AUDIOCENTER

Dynamic Audio Solutions

USER'S MANUAL

K-LA12A&K-LA118A

Active DSP-controlled Line Array

RevisionA1-2021-09

Contents

Thank you for purchasing Audiocenter active line array speaker system with built-in DSP K-LA12A &K-LA118A.They have integrated technologies of switch mode power supply, Massive big power Class D amplifier and DSP control, as well as speakers made of new materials to design a new set of active line array speaker system with DSP control.

Please finish reading the manual before usage, to make sure the best performance of K-LA12A&K-LA118A series. Please keep the manual for reference in the future.

◆ Safety precautions ⚠

When you set up, install and use the K-LA12A&K-LA118A series, please follow the following safety measures strictly:

- There can be danger in any step during hanging installation. Everyone should check whether there is any damage on all hardware devices and pay attention to personal safety.
- All purchasers of Audiocenter should be professional people qualified to conduct the work related to such equipments.
- We strongly suggest the users pay full attention to local rules, regulations and laws. Installers have the responsibility to make sure the speaker installations are subject to local rules, regulations, and laws.
- If any danger or defect is detected, measures should be taken immediately to correct it.
- In touring application, please choose the installation hardware and occasion that can sustain the weight of the equipments.
- Please do not try to hang speakers over the design standard.
- Please do not place the power cable near heating source. Do not over bend or damage the power cables. Do not place heavy things on it. Please do not place the cables that may be pressed or cause stumbling.
- Please do not place the speakers near equipments sensitive to magnet fields, such as CRT displayer, TV or data saving materials.
- Only the specified rated voltage should be used for this product. Please refer to the back panel of the product for the specified voltage.
- Only the supplied power cable or plug should be used. (If you need to use the product in a place different from the purchase place, please consult your local Audiocenter distributor.)
- Please make sure to connect to proper power socket with protection grounding connection.
- Wrong grounding may cause short circuits. The product inside does not include any component that can be repaired by users. In case of abnormal operation, please stop using immediately, and contact qualified Audiocenter maintenance worker to repair.
- Please do not use the product in the rain, or near water, or in humid environment, to avoid liquid spilling to any opening.
- When any of the following situations occurs, please cut the power immediately, and pull out the power plug from the socket, and ask qualified Audiocenter maintenance worker to repair.

  -- This equipment be falled or damaged

  -- Wear or damage of the power cable or plug.

  -- Abnormal smell or smoking

  --Some substance falls into the product

  --Sound stops suddenly when using the product.

- Regularly check the power cord and plug.
- When pulling out the power plug from the power socket or the product, please make sure to grab the plug instead of the power cable. Pulling the power cable directly may cause damage.
- If the product is not used for long time, or there is thunder storm, please pull out the plug from the socket.
- Please do not place the product in any uneven position. Otherwise, it may cause falling off suddenly.
- If the product is not fixed safely, please do not place it in a position that may cause easy falling.
- Please do not block the air hole Vents. The product has air hole Vents at the back to avoid internal temperature too high. Bad ventilation may cause damage to the product or even fire.
- Please do not hang or install any other component to the handle of the speaker. It may cause damage or injure.
- Please do not press the back panel of the product to the wall. Otherwise the plug may touch the wall and separate from the cable, and cause short circuits, malfunction, or even fire.
- Before connecting the product to other equipment, please turn off the power switch of all equipments. Before turning on or off the power switch of all equipments, please turn down the volume to the minimum.
- Please do not use the product in a very high or uncomfortable volume. Otherwise, it may cause permanent damage to your ear.
- In case of sound distortion, please do not use the product. To continue using the product in such status may cause fire.
- Using mobile phones near the speaker may cause noise. In case of noise, please use the mobile phone far from the speaker.

If you need service, please contact Audiocenter service center, agent, or distributor in your area.

⚠ **In order to avoid injury to you or others and loss on equipment or property, please make sure to follow above basic items.**

Package accessories:

- Power cable
- User's manual
- Quality Certificate

Please check above items carefully. If any questions, please advise Audiocenter representative, dealers, distributors, or contact by email box: support@ac-pro.net.

Optional accessories:

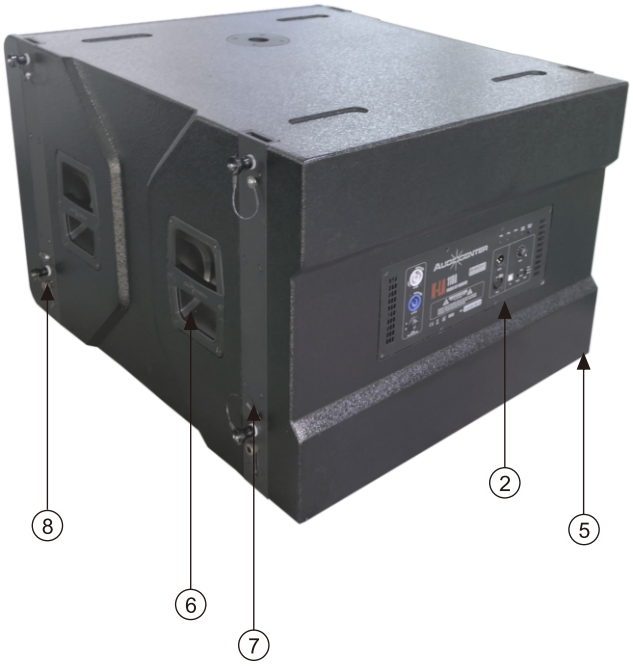
- Frame for flying and ground stacking
- Flightcase
- Three-feet sustain
- Coupling bar
- Wheel scooter(K-LA118A)
- Cover bag

