DP2538-05-CM

PSR2 Series

PS8 & LS400
PS10R2 & LS600
PS15R2 & LS18

System manual

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PLEASE READ CAREFULLY BEFORE PROCEEDING

BASIC PRECAUTIONS

Do not open the speaker system or attempt to disassemble the internal parts or modify them in any way. The speaker system contains no user-serviceable parts. If it should appear to be malfunctioning or damaged, discontinue use immediately and have it inspected by qualified NEXO service personnel.

Water exposure: Do not expose the speaker system to direct rain, do not use it near water or in wet conditions. Do not place containers with liquid on speaker system as they might spill into openings. If any liquid such as water seeps into the speaker system, have it inspected by qualified NEXO personnel.

Sun exposure: Do not expose the speaker system to direct sun.

Operating temperature with temperate climate: 0°C to +40°C (-20°C to +60°C for storage).

SYSTEM DEPLOYMENT SAFETY RULES

Read User Manual before deployment. Before use of enclosed speaker system, please ensure that anyone involved in system deployment understands the rigging – stacking – pole mounting safety rules as described in the speaker system User Manual. Failure to do this exposes people to potential injury or death.

Please check the web site nexo-sa.com for the latest update.

Always consult qualified NEXO personnel if the device installation requires construction work and make sure to observe the following precautions:

Mounting precautions

- choose mounting hardware and an installation location that can support 4 times the weight of the speaker system;
- do not use speaker system handles for suspended installation;
- do not expose speaker system to excessive dust or vibration, or extreme cold or heat to prevent possibility of component damage;
- do not place the speaker system in an unstable position from which it might fall accidentally;
- if speaker systems use a stand, ensure that stand specifications are adapted, and that stand height does not exceed 1.40m/55”; never move the stand while the speaker is in position.
- in case of wind greater than 8 on Beaufort scale (72km/h – 45mph), a touring system has to be landed or an additional securing has to be implemented.
- for fixed installations, wind loading has to be taken into account in accordance to the national standards.

Connection and powering precautions

- remove all connected cables before moving the speaker system;
- turn off AC power of all power amplifier units before connecting the speaker system;
- when turning on the AC power to the audio system, always turn on the power amplifier last; when turning the AC power off, always turn off the power amplifier first;
- when used in cold conditions, a gradual power ramp up should be applied to the system on a 5 mn period to allow the loudspeaker components to stabilize during the very first minutes of usage.

Inspect the speaker system periodically.

HIGH SOUND PRESSURE LEVELS

Exposure to extremely high noise levels may cause permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient period of time. The U.S. Government's Occupational and Health Administration (OSHA) has specified the following permissible noise level exposures: Sound Duration Per

Day In Hours	Sound Level dBA, Slow Response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Ear plugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

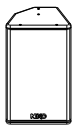
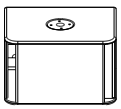
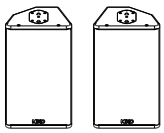
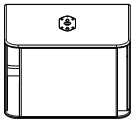
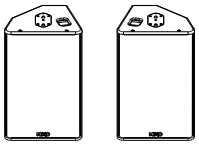
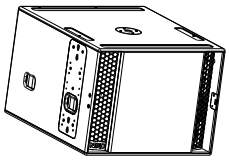
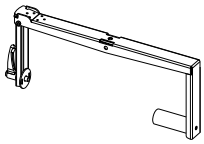
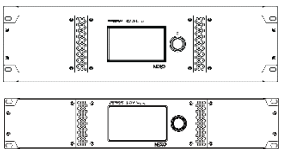
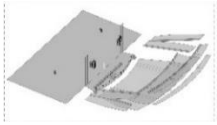
DISPOSAL OF OLD ELECTRICAL & ELECTRONIC EQUIPMENT

This symbol on the product or on its packaging indicates that it shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequence for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

1 INTRODUCTION

Thank you for selecting a NEXO PS series equipment.

This manual is intended to provide you with necessary and useful information about your PS and LS System, which includes the following products:

	• PS8 comprises one 8"x2" self-shielded Neodymium LF driver and one 1.4" titanium diaphragm / self-shielded Neodymium HF driver with a 1" exit mounted on a low distortion, constant directivity asymmetrical dispersion horn.
	• LS400 is PS8 companion subwoofer. It comprises 1x12" (30cm) long excursion driver. LS400 has fittings for pole standing but is not intended to be flown.
	• PS10R2 comprises one 10"x2.5" self-shielded Neodymium LF driver and one 1.7" PI diaphragm / Neodymium HF driver with a 1" exit mounted on a low distortion, constant directivity asymmetrical dispersion horn. PS10R2 is available in Left and Right versions.
	• LS600 is PS10R2 companion subwoofer. It comprises 1x15" (38cm) long excursion Neodymium driver. LS600 has fittings for flying and pole standing.
	• PS15R2 comprises one high excursion 15"x3" Neodymium LF driver and one 3" Titanium diaphragm HF driver with a 2" exit mounted on a low distortion, constant directivity asymmetrical dispersion horn. PS15R2 is available in Left and Right versions.
	• LS18 and LS18-E are PS15R2 companion subwoofer. It comprises 1x18'' (46cm) long excursion driver and features very high efficiency as well as high acoustic output. LS18 has fittings for transporting, flying, stacking and pole standing. LS18-E is identical to LS18, with the exception that it has none of the fittings described above. It is intended to be set on the floor in fix installations.
	• A full range of accessories provides safe, flexible and simple means of installing PS Series in fixed installation as well as in touring applications.
	• PS and LS are controlled, powered and monitored by NEXO TDcontrollers. For a complete description of these controllers, please refer to User Manuals. NEXO TDcontrollers DSP algorithms and parameters are fixed in software and updated regularly. Please consult the NEXO web site (nexo-sa.com) for the latest software releases.
	• NS-1 simulation software assists in the design and implementation of PS Series. Please consult the NEXO web site (nexo-sa.com) for the latest software releases.
	• Available for Mac, iPad and iPhone, NEXO NeMo provides full remote control over a digital audio network from anywhere in the venue, thanks to an intuitive and graphically attractive user interface. NeMo is available on Apple App Store.

Please devote your time and attention to reading this manual. A comprehensive understanding of PS and LS specific features will help you to operate your system at its full potential.

2 PS AND LS GENERAL SETUP INSTRUCTIONS

2.1 PS and LS connections

PS speakers and LS subwoofers are connected with Speakon NL4FC plugs (not supplied). A wiring diagram is printed on the connection panel located on the back of each cabinet. The 4 pins of the Speakon sockets identified in / out are connected in parallel within the enclosure.

Either connector can be used to connect amplifier or to link to an additional PS cabinet or to link to an optional LS subwoofer (if present). Therefore, a single 4-conductor cable can connect two amplifier channels to various PS speakers and/or LS subwoofers.

2.1.1 PS8 and PS10R2 connectors

Speakon Connector	PS8/PS10R2
1(-)	PS8/PS10R2 (-)
1(+)	PS8/PS10R2 (+)
2(-)	Through
2(+)	Through

2.1.2 PS15R2 connectors

Speakon Connector	PS15R2	
	Passive Mode	Active Mode
1(-)	Through	PS15R2 LF (-)
1(+)	Through	PS15R2 LF (+)
2(-)	PS15R2 (-)	PS15R2 HF (-)
2(+)	PS15R2 (+)	PS15R2 HF (+)

2.1.3 LS subwoofers connectors

Speakon Connector	LS
1(-)	LS (-)
1(+)	LS (+)
2(-)	Through
2(+)	Through

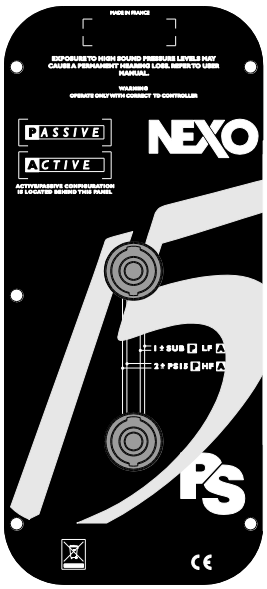
2.1.4 Configuring PS15R2 for passive or active mode

Remove the six TORX screws that hold the connector panel.

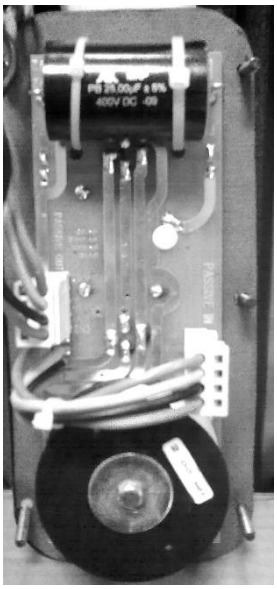
Remove the connector panel so that filter WAGO connectors become accessible.

In Passive Mode, WAGO connector from filter should be inserted in “Passive In”, and “Passive Out” should be connected to speakers WAGO connector.

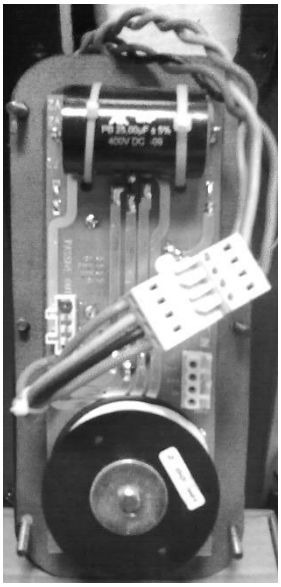
In Active Mode, WAGO connector from filter should be directly connected into speakers WAGO connector (PCB connectors are then unused).



PS15R2 connector panel



Passive mode



Active mode

2.2 Cabling

NEXO recommends the exclusive use of multi-conductor cables to connect the system: the cable kit is compatible with all the cabinets, and there is no possible confusion between LF, MF and HF sections.

Cable choice consists mainly of selecting cables of the correct sectional dimension (size) in relation to the load resistance and the cable length. Too small a cable section will increase both its serial resistance and its capacitance; this reduces the electrical power delivered to the loudspeaker and can also induce response (damping factor) variations.

For a serial resistance less or equal to 4% of the load impedance (damping factor = 25), the recommended cable length is given by:

$L_{max} = Z \times S$ S in mm^2, Z in Ohm, L_{max} in meters

The table below indicates these values, for 3 common sizes.

Load Impedance (Ω)	2	2.6	4	5.3	8	16
Cable section	**Recommended Cable Length**					
1,5 mm² (AWG #15)	3m/10ft	3m/13ft	6m/20ft	8m/26ft	12m/39ft	24m/79ft
2,5 mm² (AWG #13)	5m/16ft	7m/23ft	10m/33ft	13m/44ft	20m/66ft	40m/131ft
4 mm² (AWG #11)	8m/26ft	10m/33ft	16m/52ft	21m/70ft	32m/105ft	64m/210ft
6 mm^2 (AWG #9)	12m/40ft	16m/52ft	24m/79ft	32m/104ft	48m/160ft	96m/315ft

Maximum allowed length is 4 times recommended length.

Example:

PS15R2 module has a 8 Ω nominal impedance in passive mode. When connecting 2 modules in parallel, total load impedance becomes 4Ω.

Recommended length for 4mm^2 / (AWG#11) is 16m / 52ft, maximum allowed length is 64m / 208ft.

IMPORTANT

Long speaker cables induce capacitive effects – up to hundreds of pF depending on the quality of the cable - with a low-pass effect on high frequencies. If long speaker cables must be used, ensure that they do not remain coiled while in use.

2.3 PS and LS recommended amplification

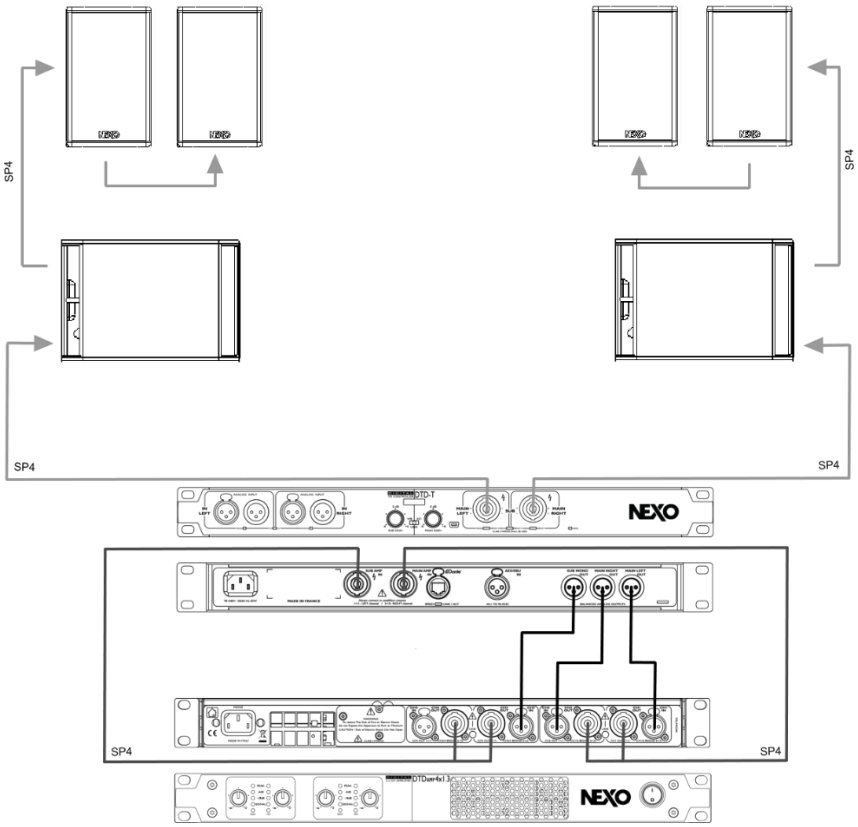
NEXO TD Controllers	Recommended amplification
DTD Controller + DTDAMP4x0.7 (4x0.7kW/4Ω)	2 x PS8 per channel
DTD Controller + DTDAMP4x1.3 (4x1.3kW/4Ω)	2 x PS8 per channel 1 x LS400 per channel 1 x PS10R2 per channel
DTD Controller + DTDAMP4x1.3 Bridge Stereo (2x2.6kW/8Ω)	1 x LS600 per bridged channels 1 x PS15R2 in passive mode per bridged channels 1 x LS18 per bridged channels
NXAMP4x1mk2 Powered Controller 4 channels mode (4x1.3kW/2Ω)	3 x PS8 per channel 2 x LS400 per channel
NXAMP4x1mk2 Powered Controller Bridged Stereo mode (2x2.6kW/4Ω)	2 x PS10R2 per bridged channels 2 x LS600 per bridged channels 2 x PS15R2 in passive mode per bridged channels 2 x LS18 per bridged channels
NXAMP4x2mk2 Powered Controller 4 channels mode (4x2.5kW/2Ω)	4 x PS8 per channel 3 x LS400 per channel 3 x PS10R2 per channel 2 x LS600 per channel 2 x PS15R2 in passive mode per channel 2 x PS15R2 in active mode: 2 channels 1 x LS18 per channel
NXAMP4x4mk2 Powered Controller 4 channels mode (4x4.5kW/2Ω)	4 x PS8 per channel 3 x LS400 per channel 4 x PS10R2 per channel 4 x LS600 per channel 4 x PS15R2 in passive mode per channel 4 x PS15R2 in active mode: 2 channels 3 x LS18 per channel

2.4 PS and LS setups on NEXO TD Controllers

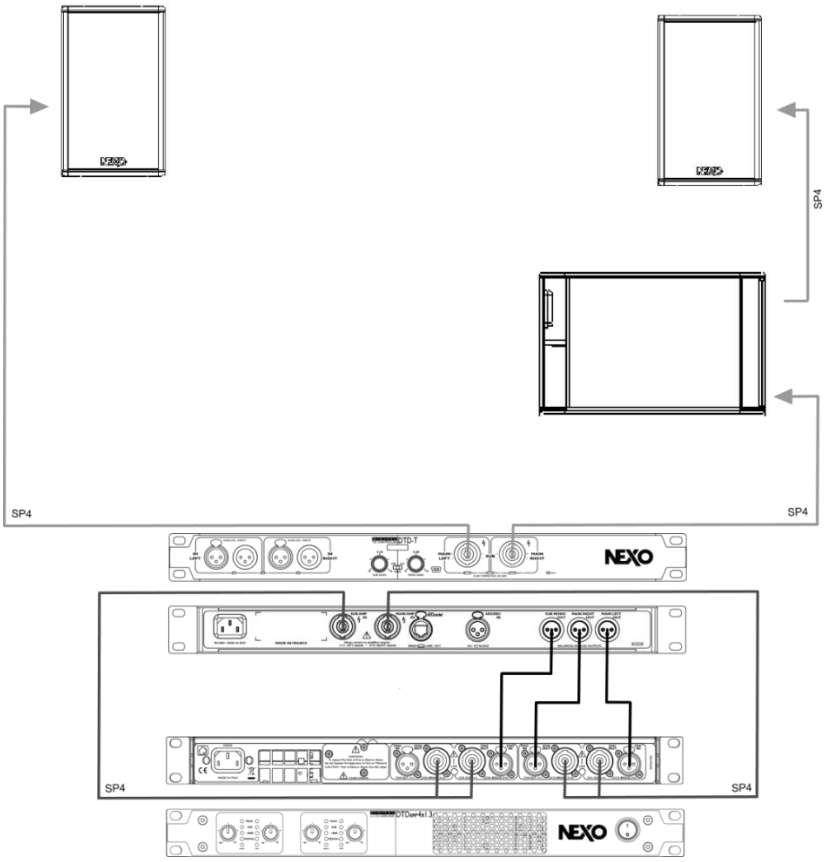
Please consult nexo-sa.com for NEXO TD Controllers firmware information.

3 CONNECTION DIAGRAMS

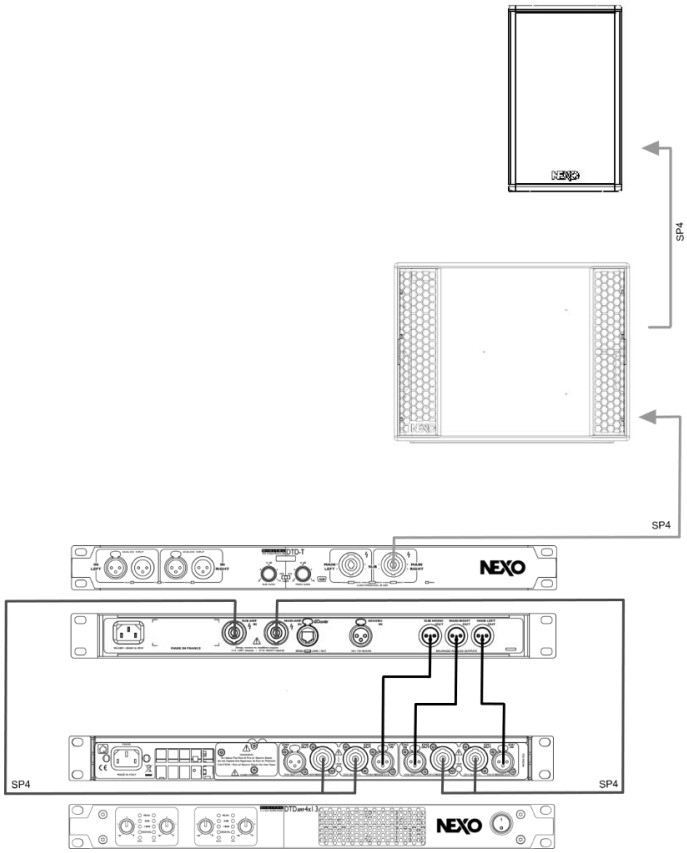
3.1 PS8 and LS400 / DTDAMP4x1.3



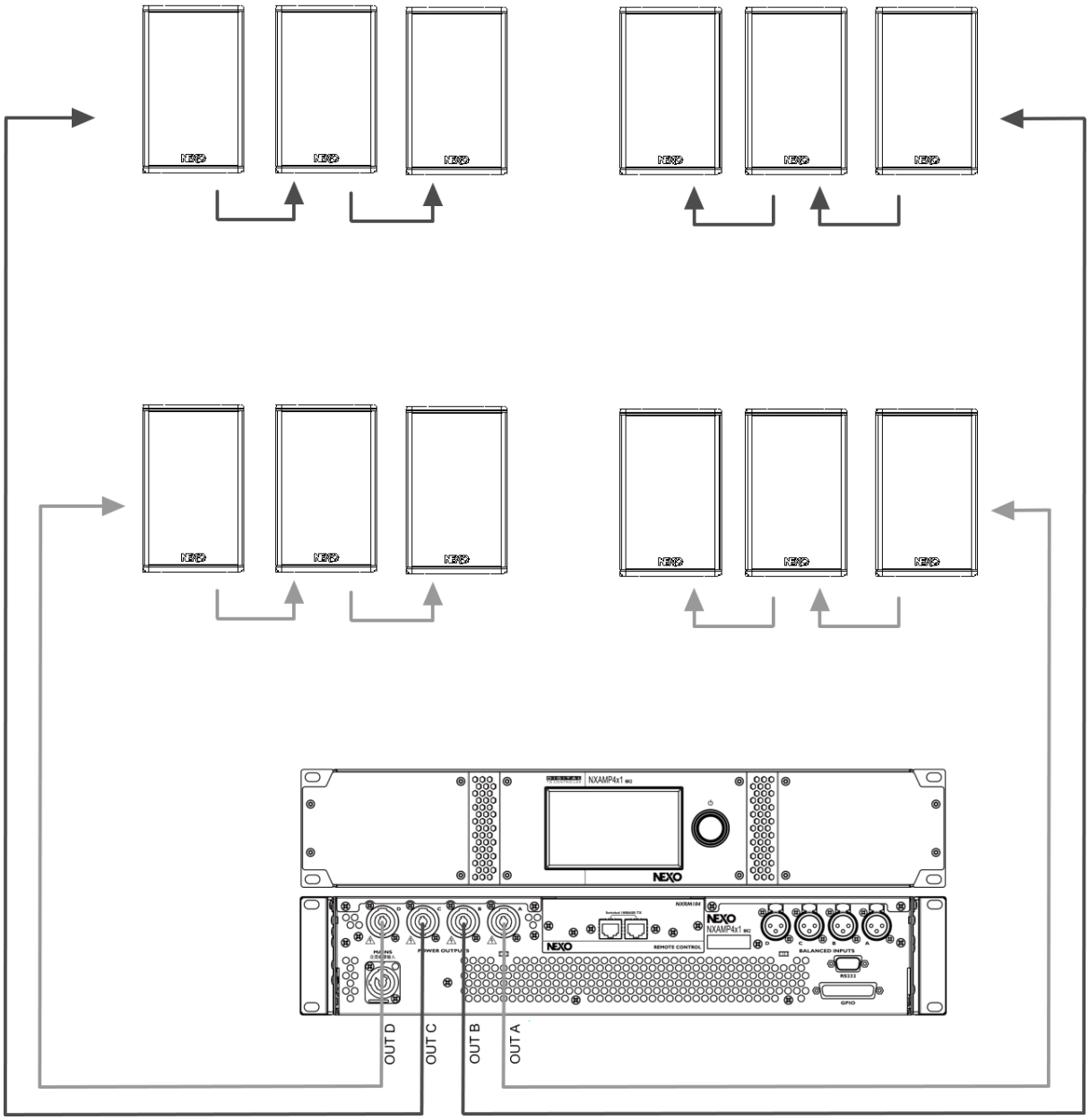
3.2 PS10R2 and LS600 / DTDAMP4x1.3



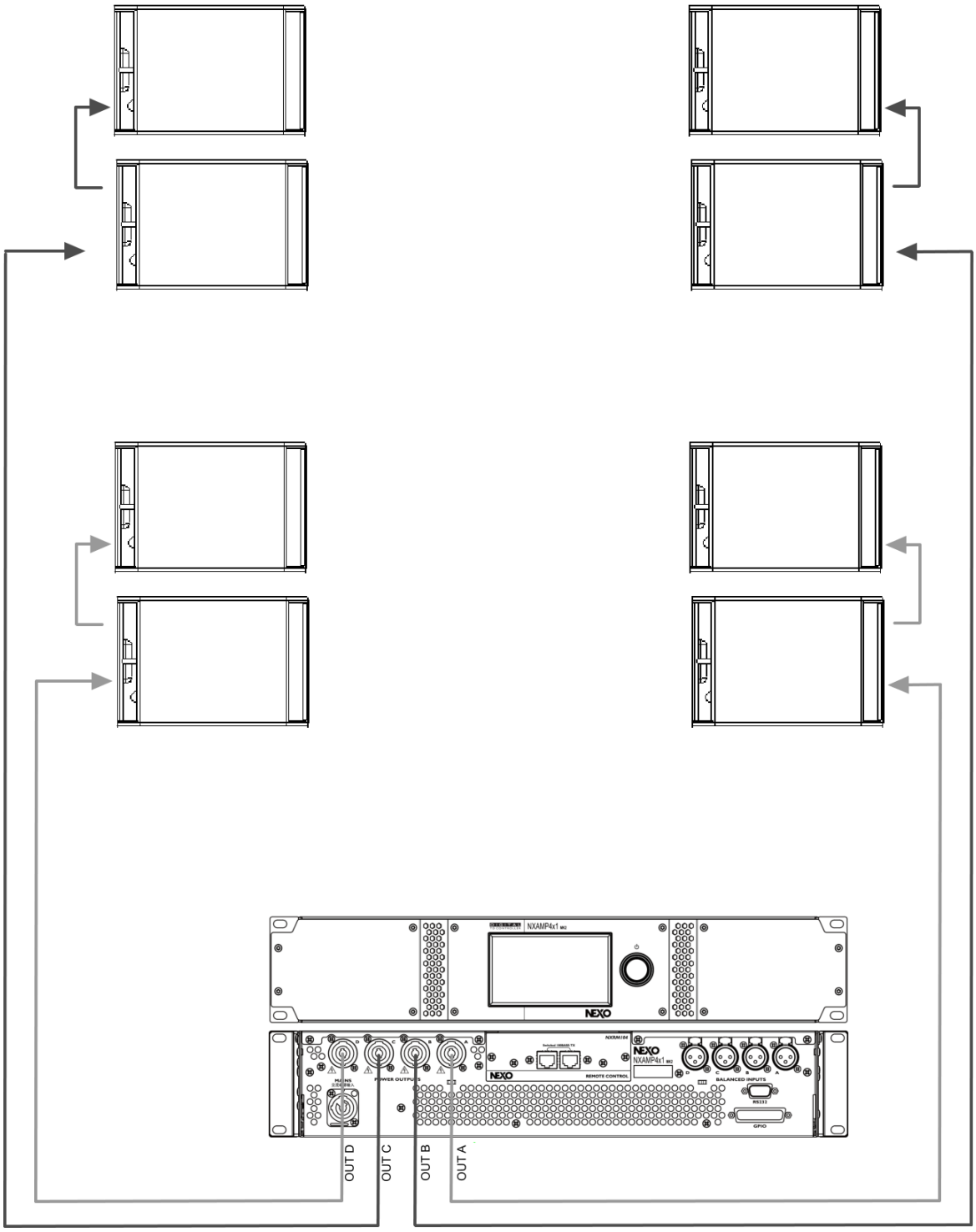
3.3 PS15R2 (passive mode) and LS18 / DTDAMP4x1.3 (Bridge Stereo)



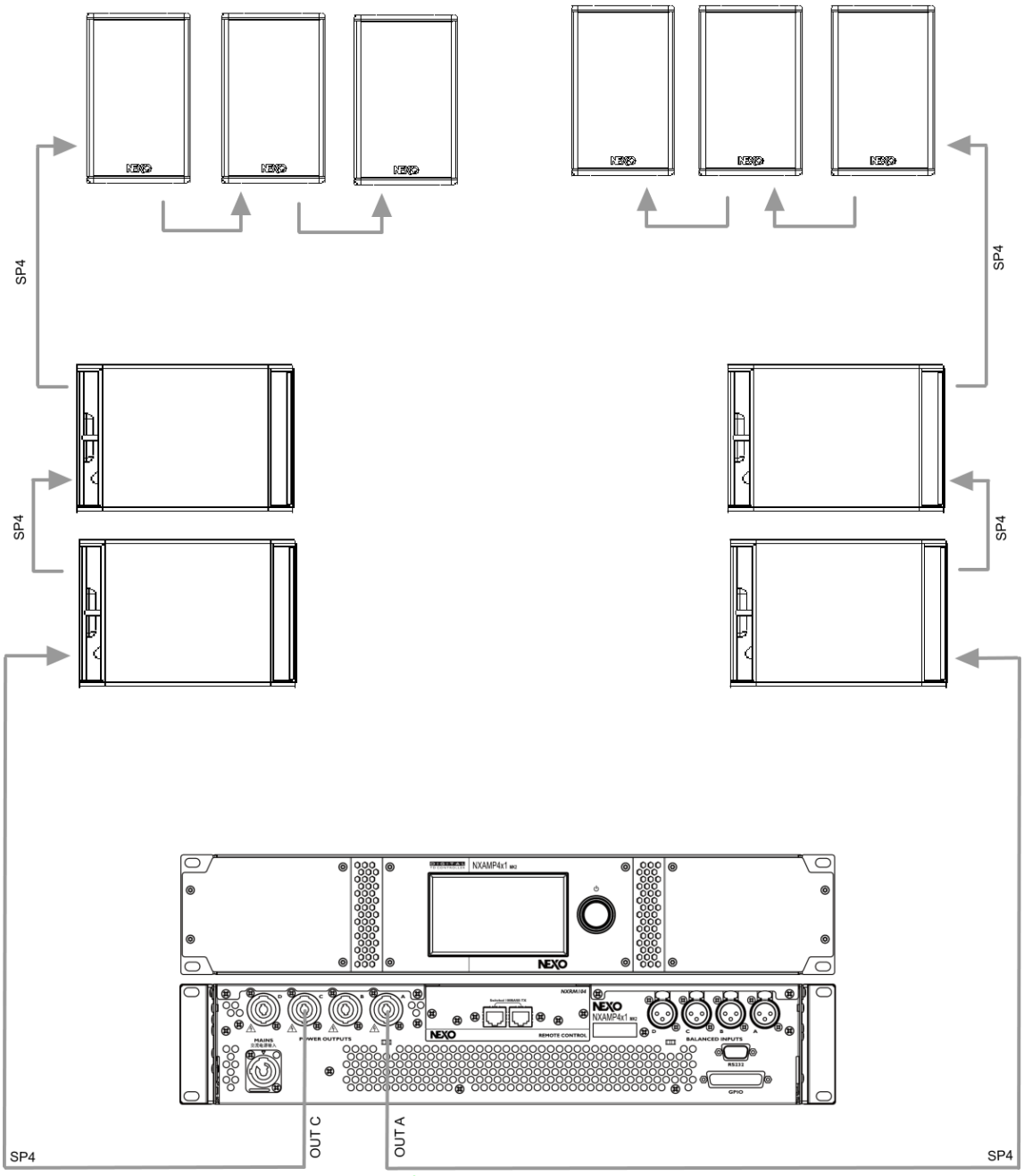
3.4 PS8 / NXAMP4x1mk2 (4 channels mode)



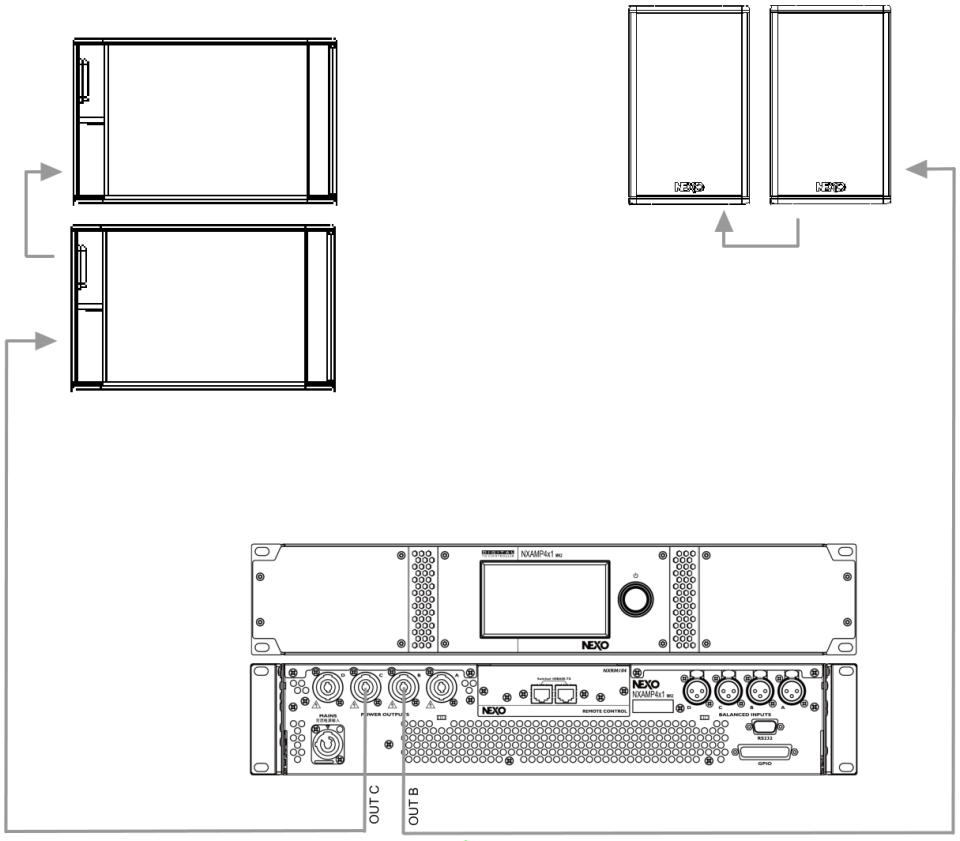
3.5 LS400 / NXAMP4x1mk2 (4 channels mode)



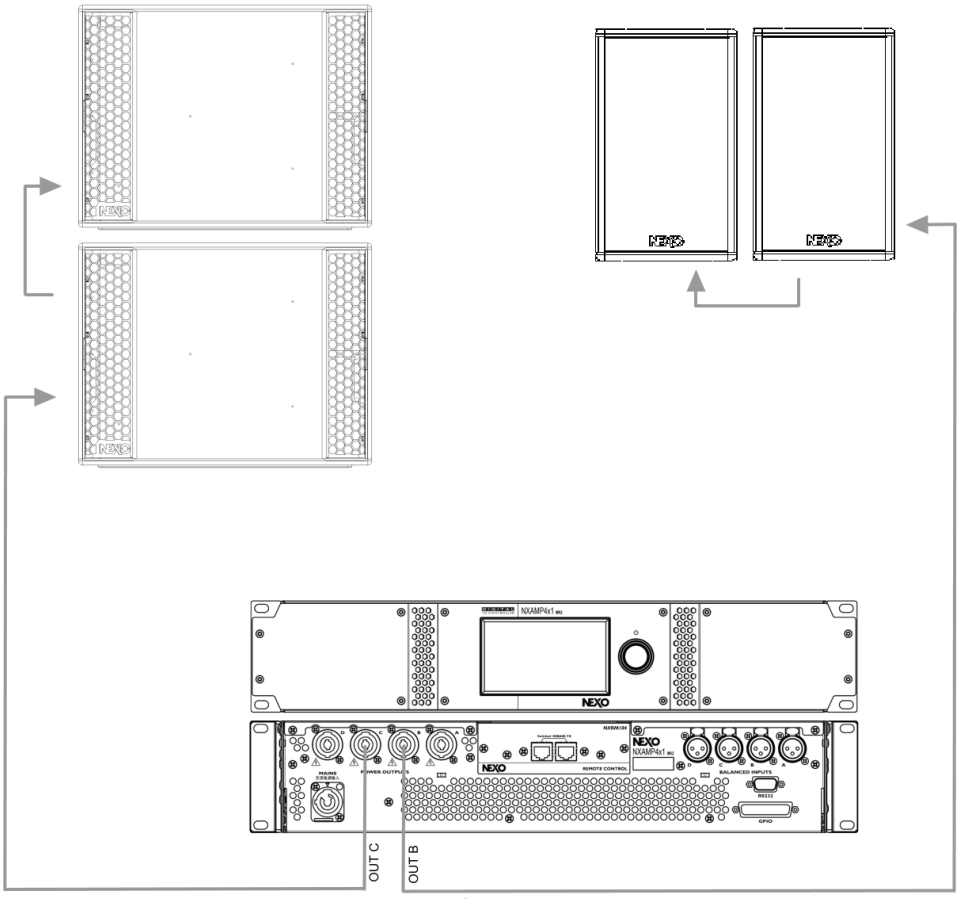
3.6 PS8 and LS400 / NXAMP4x1mk2 (4 channels mode)



