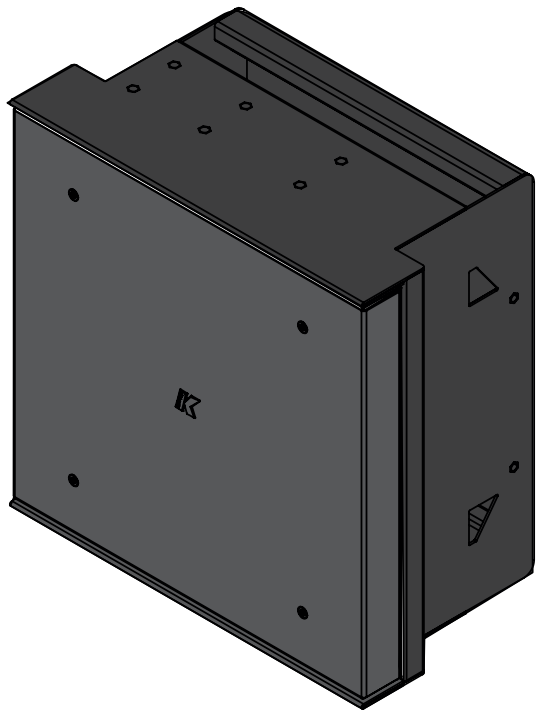
Dragon-KX12I

12" coaxial stainless steel array element

USER GUIDE

V2



K-ARRAY

Unique Audio Solutions

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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.).
- 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.

This apparatus is intended for professional use.

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

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!

Trademark Notice

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Thank you for choosing this K-array products!

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.

If 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.

The KX12 I is the renewed MKI version of K-array's iconic 12" coaxial point-source loudspeaker, redesigned with updated components and improved mechanical efficiency while preserving the acoustic identity of the original model. Its 12" coaxial transducer with a 1.7" compression driver delivers natural, intelligible sound in a compact, IP54-rated stainless-steel enclosure.

As in the previous version, the horn can be physically rotated to adapt the coverage pattern, now complemented by compatibility with K-array's Electronic Beam Steering (EBS) technology for software-based vertical coverage control.

Updated components and design elements have been aligned with the latest Dragon family loudspeakers, creating a cohesive point-source ecosystem suitable for portable PA systems, fixed installations, main reinforcement, front-fill, side-fill applications and monitoring applications. Fully supported by the K-array software suite, including system design and control via K-framework3 acoustic simulation software, the KX12 I offers a flexible and powerful solution for modern audio setups.

Key Features

- **12” Coaxial Point-Source**
  - 12” woofer + 1.7” compression driver in a single coaxial assembly for coherent, natural sound.
- **Rotatable Horn**
  - 40° × 60° directivity, adjustable via physical rotation.
  - EBS Compatible - Software-controlled vertical coverage through **Electronic Beam Steering and K-framework 3**.
- **Array-Ready Design**
  - Vertical clusters with K-JOINTKX12 and K-FLYKX12.
- **Flexible Mounting Options**
  - Wall installation with K-UBRACKETKX12.
- **Portable System Integration**
  - Ideal pairing with K-array subwoofers for compact PA setups.
- **Rugged Construction**
  - Stainless steel cabinet, IP54 protection, black or custom RAL finish.
- **High Output Performance**
  - 133 dB peak SPL with a compact 15 kg enclosure.

Applications*

- Main L R line arrays in live sound reinforcement systems
- Stage monitoring and DJ setups
- Portable PA and touring systems
- Fixed installations in clubs, theaters, or multipurpose venues
- High SPL performance in a compact format.

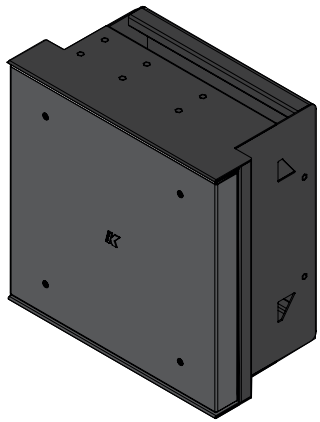
* The configurations and applications described require dedicated accessories, which are sold separately from the loudspeaker.

Unpacking

Package Contents

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.

A. 1x Dragon-KX12 I



Getting Started

Quick Installation & Setup Guide

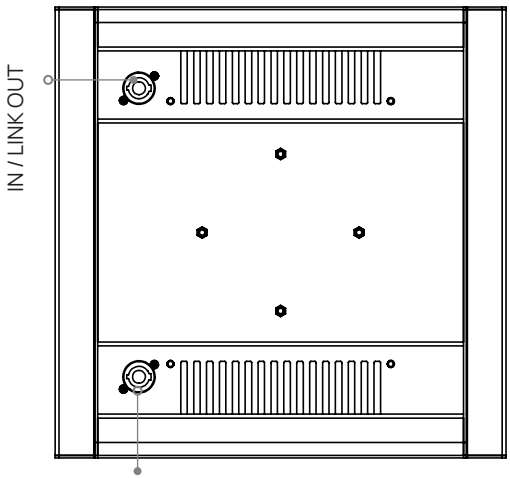
Follow these instructions to properly install and set up the loudspeaker:

- Unpack the KX12 I and any purchased accessories required for your intended configuration.
- Verify that all components are intact and that the mounting surface or structure can safely support the loudspeaker's weight (15 kg).
- **Choose the appropriate installation setup for your application:**
- Standalone or point-source use
  - Pole-mounting using compatible K-array pole adapters for portable reinforcement.
  - Deployment on stands or tripods where supported by the accessories in use.
- With subwoofers (portable or live systems)
  - Combine the KX12 I with K-array subwoofers to build compact, high-output full-range systems suitable for live events, DJ monitoring, or portable PA setups.
- Front-fill, side-fill, or stage-fill configurations
  - Use the KX12 I as a supplementary coverage element in larger systems, positioned according to the venue layout.
- Vertical array or clustered configurations
  - Build multi-unit vertical arrays using K-JOINTKX12 joining hardware.
  - Fly the cluster using K-FLYKX12 where appropriate.
  - Ensure rigging safety, load capacity, and compliance with local regulations.
- Fixed installations – wall mounting*
  - Install the loudspeaker on walls using the K-UBRACKETKX12.
  - Verify that the wall structure can support the load and meets safety requirements before securing the loudspeaker.
- Connect the loudspeaker to the amplifier using a SpeakON NL4 cable wired as follows:
  - 1+ / 1–: signal input
  - 2+ / 2–: signal through (for paralled additional units)
- Verify the system impedance relative to the amplifier's capabilities - KX12 I nominal impedance: 8 Ω.
  - In multi-unit setups or arrays, ensure the total load does not drop below the amplifier's minimum impedance.
- Power on the system and verify that the amplifier and signal chain are functioning.
- Confirm correct routing, polarity, and that all connected loudspeakers receive input signal.
- Load the dedicated KX12 I preset on your K-array amplifier or DSP.
  - This ensures proper voicing, phase alignment, and system protection.
- For coverage adjustments and array control, use the K-array electronic tools:
- K-framework3 for array configuration, acoustic simulation, and monitoring and Electronic Beam Steering (EBS) for vertical coverage management.
- Complete the setup with system alignment and tuning, adjusting EQ, delay, and coverage parameters to match the venue acoustics and the specific needs of the installation.

* Fixed installation – wall mounting using the K-UBRACKETKX12 accessory will be described in a future revision of this manual, including mounting procedure and technical details..

Rear Panel

Each Dragon-KX12 I is equipped with 2x SpeakON NL4 connector - **IN and PARALLEL OUT / LINK** - for signal input and signal distribution trough other speakers in parallel.



Speaker Wiring Overview

Speaker Components

- 12” Woofer – Low and mid frequencies
- 1.7” Compression Driver – High frequencies
- Coaxial design for a coherent point-source emission
- Input Connectors
- 2 × SpeakON NL4 (4-pin connectors)

Pin Assignments

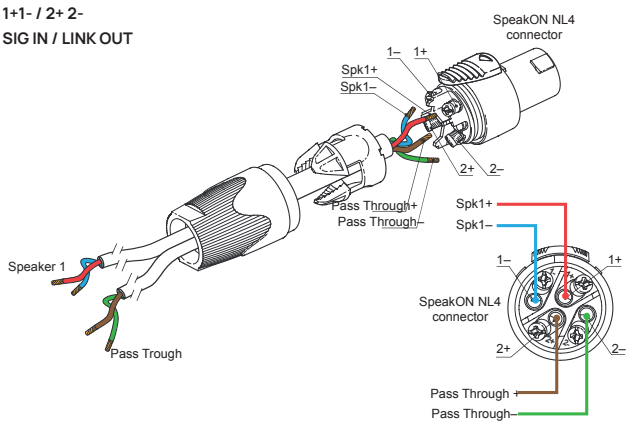
- Pins 1+ / 1–: Full-range signal input
- (feeds the internal passive crossover that distributes low/mid and high frequencies to the respective coaxial components)
- Pins 2+ / 2–: Signal through
- (parallel pass-through to the second SpeakON connector for LINK/Parallel connection)

Amplification

- The KX12 I operates on a single amplifier channel.
- The internal passive crossover divides the incoming full-range signal between the 12” woofer and the 1.7” compression driver, ensuring proper frequency distribution and protection for both components.

KX12 I	2x NL4 speakON	Polarity - NL4 speakON		Amp Channels
HIGH / MID	IN	SIG		CH1
		1+	1-	
		LINK OUT / pass through		
		2+	2-	
HIGH / MID	LINK	SIG		CH1
		1+	1-	
		LINK OUT / pass through		
		2+	2-	

1+1- / 2+ 2-
SIG IN / LINK OUT



Impedance and Connections

- Nominal impedance KX12 I : 8 Ω
  - Internal crossover: splits the signal between woofer and driver
  - Standard connection: single amplifier channel required
- Multiple speakers in parallel:
  - Total impedance decreases as more loudspeakers are added
  - Ensure the amplifier can handle the resulting load safely
  - Amplifier selection: refer to the Amplifier Matching Table on the K-array website.

