PC or Mac must be linked directly to the switch and the network ports on either the K-RACK-M-2081 or the Kommander-KA and Kommander-KALIVE amplifiers. The Kommander amplifiers are also available in an 8-channel Plus version with expanded network capabilities*

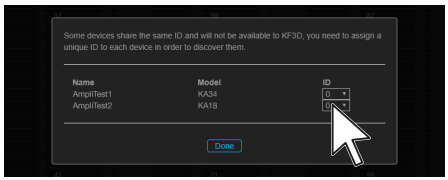


Discovery

1. Ensure that the Kommander-KA units and the PC/Mac running the K-framework3 are properly connected to the same network and belong to the same subnet.
2. Power up the Firenze-KH7P1 units.
3. Launch the K-framework3.



4. Open the Network window and launch the discovery:
   - If the K-framework3 finds two or more devices with the wrong ID, a dialog window appears where unique IDs can be assigned to the units.



5. Once discovered, the real units are shown in the left columns, following the order of their ID number; if the workspace contains virtual devices of the same type you can eventually modify the IDs in order to match the units and allows the synchronization. The synchronization can be in either directions: Workspace-to-Real or Real-to-Workspace. Select the sync direction and synchronize all or the single units separately

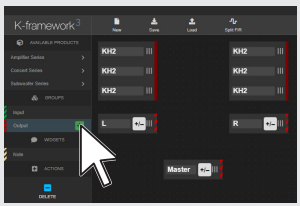
*Please see the Kommander-KA user guide for reference and the k-array.com relative products pages.

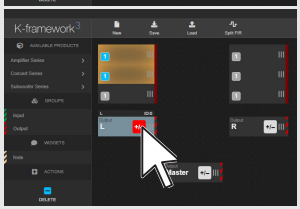
Grouping - quick start

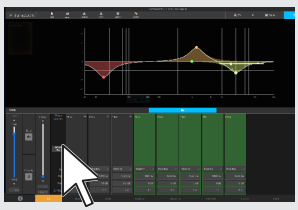
The K-framework3 management involves grouping input and output channels of units in the workspace to adjust system performance. Groups can be created offline or online and persist even when units are unplugged. If a device belongs to a group, it is recreated in the workspace during synchronization. Active loudspeakers or amplifiers can belong to multiple groups, sharing features like EQ filters, time delay, and volume settings.

> ⚠ The K-framework3 synchronization process reset to default the EQ, delay and volume parameters edited with the K-array Control mobile app and the embedded Web app.

A. In Setup mode: set the unit local parameters (presets, routing, input gains, limiters, etc).
B. Add INPUT and OUTPUT groups as needed.
C. Assign the units' channels to the groups. (EBS mode requires previous assignment).
D. Switch to Tuning mode.
E. Align the system using the tools available on the groups (eq, delay, polarity, etc).
F. In Copy mode: edited parameters can be copied to other groups.



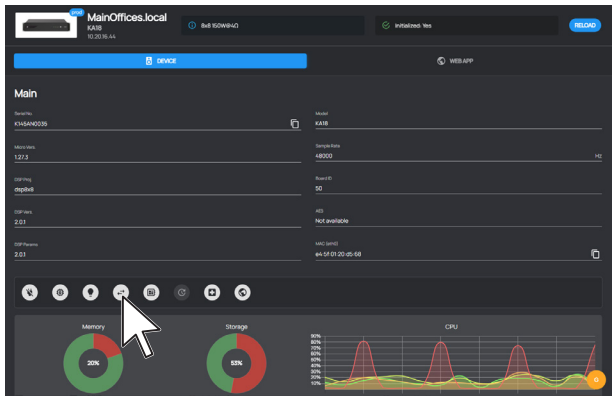




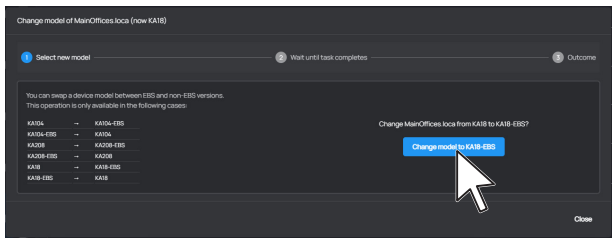
Updating EBS DSP

The Kommander-KA208 amplifier firmware can be updated to EBS using the K-Monitor software version 1.4.4 or higher.