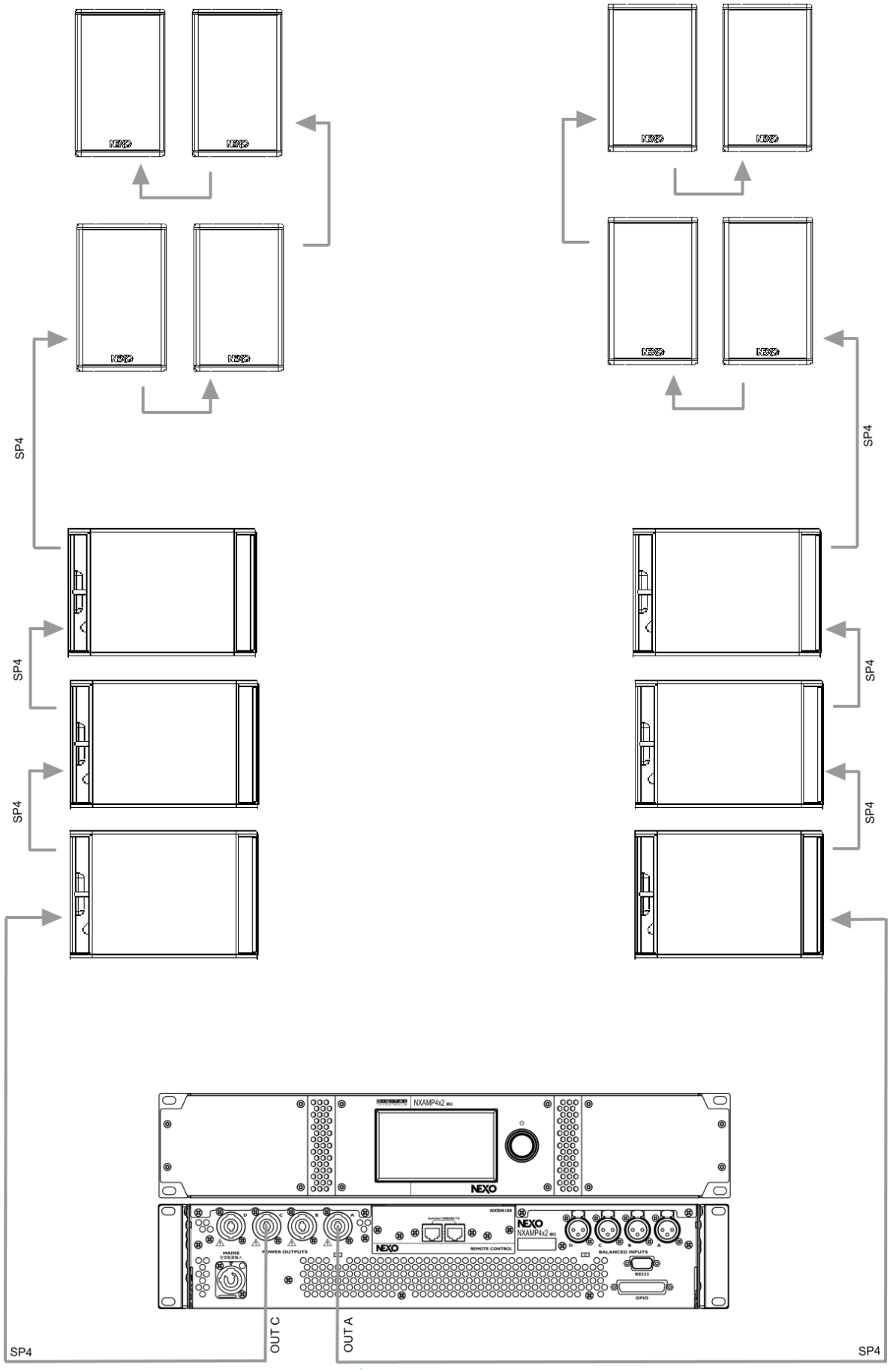
3.7 PS10R2 and LS600 / NXAMP4x1mk2 (Bridge Stereo)



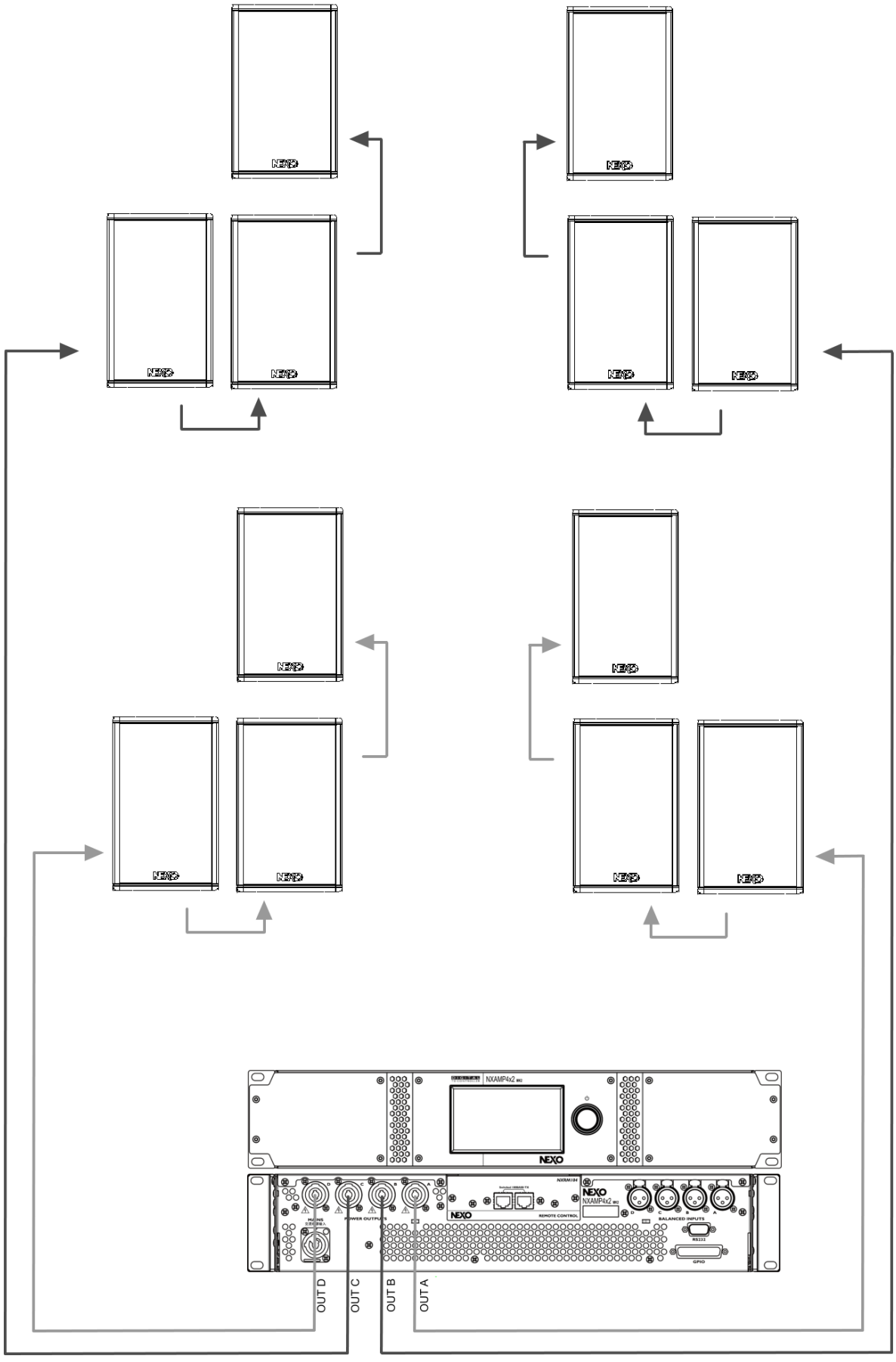
3.8 PS15R2 (passive mode) and LS18 / NXAMP4x1mk2 (Bridge Stereo)



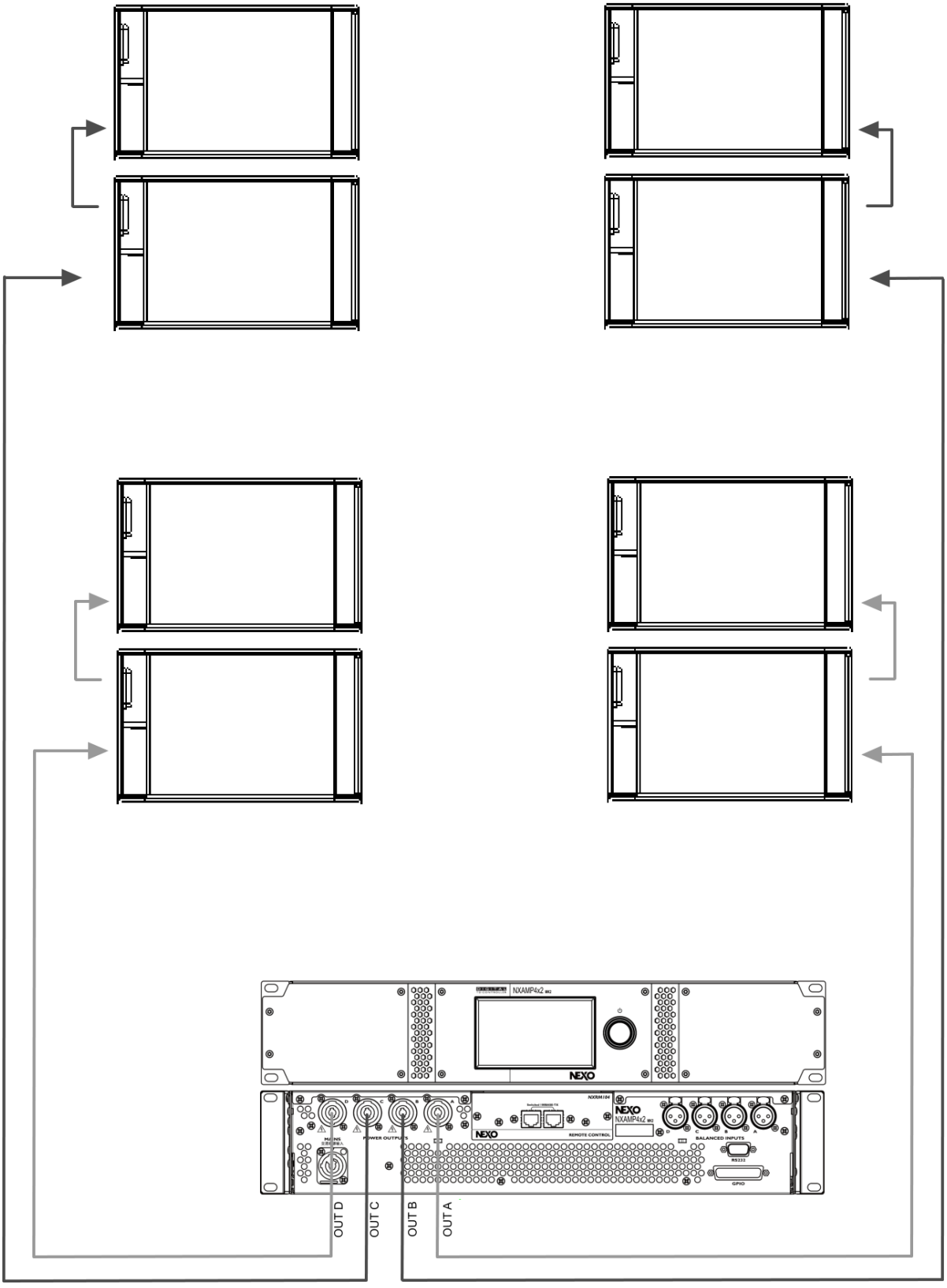
3.9 PS8 and LS400 / NXAMP4x2mk2 (4 channels mode)



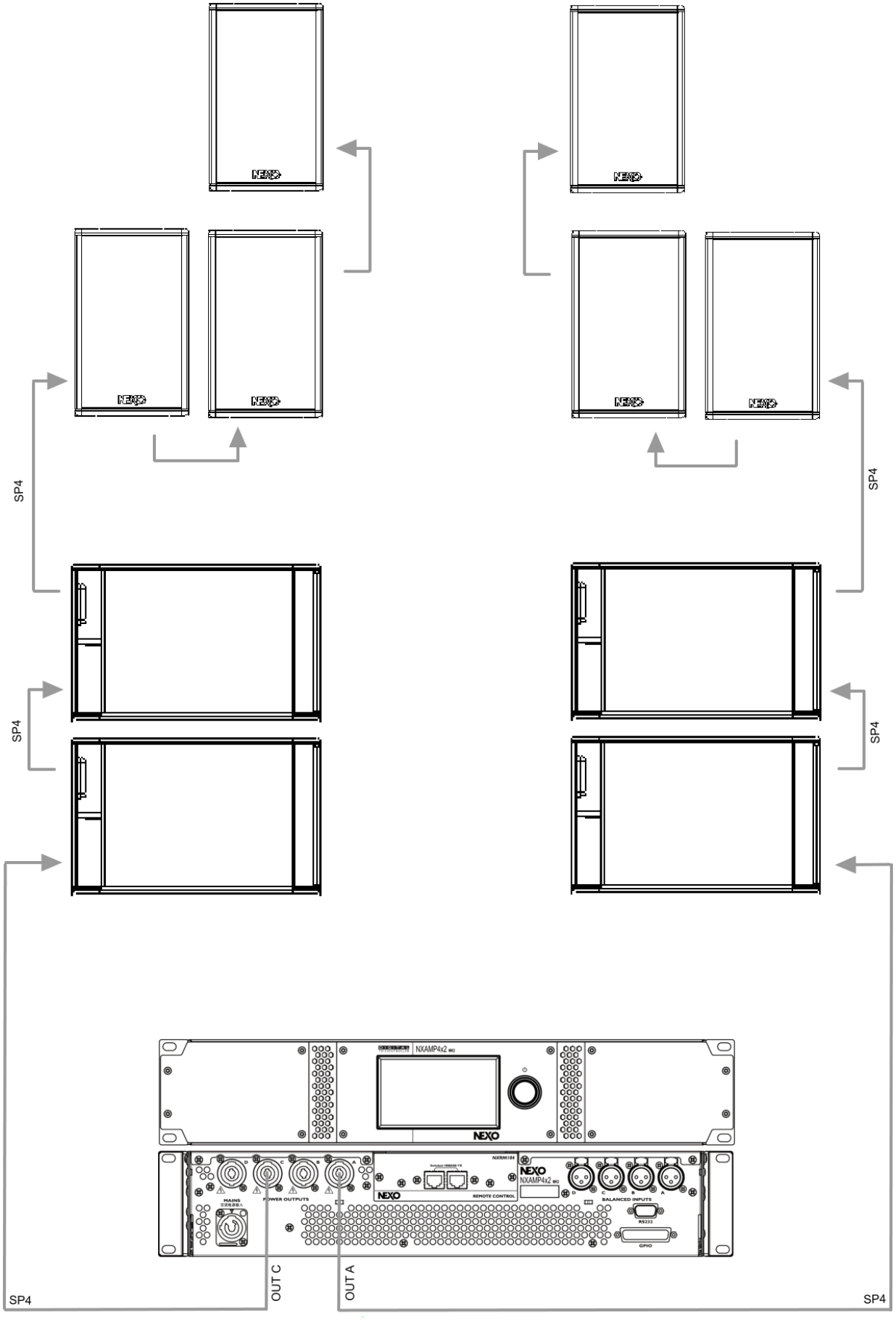
3.10 PS10R2 / NXAMP4x2mk2 (4 channels mode)



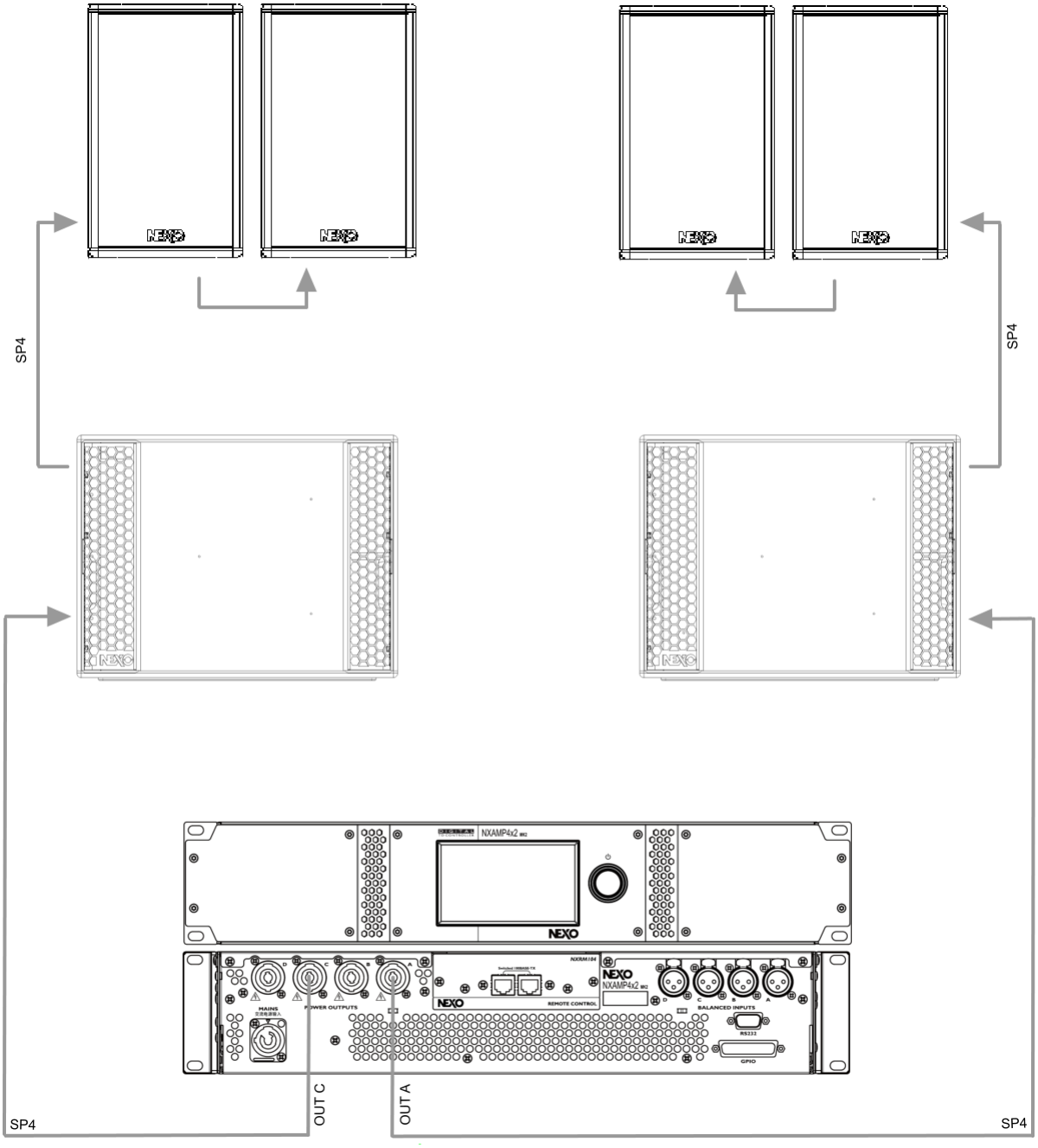
3.11 LS600 / NXAMP4x2mk2 (4 channels mode)



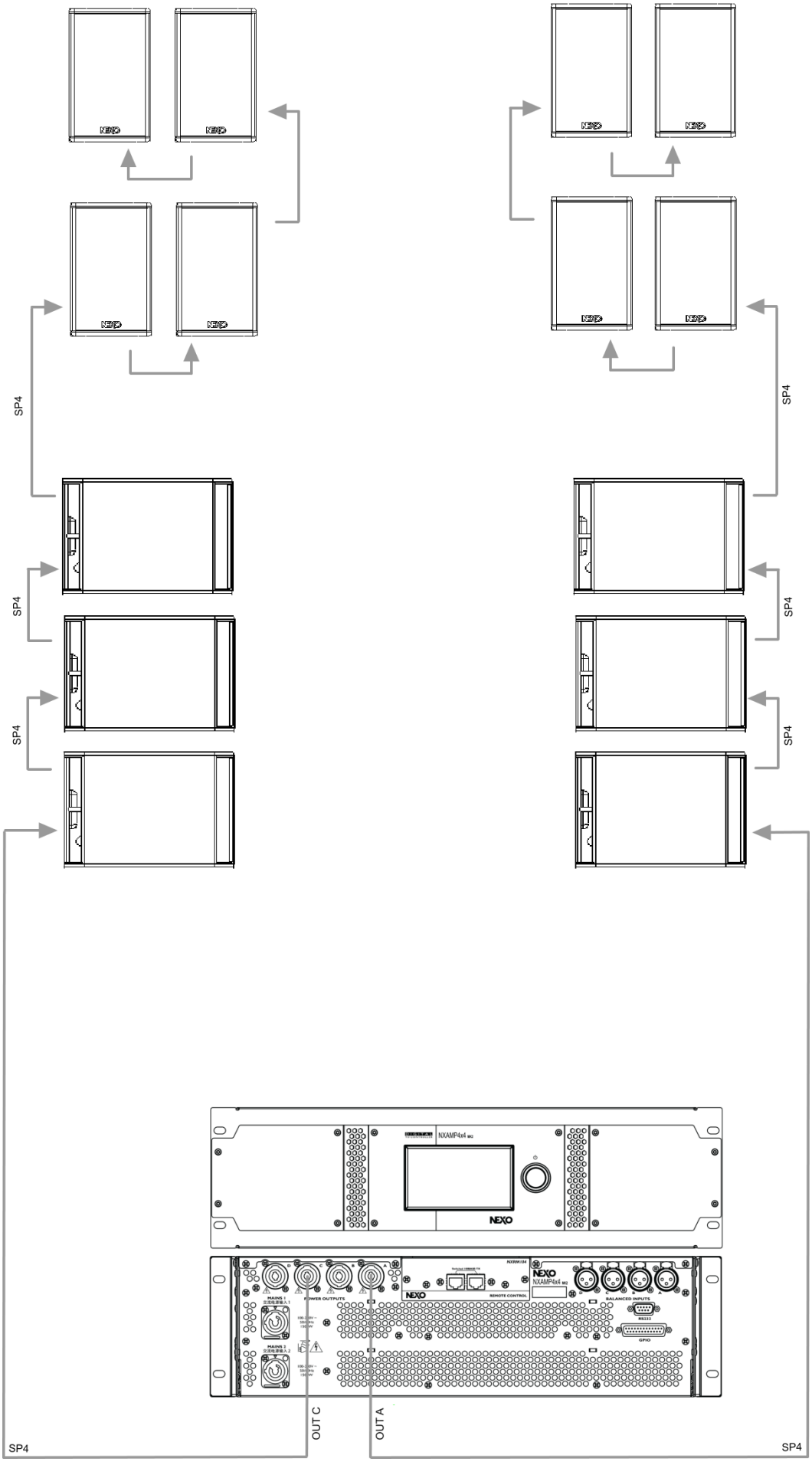
3.12 PS10R2 and LS600 / NXAMP4x2mk2 (4 channels mode)



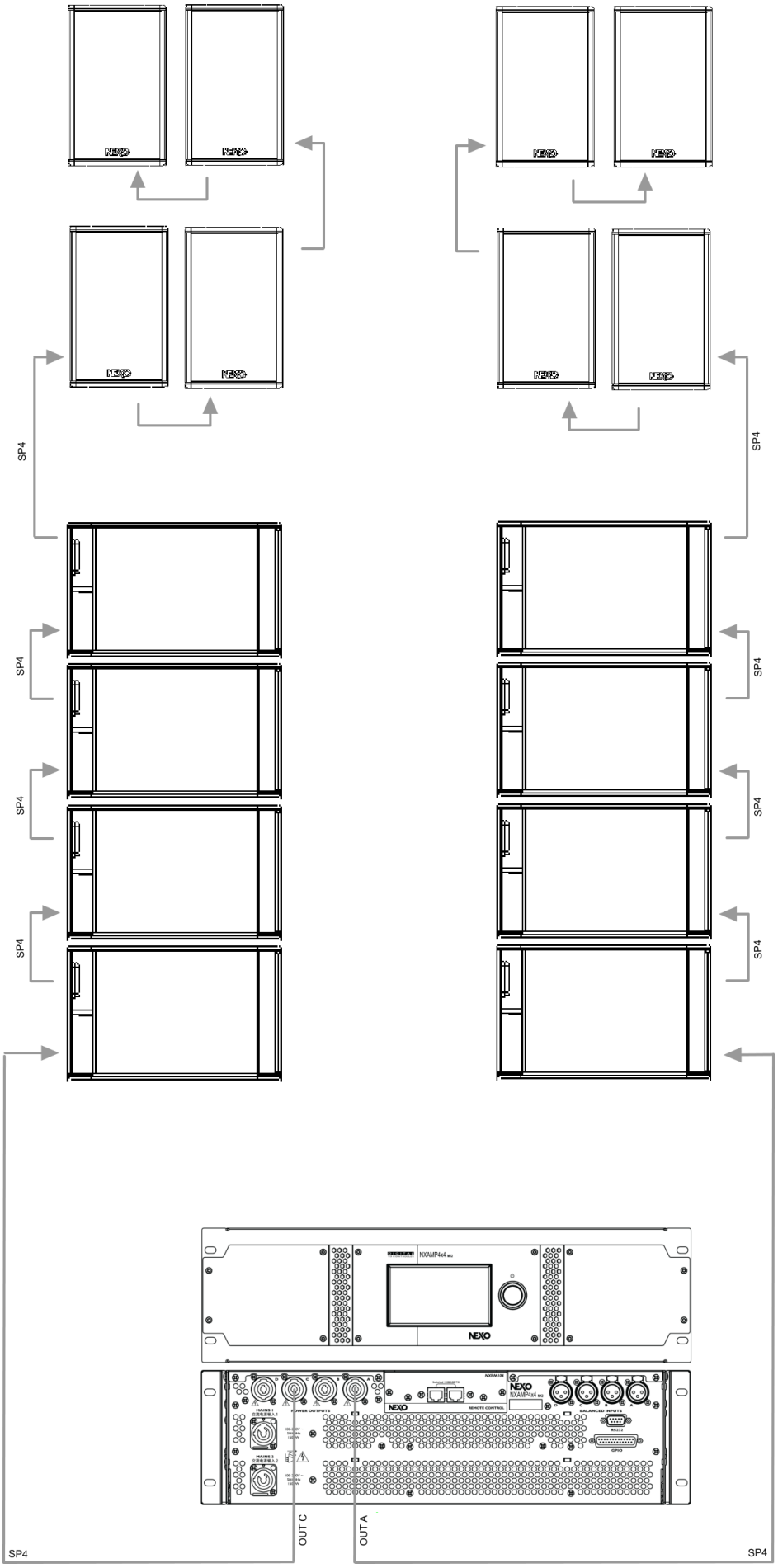
3.13 PS15R2 (passive mode) and LS18 / NXAMP4x2mk2 (4 channels mode)



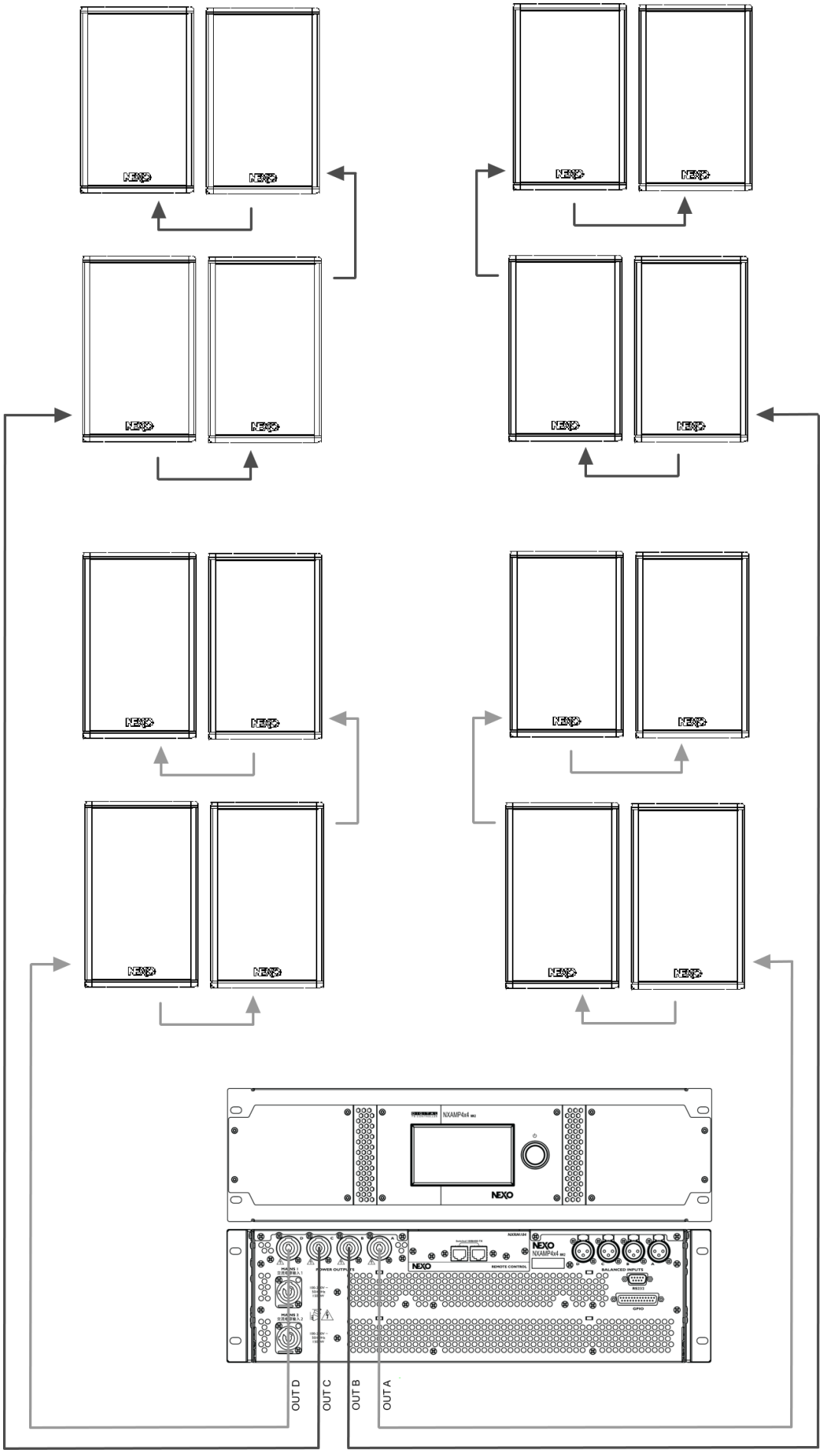
3.14 PS8 and LS400 / NXAMP4x4mk2 (4 channels mode)



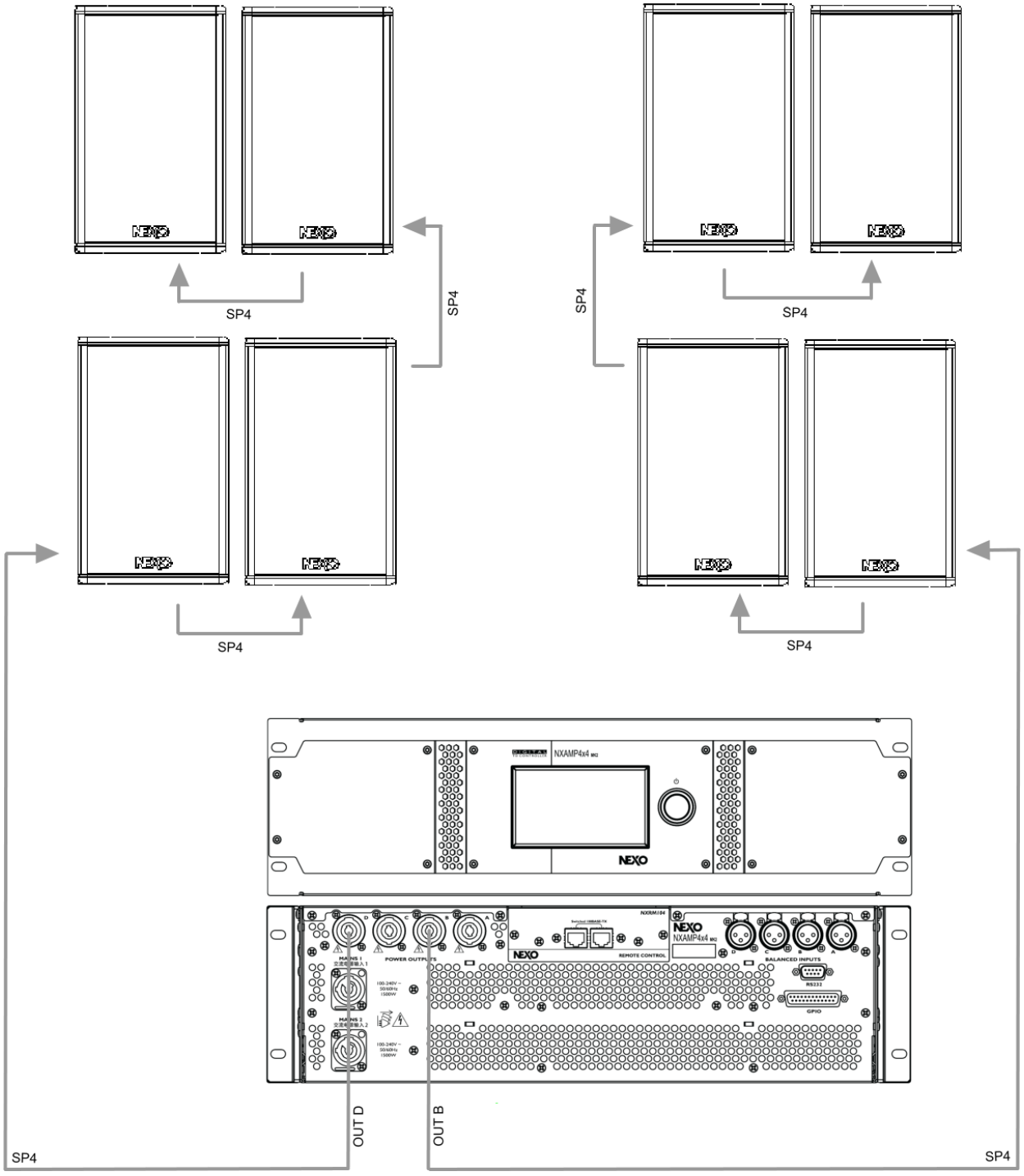
3.15 PS10R2 and LS600 / NXAMP4x4mk2 (4 channels mode)