Always check the loudspeaker impedance before connecting the amplifier.

Before driving the loudspeakers ensure to load the proper loudspeaker factory preset on Kommander-KA amplifier

Amplifier Channel Matching

The KX12 I features an internal passive crossover that distributes the audio signal to the different transducers (woofer and compression driver).
Thanks to this circuit, the loudspeaker presents a single nominal impedance of 8 Ω, seen by the amplifier as one load.
Only one amplifier channel is required for proper operation.

When connecting multiple loudspeakers in parallel, the total system impedance decreases as more units are added.
Always ensure that the amplifier can safely drive the resulting load according to its specifications.

For proper amplifier selection based on the loudspeaker model, please refer to the Amplifier Matching Table available on the K-array website.

Before connecting the loudspeaker cable to the amplifier:

- ensure the loudspeaker impedance matches the amplifier channel rated load impedance, especially when connecting multiple loudspeakers in parallel;
- load the dedicated loudspeaker factory preset on the amplifier DSP.

System Configurations

Line array applications

Straight Line-Array Setup with Electronic Beam Steering (EBS)

The KX12 I excels when deployed as a straight line-array module, where all the loudspeakers are mounted in a perfectly vertical configuration. In this setup, the system takes full advantage of EBS (Electronic Beam Steering), which electronically shapes the vertical coverage without the need for mechanical angling between cabinets.

- Why EBS Matters?
- Precise Vertical Coverage
  - EBS allows to steer the acoustic beam up or down, ensuring that the sound is directed exactly where the audience is.

- No Mechanical Splay Needed
  - The column hangs straight, the steering and coverage control are fully electronic.
- Uniform SPL Distribution
  - Beam-shaping algorithms improve clarity, intelligibility, and reduce unwanted reflections on ceilings and walls.
- Flexible Tuning for Different Venues
  - Adjust coverage for short-, mid-, or long-throw applications directly from the amplifier/processor.

Ideal Use Cases
- Theatres and auditoriums
- Houses of worship
- Corporate venues and conference halls
- Transit hubs and long rectangular spaces

Electronic Beam Steering (EBS) with K-Framework3

Through K-Framework 3, the system engineer can quickly set the desired vertical aiming and coverage shape using a simplified workflow:

WINDOWS and OSX softwares
K-framework3

- **3D Simulation and System Layout**

The loudspeakers are arranged virtually as a straight array, matching the real installation.

Beam Steering Setup

In the EBS section, the operator selects the target coverage area and applies the appropriate vertical steering and beamwidth parameters.

Real-Time Prediction

K-Framework 3 provides an instant simulation of the expected SPL distribution, allowing the user to confirm uniformity and avoid unwanted reflections.

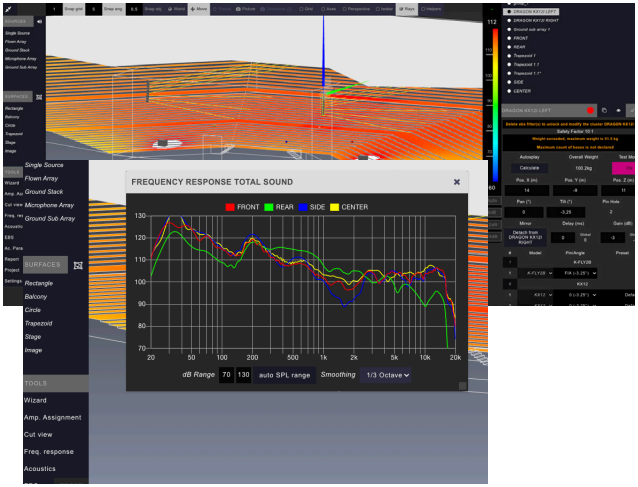
Amp Assignment and EBS Control

Once the configuration is validated, the EBS settings are managed through the Amp Assignment section in K-Framework 3. Here, the user can view and assign the amplifier channels required for the dedicated EBS processing.

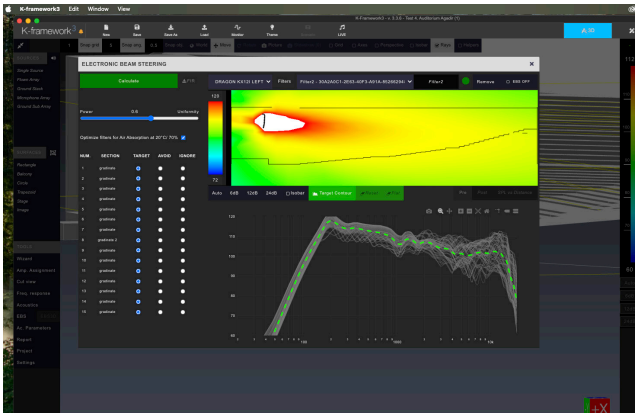
To control each element independently, every loudspeaker must be assigned to a separate amplifier channel.

This streamlined process ensures precise, repeatable coverage control without needing mechanical splay angles, delivering consistent results across different venues.