◆ Appearance for K-LA12A&K-LA118A Series

K-LA12A

1. Speaker
2. LOGO
3. Grill
4. Front Slider
5. Front built-in locking Accessories
6. Handle
7. Back Slider
8. Back built-in locking Accessories
9. Amplifier module
10. Open-molded Cabinet Protector

K-LA118A



1. Speaker
2. Amplifier module
3. LOGO
4. Grill
5. Rubber feet
6. Handle
7. Back built-in locking Accessories
8. Front built-in locking Accessories

◆ K-LA12A&K-LA118A Technical Features

K-LA12A

K-LA118A

● **Features:**

1. Integrated with massive big power, switch mode power supply technology and DSP control technology.
2. With built-in DSP control technology, all functions like EQ adjustment, phase correction, delay, limiter, etc, can be realized easily.
3. High efficiency Class D amplifier technology, light weight and more compact.
4. With 3 presets of K-LA12A&K-LA118A Series, users can recall different presets for different applications to get the right sound performance.
5. Powerful protection function with built in DSP processing circuit that can give strong limiter protection to the HF and LF separately.
6. Advanced AD/DA converter. 96 KHz signal sampling frequency and 56-bit precision device to ensure the clear and clean sound.

◆ Presets for K-LA12A&K-LA118A Series

Presets for K-LA12A

Three presets of K-LA12A series speakers are set in the factory, providing different sound styles for different customers according to different applications.

1-ARRAY 2
2-ARRAY 4
3-ARRAY 6

All presets of K-LA12A system are pre-set by the factory, which cannot be edited, cleared or modified, but can only be called by customers according to different applications.

The three presets are parameters debugged based on different application of K-LA12A and K-LA118A.

- **1-ARRAY 2**

  The preset is applicable to the landing or hanging system of two K-LA12A and one K-LA118A

- **2-ARRAY 4**

  The preset is applicable to the landing or hanging system of four K-LA12A.

- **3-ARRAY 6**

  Based on ARRAY 4, the preset is applicable to the landing or hanging system of six or more K-LA12A.

Presets for K-LA118A

K-LA118A subwoofer has three presets set in the factory.

- **1-Normal**

  To match K-LA12A or third-party speaker system, 80Hz low-pass filter is set in the parameters.

- **2-Cardioid F**

- **3-Cardioid B**

  Cardioid F and Cardiod B need to be worked together to turn the system into a cardioid subwoofer. When in use, at least three K-LA118A speakers need to be hung or stacked, and one of the K-LA118A speakers should be placed upside down, with its front facing backward and its preset set to Cardioid B. Other speakers can be used normally.

K-LA12A&k-LA118A back panel control and function

1 Protect Indicator

When the protection system is activated, the LED is on. The protection system will operate in the following situations:
The amplifier over heated;
DC output;
Overload Current;
Power activation voltage too high or too low;
The amplifier in stand-by mode;

2 Limiter indicator

When the output limiter circuit is enabled, this indicator will light up. If the output voltage of the power amplifier exceeds the maximum value, the output limiting circuit will be enabled to attenuate the output signal of the power amplifier.

3 Signal indicator

The indicator lights up when an audio input signal is detected.

4 Power indicator

When speaker connected to power, the LED is on.

5 Push the button, the front LED will be off

This setting is recommended when the front LED light is too blinding.
Balance the button, the front LED will be on (working: Blue light; standby: red light).

6 OUTPUTS Socket (LINE OUT)

Balanced XLR (Male), Parallel to (LINE IN), the signal in LINE OUT is equivalent with the signal in LINE IN. And the signal in LINE OUT XLR will without influence when set up the volume for speaker.

7 Inputs socket (LINE IN)

Balanced XLR (Female), can provide frequency signal input.

8 USB terminal

Debug by factory (it is not open to the user).

9 Presets for K-LA12A&K-LA118A series

There are 3 presets in K-LA12A&K-LA118A series speakers for users to recall for usage in different applications.

10 Volume Control

Use the VOLUME (sound volume) button Knob to control the Gain of input signal in the line input connector (7). This volume control can adjust the sensitivity, so that can control ands end the signal from amplifier to loudspeaker.

