AXIOM AX2010AV2 Active Vertical Array Loudspeaker User Manual

Contents

AXIOM AX2010AV2 Active Vertical Array Loudspeaker

Specifications

- **Product:** AX2010AV2 Active Vertical Array Loudspeaker
- **Revision Date:** 2023-07-05
- **Power Consumption:** 700 W (nominal), 1700 W (max)
- **Maximum Peak SPL @ 1m:** 138 dB
- **Transducers:** Two 10″ (260 mm) with 2.5″ (64 mm) voice coils
- **IN** / **OUT Connectors:** Neutrik XLR-M / XLR-F
- **Mains Connector:** LF aluminum voice coil, 16 each paralleled

Product Usage Instructions

Important Safety Instructions

Ensure to follow these important safety instructions while using the Active Vertical Array Loudspeaker:

1. Read and keep the user manual for reference.
2. Heed all warnings and followed all instructions provided.
3. Do not use the loudspeaker near water or block any ventilation openings.
4. Clean the unit only with a dry cloth.
5. Avoid installing the loudspeaker near heat sources.
6. Do not defeat the safety features of the plug.
7. Avoid connecting to the main power supply when the grille is removed.

IMPORTANT SAFETY INSTRUCTIONS

Watch for these symbols:

- The lightning flash with the arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

- The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install by the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades one wider than the other. A grounding-type 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 the replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. 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.
13. Unplug this apparatus during lightning storms or when unused for long periods.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a 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.
15. Warning: to reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
16. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
17. To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
18. The mains plug of the power supply cord shall remain readily operable.
19. This apparatus contains potentially lethal voltages. To prevent electric shock or hazard, do not remove the chassis, input module or AC input covers. No user-serviceable parts inside. Refer servicing to qualified service personnel.
20. The loudspeakers covered by this manual are not intended for high-moisture outdoor environments. Moisture can damage the speaker cone and surround and cause corrosion of electrical contacts and metal parts. Avoid exposing the speakers to direct moisture.
21. Keep loudspeakers out of extended or intense direct sunlight. The driver suspension will prematurely dry out and finished surfaces may be degraded by long-term exposure to intense ultraviolet (UV) light.
22. The loudspeakers can generate considerable energy. When placed on a slippery surface such as polished wood or linoleum, the speaker may move due to its acoustical energy output.

23. Precautions should be taken to ensure that the speaker does not fall off a stage or table on which it is placed.
24. The loudspeakers are easily capable of generating sound pressure levels (SPL) sufficient to cause permanent hearing damage to performers, production crew, and audience members. Caution should be taken to avoid prolonged exposure to SPL over 90 dB.

This marking shown on the product or its literature indicates that it should not be disposed of with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of waste and recycle it responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling. Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT
This equipment has been tested and found to comply with the limits for a Class A digital device, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used by the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

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.

DECLARATION OF CONFORMITY

The product is in compliance with:
EMC Directive 2014/30/EU, LVD Directive 2014/35/EU, RoHS Directive 2011/65/EU and 2015/863/EU, WEEE Directive 2012/19/EU.

EN 55032 (CISPR 32) STATEMENT
Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment, this equipment may cause radio interference. Under the EM disturbance, the ratio of signal-noise will be changed above 10 dB.

CISPR 32 STATEMENT
Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment, this equipment may cause radio interference. Under the EM disturbance, the ratio of signal-noise will be changed above 10 dB.

WARRANTY

LIMITED WARRANTY
Proel warrants all materials, workmanship and proper operation of this product for two years from the original date of purchase. If any defects are found in the materials or workmanship or if the product fails to function properly during the applicable warranty period, the owner should inform about these defects the dealer or the distributor, providing a receipt or invoice of the date of purchase and defect detailed description. This warranty does not extend to damage resulting from improper installation, misuse, neglect or abuse. Proel S.p.A. will verify damage on returned units, and when the unit has been properly used and the warranty is still valid, then the unit will be replaced or repaired. Proel S.p.A. is not responsible for any “direct damage” or “indirect damage” caused by product defectiveness.

- This unit package has been submitted to ISTA 1A integrity tests. We suggest you control the unit conditions immediately after unpacking it.
- If any damage is found, immediately advise the dealer. Keep all unit packaging parts to allow inspection.
- Proel is not responsible for any damage that occurs during shipment.
- Products are sold “delivered ex-warehouse” and shipment is at the charge and risk of the buyer.
- Possible damages to the unit should be immediately notified to the forwarder. Each complaint for package tampered with should be done within eight days from product receipt.

CONDITIONS OF USE
Proel does not accept any liability for damage caused to third parties due to improper installation, use of non-original spare parts, lack of maintenance, tampering, or improper use of this product, including disregard of acceptable and applicable safety standards. Proel strongly recommends that this loudspeaker cabinet be suspended taking into consideration all current National, Federal, State, and Local regulations. The product must be installed be qualified personnel. Please contact the manufacturer for further information.

INTRODUCTION

The AX2010V2 Vertical Line Array element is designed for a wide range of sound reinforcement applications where a flexible and easy-to-use vertical array system is needed. The AX2010V2 has been designed both for rental live sound applications and for fixed installations and has been engineered for the simplest use possible but without sacrificing anything in sound quality and performance.

The high frequency range is reproduced by two low-distortion compression drivers, equipped with very light-weight diaphragms. Two transmission line waveforming waveguides have been used to load the HF drivers, to provide a detailed and natural sound, and to achieve a long-distance HF projecting capacity.

The two 10” woofers employed in the reproduction of the mid-bass range are equipped with very light-weight cones. The lightness of the diaphragm is furthermore improved by the use of an aluminum voice coil instead of conventional copper. This ensures a fast reproduction of the mid-range and mid-bass musical passages, improving also the thermal capacity of the voice coil and, consequently, controlling the overall power compression. The two 10” woofers are backloaded by a short hybrid transmission line that minimizes the effect of the box resonances and eliminates the “boxy” mid-bass sound commonly obtained from regular bass-reflex enclosures. The crossover filter approach is based on a “Constant Power” technique. Thanks to a particular phase combination between the two ways around the crossover frequency, this approach can provide a very stable horizontal coverage and a very stable off-axis sound image, also minimizing unwanted effects around the crossover frequency. The further application of phase linearization techniques, combined with constant power crossover, yields a linear phase response and a coherent time response. This allows for a natural perception of acoustic instruments and voices and an improved depth of the sound image.