A. Connect the computer running the K-Monitor software to the same network comprising the Kommander-KA208 amplifier.
B. Launch the software and let it discover the amplifier.
C. Click on the amplifier icon in the left sidebar: the main window will show the amplifier parameters.



D. Click on the "double arrow" icon button to start the firmware update.



WINDOWS and OSX software
K-Monitor

click to go

3D simulation

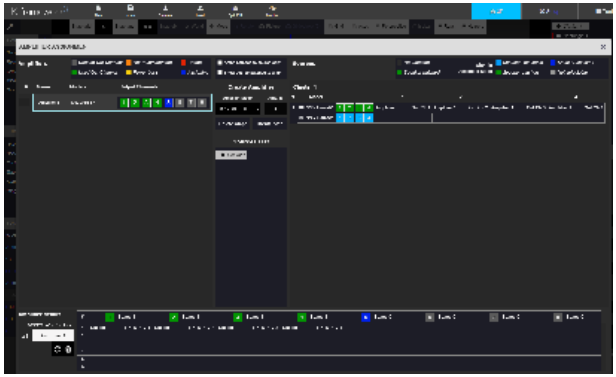
In the 3D simulation mode of K-Framework 3, the software allows systems and speakers to be positioned at specific height and distance coordinates. It calculates sound emission and simulates sound pressure levels based on these coordinates and the listening area's dimensions, enabling accurate configuration and adjustment.

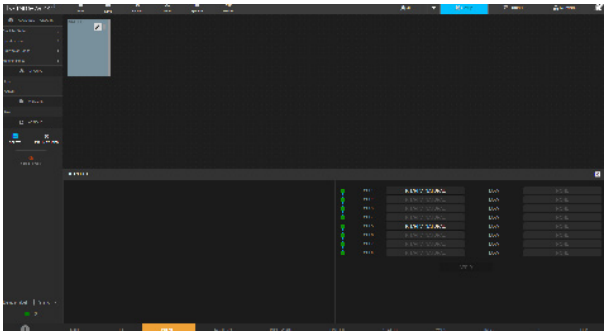
> EBS processing requires separately amplifier channels
> Ensure the correct amp. assignment and their respective channels.

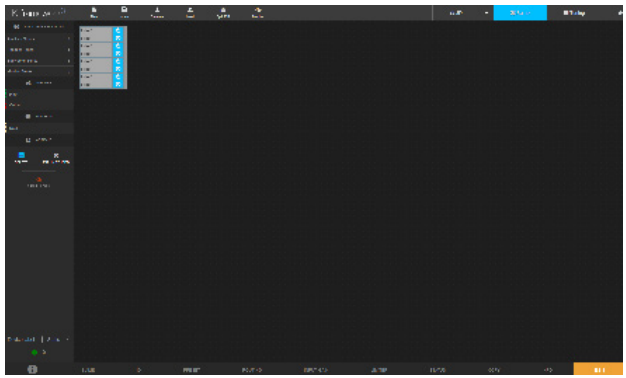
Amp Assignment and EBS function

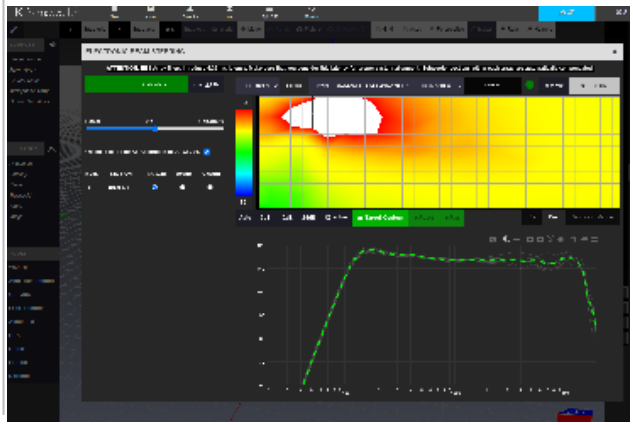
Once the system is selected, use the Amp Assignment function to designate the appropriate amplifier and channels for EBS mode. Verify the correct speaker-to-channel assignment by checking the amplifier's output power. Channels will blink in different colors to indicate their status: optimal, full power, or not recommended. Apply channel speaker presets at this stage as well.