Dragon-KX12I flown array in a acoustic simulation in K-framework3 NO EBS

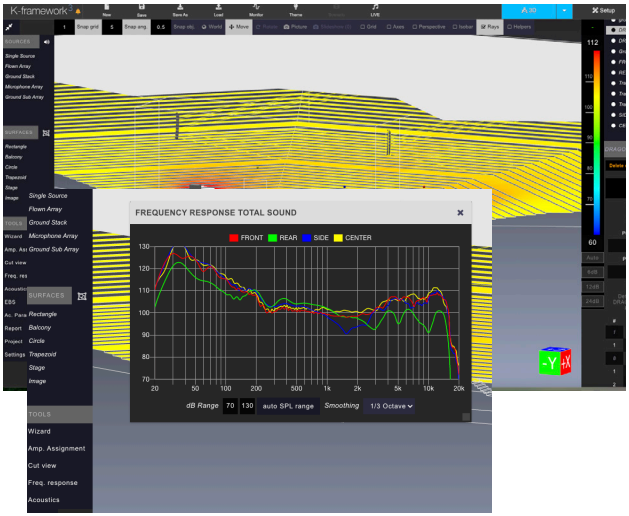


Frequency Response of KX12I flwown array without EBS



Target function and frequency Response in EBS mode OFF

Target function and frequency Response in EBS mode ON



Dragon-KX12I flown array in a acoustic simulation in K-framework3 with EBS ON

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.

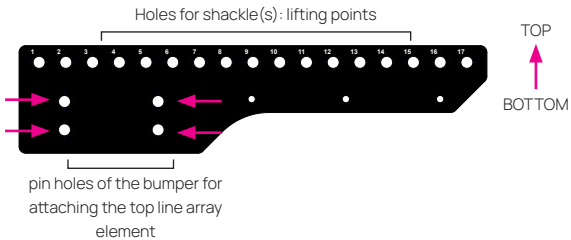
K-array loudspeaker and hardware are intended for suspension from approved rigging points only.
Ensure that the total weight of the loudspeakers and additional hardware assembly in use is lower than the Working Load Limit (WLL) of the suspension points.

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

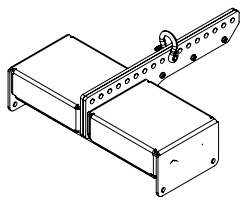
It is the user's responsibility to ensure that the use and suspension of heavy loudspeaker systems conform to all applicable laws and regulations in force at the time and location.

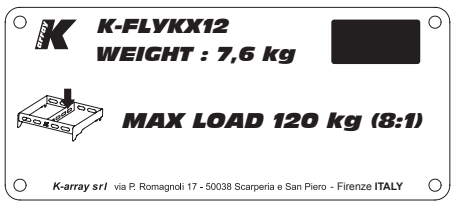
Rigging Procedure: Splay Line Array

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



Single shackle lifting point

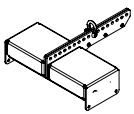
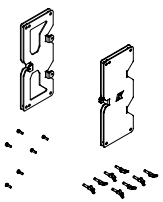
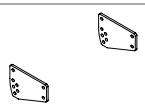
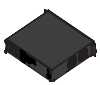




Never exceed the maximum weight limit according to the load configuration.

Safety factor depends on the system configuration
The system safety factor changes according to the configuration in use

Sraight line-array configurations

Bill of material		
1x K-FLYKX12		Fly bar for flown array configuration - straight flown array - with autoblocks pins and cmpatible with omega schackles
up to 2x n K-JOINTKX12		Linking kit with 2x lateral metal plates + 6x M5 Torx + 8x Self-locking pins
up to 2x n Linking plates		Linking plates with angles adjustement points
n SpeakON NL4		SpeakON NL4 connectors for wiring and power the speakers in cluster configuration
n KA208LIVE amp*		Raccomended amplifier with NL4 connections in EBS mode

Information about Kommander-KA208LIVE amplifier in the Kommander-KA User Guide at www.k-array.com

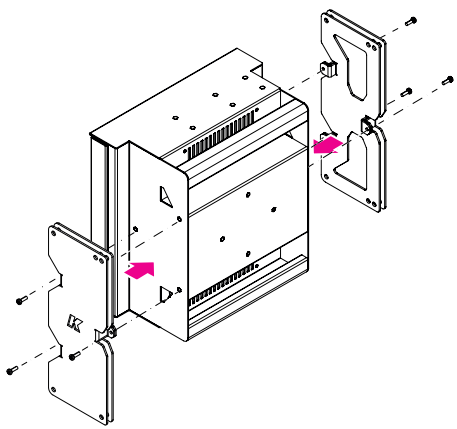
The assembly of a multi-element line array follows a module-by-module workflow designed to ensure safe handling and correct mechanical coupling between units.
The process typically includes the following principles:

1. Prepare All Rigging Components
   - Ensure that all connection hardware, linking plates, flybars, and locking pins are available and inspected before starting the installation.
2. Attach the Required Rigging Interfaces
   - Each loudspeaker must be fitted with the appropriate rigging accessories supplied for that specific model.
   - These elements form the structural connection points used later during array assembly.
3. Build the Array One Module at a Time
   - The first module is positioned on a stable surface and lifted only as needed to connect the following unit.
   - Each subsequent module is added by aligning and securing its rigging points to the module below (or above), following the manufacturer's instructions.
   - Check Mechanical Engagement at Each Step
   - After connecting every module, verify that all locking mechanisms are properly seated and secured.
4. Suspend the Complete Array
   - Once all modules are assembled and locked, the entire structure can be lifted and suspended using the designated flying hardware.
   - The system must remain within the certified load limits, and the final configuration must be checked for stability before releasing any lifting equipment.