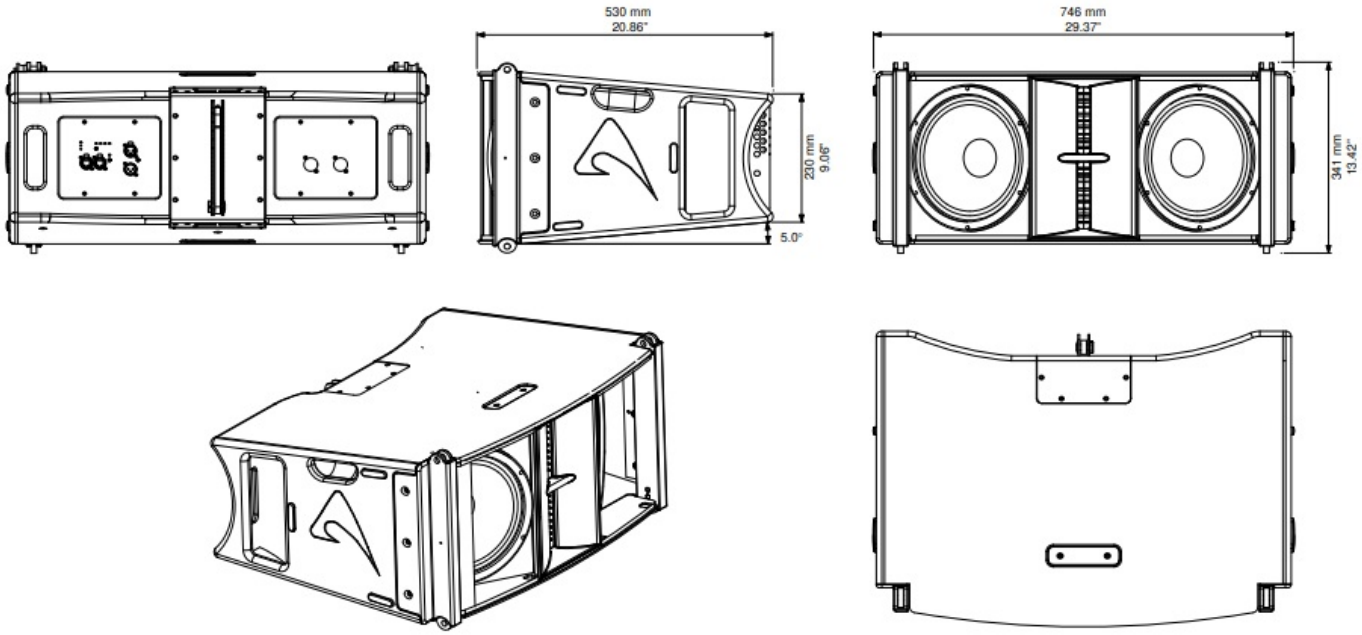
TECHNICAL SPECIFICATION

SYSTEM	
System's Acoustic Principle	Line Array Element Short Transmission Line LF Back Loading Acoustic Transmission Line HF Waveguide
Frequency Response (±3dB)	75 Hz – 18 KHz (Processed)
Horizontal/Vertical Coverage Angle	110° x 10° (-6dB)
Maximum Peak SPL @ 1m	138 dB
TRANSDUCERS	
LF	Two 10" (260 mm), 2.5" (64 mm) aluminium voice coil, 16Ω each, paralleled
HF	Two 1.4" drivers, 2.5" (64 mm) edgewound voice coil, titanium diaphragm, 16Ω each, paralleled
ELECTRICAL	
Input Impedance	20 kΩ balanced, 10 kΩ unbalanced
Input Sensitivity	+4 dBu / 1.25 V
Signal Processing	CORE2 processing, 40bit floating point SHARC DSP, 24 bit AD/DA converters
Direct access Controls	4 Presets (Standard/Long Throw/Down Fill-Single Box, User), Network Termination, GND Link.

Remote Controls	PRONET AX control software
Network protocol	CANBUS
Amplifier Type	Class D amplifier with SMPS & PFC
Output Power	2x 1400 W
Mains Voltage Range (Vac)	100 - 240 V~ ±10% 50/60 Hz
Consumption*	700 W (nominal) 1700 W (max)
IN / OUT Connectors	Neutrik XLR-M / XLR-F
IN / OUT Network Connectors	ETHERCON® (NE8FAV)
Mains Connector	PowerCon® (NAC3MPXXA)
Mains Link Connector	PowerCon® (NAC3MPXXB)
Cooling	Variable speed DC fan
ENCLOSURE & CONSTRUCTION	
Dimensions (W x H x D)	746 mm (29.37") x 341 mm (13.42") x 530 mm (20.86")
Taper angle	5°
Construction	15 mm, reinforced Phenolic Birch
Paint	High resistance, water based paint
Front Suspension	Aluminium Fast Link structure
Back Suspension	High Strength Steel
Net Weight	41 Kg (90.4 lbs.)

Nominal consumption is measured with pink noise with a crest factor of 12 dB, this can be considered a standard music program.

MECHANICAL DRAWING



OPTIONAL ACCESSORIES

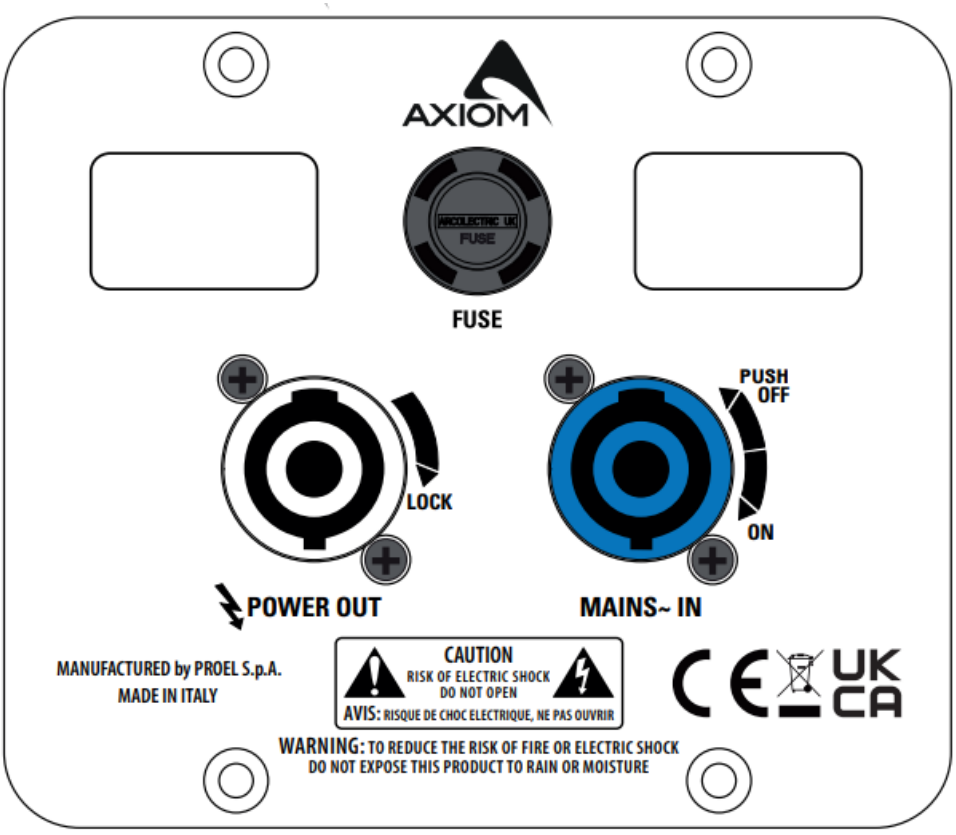
AXCASE02PT Carrying Case for 2 box unit
AXCASE04PT Carrying Case for 4 box unit
NAC3FXXA-W-L Neutrik Powercon® BLUE PLUG
NAC3FXXB-W-L Neutrik Powercon® WHITE PLUG
NE8MX-B-TOP Neutrik Ethercon PLUG
NC3MXXBAG Neutrik XLR-M
NC3FXXBAG Neutrik XLR-F
USB2CANDV2 Dual output PRONET network converter
CAT5SLU01/05/10 LAN5S – Cat5e – RJ45 plugs and NE8MC1 connectors. 1/5/10 m Length

AR100LUxx Hybrid cable 1x Cat6e – 1x Audio with NEUTRIK connectors 0.7/1.5/2.5/5/10/15/20 m Length
AVCAT5PROxx Cat5e on cable drum, RJ45 plugs and NEUTRIK connectors 30/50/75 m Length
KPTAX2012P Fly bar for Axiom AX2010 Loudspeakers
AXFEETKIT Kit of 6pcs BOARDACF01 M10 foot for stacked installation
RAINCOV2010 Rain protection for signal connectors
RAINCOV2010PW Rain protection for power connectors see **http://www.axiomproaudio.com**/ for a detailed description and other available accessories.

SPARE PARTS

- **91CBL300060** Powercon® sockets kit with internal wiring
- **NAC3MPXXA** Neutrik Powercon® BLUE SOCKET
- **NAC3MPXXB** Neutrik Powercon® WHITE SOCKET
- **95AXM014** Locking Pin for AX2010
- **PLG716** Straight Shackle 16 mm for the Fly bar
- **91DSPKT11** Input, Control, and CORE2 DSP PCBA
- **91CRA300007** CORE2 Interface PCBA w/LED
- **91DALITEMOD4HC** POWERSOFT LITEMOD4HC PF000349 amplifier module
- **98AXM210W16** 10” woofer speaker 2.5” VC – 16Ω
- **98DRI1424** 1.4’’ compression driver – 2.4” VC – 16Ω
- **98MBN1424** titanium diaphragm for 98DRI1424 HF driver contact the technical support on **http://www.axiomproaudio.com/** for request or detailed spare part list.

