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## PS Series

*PS8 – LS400 – PS8 Analogue TD Controller*

*PS10R2 –LS600 -PS10 Analogue TD Controller*

*PS15R2 – PS15 Analogue TD Controller*



*User Manual*

PS Series User Manual V1.01  
Date: 08/09/2009

**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.

**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.

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 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 uses 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.

**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 applied to the system on an 5 mn period to allow the loudspeaker components to stabilize during the very first minutes of usage.

**Inspect the speaker system periodically.**





## SAFETY INSTRUCTIONS FOR NEXO TD CONTROLLERS



NEXO ANALOGUE PSTDCONTROLLERS, NX242 DIGITAL CONTROLLER, NXAMP4x1 AND NXAMP4x4 POWERED CONTROLLERS ARE CLASS 1 APPARATUS AND MUST BE EARTHED.

THE GREEN AND YELLOW WIRE OF THE MAINS CORD MUST ALWAYS BE CONNECTED TO AN INSTALLATION SAFETY EARTH OR GROUND. THE EARTH IS ESSENTIAL FOR PERSONAL SAFETY AS WELL AS THE CORRECT OPERATION OF THE SYSTEM, AND IS INTERNALLY CONNECTED TO ALL EXPOSED METAL SURFACES.

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet. (US market)
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

 <p>The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.</p>	 <div style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;"> <b>CAUTION</b>  <small>RISK OF ELECTRIC SHOCK DO NOT OPEN</small> </div> 	 <p>The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.</p>
<p><b>WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.</b></p>		
<p>To avoid electrical shock, do not remove covers.          Dangerous voltages exist inside.          Refer all servicing to qualified personnel only.</p>		

## 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	65
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.

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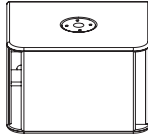
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## 1 INTRODUCTION

Thank you for selecting a NEXO PS Series equipment.

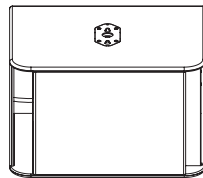
This manual is intended to provide you with necessary and useful information about your PS speaker system, which includes the following products:



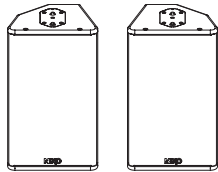
- LS400 is optional Sub-Bass for PS8



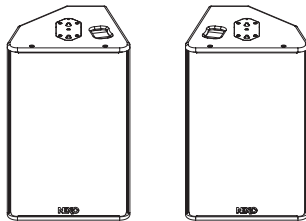
- PS8



- LS600 is optional Sub-Bass for PS10R2



- PS10R2 (available in Left and Right versions)



- PS15R2 (available in Left and Right versions)



- PS8 Analogue TD Controller (for PS8 and LS400)
- PS10 Analogue TD Controller (for PS10 and LS600)
- PS15 Analogue TD Controller (for PS15 and RS15)

- A full range of accessories that provides safe, flexible and simple means of installing PS Series in fixed installation as well as in touring applications.



As for all NEXO systems, PS Series are controlled, powered and monitored by dedicated NEXO TDControllers:

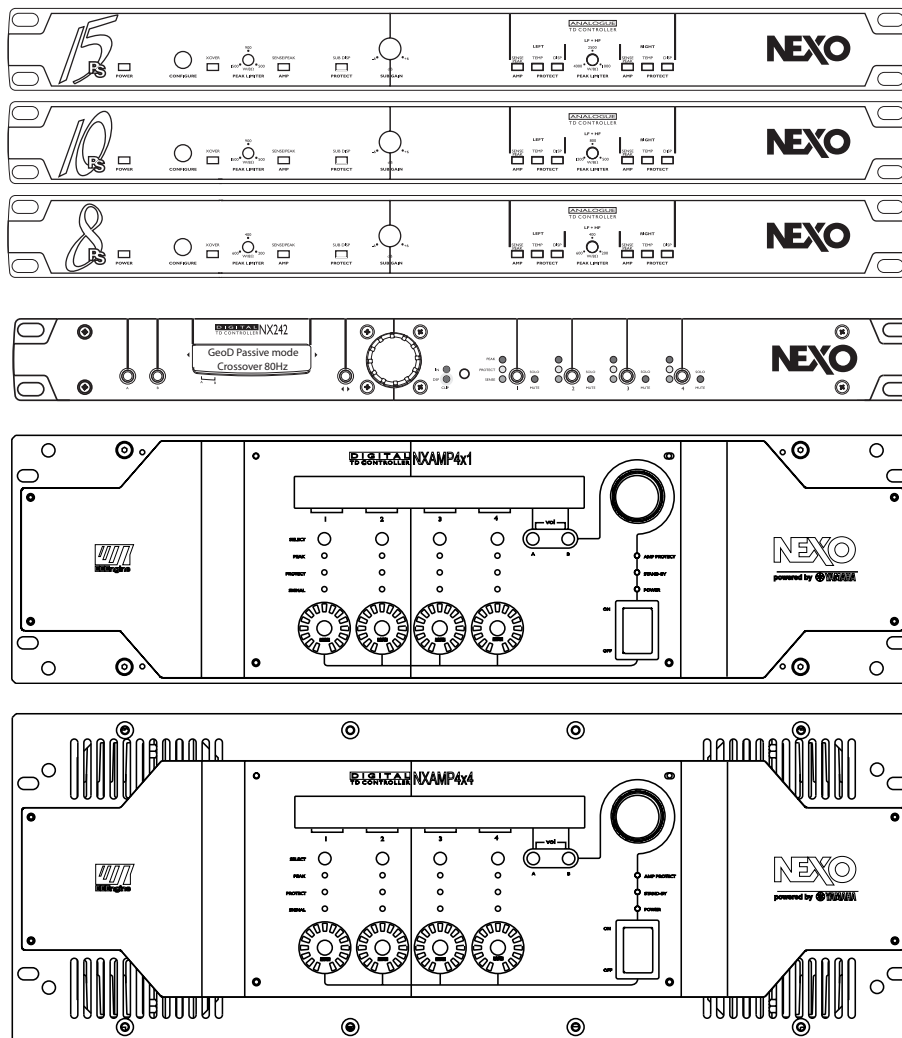
- PS analogue TDController provides full control for PS Series and dedicated subwoofers. It has 2 analogue inputs (Left and Right) and 3 analogue outputs (Sub-Bass, PS Left and PS Right);
- NX242-ES4 Digital TDController provides comprehensive control of PS loudspeakers in multiple configurations. It allows Ethersound™ digital audio networking, as well as remote control for all units in the network. It has 2 analogue / 4 digital inputs and 4 analogue / 4 digital outputs;