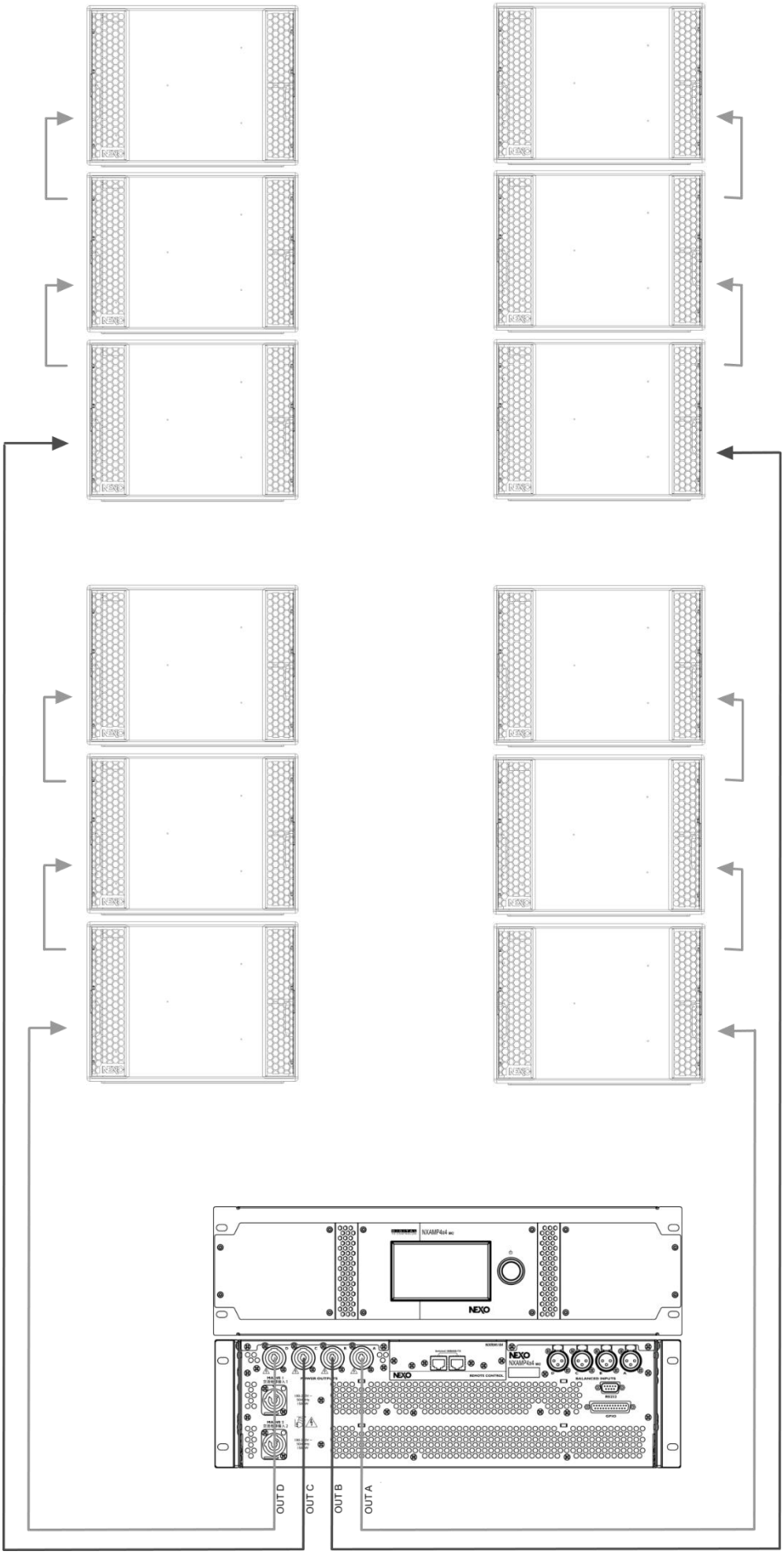
3.16 PS15R2 (passive mode) / NXAMP4x4mk2 (4 channels mode)



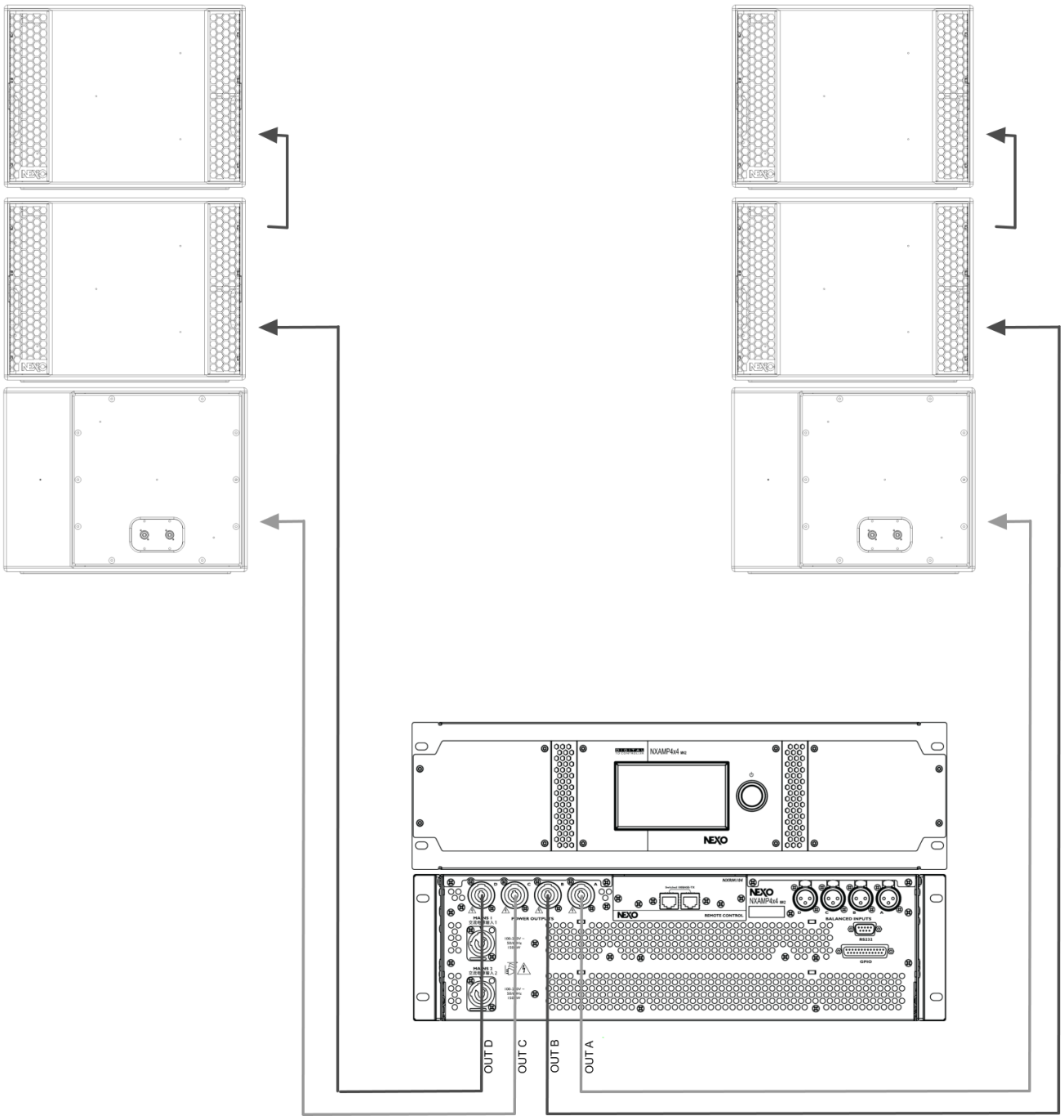
3.17 PS15R2 (active mode) / NXAMP4x4mk2 (4 channels mode)



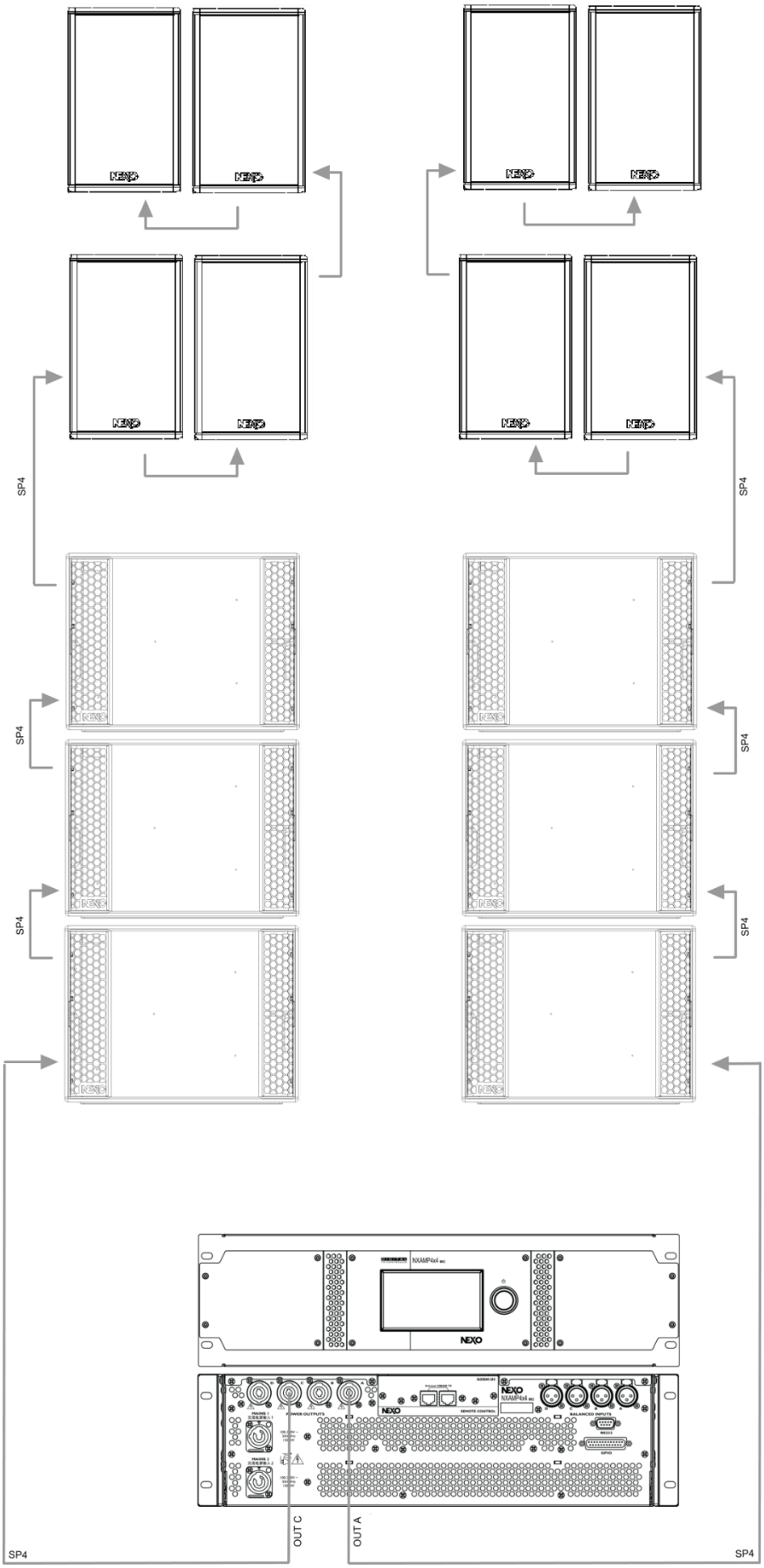
3.18 LS18 Omni Mode / NXAMP4x4mk2 (4 channels mode)



3.19 LS18 Cardio Mode / NXAMP4x4mk2 (4 channels mode)



3.20 PS15R2 (passive mode) and LS18 / NXAMP4x4mk2 (4 channels mode)



4 NS-1 SIMULATION SOFTWARE

NS-1 software is a R&D simulation tool derived application. It processes measured speaker data with complex mathematical algorithms to assist the user in optimizing system design.

NS-1 is an easy to use tool that allows to shape the energy leaving the cluster to fit the audience. It predicts pressure levels radiated from the system to ensure enough cabinets are provided for the application, as well as mechanical constraints for safe flown systems.

In addition, it provides mechanical information for all clusters in agreement with Structural Analysis Reports (available in the Help section): dimensions, weight, gravity centre position, forces, moments, working load and safety factor.

PS and LS Structural Analysis Report is certified by German Certification Organization RWTUV systems GmbH.

NS-1 installation package includes all NEXO User Manuals, Structural Analysis Reports and Certificates PDF files.

NS-1 is a freeware available on nexo-sa.com

IMPORTANT

Never install a PS or LS speaker without checking its acoustical performances and mechanical safety in NS-1 prior to installation.

Any question or bug report please contact technical@nexo.fr

5 CONFIGURABLE ASYMETRICAL HORN

5.1 Principle

The Asymmetrical Dispersion Constant Directivity horn is an important feature of the PS Series. This concept was previously only available for highly specialized applications; in the general purpose PS it is fully exploited thanks to a practical design that makes user configuration of the horn practical and quick.

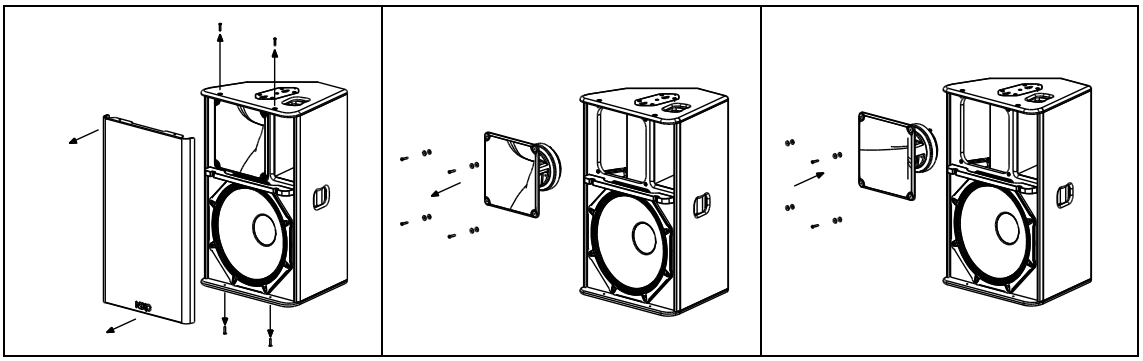
The proper configurations of the horn for two common applications are shown below. All 4 positions of the horn are possible and can be useful for specialized applications such as complex arrays, systems designed with CAD software and stage monitoring.

The specific dispersion of the PS8, PS10R2 & PS15R2 horn can be seen on the figure in the "front of house" configuration section:

- As seen on the side view, vertical coverage is narrower above horn axis (+25°) than below (-30°).
- As seen on the front view, horizontal coverage is narrower above horn axis (50° Horizontal for +25° Vertical) and wider below (100° Horizontal for -30° Vertical). Between these two extremes horizontal coverage varies according to a specific law; on axis (0° Vertical) coverage is 75° Horizontal.

5.2 Change of configuration

Access to the horn for configuration and checking is easily made by removing the front grille (4 TORX screws to be removed top and bottom of the cabinets). To modify horn orientation, remove the four Allen 4 metric or TORX TX25 screws that hold the horn in place A sticker on the wide dispersion side of the horn shows the correct orientation for wedge monitoring and front of house applications: you simply position the indication on the desired side. The arrow indicates the wide dispersion.

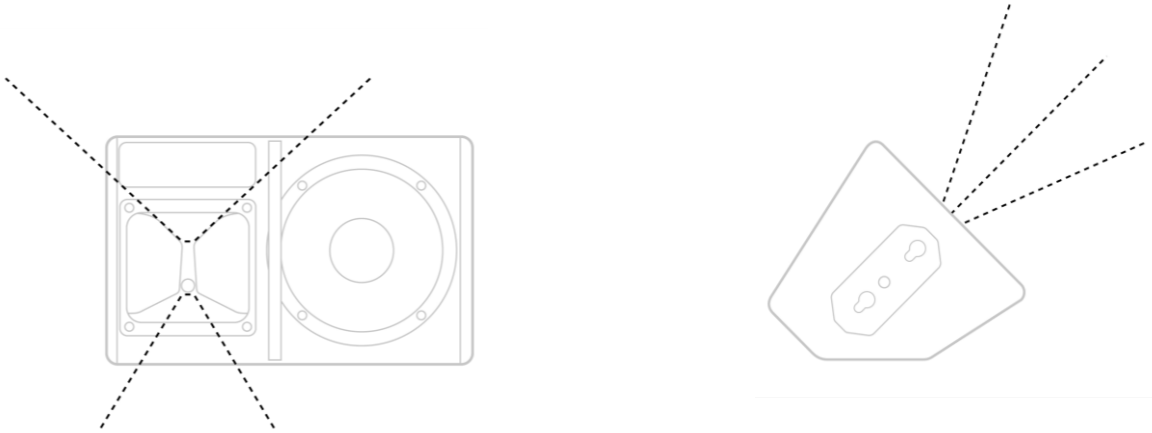


5.3 "Front of house" configuration

Good coverage of audiences often requires a conflicting combination of wide coverage ("short-throw") for the closest listeners (below cabinet axis) and narrow coverage ("long-throw") for distant areas (on or above axis). The PS Series horizontal horn coverage varies from "short-throw" to "long-throw" along the vertical axis to precisely match these practical requirements in a single system. For the majority of applications, the asymmetrical horn should be used with its "wide" dispersion side directed towards the floor (as shown by the arrow) but all four cabinet orientations are usable.

5.4 "Stage monitor" configuration

For stage monitors the required coverage is always wider when performers are close to the wedge (above the horn axis) than when they move away from it (below the horn axis). For floor monitor use the horn must be rotated with its "wide" dispersion side directed towards the top of the cabinet (as shown by the arrow) in wedge position as shown in the above figure.



6 PS SERIES HARDWARE SETUP PROCEDURE

Before proceeding with installation of PS Series speakers, please ensure that the components are present and undamaged. A component list is appended to this manual. In the event of any shortage, please contact your supplier.

6.1 Safety first

PS and LS Rigging System structural computations and related documents are available in NS-1 or at NEXO (info@nexo.fr) upon request.

We include this section to remind you of safe practice when flying the PS Series system. Please read it carefully. However, user must always apply his or her knowledge, experience and common sense. If in any doubt, seek advice from your supplier or NEXO agent.

The PS and LS Rigging System is a professional precision tool set and should be handled with extreme care. Only persons who are fully conversant with the operation of the PS and LS Rigging System and provided with suitable safety equipment should deploy it. Misuse of the PS and LS Rigging System could lead to dangerous consequences.

Used and maintained correctly, the PS and LS Rigging System will give many years of reliable service in portable systems. Please take the time to read and understand this manual.

6.1.1 Flown systems safety

Always inspect all the rigging components and cabinets for damage before assembly. Pay special attention to the lifting points, and safety clips. If you suspect that any of the components are damaged or defective, DO NOT USE THE AFFECTED PARTS. Contact your supplier for replacements.

Read this manual carefully. Also, be familiar with the manuals and safe working procedures for any ancillary equipment that will be used with the PS and LS Rigging System.

Ensure that all local and National regulations regarding the safety and operation of flying equipment are understood and adhered to. Information on these regulations can usually be obtained from Local Government Offices.

When deploying a PS and LS system always wear protective headwear, footwear and eye protection.

Do not allow inexperienced persons to handle a PS and LS system. Installation personnel should be trained in loudspeaker flying techniques and should be fully conversant with this manual.

Ensure that motor hoists, hoist control systems and ancillary rigging components are currently certified as safe and that they pass a visual inspection prior to use.

Ensure that public and personnel are not allowed to pass beneath the system during the installation process. The work area should be isolated from public access.

Never leave the system unattended during the installation process.

Do not place any object, no matter how small or light, on top of the system during the installation procedure. The object may fall when the system is flown and is likely to cause injury.

Secondary safety steels must be installed once the system has been flown to the operating height. Secondary steels must be fitted irrespective of requirements of the local safety standards applicable to the territory.

Ensure that the system is secure and prevented from pivoting around the motor hoist.

Avoid any form of excessive dynamic loading to the assembly (structural computations on PS and LS Rigging System are based on a 1/1.2 factor for hoist or motor acceleration).

NEVER attach any item to the PS and LS system other than the PS and LS accessories.

When flying outdoor systems ensure that the system is not exposed to excessive wind or snow loads and is protected from rainfall.

In case of wind greater than 8 on Beaufort scale (72km/h – 45mph), a touring system has to be landed or an additional securing has to be implanted.

For fixed installations, wind loading has to be taken into account in accordance to the national standards.

The PS and LS Rigging System requires regular inspection and testing by a competent test centre. NEXO recommend that the system is load tested and certified annually or more frequently if local regulations require.

When de-rigging the system ensure that the same duty of care is given to the procedure as for the installation. Pack PS and LS components carefully to prevent damage in transit.

6.1.2 Ground stacking safety

Statistically, many more injuries occur due to unstable ground stacked PA systems than those associated with flown systems. There are several reasons for this fact, however the message is clear:

Always survey the supporting structure upon which a ground stack is to be built. Always look beneath PA wings to inspect the deck support and if necessary ask for the stage scrims and dressings be removed to allow access.

If the stage surface slopes, as it does in some theatres, ensure that the system is prevented from sliding forwards due to vibration. This may require the fitting of timber battens to the stage floor.

For outdoor systems ensure that that the system is protected from wind forces which might cause the ground stack to become unstable. Wind forces can be huge, especially upon large systems, and should never be underestimated. Observe meteorological forecasts, calculate the “worst case” effect upon the system prior to erection and ensure that the system is secured appropriately.

Take care when stacking cabinets. Always employ safe lifting procedures and never attempt to build stacks without sufficient personnel and equipment.

Never allow anyone, whether operators, artists or members of the public to climb onto a ground stacked PA system. Anyone who needs to climb over 2m (6 ft) high should be fitted with suitable safely equipment including a clip-on harness. Please refer to local Health and Safety legislation in your territory. Your dealer can help with advice on access to this information.

Apply the same attention to all safety matters when de-stacking systems.

Be aware that safety procedures are as important in the truck and in the warehouse as they are at the venue.

6.1.3 Contacts

Correct training is fundamental to safe practise when working with loudspeakers flying systems. NEXO recommend that users contact local industry associations for information on specialist course.

Information for International training agencies can be obtained by contacting either:

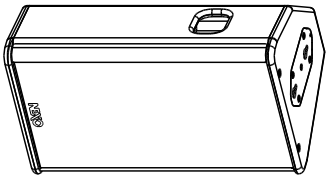
The Production Services Association (PSA),
School Passage,
Kingston-upon-Thames,
KT1 SDU Surrey,
ENGLAND
Telephone: +44 (0) 181 392 0180
www.psa.org.uk/

Rigstar Training and Testing Center
82 Industrial Dr. Unit 4
Northampton, Massachusetts 01060 U.S.A.
Phone: 413-585-9869
www.rigstar.com/

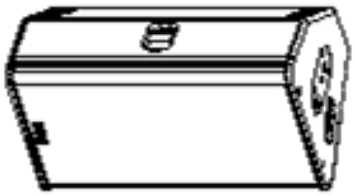
ESTA
Entertainment Services & Technology
Association
875 Sixth Avenue, Suite 1005
NEW YORK, NY 10001 USA
Phone: 212-244-1505
www.esta.org

6.2 General Description

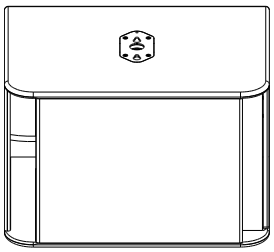
6.2.1 PS10R2/PS15R2/LS600



PS10R2

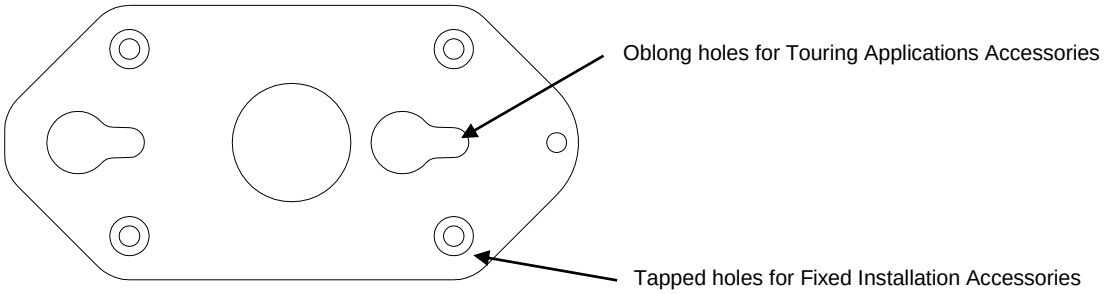


PS15R2



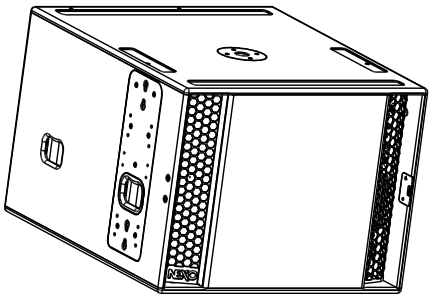
LS600

PS10R2, PS15R2 and LS600 incorporate connecting plates (one on PS10R2 and LS600 and one per side on PS15R2) on which a comprehensive range of accessories can be mounted.

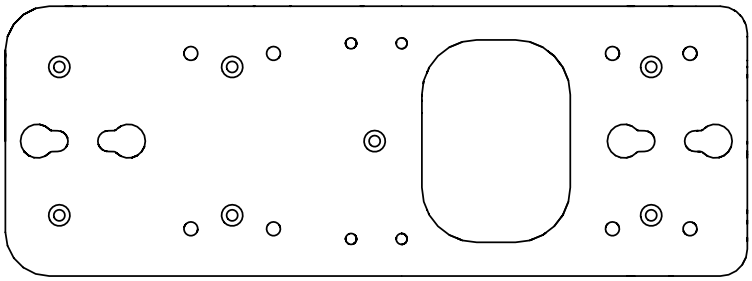


PS10R2, PS15R2 AND LS600 CONNECTING PLATES

6.2.2 LS18



LS18 incorporate two connecting plates (one per side) on which a comprehensive range of accessories can be mounted.



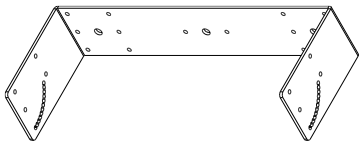
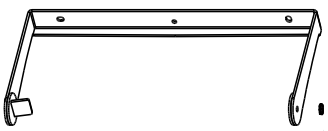
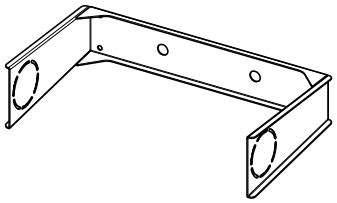
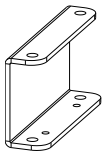
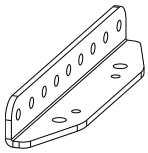
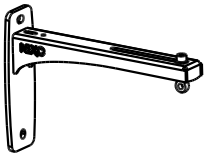
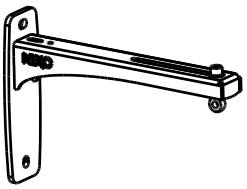
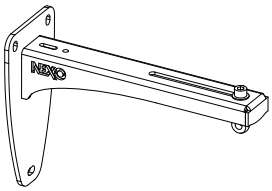
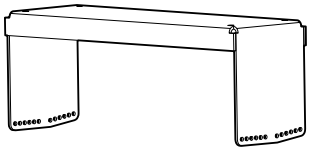
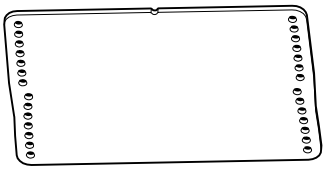
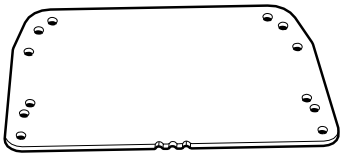
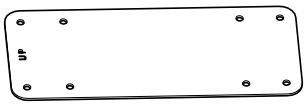
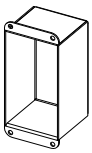
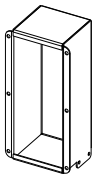
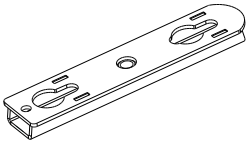
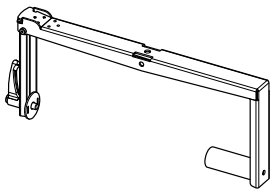
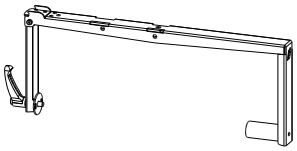
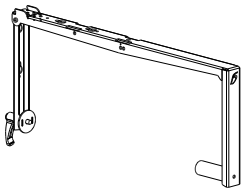
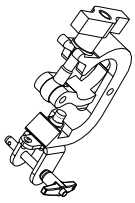
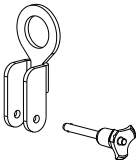
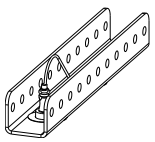
LS18 connecting plates

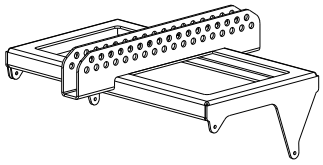
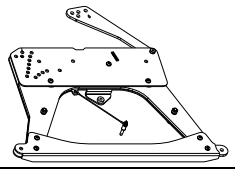
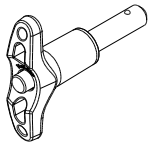
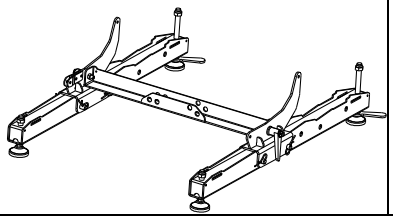
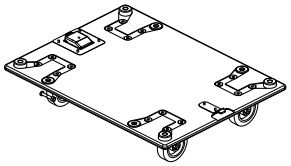
There are two families of accessories:

- fixed installation accessories, which are designed to be screwed on the connecting plates
- touring accessories, which can be installed or removed with quick connecting systems

6.2.3 Accessories

PS and LS accessories are:

VNI-UBRK8 	VNI-UBRK10 	VNI-UBRK12 
VNI-ABRK 	VNI-LBRK 	VNI-WS8 
VNI-WS10 	VNI-WS15 	GPI-BUMPER 
GPI-ANPL1 	GPI-ANPL3 	LSI-CPLA 
VNI-IPCOV8 	VNI-IPCOV15 	VNI-ADPT 
VNI-SSBRK8 	VNI-SSBRK10 	VNI-SSBRK15 
VNT- TCBRK 	VNT-XHBRK 	VNT- TTC 

GPT- BUMPER 	LST-XBOW18 	VXT-BL820 
GPT-GSTK 	LST-COVER18 	LST-WB18 

6.2.4 Warnings on PS and LS accessories

WARNING

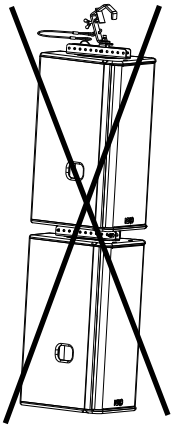
All PS and LS accessories are specifically rated in agreement with structural computations.

Never use other accessories – including push-pins - when assembling PS and LS cabinets than the ones provided by NEXO: NEXO will decline responsibility over the entire PS and LS accessory range if any component is purchased from different supplier.

WARNING 2

All PS accessories have been designed so that cabinets are installed as single standalone loudspeakers.

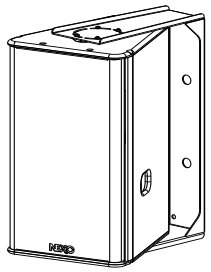
PS assemblies in the as shown in figure below are UNSAFE and STRICTLY PROHIBITED.



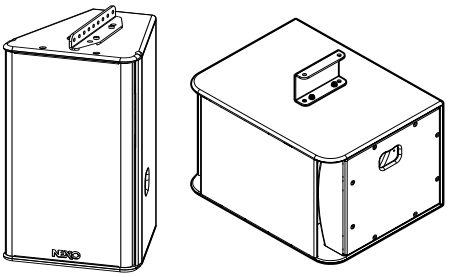
NO

6.3 Installation applications

6.3.1 Described configurations



SECTION 6.3.2



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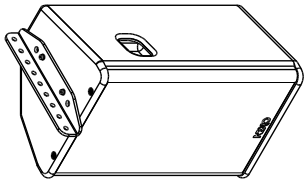
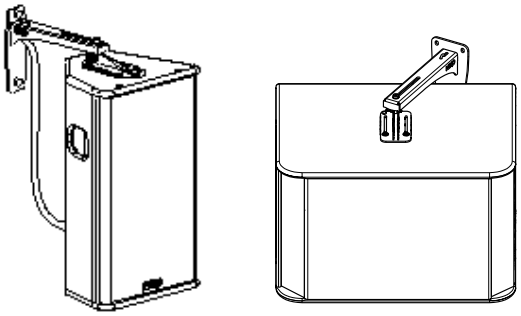
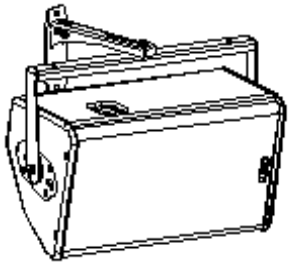


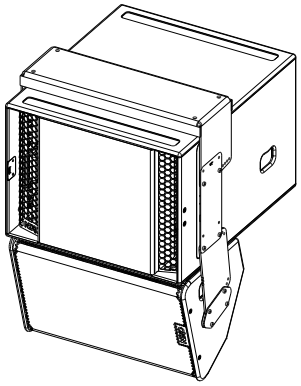
SECTION 6.3.4



SECTION 6.3.5



SECTION 6.3.6



SECTION 6.3.7 AND 6.3.8

IMPORTANT

In order to prevent screws from getting loose in fixed installations, we deliver thread lock coated screws, if not use blocking liquid LOCTITE™ 243 or equivalent for all screws used with PS and LS fixed installation accessories.

LOCTITE™ 243 is available at NEXO or at your local distributor upon request.

6.3.2 PS rigidly mounted on a wall or a ceiling (vertical or horizontal)

Required items

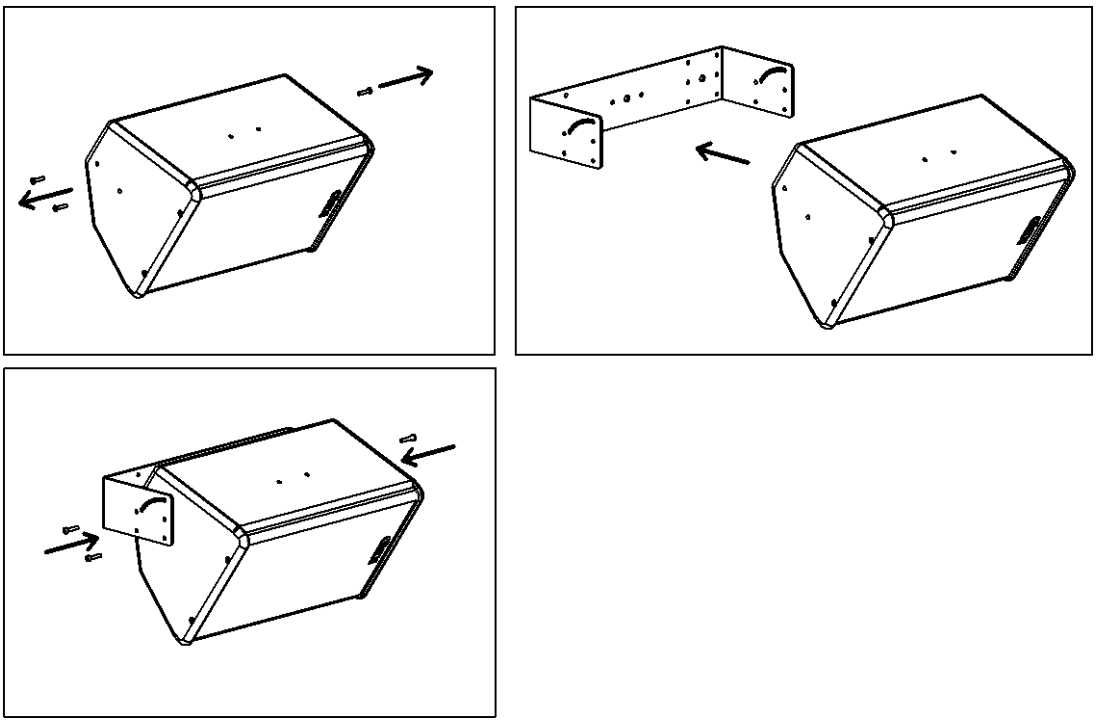
- 1 x VNI-UBRK(8/10/12) (allows all angles to be implemented)
- 4 x 12mm diameter screws (*not provided*)

IMPORTANT

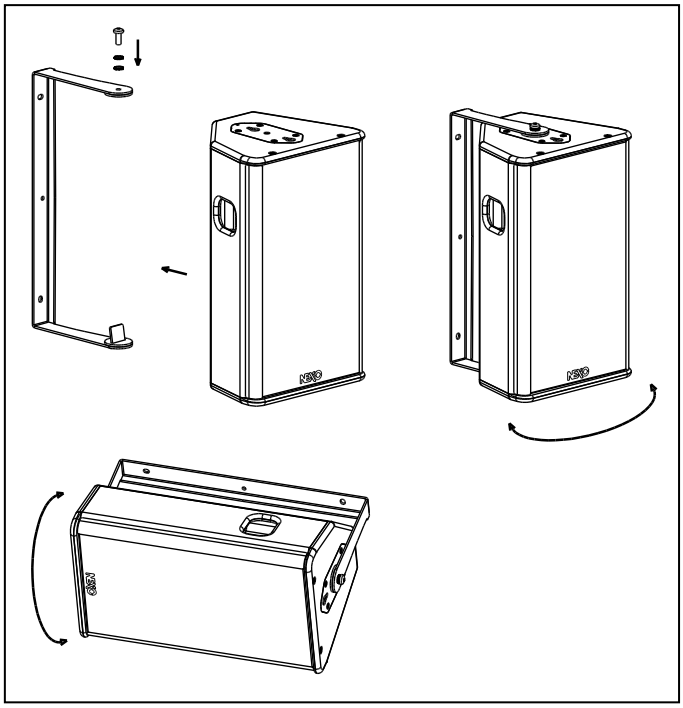
Ensure that the surface – wall or ceiling – is strong enough to hold 4 times PS weight and that the four screws 12mm diameter and corresponding plugs required to fix the "U" bracket on the wall or under the ceiling are properly dimensioned.