I/O AND CONTROL OPERATIONS



MAINS IN
Powercon® NAC3FCA power input connector (blue). To switch the amplifier on, insert the Powercon® connector and turn it clockwise into the ON position. To switch the amplifier off, pull back the switch on the connector and

turn it counter-clockwise into the POWER OFF position.

MAINS OUT
Powercon® NAC3FCB power output connector (grey). This is connected in parallel with the MAINS ~ / IN. The maximum load applicable depends on the mains voltage. With 230V~ we suggest to link a maximum of 4 AX2010V2 loudspeakers, with 120V~ we suggest to link a maximum of 2 AX2010V2 loudspeakers.

FUSE HOLDER
Here is where the main protection fuse is placed.

WARNINGS

- REPLACE THE PROTECTION FUSE ONLY WITH THE SAME TYPE: BUSSMANN MDA-15-R OR LITTELFUSE 326015. VX
- In the case of product failure or fuse replacement, disconnect the unit completely from the main power.
- Use a suitable power cable and mains plug to build the power cable, it must only be connected to a socket corresponding to the specifications indicated on the amplifier unit. See assembly instructions downloadable from the NEUTRIK WEB site at: **http://www.neutrik.com/**
- The power cable must only be connected to a socket corresponding to the specifications indicated on the amplifier unit.
- The power supply must be protected by a suitably rated thermo-magnetic breaker. Preferably use a suitable switch to power on the whole audio system leaving the PowerconÂ® always connected to each speaker, this simple trick extends the life of the PowerconÂ® connectors.
- Connect no more units to the MAINS OUT connector than as specified above.
- Turn on each unit one at a time starting with the latest unit.

INPUT
Audio signal input with locking XLR connector. It has a fully electronically balanced circuitry including AD conversion for the best S/N ratio and input headroom.

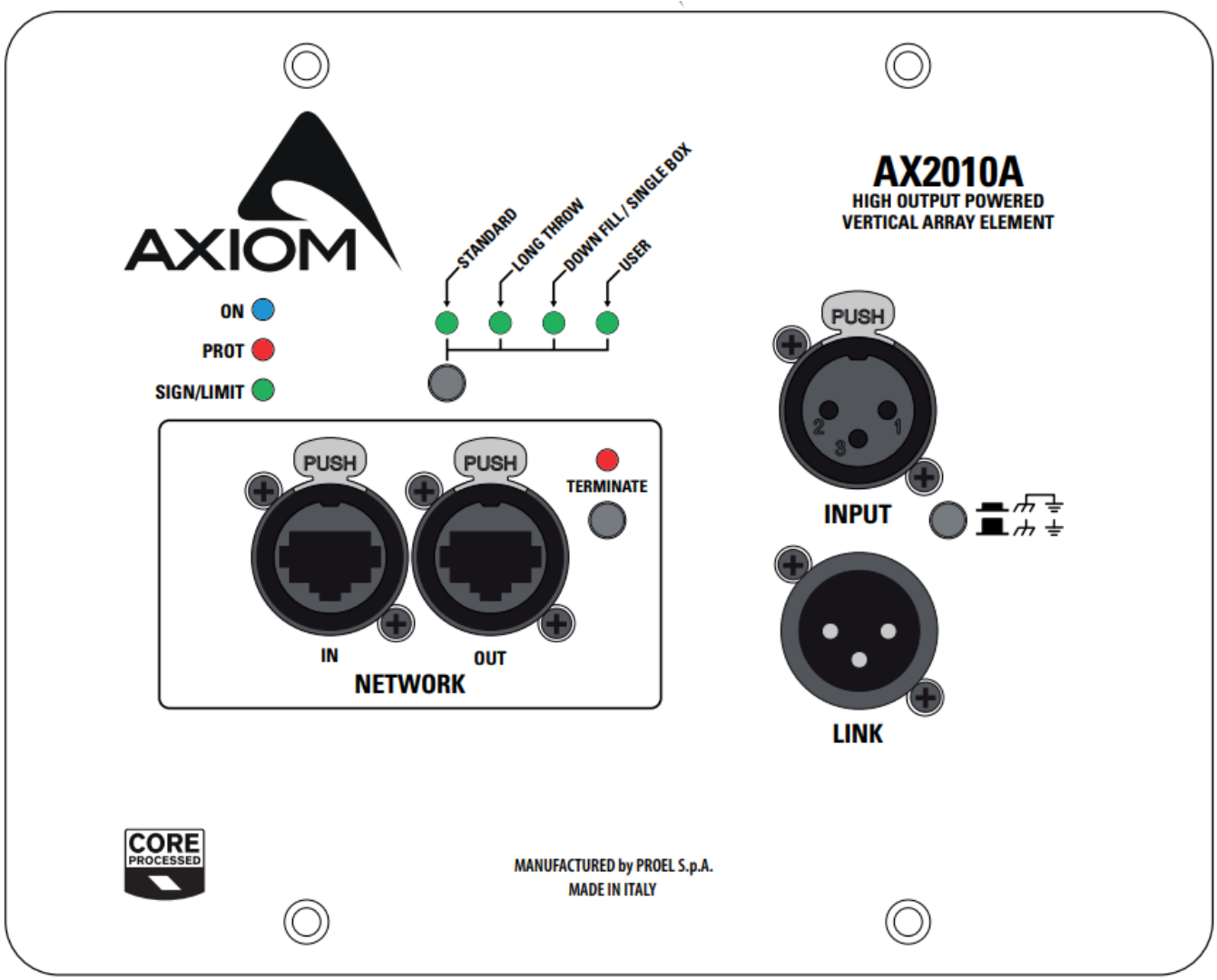
LINK
A direct connection from the input connector to link other speakers with the same audio signal.

ON
This LED indicates power on status.

PROT
This red LED lights when the amplifier module is in protect mode for an internal fault and, consequently, the amplifier is muted.

SIGN/LIMIT
This LED lights in green to indicate the presence of the signal and lights in red when an internal limiter reduces the input level.

GND LIFT
This switch lifts the ground of the balanced audio inputs from the earth-ground of the amplifier module.



PRESET BUTTON
This button has two functions:

1. Pressing it while powering on the unit:

   ID ASSIGN The internal DSP assigns a new ID to the unit for the PRONET AX remote control operation. Each loudspeaker must have a unique ID to be visible in the PRONET AX network. When you assign a new ID, all the other loudspeakers with the ID already assigned must be ON and connected to the network.
2. Pressing it with the unit ON you can select the DSP PRESET. The selected PRESET is indicated by the corresponding LED:

   STANDARD This PRESET is suitable for vertical flown arrays that may range from 4 to 8 boxes or for the center region of a bigger flown array. It can be used also for stacked arrays.

