Event

All-white audio solutions
for sophisticated setups

K-ARRAY
Unique Audio Solutions

Index

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions - Keep these instructions
Heed all warnings

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

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

⚡ Switch-off the mains power supply before carrying out any connection or maintenance operations.

⚠ This fixture is intended for installation in accordance with National Electric Code and local regulation: To assure full compliance with local codes and regulations, check with your local electrical inspector before installation

Symbols

CE 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!

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 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.

RoHS This device complies with Restriction of Hazardous Substances Directive.

General heed and warnings

- Read these instructions.
- Keep this 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.
- Only use attachments/accessories specified by the manufacturer.
- 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.
- This loudspeaker system is intended for professional use.
- Beware of sound levels. Do not stay within close proximity of loudspeakers in operation. Loudspeaker systems are capable of producing very high sound pressure levels (SPL) which can instantaneously lead to permanent hearing damage. Hearing damage can also occur at moderate level with prolonged exposure to sound. Check the applicable laws and regulations relating to maximum sound levels and exposure times.
- Before connecting the loudspeakers to other devices, turn off the power for all devices.
- 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 devices.
- 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.
- K-array will not shoulder any responsibilities for products modified without prior authorization.
- K-array cannot be held responsible for damage caused by improper use of the loudspeakers.
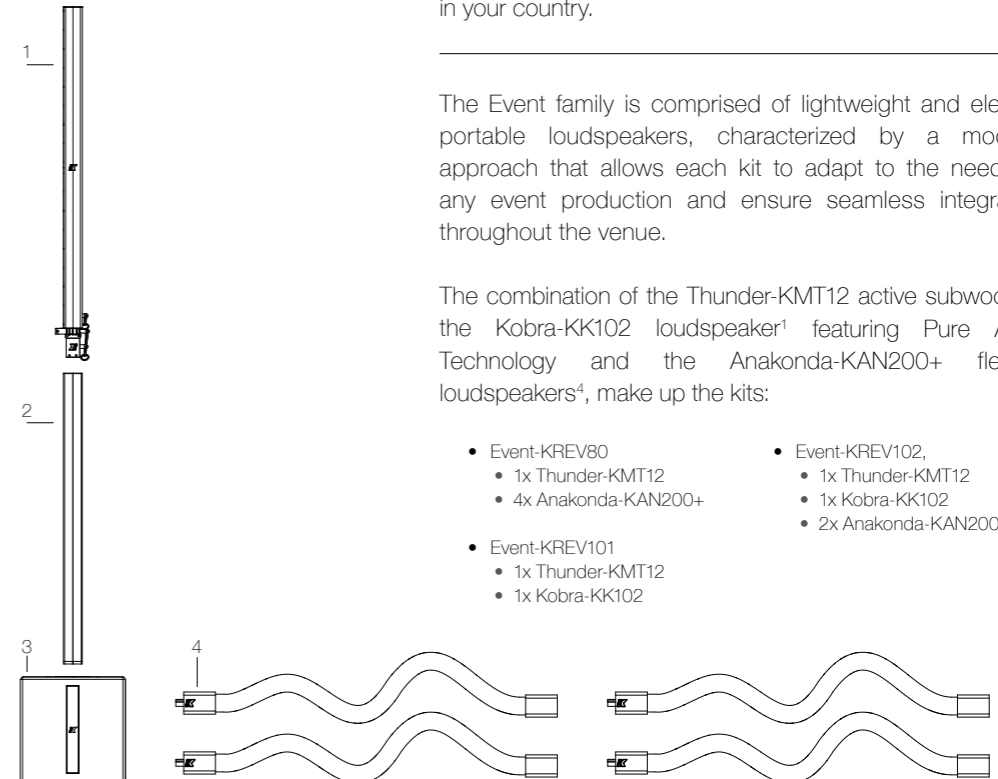
Thank you for choosing this K-array product!

To ensure proper operation, please carefully read this reference manual and safety instructions before using the product. After reading this manual, 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.

The Event family is comprised of lightweight and elegant portable loudspeakers, characterized by a modular approach that allows each kit to adapt to the needs of any event production and ensure seamless integration throughout the venue.

The combination of the Thunder-KMT12 active subwoofer[3], the Kobra-KK102 loudspeaker[1] featuring Pure Array Technology and the Anakonda-KAN200+ flexible loudspeakers[4], make up the kits:

- Event-KREV80
  - 1x Thunder-KMT12
  - 4x Anakonda-KAN200+
- Event-KREV101
  - 1x Thunder-KMT12
  - 1x Kobra-KK102
- Event-KREV102,
  - 1x Thunder-KMT12
  - 1x Kobra-KK102
  - 2x Anakonda-KAN200+