Follow the steps below to assemble the KX12 I array safely and correctly:

- Attach the Side Plates

1. Install the two rigging side plates on the loudspeaker cabinet using 6 × M5 screws (3 per side).
2. Ensure that all screws are fully tightened and the plates are properly aligned before proceeding.

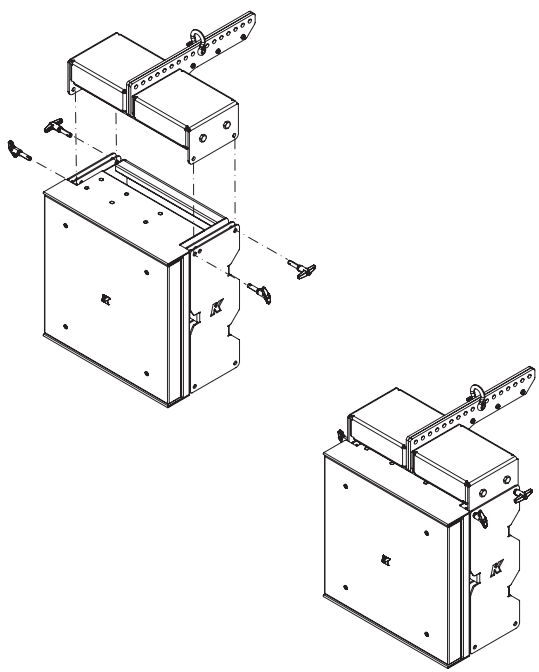


- Connect the Flybar

3. Position the flybar above the cabinet and align its connection points with the attachment holes on the side plates.
4. Insert the self-locking pins through the rigging holes to secure the flybar firmly in place.

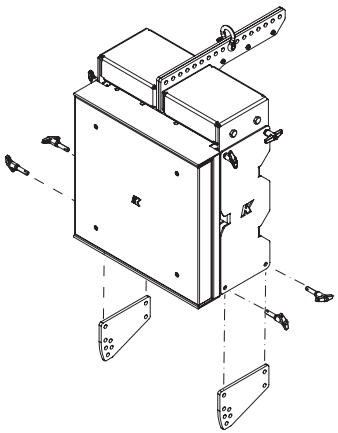
- Lift the First Module

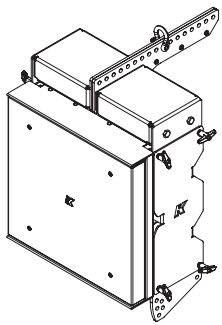
5. Raise the first loudspeaker module only as much as needed to allow access to the rigging points for the next cabinet.
6. Keep the module stable and under control during this stage.

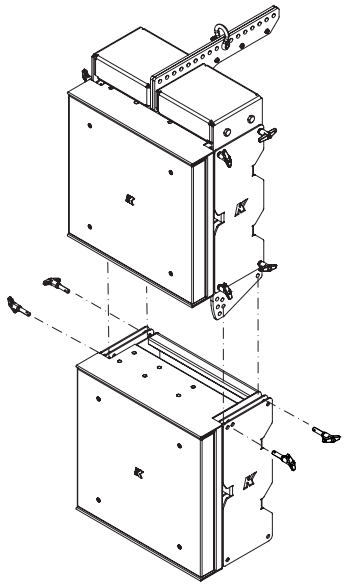


- Add the Following Modules

7. One module at a time, align the rigging points of the next cabinet with those of the module already lifted.
8. Insert the connecting link plates between the two modules, fixing them to the 0° inclination point for straight array configurations.
9. Secure the connection using the self-locking pins.
10. Repeat this procedure for each additional module in the array.



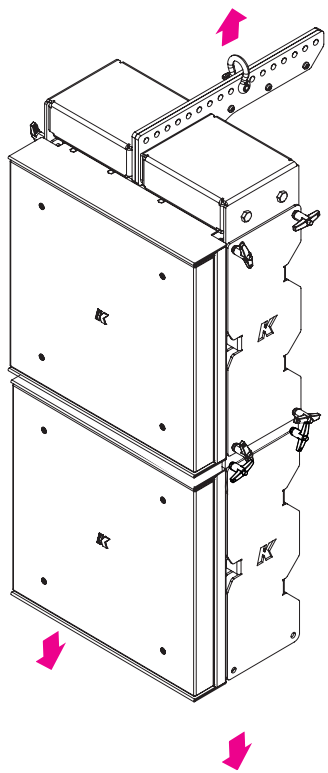




- Final Suspension

Once all modules are connected, lift the complete array using the flybar.
Ensure that:

11. all pins are correctly seated
12. side plates and structural parts show no deformation
13. the total load is within the maximum certified capacity
14. the array is stable before removing any lifting equipment.