Only after assigning the respective amplifier channels can the EBS function be activated for systems that allow emission modeling. FIR filters are then calculated and applied to the target listening area, shaping the system's frequency response



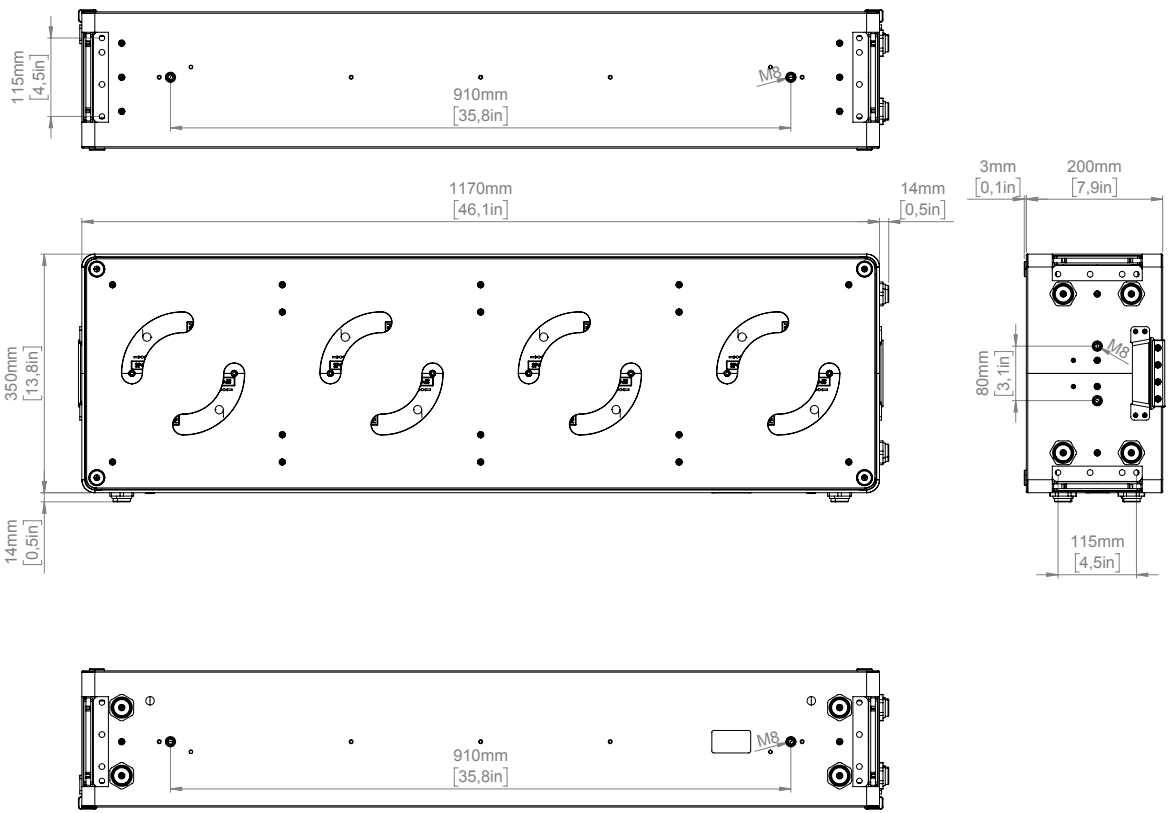