11 The polarity of K-LA12A&K-LA118A series:

Polarity, also called as phase sometimes, means that the input voltage is positive or negative in specific time. In most cases, the positive will drive the diaphragm of the speaker to move forward, and the negative will pull it backward. When a specific frequency signal or similar signal repeats, the polarity must be the same, so that the input efficiency will be the highest. For subwoofer system, this is very important. Wrong connection or usage will change the polarity, and lower the system's efficiency.

K-LA118A polarity can be changed according to different using conditions.

When full range speakers system and subwoofer speaker system are combined, please change the phase according to their distance to get the best sound performance.

◆ Suspending the K-LA12A&K-LA118A series Loudspeakers

WARNING!: Read and follow these instructions carefully. If the loudspeakers are not suspended properly, they could fall causing personal injury and damage to the equipment.

Rules for Suspension

- Consult a professional mechanical or structural engineer licensed in the jurisdiction of the sound system installation, to review, verify, and approve all attachments to the building or structure.
- Employ the services of a certified, professional rigger for hoisting, positioning and attaching the equipment to the supporting structure.
- Correct use of all suspension hardware and components is imperative in sound system suspension and deployment.
- Always calculate suspended loads before lifting to make sure suspension components and hardware are used within their respective load limits.
- Consult local codes and regulations to fully understand the requirements for suspended loads in the venue in which you will suspend the equipment.
- Use only the K-LA12A&K-LA118A series Array Frame for suspending the array.
- Be absolutely certain of the integrity of any structural member intended to support suspended loads. Hidden structural members can have hidden structural weakness.
- Before lifting, always inspect all components (pins, suspension brackets, bolts, nuts, fly belt, stainless steel shackle etc.) for cracks, wear, deformation, corrosion, missing, loose, or damaged parts that could reduce the strength of the assembly. Discard any worn, defective, or suspect parts and replace them with new appropriately load-rated parts.

When a load is either moved or stopped, its static weight is magnified. Sudden movements can magnify the static weight several times. This magnification of static weight is called “shock loading”. Shock loading poses a danger to equipment and workers. The effects of shock loading can be instantaneous, or may remain undetected unless the equipment is visually damaged. Proper preparation for shock loading requires careful planning and knowledge of equipment, suspension, and lifting practices.

Shock loading of equipment and structures is usually confirmed to lifting and installation, but natural forces (winds, earthquakes, and so on) can impose shock loads several times the static load. Because of this, structures and suspension equipment must be capable of supporting several times the weight of the suspended equipment.

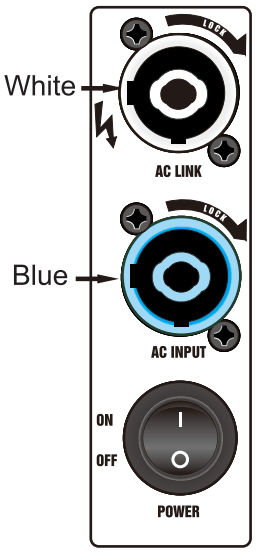
Maximum Suspended Load

The K-LA12A&K-LA118Acomponents are safe engineered design.

The mechanical parts for K-LA12A&K-LA118A array system all use the finest steel,completely consider of the safety. One side of array system can maximum set up 12 pcs of K-LA12A&K-LA118A loudspeakers and this is make sure safe when use (Any questions, please contact the service centre or agency or dealer of Audiocenter at your area)

Connect Loop-thru Power Cables

K-LA12A&K-LA118A features a loop-thru power connector system. Using four powerCON® Loop-thru cables, and one AC powerCON® Power Cord, you can power up to a maximum of five K-LA12A&K-LA118A loudspeakers on a single 12 amp/120V (8amp/240V) electrical circuit. The loop-thru connectors are color coded (blue = AC IN / white = AC LINK) and keyed differently to make sure the connections are correct.



WARNING!: The amplifier POWER switches do not remove AC mains power from the loop-thru cables. If the AC mains is connected to one K-LA12A&K-LA118A , electrical power is present on all connected loop - thru cables.

1. Make sure that all AC POWER (POWER) are off.
2. Make sure that the AC mains power cord is not connected. AC mains is the last power connection in the sequence.

WARNING!: Do not connect more than five K-LA12A&K-LA118A loudspeakers together using the loop-thru power cables (four loop-thru cables, one AC power cord). If you are using loop-thru power cables, make all loop-thru connections prior to connecting to the AC mains.

3. Insert the white powerCON® connector, on the loop-thru cable, fully into the white AC LINK connector on them amplifier.
4. Twist the powerCON® connector clockwise until it locks in place.
5. Insert the blue powerCON® connector fully into the blue AC IN connector on the next amplifier to be powered.
6. Twist the powerCON® connector clockwise until it locks in place.
7. Repeat until all of the loudspeakers (up to five loudspeakers, using four loop-thru cables) in the array are properly connected.
8. Insert the blue powerCON® connector, on the AC power cord, fully into the blue AC IN connector on the first amplifier in the chain.
9. Twist the powerCON® cable connector clockwise until it locks in place.
10. Plug the other end of the power cable into the appropriate AC mains power source.
11. You may now turn on the AC power switch(es) using the Power-On procedure in this document.

