

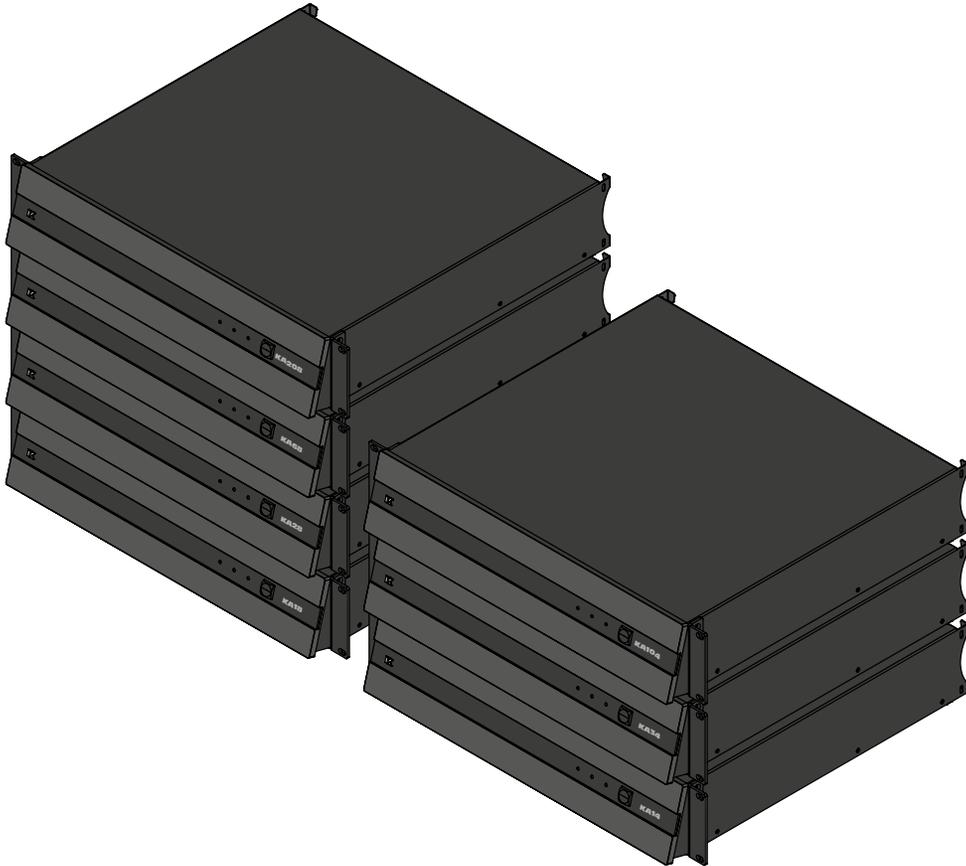
Kommander-KA

2RU Digital Processing Multi-Channel Amplifiers

USER GUIDE



• 20240904 •



K-ARRAY
Unique Audio Solutions

This page intentionally left blank

IMPORTANT SAFETY INSTRUCTIONS



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRI

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS 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.

Kommander-KA

User Guide

- 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!



FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:



1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

CAUTION! Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

All trademarks are the property of their respective owners.

Index

Unpacking	8
Introduction	10
Network Types and Audio Protocols	10
Standard IEB (Integrated Electronic Brain)	10
IEB-Pro	10
Mounting and cooling	12
4-channel Standard-KA Rear Panel	12
8-channel Standard-KA Rear Panel	12
8-channel KA+ Rear Panel	13
4-channel KA104LIVE Rear Panel	13
8-channel KA208LIVE+ Rear Panel*	13
*8-channel KA208LIVE	13
4-channel KA104LIVE+	14
Front Panel	14
AC mains supply	14
LED chart	15
Status LED	15
Input Wiring	16
Loudspeakers Wiring	16
Kommander-KA104LIVE/ KA208LIVE	17
Internal wiring	17
K-RACK-208-M I	17
Internal wiring	18
Remote Connectivity	19
Standard Kommander-KA	19
Kommander-KA+	20
Network settings (with Dante™)	20
Network topology and network requirements	20
Single Network - Star Topology	20
Control + Digital Audio Streaming	20
Single Network - Daisy Chain	20
Control ONLY	20
Dual-Network Configuration	22
Primary / Secondary	22

Dual-Network - Control / Digital Audio Streaming	22
Standard Kommander-KA	23
Connectivity Reset	23
K-array Connect Mobile App	24
Scan QR Code and Connect	24
Manually Connect via Wi-Fi and browser	25
Go to the Wi-Fi connection settings of your device.	25
Device Web App	26
Browser Access to Kommander-KA	26
Dashboard	26
Media Player	26
Standard Kommander-KA 4-ch	26
Media IN and streams	27
Kommander-KA+ (8ch) with IEB-Pro	27
DanteReady™ streamer	27
Audio Configuration	28
Factory	28
Output configuration	28
INPUT PATCH and MATRIX	29
4-channels Kommander-KA and Kommander-KA+	29
Routing and Matrix	30
8-channels Kommander-KA and Kommander-KA+	30
Network	30
WiFi - Standard Kommander-KA only	30
Ethernet	30
Standard Kommander-KA settings	30
Kommander-KA+ with IEB-Pro	31
Advanced	31
System Update	31
Update via Internet	31
Update via USB	32
Settings	33
Rear button mapping	33
Integrations	33
Multiroom smart control	34

Kommander-KA

User Guide

Scheduler	34
K-framework3	34
Discovery	35
3D simulation	35
Grouping - quick start	36
K-Monitor	36
Updating Firmware	37
Advanced control apps and cloud services	38
K-Control	38
K-Cloud	38
Service	39
Cleaning	39
Mechanical Drawing	39
DSP Block Diagram	40
Standard Kommander-KA	40
Kommander-KA+	42
Technical Specifications	43

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.

Kommander-KA is the line of K-array amplifiers meticulously designed and built with powerful DSPs and Class D amp modules that extend the sound experience through intelligent sound processing that can adapt to any context.

Each amplifier of the Kommander-KA line is fully loaded on board with all the configurations necessary to drive any K-array passive loudspeaker to fulfill maximum power of each output channel.

Kommander-KA amplifiers are equipped with **IEB** (Integrated Electronic Brain), a processor with dedicated OsKar operating system that optimizes DSP functions and signal processing, ensuring high efficiency and sound quality. The 8-channel are available in **Kommander-KA+** versions implemented **IEB-pro** - a powerful upgrade with expanded network capabilities, compatible with major professional audio-over-IP protocols.

To meet the needs of the live entertainment industry and large-scale events, the KA family has expanded to include the **KA104LIVE** and **KA208LIVE** models. These models feature SpeakON and CA-COM connections to enhance and streamline signal distribution.

Kommander-KA amplifiers offer versatile accessibility and control options. They can be accessed and managed via mobile apps as well as through desktop software and wired connections, supported by a variety of dedicated **software solutions**.

Kommander-KA

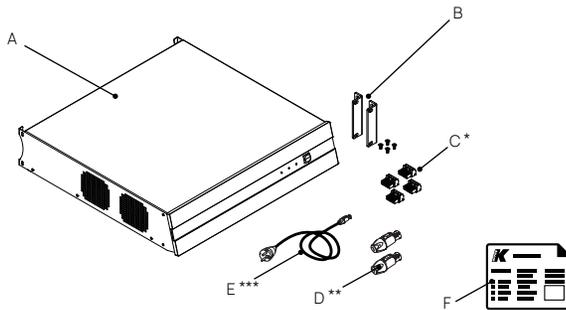
User Guide

Unpacking

Each K-array amplifier 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 amplifier. If you find any damage, immediately notify the shipping company. Check that the following parts are supplied with the product.

- A. 1x Amplifier unit: model and version shall be one from the following list:
- Kommander-KA14 I
 - Kommander-KA18 / Kommander-KA18+
 - Kommander-KA28 / Kommander-KA28+
 - Kommander-KA34
 - Kommander-KA68 / Kommander-KA68+
 - Kommander-KA208 / Kommander-KA208+
 - Kommander-KA104
 - Kommander-KA104LIVE / Kommander-KA104LIVE+
 - Kommander-KA208LIVE / Kommander-KA208LIVE+
- B. 2x Rack mounting brackets with screws
- C. PC 4 / 4-ST-7,62 speaker output flying connectors *
- D. 4-Pin Female SpeakON Cable-Mount Connector**
- E. 1x Power cord
- F. 1x Quick guide



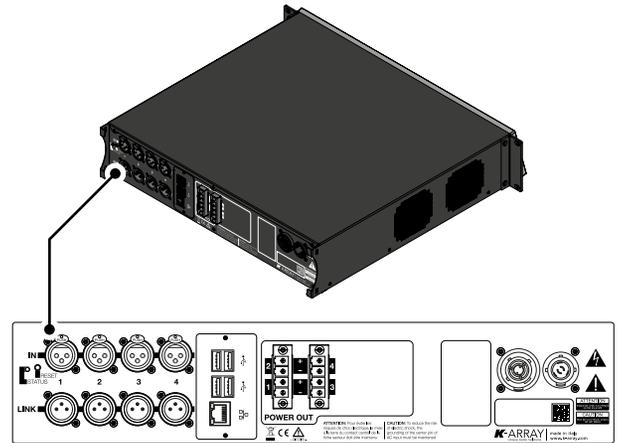
Notes

* 2 pieces in 4-channel units, 4 pieces in 8-channel units.

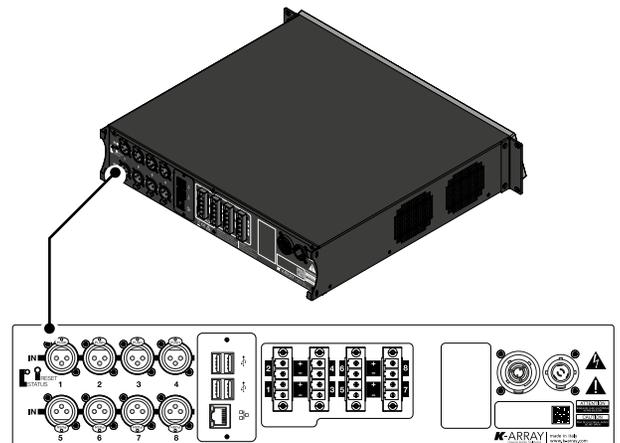
** 2 pieces in 4-channel units, 4 pieces in 8-channel units for Kommander-KA208LIVE

*** The AC mains cord plug may differ from the picture according to local regulation.

4-channel units: KA14 I, KA34, KA104



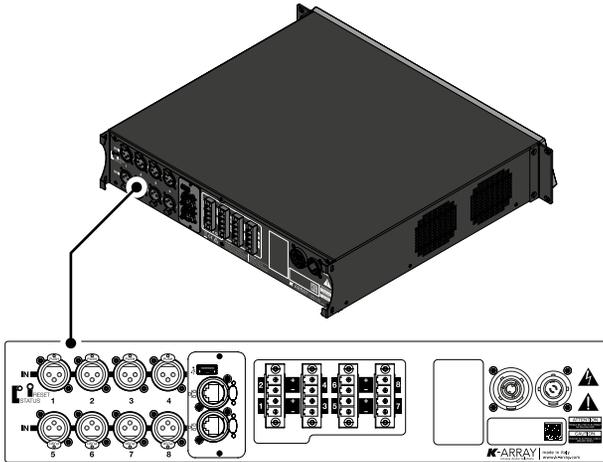
8-channel units: KA18, KA28, KA68, KA208