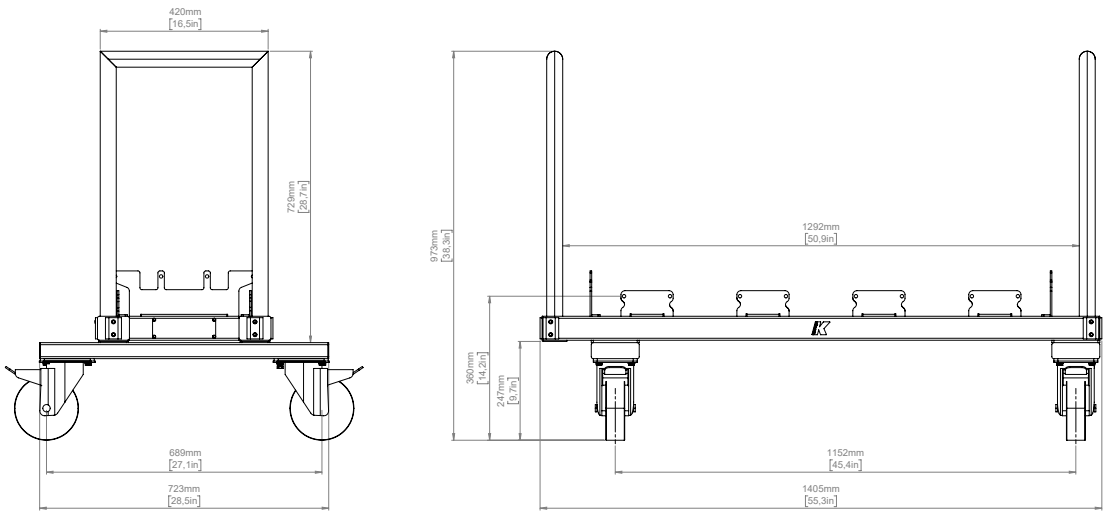


Mechanical Drawings

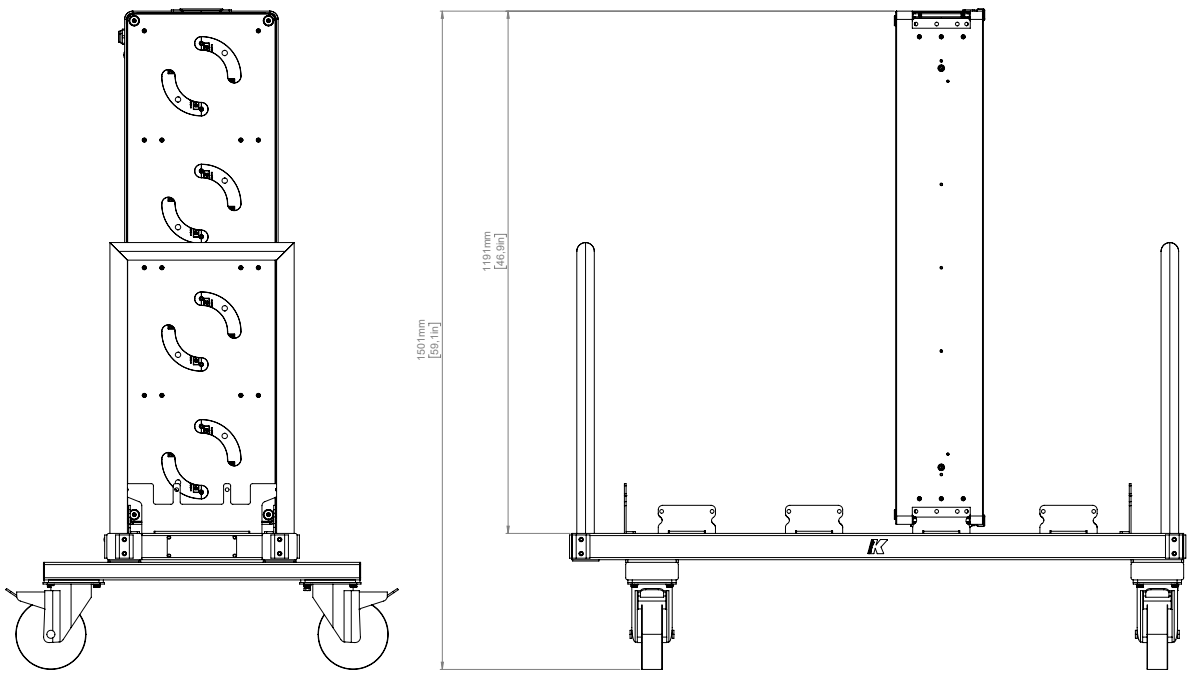
Firenze-KH7P I



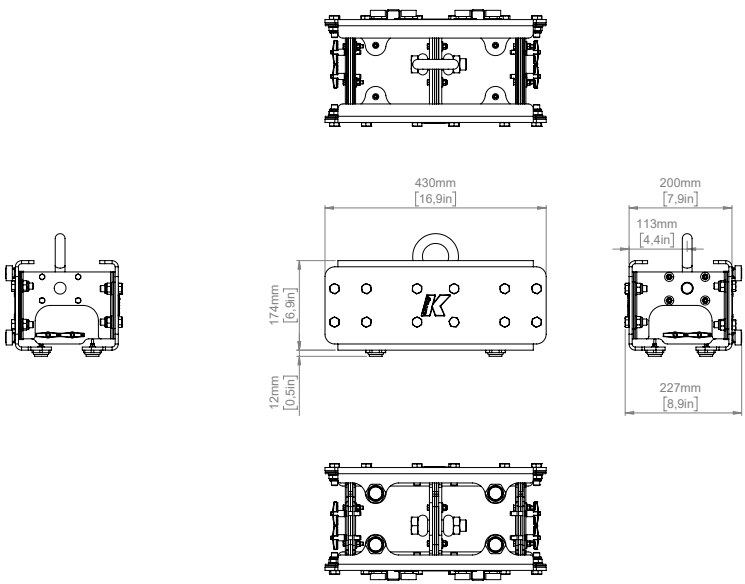
KH7-DOLLY4


420mm
[16,5in]
729mm
[28,7in]
689mm
[27,1in]
723mm
[28,5in]
973mm
[38,3in]
1292mm
[50,9in]
360mm
[14,2in]
247mm
[9,7in]
1152mm
[45,4in]
1405mm
[55,3in]