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. If you find any damage, immediately notify the shipping company. Check that the following parts are supplied within the package:
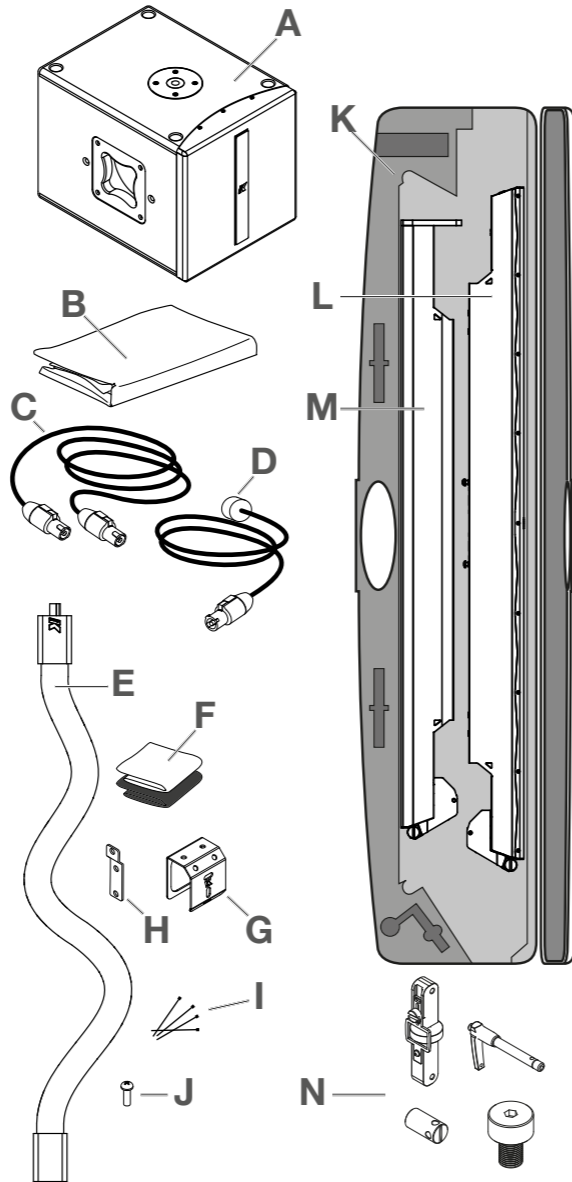
Thunder-KMT12 Package Contents
A. 1x Thunder-KMT12 active subwoofer with DSP
B. 1x loudspeaker cover
C. 1x speaker cable with speakON connectors
D. 1x power cord with powerCON connector

Anakonda-KAN200+ Package Contents
E. 1x Anakonda-KAN200+ flexible loudspeaker
F. 2x nylon socks: white and black
G. 2x wall-mounting brackets
H. 4x M5x10 screws
I. 4x ground-mounting brackets
J. 4x zip ties

Kobra-KK102 Package Contents
K. 1x suitcase for column loudspeakers
L. 1x Kobra-KK102 column loudspeaker
M. 1x Kobra-shaped pole
N. Mechanical accessories:
   • tilting pin bar
   • pin
   • barrel nut
   • rugged bolt

Quick Start Guide

Event-KREV101 - Event-KREV102

Follow these instructions to properly set up the system:
1. Extract the speaker cable with speakON connectors and the power cord with powerCON connector from the pocket of the Thunder-KMT12 cover and set aside for later use.
2. Remove the cover from the Thunder-KMT12 active subwoofer.
3. Extract the pole and the rugged bolt from the suitcase;
4. Connect the pole to the Thunder-KMT12 active subwoofer using the rugged bolt (see Mechanical Setup, Step A, pg. 6).
5. Extract the Kobra-KK102 column loudspeaker and the other mechanical accessories from the suitcase;
6. Connect the Kobra-KK102 column loudspeaker to the pole (see Mechanical Setup, Steps B-E, pg. 6-7).
7. Take the speaker cable with speakON connectors and set the connection between the Thunder-KMT12 active subwoofer and the Kobra-KK102 column loudspeaker (see Connecting the Components, pg. 9).
8. Take the power cord with powerCON connector and plug the Thunder-KMT12 active subwoofer to the power grid (see AC Mains Power Supply, pg. 10).
9. Switch on the Thunder-KMT12 active subwoofer.
10. On the rear touchscreen display, press the PRESET icon (see System Configuration, PRESETS, pg. 13).
11. Select the proper Device Preset according to the hardware configuration (either KK102 or KAN200+), then press LOAD.
12. Now that the Event kit is ready to play, plug it to any other devices in your sound system.
13. Fine tune the Event kit taking advantage of the built-in DSP features (see System Configuration, pg. 11).