Procedure

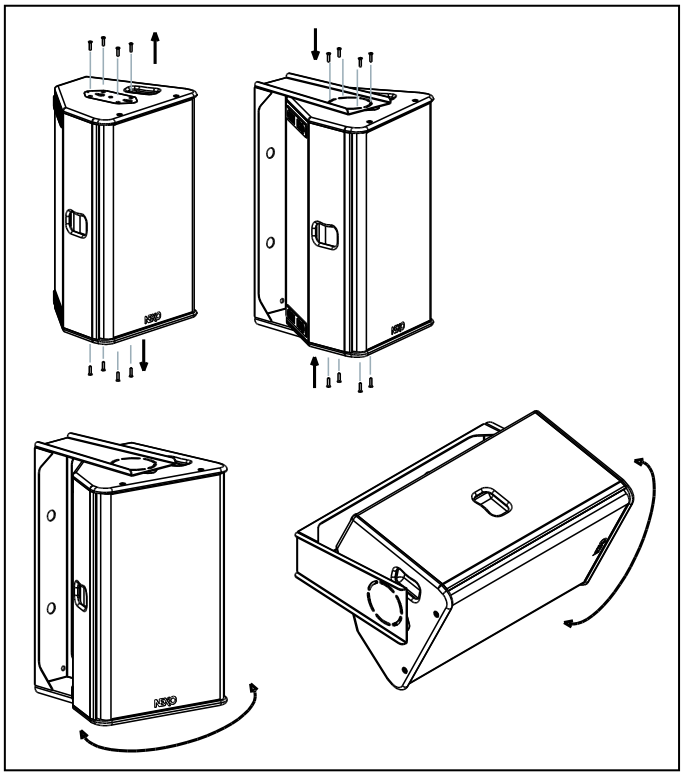
- PS8: remove the two screws on the upper side and 1 screw on the lower side of PS8
- PS15R2: remove the four screws holding connector plates on both sides of PS15R2
- Fill each screw hole with Loctite 243 or equivalent
- Position the PS inside the "U" Bracket to desired angle; "U" bracket oblong holes must be properly aligned with panels holes
- Use the screws and washers from VNI-UBRK kit to connect "U" bracket to cabinet



"U" BRACKET MOUNTING PROCEDURE FOR PS8



“U” BRACKET MOUNTING PROCEDURE FOR PS10R2



“U” BRACKET MOUNTING PROCEDURE FOR PS15R2

6.3.3 PS10R2/PS15R2/LS600 mounted on a ceiling (vertical)

Required items

- 1 x VNI-LBRK (allows cable suspension, holes for cable suspension are 10mm diameter)
- 2 slings and corresponding shackles (*not provided*)

OR

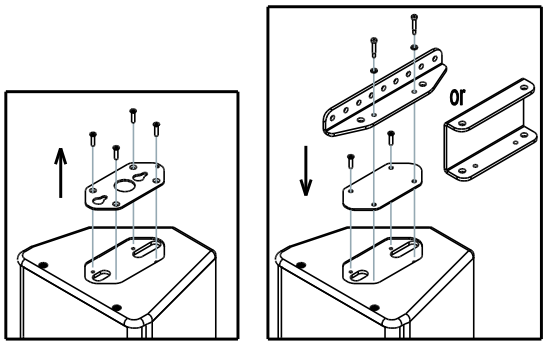
- 1 x VNI-ABRK (allows rigid suspension)

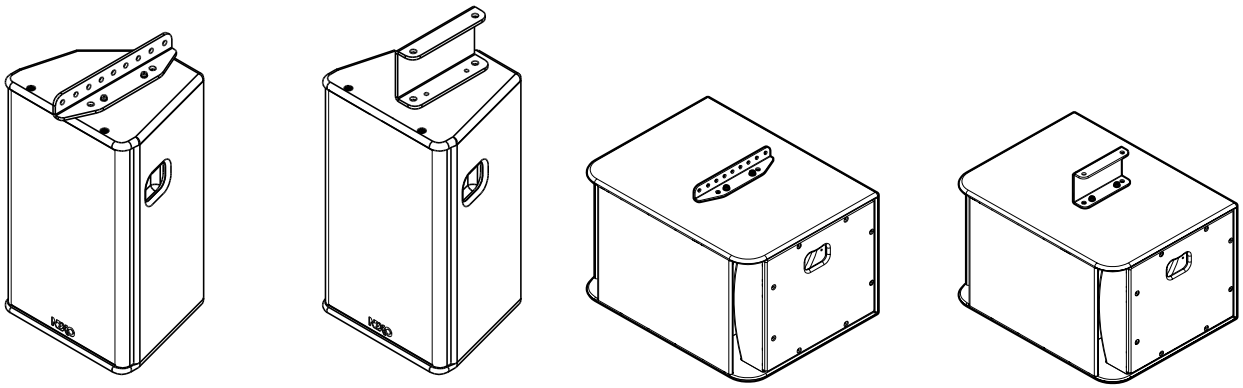
IMPORTANT

Ensure that the ceiling is strong enough to hold 4 times PS or LS weight and that the cable suspension system required to install the cabinet under the ceiling is properly dimensioned.

Procedure

- Remove the four TORX screws holding connector plates on upper side of PSR2 or LS600
- Remove the connector plate from PSR2 or LS600 cabinet
- Fill each screw hole with Loctite 243 or equivalent
- Position external plate from VNI-LBRK kit or VNI-ABRK kit and secure it using 2 of the 4 shoulder screws supplied with this kit
- Position bracket from VNI-LBRK kit, or VNI-ABRK and secure it to the cabinet using the 2 remaining shoulder screws supplied with this kit.
- Slings and shackles (not provided) are required to secure the cluster under the ceiling





6.3.4 PS15R2 mounted on a ceiling (horizontal)

Required items

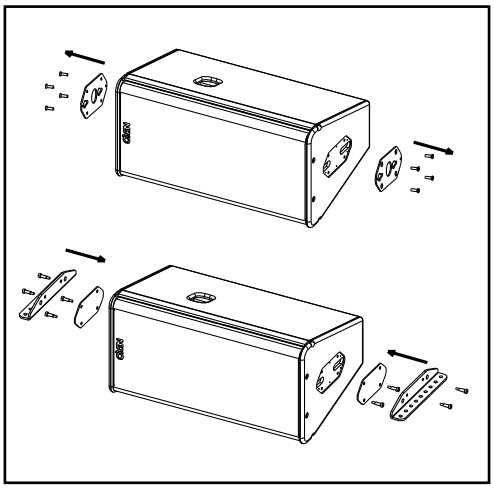
- 2 x VNI-LBRK (allows cable suspension, holes for cable suspension are 10mm diameter)
- 4 slings and corresponding shackles (*not provided*)

IMPORTANT

Ensure that the ceiling is strong enough to hold 4 times PS weight and that the cable suspension system required to install the cabinet under the ceiling is properly dimensioned.

Procedure

- Remove the four TORX screws holding connector plates on both sides of PS15R2
- Remove the connector plates from PS15R2
- Fill each screw hole with Loctite 243 or equivalent
- Position external plates from VNI-LBRK kits and secure them using the shoulder screws supplied with these kits
- Position “L” brackets from VNI-LBRK kits and secure them to the cabinet using the 4 remaining shoulder screws supplied with these kits
- Slings and shackles (not provided) are required to secure the speaker under the ceiling



CABLE SUSPENSION MOUNTING PROCEDURE FOR PS15R2

6.3.5 PS and LS600 wall suspension (vertical)

Required items

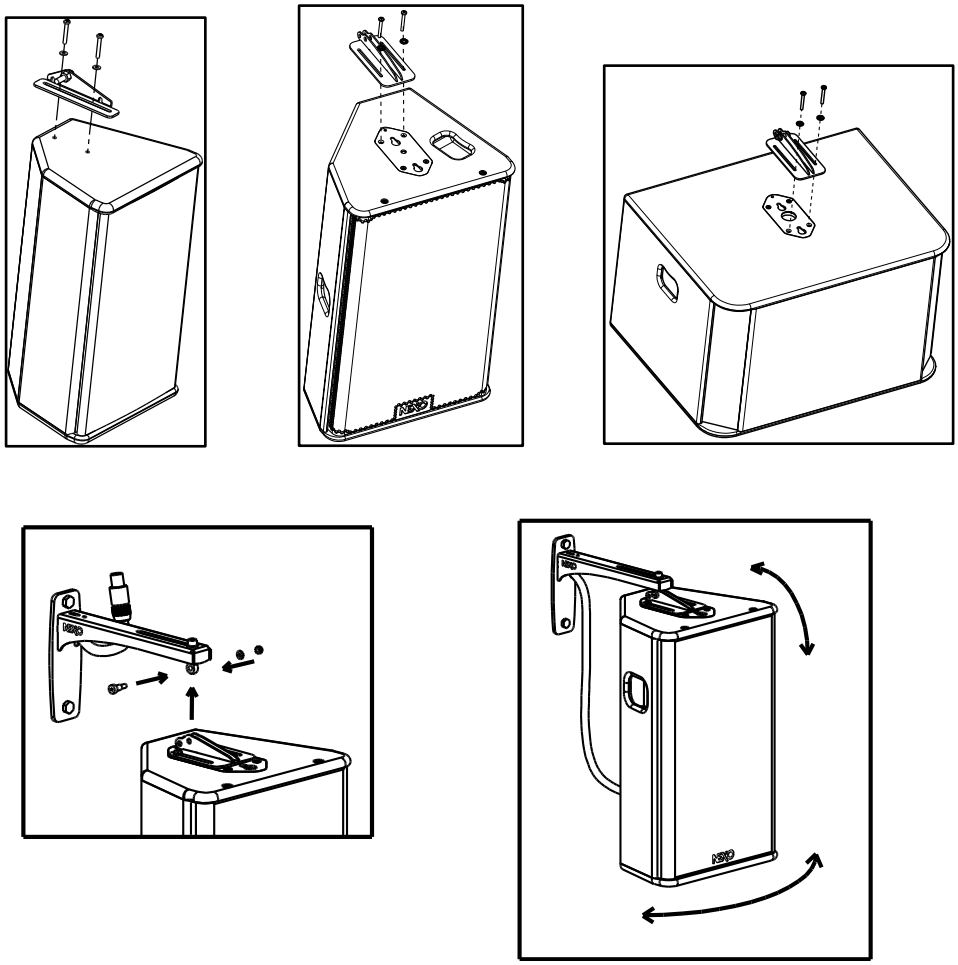
- 1 x VNI-WS(8/10/15)
- 4 x 10mm diameter screws (*not provided*)

IMPORTANT

Ensure that the wall is strong enough to hold 4 times PS or LS600 weight and that the four screws 10mm diameter and corresponding plugs are properly dimensioned.

Procedure

- Remove the 2 rear screws on the upper side of the PS or LS600
- Fill each screw hole with Loctite 243 or equivalent
- Connect the suspension plate to the connector plate of PSR2 or LS600 or upper side of PS8 by using the screws provided with the VNI-WS kit
- Position the srews in the oblong hole so that required vertical angle is obtained (no tilt with LS600)
- Secure the screws
- Suspend and secure the cabinet to the wall suspension
- Adjust horizontal angle



WALL SUSPENSION PROCEDURE FOR VERTICAL INSTALLATION

6.3.6 PS8/PS10R2 wall suspension (horizontal)

Required items

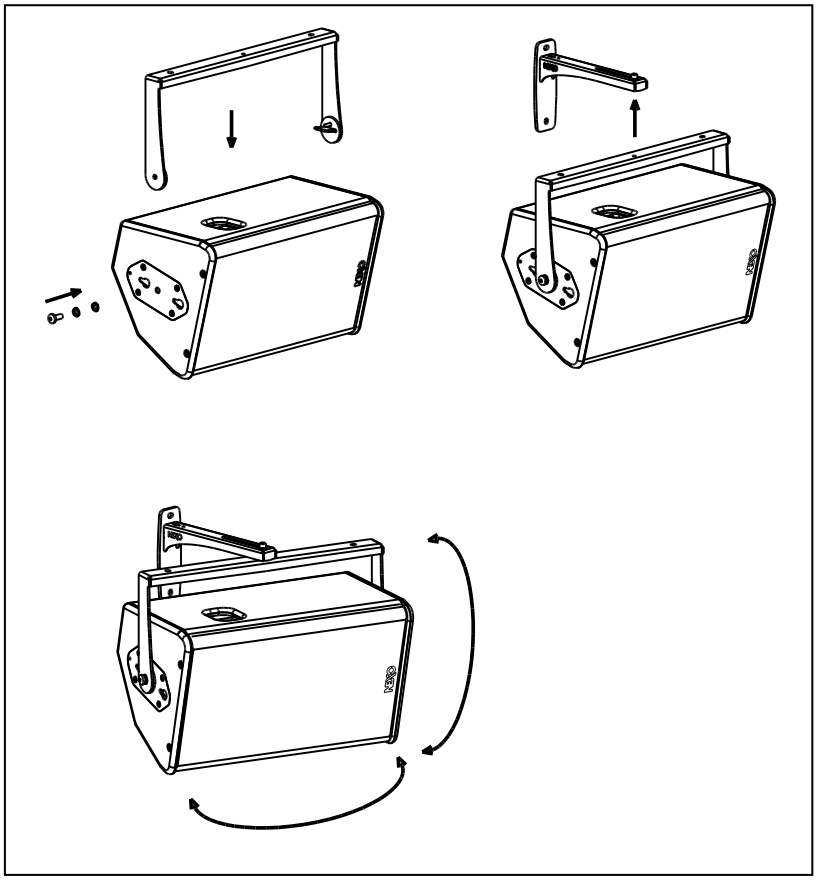
- 1 x VNI-WS(8/10)
- 1 x VNI-UBRK(8/10)
- 4 x 10mm diameter screws (*not provided*)

IMPORTANT

Ensure that the wall is strong enough to hold 4 times PS weight and that the four screws 10mm diameter and corresponding plugs are properly dimensioned.

Procedure

- Install the "U" bracket as described in section 6.3.2
- Connect the "U" bracket to the connector plate by using the screws provided with the VNI-WS kit
- Secure the screws
- Suspend and secure the cabinet to the wall suspension
- Adjust horizontal angle



WALL SUSPENSION PROCEDURE FOR HORIZONTAL INSTALLATION

6.3.7 LS18 and PS15R2 vertical array rigidly mounted on a ceiling

Required items

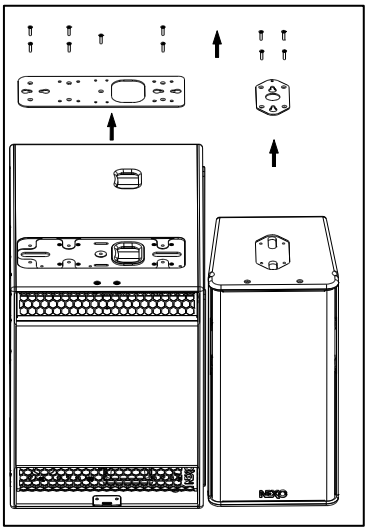
- 1 x GPI-BUMPER (allows +/-5° bumper tilt when installed below a flat surface; if higher bumper tilt is required, surface will have to be defined accordingly)
- M x LSI-CPLA counter-plates for M x LS18
- 1 x GPI-ANPL3 for the PS15R2
- 4 x 12mm diameter screws (*not provided*)

IMPORTANT

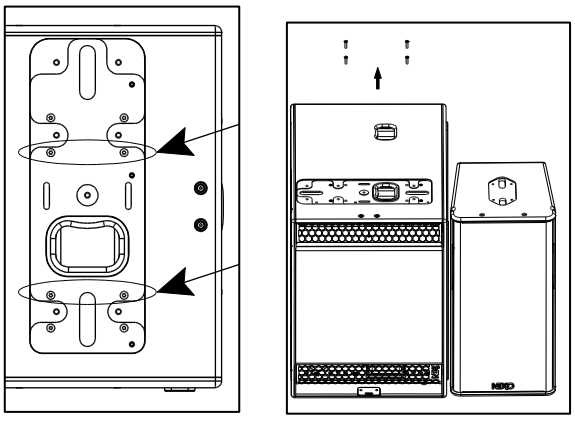
Ensure that the ceiling is strong enough to hold 4 times LS18 and PS15R2 cluster weight and that the four screws 12mm diameter and corresponding plugs required to fix the bumper under the ceiling are properly dimensioned.

Procedure

- Set LS18s and PS15R2 sideways
- Remove the TORX screws holding connector plates on upper side of LS18 and PS15R2
- Remove the connector plates from LS18 and PS15R2

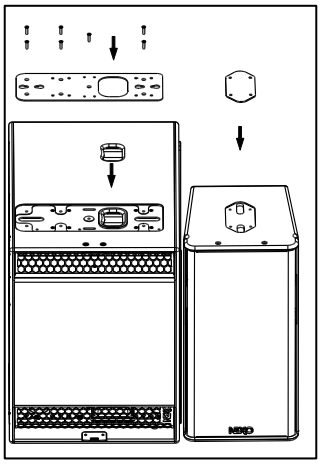


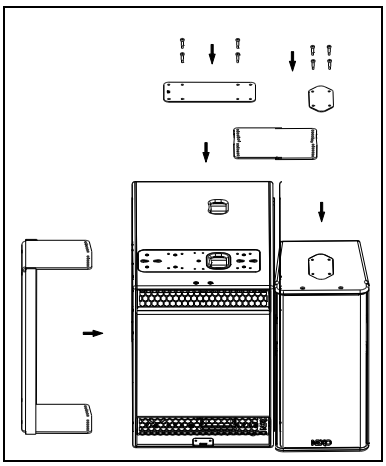
- Remove the 4 locking screws from LS18 side wood panel (see figure below), these are no longer to be used



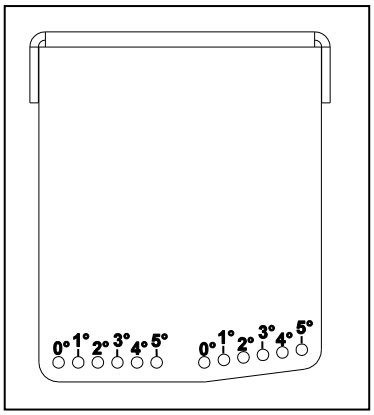
- Apply Loctite 243 or equivalent to the screws that attach the LS18 connector plate to the cabinet, and reinstall the LS18 connector plates (see figure below left)
- Position PS15R2 bottom counter-plates (see figure below left)
- Position GPI-ANPL3 angle plate (set at 16°) and LSI-CPLA top counter-plates on LS18 upper sides according to figure below right
- Use thread lock coated screws (if not apply Loctite 243 or equivalent to shoulder screws) from LSI-CPLA and GPI-ANPL kits

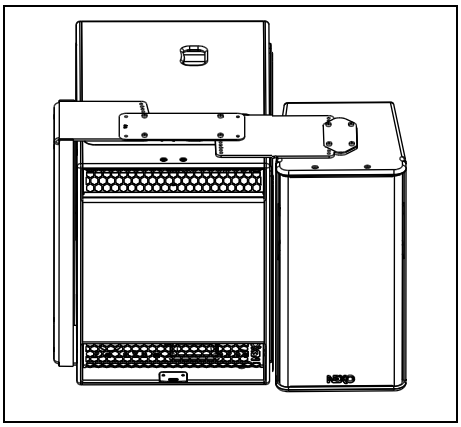
- Screw all shoulder screws so that all plates and cabinets are tightened together



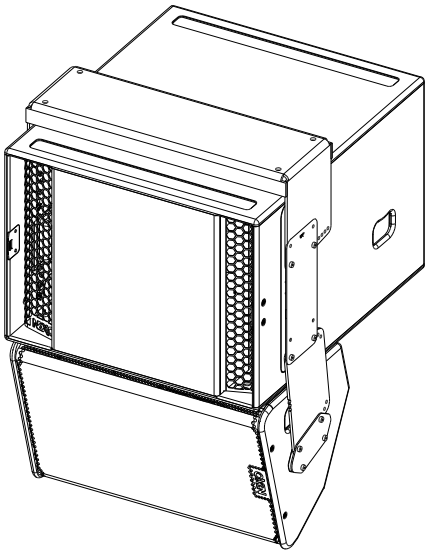


- Flip the cluster upside down to access connector plates located on the down side
- Repeat all above steps
- Position the GPI-BUMPER bumper to required angle position and use the four shoulder screws to connect it the bumper to the top cabinet





- Flip cluster by 90° so that it is ready to be positioned under the ceiling
- Four screws 12mm diameter (not provided) are required to secure the bumper under the ceiling



6.3.8 LS18 and PS15R2 vertical array cable mounted on a ceiling

Required items

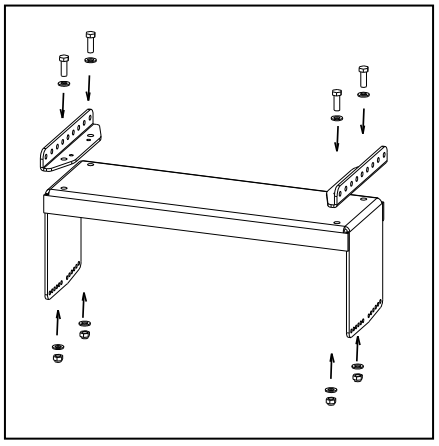
- As in 2 sections above, plus
- 2 x VNI-LBRK (allows cable suspension for bumper, holes for cable suspension are 10mm diameter)
- 4 x slings and shackles (*not provided*)

IMPORTANT

Ensure that the ceiling is strong enough to hold 4 times LS18 and PS15R2 cluster weight and that the cables suspension system required to fix the bumper under the ceiling is properly dimensioned.

Procedure

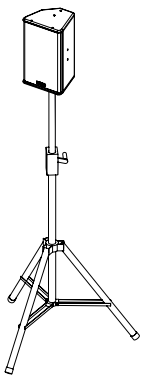
- Connect the bumper and the two “L” brackets using the screws, washers and bolts provided in the VNI-LBRK kit

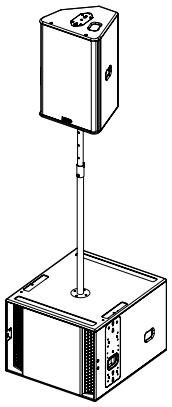


- Proceed as in preceding sections
- 4 slings and 4 shackles (not provided) are required to secure the cluster under the ceiling

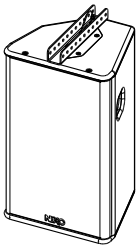
6.4 Touring applications

6.4.1 Described configurations

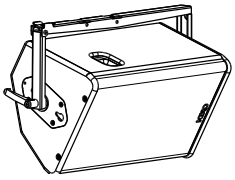




SECTION 6.4.2



SECTION 6.4.3



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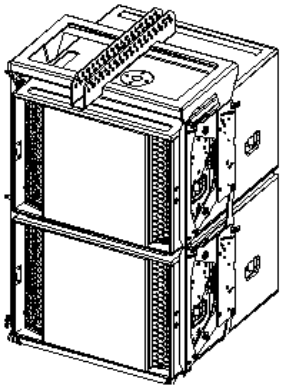
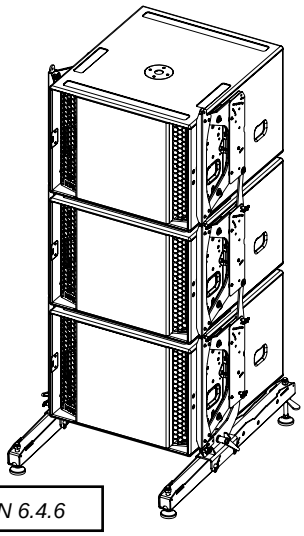


SECTION 6.4.5



SECTION 6.4.6

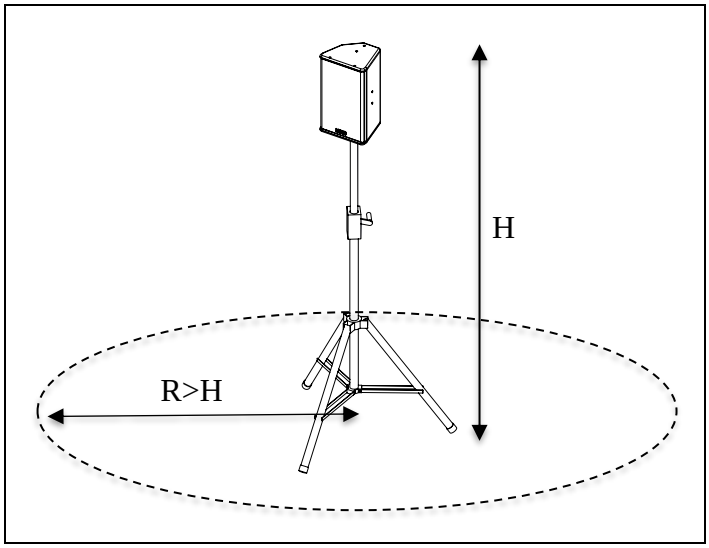
6.4.2 PS on speaker stand or on LS subwoofer

Required items

- 1 x Speaker stand diameter 35mm (K&M 213 or equivalent)
- Or NEXO PS pole stand (VXT-PLSTD) for mounting on top of LS

IMPORTANT

Speaker stand must be rated for assembly weight (40kg rated load min)
Speaker stand must always be installed on a horizontal surface
Stand height and footprint must be defined to prevent assembly from collapsing
Ensure that public is not allowed within a safety area which radius is equal or higher than assembly height.



IMPORTANT

NEXO PLSTD pole stand only should be used for mounting on top of NEXO LS
LS must always be installed on a horizontal surface
Ensure that public is not allowed within a safety area which radius is equal or higher than assembly height

Procedure

- Lift PS on speaker stand or on LS with VXT-PLSTD pole stand
- Test steadiness of the assembly by pushing in all directions

6.4.3 PS flown vertically

Required items

- 1 x Flying Bar for PS Series (VNT-TTC)
- 1 x flying adaptor (VNT-ADPT) for PS8
- 1 x Lifting Ring (VNT-XHBRK)
- Or 1 x Truss hook (VNT-TCBRK)

IMPORTANT

Ensure that truss suspension point is strong enough to hold PS weight.

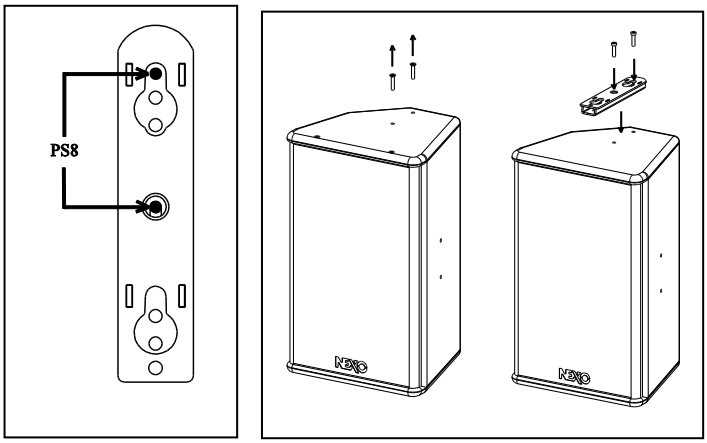
Procedure

- Install the flying bar adaptor by removing the two screws on the upper side of the PS8 and secure it with Loctite 243

IMPORTANT

In order to prevent screws from getting loose from the PS8, use blocking liquid LOCTITE™ 243 or equivalent for the two screws securing the PS8 flying adaptor.

LOCTITE™ 243 is available at NEXO or at your local distributor upon request.



PS8 FLYING ADAPTOR INSTALLATION

- Slide flying bar VNT-TTC into PS connecting plate or adaptor oblong holes
- Lock safety pin into PS connecting plate

IMPORTANT

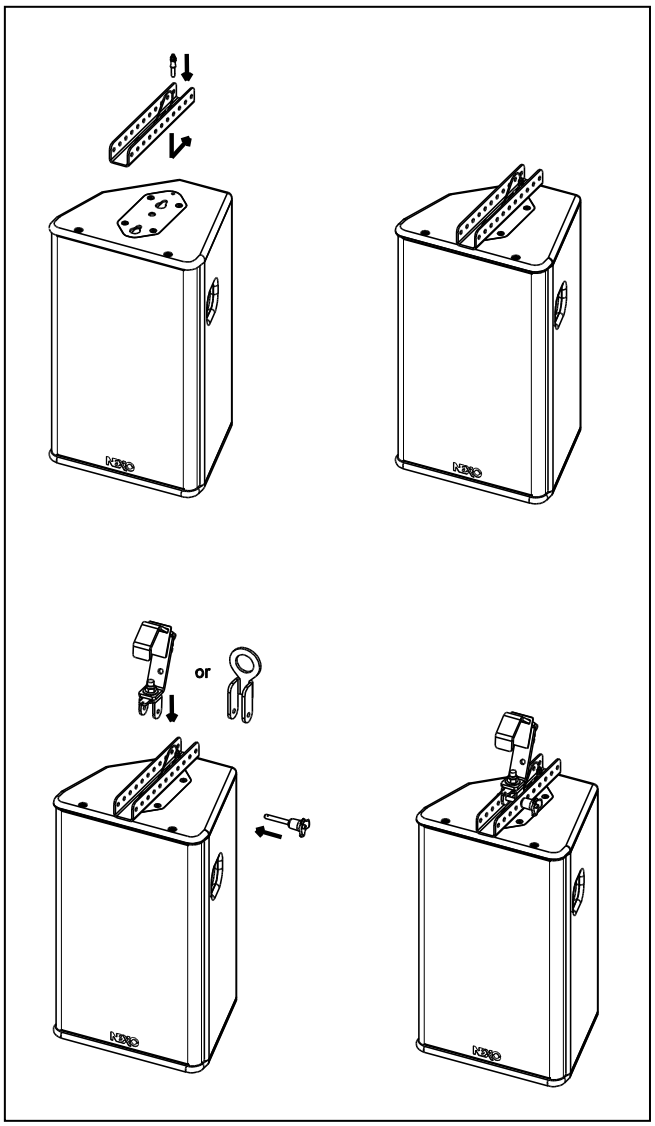
Ensure that safety pin is properly locked into PS connecting panel or adaptor

Cable suspension:

- Connect lifting ring VNT-XHBRK to flying bar by inserting 8x45 quick release pin in required holes for proper vertical aiming
- Ensure lifting ring is properly locked to flying bar
- Connect assembly to suspension point with sling and shackle (not provided)

Truss suspension:

- Connect truss hook VNT-TCBRK to flying bar by inserting 8x45 quick release pin in required holes for proper vertical aiming
- Ensure truss hook is properly locked to flying bar
- Lift and position assembly, lock hook on truss suspension point and secure with hook cable



PS SERIES VERTICAL SUSPENSION PROCEDURE

6.4.4 PS flown horizontally

Required items

- 1 x “U” Bracket for PS speaker (VNT-SSBRK8/10/15)
- 1 x flying adaptor (VNT-ADPT) for PS8
- 1 x Lifting Ring (VNT-XHBRK)
- Or 1 x Truss hook (VNT-TCBRK)

IMPORTANT

Ensure that suspension point is strong enough to hold PS weight

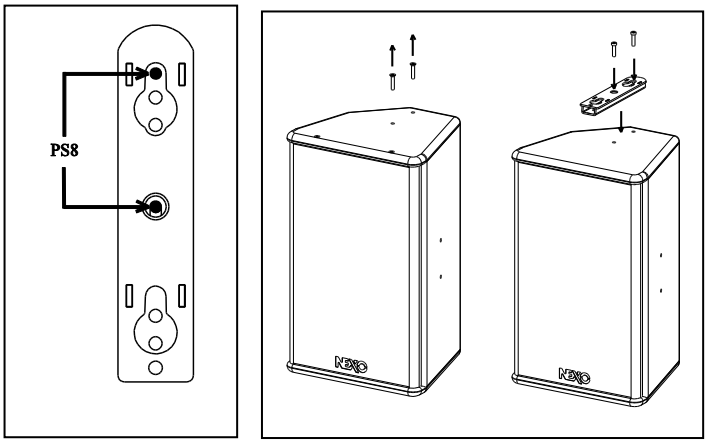
Procedure

- Install the flying bar adaptor by removing the two screws on the upper side of the PS8 and secure it with Loctite 243

IMPORTANT

In order to prevent screws from getting loose from the PS8, use blocking liquid LOCTITE™ 243 or equivalent the two screws securing the PS8 flying adaptor.

LOCTITE™ 243 is available at NEXO or at your local distributor upon request.