Power-on Sequence

1. Bring the output level control of the mixer (or other audio source) feeding your loudspeakers to its minimum position.
2. Turn on all source devices (CD players, mixers, instruments).
3. Push on the power switch (POWER) up to “1” to apply AC mains power to the first powered loudspeaker in the signal chain.
4. When the amplifier is turned on, the white POWER indicator LED/the blue SIGNAL Indicator LED/the red LIMIT indicator LED, and the red PROTECT indicator LED on the amplifier panel, illuminate. After a few seconds the red PROTECT indicator, the blue SIGNAL and the red LIMIT indicator go out, and the white POWER indicator LED illuminates.
5. Turn on the remainder of the K-LA12A&K-LA118A loudspeakers in the order in which they receive audio signal first to last.
6. The level controls on your mixer may now be brought up.

Power-off Sequence

1. Bring the output level control of the mixer (or other audio source) feeding your loudspeakers to its minimum position.
2. Turn the power switch (POWER) down to “0”, turn off K-LA12A&K-LA118A , starting with the last loudspeaker in the signal chain.
3. Turn off the remainder of the K-LA12A&K-LA118A loudspeakers in reverse of the order in which they receive audio signal-last to first
4. Turn off all source devices.

Disconnect AC Mains

1. Use the “Power-off Sequence” procedure and turn the AC power switches to the off position.
2. Unplug the power cable from the AC mains.
3. Disconnect all AC loop-thru cables by grasping the powerCON® cable connector, sliding the latch button away from the amplifier, twisting the powerCON® connector counterclockwise, and pulling straight out from the amplifier.
4. Remove the AC power cord by grasping the powerCON® cable connector, pressing down on the latch button, twisting the cable connector counterclockwise, and pulling straight out from the powerCON® chassis connector.

Standby Feature

All K-LA12A&K-LA118A Series loudspeakers are equipped with an automatic standby feature to conserve energy when not in use.

If either no audio signal is present at the input of a K-LA12A&K-LA118A Series system for 15 minutes, the unit goes into STANDBY, and the working station indicator in front of Speaker will from blue (operational mode) to red (standby).

When the equipment are in STANDBY, if there is audio signal, the working station indicator in front of Speaker will from red (standby) to blue (operational mode).

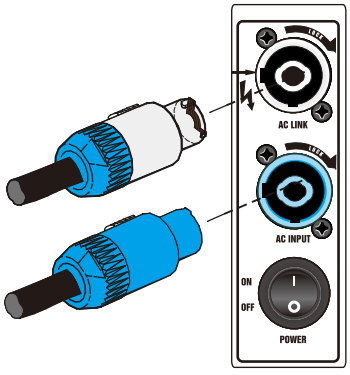
When the amplifiers are in STANDBY, a small amount of current continues to flow, keeping the amplifiers awake. The time it takes to come out of STANDBY to the full operational mode takes about 2 seconds, producing no audible effect.

System Power

For safety reasons, it is important to follow the proper power connection and disconnection sequence as addressed in this section.

Proper power on/off sequencing can help to prevent unexpected sounds from being produced by the system (pops, clicks, thumps). These sounds are unpleasant and can take away from the overall professionalism of the presentation. Always follow the rule that loudspeakers are “last on, first off”.

NOTE: The K-LA12A&K-LA118A employs a universal power supply, capable of operating the system with input AC power voltages ranging from 110V~130V/220V~240V (50/60Hz). Use only the power cable that is correct for your location.

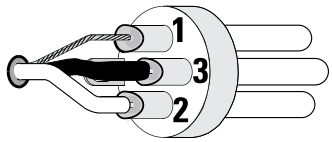


◆ Cable Connections

Making Audio connections

Figure 1 (Connection for balanced inputs), Figure 2 (Connection for unbalanced inputs)
The soldering welding way to connect the frequency patch cable:

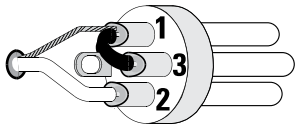
Balanced inputs:
Connect to the plug as shown.



1=shield (ground)
3=negative (-)
2=positive (+)

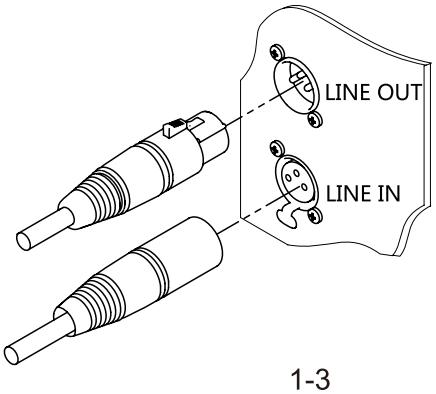
1-1

Unbalanced Inputs:
Connect to the plug as shown



1=shield (ground)
3=jumper to pin 1
2=positive (+)

1-2



1-3

The loop-thru cables supplied in the package are designed for use in the array (Figure 3)

1. Connect the audio source (male XLR plug) to the LINE IN female XLR connector on the amplifier.

2. If you are using the audio loop-thru connections, connect the female end of an XLR Audio Loop-thru Cable (supplied) to the LINE OUT connector on the first amplifier in the loop-thru chain.