Event-KREV80 - Event-KREV102

Follow these instructions to properly set up the system:
1. Extract the speaker cable with speakON connectors and the power cord with powerCON connector from the pocket of the Thunder-KMT12 cover and set them aside for later use.
2. Remove the cover from the Thunder-KMT12 active subwoofer.
3. Connect the Anakonda-KAN200+ flexible loudspeakers to each other (see Connecting the Components, pg. 9).
4. Take the speaker cable with speakON connectors and set the connection between the Thunder-KMT12 active subwoofer and the first Anakonda-KAN200+ flexible loudspeaker (see Connecting the Components, pg. 9).
5. Take the power cord with powerCON connector and plug the Thunder-KMT12 active subwoofer to the power grid (see AC Mains Power Supply, pg. 10).
6. Switch on the Thunder-KMT12 active subwoofer.
7. On the rear touchscreen display, press the PRESET icon (see System Configuration PRESETS, pg. 13).
8. Select the proper Device Preset according to the hardware configuration (either KK102 or KAN200+), then press LOAD.
9. Now that the Event kit is ready to play, plug it to any other devices in your sound system.
10. Fine tune the Event kit taking advantage of the built-in DSP features (see System Configuration, pg. 11).
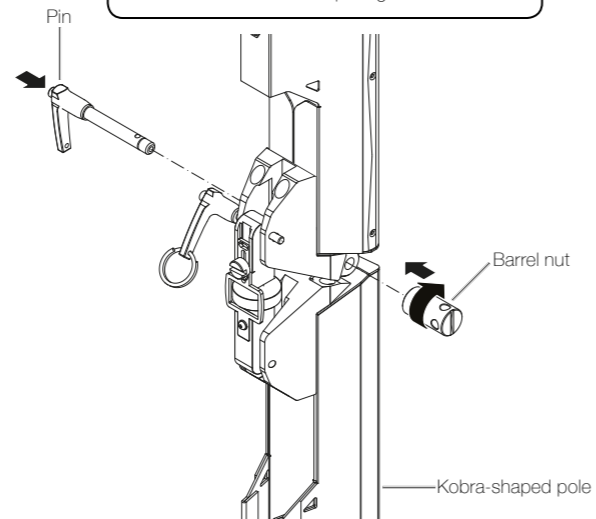
Mechanical Setup

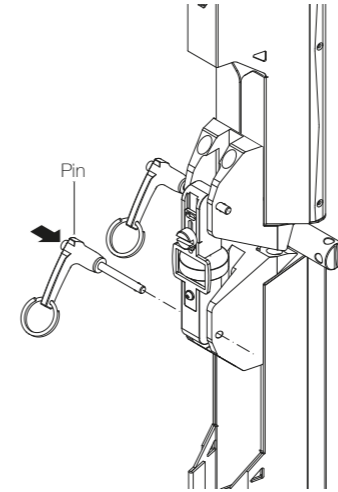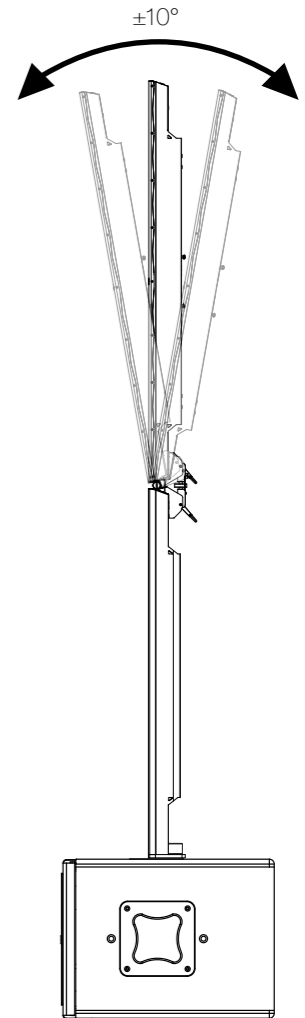The Event kit is portable, so it is packaged for quick and easy setup and dismount. Follow these instructions for operation in just a few minutes:

A

Kobra-shaped pole

Rugged bolt

Thunder-KMT12

B

Pin

Kobra-KK102

Tilting pin bar
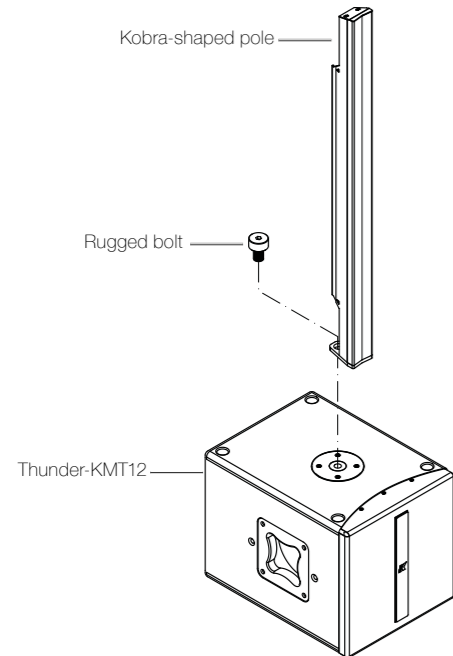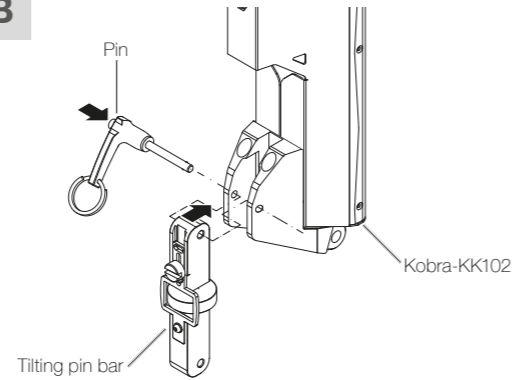
⚠ In order to prevent accidental fall out, ensure that the security lock on the pin is visible at the opposite end.