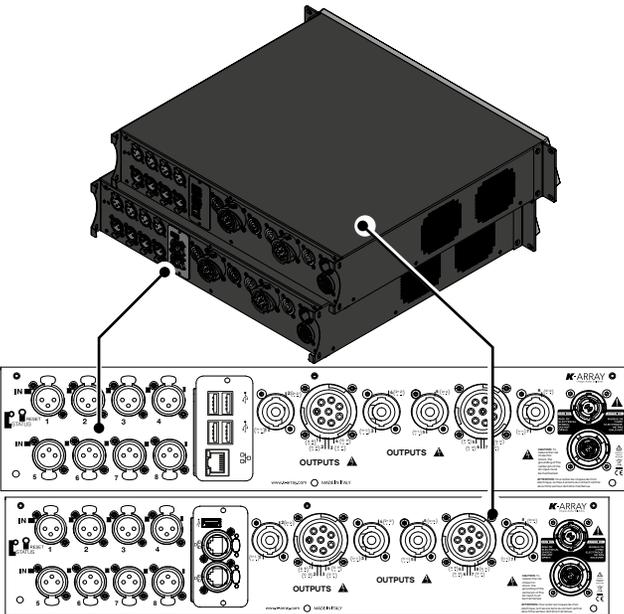
Kommander-KA

User Guide

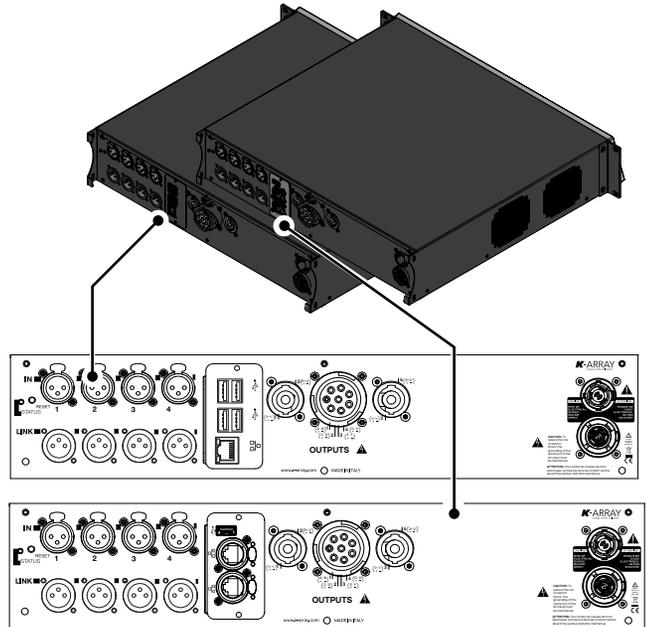
8-channel units: KA18+, KA28+, KA68+, KA208+



8-channel units - KA208LIVE / KA208LIVE+



4-channel units - KA104LIVE / KA104LIVE+



Kommander-KA

User Guide

Introduction

Kommander-KA amplifier models are available in two versions: 4-channel units with a dedicated IEB (Integrated Electronic Brain) processing board, and 8-channel units with either the IEB or the IEB-pro processing board. Both versions offer multichannel free routing and DSP with features such as grouping, input and output equalizers, level adjustment, dynamic limiters, and

4-channel units	analog inputs	power output	Power Rating per channel
Kommander-KA14 I	4	4	600W @ 2Ω
Kommander-KA34	4	4	750W @ 4Ω
Kommander-KA104	4	4	2500W @ 4Ω

8-channel units	analog inputs	power output	Power Rating per channel
Kommander-KA18	8	8	150W @ 4Ω
Kommander-KA28	8	8	600W @ 2Ω
Kommander-KA68	8	8	750W @ 4Ω
Kommander-KA208	8	8	2500W @ 4Ω

delay per channel. The key difference between IEB and IEB-pro is the expanded networking capabilities of the IEB-pro. These networking features are compatible with various professional audio protocols for managing digital audio streams, ensuring seamless integration with existing technologies and providing an optimal experience for integrators and system engineers.

Network Types and Audio Protocols Standard IEB (Integrated Electronic Brain)

The standard IEB includes one network port with fast Ethernet connection (1 Gigabit / 1.000 Mbps) and standard Wi-Fi with an internal access point. Wi-Fi connection can be extended through a router and amplifiers connected in Wi-Fi Client Mode. The physical network connection allows remote control via Ethernet and enables the following physical network topologies:

- Standard Star Topology - (Control only - Wi-Fi switched off)
- Standard Star topology - Control and DANTE network (primary network without redundancy - Wi-Fi switched off). With a single wired Ethernet connection, both control and audio streams are integrated into the same network flow.

IEB-Pro

The IEB-Pro is equipped with a 2-port network switch featuring Ethernet connections (1 Gigabit / 1000 Mbps), but does not include Wi-Fi capability. The supported network topologies are as follows:

- Star Network Topology - Control only - amplifiers in single-port mode);
- Star Network Topology with Control and Dante sharing the same network (amplifiers in single-port mode);
- Star Network Topology with Control and Dante Redundancy (amplifiers in single port mode - redundancy requires two fully separated networks);
- Star Network Topology - with Control and Dante Splitted (amplifiers in single-port mode) - split requires two fully separated networks;
- Daisy Chain Network with Control (amplifiers set in bridge-mode) - not recommended for Dante™.

For more information on Dante network topologies and primary/secondary port configurations, please refer to the dedicated chapter on DANTE network.

4-channel units	Network connectivity n.ports	Digital channel counts
Kommander-KA (4ch)	1	2
Kommander-KA104LIVE+	2	8

8-channel units	Network connectivity n. ports	Digital channel counts
Kommander-KA (8ch)	1	2
Kommander-KA+ (8ch)	2	8
Kommander-KA208LIVE	1	2
Kommander-KA208LIVE+	2	8

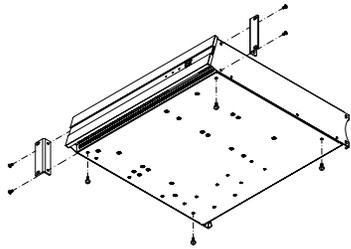
Kommander-KA

User Guide

Mounting and cooling

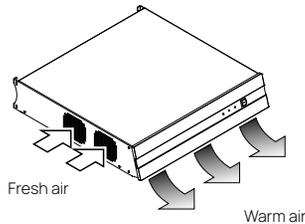
K-array Kommander amplifiers are provided with a couple of brackets for common 19" rack installation: each Kommander amplifier occupies 2 rack units. In order to set the amplifier for rack installation:

- unscrew the four bottom feet;
- assemble the lateral rack mounting brackets with screws provided within the package.



In order to prevent any mechanical issue, use both frontal and rear mounting brackets to secure the amplifier to its location.

Install the amplifier in a well-ventilated location at 35°C (95°F) max environment temperature.

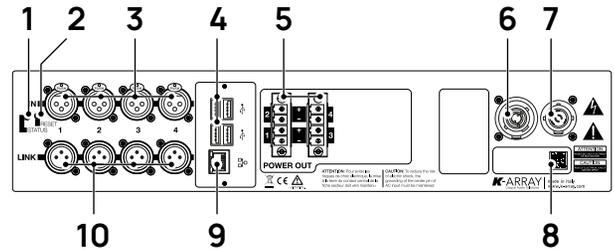


The ventilation openings must not be impeded by any item.

Fresh air enter the amplifier from aside, warm air is expelled under the front panel.

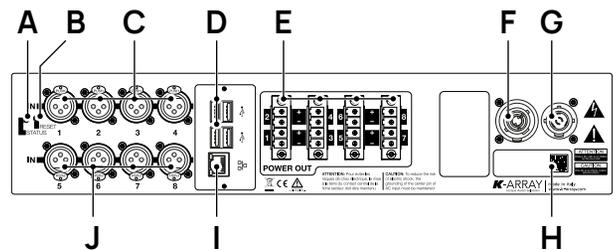
In rack mount installation leave one rack unit empty every three installed amplifiers to guarantee adequate air flow.

4-channel Standard-KA Rear Panel



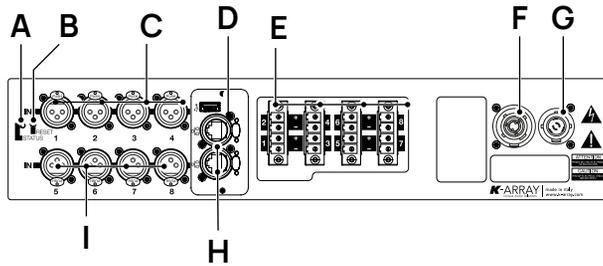
1. Status LED
2. Reset button
3. 4x XLR-F balanced line channel inputs 1-4
4. 4x USB ports
5. 2x PC 4/4-ST-7,62 speaker output terminals
6. PowerCon TRUE link (AC mains out)
7. PowerCon TRUE inlet (AC mains in)
8. QR Code for the K-array Connect app remote connection
9. RJ45 Ethernet port
10. 4x XLR-M balanced line channel link outputs

8-channel Standard-KA Rear Panel



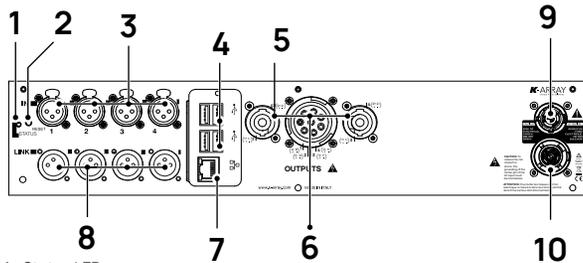
- A. Status LED
- B. Reset button
- C. 4x XLR-F balanced line channel inputs 1-4
- D. 4x USB ports
- E. 4x PC 4/4-ST-7,62 speaker output terminals 1-8
- F. PowerCon TRUE link (AC mains out)
- G. PowerCon TRUE inlet (AC mains in)
- H. QR Code for the K-array Connect app remote connection
- I. RJ45 Ethernet port
- J. 4x XLR-F balanced line channel inputs 5-8 inputs

8-channel KA+ Rear Panel



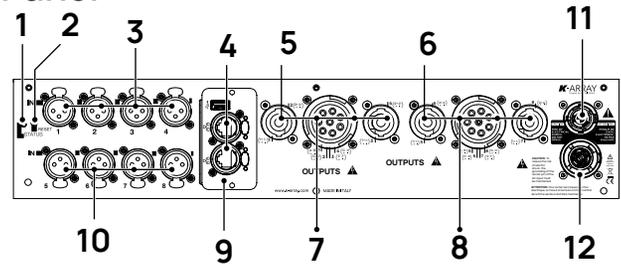
- A. Status LED
- B. Reset button
- C. 4x XLR-F balanced line channel inputs 1-4
- D. 1x USB port
- E. 4x PC 4/4-ST-7,62 speaker output terminals 1-8
- F. PowerCon TRUE link (AC mains out)
- G. PowerCon TRUE inlet (AC mains in)
- H. 2x RJ45 Ethernet (Ethercon) port
- I. 4x XLR-M balanced line channel inputs 5-8

4-channel KA104LIVE Rear Panel



- 1. Status LED
- 2. Reset button
- 3. 4x XLR-F balanced line channel inputs 1-4
- 4. 4x USB ports
- 5. 2x SpeakON NL4 Speaker outputs ch 1-4
- 6. 1x CA-COM Speaker outputs ch 1-4
- 7. 1x RJ45 Ethernet port
- 8. 4x XLR-M balanced line channel outputs
- 9. PowerCon TRUE inlet (AC mains in)
- 10. PowerCon TRUE link (AC mains in)

8-channel KA208LIVE+ Rear Panel*



- 1. Status LED
- 2. Reset button
- 3. 4x XLR-F balanced line channel inputs 1-4
- 4. 1x USB ports
- 5. 2x SpeakON NL4 Speaker outputs ch 1-4
- 6. 2x SpeakON NL4 Speaker outputs ch 5-8
- 7. 1x CA-COM Speaker outputs ch 1-4
- 8. 1x CA-COM Speaker outputs ch 5-8
- 9. 2x RJ45 Ethernet (Ethercon ports for primary and secondary networks)**
- 10. 4x XLR-F balanced line channel inputs 5-8
- 11. PowerCon TRUE link (AC mains out)
- 12. PowerCon TRUE inlet (AC mains in)

*8-channel KA208LIVE

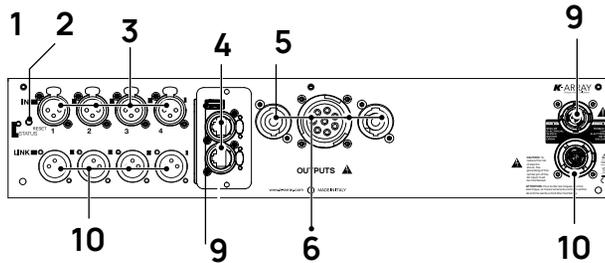
*same Panel as KA208LIVE+ for inputs and power outputs

**1x RJ45 Ethernet ports for primary network 4x USB port - with Wi-Fi on-board

Kommander-KA

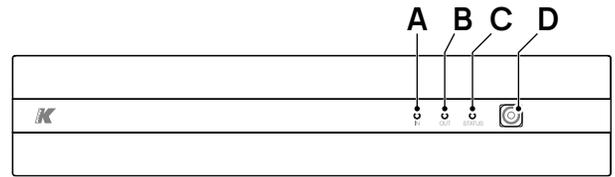
User Guide

4-channel KA104LIVE+



1. Status LED
2. Reset button
3. 4x XLR-F balanced line channel inputs 1-4
4. 1x USB ports
5. 2x SpeakON NL4 Speaker outputs ch 1-4
6. 1x CA-COM connection ch 1-4
7. 2x RJ45 Ethernet (Ethercon) port for primary & secondary network
8. 4x XLR-M balanced line channel outputs
9. PowerCon TRUE inlet (AC mains in)
10. PowerCon TRUE link (AC mains in)

Front Panel

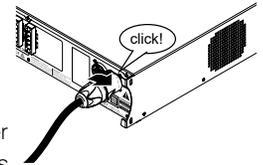


- A. Input signal monitor LED
- B. Output signal monitor LED
- C. Status LED
- D. Standby button

AC mains supply

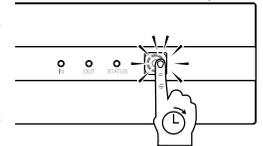
The AC Main connection is made via the provided power cord:

1. insert the powerCon TRUE flying connector into the inlet and then rotate it clockwise;
2. connect the power plug of the power cord to a mains socket outlet.



