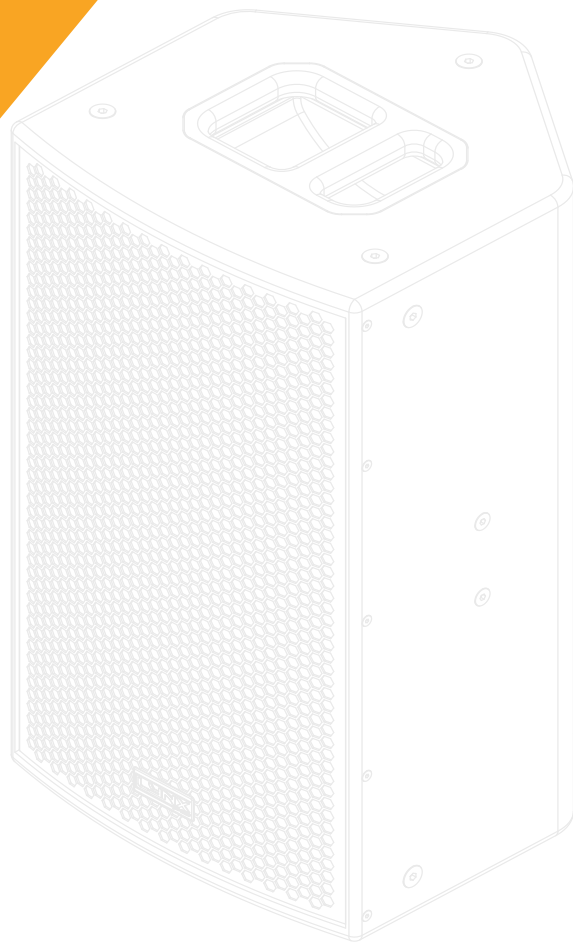


LAIA-12

USER MANUAL



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WELCOME

Before working with the LAIA series we recommend that you read this manual. In its pages you will find instructions for use, programming examples and practical advice that will be of great help.

For the maximum optimization of any sound system a first class digital processor with different processing options is required. This LAIA series become a working tool of great value, providing the user with the best solutions in the market with the highest level of accuracy and a host of features for the professional.

We hope that as a user you will be completely satisfied. We are sure that the LAIA series will meet your expectations and make it easier for you to get the most out of your system.

IMPORTANT SAFETY INSTRUCTIONS

Before starting to use this device, please read this instruction manual carefully.
Keep these instructions in the place where the equipment will be used and with easy access to them.



• Electrical appliance

The exclamation mark within a triangle identifies the presence of electricity. Use the system carefully without wet hands or feet. Avoid installing the speaker in wet or excessively humid places. Do not place material that contains liquid on or near the unit. Avoid dripping or splashing water or any liquid over the unit. Regularly check the condition of the cables and make sure these are not being walked on or pinched. Connect the speaker to bipolar, earthed mains. The mains plug must be connected to the appropriate protection (fuse or breaker). Connection to any other type of mains could result in an electrical shock and violate local electrical codes.
CAUTION: DO NOT CONNECT OR DISCONNECT AC POWER CONNECTORS UNDER LOAD.



• Heavy equipment

Apply back protection when using the system. Avoid loading and unloading at heights.



• Electrical shock risk

The diagonal mark within a triangle identifies the presence of dangerous voltage. Do not open or manipulate the inside of the box. These parts are not to be adjusted by the user. For maintenance and/or repair please go to an authorized service centre. In order to reduce the risk of electric shock, disconnect from AC before plugging or unplugging Audio signal cables. Reconnect to AC only if all signal connections are made and secured. Never manipulate the ground type plug provided. The AC mains plugs should always remain accessible for operation. Unplug the loudspeaker during storms or when it's being used for a long time.



• Hearing damage risk

These systems can reproduce large quantities of sound pressure which can damage hearing. Take precautions if you are going to be near them for extended amounts of time and do not get too close.



• Hanging / Flying

Do not hang the cabinets from the handles or from any other part other than the designated hanging point. When flying this system please observe the technical and "Rainbow" software data carefully. Never exceed the maximum safe working loads or ignore the instructions included within this manual. Use only flying accessories provided by Lynx Pro Audio S.L. Rigging must be always carried out by professionals.



• Delicate Material

Please ensure no foreign object or water enters the speaker. Clean the unit only with dry cloths. Do not use solvents.



• Overheating / Fire risk

To reduce the risk of speaker's over heating, avoid direct contact with sunlight. Avoid placing the unit close to heat inducing objects such as radiators. Do not cover the equipment in use and do not block any ventilation openings. Do not expose to open flames, such as lighted candles, close or on top of the unit.



• Electromagnetic and interference emissions

Avoid placing objects which through electromagnetic waves can damage the unit, such as mobile phones, lap tops, magnetic strip cards etc.

This system complies with normatives

EN 55103-1 (1)

EN 55103-2 (2)

(1) This device may not cause harmful interferences.

(2) This device may receive interference including interferences that may cause undesired working.



• IMPORTANT NOTE

This equipment must be used in accordance with these instructions and by trained professional personnel only. This equipment should not be used in places with extreme tropical climates. Don't expose this device to extreme humidity and or temperature values.

1. INTRODUCTION

This manual describes the recommended installation procedure for the **LAIA-12**. Special care has been taken to design a first-class range delivering superior sound quality for both touring and fixed installations.

Selected components allows the inductance to be linearized and provides the perfect balance between the driver and the ultra-linear suspension, allowing very high excursion and extreme precision in the mid-band with the lowest intermodulation distortion on the professional market. The entire series is Class D amplified, featuring universal switching power supplies and a PFC system (Power Factor Correction) for optimized input voltage, current management, and lower power consumption.

Equipped with a powerful next-generation 64-bit/96KHz DSP designed and manufactured by Lynx Pro Audio, the LAIA series offers the most recent advances in digital processing, such as FIR filters for linear frequency and phase response. The latest 32-bit/96KHz AD/DA converters make these systems among the most advanced and innovative on the market, resulting in superior sonic performance.

Additionally, all LAIA series systems can be controlled remotely using the OCS control platform, providing the user with comprehensive real-time management and system monitoring without the need for external processors.

INSTALLATION GUIDE

- **Indoor use only**

We recommend using this appliance indoors only. Moisture can damage the appliance and cause a fire.

- **Power cord safety**

- Avoid placing the speaker, cables, or any objects on the power cord. Ensure the cord is free from pinches or damage.
- The power supply circuit must be equipped with a fuse or circuit breaker for overload protection, and an RCD for ground fault protection.

- **Power disconnection**

To disconnect the device from the power source, the power plug must be removed from the power outlet. The appliance should be positioned to allow easy access to the power outlet without obstruction. This will allow you to quickly disconnect the power plug in an emergency.

- **Mounting options**

LAIA speaker can be installed on the floor, on a stage, on a subwoofer, on a tripod, wall-mounted, or mounted on a 35mm diameter coupling tube attached to a subwoofer.