3. Connect the male end of the XLR Audio Loop-thru Cable to the LINE IN of the next loudspeaker amplifier in the loop-thru chain.

4. Continue this process until all the audio connections for the loudspeakers in the array are made.

System Power

For safety reasons, it is important to follow the proper power connection and disconnection sequence as addressed in this section.

Proper power on/off sequencing can help to prevent unexpected sounds from being produced by the system (pops, clicks, thumps). These sounds are unpleasant and can take away from the overall professionalism of the presentation. Always follow the rule that loudspeakers are “last on, first off”.

◆ K-LA12A&K-LA118A Application Examples

Notice 1: Before hanging up the line array, please make sure the loading capacity. The speaker assembly and hardware can not be overloaded. The maximum combination of the line array should be no more than 12 PCS.

Notice 2: Make sure the speakers in the line array are aligned, otherwise, it means the pins are not well connected and it will make the speakers detach and thus cause damage of the assembly or injury to people.

Notice 3: While hanging up the line array, the speakers and assembly of it should be well-supported.

Notice 4: Under all circumstance, the connection between hanging frame and speakers or assembly should start from under part to the upper section.

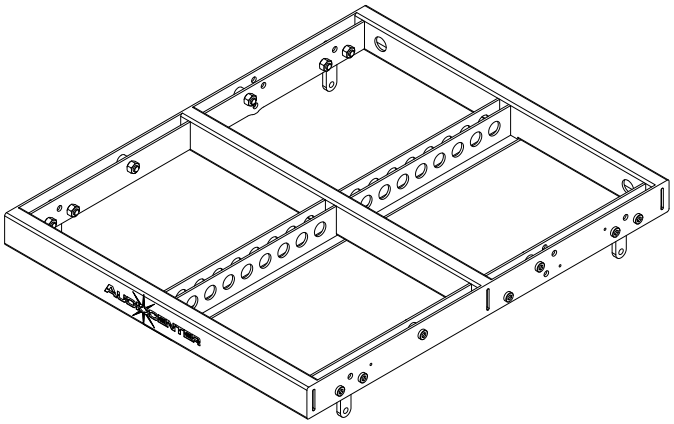
- **Connection between speaker assembly and hanging frame:**
  Before hanging up, the front and back connecting poles of K-LA12A&K-LA118A are locked. Please see the example: when rotating the assembly on the speaker upward, you should make sure the back connecting pole is aligning with the pole on the hanging frame, and then lock it with the pin. Repeat the above process until all the speakers needed are firmly locked. After that, the line array is ready and you can hang it up.

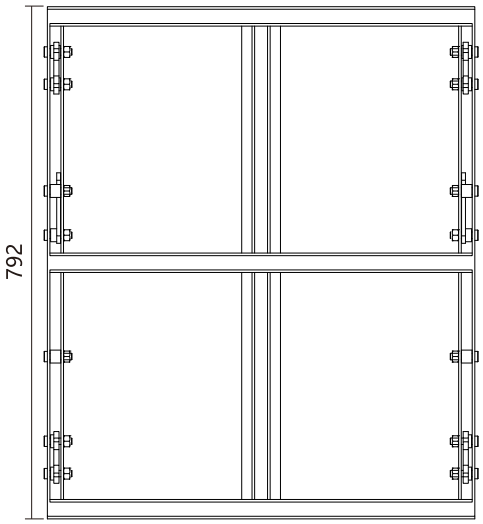
  Notice: Please make sure the speaker assembling pin are firmly locked with the hanging frame. Otherwise, if they didn't lock correctly, the speakers would probably detach and cause damaged to the speakers and injury to people.

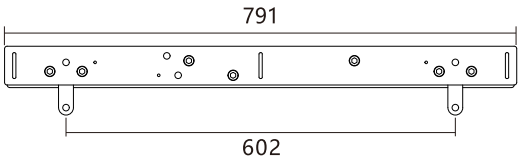
- **Hanging of the line array :**
  Notice 1: Before hanging up the line array, please consult professional construction or mechanical engineers with installation license, asking them to check, test or approve all the additional equipments on the building or construction. And you should ask the licensed professional assembling staffs to locate, hang up the line array to corresponding places.