Once properly plugged, the amplifier powers up: the front and back LEDs light on.

In order to set the amplifier unit in standby mode, press and hold the button on the front panel for 2 seconds. To wake up the amplifier from standby mode, press and hold the button for 2 seconds.



The powerCon TRUE link (AC mains out) connector allows to distribute the AC main power to other units according to their power consumption. Please don't exceed the limits stated on the next tables.

	Power consumption*	Max number of cascade powered equal units
Kommander-KA14 I	400 W	4x KA14 I
Kommander-KA34	600 W	4x KA34
Kommander-KA18 Kommander-KA18+	300 W	6x KA18 / 6 x KA18+
Kommander-KA28 Kommander-KA28+	800 W	2x KA28 / 2x KA28+
Kommander-KA68 Kommander-KA68+	1200 W	2x KA68 / 2x KA68+

Power consumption @ 8 Ω load, Pink noise, 1/4 rated power

	Power consumption*	Max number of cascade powered equal units
Kommander-KA104	600 W	2x KA104
Kommander-KA208 Kommander-KA208+	1200 W	-
Kommander-KA104LIVE / KA104LIVE+	600 W	2x KA104LIVE / 2x KA104LIVE+
Kommander-KA208LIVE / KA208LIVE+	1200 W	-

Power consumption @ 8 Ω load, Pink noise, 1/8 rated power

LED chart

In the rear panel, the input signal monitor LED and the output signal monitor LED blink according to the presence of audio signal at any input or output channel respectively. The input and output signal monitor LEDs light on orange when the DSP is limiting the signal level.

Status LED

Color	Mode	Description
	orange solid	DSP software is loading
	green solid	System ready
	blue solid	User command: system identification
	purple flashing	Network parameters reset

Kommander-KA

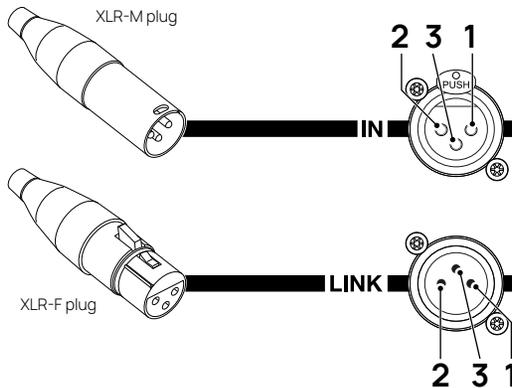
User Guide

Input Wiring

Kommander-KA amplifiers accept balanced input signals. Only high quality balanced, shielded, twisted pair audio cables with metal XLR connectors should be used.



The amplifier is optimized to receive professional audio signals with a +4 dBu nominal level



IN: Line input audio connector.

Male XLR plug and female XLR chassis connector. Pinouts:

1. ground
2. hot
3. cold.

LINK (4-channel amplifiers only): audio connector physically paralleled to the corresponding input connector.

Female XLR plug and male XLR chassis connector. Pinouts:

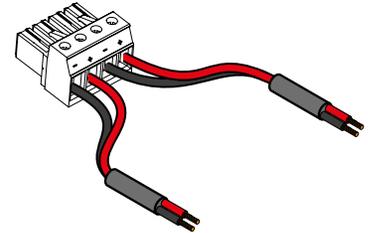
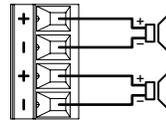
1. ground
2. hot
3. cold.

Loudspeakers Wiring

In order to set the proper connections with the loudspeakers, a set of Euroblock PC 4/4-ST-7,62 flying connectors are provided.

Each PC 4/4-ST-7,62 flying connector features four terminals designed to be connected to a couple of loudspeaker cables (carrying two wires each). Be sure to observe the correct polarity at both the loudspeaker and amplifier cable ends.

Flying connector screw terminals



When connecting multiple loudspeakers in parallel to the same amplifier's output channel, make sure the total nominal impedance is not lower than the amplifier minimum recommended load impedance.

	Minimum Load	Power Rating per channel at minimum load
Kommander-KA14 I	2 Ω	600 W @ 2Ω
Kommander-KA34	4 Ω	750 W @ 4Ω
Kommander-KA104 / KA104+	4 Ω	2500 W @ 4Ω
Kommander-KA104LIVE / 104LIVE+	4 Ω	2500 W @ 4Ω
Kommander-KA18 / KA18+	4 Ω	150 W @ 4Ω
Kommander-KA28 / KA28+	2 Ω	600 W @ 2Ω
Kommander-KA68 / KA68 +	4 Ω	750 W @ 4Ω
Kommander-KA208 / KA208+	4 Ω	2500 W @ 4Ω
KA208LIVE / KA208LIVE+	4 Ω	2500 W @ 4Ω

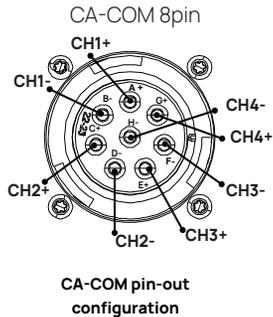
Kommander-KA104LIVE/ KA208LIVE

Internal wiring

In order to set the proper connections with passive line array systems and subwoofers of K-array™ **Mugello** and **Firenze concert line** and **Pinnacle passive systems**, the 8-channel and 4-channel amplifiers are equipped with speakON (speakON NL4 1+ 1- 2+ 2-) and CA-COM 8-pin connectors. More details about pin-out configurations are provided in the pictures below.

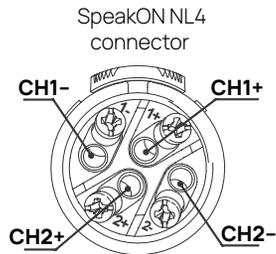
CA-COM configuration KA104LIVE / KA208LIVE

A	+	CH1
B	-	
C	+	CH2
D	-	
E	+	CH3
F	-	
G	+	CH4
H	-	



SpeakON configuration KA104LIVE / KA208LIVE

1	+	CH1
1	-	
2	+	CH2
2	-	

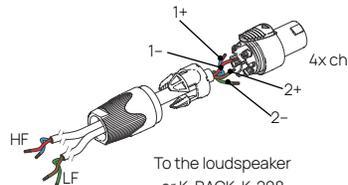
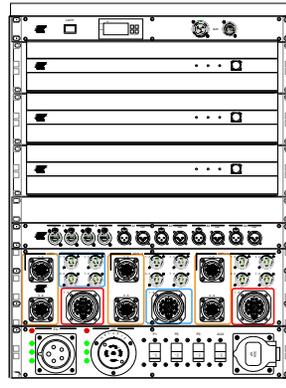


K-RACK-208-M I

The K-RACK-M-208 is a complete power and signal distributor assembly designed to drive passive line array systems - Firenze, Mugello and Pinnacle series.

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

- Power panel with 3-phase CEE 3P+N+T 32A 400V (EU) L21-30-P / L21-20-P 208V (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 links output;
 - 12x NL4 SpeakON connectors (24 channels).
 - 6x CA-COM multichannel connections (24 channels)
 - 3x SOCApex multichannel connections (24 channels)
 - 24 total channels

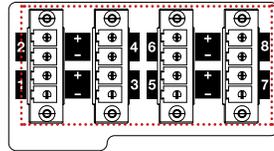
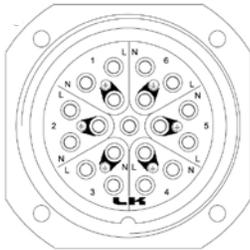
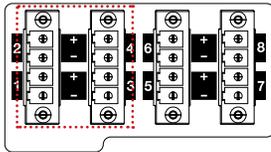
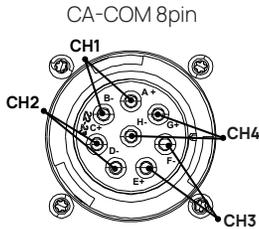
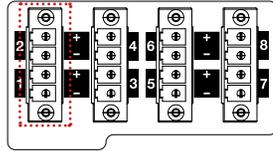


*the same configuration is considered for KA208LIVE doubling the number of channels

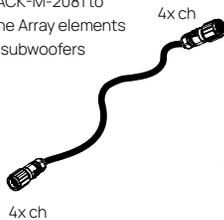
Kommander-KA

User Guide

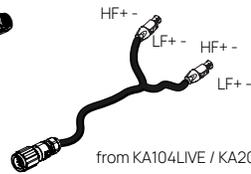
Internal wiring



from KA104LIVE / KA208LIVE
or K-RACK-M-208I to
Firenze Line Array elements
and subwoofers



from KA104LIVE / KA208LIVE
or K-RACK-M-208I to
Mugello-KH Line Array
elements



SpeakON configuration

KA-RACK-M-208 I

1	+	1	CH1
1	-	1	
2	+	2	CH2
2	-	2	

CA-COM configuration

KA-RACK-M-208 I

A	+	1	CH1
B	-	1	
C	+	2	CH2
D	-	2	
E	+	3	CH3
F	-	3	
G	+	4	CH4
H	-	4	

SOCAPEX configuration

KA-RACK-M-208 I

1L	+	1	CH1	3G*	+	5	CH5
1N	-	1		4L	-	5	
1G*	+	2	CH2	4N	+	6	CH6
2L	-	2		4G*	-	6	
2N	+	3	CH3	5L	+	7	CH7
2G*	-	3		5N	-	7	
3L	+	4	CH4	5G*	+	8	CH8
3N	-	4		6L	-	8	

Remote Connectivity

Standard Kommander-KA

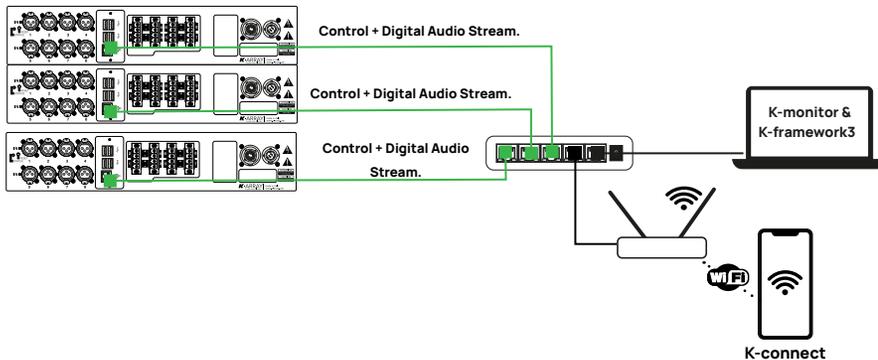
Wired LAN connection

The RJ45 Ethernet port on the rear panel allows to connect the unit to a local area network (LAN). Since every host on a network must be identified by a **unique IP address**, the simplest local network usually implements a **router/switch** with a DHCP server managing the addresses allocation: by default the Kommander-KA unit is set to obtain a local IP address from the DHCP server.