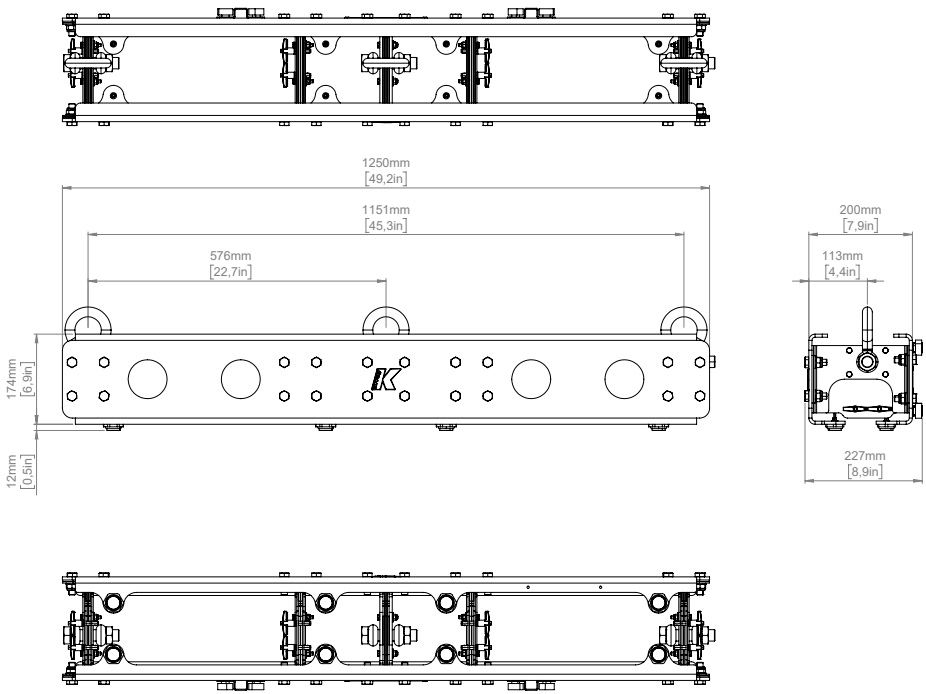
KH7-DOLLY4
Space requirements



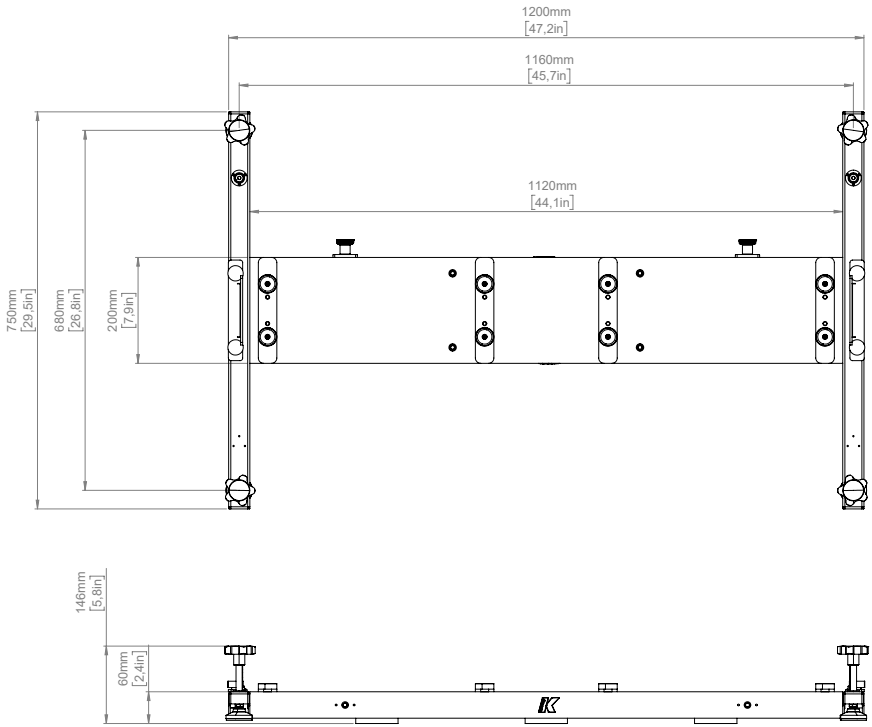
KH7-FLYV


430mm
[16,9in]
200mm
[7,9in]
113mm
[4,4in]
174mm
[6,9in]
12mm
[0,5in]
227mm
[8,9in]

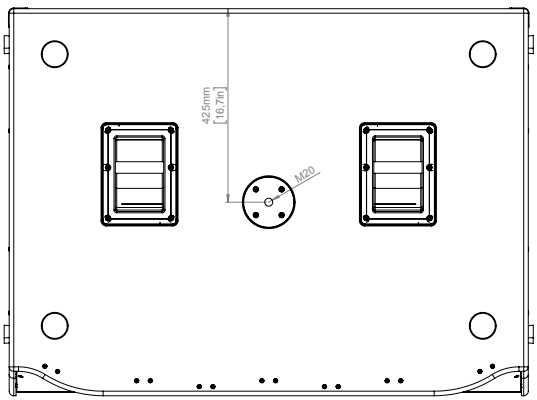
KH7-FLYH

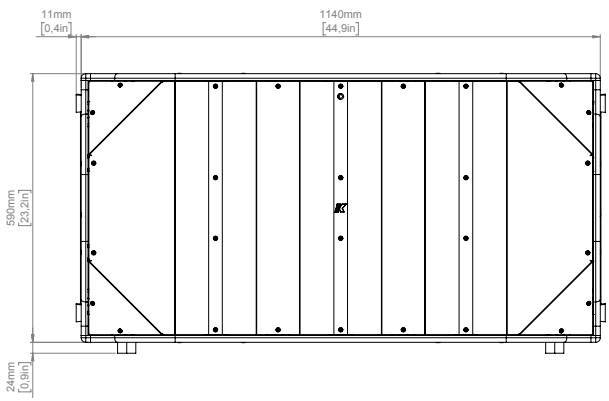

1250mm
[49,2in]
1151mm
[45,3in]
576mm
[22,7in]
174mm
[6,9in]
12mm
[0,5in]
200mm
[7,9in]
113mm
[4,4in]
227mm
[8,9in]

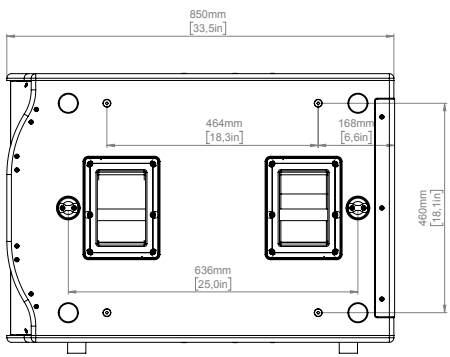
KH7-BASE


1200mm
[47,2in]
1160mm
[45,7in]
1120mm
[44,1in]
750mm
[29,5in]
680mm
[26,8in]
200mm
[7,9in]
146mm
[5,8in]
60mm
[2,4in]