C

⚠ The pin can only be released by pushing on the button in the handle, while pulling it out.

Pin

Barrel nut

Kobra-shaped pole

D

Pin

E

Tilt the Kobra-KK102 to the desired angle by setting the wheel.

±10°
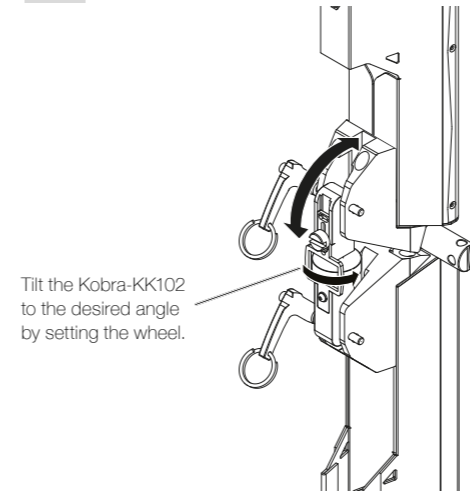
Connections

The Thunder-KMT12 active subwoofer implements a complete I/O rear panel and user controls rendering the kit compatible with any audio setup.
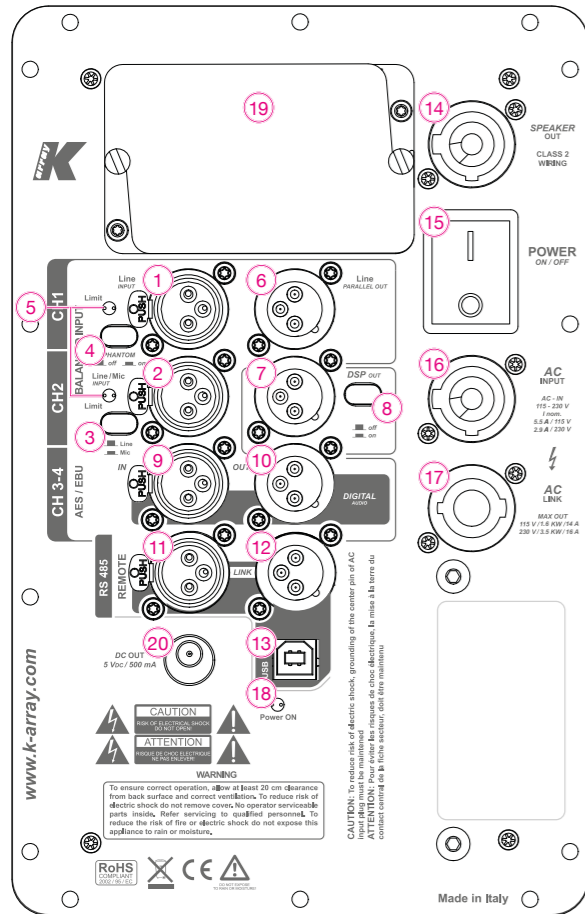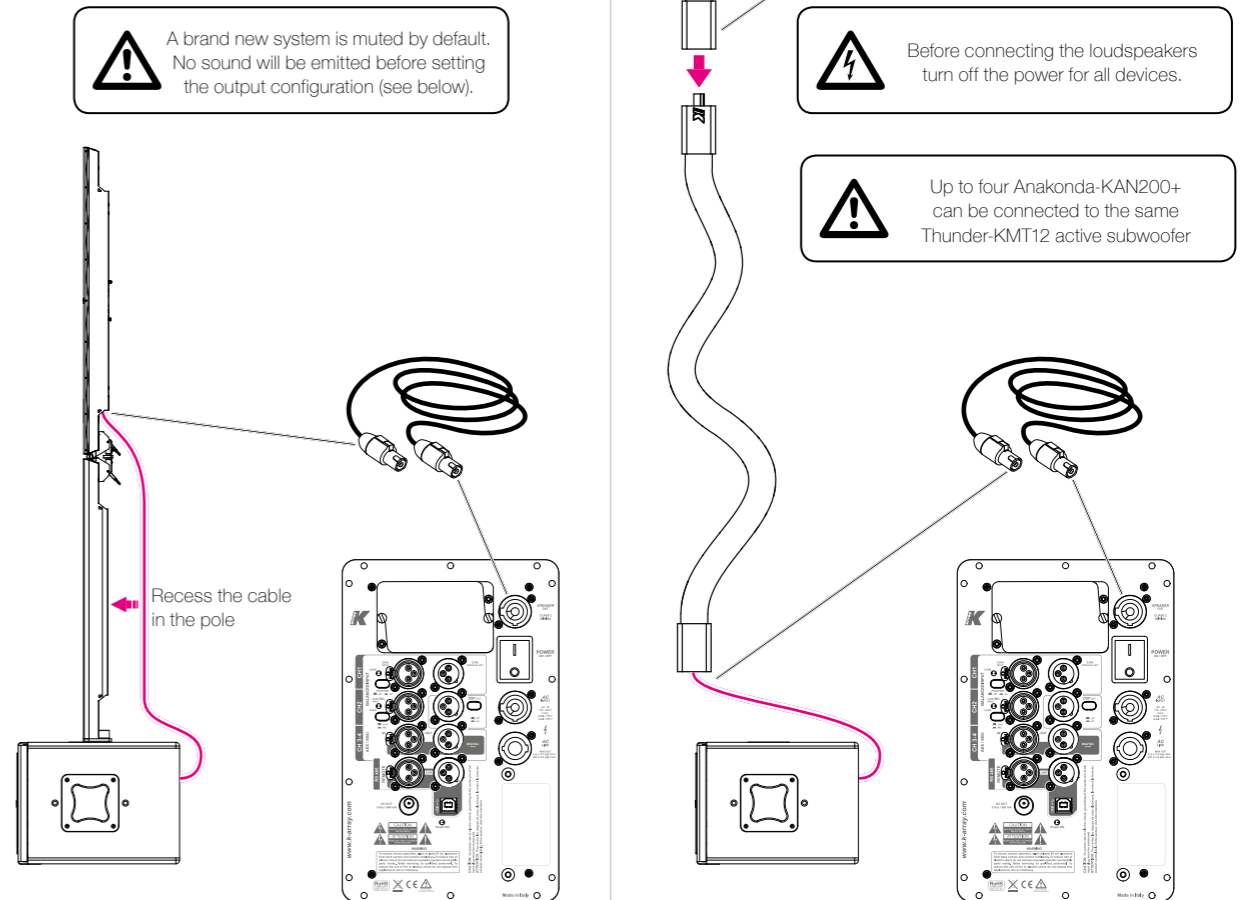