- **Safety checks before installaion**

Give your speaker a safety check before mounting it. Make sure the stand, brackets, and anything else it attaches to are in good shape and all the pieces are there. Damaged or missing parts can cause the speaker to become unstable and fall.

- **Floor, tripod, or coupling tube installation**

For floor, tripod, or coupling tube installation, ensure the surface below is flat and stable.

- **Overhead installation**

- **Strong Support:** Choose mounting hardware or suspension systems that are specifically designed to handle the weight and size of your speakers.
- **Secure Suspension:** If using a tripod or hanging system, make sure the speaker is well-balanced and securely fastened to prevent it from falling, tipping over, or being accidentally bumped.
- **Double-Check Fasteners:** Before letting the music flow, take a moment to confirm that all fasteners at the suspension points are tightened properly.

- **Incorrect installation**

Improper assembly or the use of unsuitable mounting equipment can result in an unstable and dangerous installation that could cause injury.

- **Seek professional assistance**

If in doubt, consult a professional to install the equipment. Ensure that national safety regulations for the installation and use of the speaker are followed.

- **Overhead installation safety**

Refer to the speaker's manual for safe overhead installation instructions, which likely recommend two people.

- **Avoid extrem weather conditions**

Do not install the speaker in direct sunlight, rain, or any other liquids. The speaker is not waterproof. If installed outdoors, protect it from the elements.

USER GUIDE

- This cabinet creates a magnetic field that can interfere with other electronic devices like TVs, phones, and radios nearby. The same can happen if the speaker is too close to other appliances. If you notice any problems, turn off the speaker and move it away from potentially affected devices.
- The rubber feet of the appliance may stain the surface on which it rests. If necessary, use an appropriate underlay between the feet of the appliance and the floor.
- This appliance should not be used by persons (including children) with reduced physical, sensory or mental abilities or lack of experience and/or knowledge, unless they are supervised by a person responsible for their safety or have received instructions from that person on how to use the appliance.
- Never leave this appliance unattended when in use.
- In case of malfunction, stop using the appliance immediately. Do not attempt to repair it yourself.

Contact your dealer or an authorized repairer.

- For best performance, avoid using the appliance in the following conditions:
 - **Direct sunlight, dusty or dirty areas:** These can damage the appliance or shorten its lifespan.
 - **Strong vibrations or bumps:** This can disrupt the appliance's operation and potentially cause damage.
 - **Extreme temperatures (below 2°C or above 45°C):** This can affect the appliance's performance and efficiency.
 - **Very dry or humid environments (ideally keep between 35% and 80% humidity):** This can impact the appliance's function or shorten its lifespan.
- Never use the appliance near flames, flammable or explosive materials, or hot surfaces. Otherwise, you risk causing a fire.
- It is important to use the supplied mains power cable.
- Before switching on, make sure that the voltage and frequency of the power supply correspond to the power requirements of the appliance, as indicated in this manual.
- Never cut or tamper with the power cord or plug. If a power cord is provided with an earthing wire, this is mandatory to ensure safe operation! Risk of fatal electric shock!
- Always hold the power cord by the plug. Do not pull on the cord itself and never touch the power cord with wet hands as this could cause a short circuit or electric shock.
- Do not stick stickers, decals or other similar objects on this instrument. You could damage the finish of the instrument by removing them.
- To ensure safe operation, avoid placing liquids or objects near the appliance. If a spill happens, unplug it quickly and contact after-sales service.
- Before a thunderstorm or lightning storm, unplug the appliance from the power outlet for safety.

Maintenance

- Never attempt to disassemble, repair, or modify the appliance yourself. Doing so will void the warranty and could result in damage or malfunction. Contact an authorized service center for repair.
- Disconnect the appliance from the power supply before any maintenance or cleaning.
- If the cable or external flexible cord of this appliance is damaged, it must be replaced with a cable or cord specifically designed for this purpose and available from the manufacturer or its authorized service agent.
- Never immerse the appliance in water or any other liquid. Wipe it only with a slightly damp cloth.

Power supply

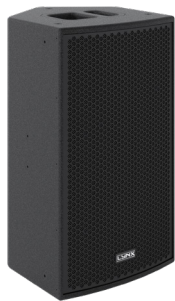
Connect the power cord to the IEC socket on the back of the speaker. Make sure the plug is fully inserted into the IEC socket of the speaker. Make sure the power switch is OFF before connecting the cable plug to the power source and then connect the power cable to the local power outlet.

The correct procedure for turning on and off can help prevent unexpected sounds from being produced by the system (cracks, clicks and small muffled noises). Always follow the rule that the speakers are “last on and the first ones off”. If a LAIA cabinet is driven from the output of another LAIA cabinet, it must be on after the unit providing the signal and off before the unit providing the signal.

CABLE (EU)	CABLE (US)	(PIN)	INTERNATIONAL
Brown	Black	Live	I
Light blue	White	Neutral	N
Yellow/Green	Yellow/Green	Earth	

LAIA- 12

High Output, self powered (class D switch mode power supply), multi purpose, point source cabinet. It consists of a 12" (3" voice coil) transducer with 1" exit throat driver delivering 90°H x 60°V precise coverage. DSP (FIR technology) controlled with 1200W amplification, 132 dB peak.



Key features

- Class D Powered (bi-amplified)
- Integrated Digital Processing
- Internal temperature control
- Electronic protection
- FIR linear phase filtering
- Online monitoring available
- Two way active system

Applications

- Outdoor events
- Theatres & auditoriums
- Frontfill/sidefill reinforcement
- Auditoriums
- Indoor live PA
- Houses of worship
- Stage monitor

General description & specifications

The LAIA-12 enclosure is a medium format, multi purpose, point source cabinet that offers an ideal solution for a wide variety of indoor and outdoor applications, both in fixed installations and/or touring. Thanks to the cabinet's design, it can be used as a stage monitor.

LAIA-12 is a self-powered 2-way system with a total of 1200W in class D, universal switching power supply. Equipped with a powerful next-generation 64-bit/96KHz DSP designed and manufactured

by Lynx Pro Audio, it offers the most recent advances in digital processing, such as FIR filters, which offer linear frequency and phase response. The latest 32-bit/96KHZ AD/DA converters make the system one of the most advanced and innovative point source on the market, resulting in superior sound quality. Additionally, LAIA series systems can be controlled remotely using the OCS control platform, giving the user the ability to control the systems without the need for external processors.