PS8 FLYING ADAPTOR INSTALLATION

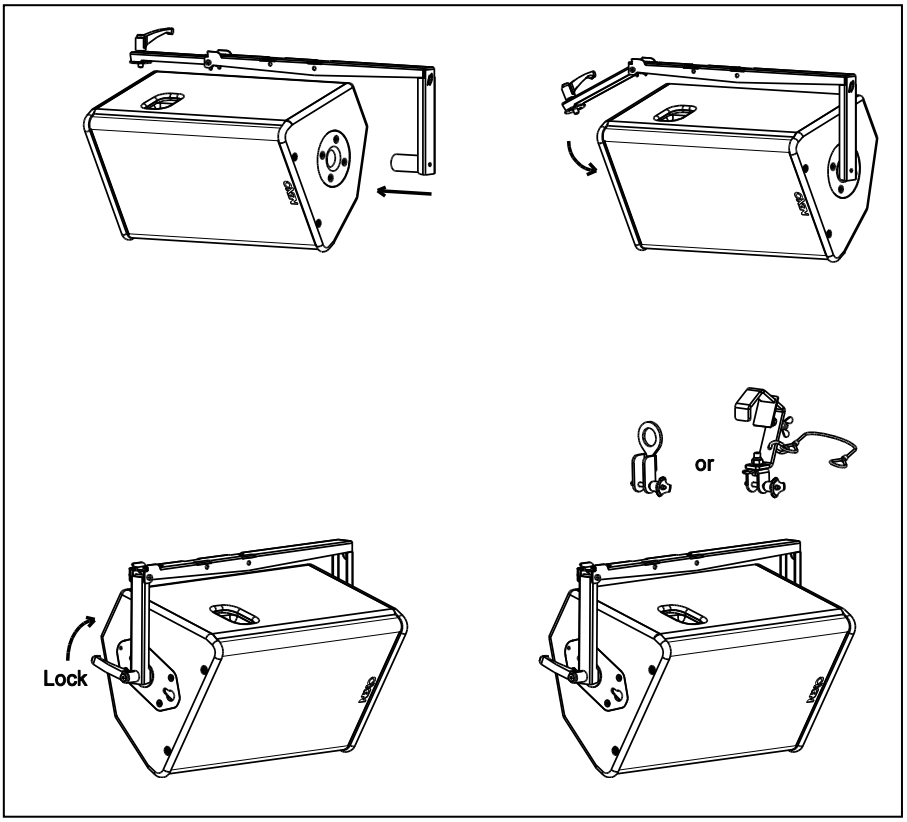
- Insert male pole side of bracket into PS cabinet
- Fold the opposite bar of the bracket until it is locked at 90° (a “click” from the locker will ensure proper locking)
- Rotate the lever into the connecting panel until it is properly secured

Cable suspension:

- Connect lifting ring VNT-XHBRK to “U” bracket by inserting 8x45 quick release pin dedicated holes
- Ensure lifting ring is properly locked to “U” bracket
- Connect assembly to suspension point with sling and shackle (not provided)

Truss suspension:

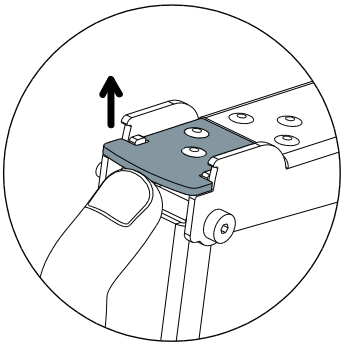
- Connect truss hook VNT-TCBRK to “U” bracket by inserting 8x45 quick release pin in dedicated holes
- Ensure truss hook is properly locked to “U” bracket
- Lift and position assembly, lock hook on truss suspension point and secure with hook cable



PS SERIES HORIZONTAL SUSPENSION PROCEDURE

Unlocking the "U" bracket safety locker:

Lift the metal plate located at the corner of the bracket and unfold the side bar



UNLOCKING "U" BRACKET SAFETY LOCKER

6.4.5 LS18 flown vertically

Required items

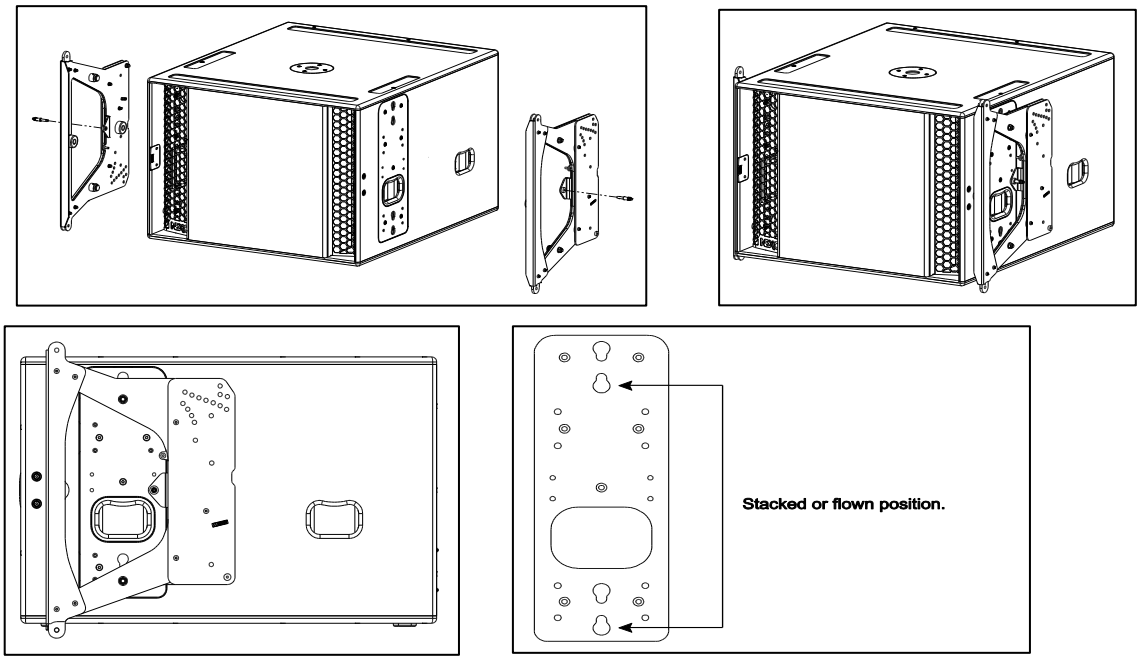
- 1 x Bumper (GPT-BUMPER)
- M x pairs of LS rigging plates (LST-XBOW) for M x LS18 cabinets
- 4 x M Quick release pins (VXT-BL820) for M x LS18 cabinets
- 1 hoist (*not provided*)

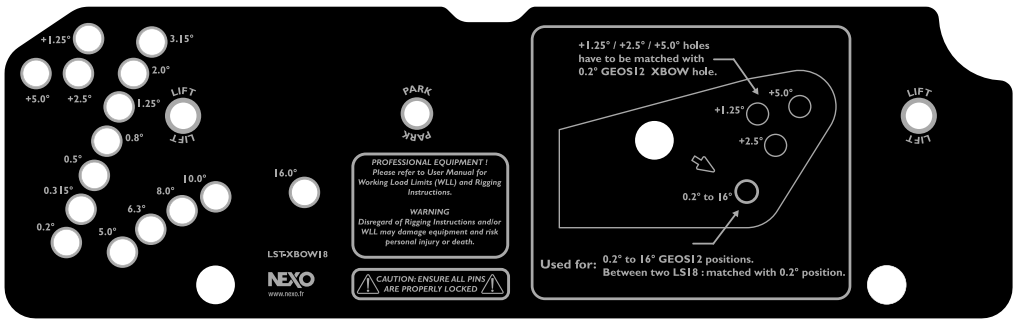
IMPORTANT
Maximum LS18 quantity for flown vertical cluster is 6 (and eventually less)
Please check NS-1 for mechanical Safety Working Load computations.

IMPORTANT
Please check configuration in NS-1 for proper motor hoist rating

Procedure

- Insert LST-XBOW into connecting plates of both sides of LS18s





LS18 XBOW ANGLE SETTINGS PLATE

- Lock safety pins into LS18 connecting plate

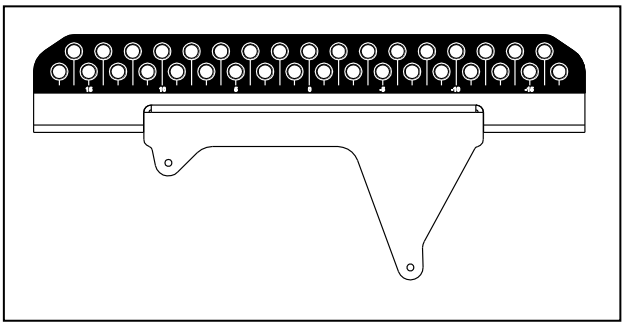
IMPORTANT

Ensure that safety pins are properly locked into LS18s connecting panels.

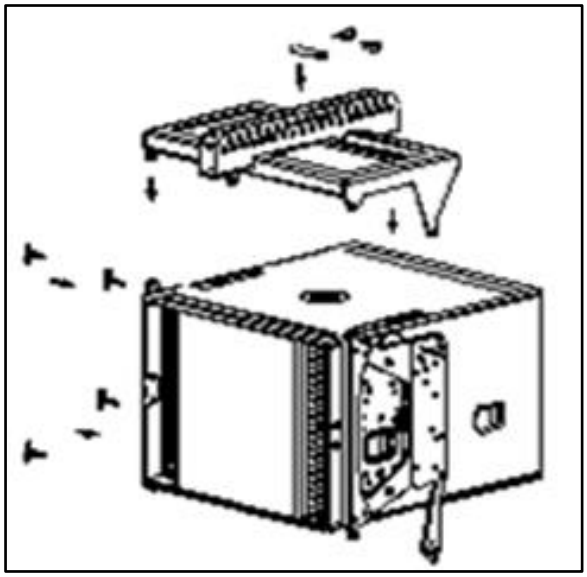
- Connect bumper to first LS18 using “lift” points of XBOWs
- Ensure quick release pins are properly locked
- Insert axis in bumper NS-1 predefined hole and secure it with provided “R” clip

Bumper holes are numbered #-17 to #17, please refer to NS-1 to determine axis position in relation to bumper angle requirements.

If bumper is flown with 2 hoists, then they should be connected to holes #-17 and #17.



- Connect hoist hook to bumper axis and lift assembly to sufficient height in order to connect a second LS18
- Connect second LS18 with X-Bow front articulation holes and rear link bars and ensure quick release pins are properly locked
- Repeat above steps for subsequent cabinets



IMPORTANT

Ensure that safety pins are properly locked into LS18s connecting panels.

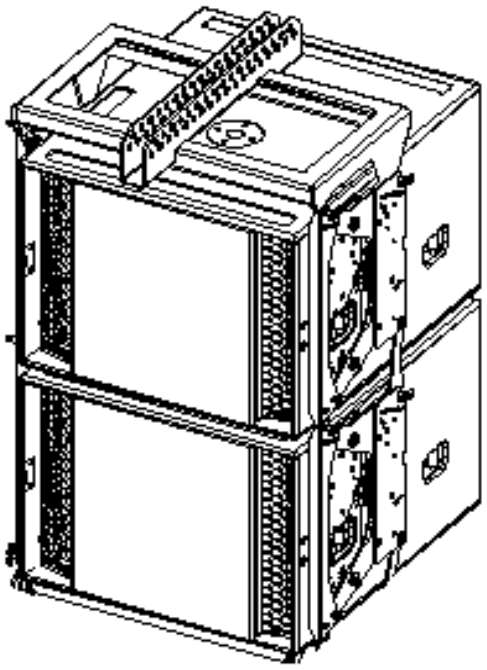
Ensure that all quick release pins are properly locked into their position.

- Lift cluster to NS-1 defined rigging height, secure cluster horizontally to prevent it from rotating
- Secure bumper with secondary safety steel

IMPORTANT

The requirements for secondary safety systems vary with territories.

However, the secondary safety steel MUST have a SWL equivalent or greater than that of the rigging system.



6.4.6 Ground stacked LS18

Required items

- M x pairs of LS rigging plates (LST-XBOW) for M x LS18 cabinets
- 1 x ground stack device (GPT-GSTK)
- 4 x M Quick release pins (VXT-BL820) for M cabinets

IMPORTANT

Ground stack device GPT-GSTK is rated for a maximum of 4 x LS18 provided this device is assembled according to below rule:

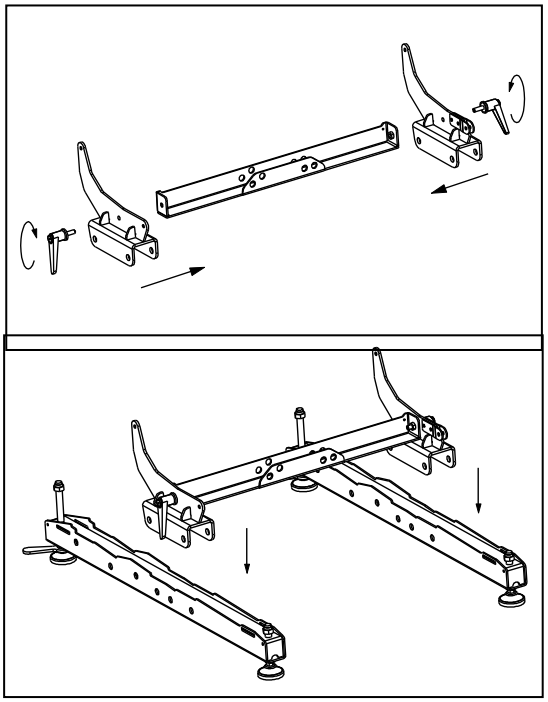
- **Ground stack device GPT-GSTK must always be installed on a horizontal surface**

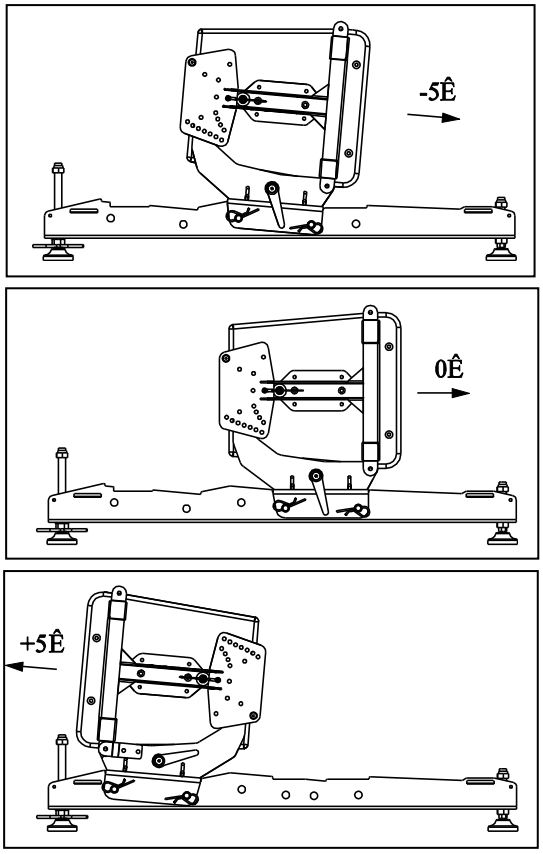
Ensure that public is not allowed within a safety area which radius is equal or higher than assembly height.

It is highly recommended to secure the system to a fix point located at the back of the stack.

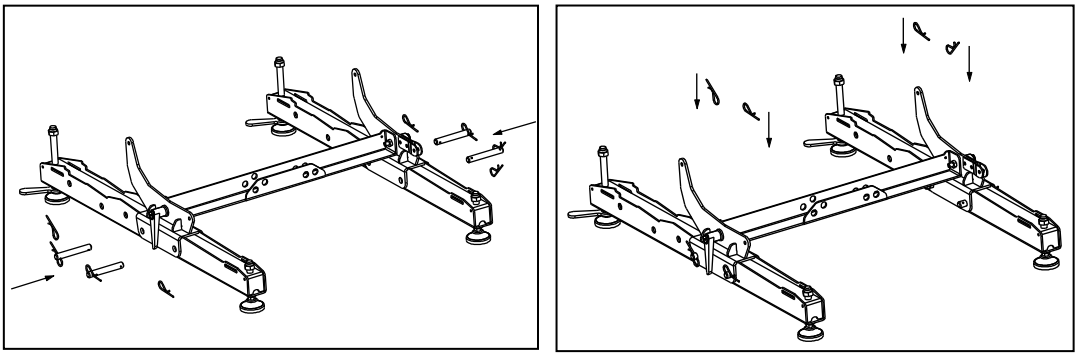
Procedure

- Assemble the two connecting beam and the reinforcement beam with the handles
- Depending on tilt angle – negative, null or positive - to be achieved, there are three positions to connect above assembly to the supporting beams; below drawings detail these configurations:





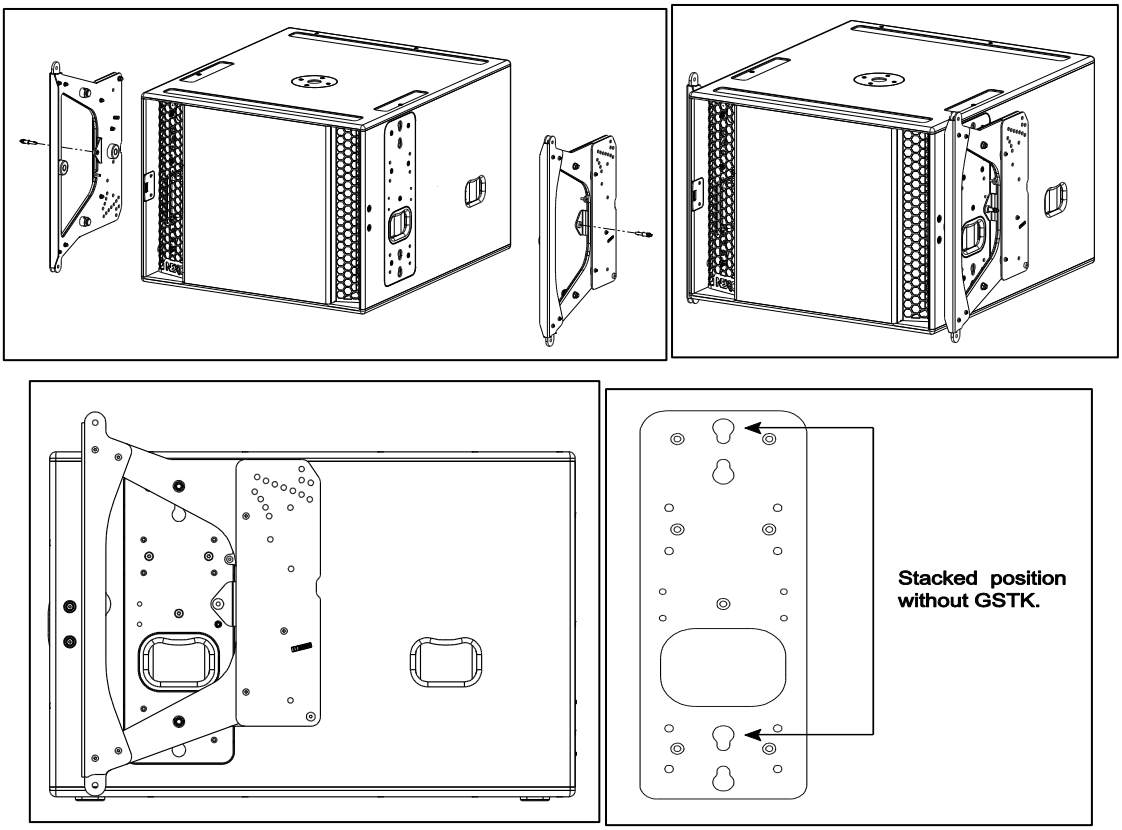
- Connect the reinforcement bar to the supporting beams according to required tilt angle configuration using 2 axis per side; secure the axis with provided “R” clips



- Insert LST-XBOW into connecting plates of LS18s
- Lock safety pins into LS18s connecting plate

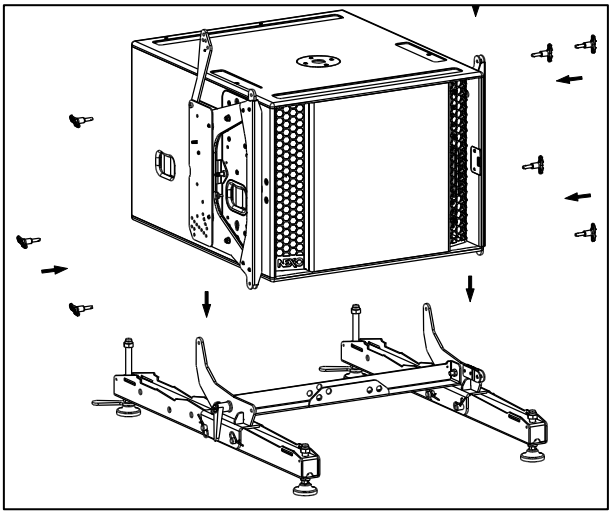
IMPORTANT

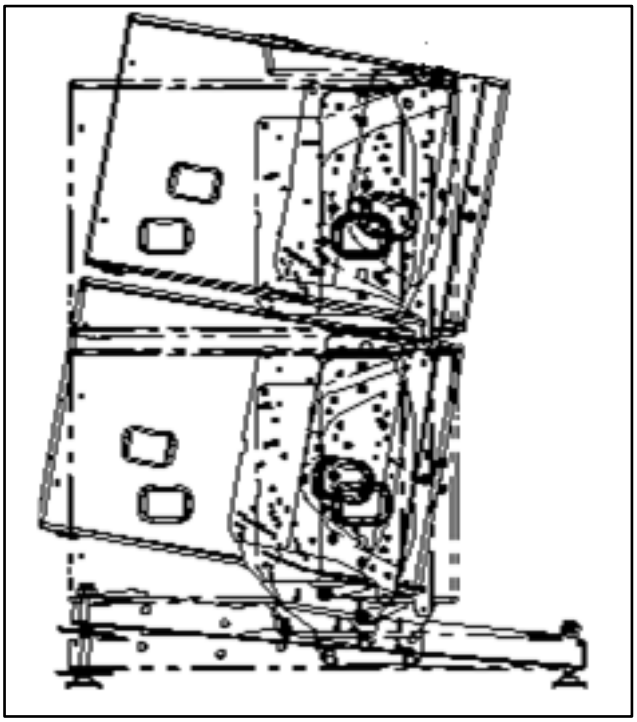
Ensure that safety pins are properly locked into LS18s connecting panels.



- Connect bottom LS18 to GPT-GSTK Ground stacking device with 4 VXT-BL820 quick release pins
- Connect second LS18 with X-Bow front articulation holes and rear link bars and ensure quick release pins are properly locked
- Repeat above steps for subsequent cabinets

-





6.5 Testing and Maintenance of the system

General: PS Series accessories are precision piece of equipment and require regular attention to maintenance in order to give long and reliable service. NEXO recommends regular testing of loudspeaker rigging components, preferably using a suitable test rig coupled with a visual inspection.

Fasteners: there are several critical points in the PS and LS cabinets.

Of primary concern are:

a) The grid screws attaching the grid to the cabinet

b) The machine screws attaching the connecting plates to the cabinet.

These fasteners should be regularly checked and tightened as necessary.

Cleaning: The exterior of the cabinet and the rigging system can be cleaned with a damp cloth soaked in mild soapy water. On no account use solvent based cleaners, which may damage the finish of the cabinet

After cleaning, the rigging system must be treated with a suitable lubricant to prevent rusting. NEXO recommends the use of Scottoil FS365 which is a water-based lubricant with a mixture of machine oil, surfactant and anti-rust treatment.

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7 SYSTEM CHECK ALIGNMENT GUIDELINES

The NEXO TD Controllers factory delay presets are optimised to provide the best possible crossover between the PS and LS systems. The reference point for this adjustment is the front of each cabinet**.** (This means that the internal delays needed to achieve a correct time alignment are set for cabinets standing next to each other with both fronts aligned). We recommend that the system is adjusted so that arrivals from PS and LS are coincident at a fairly distant listening position.

7.1 Stacked LS and Flown PS

In the example below, **r_1** being the distance from PS to listener position, and **r_2** being the distance from LS to listener position, the distance difference is then **r_1–r_2** (specified meters or feet).

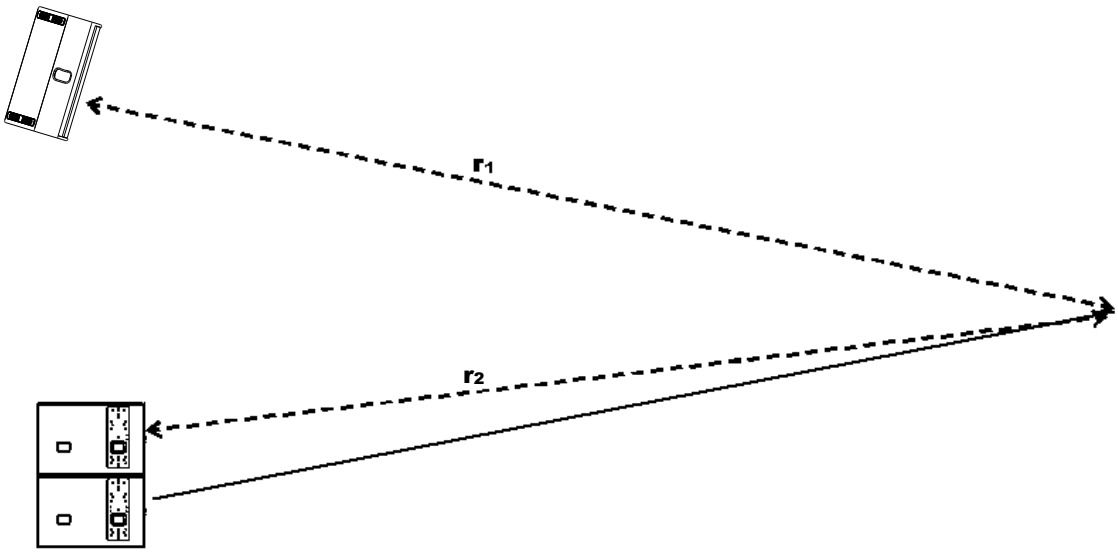
$r_1 > r_2$, the delay should be set on the LS NEXO TDcontroller channel.

$r_1 < r_2$, the delay should be set on the PS NEXO TDcontroller channel

To convert the result in time delay (specified in seconds), apply:

$\Delta t = (r_1-r_2)/C$ r_1 and r_2 in meters, C (sound speed) $\approx$ 343 m/S.

Set the units to meters, feet or seconds according to your preference). Delay will have to be adjusted according to the distance difference **r_1–r_2** (see figure below).



7.2 Driving the LS from the AUX send

It is quite common to use the AUX send of a mixing desk to drive the Sub section of a PA system. This gives the mixing engineer more flexibility to set the level of the subbass relative to the main PA, apply special effects, or to use a different EQ on the Sub. However, it also raises some serious issues for the performance & safety of the system (mostly time alignment).

At NEXO, great care is taken to design optimum phase alignment from one octave above to one octave below the crossover frequency point. By doing so, drivers are working perfectly together and providing the best efficiency possible. It is then up to the user to adjust the delay on the NEXO TD Controllers to match the physical path difference of the different systems. It is thus possible to get a well-adjusted system, even without measuring instruments.

If LS are driven form an AUX output, NXAMPs are fed with two signals coming from different sources. If those two sources (MAIN output & AUX send) are not exactly in phase, delay is introduced into the crossover between the PS and the LS. It is then mandatory to use proper measurement tool to optimize phase response.

Why is it unlikely that AUX and MAIN outputs have the same phase?

- Signal paths are likely to be different; any filter modifying the bandwidth and EQ of the signal is also affecting the phase.

  Example: a 24dB/oct high pass filter set at 15Hz is affecting amplitude of the signal by only 0.6dB at 30Hz, but the phase shift is 90°!! At 100Hz we can still measure 25° of phase shift.

- Limiting bandwidth with a low pass filter can introduce a phase difference of up to 180° (completely out of phase) at the cross over point.

- If the signal is passing through any digital equipment, between 1.4ms and 2.2ms is being added (around 70° phase shift at 100Hz) due solely to the converter delay! The additional delay due to the processing itself (look ahead compressor, delay…) can be quite important as well.

If both outputs are not measured in the actual configuration, it is very likely that phase alignment will not be correct.

Consequences of badly aligned systems

Mis-aligned systems have lower efficiency: i. e. for the same SPL the system will have to be driven harder, activating the displacement & temperature protection at lower output levels. Both sound quality and reliability will decrease as the system is stressed.

Precautions & Checks

Before using the AUX of a mixing desk, ensure that MAIN and AUX outputs are in phase;

Always apply identical EQ or processing on both channels, so that the phase relationship will not be altered;

Never add additional low pass filtering on the SUB or high pass filtering on the main system;

Inverting polarity on one channel should always result in a massive difference near the crossover point. If that is not the case, the system is no longer aligned.

7.3 Recommended installation tools and equipment

Tape measure – should be 30m/100ft in length and be of durable fibre material. Have one per array available to speed up the installation process.

Laser Inclinometer – For measuring vertical and horizontal angles in the venue.

Spirit level – used to ascertain the trueness of the surface from which the angle measurements originate.

Rangefinder measuring device – either a Disto type laser measure or an optical laser rangefinder can be used. Devices such as the Bushnell ‘Yardage Pro’ sports rangefinders provide sufficiently accuracy and are easy to use. They have the additional advantage of working very well in bright sunlight.

Electronic calculator with trigonometric functions to calculate the height from ground level to points in the room. The formula to calculate height of a point from measured angle and distance is:

Height of point = Sin (vertical angle in degrees) x distance to point

NB: Take care when using spreadsheets as they calculate using radians by default. To convert degrees to radians, use the formula:

Angle (in radians) =3.142 x Angle (in degrees)/180

Computer – Laptop or Desktop PC running Windows 8 with the current version of NEXO NS-1 installed. Note that, when NS-1 designs are prepared prior to arrival at the venue, it is often necessary to modify or update the design to accommodate special circumstances. A PC is absolutely essential to make such changes.

Audio Analysis Software – recommended but not absolutely essential, programs such as Systune™, Smaart™ enable rapid and detailed analysis of the installation. Consider taking a training course in using one of these tools if you are not already competent with them – it will pay dividends in increased performance of the system.

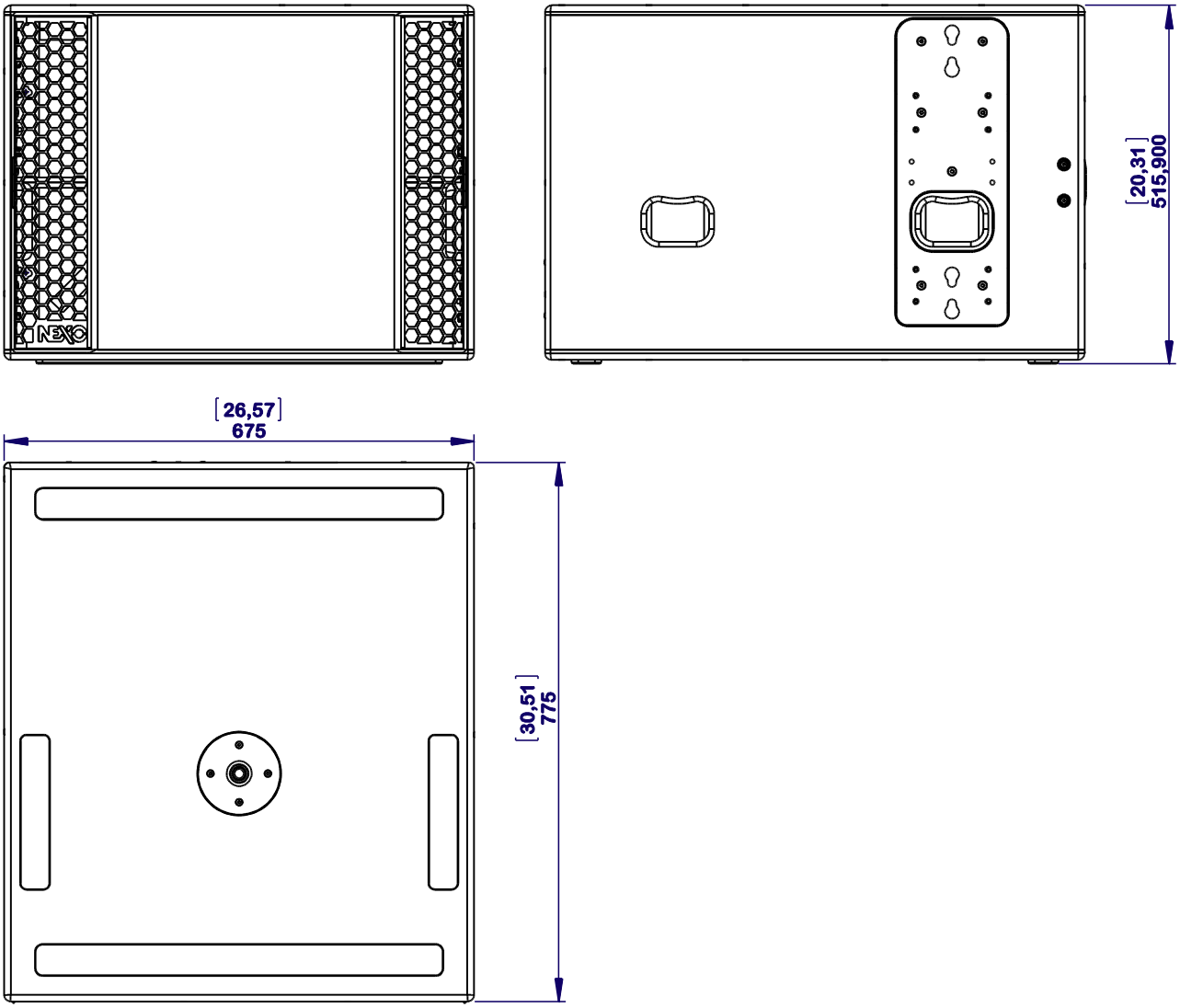
8 TECHNICAL SPECIFICATIONS

8.1 LS18 and LS18-E

8.1.1 System specifications

LS18 WITH NEXO TDCONTROLLER SETUP	
Frequency Response @-6 dB	32 Hz to 130 Hz
Sensitivity 1W@1m	107 dB SPL Nominal
Peak SPL@1m	137 to 140 dB
Available Crossover Frequencies	35-60, 35-85, 35-120 Hz
Nominal Impedance	8 Ohms
Recommended Power	1800 Watts
PRODUCT FEATURES	
Component	1 x 18” 4” voice coil very long excursion 8 Ohms driver
Height x Width x Depth	510 mm x 675 mm x 775 mm (20.1” x 26.1” x 30.5”)
Weight: Net	55.5 kg (122.3 lb)
Connectors	2 x NL4, 4 poles connectors (1+/1- LS18 / 2+/2- Through)
Construction	Baltic Birch Plywood & textured black coating
Fittings	4 x Metal recessed side handles (not on LS18-E)
Front Finish	Molded dark grey metal grill
Operating temperature range	0°C - 40 °C (32° F - 104° F)
Storage temperature range	-20 °C - 60 °C (-4 ° F - 140° F)
SYSTEM OPERATION	
Recommended powering solution	NXAMP4x4mk2 Powered TD controller: 3 x LS18 per channel
Optional powering solution	NXAMP4x2mk2 Powered TD controller: 1 x LS18 per channel
	NXAMP4x1mk2 Powered TD controller (Bridged): 2 x LS18 per channel
	DTD Controller + DTDAMP4x1.3 Bridge Stereo: 1 x LS18 per channel