Rear panel

1. CH1 Line Input: XLR line level input with +4 dBu sensitivity.

2. CH2 Mic/Line Input: XLR input, with selectable sensitivity for mic (-30 dBu) or mine (+4 dBu).

3. Mic/Line switch: CH2 input sensitivity for mic (-30 dBu) and line (+4 dBu) level.

4. Phantom Power switch: Phantom power (48V) on/off on CH2 input.

5. Limiting LEDs: Independent LEDs for the CH1 and CH2 inputs, which blink when the optical limiter engages to protect the corresponding preamp circuit. Limiter threshold is +5 dBu.

6. CH1 Parallel Line Out: XLR parallel output providing a direct signal from the CH1 Line Input. This output is not processed or controlled via the K-Framework software.

7. CH2 Parallel Line Out / DSP Out: Connector for direct signal output from the CH2 input. Press the DSP Out switch to use this output as an auxiliary XLR balanced output controlled by the K-Framework software.

8. DSP Out Switch: see point 7.

9. AES/EBU Digital Input: XLR input connector for two-channel AES3 digital audio, accepting sample rates up to 96 kHz.

10. AES/EBU Digital Output: XLR output, providing two-channel digital audio from AES/EBU Input. This output cannot be processed or controlled via the K-Framework software.

11. REMOTE RS485 Link Input: XLR input for connecting the device to a RS485 network. RS485 Link Input can also be used to connect a computer running the K-Framework software (requires K-USB USB-to-RS485 adapter).

12. REMOTE RS485 Link Output: XLR output providing a direct serial signal output.

13. REMOTE USB Input: Port to connect a PC with K-Framework software for remote controlling the loudspeaker. Remote control via USB can be extended to the entire RS485 network by means of the REMOTE RS485 XLR Link Output connector.

14. Speaker Out: Powered speakON output connector used to drive passive speakers, like a mid-high module or a passive subwoofer.

15. Power switch: System On/Off.

16. AC Input: powerCON input connector for AC powering.

17. AC Link: powerCON link output for feeding AC mains power to additional K-array components with a powerCON AC input socket.

18. Power On LED: Light indicating the speaker is powered ON.

19. Touch Screen Control Panel: Provides access to the navigation menu of main functions of the onboard DSP.

20. 5 Volt Power Connector: 5 V_{DC} / 500 mA port to power e-fun accessories.

Connecting the Components

The dual-channel class D amplifier with DSP built inside the Thunder-KMT12 active subwoofer drives both the subwoofer's transducer and an external loudspeaker, whether it's the Kobra-KK102 or the Anakonda-KAN200+.

Follow these instructions to set the proper connections.

A brand new system is muted by default. No sound will be emitted before setting the output configuration (see below).

Before connecting the loudspeakers turn off the power for all devices.

Up to four Anakonda-KAN200+ can be connected to the same Thunder-KMT12 active subwoofer

Recess the cable in the pole

AC Mains Power Supply

The amplifier built in the Thunder-KMT12 active subwoofer and any audio equipment connected to it (mixing consoles, processors, etc.) must be properly connected to the AC power distribution, preserving the AC line polarity. Every grounding point must be connected to a single node or common point using the same cable gauge as the neutral and line cable. Bad grounding connections may produce noise, hum or serious damage to the input/output stages in the system's electronic equipment.