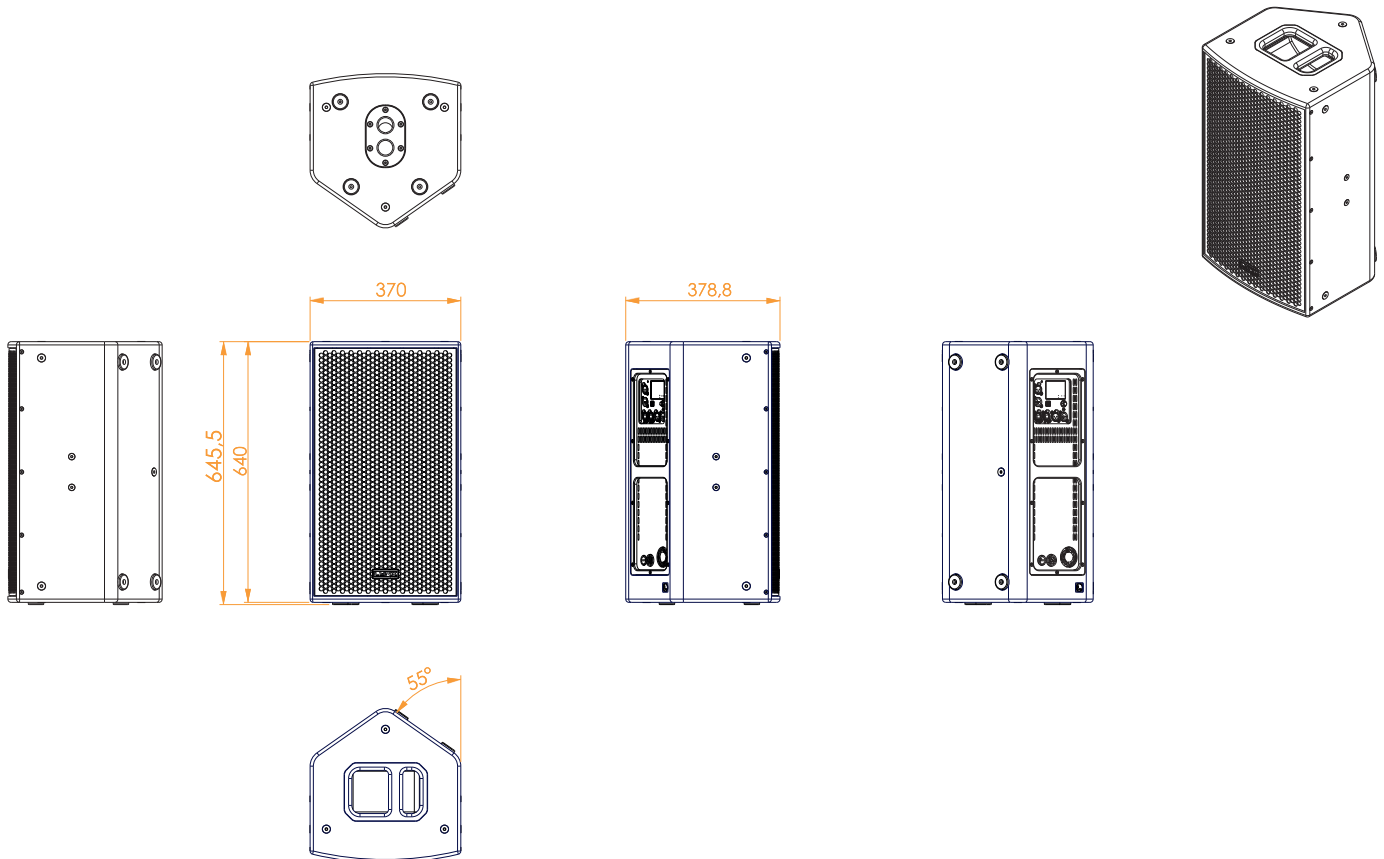
Technical Data

Components	
• LF:	12", 3" voice coil, waterproof treatment for both sides
• HF:	1 x 1" exit throat 1.75" voice coil
Frequency range	65 Hz - 20 KHz (-10 dB)
Frequency response	75 Hz - 18 KHz (± 3dB)
Max SPL	126 dB / 132 dB Peak*
Coverage	90° H x 60 ° V
Power	1200 W Class D (2400 W peak) with switching power supply LF amplifier: 1 x 800 W, 1600 W peak HF amplifier: 1 x 400 W, 800 W peak
DSP Processing	96 KHz / 64 bit double-precision
Control	User control interface with 2.8" IPS screen and multifunction joystick controller
Control connections	USB (DSP programming) / Dual Ethernet port
Input	Analog BAL/UNBAL XLR, Digital AES/EBU (Optional)
AC power	90 – 264V. 50/60 Hz
AC connections	16A Neutrik powerCon true1 TOP with looping output
Finish	Polyurea coating, high grade resistant paint
Material	15 mm Premium birch plywood
Dimensions	645 x 370 x 379mm (H x W x D)
Weight	25 Kg (55.12 lbs)