8.1.2 Dimensions (mm/inches)

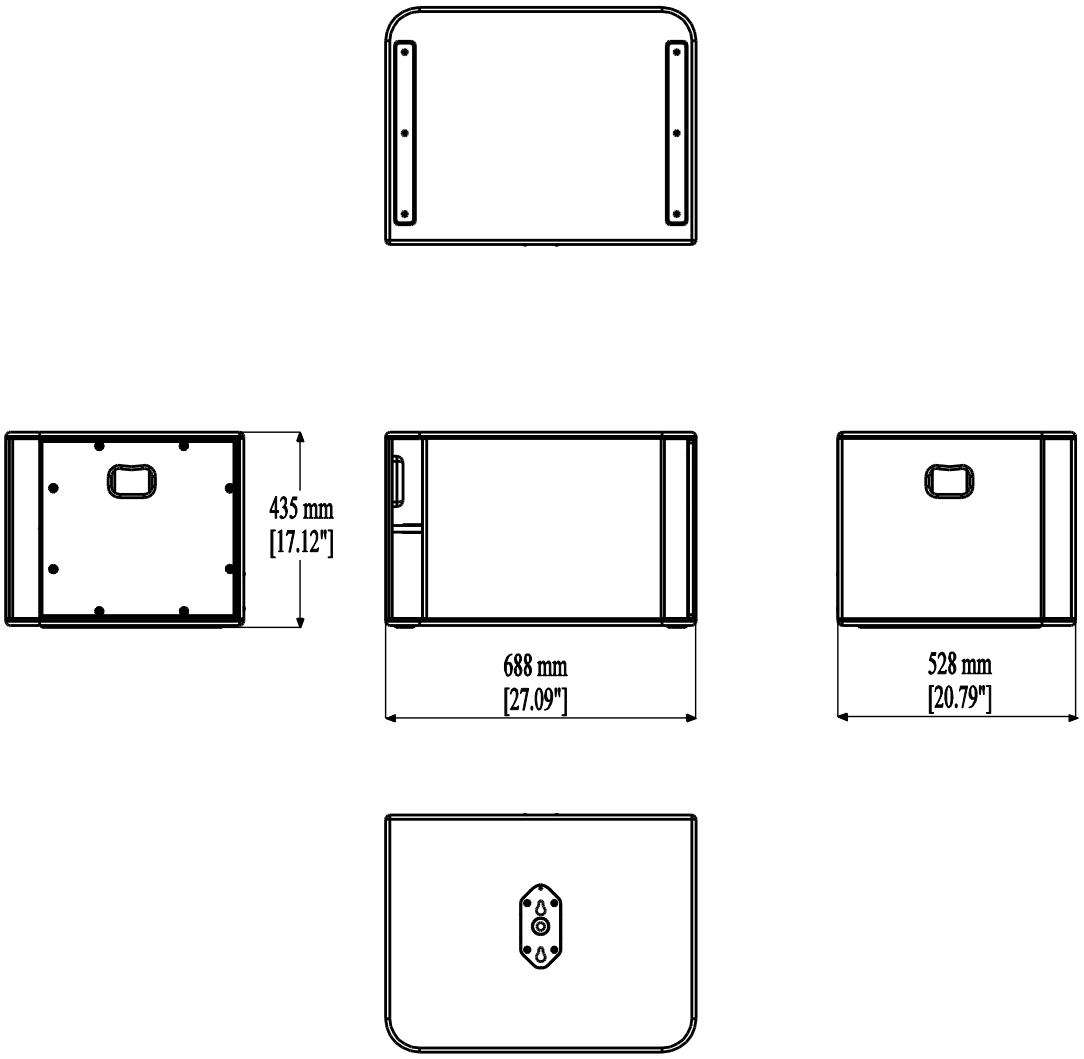


8.2 LS600

8.2.1 System specifications

LS600 WITH NEXO TDCONTROLLER SETUP	
Frequency Response @-6 dB	38 Hz to 120 Hz
Sensitivity 1W@1m	101 dB SPL Nominal
Peak SPL@1m	135 to 138 dB
Available Crossover Frequencies	40-85, 40-120, 60-120 Hz
Nominal Impedance	8 Ohms
Recommended Power	1400 Watts
PRODUCT FEATURES	
Component	1 x 15” long excursion Neodymium 8 Ohms driver
Height x Width x Depth	435 mm x 688 mm x 528 mm (17.12” x 27.09” x 20.79”)
Weight: Net	30 kg (66 lb)
Connectors	2 x NL4, 4 poles connectors (1+/1- LS600 / 2+/2- Through)
Construction	Baltic Birch Plywood & structured black coating
Fittings	2 x Metal recessed side handles
Operating temperature range	0°C - 40 °C (32° F - 104° F)
Storage temperature range	-20 °C - 60 °C (-4 ° F - 140° F)
SYSTEM OPERATION	
Recommended powering solution	NXAMP4x2mk2 Powered TD controller: 2 x LS600 per channel
Optional powering solution	NXAMP4x4mk2 Powered TD controller: 4 x LS600 per channel
	NXAMP4x1mk2 Powered TD controller (Bridged): 2 x LS600 per channel
	DTD Controller + DTDAMP4x1.3 Bridge Stereo: 1 x LS600 per channel

8.2.2 Dimensions (mm/inches)

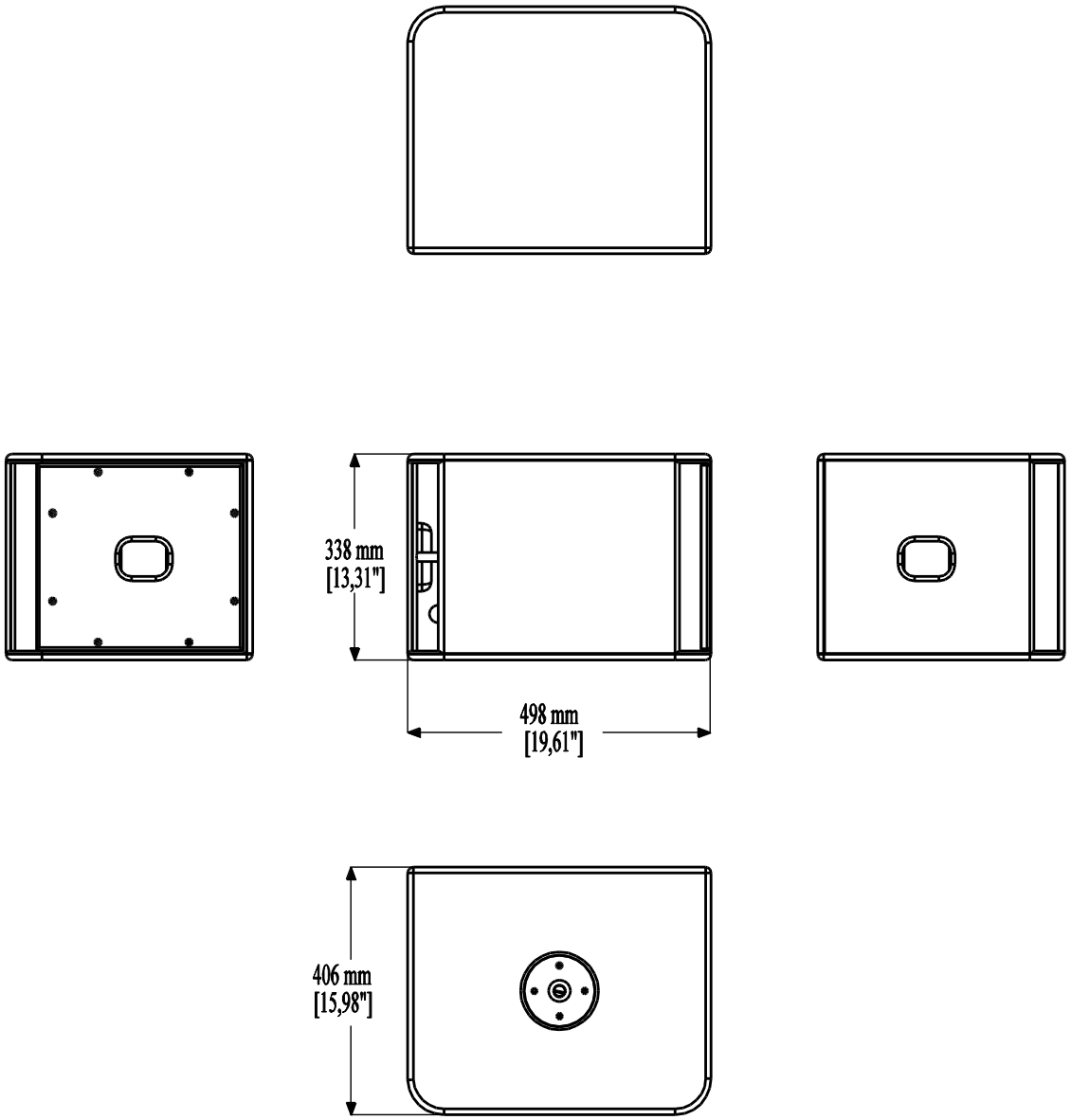


8.3 LS400

8.3.1 System specifications

LS400 WITH NEXO TDCONTROLLER SETUP	
Frequency Response @-6 dB	40 Hz to 140 Hz
Sensitivity 1W@1m	99 dB SPL Nominal
Peak SPL@1m	128 to 131 dB
Available Crossover Frequencies	40-85, 40-120, 60-120 Hz
Nominal Impedance	6 Ohms
Recommended Power	800 Watts
PRODUCT FEATURES	
Component	1 x 12” long excursion 6 Ohms driver
Height x Width x Depth	338 mm x 500 mm x 406 mm (13.3” x 19.6” x 16”)
Weight: Net	19.5 kg (43 lb)
Connectors	2 x NL4, 4 poles connectors (1+/1- LS400 / 2+/2- Through)
Construction	Baltic Birch Plywood & structured black coating
Fittings	2 x Metal handles
Operating temperature range	0°C - 40 °C (32° F - 104° F)
Storage temperature range	-20 °C - 60 °C (-4 ° F - 140° F)
SYSTEM OPERATION	
Recommended powering solution	NXAMP4x1mk2 Powered TD controller: 2 x LS400 per channel
Optional powering solution	NXAMP4x4mk2 Powered TD controller: 3 x LS400 per channel
	NXAMP4x2mk2 Powered TD controller: 3 x LS400 per channel
	DTD Controller + DTDAMP4x1.3: 1 x LS400 per channel

8.3.2 Dimensions (mm/inches)

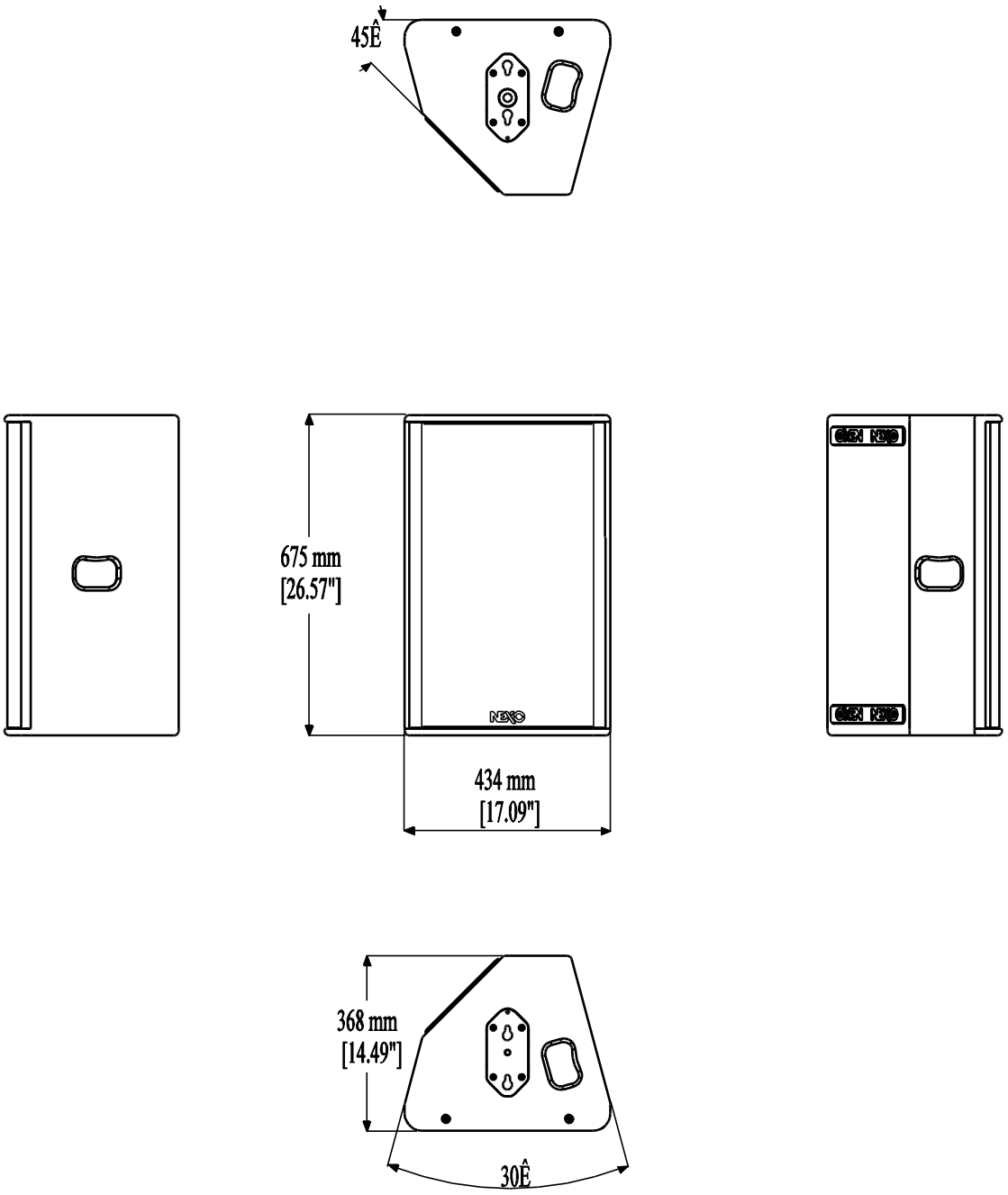


8.4 PS15R2

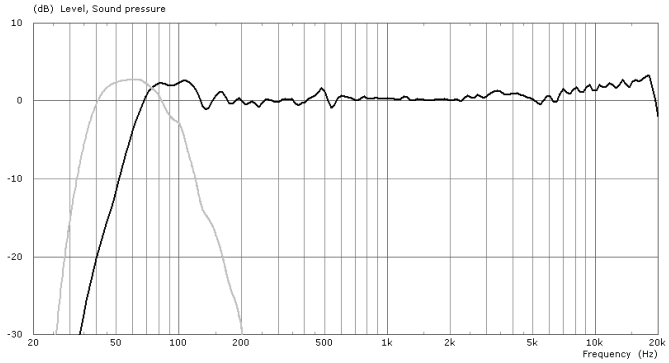
8.4.1 System specifications

PS15R2 WITH NEXO TDCONTROLLER SETUP	
Frequency Response @-6 dB	47 Hz to 18 kHz
Sensitivity 1W@1m	102 dB SPL Nominal
Peak SPL@1m	133 to 136 dB
HF Dispersion	50° to 100° Horizontal – 55° Vertical Rotatable Horn
Passive Crossover Frequency	1.1 kHz
Nominal Impedance	Active mode : (8 Ω LF + 16 Ω HF) / Passive mode : 8 Ω
Recommended Power	Active mode: (1400 Watts LF + 650 Watts HF) / Passive mode: 1400 Watts
PRODUCT FEATURES	
LF Component	1 x 15”x3" long excursion Neodymium 8 Ohms driver
HF Component	1x 2" throat, 3" Titanium diaphragm driver on a low distortion constant directivity asymmetrical dispersion horn
Height x Width x Depth	675 mm x 434 mm x 368 mm (26.57” x 17.08” x 14.48”)
Weight: Net	28 kg (62 lb)
Connectors	2 x NL4, 4 poles connectors (1+/1- Through / 2+/2- PS15R2 in passive mode, 1+/1- LF, 2+/2- HF in active mode)
Construction	Baltic Birch Plywood & structured black coating
Fittings	2 x Metal recessed handles
Front Finish	Molded dark grey metal grill
Operating temperature range	0°C - 40 °C (32° F - 104° F)
Storage temperature range	-20 °C - 60 °C (-4 ° F - 140° F)
SYSTEM OPERATION	
Recommended powering solution	NXAMP4x2mk2 Powered TD controller: 2 x PS15R2 in passive mode per channel
Optional powering solution	NXAMP4x4mk2 Powered TD controller: 4 x PS15R2 in passive mode per channel
	NXAMP4x1mk2 Powered TD controller (Bridged): 2 x PS15R2 in passive mode per channel
	DTD Controller + DTDAMP4x1.3 Bridge Stereo: 1 x PS15R2 in passive mode per channel

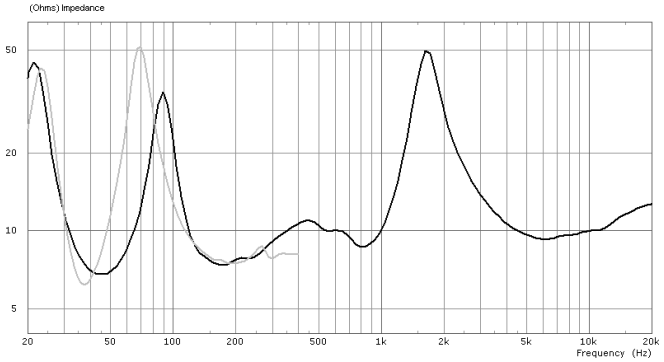
8.4.2 Dimensions (mm/inches)



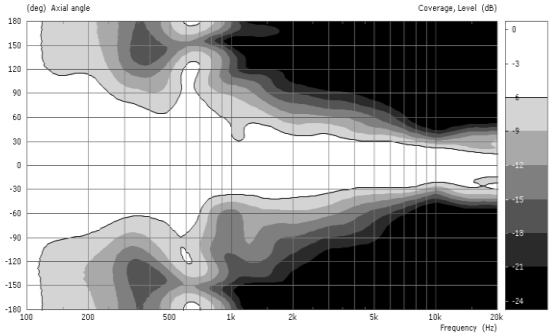
8.4.3 Diagrams



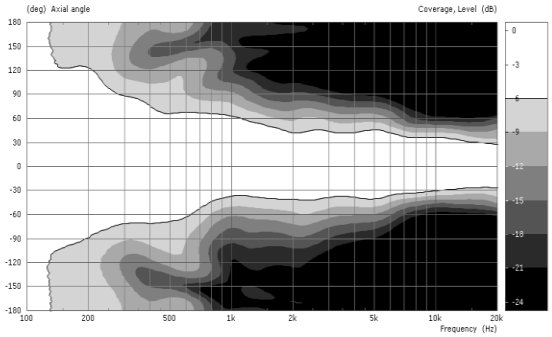
On-axis response RS15 (grey) & PS15R2 (black)



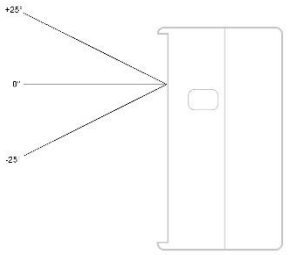
Impedance RS15 – 1 channel - (grey) & PS15R2 (black)

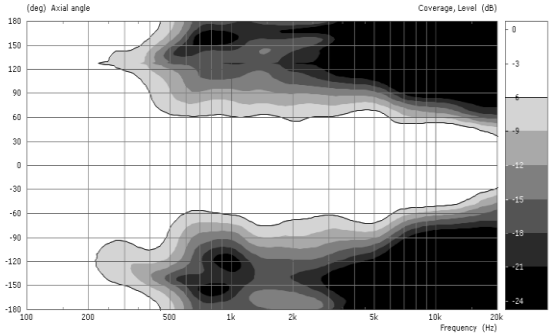


Horizontal plane coverage, vertical orientation +25°

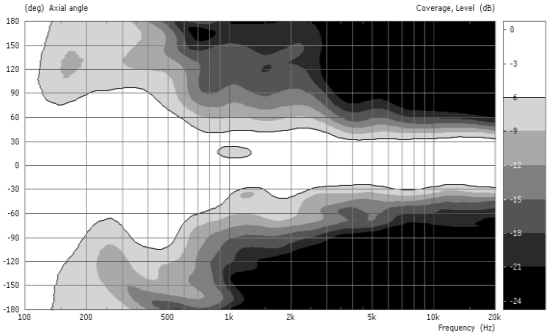


Horizontal plane coverage, vertical orientation 0°





Horizontal plane coverage, vertical orientation -25°



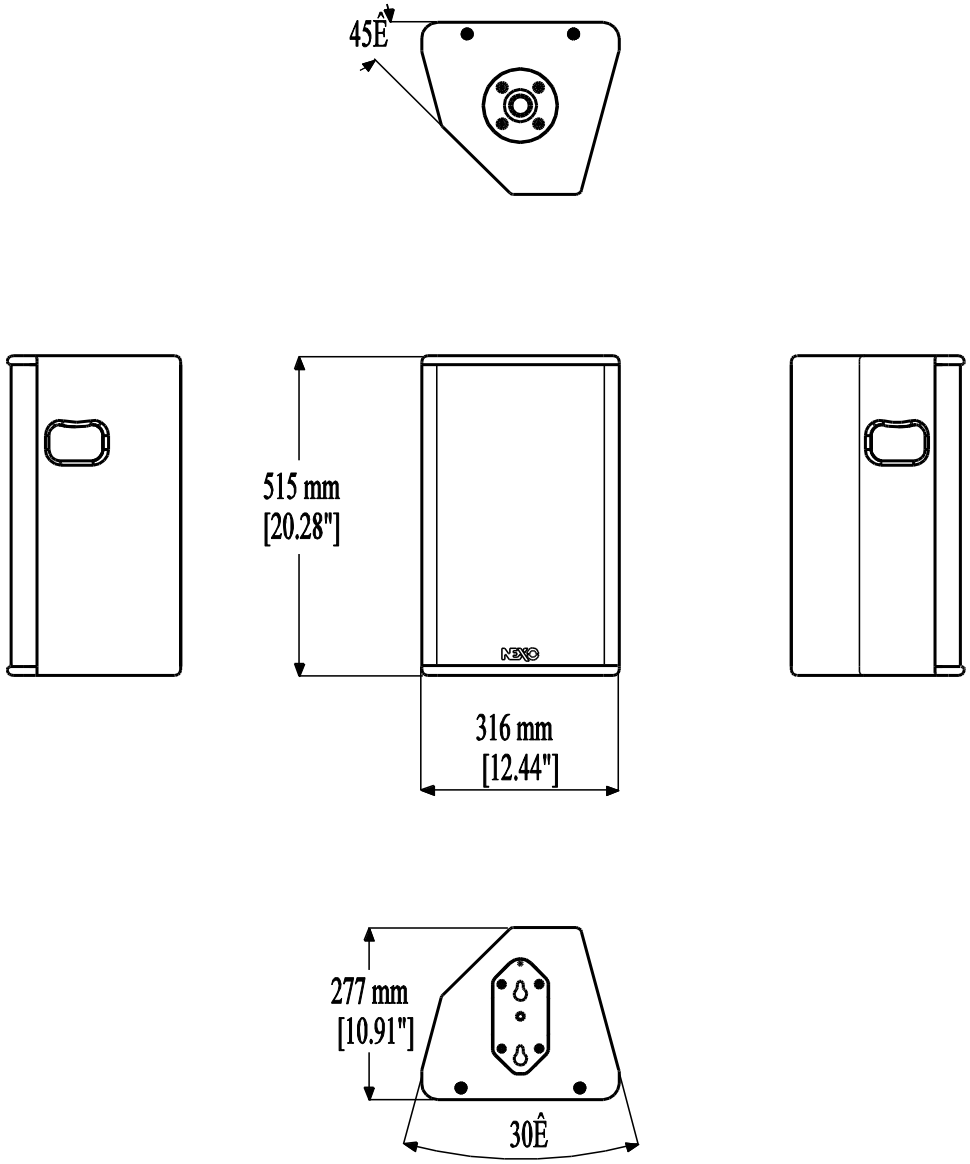
Vertical plane coverage

8.5 PS10R2

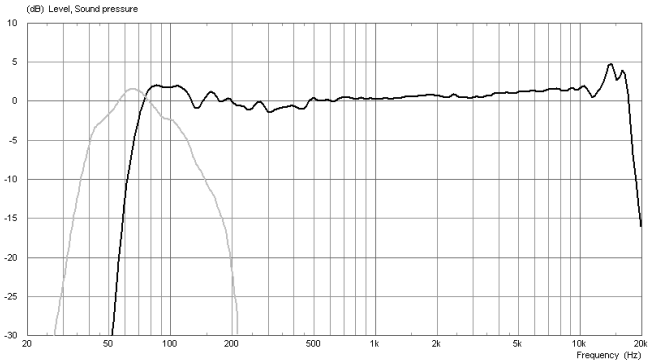
8.5.1 System specifications

PS10R2 WITH NEXO TDCONTROLLER SETUP	
Frequency Response @-6 dB	58 Hz to 20 kHz
Sensitivity 1W@1m	99 dB SPL Nominal
Peak SPL@1m	129 to 132 dB
HF Dispersion	50° to 100° Horizontal – 55° Vertical Rotatable Horn
Passive Crossover Frequency	2 kHz
Nominal Impedance	8 Ω
Recommended Power	1200 Watts
PRODUCT FEATURES	
LF Component	1 x 10”x2.5" shielded Neodymium 8 Ohms driver
HF Component	1x 1" throat, 1.7" PI diaphragm/ Neodymium driver on a low distortion constant directivity asymmetrical dispersion horn
Height x Width x Depth	515 mm x 316 mm x 277 mm (20.28” x 12.44” x 10.91”)
Weight: Net	14 kg (31 lb)
Connectors	2 x NL4, 4 poles connectors (1+/1- Through / 2+/2- PS10R2)
Construction	Baltic Birch Plywood & structured black coating
Fittings	2 x Metal recessed handles
Front Finish	Molded dark grey metal grill
Operating temperature range	0°C - 40 °C (32° F - 104° F)
Storage temperature range	-20 °C - 60 °C (-4 ° F - 140° F)
SYSTEM OPERATION	
Recommended powering solution	NXAMP4x2mk2 Powered TD controller: 3 x PS10R2 per channel
Optional powering solution	NXAMP4x4mk2 Powered TD controller: 4 x PS10R2 per channel
	NXAMP4x1mk2 Powered TD controller (Bridged): 2 x PS10R2 per channel
	DTD Controller + DTDAMP4x1.3: 1 x PS10R2 per channel

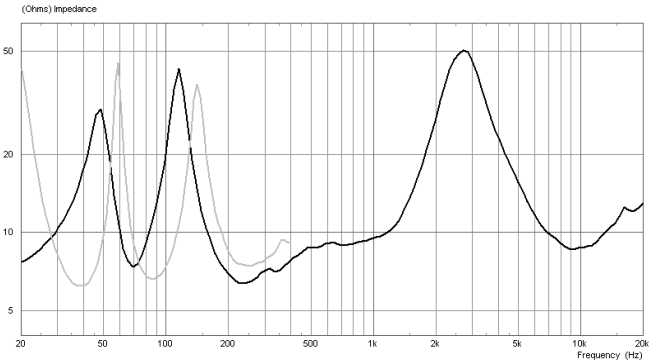
8.5.2 Dimensions (mm/inches)



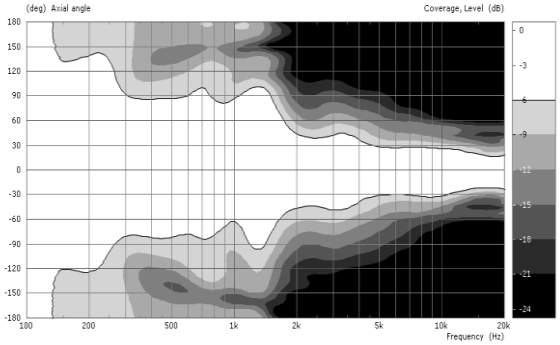
8.5.3 Diagrams



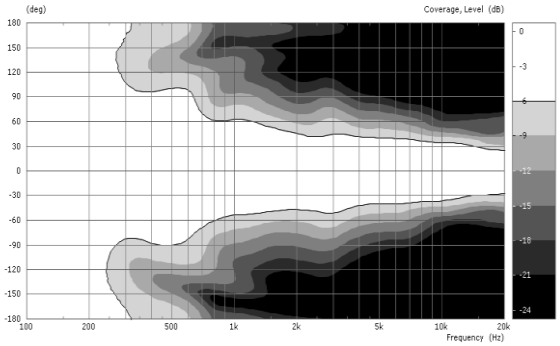
On-axis response LS600 (grey) & PS10R2 (black)



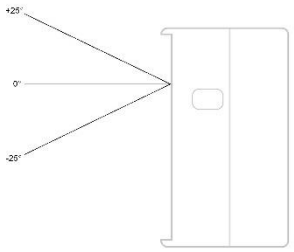
Impedance LS600 (grey) & PS10R2 (black)

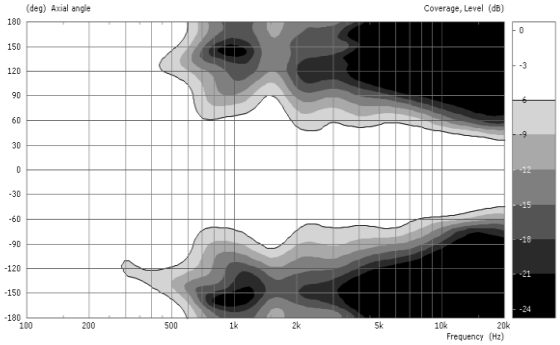


Horizontal plane coverage, vertical orientation +25°

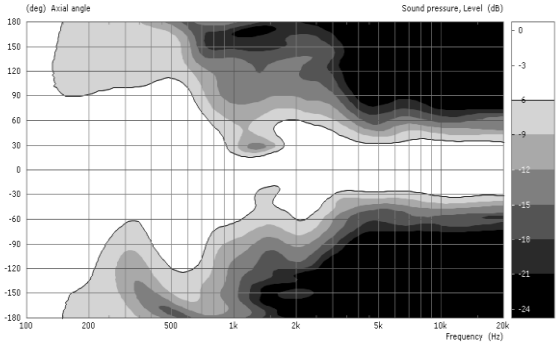


Horizontal plane coverage, vertical orientation 0°





Horizontal plane coverage, vertical orientation -25°



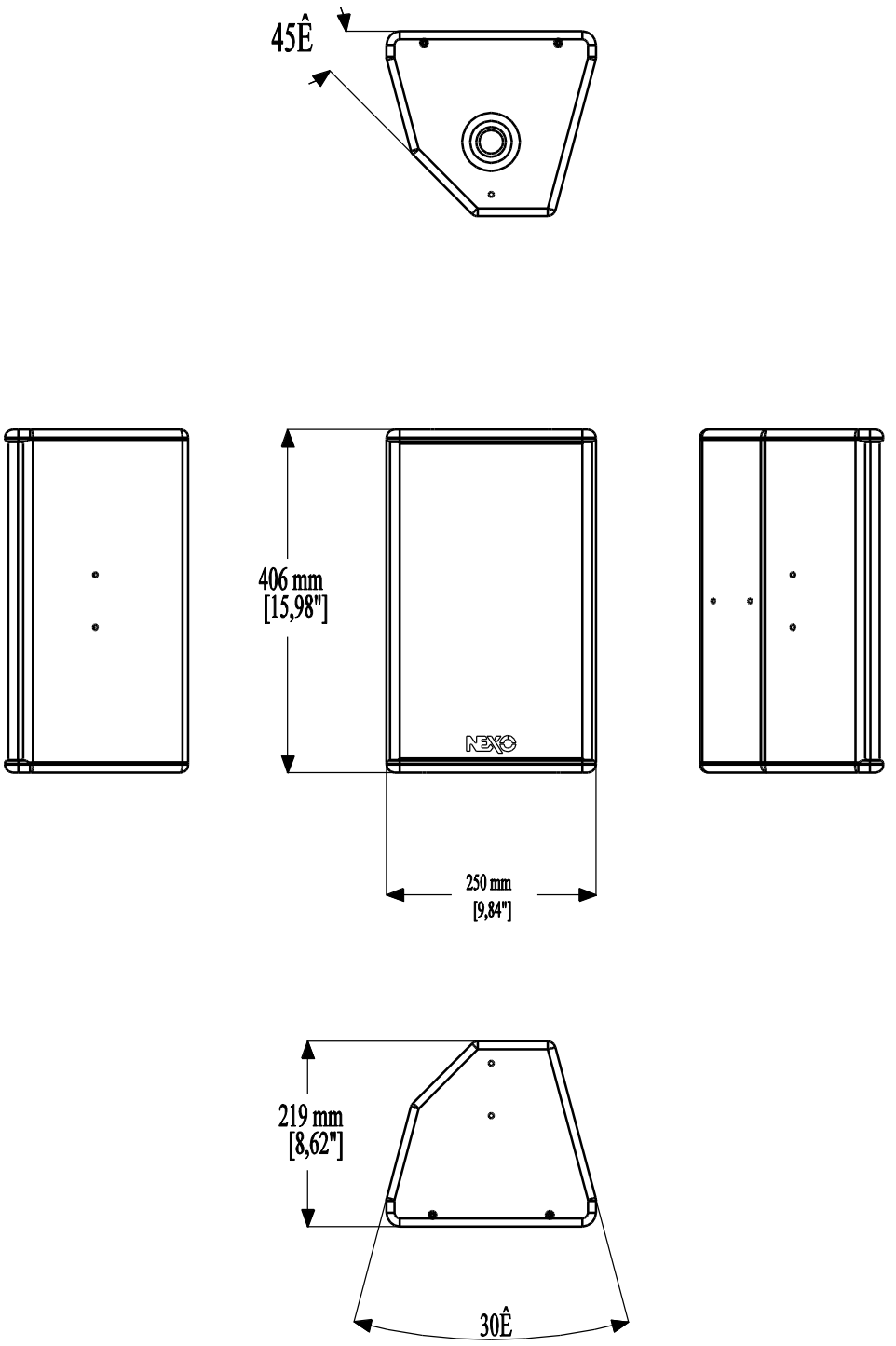
Vertical plane coverage

8.6 PS8

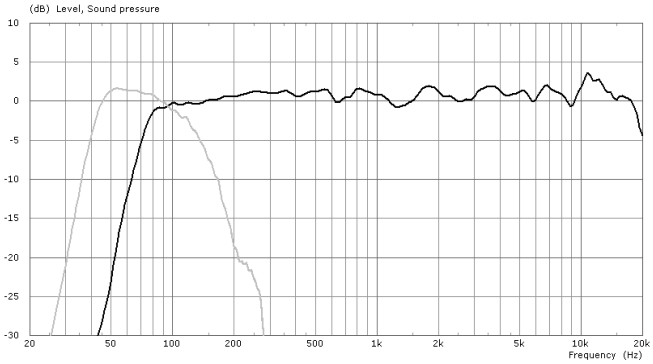
8.6.1 System specifications

PS8 WITH NEXO TDCONTROLLER SETUP	
Frequency Response @-6 dB	62 Hz to 20 kHz
Sensitivity 1W@1m	96 dB SPL Nominal
Peak SPL@1m	122 to 125 dB
HF Dispersion	50° to 100° Horizontal – 55° Vertical Rotatable Horn
Passive Crossover Frequency	2.5 kHz
Nominal Impedance	8 Ω
Recommended Power	600 Watts
PRODUCT FEATURES	
LF Component	1 x 8”x2" shielded Neodymium 8 Ohms driver
HF Component	1x 1" throat, 1.4" Titanium diaphragm/ self-shielded Neodymium driver on a low distortion constant directivity asymmetrical dispersion horn
Height x Width x Depth	406 mm x 250 mm x 219 mm (16” x 9.8” x 8.6”)
Weight: Net	7.5 kg (16.5 lb)
Connectors	2 x NL4, 4 poles connectors (1+/1- Through / 2+/2- PS8)
Construction	Baltic Birch Plywood & structured black coating
Front Finish	Molded dark grey metal grill
Operating temperature range	0°C - 40 °C (32° F - 104° F)
Storage temperature range	-20 °C - 60 °C (-4 ° F - 140° F)
SYSTEM OPERATION	
Recommended powering solution	NXAMP4x1mk2 Powered TD controller: 3 x PS8 per channel
Optional powering solution	NXAMP4x4mk2 Powered TD controller: 4 x PS8 per channel
	NXAMP4x2mk2 Powered TD controller: 2 x PS8 per channel
	DTD Controller + DTDAMP4x1.3: 2 x PS8 per channel
	DTD Controller + DTDAMP4x0.7: 2 x PS8 per channel

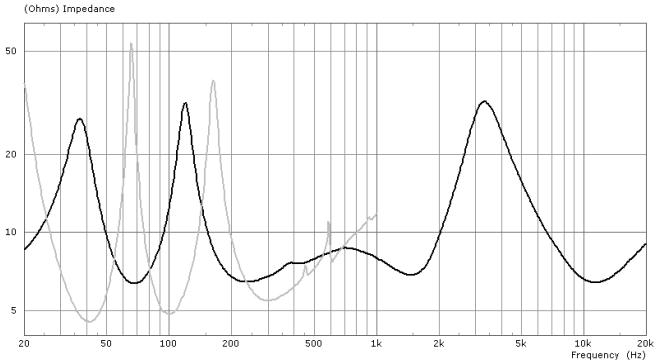
8.6.2 Dimensions (mm/inches)