The amplifier will continue to operate safely, without interruption, provided that the AC voltage remains within this nominal range: 90-135 V at nominal 115 V_{AC}; or 190-250 V at nominal 230 V_{AC}; 50 to 60 Hz.

To power grid

Use the powerCON Link to supply power to another K-array active loudspeaker.
Max output:
1,6 kW / 14 A @ 115 V_{AC}
3,5 kW / 16 A @ 230 V_{AC}
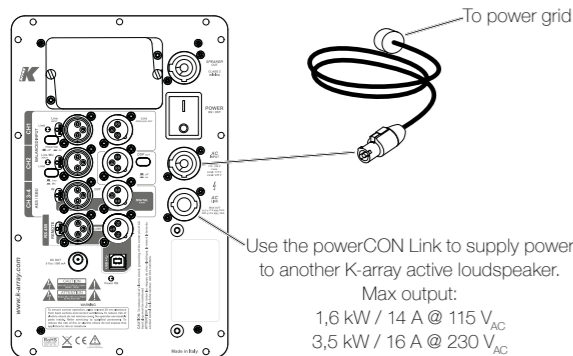
Power Requirement	
Nominal power requirement	AC 100 V - 240 V, 50/60 Hz with PFC
Operating voltage	AC 90 - 250 V

Consumption	
1/8 of max output power at 8 Ω load	300 W

Amplifier Protections

Both the power supply and the amplifier sections are equipped with several protection circuits.

The power supply protections aim to isolate a faulty section in the electrical power system from the rest of the device in order to prevent the furtherance of the fault and limit device damage. They comprise of overcurrent, overvoltage and thermal protections.

Amplifier protections are triggered by audio signal current and voltage values – by comparing input and output – and system temperature. A Peak Current Shut Down and a Temperature Protection Limiter protect the output stage.

High frequency stationary signals, like steady sinusoidal signals – improperly referred to as continuous or permanent signals – with high amplitude tend to stress the amplifier section of the modules as well as the loudspeaker's voice coils. When a high frequency stationary loud signal is fed into the amplifier, a dedicated Limiter confines its mean current depending on its level and frequency.

System Configuration

The main functions of the onboard DSP can be managed either with the integrated touch screen, or with the K-Framework software by connecting a PC to the system.

Touchscreen functions

Functions are grouped into six pages, shown as icons on the Home page.


To reach the Home page from any other page, touch the Home button that will appear at the top left corner.

LEVELS

The Levels page allows the user to independently manage the amplitude of the four input channels and the two output channels of the amplifier.

- CH1 and CH2 are analog inputs
- CH3 and CH4 are AES3 digital input channels
- SUB controls the output level sent to the subwoofer
- SPK controls the output level sent to the speakers connected to the Speaker Out connector.
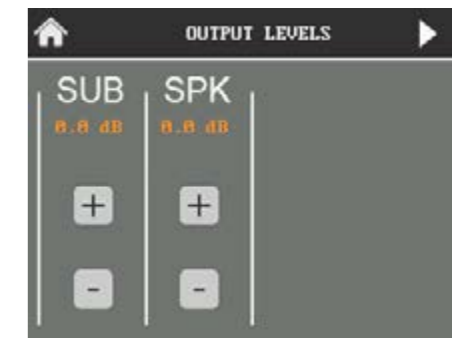
Click the arrow button on the top right corner to switch between the Input Levels page and the Output Levels page.

MATRIX

The Matrix page manages the routing of the signal from the four input channels to the subwoofer, the speaker connected to the Speaker Out connector and the XLR DSP Out connector.

In the example shown here, the analog signal on input Channel 1 and the digital signal on input Channel 3 are sent to the subwoofer while the analog signal on input Channel 2 and the digital signal on the input Channel 4 are sent to the speakers connected to the Speaker Out.

All inputs channels are also summed and sent to the XLR DSP Out connector.

DELAY
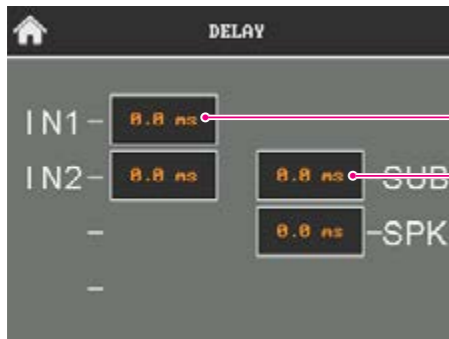
The Delay page independently sets the the delays for both the two output channels (driving the subwoofer and the speakers connected to the Speaker Out) (up to 3.5 m) and the input channels 1 and 2 independently. This provides great flexibility during the tuning process allowing to time align either the speaker with the subwoofer when they are positioned up to 3,5 m apart, or to adjust the time arrival of the sound to the listening point when delay-line loudspeaker systems are set up to 114 m from the closest sound source.

The delay can be set both in milliseconds and meters, pressing on the delay value. Press the OK button to return to the Delay main page.