In case a **DHCP** server is not present on the LAN, the unit goes in Auto IP mode: in few seconds the amplifier automatically self-assigns an IP address in the range 169.254.0.0/16.

A static IP address can be assigned to the amplifier unit using the amplifier's embedded web app (Network menu).

It is possible to connect to the amplifiers wired to the switch via a Wi-Fi access point and configure them using the **K-Connect app on a mobile device**. Please ensure that the access point is connected to the same local network (LAN) as the switch to allow communication between all devices. **When amplifiers are connected to the network via Ethernet cables, it is recommended to disable the amplifiers built-in Wi-Fi hot-spot.**



Kommander-KA

User Guide

Kommander-KA+

The Kommander-KA+ are equipped with the IEB-Pro platform, which, as we have seen, includes a switch with 2 ports for Ethernet-wired connections but does not have built-in Wi-Fi. Therefore, the primary access and control methods must be through a local network connected with Ethernet cables to a dedicated switch.

- First configuration requires connection to **ETH1** port on the rear panel.

The managing control softwares are the embedded Web- app, K-monitor or K-framework.

Network settings (with Dante™)

- First configuration requires connection to **ETH1** port on the rear panel
- **disable** the **ENABLE AUTOIP** function in the network tab.
- **Avoid Daisy-Chain if working with Dante™.** (Audinate, the manufacturer, does not recommend daisy-chaining through more than two hops, as this can cause latency issues and potentially disrupt the audio stream.) See the DanteReady™ paragraph to more details.



Built-in Wi-Fi is not present on KA+ - direct Wi-Fi connection is not possible - connection via an access point on the same LAN is supported for K-Connect use.

Network topology and network requirements

Single Network - Star Topology Control + Digital Audio Streaming

A star network configuration for single network amplifiers allows both remote control and digital audio streaming to run over the same network, providing centralized management and high-quality audio distribution. This setup ensures reliable performance and optimal bandwidth allocation for complex audio systems.

- A. First connect the amplifiers to the switch in a star network configuration and using **ETH1 port**.
- B. The same network configuration is used to control the amplifiers and utilize the Digital Audio Stream simultaneously.

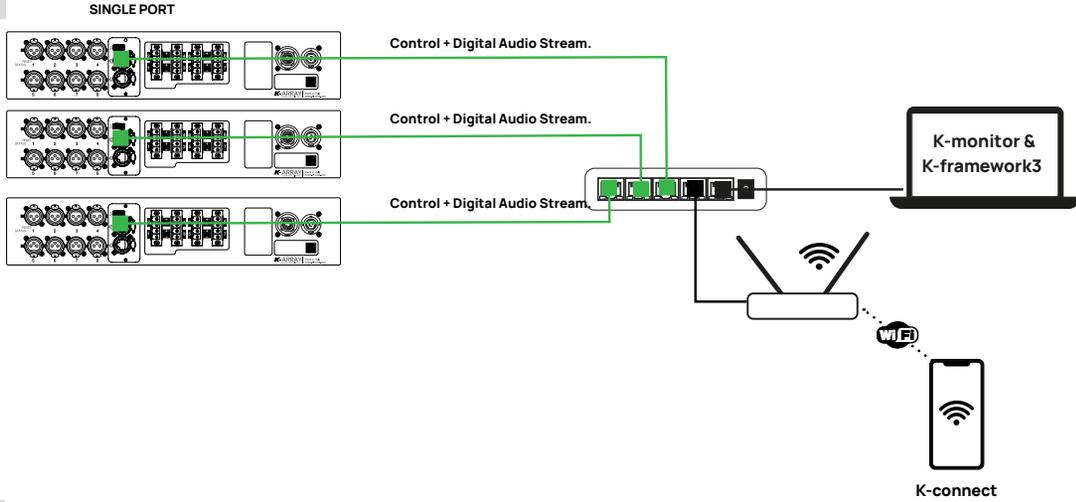
Single Network - Daisy Chain Control ONLY

Daisy chaining network amplifiers allows multiple devices to be connected in daisy chain using a single network cable, streamlining installation and minimizing the need for additional switches. This configuration is ideal for remote control of amplifiers in multi-zone systems; however, **it is not recommended for transmitting digital audio streams, as it may restrict bandwidth and degrade signal quality.**

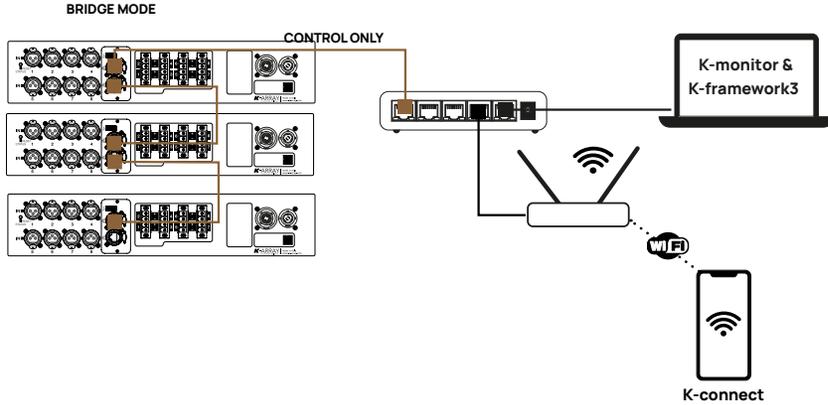
Connecting the First Amplifier:

3. Connect the EHT1 port of the first amplifier to an external switch or network source.
4. Set the first amplifier to bridge mode.
5. Connect the EHT2 port of the first amplifier to the EHT1 port of the second amplifier.
6. Continue this pattern, connecting the EHT2 port of each amplifier to the EHT1 port of the next amplifier.

A - B



C - D



Kommander-KA

USER GUIDE

Dual-Network Configuration Primary / Secondary

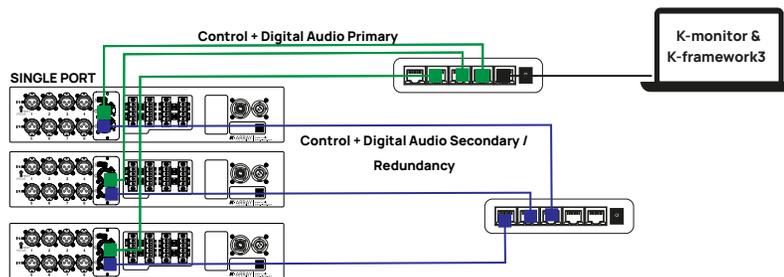
In a dual network configuration, both control signals and digital audio streaming are transmitted over the primary wired network, ensuring centralized management and efficient use of bandwidth. By connecting the second network port of the amplifiers to a separate switch, a secondary or redundant network can be established, dedicated solely to the Dante™ audio streaming or other audio-over-IP protocols. This setup enhances system reliability and ensures uninterrupted audio performance.

- G. Connect the amplifiers to the switch in a star network configuration using **ETH1 port**.
- H. Connect each amplifier to a second switch via the **EHT2 port**. This setup creates a secondary or redundant network, ensuring a separate and reliable transmission path.

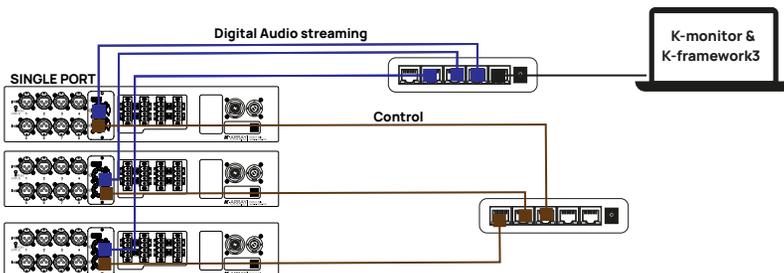
Dual-Network - Control / Digital Audio Streaming

In this configuration, the primary network is reserved for digital audio streaming using protocols like Dante™, while the secondary network is dedicated to control functions.

E- F



G



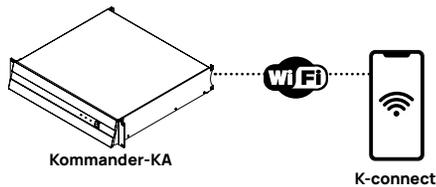
Wi-Fi

Standard Kommander-KA

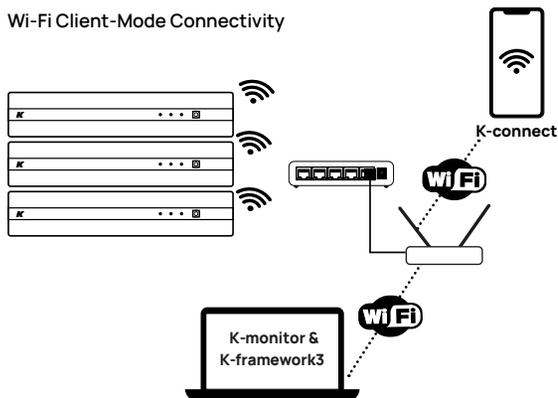
The Kommander-KA amplifier unit features a built-in hot-spot establishing a local Wi-Fi network dedicated to remote control the amplifier via wireless.

The default local Wi-Fi SSID and unit IP address of the built-in hot-spot is 192.168.0.1 and printed on a label located on the rear panel of the unit; a QR code for easing direct connectivity is printed as well.

Direct Wi-Fi Hot-Spot Connectivity



Wi-Fi Client-Mode Connectivity



When using digital audio streaming over IP protocols a wired LAN connection is preferred - mandatory for Dante™ usage.

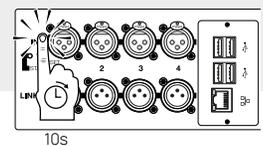
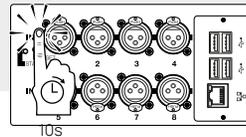
Connectivity Reset

With the unit switched on, keep pressed the RESET button on the rear panel for 10 to 15 seconds in order to:

- Revert the wired IP addressing to DHCP;
- Activate the built-in Wi-Fi and reset the wireless parameters to the default SSID name and password

The status LED turns purple while the RESET button is pressed.

To optimize the performance of network connections via Ethernet, it is recommended to disable the Wi-Fi. This can be done through software using K-monitor or K-framework, rather than manually.



Kommander-KA

User Guide

K-array Connect Mobile App

Wireless Access to Kommander-KA

K-Connect mobile app

The K-array Connect app is designed to simplify the management of Kommander-KA amplifiers, offering various connection methods for flexible and wireless control. Key features include:

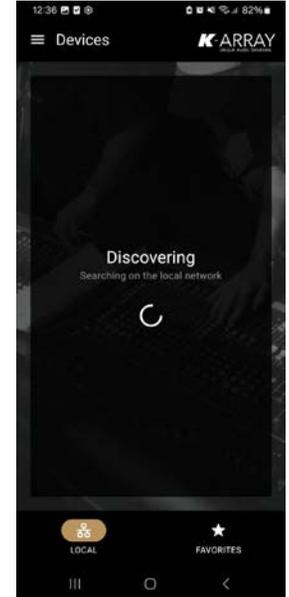
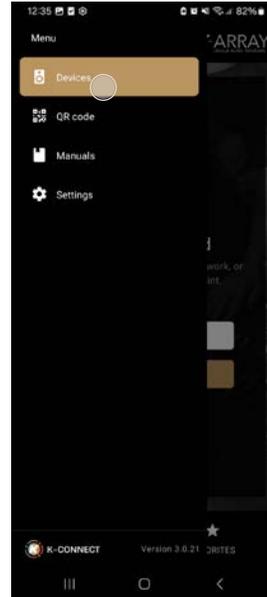


- **Device Discovery:** Automatically detects and lists all Kommander-KA amplifiers on the network, streamlining the configuration process.
- **Device Management:** Allows users to access amplifier settings to configure and adjust parameters such as volume, EQ, and routing.
- **Real-Time Monitoring:** Monitors the status and performance of each connected amplifier in real-time, enabling quick adjustments as needed.

The K-array Connect app also allows direct access to amplifiers through the amplifier's built-in Wi-Fi hotspot. Users can connect to the amplifier by scanning the QR code on the unit or by manually entering the serial number. In this mode, the app can view and manage only the specific amplifier to which it is connected.