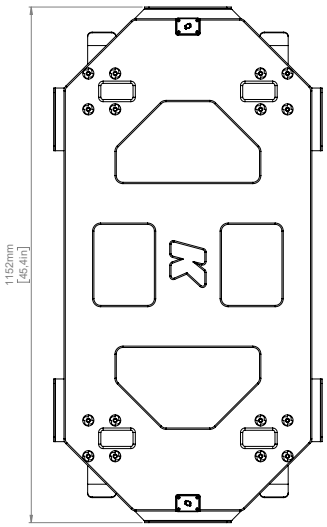
Firenze-KS7P I

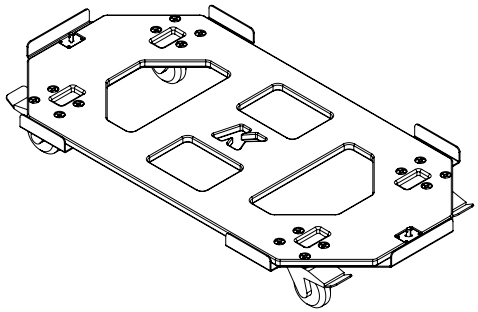


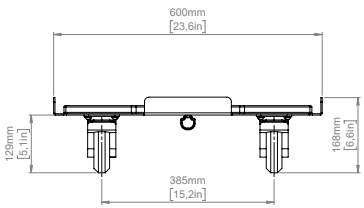


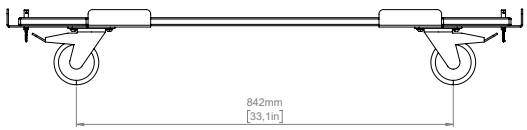


K-SK221

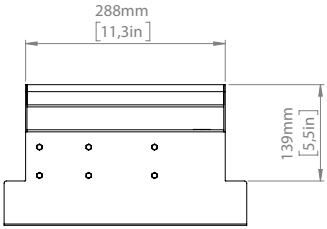

1152mm
[45,4in]

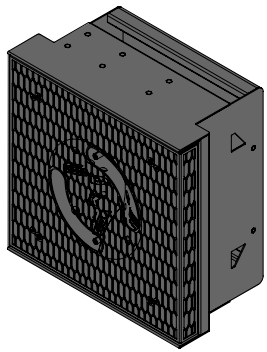


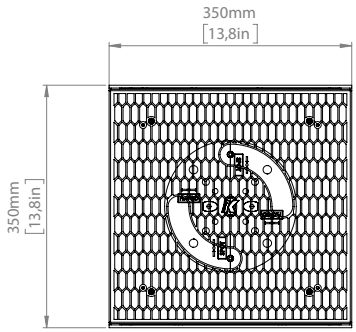

600mm
[23,6in]
129mm
[5,1in]
168mm
[6,6in]
385mm
[15,2in]

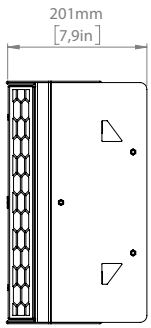

842mm
[33,1in]