- Wiring the Array Before Suspension

Before lifting and suspending the array, it is essential to complete all wiring operations.

1. Each module must be correctly cabled according to the system configuration, ensuring secure connections and proper signal routing.
2. When using Electronic Beam Steering (EBS) control, each loudspeaker requires its own amplifier channel.
3. For example, in an 8-element array, a suitable solution is the Kommander-KA208LIVE, equipped with SpeakON connectors and providing:

- 8 × 2500 W @ 4 Ω
- Minimum load: 4 Ω per channel

4. Ensure all cables are correctly seated, strain-relieved, and routed to avoid interference with the rigging components prior to the final lift.

Standalone - Point source configuration

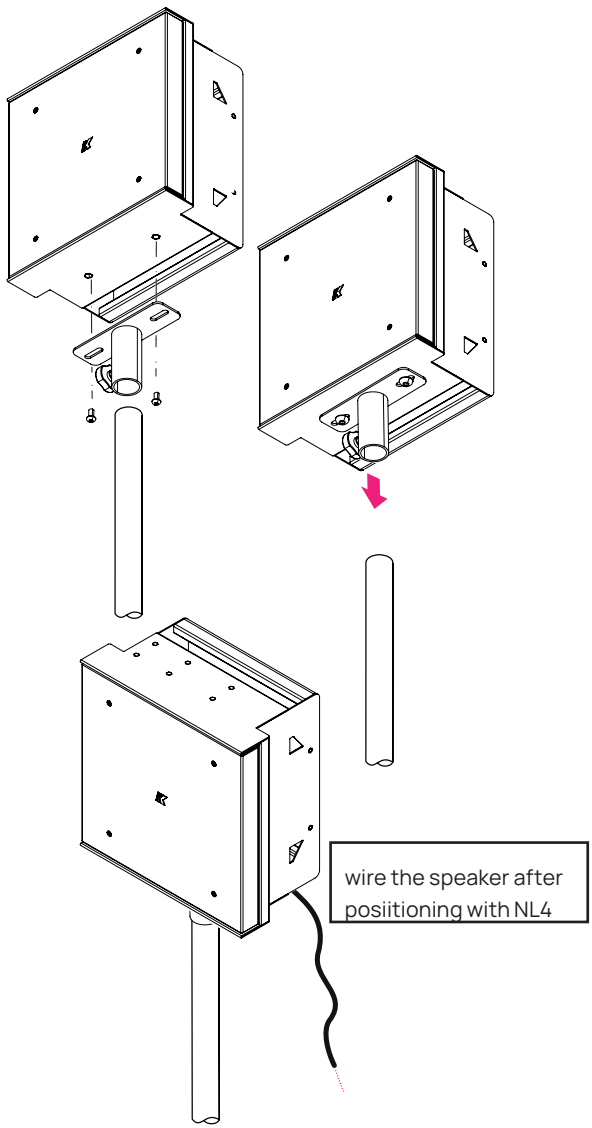
Pole-standing with dedicated pole-stand adapter

The KX12 I can also be installed on a loudspeaker pole when used with the dedicated pole-stand adapter.
This accessory provides a stable and secure interface between the cabinet and a standard loudspeaker pole, ensuring correct tilt and weight distribution.

When mounting the loudspeaker on a pole:

- Verify that the pole-stand adapter is firmly attached to the cabinet using all required mounting points.
- Ensure the pole or tripod is certified to support the total load, including the loudspeaker and any accessories.
- Position the system on a flat, stable surface and check that the locking mechanism is fully engaged.
- Avoid extending the pole beyond its recommended height to maintain stability and prevent tipping.

This configuration is intended for temporary setups and should not be used in high-risk environments, strong wind conditions, or where accidental impact may occur.



Service

To obtain service:

1. Please have the serial number(s) of the unit(s) available for reference.
2. Contact the official K-array distributor in your country: find the Distributors and Dealers list on K-array website. Please describe the problem clearly and completely to the Customer Service.
3. You will be contacted back for on line servicing.
4. If the problem cannot be resolved over the phone, you may be required to send the unit in for service. In this instance, you will be provided with an RA (Return Authorization) number which should be included on all shipping documents and correspondence regarding the repair. Shipping charges are the responsibility of the purchaser.

Any attempt to modify or replace components of the device will invalidate your warranty. Service must be performed by an authorized K-array service center.

Cleaning

Use only a soft, dry cloth to clean the housing. Do not use any solvents, chemicals, or cleaning solutions containing alcohol, ammonia, or abrasives. Do not use any sprays near the product or allow liquids to spill into any openings.