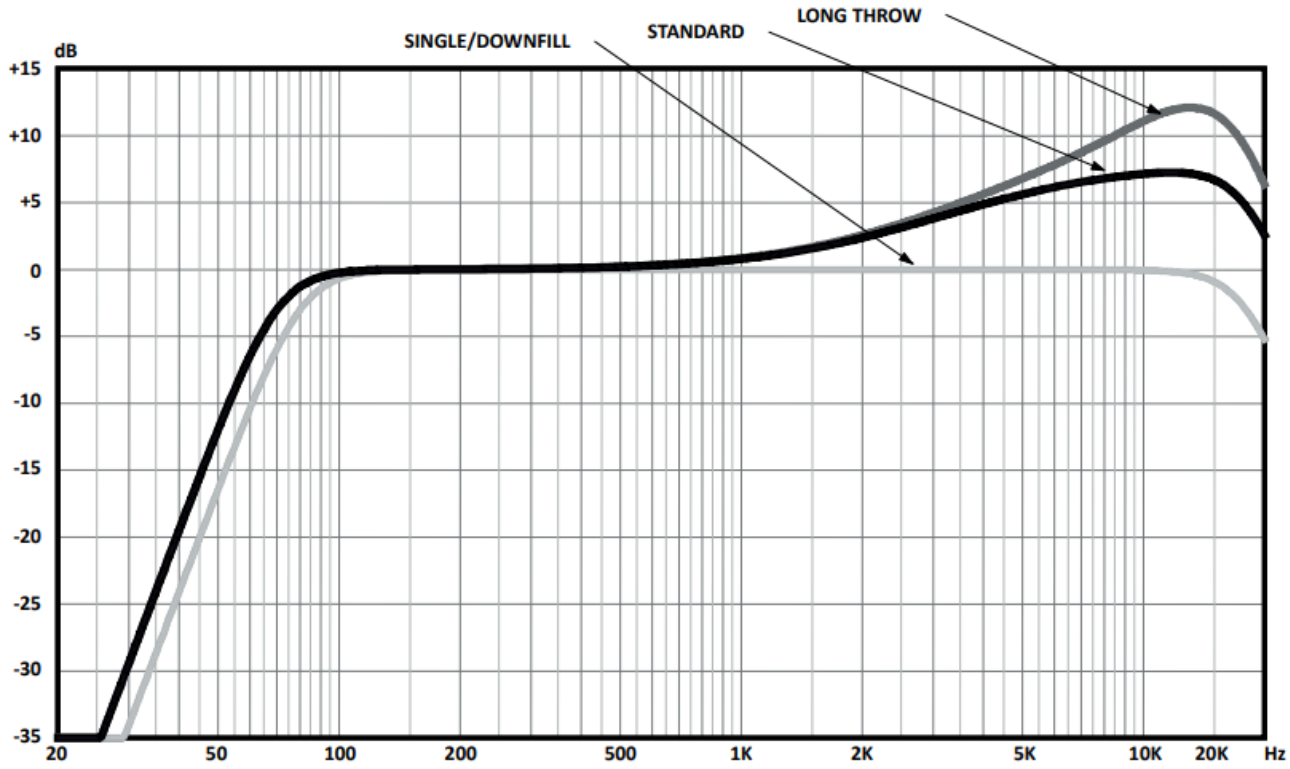
   LONG THROW This PRESET can be used in arrays bigger than 6 or 8 boxes and loaded in the top 1 or 2 boxes to obtain a more even distribution of the sound pressure, especially if they point very far away or to the upper deck of a large theatre.

   DOWN FILL SINGLE BOX

   This PRESET, which features a much smoother high-frequency response, can be loaded in the bottom boxes(usually 1 or 2 boxes) of a large flown array, to reach conveniently the audience close to the stage. This preset could be very useful also when the box is used just on its own as a front-fill element in the front of very large stages.

USER This PRESET corresponds to USER MEMORY no. 1 of the DSP and, as a factory setting, it's the same to STANDARD. If you want to modify it, you have to connect the unit to a PC, edit the parameters with PRONETAX software, and save the PRESET into USER MEMORY no. 1

AX2010A – PRESET RESPONSE

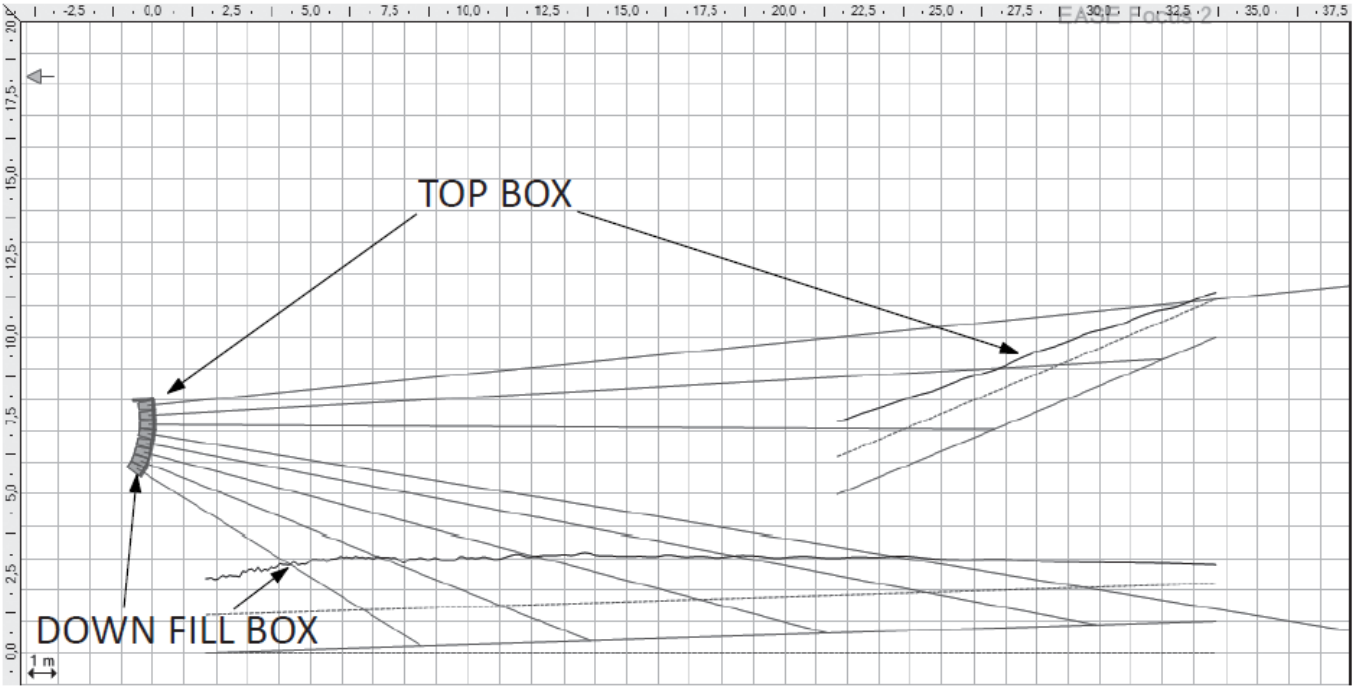


PRESET USING EXAMPLE: INSTALLATION IN A THEATRE WITH BALCONY
In the following figure you can see an example of the use of different PRESETS in an AX2010V2 flown array installed in a big theatre with a balcony:

- The TOP BOXES of the array are aimed at the balcony while the DOWN FILL box is aimed at the audience close to the stage.
- TOP BOXES: the power level at the end of the balcony is lower, as well as the high-frequency level.
- DOWN FILL BOXES: the power level in the proximity of the stage is higher, as well as the high-frequency level.

To optimize the array performances for the specific application, the PRESETS should be used in the following way.

- Load the STANDARD preset in the central boxes.
- Load the LONG THROW preset in the TOP 1 or 2 boxes, to compensate for the loss of power level and high frequencies of the program sent to the upper deck of the theatre.



- Load the DOWN FILL / SINGLE BOX preset in the BOTTOM box to smooth the high-frequency content of the program sent to the audience close to the stage.

NETWORK IN/OUT
These are standard RJ45 CAT5 connectors (with optional NEUTRIK NE8MC RJ45 cable connector carrier), used for PRONET network transmission of remote control data over long distances or multiple unit applications.

TERMINATE
In a PRONET AX network the last device must be always terminated (with an inner load resistance): press this switch if you want to terminate the network on this unit.