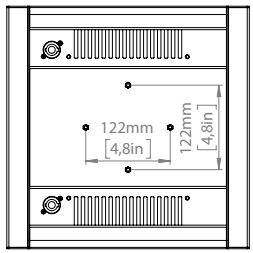
Dragon-KX12F I

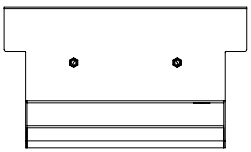




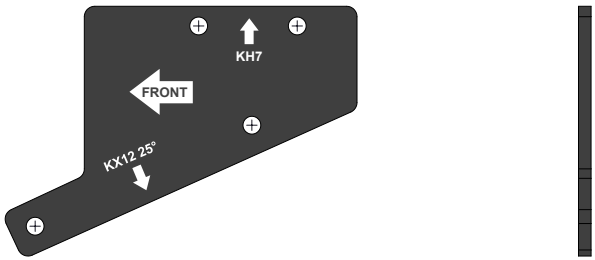






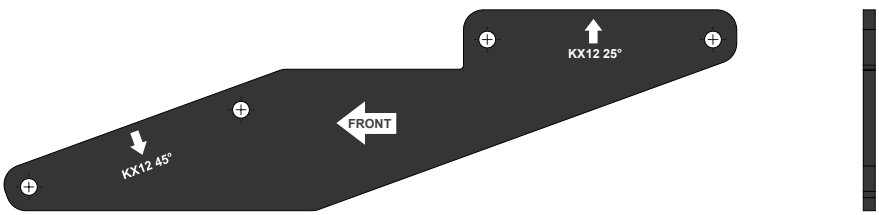


K-STEPKX1225



2x joining plates

K-STEPKX1245



2x joining plates

Technical Specifications

Firenze-KH7P I

Technical specifications	
Type	Passive line array element
Transducers	4x coaxial 12" neodymium magnet drivers with 3" voice coil + compression driver with 2" voice coil
Frequency Response [1]	90 Hz – 18 kHz (-6 dB)
Max SPL [2]	148 dB peak
Rated Power	4x 2500 W
Nominal Impedance	CH1: 8 Ω CH2: 8 Ω CH3: 8 Ω CH4: 8 Ω
Coverage	100° H / 30° V or 30° H / 100° V + digital adjustment with Electronic Beam Steering
Connectors	CA-COM IN - CA-COM LINK
DSP	NO, recommended amplifier with EBS-mode - KA208LIVE

Handling & Finishes	
Material	Stainless Steel
Colors	Black, Custom RAL
IP Rating[3]	IP54
Dimensions (WxHxD)	1170 x 350 x 200 mm (46 x 13.8 x 7.9 in)
Weight	46,4 kg (102,29 lb)

[1] With dedicated preset.
[2] Maximum SPL is calculated using a signal with crest factor 4 (12dB) measured at 8 m then scaled at 1 m.
[3] In case of permament, long lasting outdoor installation, we recommend to further protect the speaker. Contact K-array directly to discuss best protection practices.

Dragon-KX12F I

Technical specifications	
Type	Point source
Transducers	Coaxial 12" woofer + 1.7" compression driver
Frequency Response[1]	121 Hz - 18 kHz (-6dB)
Max SPL [2]	134 dB (peak)
Rated Power	1200 W
Nominal Impedance	8 Ω
Coverage	User sel. V./H. 30°/90° I 90°/30°
Connectors	2x SpeakOn NL4 1+ 1- (signal) ; 2+ 2- (through)

Handling & Finishes	
Material	Steinless Steel
Colors	Black, Custom RAL - Custom Horn
IP Rating[3]	IP54
Dimensions (WxHxD)	350 x 350 x 203 mm (13.8 x 13.8 x 8 in)
Weight	14 kg (33.07 lb)

[1] With dedicated preset.
[2] Maximum SPL is calculated using a signal with crest factor 4 (12dB) measured at 8 m then scaled at 1 m.
[3] In case of permament, long lasting outdoor installation, we recommend to further protect the speaker. Contact K-array directly to discuss best protection practices.

Firenze-KS7P1

Technical specifications	
Type	Passive subwoofer
Transducers	2x 21" Neodymium magnet woofer with 5.31'' voice coil
Frequency Response [1]	25 Hz – 120 Hz (-6 dB)
Max SPL [2]	146 dB peak
Rated Power	2x 5000 W
Nominal Impedance	CH1: 8Ω CH2: 8Ω
Coverage	Omni
Connectors	CA-COM IN - CA-COM LINK
DSP	NO, reccomended amplifier with EBS-mode - KA208LIVE

Handling & Finishes	
Material	Wood
Colors	Black, Custom RAL
IP Rating[3]	IP54
Dimensions (WxHxD)	1162 x 590 x 851 mm (45.7 x 23.2 x 33.5 in)
Weight	104.4 kg (230.16 lb)

[1] With dedicated preset.
[2] Maximum SPL is calculated using a signal with crest factor 4 (12dB) measured at 8 m then scaled at 1 m.
[3] In case of permament, long lasting outdoor installation, we recommend to further protect the speaker. Contact K-array directly to discuss best protection practices.

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