Scan QR Code and Connect

1. Click on Scan QR code, or open the main menu (top left icon) and select QR code.
2. Use the mobile device built-in camera to spot the QR Code on the Kommander-KA rear panel.

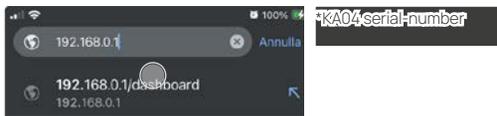


3. Let your device connect to the amplifier's Wi-Fi hotspot.
4. In few seconds the K-array Connect mobile app will show the Kommander-KA model in the device list.

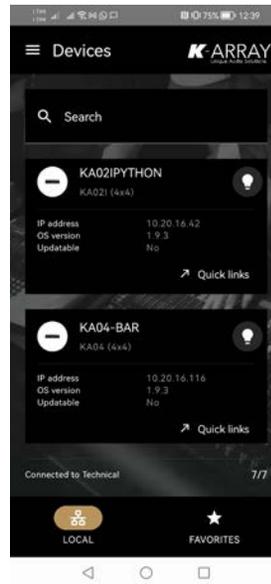
Manually Connect via Wi-Fi and browser

Go to the Wi-Fi connection settings of your device.

- E. Among the available Wi-Fi, select the one whose SSID starts with K-array followed by the device serial number (e.g. K-array-K155AP0015)*
- F. You will be asked to insert the Wi-Fi password: the default Wi-Fi password of any K-array device is the device serial number, case sensitive (e.g. K140AP0107). You can find the device serial number in the back panel label and in the Wi-Fi SSID.
- G. Once connected, open the web browser in your device (Google Chrome recommended) and insert the device default Wi-Fi IP:



If the amplifiers are connected to the same network via an access point, K-array Connect enables the recognition, access, and configuration of all amplifiers on the network. Another method for accessing the amplifier is through the built-in web app, which can be reached via a browser. This web app offers a more complex interface with dedicated functionalities, which will be covered in the next chapter.



Kommander-KA

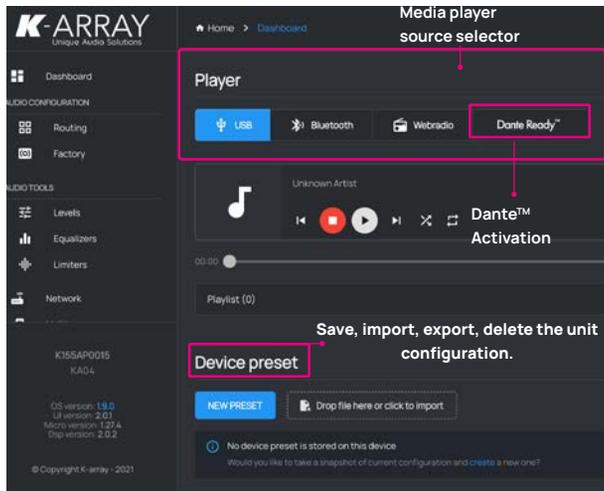
User Guide

Device Web App

Browser Access to Kommander-KA

Any KA amplifier can be remotely managed via the built-in application running osKar operating system - the Web App. The Web App is stored into the device and is the user interface of the K-array osKar operating system and DSP.

Dashboard



Use the web browser on your mobile device to access the Web App on the device default Wi-Fi IP address 192.168.0.1.

The Web App can be opened on every web browser (Google Chrome recommended) either over a wireless connection on mobile device and a wired connection on personal computer. In order to access the device Web App type the device IP address on the web browser address bar.*



Kommander-KA+ version (no built-in Wi-Fi) - The Web-App can be accessed only by wired LAN connection or browser.

The Web App menu gives access to the device settings: the dashboard collects the main features and comprises a media player that can stream audio from either a usb device, a remote cloud storage or Dante.

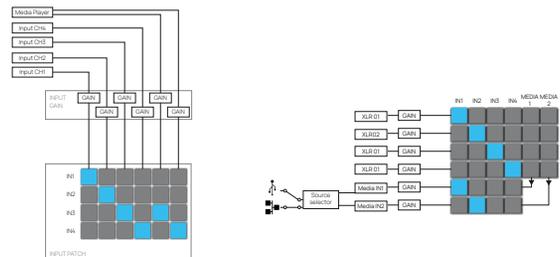
Media Player

Standard Kommander-KA 4-chn

The Kommander-KA built-in DSP implements a media player that can be used to playback audio from digital sound sources.

By default the media player lists the audio files saved on any USB drive connected on the rear panel USB ports and routes the sound to the DSP MEDIA inputs channels IN1 and IN2. The media player's output channels are shown in the INPUT PATCH, providing to route the digital signals from the media player to any DSP input channels.

When Dante is active, in order to route the Dante stream to the output channels, the media player shall be used and set to Dante Ready.



The media player's MEDIA INs can receive the signals from the input connectors (XLR1 - XLR2 - XLR3 - XLR4), providing to route these signals to DANTE.

Media IN and streams

Kommander-KA+ (8ch) with IEB-Pro

The IEB-Pro on Kommander-KA+ supports a higher number of channels for media streaming (8 IN and 8 OUT) from the selected network port at the DSP input. The media stream enters through 8 parallel channels to the XLR inputs and exits through the same parallel output channels within the DSP. The stream channels are parallel to the analog input channels in the DSP. The media player or DANTE stream must be selected from the WebApp.

The media player's MEDIA INs can receive the signals from the input connectors allowing to route these signals to DANTE or any other supported Audio Over IP protocol.

The media player's MEDIA INs can receive the signals from the input connectors allowing to route these signals to DANTE or any other supported Audio Over IP protocol.

The media-out can be routed in the routing section.



DanteReady™ streamer

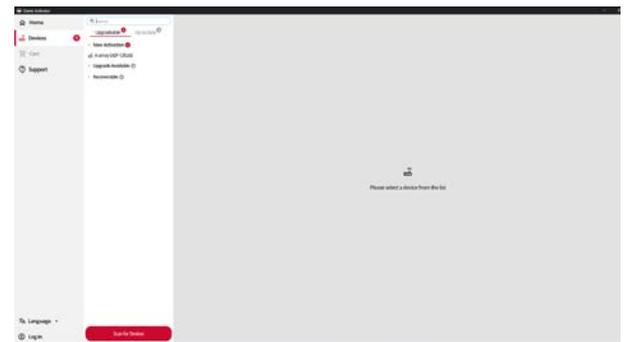
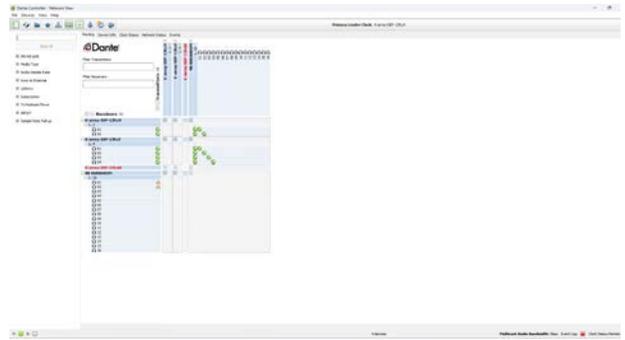


K-array devices incorporate Dante as an optional software implemented solution, giving the user to get immediate, no-fuss connectivity over IP on demand.

The Standard Kommander-KA born with no active Dante channels and can be upgraded to 2 IN x 2 OUT Dante channels (Ships with 0x0 / Upgradeable to 2x2).

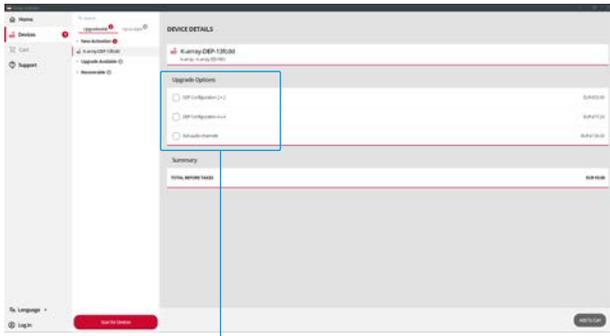
The new Kommander-KA+ can be upgraded to 8 IN x 8 OUT Dante channels, providing redundancy on a secondary network.

Customers can make channel purchases directly within Dante Controller using Audinate's payment system.



Kommander-KA

User Guide



Dante Channels available with IEB-Pro

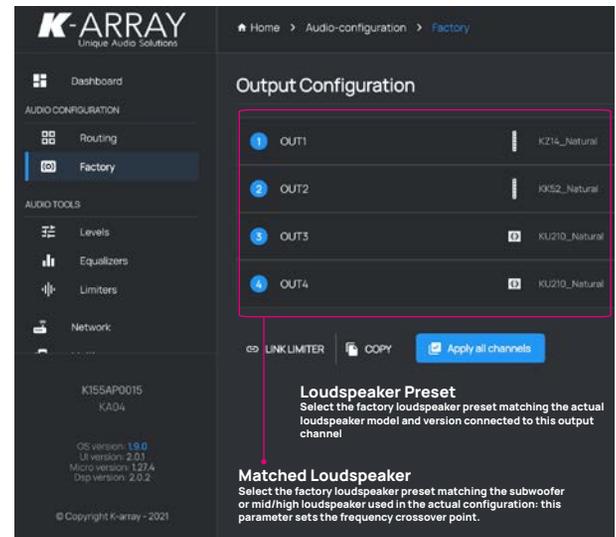
When a unit receives Dante audio packets, it reconstructs them back into a continuous digital audio stream, which is then played out over the DSP Media channels. The Dante audio implementation is 100% lossless 24- or 32-bit PCM, 48 kHz sample rate.

Audio Configuration

Use this menu to access the input/output signal routing and output configuration

Factory Output configuration

The Output Configuration is where the K-array loudspeaker factory presets can be loaded on the output channels.



By default, all Kommander-KA units born with all the amplifier's output connections muted: in order to activate the output channels the output configuration shall be set.

Care must be taken matching the loudspeaker presets with the actual loudspeaker configuration. Factory presets are available for K-array and KGEAR products.



Ensure to set the proper loudspeaker factory presets corresponding to the actual loudspeakers connected to the amplifier output channel

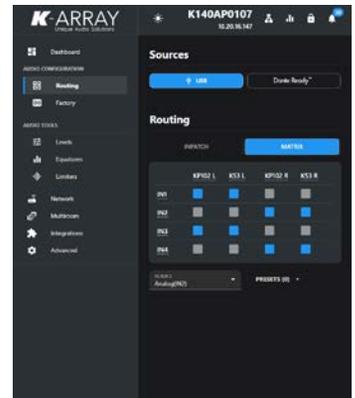
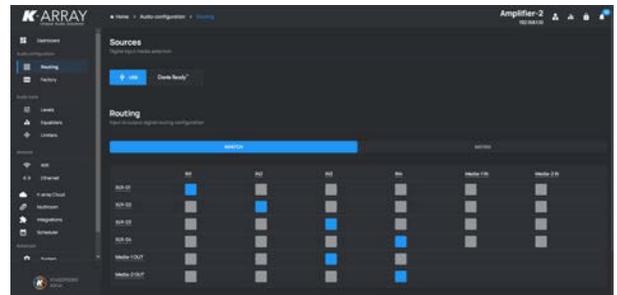
1. Navigate the menu and go to Audio Configuration.
2. Go to the Output Configuration section.
3. Select the output channel to be configured.
4. Select the speaker factory preset corresponding to the loudspeaker model and version actually connected to the amplifier output connector.
5. If needed, set the number of loudspeakers that are connected in parallel to the amplifier output connector.
6. Select the matching loudspeaker, i.e. the subwoofer If needed set the proper dedicated channels.
7. Go to the Routing section and set the proper signal routing.

INPUT PATCH and MATRIX

4-channels Kommander-KA and Kommander-KA+

The Routing menu provides access to the INPUT PATCH and the MATRIX.

The INPUT PATCH provides to route the physical connections to the DSP input channels. The DSP manages the signal before the amplifier output stage.



The Matrix provides to route the DSP outputs to the amplifier module physical speaker output connectors.