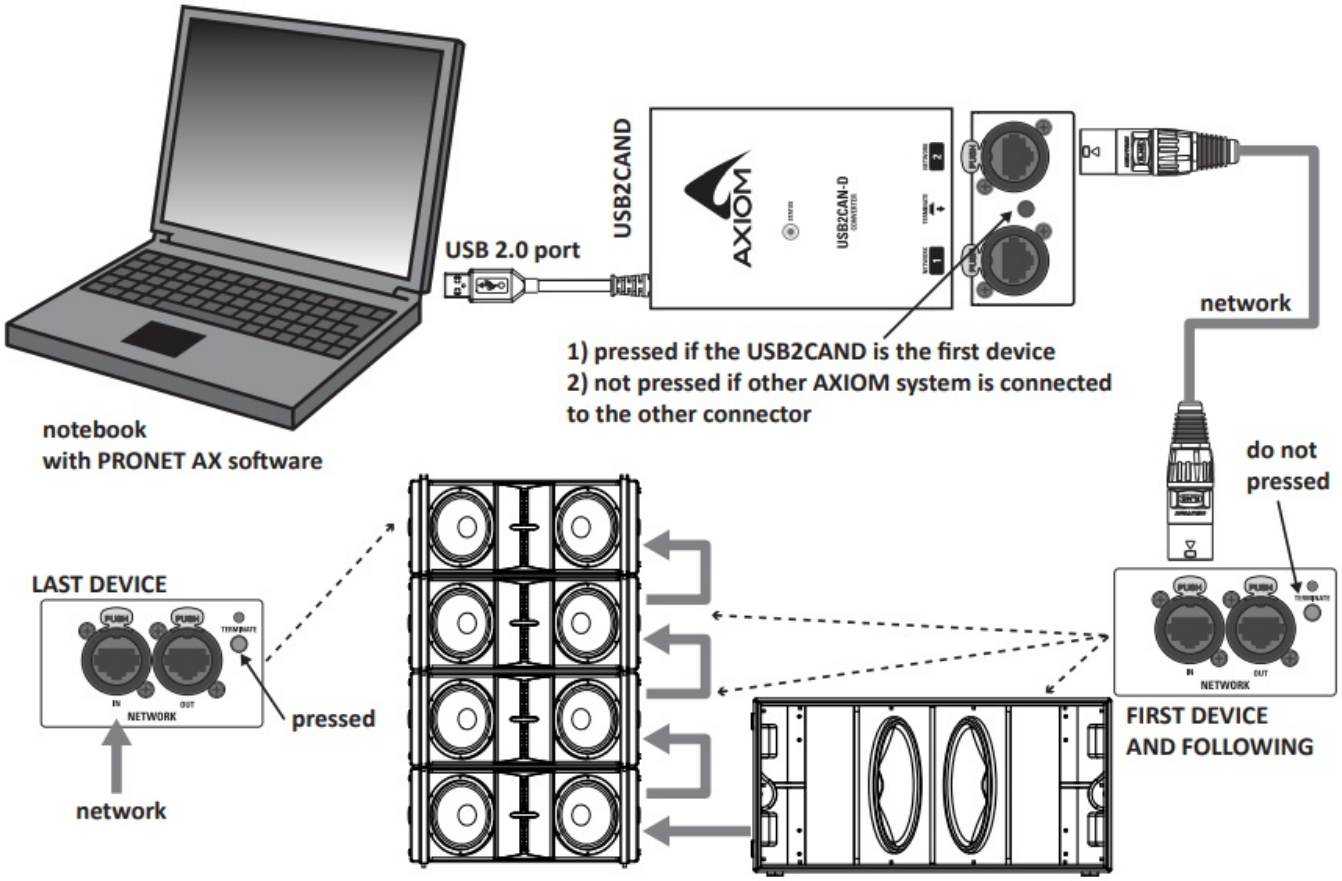
WARNING: Only the last devices connected to the PRONET AX network must be always terminated, therefore all units connected between two devices within the network must never be terminated.

PRONET AX – OPERATION

- The AXIOM active loudspeaker devices can be connected in a network and controlled by the PRONET AX software.
- PRONET AX software has been developed in collaboration with sound engineers and sound designers, to offer an “easy-to-use” tool to set up and manage your audio system. With PRONET AX you can visualize signal levels, monitor internal status, and edit all the parameters of each connected device.
- Download the PRONET AX app by registering on MY AXIOM at the website at **https://www.axiomproaudio.com/**.
- For the network connection the USB2CAND (with 2-port) converter optional accessory is needed.
- PRONET AX network is based on a “bus-topology” connection, where the first device is connected to the input connector of the second device, the second device network output is connected to the network input connector of the third device, and so on. To ensure reliable communication the first and the last device of the “bus-topology” connection must be terminated. This can be done by pressing the “TERMINATE” switch near the network connectors in the rear panel of the first and last device. For the network connections simple RJ45 cat.5 or cat.6 ethernet cables can be used (please don’t confuse an ethernet network with a PRONET AX network

these are completely different and must be fully separated also both use the same kind of cable).

EXAMPLE OF PRONET AX NETWORK WITH AX2010A AND SW218XA



Assign the ID number

To work properly in a PRONET AX network each connected device must have a unique identifier number, called ID. By default the USB2CAND PC controller has ID=0 and there can be only one PC controller. Every other device connected must have its unique ID equal or greater than 1: in the network cannot exist two devices with the same ID.

To correctly assign a new available ID to each device for working properly in a PRONET AX network, follow these instructions:

1. Switch off all the devices.
2. Connect them correctly to the network cables.
3. “TERMINATE” the end device in the network connection.
4. Switch on the first device and keep pressing the “PRESET” button on the control panel.
5. Leaving the previous device switched on, repeat the previous operation on the next device until the latest device is turned on.

The “Assign ID” procedure for a device makes the internal network controller perform two operations: reset the current ID; and search the first free ID in the network, starting from ID=1. If no other devices are connected (and powered on), the controller assumes ID=1, which is the first free ID, otherwise, it searches for the next one left free.
These operations ensure that every device has its unique ID, if you need to add a new device to the network you simply repeat the operation of step 4. Every device maintains its ID also when it is turned because the identifier is stored in the internal memory and it is cleared only by another “Assign ID” step, as explained above.

WARNING: With the network made always of the same devices, the assigning ID procedure must be executed only the first time the system is turned on.
For more detailed instructions about PRONET AX see the PRONET AX USER'S MANUAL included with the software.

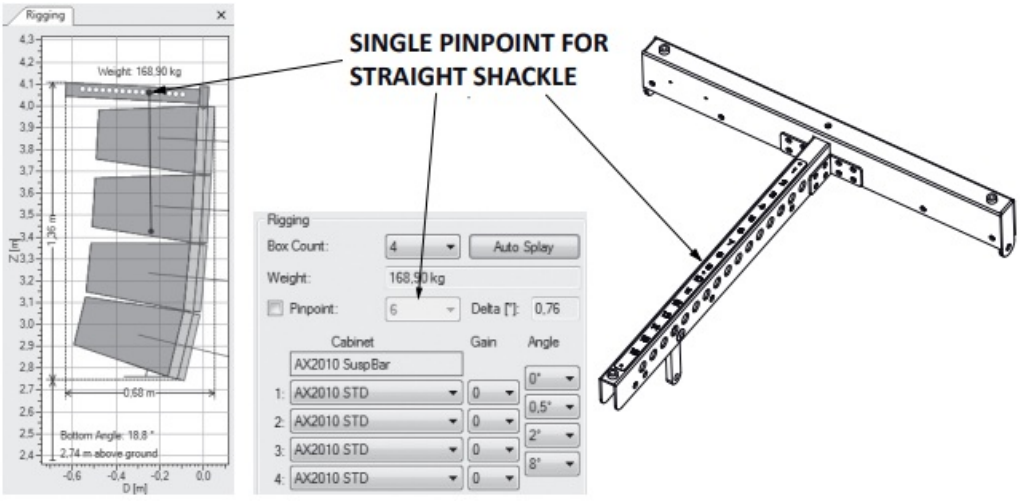
PREDICTION SOFTWARE: EASE FOCUS 3
To aim correctly a complete system we suggest to use always the Aiming Software – EASE Focus 3:
The EASE Focus 3 Aiming Software is a 3D Acoustic Modelling Software that serves for the configuration and modeling of Line Arrays and conventional speakers close to reality. It only considers the direct field, created by the complex addition of the sound contributions of the individual loudspeakers or array components.