* Calculated maximum SPL based on rated peak power and measured sensitivity

LAIA- 12

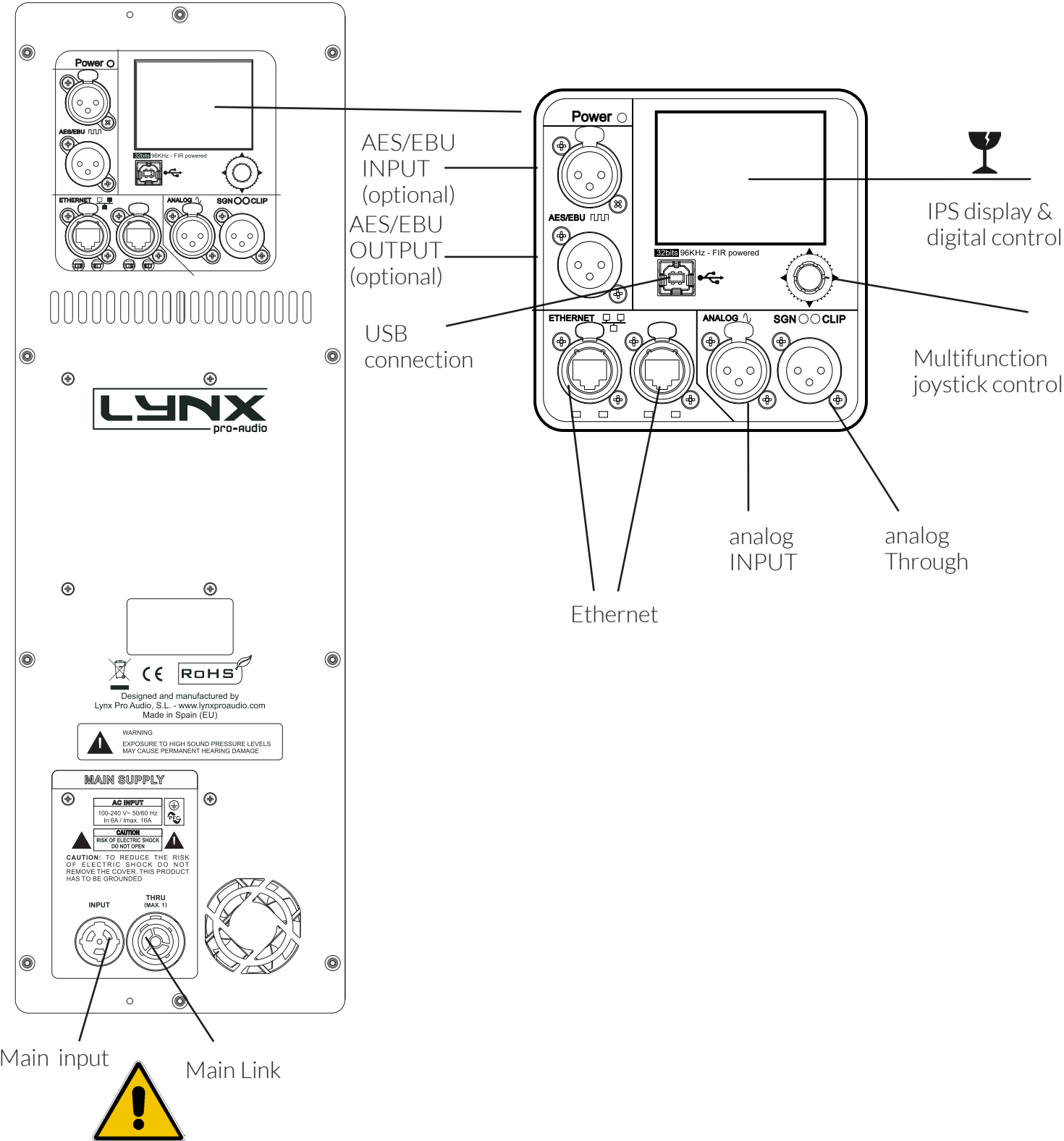
Dimensions



3. SYSTEM OVERVIEW

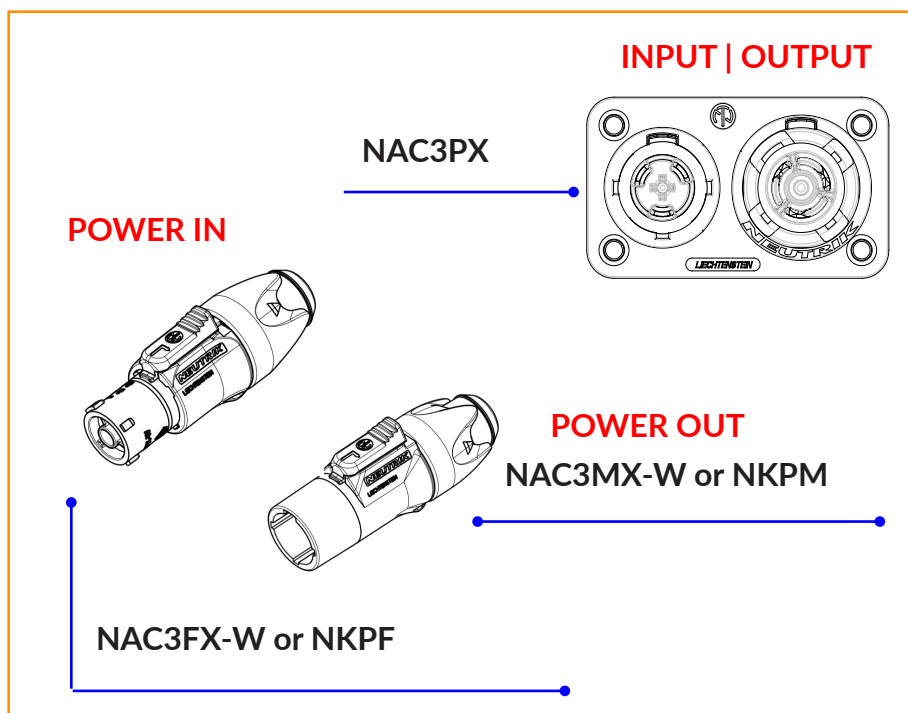
LAIA BACK PANEL

This is the back pannel of the LAIA-12 tops, including the connectors and digital control display.



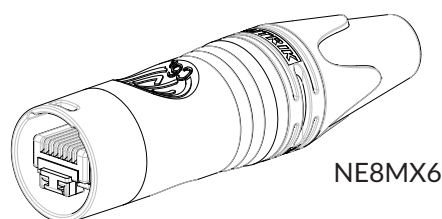
CONNECTORS AND CONNECTIONS

All the connectors and connections are placed on the back panel of the cabinets.

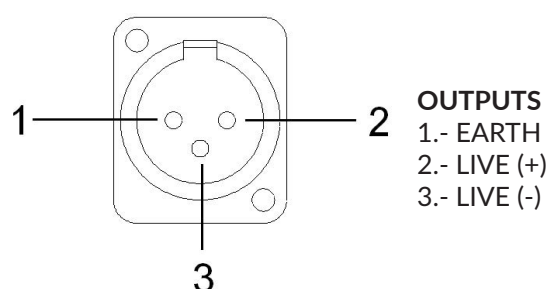
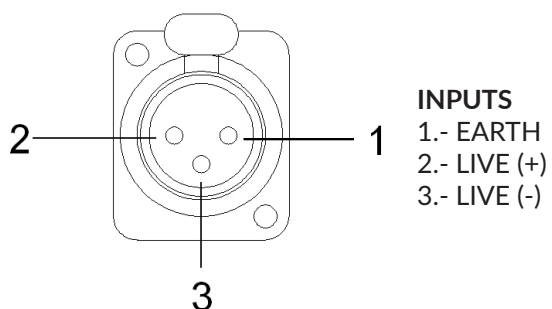


CAUTION: Do not connect or disconnect the AC Power connectors under load.

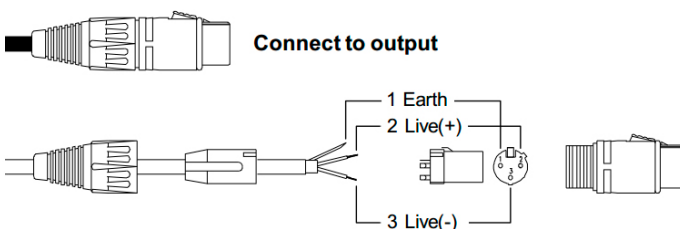
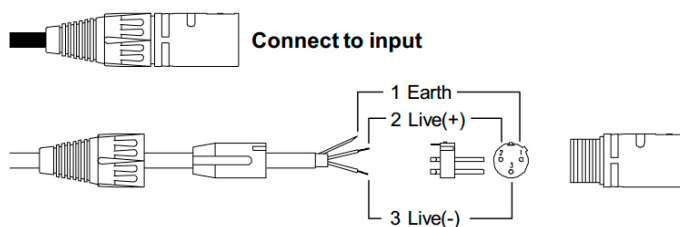
ETHERNET CONNECTOR



XLR SOCKET CONNECTORS



XLR CABLE CONNECTORS



4. CONFIGURING THE DIGITAL SIGNAL PROCESSOR

FIR FILTERS

Finite Impulse Response (FIR) filters are used in signal processing of the cabinets. FIR is a type of digital filter with linear phase characteristics. This frees system designers from the constraints of phase anomalies associated with analogue filters or their digital versions (IIR, Infinite Impulse Response). When properly used, FIR filtering can audibly improve a system’s impulse response and reduce crossover interference.