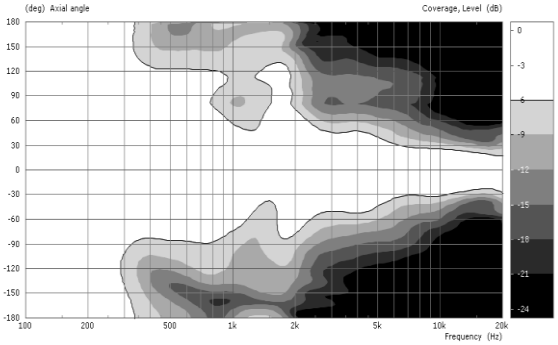
8.6.3 Diagrams



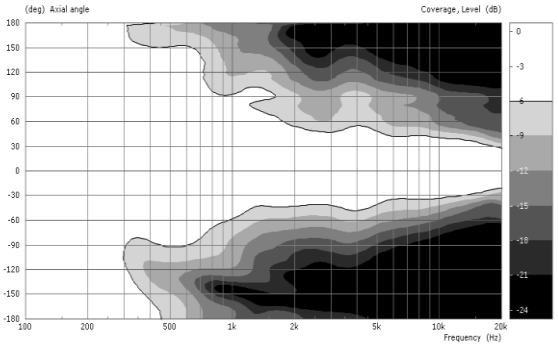
On-axis response LS400 (grey) & PS8 (black)



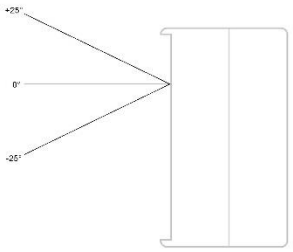
Impedance LS400 (grey) & PS8 (black)

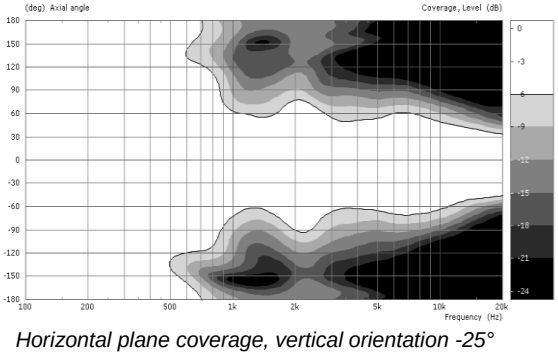


Horizontal plane coverage, vertical orientation +25°

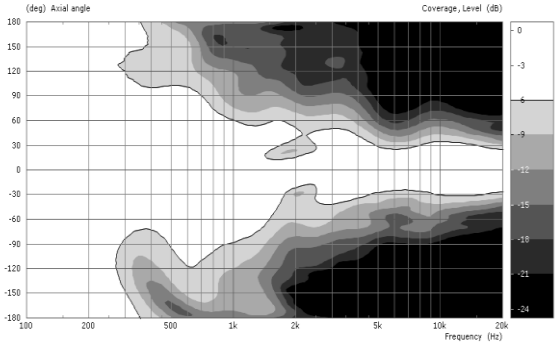


Horizontal plane coverage, vertical orientation 0°





Horizontal plane coverage, vertical orientation -25°

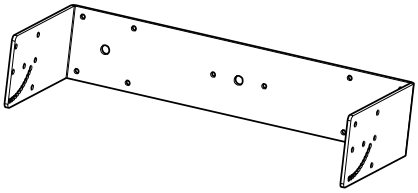
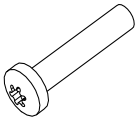


Vertical plane coverage

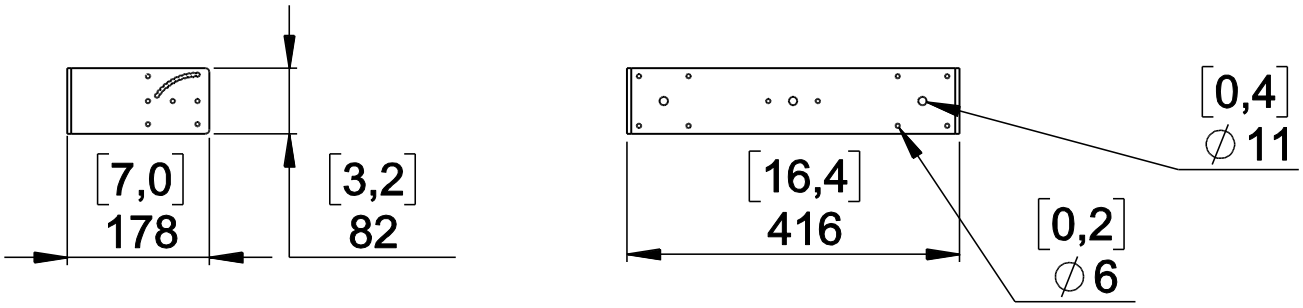
8.7 PS and LS accessories

8.7.1 VNI-UBRK8

Parts

X1	X3 (M5x25)	X3 (M5)
		

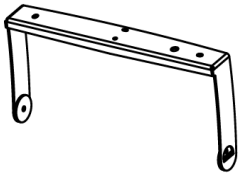
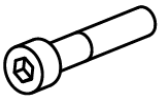
Dimensions



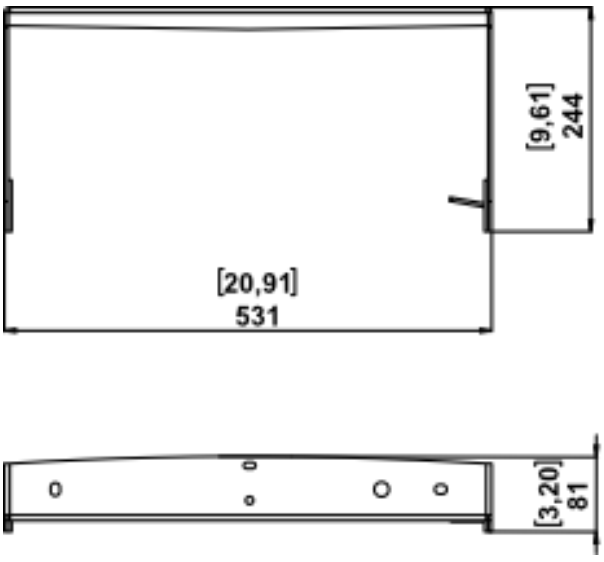
Weight: 2.4 kg / 5.3 lb

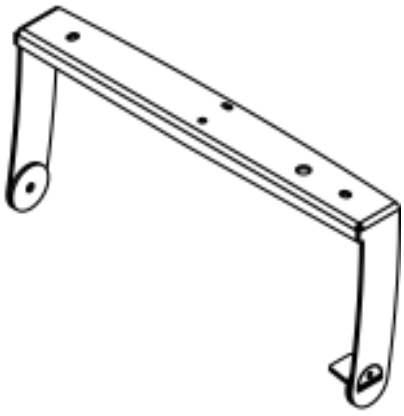
8.7.2 VNI-UBRK10

Parts

X1 	**X1** 	**X1 M10** 	**X1 M6** 
X1 M6x20 	**X1 M10x20** 	**X1** 	**X1** 
X1 M8x45 	**X1 M8** 	**X1 M8** 	

Dimensions

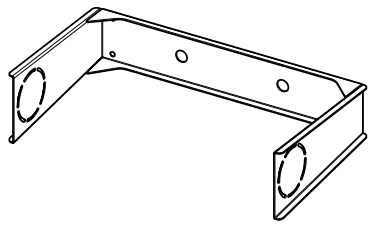
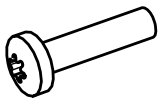
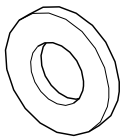




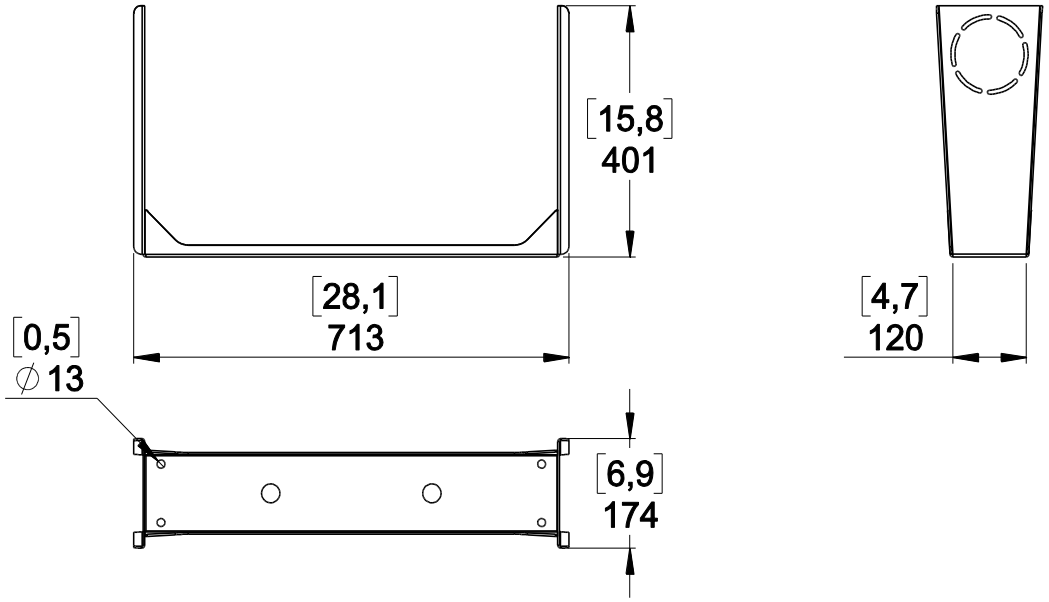
Weight: 2.5 kg / 5.5 lb

8.7.3 VNI-UBRK12

Parts

X1	X8	X8
		

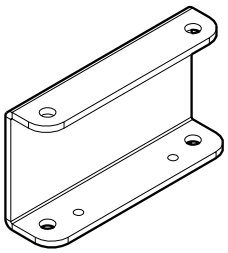
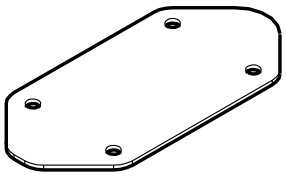
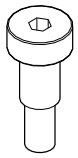
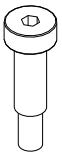
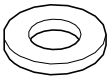
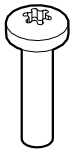
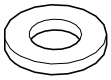
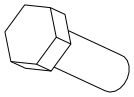
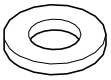
Dimensions



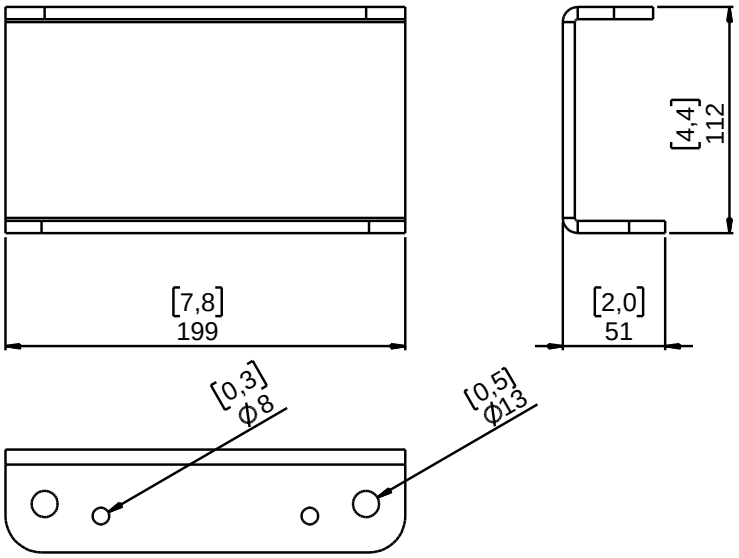
Weight: 6 kg / 13 lb

8.7.4 VNI-ABRK

Parts

X1 		**X1** 		**X2 (D8x12)** 	**X2 (D8x20)** 
X2 (M8) 	**X2 (M6x25)** 	**X2 (M6)** 	**X2 (M12x35)** 	**X2 (M12)** 	**X2 (M12)** 

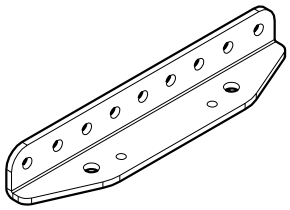
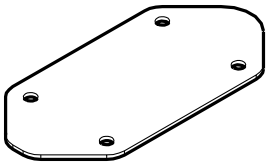
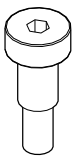
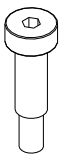
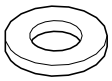
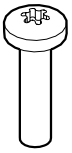
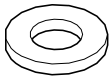
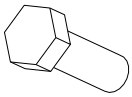
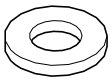
Dimensions



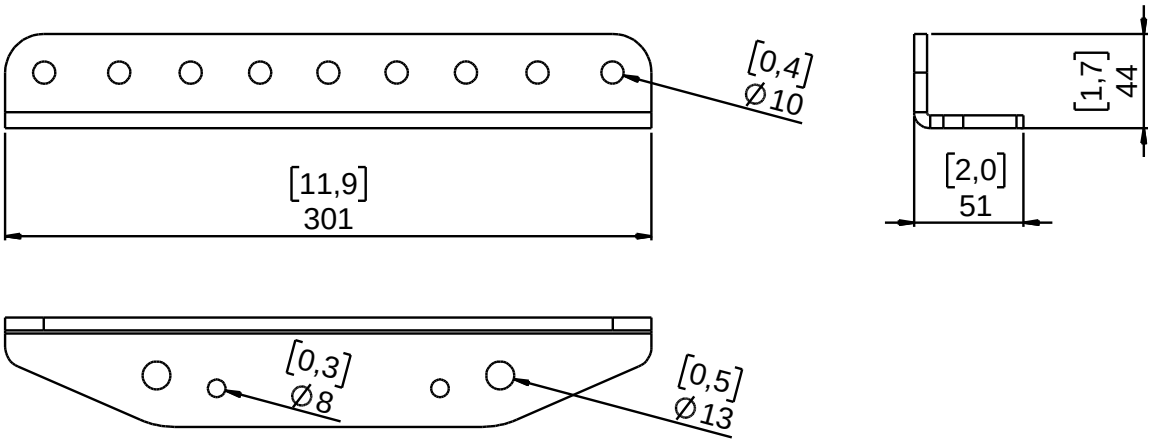
Weight: 1 kg / 2.2 lb

8.7.5 VNI-LBRK

Parts

X1 		**X1** 		**X2 (D8x12)** 	**X2 (D8x20)** 
X2 (M8) 	**X2 (M6x25)** 	**X2 (M6)** 	**X2 (M12x35)** 	**X4 (M12)** 	**X2 (M12)** 

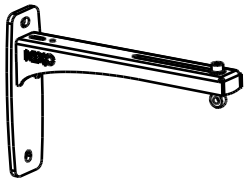
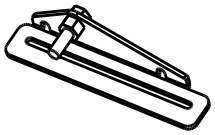
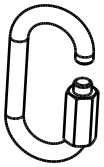
Dimensions



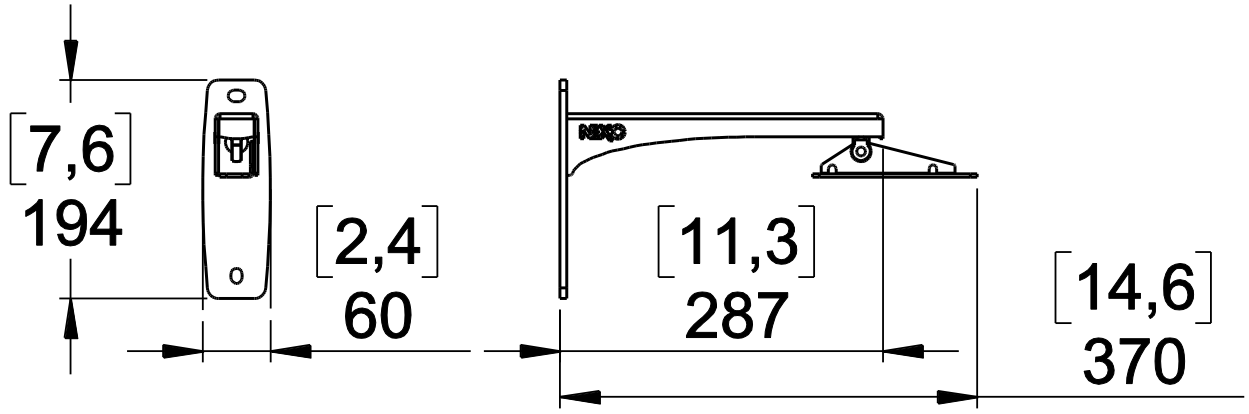
Weight: 1.6 kg / 3.5 lb

8.7.6 VNI-WS8

Parts

X1 (Arm) 	**X1 (Adapter)** 	**X2** 
X1 	**X2** 	**X1** 
X1 	**X2** 	

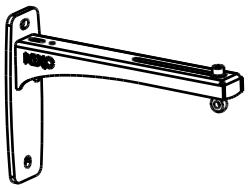
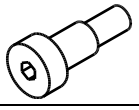
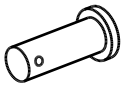
Dimensions



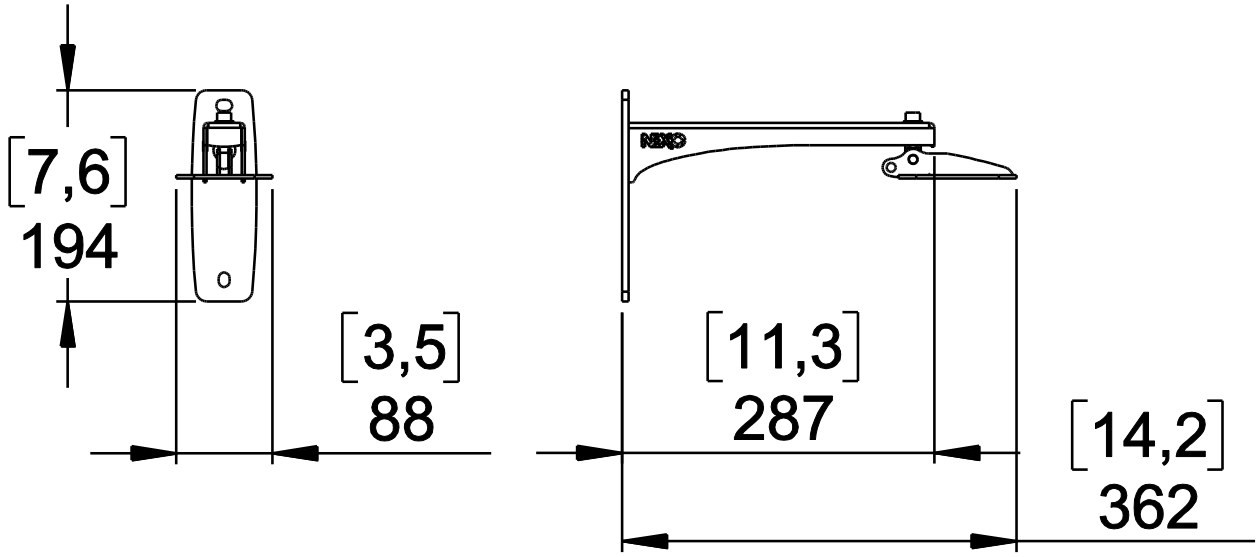
Weight: 1.2 kg / 2.7 lb

8.7.7 VNI-WS10

Parts

X1 (Arm) 	**X1 (Adapter)** 	**X1** 	
X3 	**X2** 	**X1** 	
X1 	**X1** 	**X1** 	**X1**

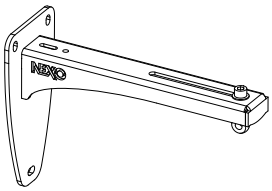
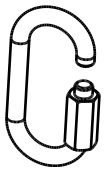
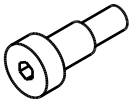
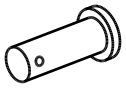
Dimensions



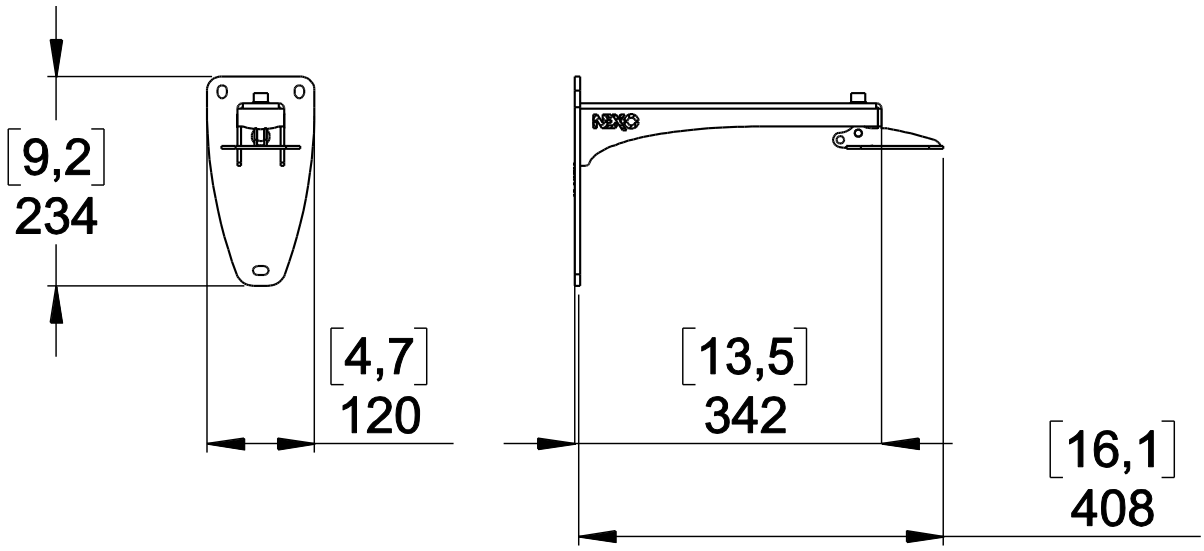
Weight: 1.35 kg / 3 lb

8.7.8 VNI-WS15

Parts

X1 (Arm) 	**X1 (Adapter)** 	**X1** 	
X1 	**X2** 	**X1** 	**X2** 
X1 	**X1** 	**X1** 	**X1** 

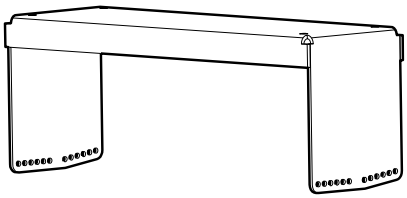
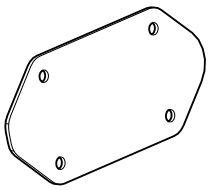
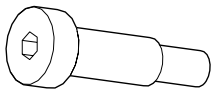
Dimensions



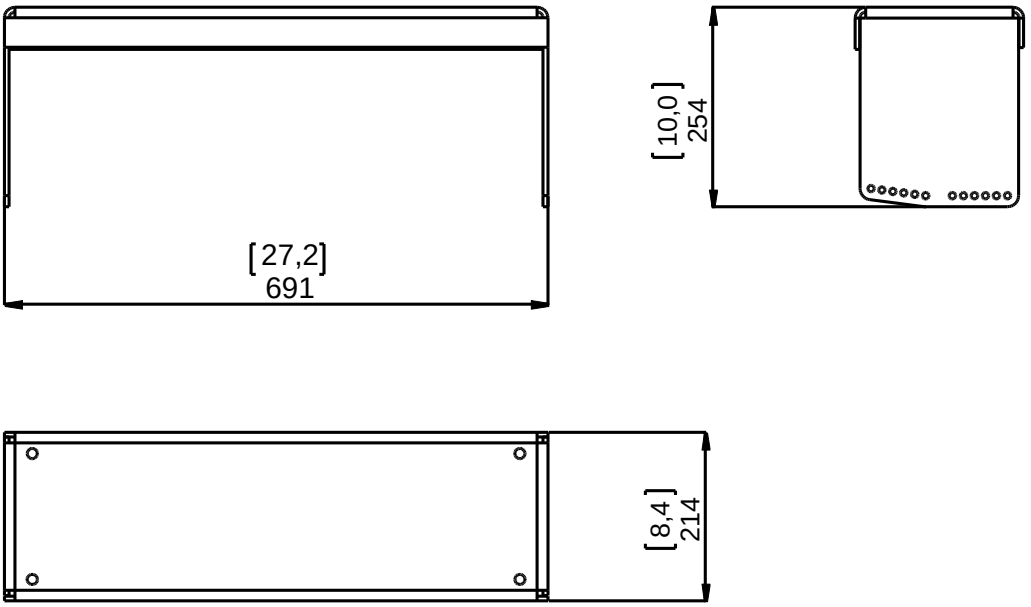
Weight: 2.8 kg / 6.2 lb

8.7.9 GPI-BUMPER

Parts

X1	X4	X8 (D8x20 M6)
		

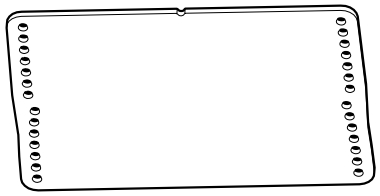
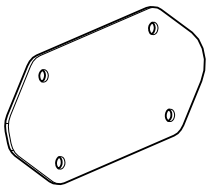
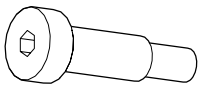
Dimensions



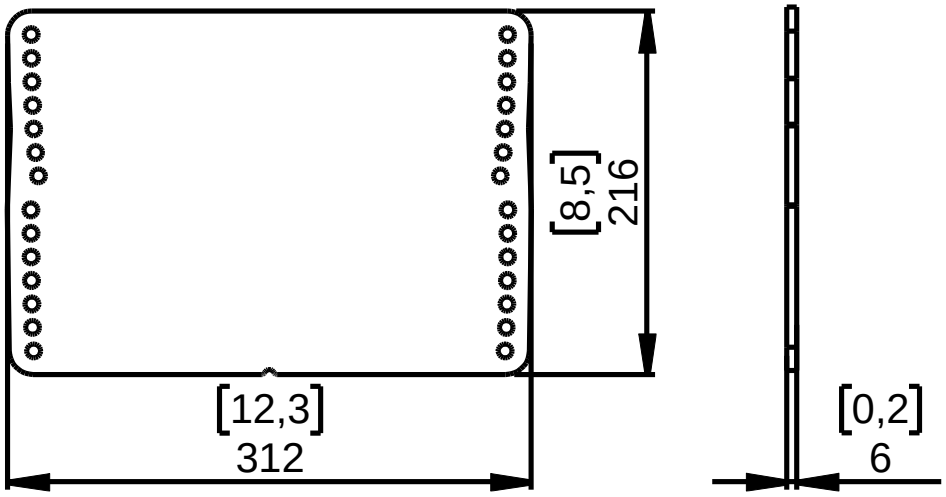
Weight: 14.5 kg / 32 lb

8.7.10 GPI-ANPL1

Parts

X2	X4	X8 (D8x20 M6)
		

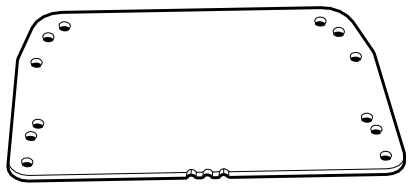
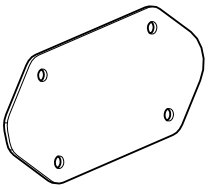
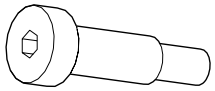
Dimensions



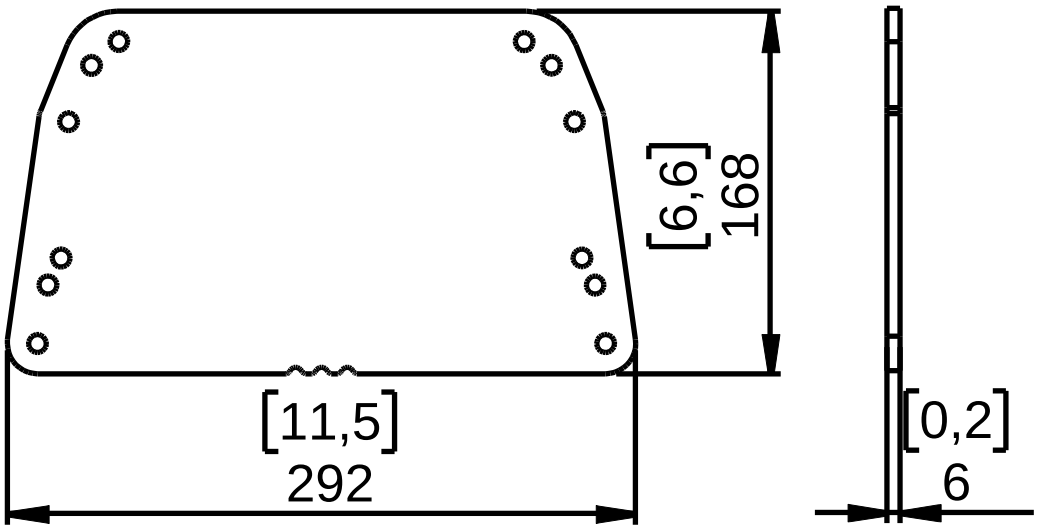
Weight: 8 kg / 17.6 lb

8.7.11 GPI-ANPL3

Parts

X2	X4	X8 (D8x20 M6)
		

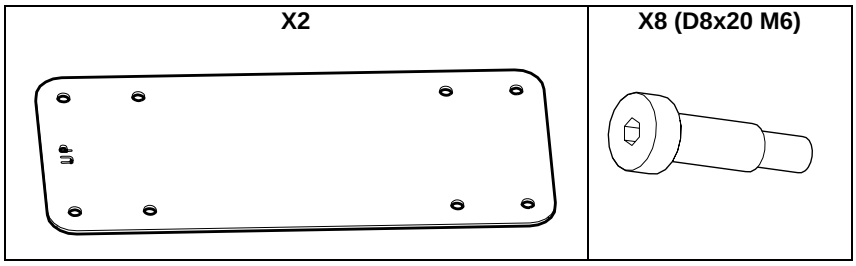
Dimensions



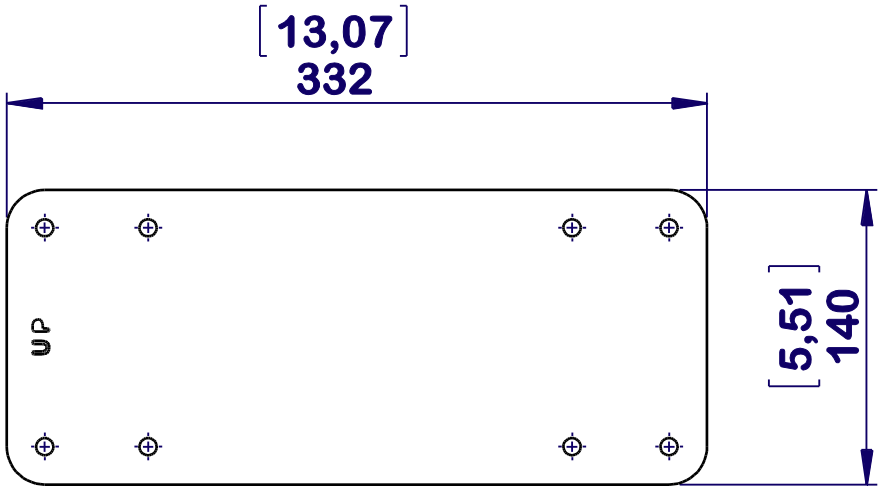
Weight: 6.6 kg / 14.6 lb

8.7.12 LSI-CPLA

Parts



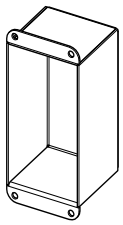
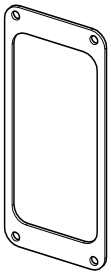
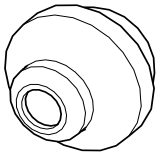
Dimensions



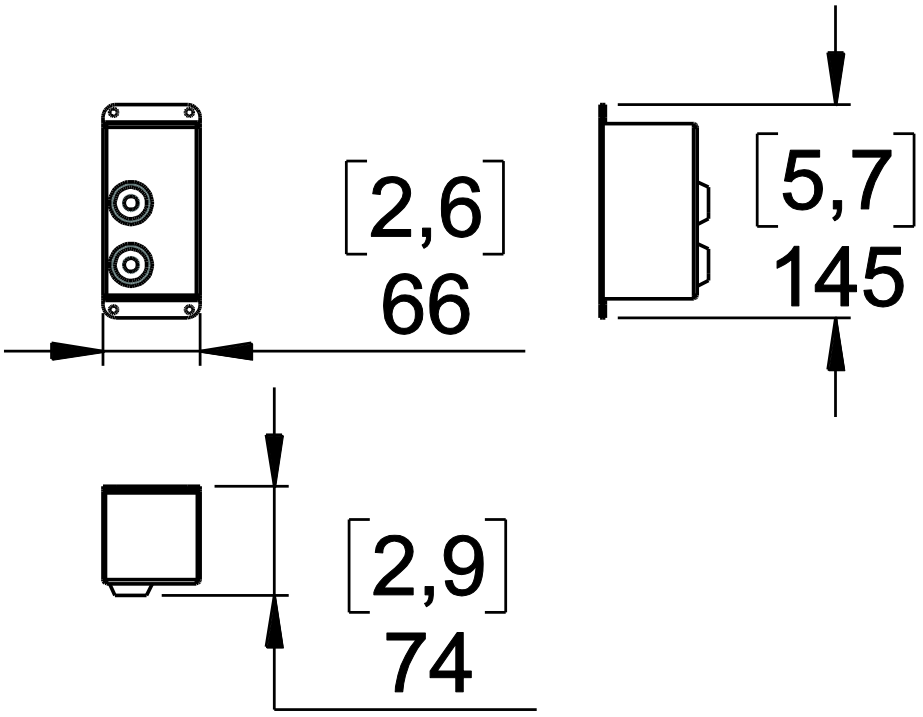
Weight: 2.5 kg / 5.5 lb

8.7.13 VNI-IPCOV8

Parts

X1	X1	X2
		

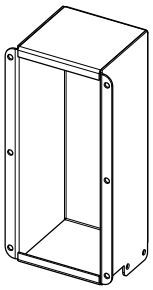
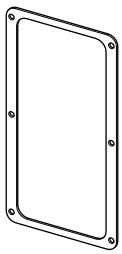
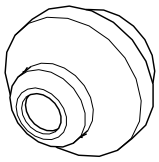
Dimensions



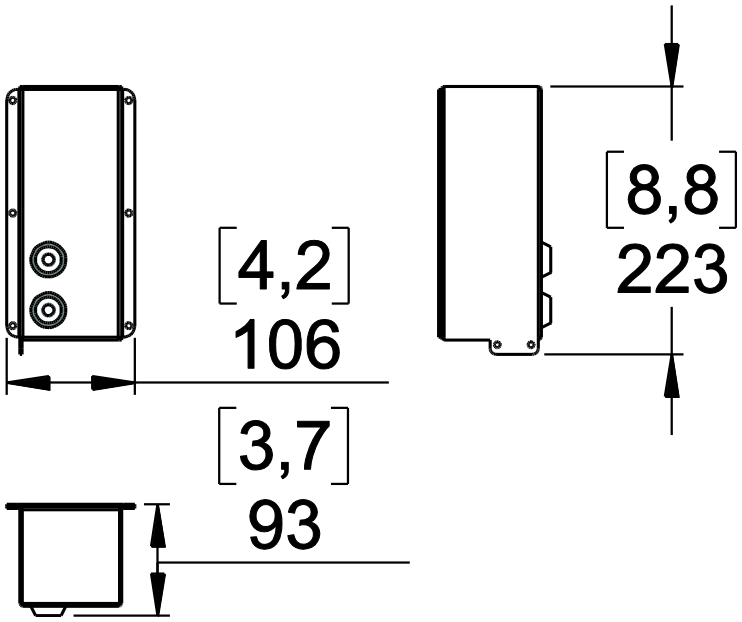
Weight: 0.43 kg / 0.95 lb

8.7.14 VNI-IPCOV15

Parts

X1	X1	X2
		

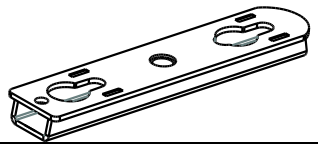
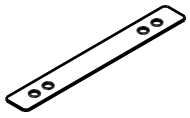
Dimensions