The design of EASE Focus is targeted at the end user. It allows the easy and quick prediction of the array performance in a given venue. The scientific base of EASE Focus stems from EASE, the professional electro- and room acoustic simulation software developed by AFMG Technologies GmbH. It is based on the EASE GLL loudspeaker data file required for its use. The GLL file contains the data that defines the Line Array concerning its possible configurations as well as its geometrical and acoustical properties.

Download the EASE Focus 3 app from the AXIOM website at **https://www.axiomproaudio.com/** clicking on the downloads section of the product.
Use the menu option Edit / Import System Definition File to import the GLL file, the detailed instructions to use the program are located in the menu option Help / User's Guide.
Note: Some Windows systems can require the .NET Framework 4 which can be downloaded from the website at **https://focus.afmg.eu/**.

BASIC INSTALLING OPERATION
The EASE FOCUS prediction software is the tool that allows you to evaluate your installation both to meet the acoustic requirements of the project and also to suspend or stack AX2010V2 systems, the program allows you to simulate the rigging pinpoint on the fly bar to obtain the calculated splay angle of the entire line array system and of the individual angles between each loudspeaker element. The following examples show how to operate correctly to link the loudspeaker box and to suspend or stack the whole system safely and surely, read these instructions with extreme attention:

KPTAX2012P FLOWN PINPOINT



WARNING! CAREFULLY READ THE FOLLOWING INSTRUCTIONS AND CONDITIONS OF USE:

- This loudspeaker is designed exclusively for Professional audio applications. The product must be installed by qualified personnel only, for suspending the system qualified rigger personnel is mandatory.
- Proel strongly recommends that this loudspeaker cabinet be suspended taking into consideration all current

National, Federal, State, and Local regulations. Please contact the manufacturer and local distributor for further information.

- Proel does not accept any liability for damage caused to third parties due to improper installation, lack of maintenance, tampering, or improper use of this product, including disregard of acceptable and applicable safety standards.
- During assembly pay attention to the possible risk of crushing. Wear suitable protective clothing. Observe all instructions given on the rigging components and the loudspeaker cabinets. When chain hoists are in operation ensure that there is nobody directly underneath or in the vicinity of the load. Do not under any circumstances climb on the array.
- Wind loads
  When planning an open-air event it is essential to obtain current weather and wind information. When loudspeaker arrays are flown in an open-air environment, possible wind effects must be taken into account. Wind load produces additional dynamic forces acting on the rigging components and the suspension, which may lead to a dangerous situation. If according to the forecast wind forces higher than 5 bft (29-38 Km/h) are possible, the following actions have to be taken:
  - The actual on-site wind speed has to be monitored permanently. Be aware that wind speed typically increases with height above ground.
  - Suspension and securing points of the array should be designed to support double the static load in order to withstand any additional dynamic forces.

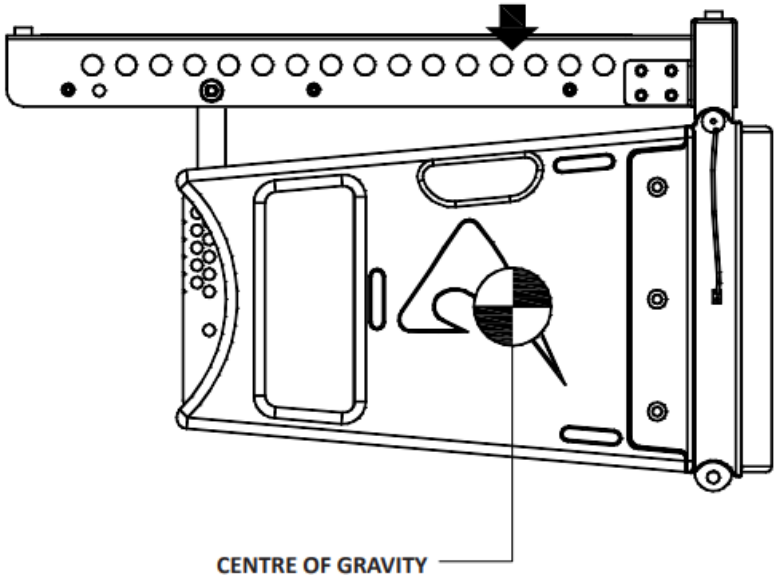
WARNING: Flying loudspeakers overhead at wind forces higher than 6 bft (39-49 Km/h) is not recommended. If the wind force exceeds 7 bft (50-61 Km/h) there is a risk of mechanical damage to the components which may lead to a dangerous situation for persons in the vicinity of the flown array.

- Stop the event and make sure that no person remains in the vicinity of the array.
- Lower and secure the array.

Fly bar suspension and angle setup (center of gravity)

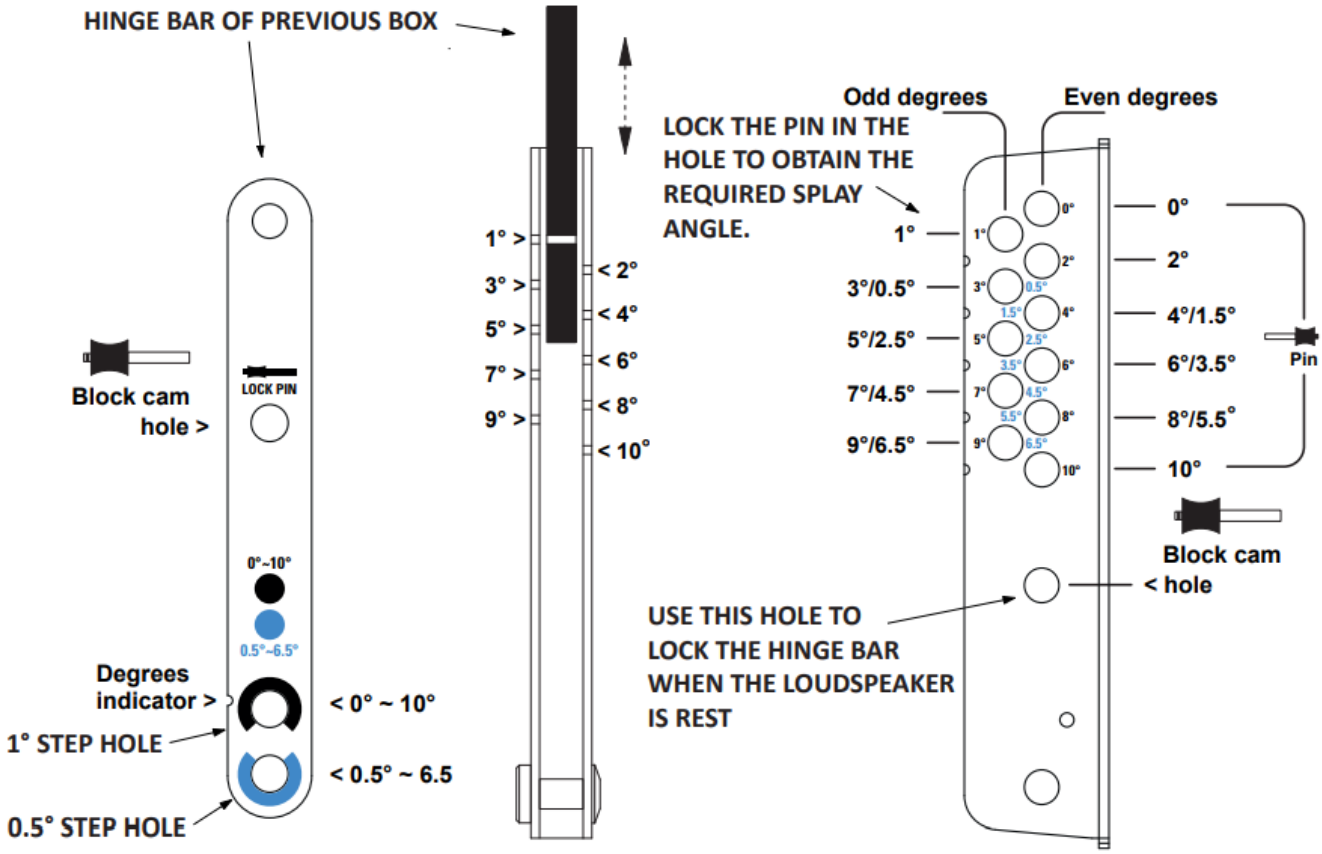
- The figure at the side shows where the normal centre of gravity is with one box or several boxes arranged in a line. Usually, the boxes are arranged to make an arc for the best coverage of the audience, so the center of gravity moves backward. The aiming software suggests the ideal suspension pinpoint taking into account this behavior: fix the straight shackle in this position.
- Note that the ideal aiming angle often doesn’t correspond to the pinpoint: there is often a little difference between ideal aiming and real aiming and its value is the Delta angle: positive delta angle can be adjusted a little using two ropes, and negative delta angle is self-adjusted a little because the weight of the cable on the back of the array. With some experience it’s possible to consider preventively these required little adjustments.
- During the flown set up you can connect the elements of the array to their cables. We suggest discharging the weight of the cables from the flying pinpoint by tying them with a textile fiber rope, instead of letting them hang freely: in this way, the position of the array will be much more similar to the simulation produced by the software.
- Pin locking and splay angles set up