CONFIGURING THE CABINET DSP OPTIONS

On the back pannel of the cabinet you will find the digital control area. From the compact joystick located below the screen you are able to configure the Basic adjustment functions of the internal DSP. Just move the joystick to select the icons on the left of the screen. You can enter into the following functions:

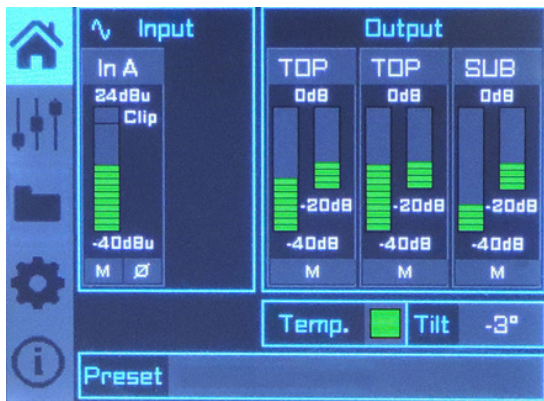


Please note that you must apply the desired configuration in each cabinet and it requires electrical power to work.

If changes are not made the display will automatically dim to avoid unnecessary light in situations where light is not wanted. To re-activate the light simply press the joystick.

CONFIGURATION PANEL

On the main screen you can see the cabinet’s input and output.

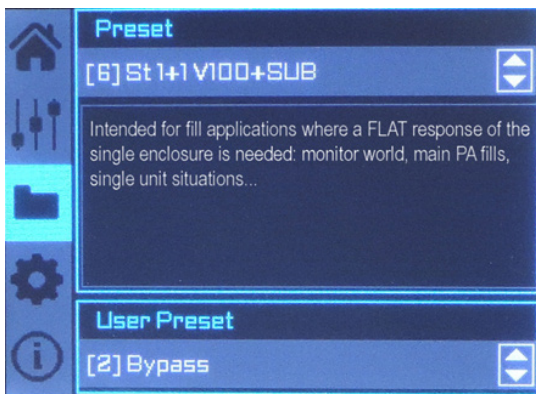


- **Input:**
Input level vumeters are shown here, as well as a clip indicator.
- **Output:**
Output level vumeters are shown here (0 dBu is the amp’s maximum level) You can check the compressor activity and control the dynamics.

On the second screen you can modify some parameters.

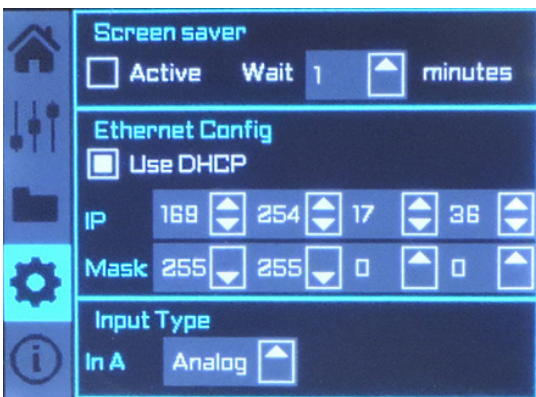


- **Gain**
- **Mute**
- **Polarity**
- **Delay**
- **High Pass Filter:** You can setup a High Pass filter selecting type, frequency and order.



The folder screen shows you the name of the preset and its description.

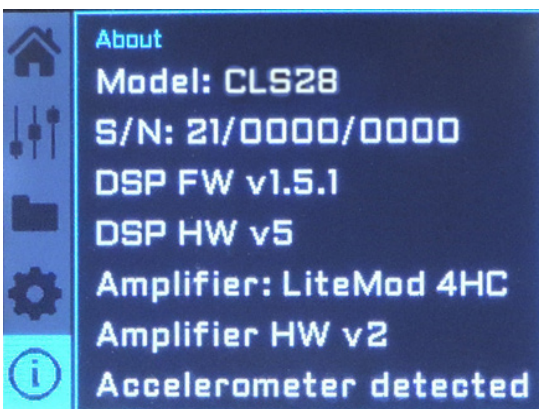
Using the joystick you can change the cabinet preset, as well as the user preset.



This screen allows you to configure Ethernet. You can choose automatic or manual IP assignation.

You can also configure the screen saver.

And here you have the input selection. You can choose between analog or AES3 for channel 1 or channel 2.



The last screen shows you some general information regarding the cabinet's components.

Here you can see the cabinet model, its serial number, DSP firmware and hardware versions, amp module model with hardware version, as well as the accelerometer status.

5. PRESET LIST

Preset	Display Name	Additional Info
01	Full Range 90x60	Full range preset. Designed for use as a PA or as a sidefill on a pole.
02	X80Hz 90x60	80Hz High Pass Filter. Designed for use as a PA or as a sidefill on a pole.
03	X100Hz 90x60	100Hz High Pass Filter. Designed for use as a PA or as a sidefill on a pole.
04	Monitor FR 90x60	Full range monitor preset with low latency. Designed for use as a floor monitor.
05	Monitor X80Hz 90x60	80Hz high pass filter monitor preset with low latency. Designed for use as a floor monitor.
06	Monitor X100Hz 90x60	100Hz high pass filter monitor preset with low latency. Designed for use as a floor monitor.

The factory presets are designed to simplify the setup process and provide an excellent starting point. However, they **should not be considered a complete plug-and-play solution**.

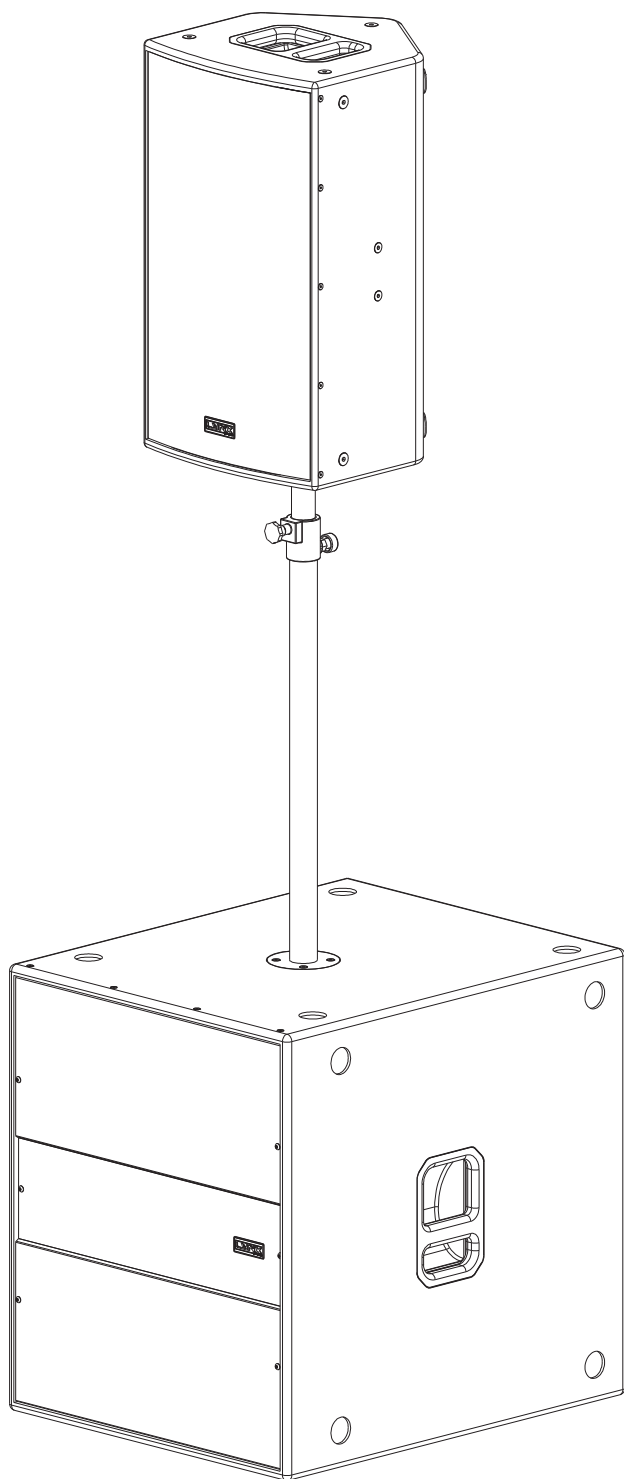
To achieve the best performance, our systems require **careful planning and proper system tuning**. We strongly recommend using **Rainbow 3D software** during the planning stage to define the optimum array configuration, cabinet angles, and audience coverage before installation.