OUT CONF
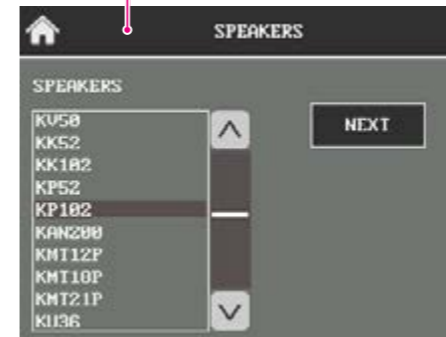
The Output Configuration page modifies the operating system parameters in order to optimize the performance of the loudspeaker connected to the Speaker Out connector.

This is usually not necessary as soon as the hardware configuration of the Event doesn't change.
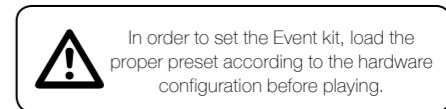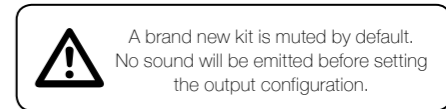
As part of a modular system, the Thunder-KMT12 active subwoofer is capable of driving almost any of the K-array loudspeakers by utilizing the Output Configuration feature which allows the subwoofer to combine with different loudspeaker configurations.

PRESETS
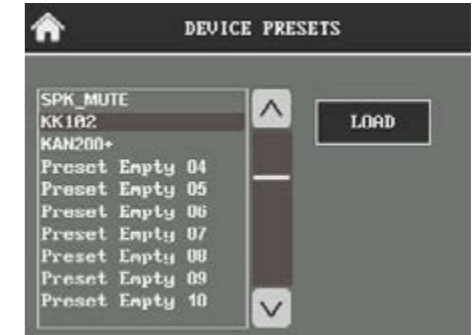
The Preset page allows users to load onboard presets.

In a brand new Event kit the SPK_MUTE device preset is loaded by default, setting the system to MUTE mode.

⚠️ A brand new kit is muted by default. No sound will be emitted before setting the output configuration.

⚠️ In order to set the Event kit, load the proper preset according to the hardware configuration before playing.

Once loaded, the Device Preset resets the operating system configuration to:

- the optimal Output Configuration according to the hardware configuration selected;
- the matrix routing to the default configuration;
- the delay to zero on all input and output channels;
- the levels to 0.0 dB on all input and output channels.

INFO

The Info page contains general information about the current system configuration including the current DSP software and firmware, and the current preset loaded.

The Board ID identify the device within a RS485 serial communication network: any device connected to the network must own a different ID in order to be properly discovered and managed by the K-framework software.

Service

To obtain service:
1. Contact the official K-array distributor in your country. Your local distributor will direct you to the appropriate service center.
2. If you are calling for service, please have the serial number(s) of the unit(s) available for reference. Ask for Customer Service, and be prepared to describe the problem clearly and completely.
3. 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

Kobra-KK102	
General	
Type	Line array
Transducers	16 x 2" neodymium magnet woofers
Frequency Response	150 Hz – 18 kHz (-6 dB) [1]
Rated Power	400 W
Maximum SPL	126 dB peak [2]
Nominal Impedance	8 Ω / 32 Ω selectable
Crossover	External crossover required
Coverage	Vertical 7° - 35° (selectable) | Horizontal 120°
Controls and Connectivity	
Connectivity	speakON NL4 1+ 1- (signal); 2+ 2- (through)
Handling and Finishes	
IP Rating	IP54
EN54-24	EN 54-24:2008 compliant [3]
Dimensions (WxHxD) & Weight	59 x 1000 x 81 mm (2.3 x 39.4 x 3.2 in) 4,8 kg (10.6 lb)
Colors and Finishes	Black, White, Custom RAL color and brushed, polished, 24K gold finishes

[1] With dedicated preset.
[2] Maximum SPL is calculated using crest factor 4 (12dB) from sensitivity scaled @ 1 m and power handling specifications, exclusive of power compression.
[3] See specification for EN 54-24 applications in products user's guide.

Anakonda-KAN200+

General

Type	Line array
Transducers	16 x 1" neodymium magnet woofers
Frequency Response	150 Hz – 18 kHz (-6 dB) [1]
Rated Power	300 W
Maximum SPL	108 dB peak [2]
Nominal Impedance	32 Ω
Crossover	External crossover required
Coverage	Vertical 10° (selectable) | Horizontal 140°

Controls and Connectivity

Connectivity	speakON NL4 1+ 1- (signal); 2+ 2- (through)

Handling and Finishes

IP Rating	IP55
Dimensions (WxHxD) & Weight	2020 x 56 x 35 mm (79.5 x 2.2 x 1.4 in) 1,9 kg (4.2 lb)
Colors and Finishes	Black, White

[1] With dedicated preset.
[2] Maximum SPL is calculated using crest factor 4 (12dB) from sensitivity scaled @ 1 m and power handling specifications, exclusive of power compression.
[3] See specification for EN 54-24 applications in products user's guide.