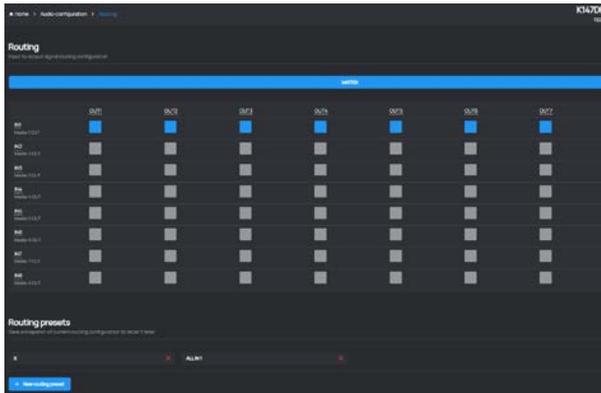
Kommander-KA

User Guide

Routing and Matrix

8-channels Kommander-KA and Kommander-KA+

The Routing menu provides access to the MATRIX. The Matrix allows each of the 8 analog inputs to be matched with the corresponding 8 outputs. Media output from the DSP is paralleled with the analog inputs.



Network

This menu section allows the user to monitor and set the network parameters.

WiFi - Standard Kommander-KA only

The WiFi can be configured to connect the unit to a wireless LAN as a CLIENT or, alternatively, to create an independent local wireless network behaving as HOT SPOT.

By default the WiFi is set as HOT SPOT allowing any mobile device to connect to the unit.

By default, the SSID of the HOT SPOT is composed by the word "K-array-" followed by the serial number of the unit; the default password is the unit's serial number. The SSID and the password of the HOT SPOT can be modified manually: the QR Code will change accordingly.

When set as CLIENT, enter the data of the WiFi LAN in order to connect the unit to that network.

The power switch allows to toggle on and off the WiFi.

Ethernet

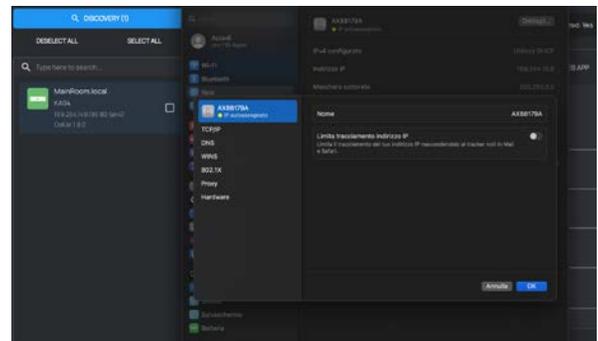
Standard Kommander-KA settings

Set the IP addressing static or DHCP.

If using computers with the Apple macOS operating system, make sure to disable any feature that hides the IP address, as the DHCP server needs to be able to assign an IP address to the machine.

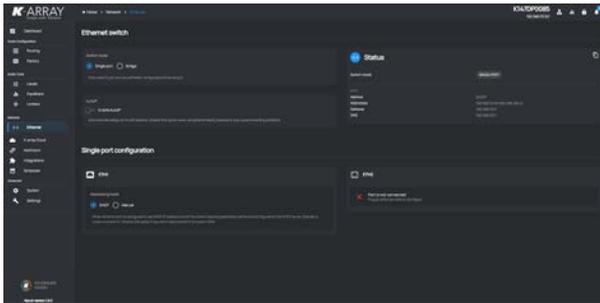
- Network Settings > IPv4 configured > using DHCP - IP address assigned > details window: Disable IP address tracking limitation (Usually active for privacy and security purposes.)

In the main dashboard window, there is a drop-down menu in the bottom left corner. Ensure that you select the dedicated port from this menu.



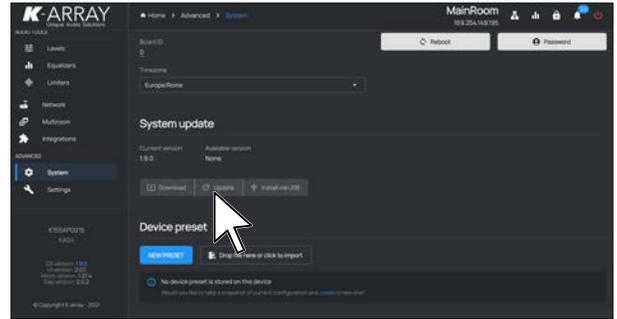
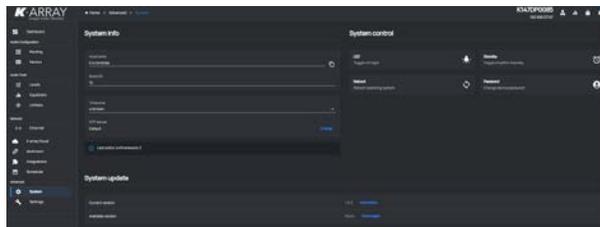
Kommander-KA+ with IEB-Pro

- Set the internal Ethernet switch to single port.
- Set the IP addressing static or DHCP.
Disable Auto-IP assignment when using DanteReady - It may cause problems to the Dante stream.



Advanced

This menu provides access to the system informations, like the device name and ID and the system update tool.



System Update

In order to update the internal DSP software and osKar operating system two methods are available: via an Internet connection (direct download from K-cloud or USB key.)

Update via Internet

1. Connect the Kommander-KA (any version) amplifier to Internet – possibly via a wired connection.
2. The Download button turns active when a new software version is available on K-array server: when active, press on the Download button to start downloading the software from the Internet. This step doesn't install the software: the installation shall be activated manually.
3. The Update button activates when the software is completely downloaded: when active, press on the Update button to start updating the Kommander-KA amplifier.

Kommander-KA

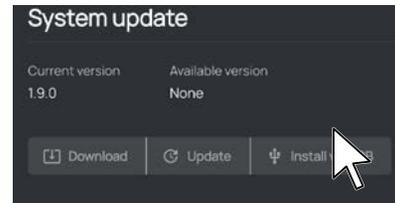
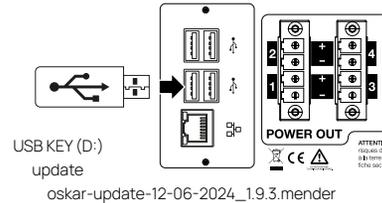
User Guide



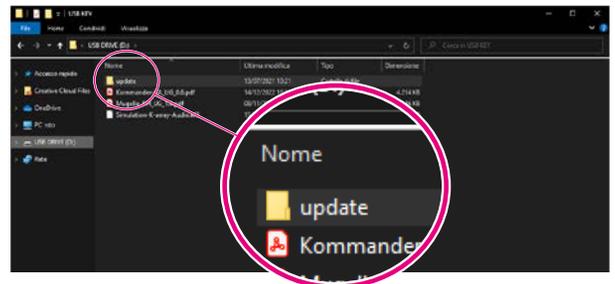
Update via USB

Make a folder named **update** (case sensitive) on the root of a USB key or drive.

- D. Open the K-array website on the Internet browser on your PC or Mac.
- E. Navigate the Products→Software menu and scroll down to the Download section of the Software webpage.
- F. Download the oskar System (ensure to be registered to the website in order to proceed with the download) and save the update file with ".mender" extension into the **update** folder on the USB drive.



- G. Plug the USB drive into a free USB port on the amplifier rear panel.



11. Press on the Install via USB button to start updating the Kommander-KA unit.

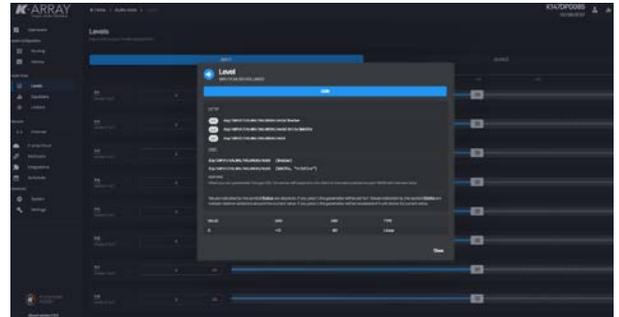
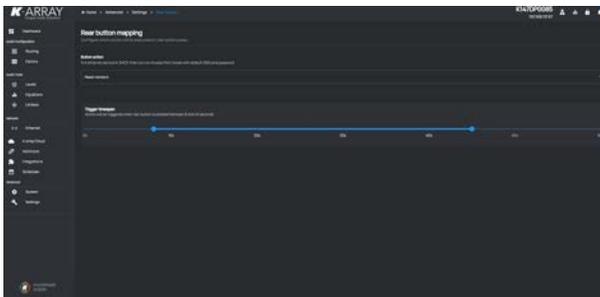
The update procedure lasts about 15 minutes: after updating the Kommander-KA amplifier reboots.

Settings

Rear button mapping

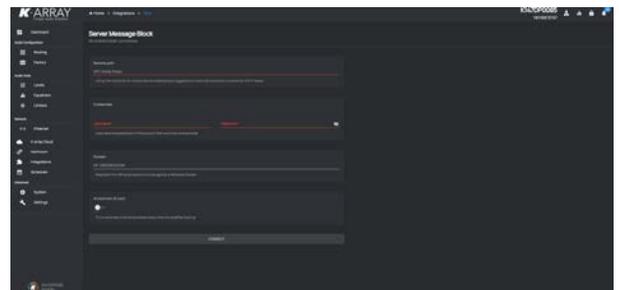
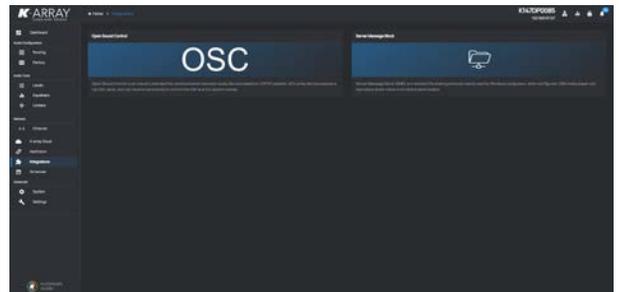
In the settings area, it is possible to map the behavior of the reset button through a dropdown menu and also set the reset and standby times.

- H. If not already operating, switch on the Kommander-KA amplifier.
- I. Connect your personal computer via Ethernet to the Kommander-KA amplifier and access the embedded web app.
- J. Navigate the user interface to the Advanced menu: the Install via USB button activates when the USB drive contains the mender file in a location folder.



Integrations

In the integrations section, it is possible to edit, send, and receive Open Sound Control (OSC) commands and REST AP command strings. This section allows to manage access to a dedicated folder for sharing and playing back audio contents, as long as the folder is connected to the same network.



Kommander-KA

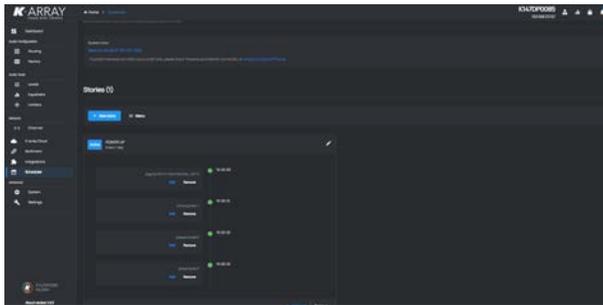
User Guide

Multiroom smart control

Kommander-KA offers the ability to manage and distribute different audio signals across multiple zones, delivering them to a network of connected speakers placed in various areas. Users can control and manage the audio content in each zone via the web app's matrix or the K-control app—a user-friendly interface designed for smart home control. The system also

Scheduler

The new web app and OsKAR update also enable advanced electronics management and scheduling. The Scheduler, which implements the NTP protocol, allows functions to be set at specific times to configure the Kommander-KA.

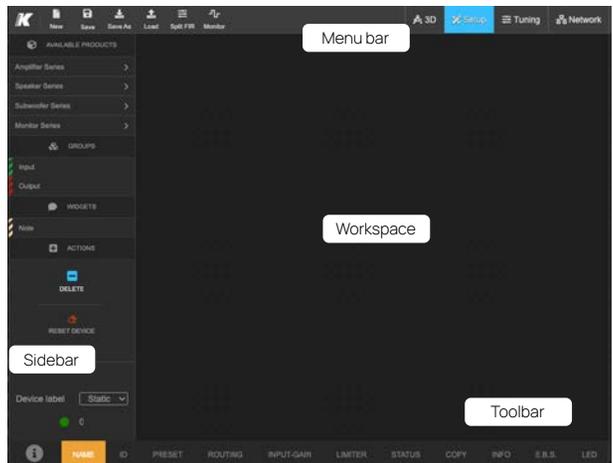


K-framework3

Kommander-KA amplifiers can be remotely controlled with the dedicated K-framework3 software available for PC and MAC on K-array website.