After deployment, the system should be measured and tuned to ensure proper phase alignment and optimum sound quality. Since every venue has different acoustic characteristics, specific equalization and time alignment adjustments are required for each installation.

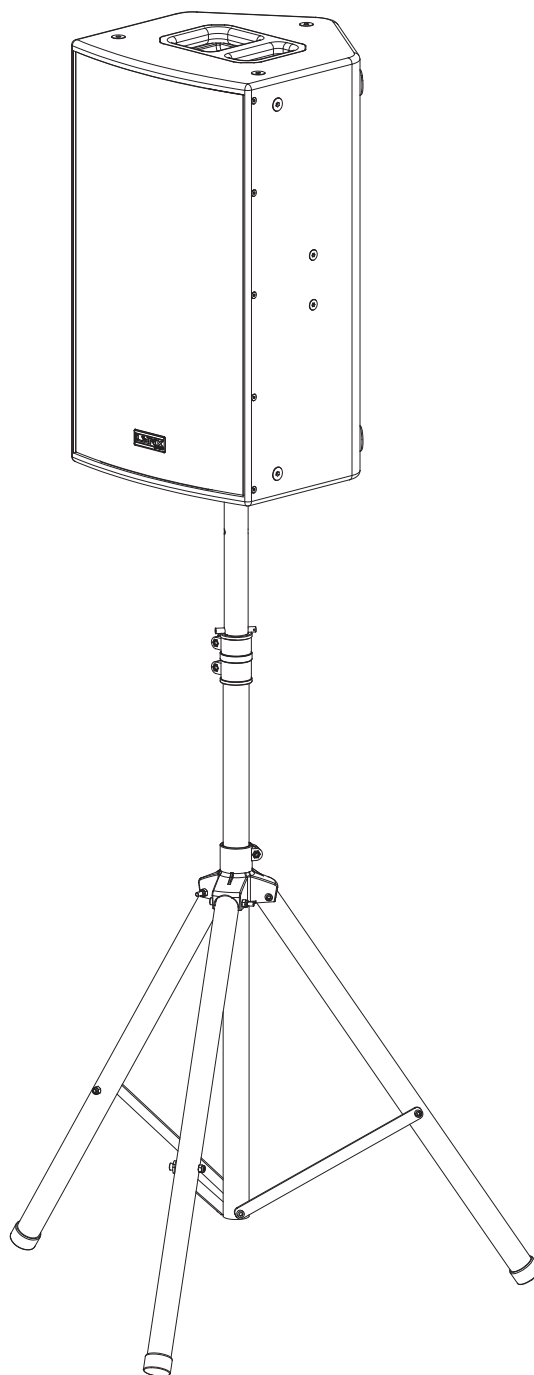
For the best results, we recommend using **professional audio measurement software with Real-Time Analyzer (RTA) and transfer function capabilities**. A properly planned and tuned system will deliver maximum performance and consistent coverage.

6. SYSTEM CONFIGURATION EXAMPLES

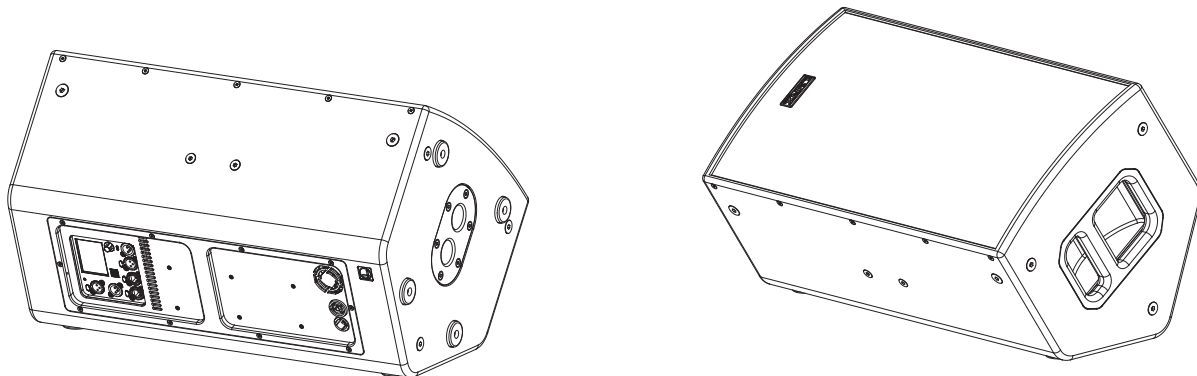
The following examples show typical configurations for different applications. They are intended as general guidelines and should be adapted to the specific requirements of each venue.



LAIA-12 mounted on a pole on a LAIA-18S subwoofer.



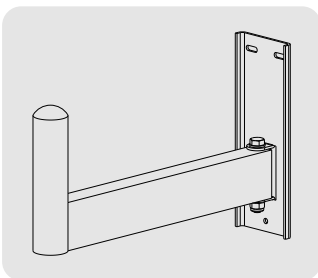
LAIA-12 mounted on a standard 35 mm speaker stand.



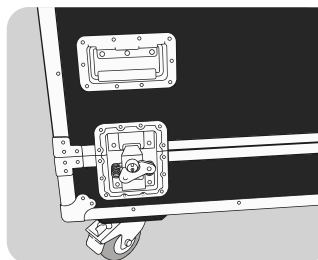
LAIA-12 in floor monitor position.

7. HARDWARE AND ACCESSORIES

The LAIA cabinets offer a variety of practical accessories to help use the system in a number of events, from touring applications to fixed installations, indoor and outdoor.



- **WB-03**
Wall bracket for top hat insertion for the LAIA-12



- **Transport**
A durable flight case is available to transport two LAIA-12.