KPTAX2012P FLY BAR FOR FLOWN ARRAY

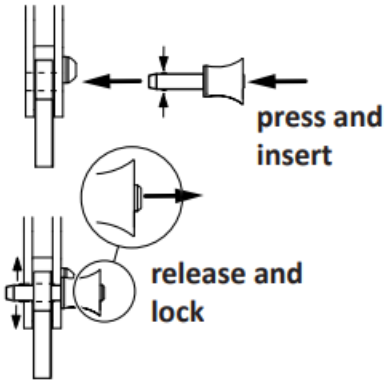


The figures below show how to insert correctly the locking pin, always carefully check that each pin is fully inserted and locked in the correct position. Set up the splay angle between loudspeakers inserting the pin in the correct hole, please note that the inner hole in the hinge top is for whole angles (1, 2, 3 etc.) while the outer hole is for the half angles (0.5, 1.5, 2.5 etc.).

LOUDSPEAKER SPLAY ANGLES SET UP



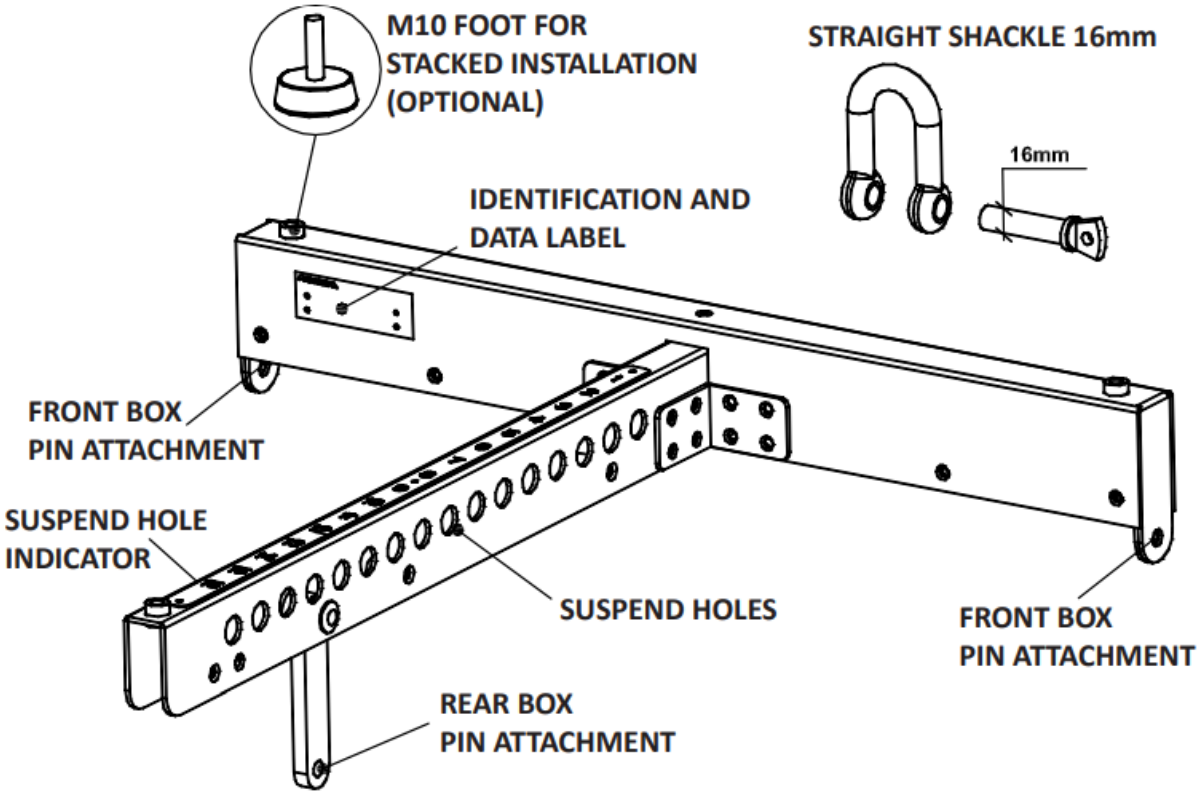
95AXM014 LOCKING PIN



FLY BAR AND ACCESSORIES

- The AX2010 Systems are built to allow the suspension of array with variable shape and dimensions. Thanks to a suspension mechanism designed to be functional, flexible and safe, each system must be suspended or stacked using the KPTAX2012P fly bar. The loudspeakers are linked together in a column using a series of couplers integrated in the frame of each enclosure. Each system is set up properly both acoustically and mechanically only using the aiming software.
- The coupling system in the front does not require any adjustment: using two locking pins, each loudspeaker box is fixed to the previous. The slotted bar in the back is inserted in a U-shaped frame which features a series of numbered holes.
- Sliding the slotted bar in the U-shaped frame of the next loudspeaker and inserting a locking pin in one of the numbered holes, it is possible to adjust the relative splay angle between two adjacent loudspeakers in the array column.