Technical Specifications

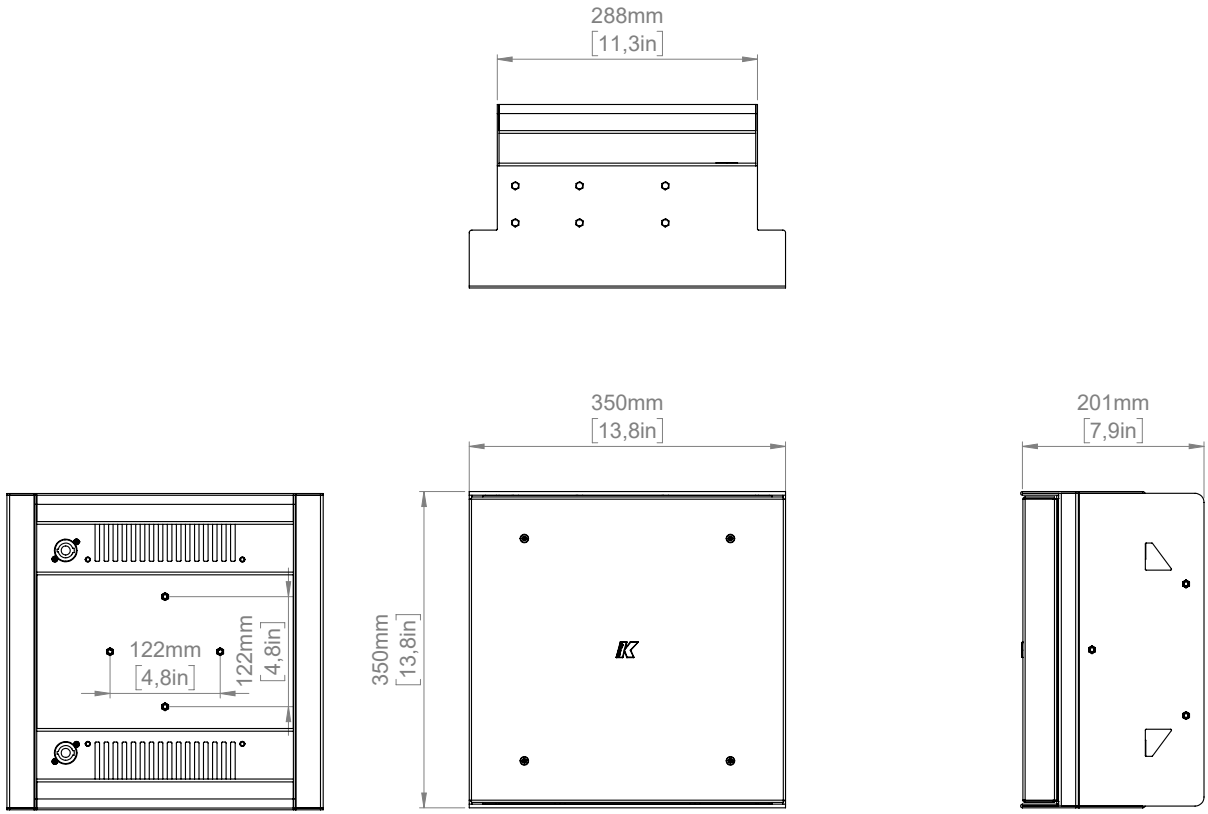
Technical specifications	
Type	Point source
Transducers	Coaxial 12" woofer + 1.7" compression driver
Frequency Response[1]	120 Hz - 18 kHz (-6dB)
Max SPL[2]	133 dB (peak)
Rated Power	800 W
Nominal Impedance	8 Ω
Coverage	V. 40° - H. 60° (Rotatable w/ screws)
Connectors	2x SpeakOn NL4 1+ 1- (signal); 2+ 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	15 kg (33.07 lb)

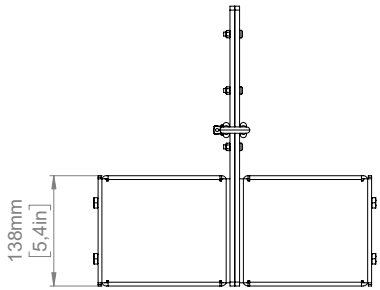
[1] With dedicated preset.
[2] Maximum SPL is calculated using a signal with crest factor 4 (12dB) measured at 8 m then scaled at 1 m.
[3] In case of permament, long lasting outdoor installation, we recommend to further protect the speaker. Contact K-array directly to discuss best protection practices.