8. ONLINE CONTROL SYSTEM

- Who is it for?

Users of Self powered DSP incorporated Lynx Pro Audio Cabinets where the user has requested the cabinets be supplied with the Ethernet Module kit.

- What is it for?

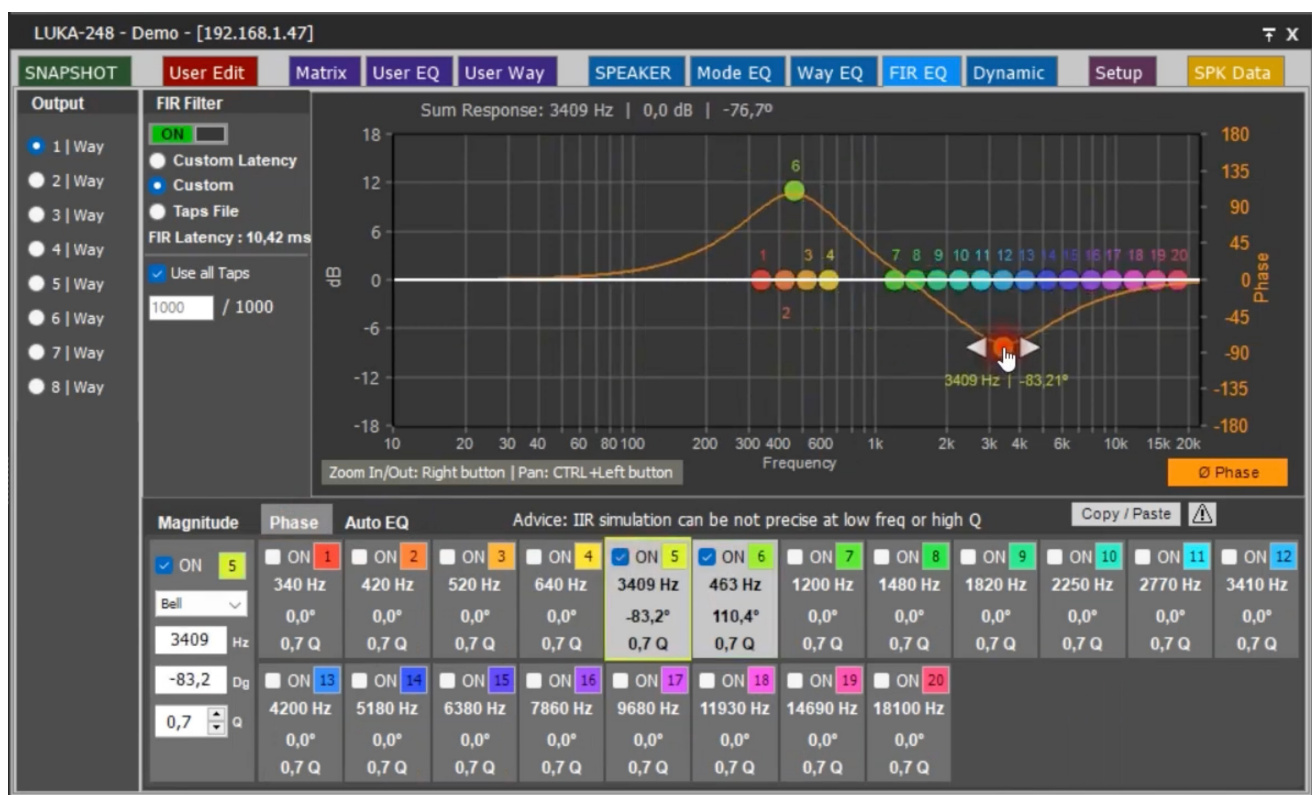
Obtain detailed information of cabinet behaviour and monitor the cabinet/s in real time. You can change the preset, gain, mute, polarity and phase. You can also activate the air absorption compensation and select the «SOLO» mode.

- How does it work?

Via Ethernet (cable or wireless). Once installed, the O.C.S. software automatically detects all the cabinets connected to the network and displays them in the O.C.S. window on the users PC.

- What does it show?

As well as displaying the cabinet model and IP address the O.C.S will be monitoring in real time and the user will be able to view RMS levels, Input clip, power module temperature, compression levels, air absorption compensation and cabinet angulation.



9. RAINBOW (Acoustic Prediction Software)

Lynx Pro Audio's R&D department is working on Rainbow 3D, our acoustic simulation software with dynamic 3D features. With a sophisticated design, Rainbow 3D stands out for its speed, being able to provide a simulation in just a few seconds. It also provides algorithms for beam steering and optimizing the listening area.

- **Designed from scratch by professionals**

Rainbow 3D has been programmed from scratch by Lynx Pro Audio engineers, using new programming procedures that achieve an effective simulation with really low calculation time.

- **Multiple listening zones**

The program can simulate all Lynx Pro Audio's acoustic enclosures located in a 3D space, including the classic side, top and front views. It can also define multiple listening zones and allows offset positioning and symmetry. Blueprint images, textures and PNG format pictures can be imported.

- **Unlimited sound sources**

Allows the acoustic simulation for an unlimited number of sound sources and audio systems. You can place as many systems (subwoofers, line arrays, columns and individual boxes) as you desire. Also, the line arrays can be placed in stack or flown configuration.

- **Beam steering**

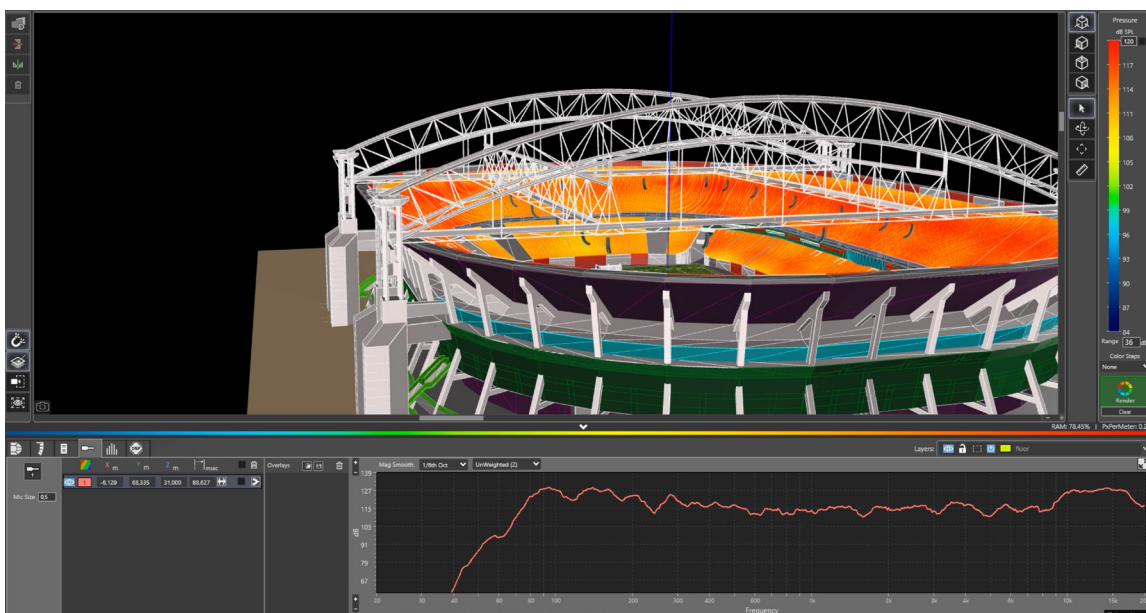
Rainbow 3D has the ability to add DSP processing to the simulation and uses algorithms to control the directivity (beam steering) in columns, without the need to tilt them physically, being able to divide the column into several beams that point to different zones.