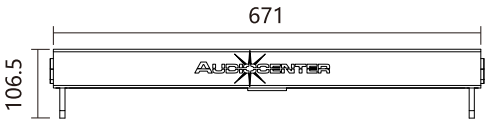
- **Dispatching of the line array:**
  Before dispatching the line array, please correctly prop up both side of it so as to lighten the stress that the heavy speakers had to its locking device, and thus separate the speakers from each other. Move down the front and back connecting pole and place it back to the speakers, and then lock it up with the pin. Please proceed the same process on the other side of the line array. Thus, all the speakers and assembly will be dispatched.
  When connecting flying belt, shackle with the hanging frame, the different hole you connected to will engender different sloping angel of the line array.

Hanging frame of K-LA12A&K-LA118A (material: steel; surface treatment: sandy black , white optional).





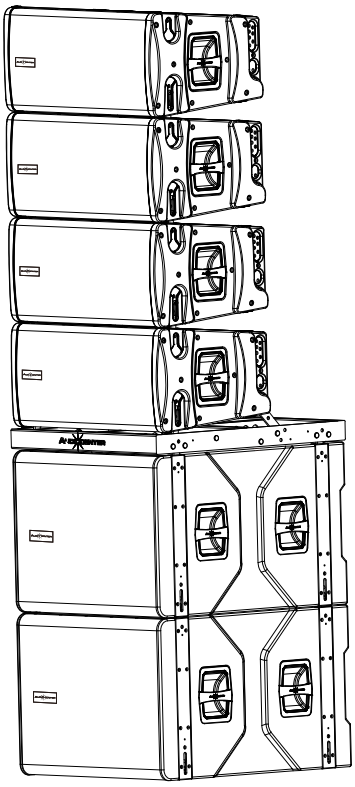


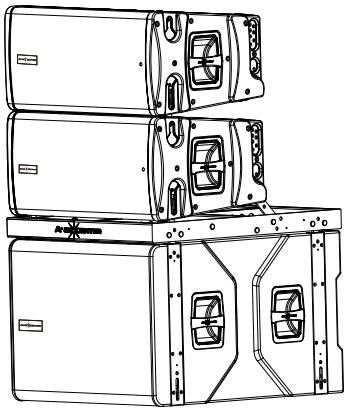


1.Stacking Guidance

Typical application sees below:

Notice: Please stack the system on even ground, otherwise it will lose its center of gravity and fall down, thus causing damage of the system or injury of people.

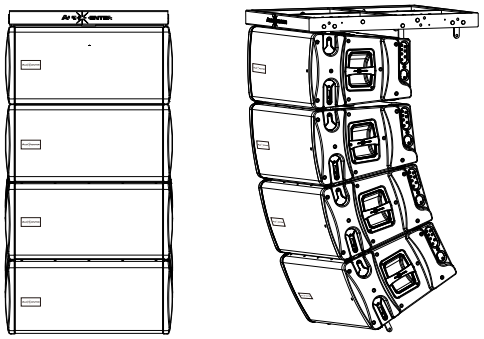




K-LA12A+K-LA118A

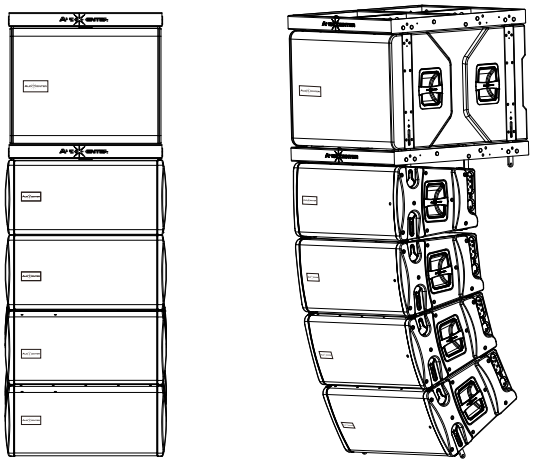
2. Flying Guidance

Typical application sees below.



K-LA12A

Notice: The maximum combination of the line array should be no more than 12PCS.



K-LA12A+K-LA118A

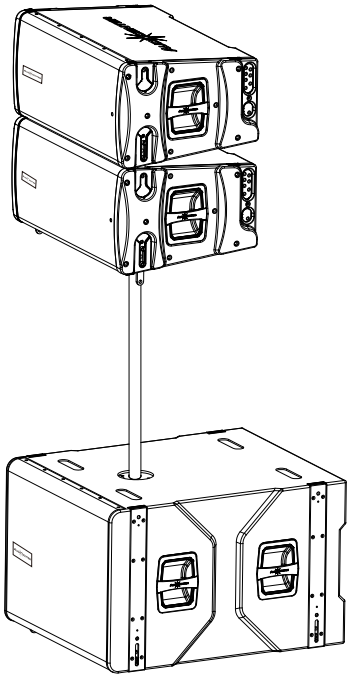
Notice: K-LA12A + K-LA118A combined system methods: 3 + 1/2 + 1; 4 + 2; 6 + 3.

3. Sustain Guidance:

Notice1: The three-feet sustain frame and coupling bar must meet the safety regulation standards of loudspeaker.