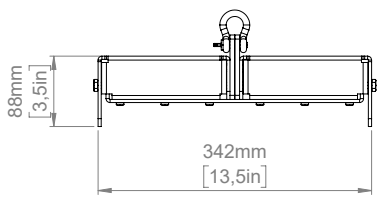
Mechanical Drawings

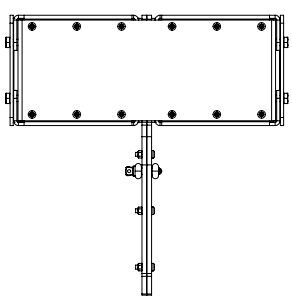
Dragon-KX12I

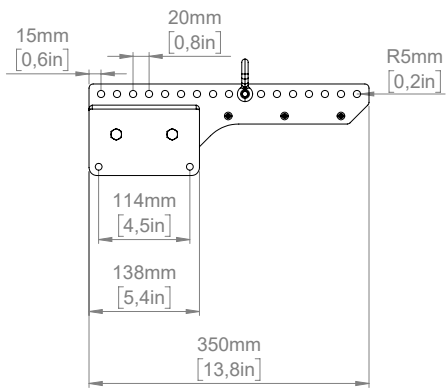


K-FLYKX12

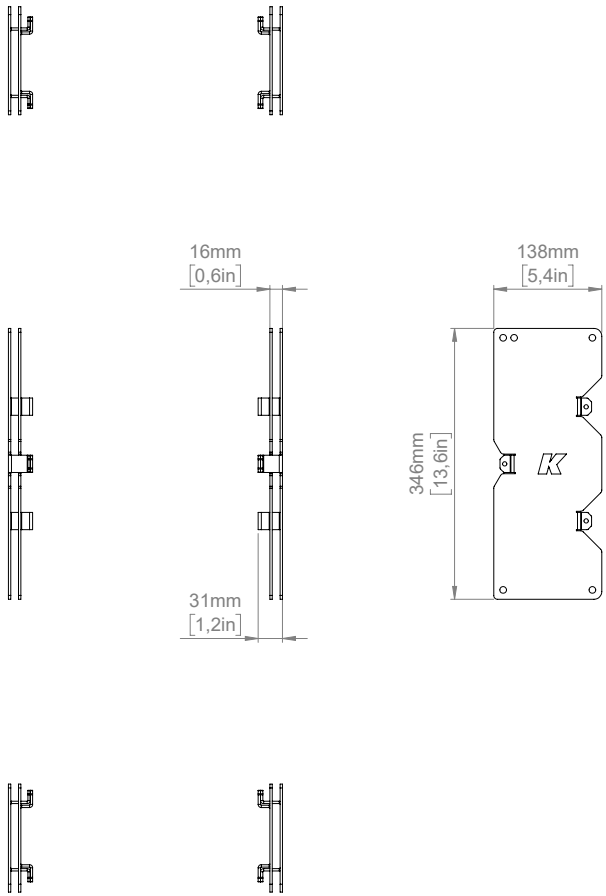

138mm
[5,4in]


88mm
[3,5in]
342mm
[13,5in]

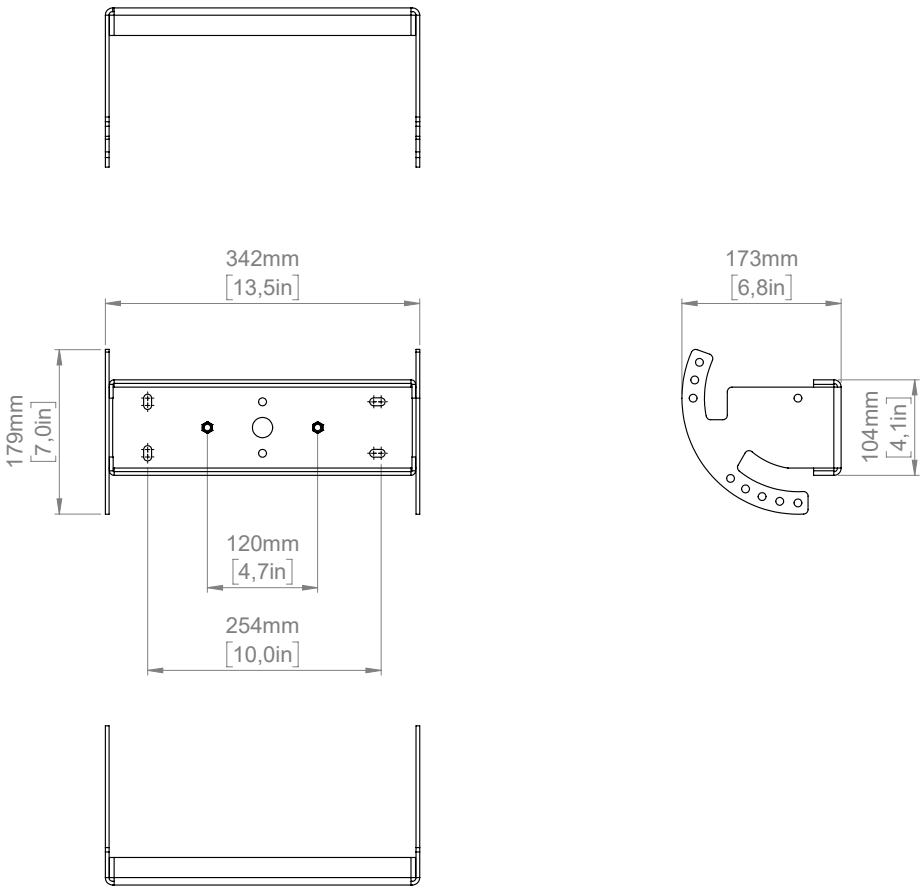



15mm
[0,6in]
20mm
[0,8in]
R5mm
[0,2in]
114mm
[4,5in]
138mm
[5,4in]
350mm
[13,8in]

K-JOINTKX12



K-UBRACKETKX12



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