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 software
K-framework3



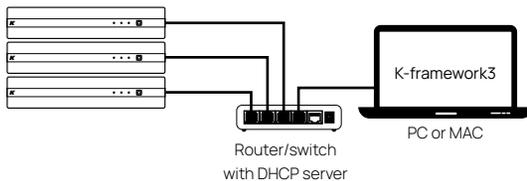
The K-framework3 operates in three modes:

- 3D – Design a loudspeaker system for your venue in a full 3D environment and make free field acoustic simulations in these mode it is also possible to load FIR filters in the EBS menu for systems operating in Electronic Beam Steering and view the actual simulation of the sound beam orientation (frequency response) based on the listening area;
- 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.

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.

K-framework3 allows to start designing the PA system off-line and sync the virtual devices to the real ones on site, when the devices are available, or import from scratch in the workspace the real active loudspeakers and 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.*

The network shall comprise of:

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

A DHCP server is highly recommended even if the device units implement the zeroconf network technologies: if a DHCP service is not available, every device will self assign an IP address in the range 169.254.0.0/16 (auto-IP).

Discovery

1. Ensure that all the units and the PC/Mac running the K-framework3 are properly connected to the same network.
2. Power up the units.
3. Launch K-framework3.
4. Open the Network window and launch the discovery:



- If 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

3D simulation

In the 3D simulation mode of K-FrameWork 3, you can position systems and speakers at precise height and distance coordinates. The system then calculates sound emission and simulates sound pressure levels based on these coordinates and the defined dimensions of the listening area, allowing for accurate configuration and adjustment.

Kommander-KA

User Guide

Grouping - quick start

K-framework3 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



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

like EQ filters, time delay, and volume settings.

A. In Setup mode: set the unit's local parameters (presets, routing, input gains, limiters, etc).

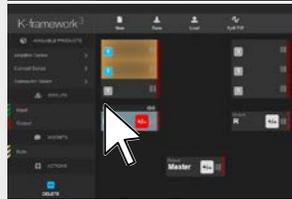
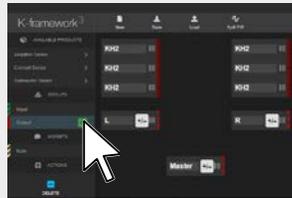
B. Add INPUT and OUTPUT groups as needed.

C. Switch to Tuning mode.

D. Align the system using

the tools available on the groups (eq, delay, polarity, etc).

E. In Copy mode: edited parameters can be copied to other groups.



K-Monitor

K-monitor is a specialized tool designed by K-array for advanced functionalities with Kommander-KA systems and amplifiers, including:

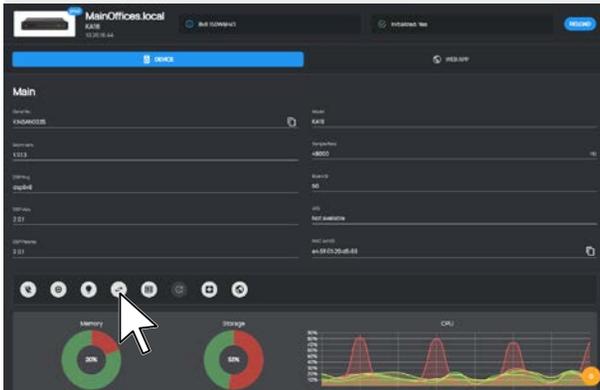
- **Control:** Provides comprehensive control over connected devices, allowing for precise adjustments and management.
- **Optimization:** Enhances system performance through fine-tuning and configuration adjustments.
- **System Diagnostics:** Offers detailed diagnostics to monitor and troubleshoot device health and performance.
- **Firmware Updates:** Manages firmware updates to ensure devices are running the latest software, including:
- **New Features:** Access to the latest functionalities and improvements developed by K-array, enhancing device performance and capabilities.
- **Bug Fixes:** Resolution of any software issues or bugs that may have been present in previous firmware versions, improving system stability.
- **Security Enhancements:** Updates often include security patches to protect devices from vulnerabilities, ensuring a more secure operating environment.
- **Compatibility:** Ensures that all devices within a system are compatible with one another, particularly after adding new equipment or integrating with other technologies.
- **Network Management:** Facilitates the management of devices across a network, enabling centralized control and monitoring.

K-monitor helps maintain an optimized, secure, and well-integrated audio system, making it an essential tool for professional audio environments.

Updating Firmware EBS function update

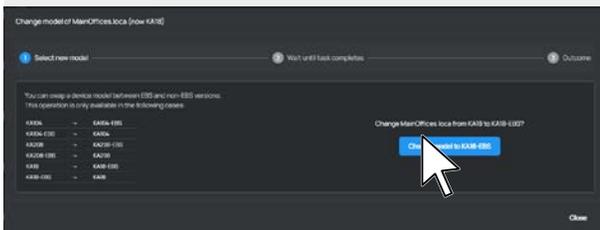
The Kommander-KA and Kommander-KA+ amplifier firmware can be updated to EBS using the K-Monitor software version 1.4.4 or higher.

- F. Connect the computer running the K-Monitor software to the same network comprising the Kommander-KA amplifier to use.
- G. Launch the software and let it discover the amplifier.
- H. Click on the amplifier icon in the left sidebar: the main



window will show the amplifier parameters.

- I. Click on the "double arrow" icon button to start the



WINDOWS and OSX software
K-Monitor

click to go



Kommander-KA

User Guide

Advanced control apps and cloud services

K-Control

K-control and K-cloud are integral components of K-array's ecosystem for managing and optimizing audio systems.

K-control is a mobile app designed for real-time control of K-array's audio equipment, offering a user-friendly interface for adjusting settings, monitoring performance, serving as a smart home control software. It provides seamless control over devices, enabling quick adjustments and efficient management in various audio environments direct from a tablet (it incorporates REST and OSC protocol for an advanced design tool for manage and real-time control).

K-Cloud

K-cloud, on the other hand, is a cloud-based platform and service that extends the capabilities of K-array's ecosystem by providing remote access and management. Through K-cloud, users (installers) can register, monitor and control their audio systems or either different installations, from anywhere with an internet connection, facilitating centralized management, real-time updates, and system diagnostics. This platform allows for scalable and flexible management of multiple installations, making it ideal for large or distributed audio systems.

Together, K-control and K-cloud enhance the ease of use and functionality of K-array's audio solutions, ensuring optimal performance and convenience for users in professional audio settings.



WINDOWS and OSX software
K-ARRAY Software suite

Service

To obtain service:

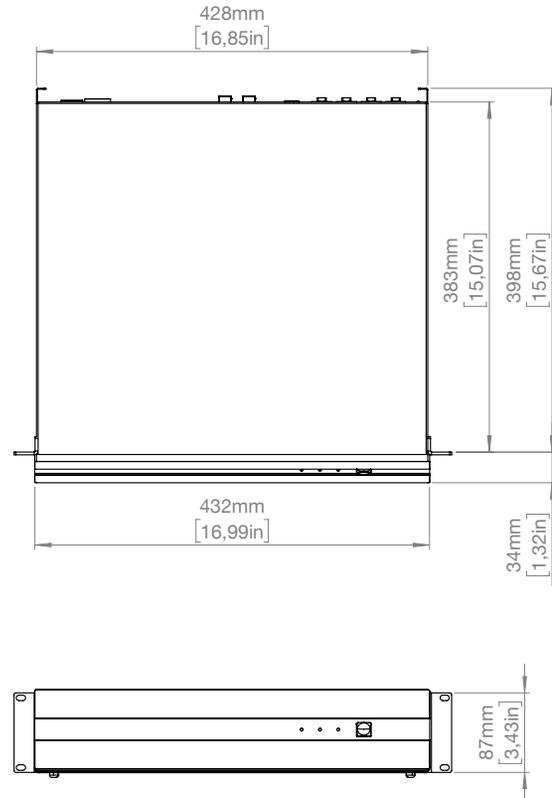
1. Please have the serial number(s) of the unit(s) available for reference.
2. Contact the official K-array distributor in your country: find the Distributors and Dealers list on K-array website. Please describe the problem clearly and completely to the Customer Service.
3. You will be contacted back 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 responsibility of the purchaser.

Any attempt to modify or replace components of the device will void 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.