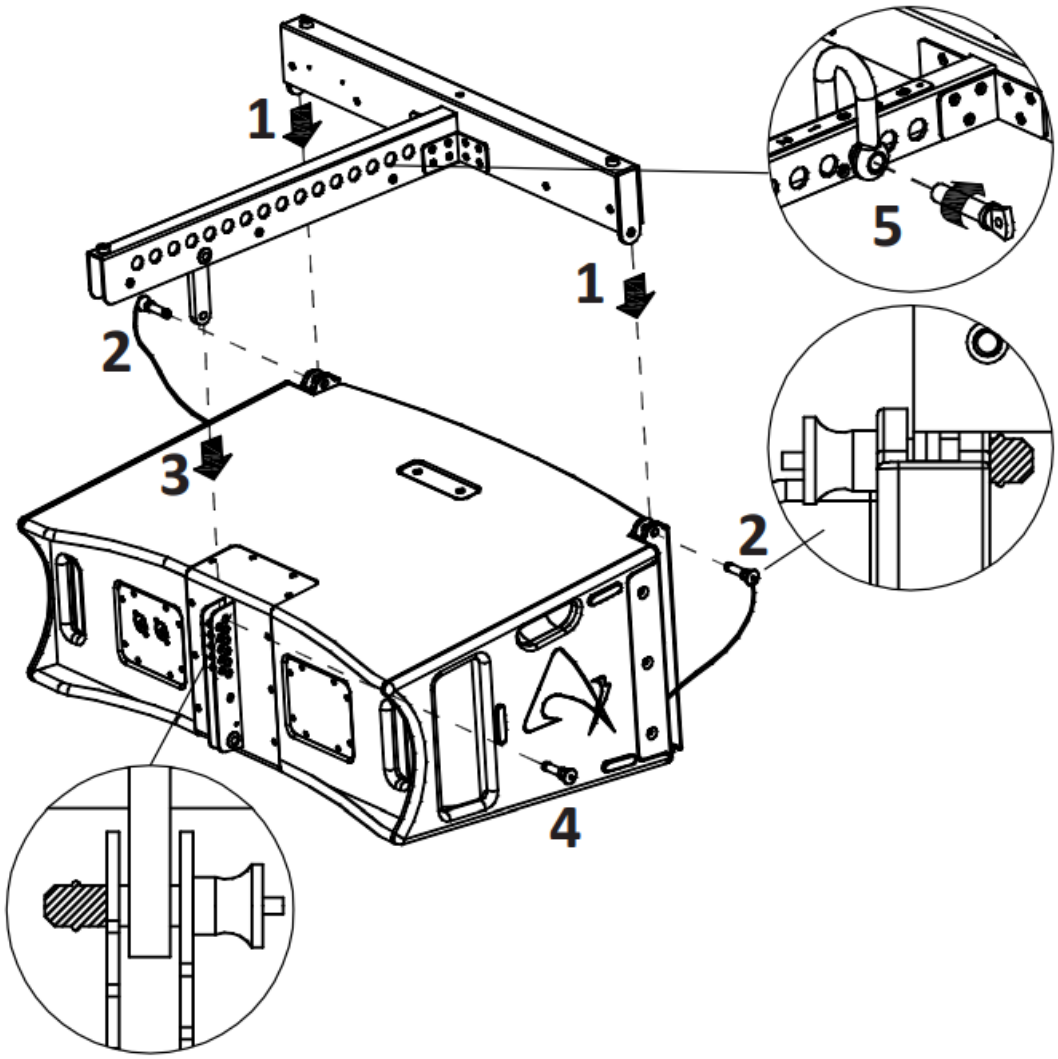
KPTAX2012P FLY BAR AND ACCESSORIES



WARNING: KPTAX2012P fly bar maximum capacity is 700 Kg (1540 lbs) with a 0° angle. It can support up to 12 AX2010 loudspeakers with a safety factor of 10:1.

- Follow the sequence in the figure for fixing the fly bar at the first box. Usually, this is the first step before lifting up the system. Be careful to insert properly all the locking pins (2)(3) and the shackle (5) in the right holes as specified by the aiming software. When lifting the system always proceed gradually step by step, paying attention to secure the fly bar to the box (and the box to the other boxes) before pulling up the system: this makes it easier to insert properly the locking pins. Also when the system is released down, unlock gradually the pins.
- During the lifting be very careful to not let the cables enter the space between one enclosure and the other, as their compression could cut them.

KPTAX2012P FLY BAR ASSEMBLY SEQUENCE



STACKED INSTALLATION

WARNING!

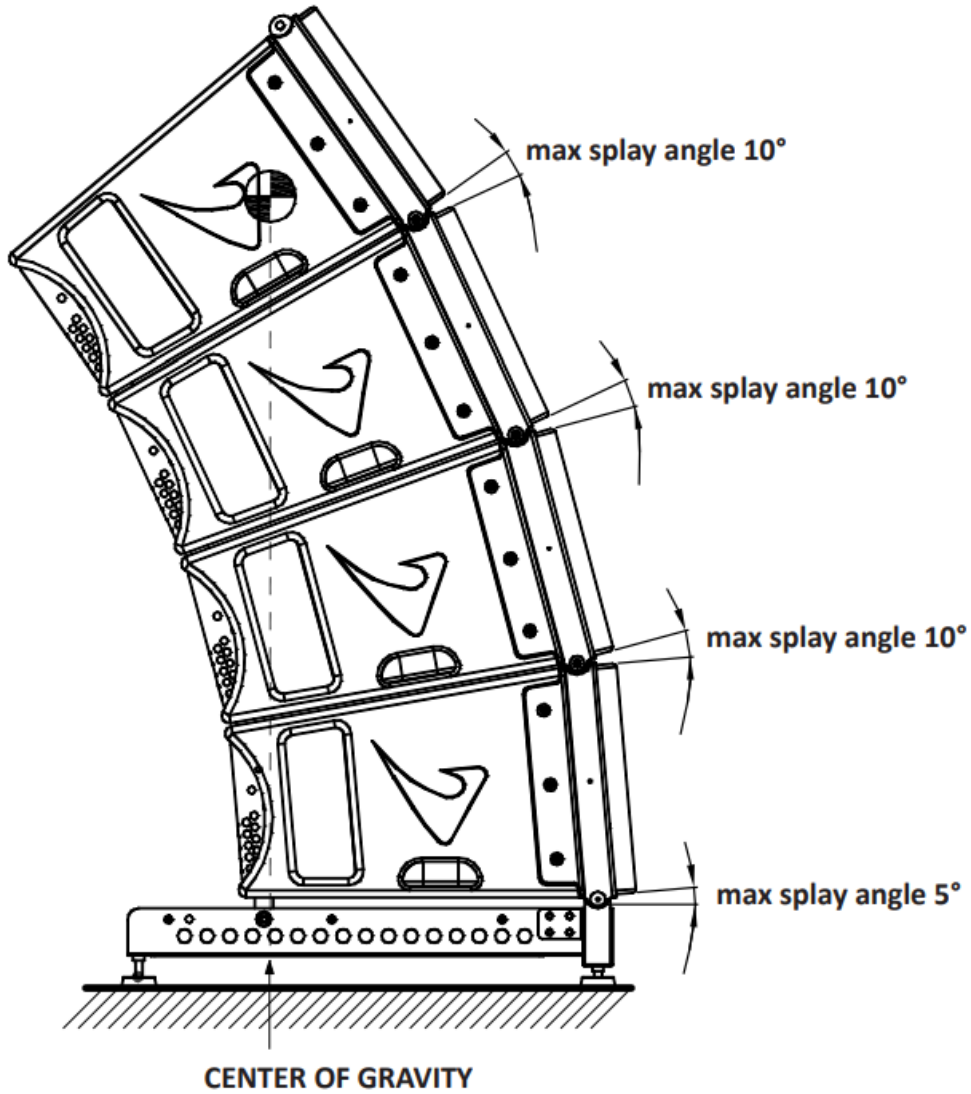
- The ground where the KPTAX2012P Fly bar serving as ground support is placed needs to be stable and compact.
- In the stack configuration you have to use the three optional feet BOARDACF01 (AXFEETKIT kit) and the fly

bar must be mounted upside down on the ground.

- Adjust the feet so that the bar perfectly horizontal.
- Always secure ground-stacked setups against movement and possible tipping over.
- A maximum of 4 x AX2010 cabinets with the KPTAX2012P Fly bar serving as ground support are allowed to be set up as ground stack.

The coupling system in the front does not require any adjustment: using two locking pins each loudspeaker box is fixed to the previous. The slotted bar in the back is inserted in a U-shaped frame which features a series of numbered holes. Sliding the slotted bar in the U-shaped frame of the next loudspeaker and inserting a locking pin in one of the numbered holes, it is possible to adjust the relative splay angle between two adjacent loudspeakers in the array column.
The optimal splay angles can be simulated using the EASE Focus 3 software.

KPTAX2012P STACKED ARRAY



FAQ

- **Q: Can I use the loudspeaker near water?**
  - A: No, it is advised not to use the loudspeaker near the water top to prevent electric shock hazards.
- **Q: What should I do if there is radio interference?**
  - A: Ensure that the loudspeaker is compliant with Class A of CISPR 32 and follow guidelines to minimize

interference.

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Documents / Resources

	AXIOM AX2010AV2 Active Vertical Array Loudspeaker [pdf] User Manual AX2010AV2, AX2010AV2 Active Vertical Array Loudspeaker, Active Vertical Array Loudspeaker, Vertical Array Loudspeaker, Array Loudspeaker, Loudspeaker

References

- Axiom Pro Audio
- Axiom Pro Audio
- Homepage - Neutrik
- EASE Focus | Ahnert Feistel Media Group
- Axiom Pro Audio
- User Manual

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