Thunder-KMT12

General

Type	Point source subwoofer
Transducers	12" neodymium magnet woofer
Frequency Response	45 Hz – 150 Hz (-6 dB) [1]
Maximum SPL	131 dB peak [2]
Coverage	Omni

Amplifier section

Type	2 ch. switch-mode, class D
Rated output power	2 x 1000 W @ 8 Ω
Power consumption	300 W, 1/8 Rated Power (Pink Noise)

Handling and Finishes

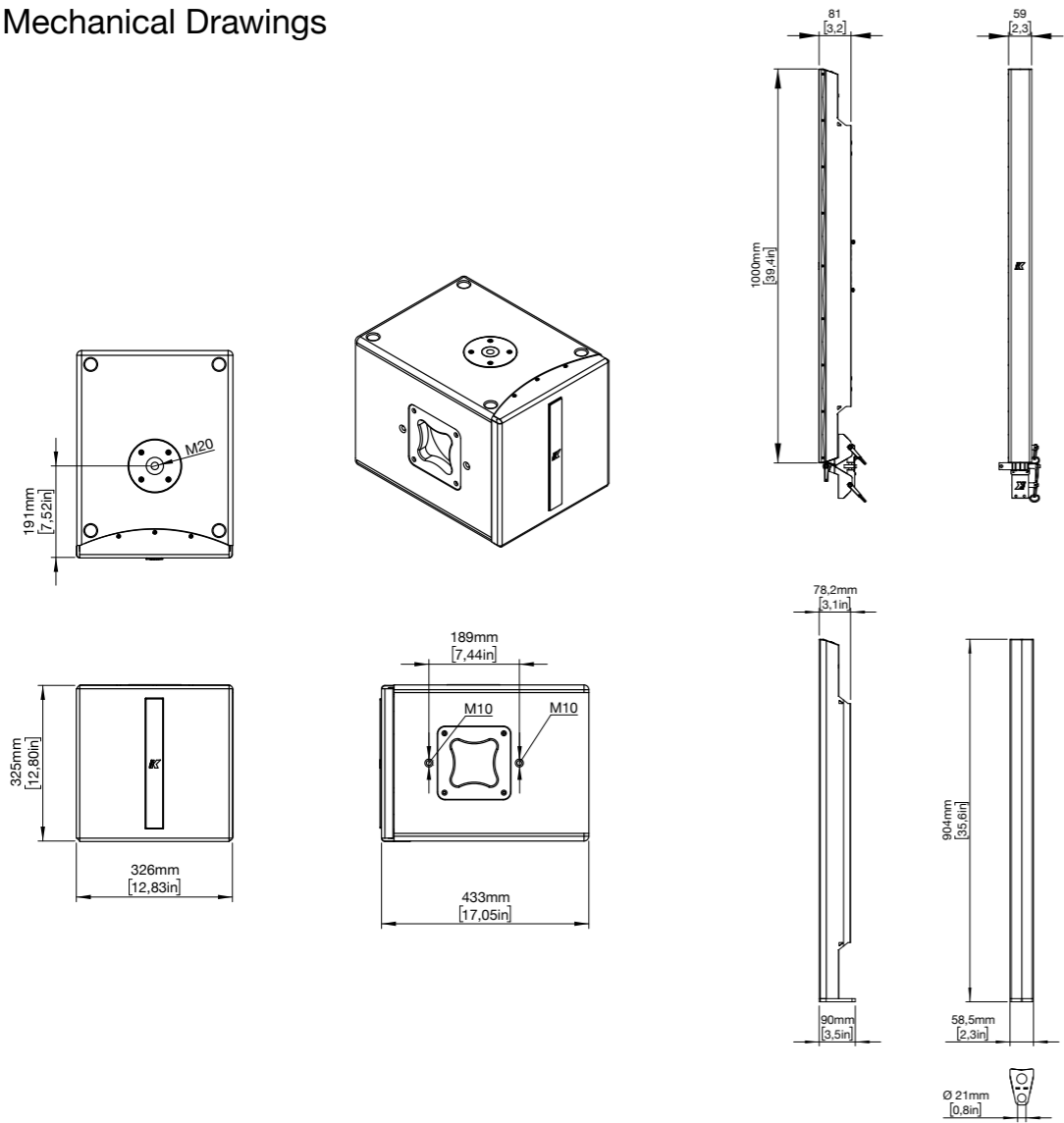| IP Rating	IP40 [3]
Dimensions (WxHxD) & Weight	326 x 327 x 436 mm [4] (12.8 x 12.9 x 17.1 in) [4] 15,6 kg (34.4 lb)
Colors and Finishes	Black, White, Custom RAL color

[1] With dedicated preset.
[2] Maximum SPL is calculated using crest factor 4 (12dB) from sensitivity scaled @ 1 m and power handling specifications, exclusive of power compression.
[3] IP43 with K-AMPCOVER.
[4] Rubber feet not included.

Mechanical Drawings

81
[3,2]

59
[2,3]

1000mm
[39.4in]

M20

191mm
[7,52in]

78,2mm
3,1in

189mm
[7,44in]

M10   M10

325mm
[12,80in]

904mm
[35,6in]

326mm
[12,83in]

433mm
[17,05in]

90mm
[3,5in]

58,5mm
[2,3in]

Ø 21mm
[0,8in]

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K array

Designed and Made in Italy

www.k-array.com