Mechanical Drawing



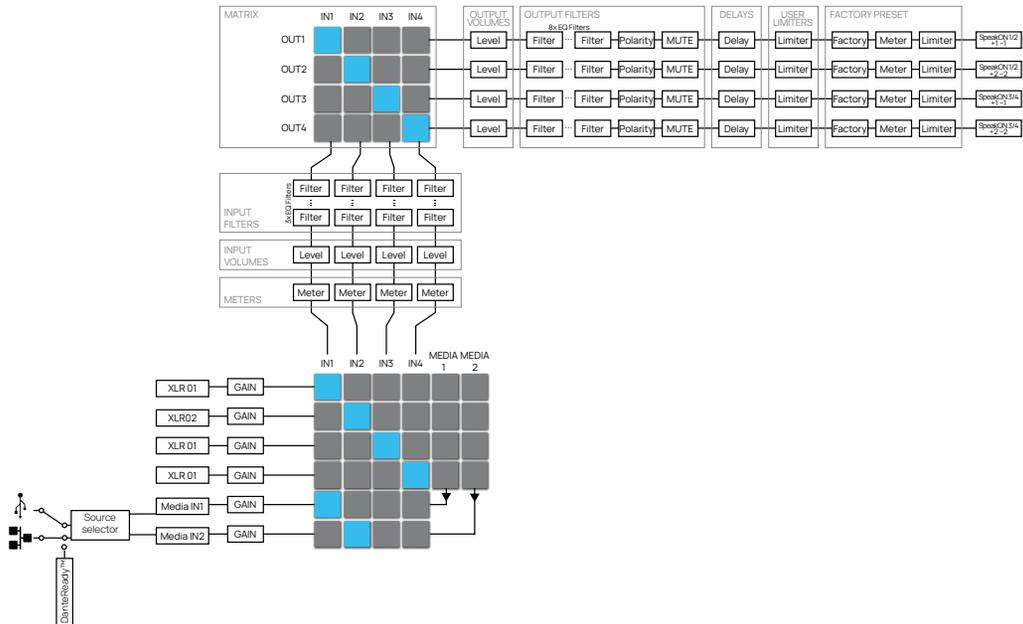
Kommander-KA

USER GUIDE

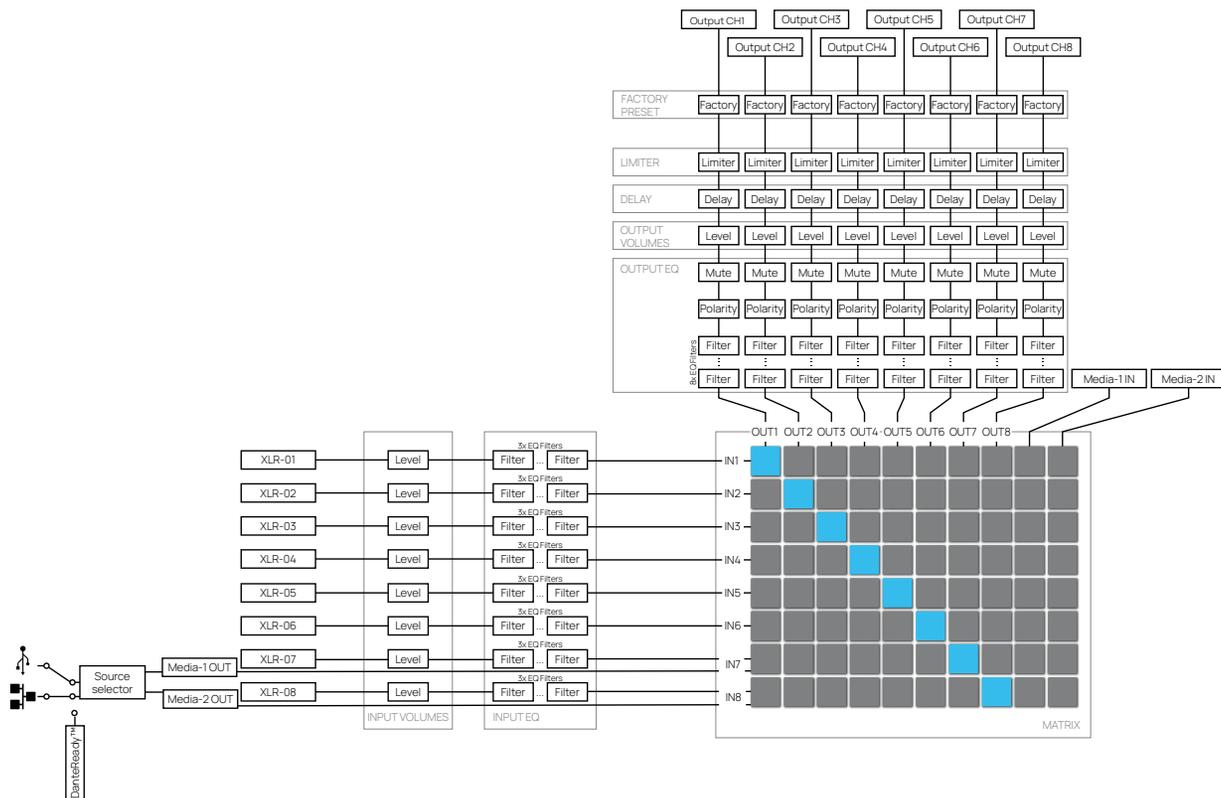
DSP Block Diagram

Standard Kommander-KA

4-channel units: KA14 I, KA34, KA104



8-channel units: K18, KA28, KA68, KA208

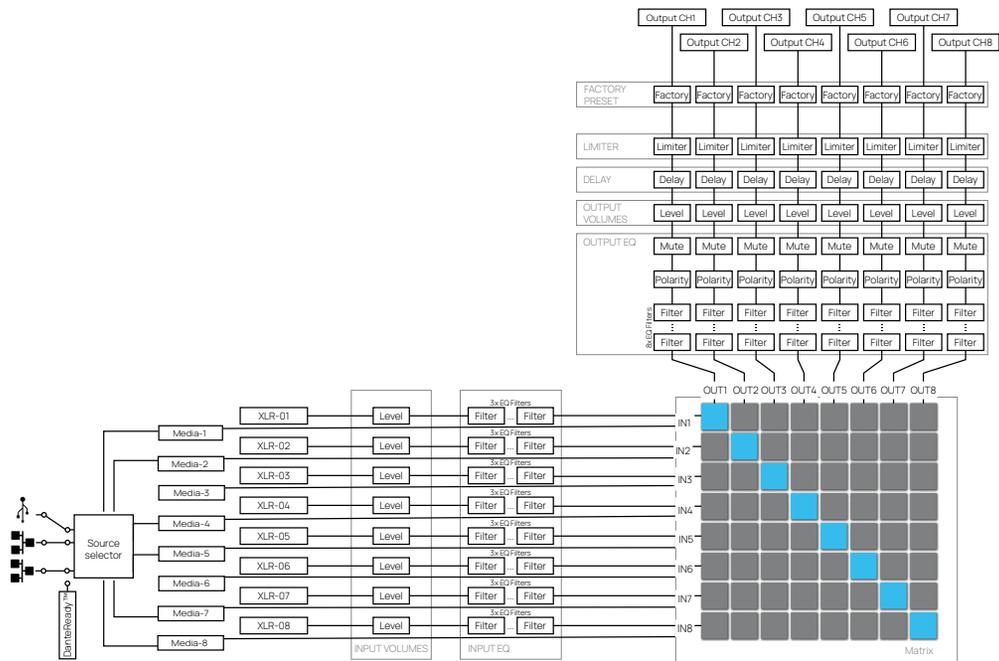


Kommander-KA

USER GUIDE

Kommander-KA+

8-channel units: K18+, KA28+, KA68+, KA208+*



*KA104LIVE / KA208LIVE The architecture of the DSP KA208LIVE and KA104LIVE is analogous to the models illustrated, with the exception that CA-COM inputs are used in place of XLR inputs.

Technical Specifications

	Kommander-KA14 I	Kommander-KA34	Kommander-KA104
Type	4ch switching mode, Class D Amplifier		
Output Power ¹	4x 600W @ 2Ω	4x 750W @ 4Ω	4x 2500W @ 4Ω
Minimum impedance	2Ω	4Ω	4Ω
Frequency Response	20 Hz - 20 kHz (±1 dB)		
Connectors	Input: 4x XLR-F balanced input Output: 4x XLR-M balanced LINK output 2x PC 4/ 4-ST-7,62 speaker output		Remote connectivity: 1x Ethernet RJ45 4x USB-A Wi-Fi IEEE 802.11 b/g/n Digital channel count 2 x 2
DSP	Grouping, Equalization, Limiters, Routing, Level, Loudspeaker presets		
Remote control	Wi-Fi dedicated APP K-framework3 via wired Ethernet connection		
MAINS Operating Range	100-240V AC, 50-60 Hz with PFC		
Power Consumption	400 W @ 8Ω load, Pink noise, 1/4 rated power	600 W @ 8Ω load, Pink noise, 1/4 rated power	600 W @ 4Ω load, Pink noise, 1/4 rated power
Protections	Thermal protection, output short circuit, RMS output current protection, high frequency protection, power limiter, clip limiter.		
IP Rating	IP20		
Dimensions (WxHxD)	430 x 87 x 430 mm (17 x 3,4 x 17 in)		
Weight	6 kg (13,2 lb)	7 kg (15,4 lb)	8,15 kg (18 lb)

¹EIAJ test standard (single channel driven)

Kommander-KA

USER GUIDE

	Kommander-KA18	Kommander-KA28	Kommander-KA68	Kommander-KA208
Type	8ch switching mode, Class D Amplifier			
Output Power ¹	8x 150W @ 4Ω	8 x 600W @ 2Ω	8x 750W @ 4Ω	8x 2500W @ 4Ω
Minimum impedance	4 Ω	2 Ω	4 Ω	4 Ω
Frequency Response	20 Hz – 20 kHz (±1dB)			
Connectors	Input: 8x XLR-F balanced input Output: 4x PC 4/ 4-ST-7,62 speaker output		Remote connectivity: 1x Ethernet RJ45 4x USB-A Wi-Fi IEEE 802.11 b/g/n Digital channel count 2 x 2	
DSP	Grouping, Equalization, Limiters, Routing, Level, Loudspeaker presets			
Remote control	Wi-Fi dedicated APP K-framework3 via wired Ethernet connection			
MAINS Operating Range	100-240V AC, 50-60 Hz with PFC			
Power Consumption	300 W @ 8 Ω load, Pink noise, 1/4 rated power	800 W @ 8 Ω load, Pink noise, 1/4 rated power	1200 W @ 4 Ω load, Pink noise, 1/4 rated power	1200 W @ 4 Ω load, Pink noise, 1/4 rated power
Protections	Thermal protection, output short circuit, RMS output current protection, high frequency protection, power limiter, clip limiter.			
IP Rating	IP20			
Dimensions (WxHxD)	430 x 87 x 430 mm (17 x 3,4 x 17 in)			
Weight	7 kg (15,4 lb)	7,4 kg (16,3 lb)	8,3 kg (18,3 lb)	10 kg (22 lb)

¹EIAJ test standard (single channel driven)

	Kommander-KA18+	Kommander-KA28+	Kommander-KA68+	Kommander-KA208+
Type	8ch switching mode, Class D Amplifier			
Output Power ¹	8x 150W @ 4Ω	8x 600W @ 2Ω	8x 750W @ 4Ω	8x 2500W @ 4Ω
Minimum impedance	4 Ω	2 Ω	4 Ω	4 Ω
Frequency Response	20Hz - 20 kHz (±1dB)			
Connectors	Input: 8x XLR-F balanced input Output: 4x PC 4/ 4-ST-7,62 speaker output		Remote connectivity: 2x Ethernet RJ45 - EtherCON 1x USB-A Digital channel count 8 x 8	
DSP	Grouping, Equalization, Limiters, Routing, Level, Loudspeaker presets			
Remote control	Built-in web-app and K-framework3 via wired Ethernet connection			
MAINS Operating Range	100-240V AC, 50-60 Hz with PFC			
Power Consumption	300 W @ 8 Ω load, Pink noise, 1/4 rated power	800 W @ 8 Ω load, Pink noise, 1/4 rated power	1200 W @ 4 Ω load, Pink noise, 1/4 rated power	1200 W @ 4 Ω load, Pink noise, 1/4 rated power
Protections	Thermal protection, output short circuit, RMS output current protection, high frequency protection, power limiter, clip limiter.			
IP Rating	IP20			
Dimensions (WxHxD)	430 x 87 x 430 mm (17 x 3,4 x 17 in)			
Weight	7 kg (15,4 lb)	7,4 kg (16,3 lb)	8,3 kg (18,3 lb)	10 kg (22 lb)

¹ EIAJ test standard (single channel driven)

Kommander-KA

USER GUIDE

	Kommander-KA104LIVE	Kommander-KA208LIVE
Type	4ch switching mode, Class D Amplifier	8ch switching mode, Class D Amplifier
Frequency Response	20 Hz – 20 kHz (±1 dB)	
Output Power ¹	4x 2500W @ 4Ω	8x 2500W @ 4Ω
Connectors	Input: 4x XLR-F bal input 4x XLR-M bal LINK output Output: 2x SpeakON NL4 speaker output - 1xCA-COM multichannel output	Input: 8x XLR-F bal input Output: 4x SpeakON NL4 speaker output - 2xCA-COM multichannel output
	Remote connectivity: 1x Ethernet RJ45 4x USB-A Wi-Fi IEEE 802.11 b/g/n	
DSP	Grouping, Equalization, Limiters, Routing, Level, Loudspeaker presets	
Remote control	Built-in web-app and K-framework3 via wired Ethernet connection	
MAINS Operating Range	100-240V AC, 50-60 Hz with PFC	
Power Consumption	Pink noise, 1/4 rated power 600 W @ 8 Ω load,	Pink noise, 1/8 rated power, 1200 W @ 4 Ω load
Protections	Thermal protection, output short circuit, RMS output current protection, high frequency protection, power limiter, clip limiter.	
IP Rating	IP20	
Dimensions (WxHxD)	430 x 87 x 430 mm (17 x 3,4 x 17 in)	

¹EIAJ test standard (single channel driven)

	Kommander-KA104LIVE+	Kommander-KA208LIVE+
Type	4ch switching mode, Class D Amplifier	8ch switching mode, Class D Amplifier
Frequency Response	20 Hz – 20 kHz (±1 dB)	
Output Power ¹	4x 2500W @ 4Ω	8x 2500W @ 4Ω
Connectors	Input: 4x XLR-F bal input 4x XLR-M bal LINK output Output: 2x SpeakON NL4 speaker output - 1xCA-COM multichannel output	Input: 8x XLR-F bal input Output: 4x SpeakON NL4 speaker output - 2xCA-COM multichannel output
	Remote connectivity: 2x Ethernet RJ45 - EtherCON 1x USB-A	
DSP	Grouping, Equalization, Limiters, Routing, Level, Loudspeaker presets	
Remote control	Built-in web-app and K-framework3 via wired Ethernet connection	
MAINS Operating Range	100-240V AC, 50-60 Hz with PFC	
Power Consumption	Pink noise, 1/4 rated power 600 W @ 8 Ω load,	Pink noise, 1/8 rated power, 1200 W @ 4 Ω load
Protections	Thermal protection, output short circuit, RMS output current protection, high frequency protection, power limiter, clip limiter.	
IP Rating	IP20	
Dimensions (WxHxD)	430 x 87 x 430 mm (17 x 3,4 x 17 in)	

¹EIAJ test standard (single channel driven)

This page intentionally left blank



Designed and Made in Italy

K-ARRAY surl

Via P. Romagnoli 17 | 50038 Scarperia e San Piero - Firenze - Italy
ph +39 055 84 87 222 | info@k-array.com

www.k-array.com