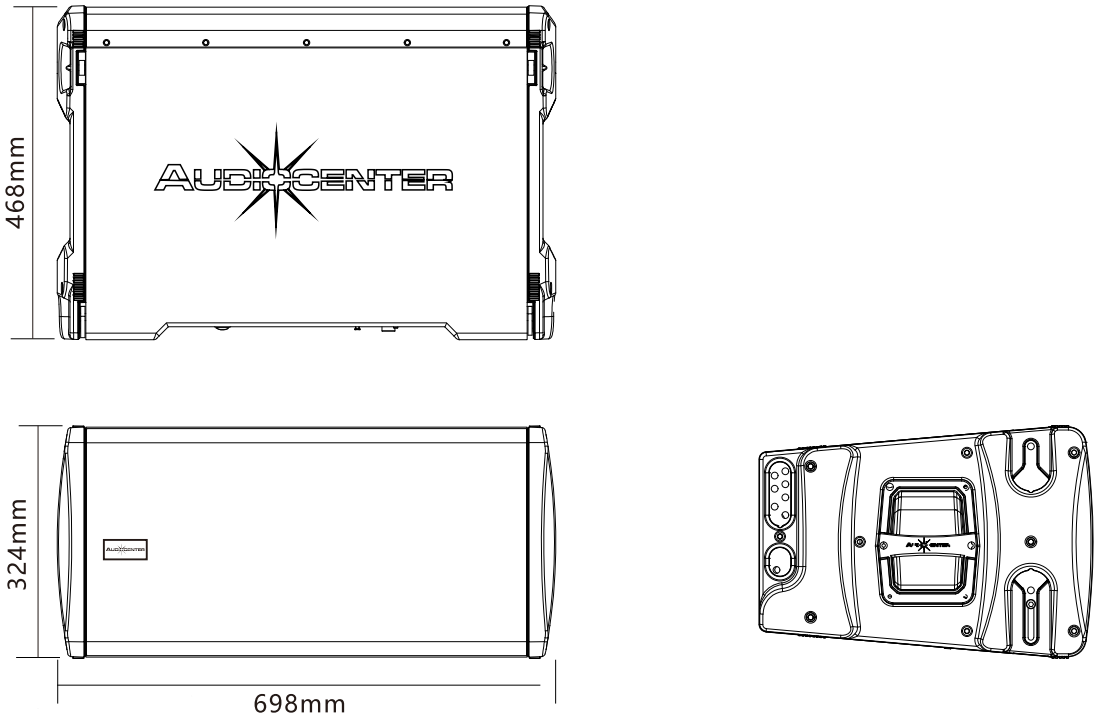
Notice2: The speakers installed on the three-feet sustain frame or coupling bar should be no more than three pieces.
See examples as follow:

K-LA12A+K-LA118A

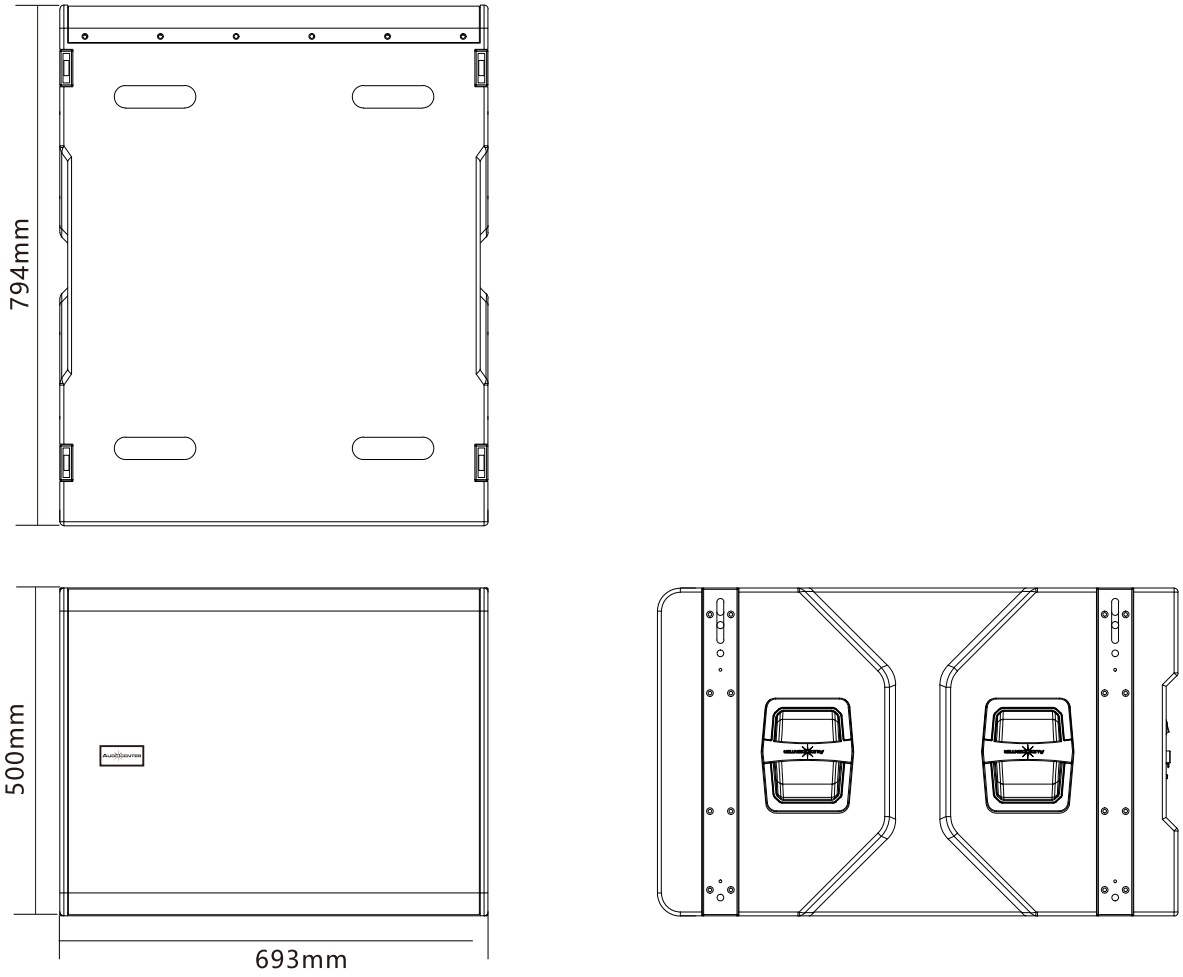


◆ K-LA12A&K-LA118A Series Dimension:

K-LA12A



K-LA118A



◆K-LA12A&K-LA118A Series Technical Specification

SPECIFICATIONS		K-LA12A	K-LA118A
Frequency Response (-6dB anechoic chamber)		47Hz-20KHz	31Hz-250Hz
Horizontal Coverage Angle (Symmetrical)		100°	/
Vertical Coverage Angle (Symmetrical)		Depend on the amount of the speaker and curvature of the line array	/
Maximum Calculated SPL/1M	**Continuous**	131dB	133dB
	Program	134dB	136dB
	Peak	137dB	139dB
Drivers	**HF**	2 x Customized Beyma driver,1.75” voice coil,1” exit	/
	LF	Customized Beyma driver, 3” voice coil	Customized Audiocenter driver, 4” voice coil
Crossover and Slope		Controlled by DSP	
Signal Input / Signal Output		Female XLR input, male XLR output	
Power Input / Power Output		Powercon connector	
Working Voltage		100-130V 60Hz / 220-240V 50Hz	

DSP		
Processor	96KHz signal sampling frequency,56bit precision	
Presets	ARRAY2,ARRAY4,ARRAY6	Normal,Cardioid F,Cardioid B

AMPLIFIER	
Amplifier	Class D
Peak Power	2000W
Frequency Response (1W 8Ω 2ch)	20Hz-20KHz(±0.5dB)
Intermodulation Distortion (20Hz-20KHz, half power)	<0.05%
Total Harmonic Distortion (20Hz-20KHz, rated power 8Ω)	<0.05%
Cooling	Fans + air convection
Protection	DC protection / Short circuit protection / Overheat protection / Output overload protection / Soft startup protection / Overvoltage protection / Undervoltage protection

CABINET		
Cabinet	CNC made of excellent wood	
Optional Accessories	Flightcase with 100mm wheels,Durable rain bag,D shackle,Fly belt,Flying frame,Coupling bar,Dolly	
Dimensions(W×H×D)	698×324×468mm	693×500×794mm
Net Weight	31.0Kg	54.0Kg
Technical Support and After-sales Service	Global application support team, EASE GLL files	

 AC - K-LA12A & K-LA118A - 202003

◆Trouble shooting

Symptom	Possible reasons	Solution
Power LED not light	Cable not connected correctly	Connect the cable correctly
No sound	1. Cable not connected correctly. 2. Or too small gain.	1. Correct with input socket correctly. 2. Adjust speaker output gain into bigger.
Feedback in the sound	1. Microphone is toward the speaker. 2. Sound is too high. 3. Wrong preset used.	1. Keep speakers out of the microphone response area. 2. Lower the output gain.
Sound discrepancy from different speakers	1. Different gain for different speakers. 2. Different preset for different speakers. 3. Subwoofers are out phase.	1. Put the same gain for different speakers. 2. Use the same preset for different speakers. 3. Make the sub in phase.
Sound distortion	1. Input volume is too big. 2. Output volume is too big.	1.Reduce the input volume of the equipments. 2. Reduce the output gain of the speakers, making the Limiter LED ighter a bit.
Not enough SPL while full range speakers used together with subs	Subs might be out of phase.	Adjust the phase of subs.

★ **Please consult distributor if there are still problems**

AUDIOCENTER

Dynamic Audio Solutions

Http://www.audiocenter.net E-mail: Info@ac-pro.net