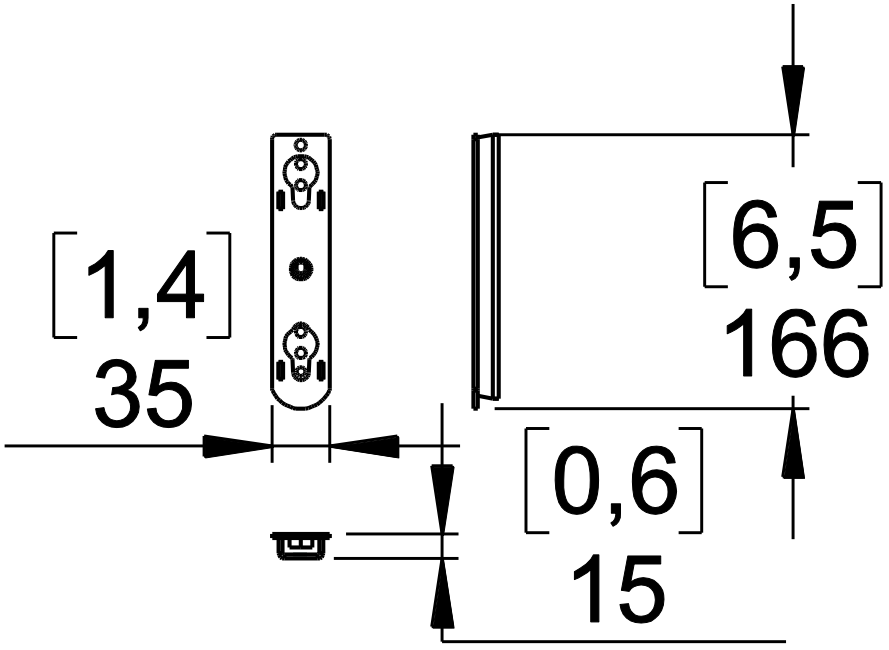
Weight: 0.9 kg / 2 lb

8.7.15 VNT-ADPT

Parts

X1	X1	X2 (M6x20)	X2 (M5x25)
			

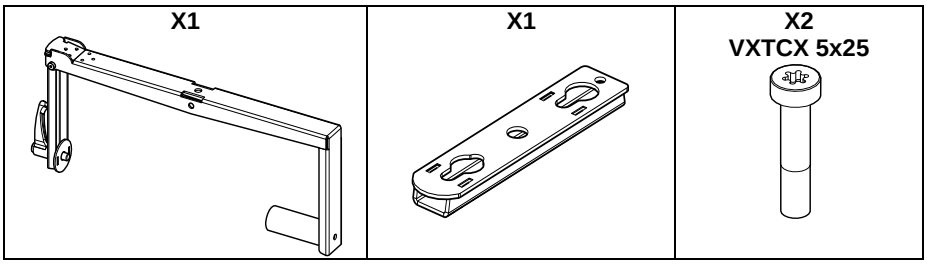
Dimensions



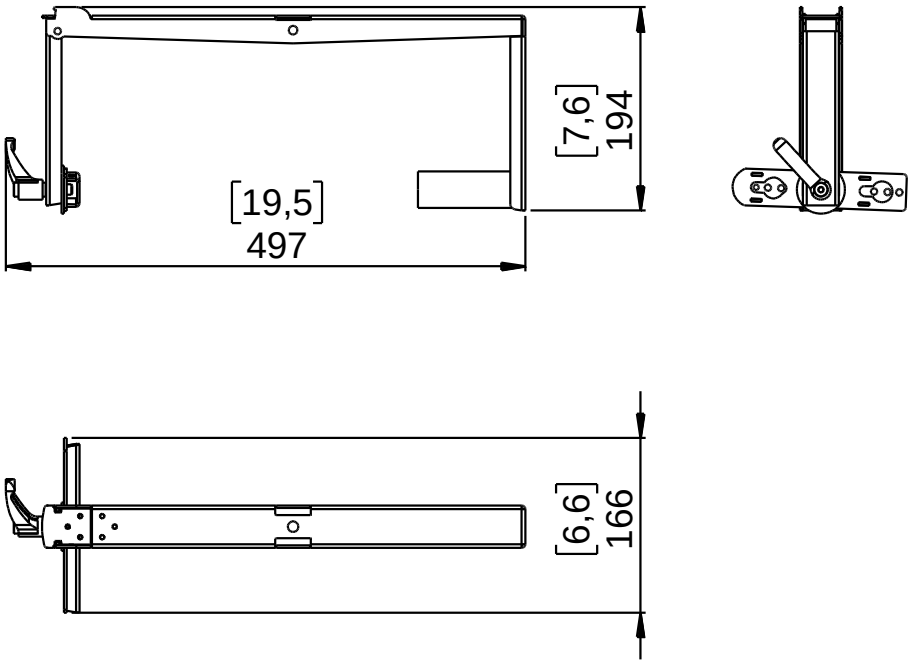
Weight: 0.35 kg / 0.8 lb

8.7.16 VNT-SSBRK8

Parts



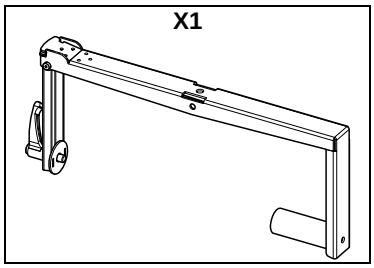
Dimensions



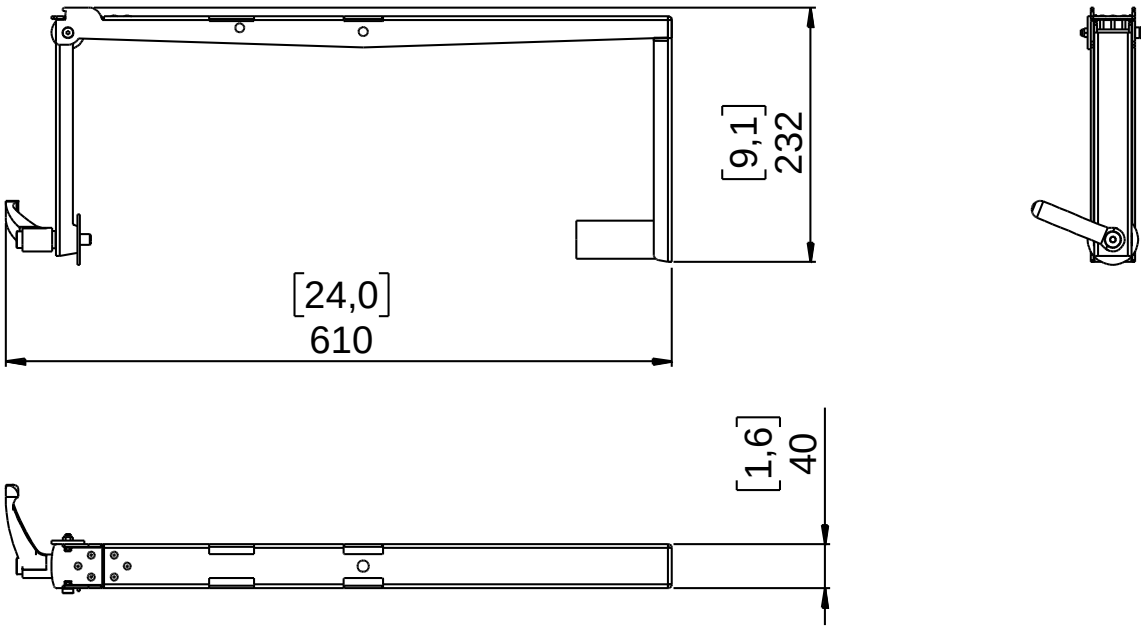
Weight: 1.8 kg / 4 lb

8.7.17 VNT-SSBRK10

Parts



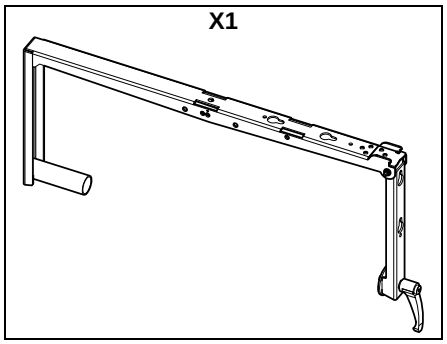
Dimensions



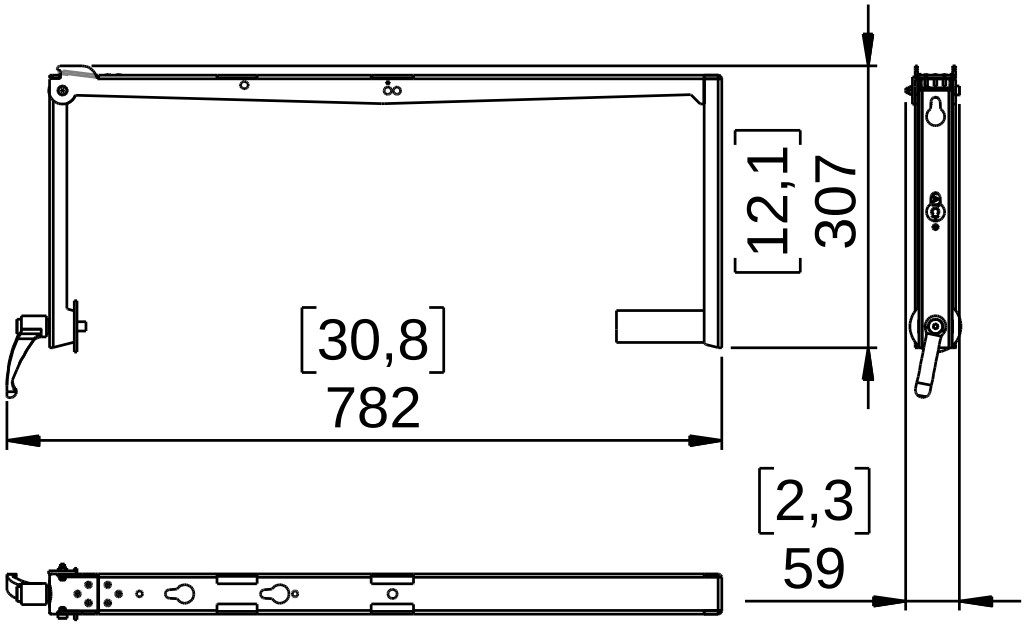
Weight: 2.3 kg / 5.1 lb

8.7.18 VNT-SSBRK15

Parts



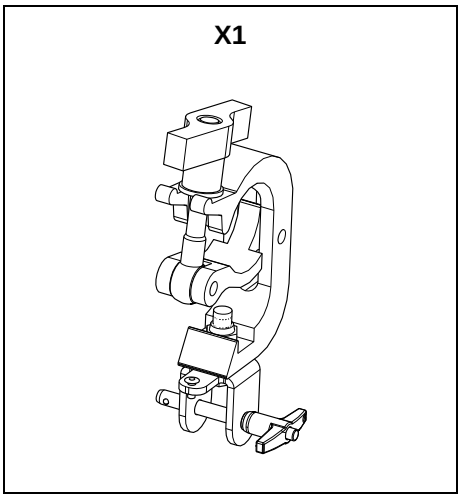
Dimensions



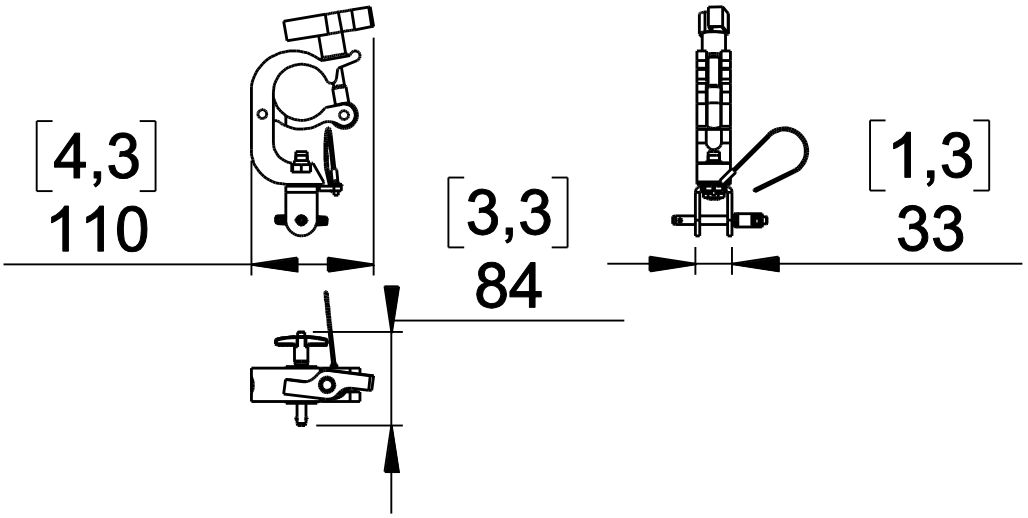
Weight: 2.7 kg / 6 lb

8.7.19 VNT-TCBRK

Parts



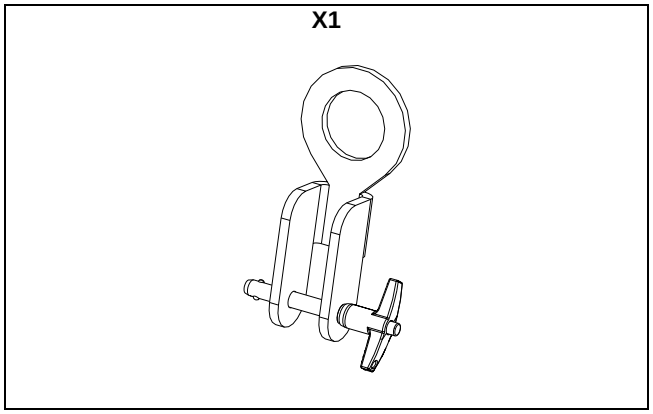
Dimensions



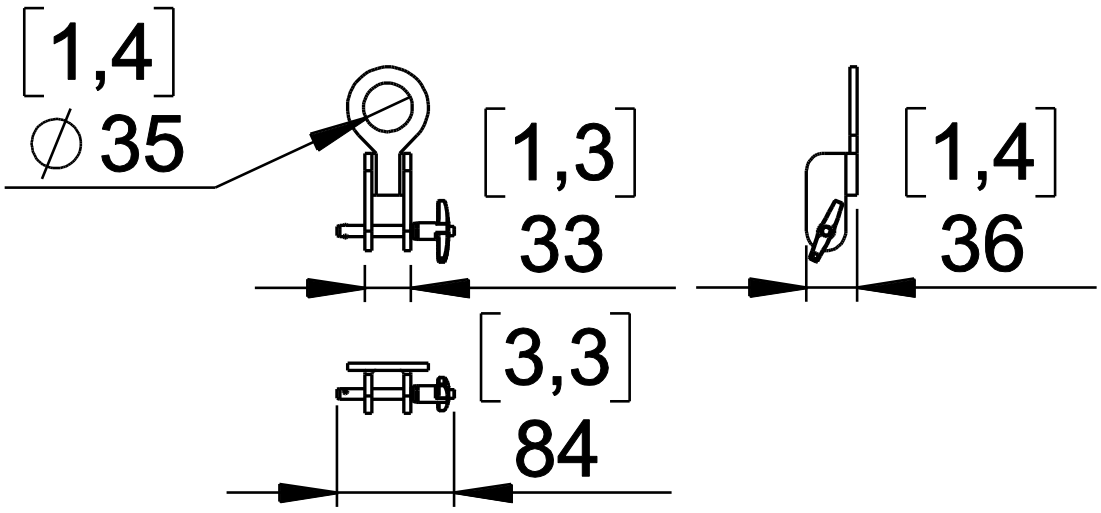
Weight: 0.78 kg / 1.8 lb

8.7.20 VNT-XHBRK

Parts



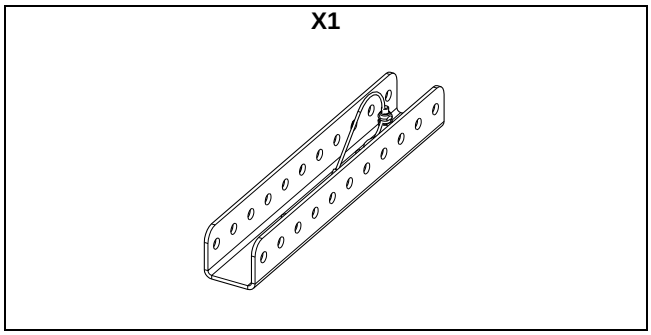
Dimensions



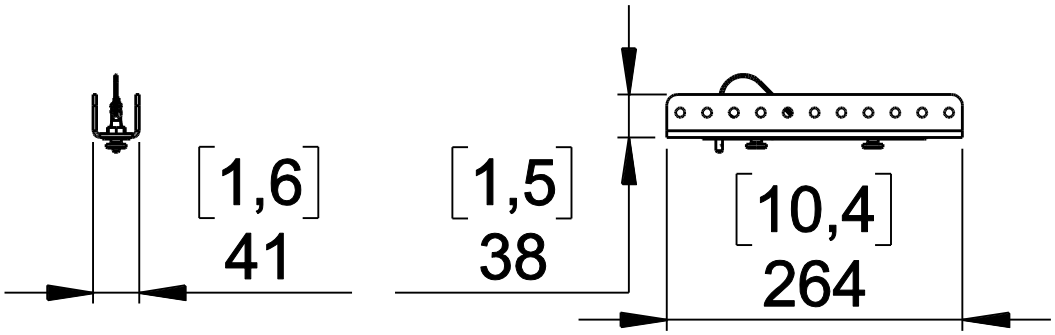
Weight: 0.35 kg / 0.8 lb

8.7.21 VNT-TTC

Parts



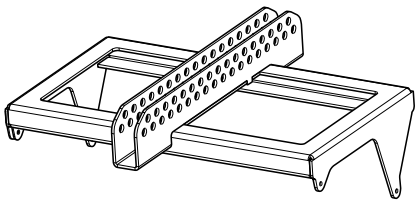
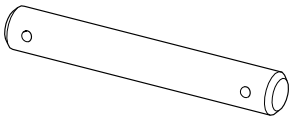
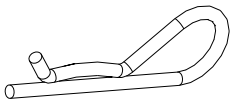
Dimensions



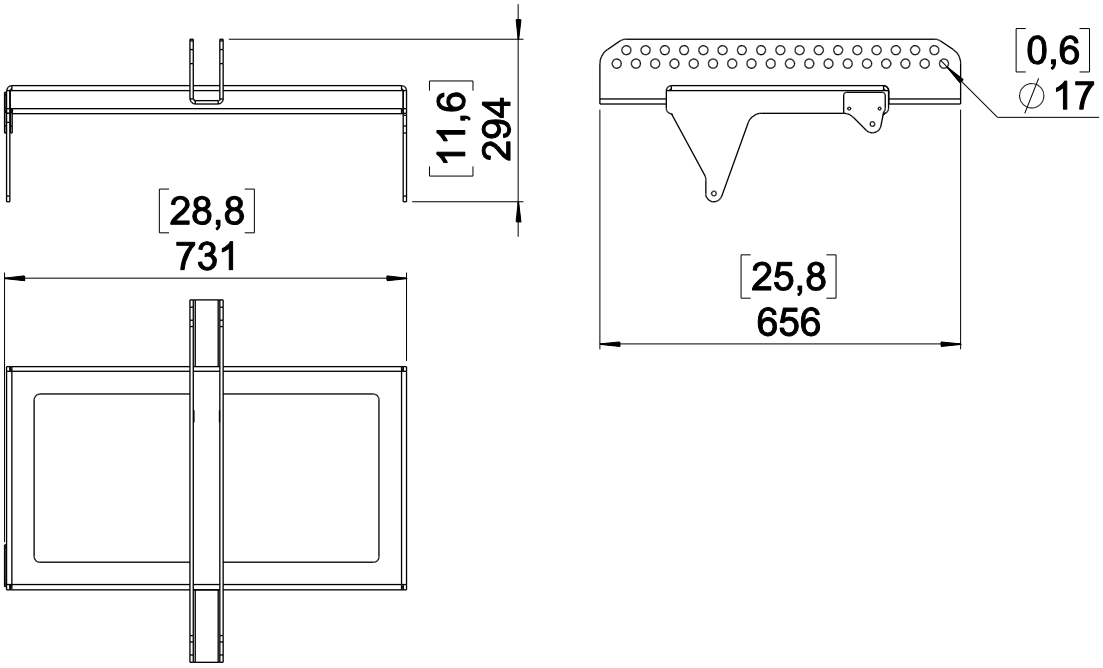
Weight: 1.8 kg / 4 lb

8.7.22 GPT-BUMPER

Parts

X1	X2	X1
		

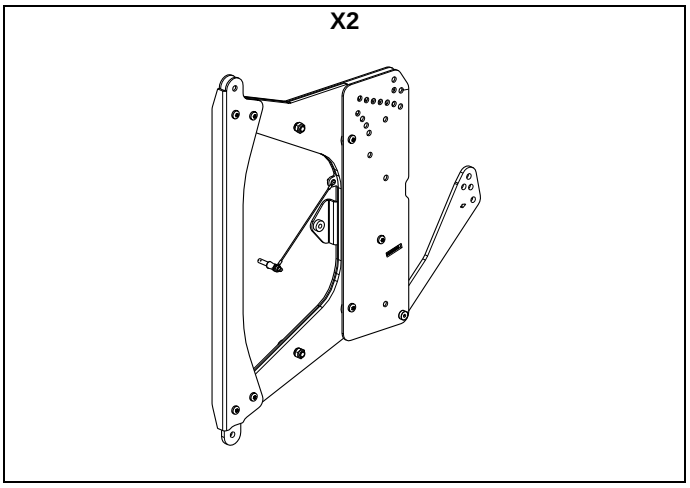
Dimensions



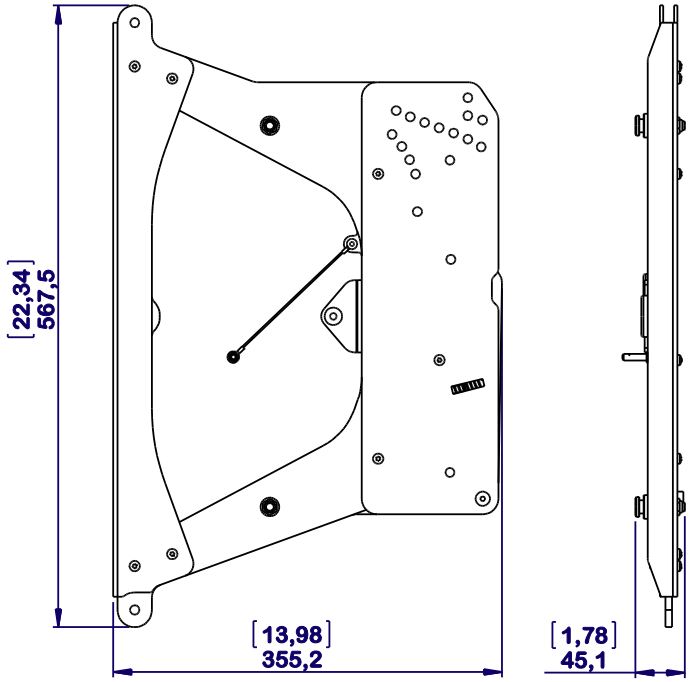
Weight: 20 kg / 44 lb

8.7.23 LST-XBOW18

Parts



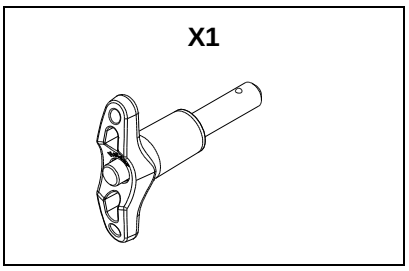
Dimensions



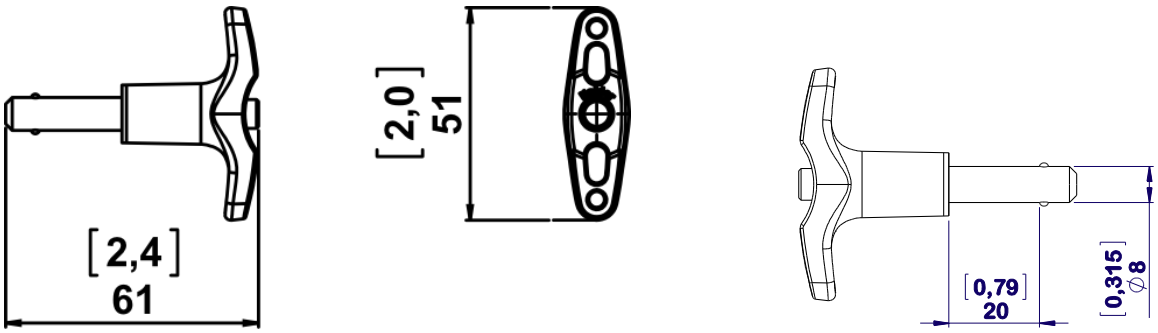
Weight (each): 8 kg / 17.5 lb

8.7.24 VXT-BL820

Parts



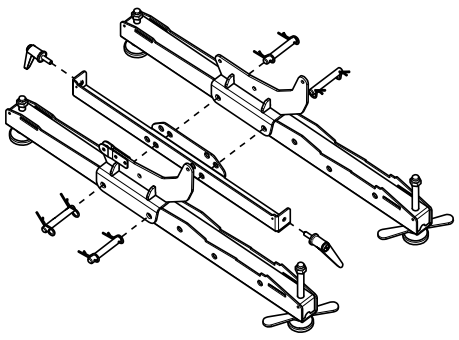
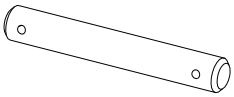
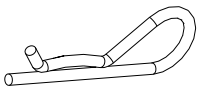
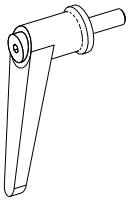
Dimensions



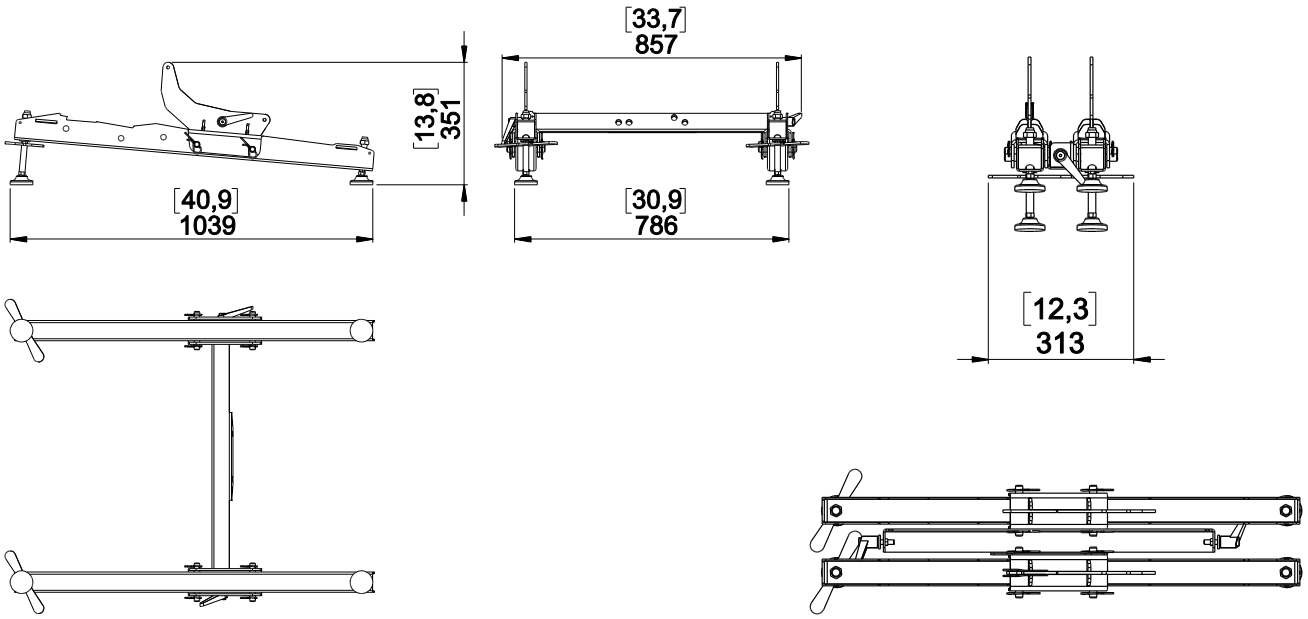
Weight: 0.04 kg / 0.1 lb

8.7.26 GPT-GSTK

Parts

X1	X4	X8	X2
			

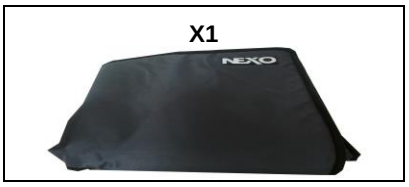
Dimensions



Weight: 26.5 kg / 58.4 lb

8.7.27 LST-COVER18

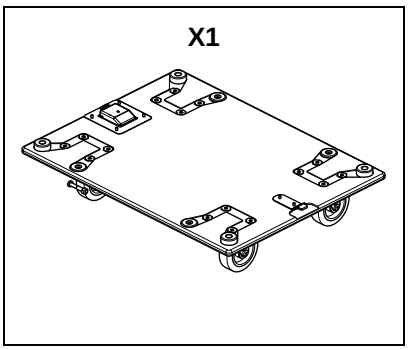
Parts



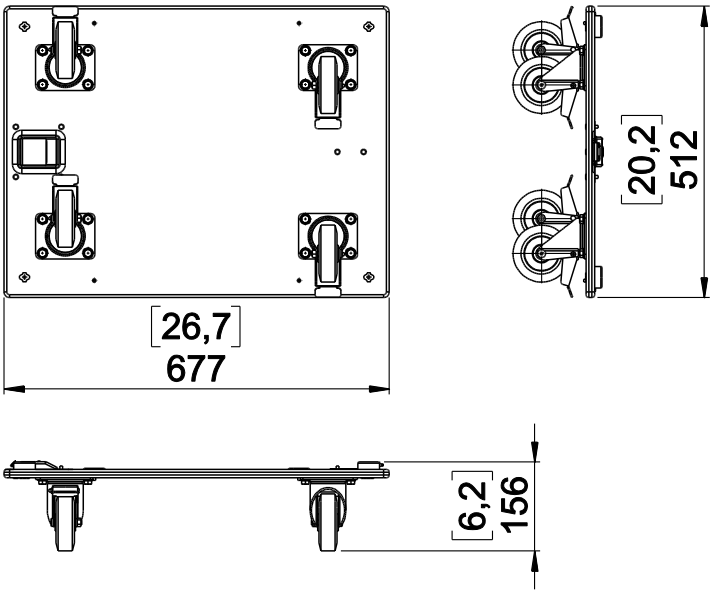
Weight: 2.7 kg / 6 lb

8.7.28 LST-WB18

Parts

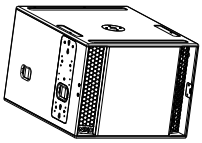
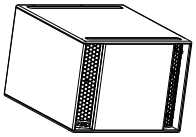
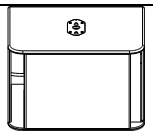
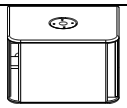
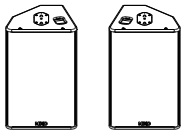
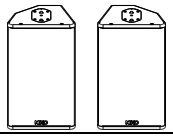
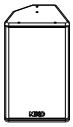
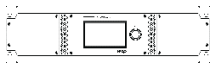
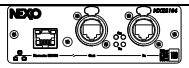
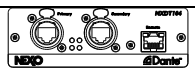


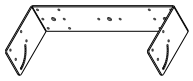
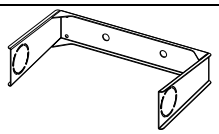
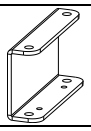
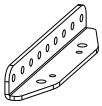
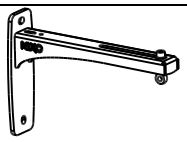
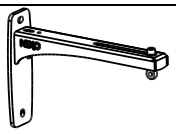
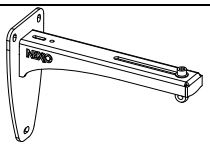
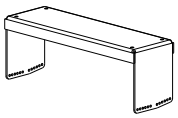
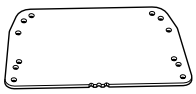
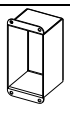
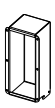
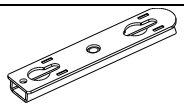
Dimensions

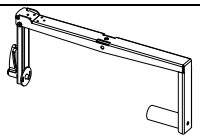
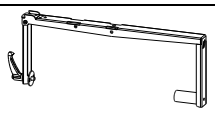
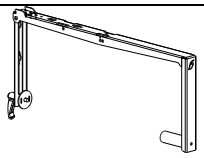
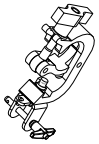
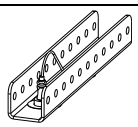
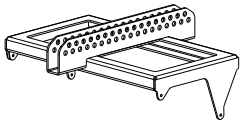
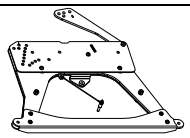
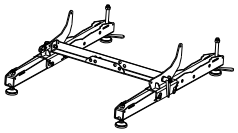
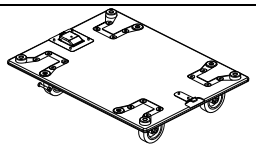


Weight: 8 kg / 17 lb

9 PS & LS MODULES & ACCESSORIES LIST

REFERENCE	DRAWING	DESCRIPTION
LS18		18” Subwoofer
LS18-E		18’’ Subwoofer – E version
LS600		15" Subwoofer
LS400		12" Subwoofer
PS15R2		15" Speaker
PS10R2		10" Speaker
PS8		8" Speaker
NXAMP4x1mk2		Powered Digital TD Controller 4x1300W
NXAMP4x2mk2		Powered Digital TD Controller 4x2500W
NXAMP4x4mk2		Powered Digital TD Controller 4x4500W
NX.ES104		Ethersound Network Card for NXAMP
NX.DT104MK2		Dante Network Card for NXAMP
NX.AE104		AES Card for NXAMP

REFERENCE	DRAWING	DESCRIPTION
VNI-UBRK8		“U” bracket for PS8
VNI-UBRK10		“U” bracket for PS10R2
VNI-UBRK12		“U” bracket for PS15R2
VNI-ABRK		Mounting plate for PSR2 and LS600
VNI-LBRK		Mounting plate for PSR2 and LS600
VNI-WS8		Wall mount for PS8
VNI-WS10		Wall mount for PS10R2
VNI-WS15		Wall mount for PS15R2 and LS600
GPI-BUMPER		Installation bumper for LS18
GPI-ANPL1		LS18 Angle plate (0.2° to 3.15°)
GPI-ANPL3		PS15R2 Angle plate (16° to 30°)
LSI-CPLA		LS18 Mounting plate
VNI-IPCOV15		PS8 and PS10R2 IP54 Connector box
VNI-IPCOV15		PS15R2 IP54 Connector box
VNT-ADPT		PS8 flying adaptor

VNT-SSBRK8		Touring cradle for PS8
VNT-SSBRK10		Touring cradle for PS10R2
VNT-SSBRK15		Touring cradle for PS15R2
VNT- TCBRK		Truss hook adapter for VNT-SSBRK and VNT-TTC
VNT-XHBRK		Lifting ring for VNT-SSBRK and VNT-TTC
VNT- TTC		Angle adapter for PS
GPT- BUMPER		Touring bumper for LS18
LST-XBOW18		Rigging plates for LS18
VXT-BL820		Quick release pin
GPT-GSTK		Ground stack device for LS18
LST-COVER18		LS18 Cover (single cabinet)
LST-WB18		LS18 Whellboard (single cabinet)

10 USER NOTES

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