- **Accurate optimization thanks to FIR filters**

Optimized algorithms are used in the listening area to improve the sound coverage and the frequency response. This feature can be executed in a matter of seconds. Additionally, the export of FIR coefficients can be performed with the optimization for later loading in the DSP via Ethernet or a USB device. In the near future direct communication with Lynx Pro Audio and OCS will be available.

- **Multiple measures and tools**

Likewise, the R&D department is developing multiple measurement and analysis tools for the calculated data. For example, the sound pressure curves (SPL) in the listening areas and the capture of virtual measurements that show the frequency response in the points of location indicated and added. Among other tools you will find autoplay and a wizard to set up different subwoofer arrangements.



LYNX PRO AUDIO GUARANTEE

Lynx products are guaranteed against every kind of manufacturing fault 2 year after the date of sale. When products are under guarantee, the repairing and the free supplying of the device parts in order to correct any kind of defect are guaranteed by Lynx Pro Audio S.L. In the case that the product could not be returned to the factory for checking and repairing, Lynx Pro Audio S.L. would supply all the necessary parts.

Lynx Pro Audio S.L. is not responsible for any damage or defect caused during the transport or caused by an undue or improper handling by a non-authorized person during the life of this guarantee.

All our products go through rigorous testing and quality controls. We guarantee the characteristics described here within and their quality against any fabrication defect.

The user loses all warranty rights if he incorporates or carries out any modification to the product, if he uses it outside of the stated safe working loads or does not secure the system properly using all the pins in their corresponding holes.

For any question regarding the product, the user must quote the model and serial number.

WEEE Declaration: Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime. Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions concerning the disposal of this product please contact Lynx Pro Audio S.L.



DECLARATION OF CONFORMITY

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Lynx Pro Audio S.L. declares that LAIA series are in conformity with the following EC directives:

Low Voltage Directive	2014/35/UE
Electromagnetic Compatibility EMC	2014/30/UE
RoHS Directive	2011/65/UE
RAEE (WEEE)	2012/19/UE

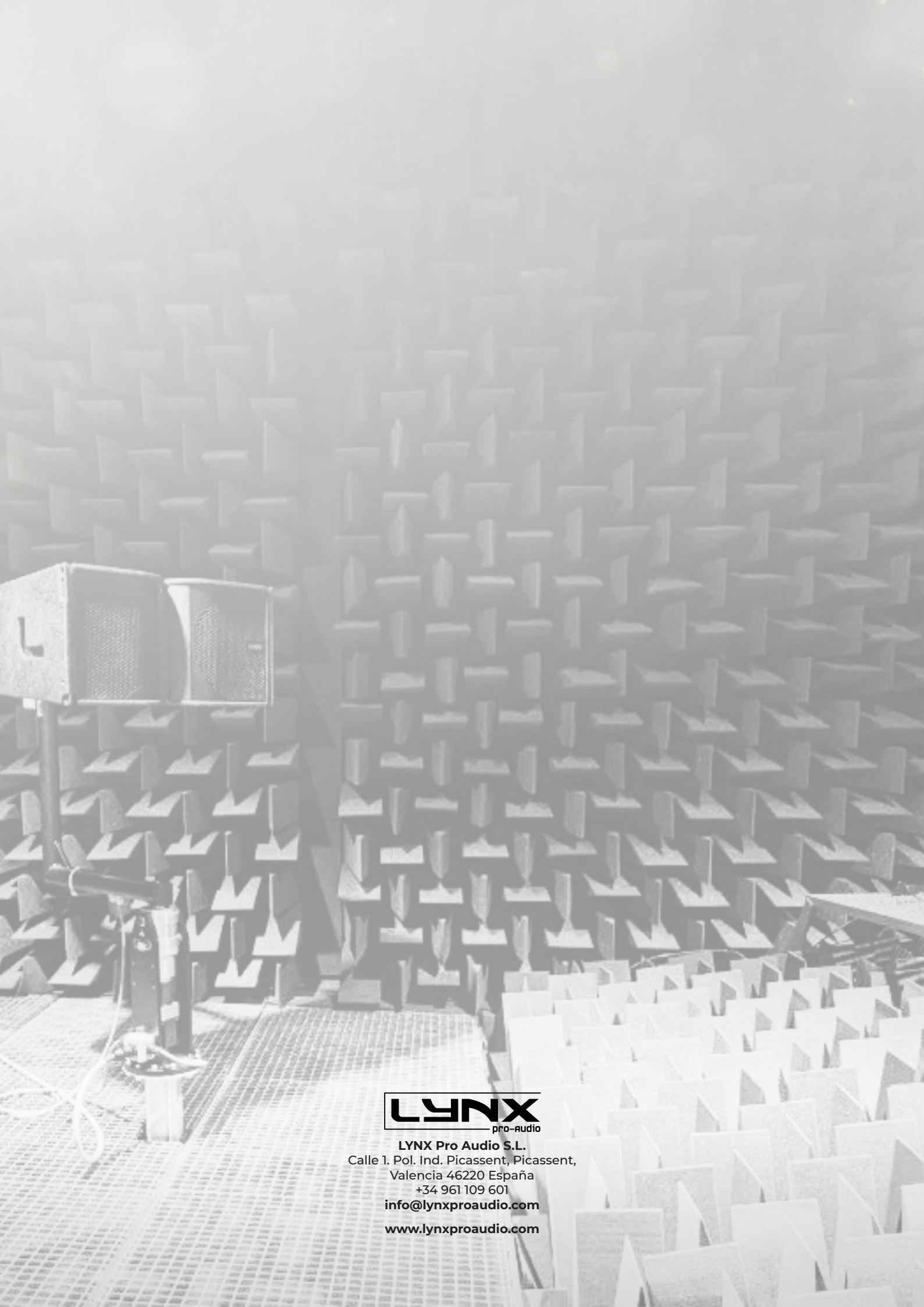
In accordance with Harmonized European Norms:

EN 60065:2014	Audio, video and similar electronic apparatus. Safety requirements
EN 60065:2002	Audio, video and similar electronic apparatus. Safety requirements
EN 55103-1:1996	Electromagnetic compatibility. Product family standard for audio, video, audiovisual and entertainment lighting control apparatus for professional use. Part 1: Emission.
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Models

LAIA - 210 | LAIA - 28 | LAIA - 26
LAIA-12 | LAIA - 18S | LAIA - 218S





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