### IMPORTANT

**NX242 must be equipped with NX-Tension Card (NX-ES4) to access PS setups**

- NXAMP4x1 and NXAMP 4x4 are Powered Digital Controllers, providing full control and amplification for PS Series in multiple configurations. Both devices feature 4 analogue inputs and 4 speaker outputs. When equipped with optional card, 4 digital inputs in Ethersound™ digital audio network format as well as remote control for all units in the network become available.

For a complete description of these controllers, please refer to User Manuals. The NX242 and NXAMP DSP algorithms and parameters are fixed in software and updated regularly: Please consult the NEXO web site ([www.nexo.fr](http://www.nexo.fr)) for the latest software releases.



## 2 PS GENERAL SET-UP INSTRUCTIONS

### 2.1 Speaker connection

PS Series 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 2 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 range cabinet or to link to an optional Sub (if present). Therefore, a single 4-conductor cable can connect two amplifier channels to various PS and/or dedicated Sub Bass.

#### 2.1.1 PS8 – PS10R2



Connectors are wired as follows:

Speakon Connector		
1(-)	⇒	Not Connected
1(+)	⇒	Not Connected
2(-)	⇒	PS8/PS10 (-)
2(+)		PS8/PS10 (+)

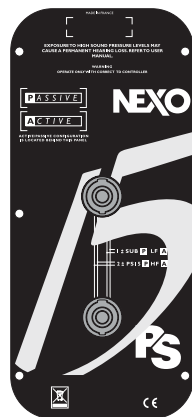
#### 2.1.2 LS400 – LS 600



Connectors are wired as follows:

Speakon Connector		
1(-)	⇒	LS400/LS600 (-)
1(+)	⇒	LS400/LS600 (+)
2(-)	⇒	Not Connected
2(+)		Not Connected

#### 2.1.3 PS15R2

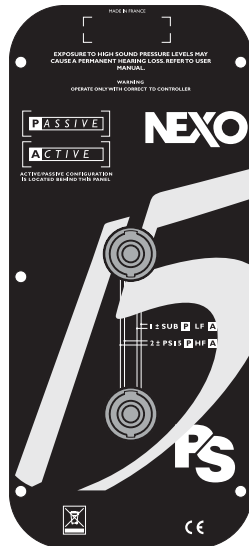


Connectors are wired as follows:

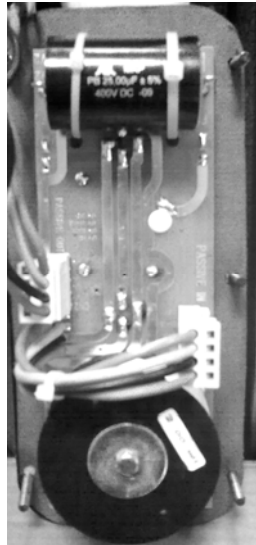
Speakon Connector		Passive Mode	Active Mode
1(-)	⇒	Not Connected	PS15R2 LF (-)
1(+)	⇒	Not Connected	PS15R2 LF (+)
2(-)	⇒	PS15R2 (-)	PS15R2 HF (-)
2(+)		PS15R2 (+)	PS15R2 HF (+)

## 2.1.4 Configuring PS15 for Passive or Active Mode

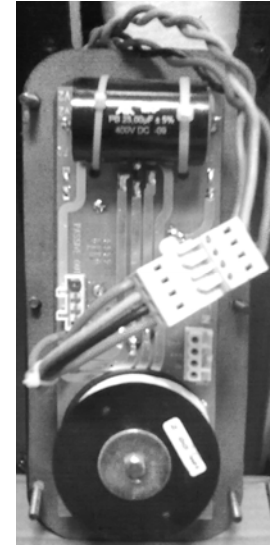
- Remove the six TORX screws that hold the connector panel (figure next page);
- Remove the connector panel so that filter WAGO connectors become accessible;
- In Passive Mode, WAGO connector from filter should be inserted in “Passive In”, and speakers WAGO connectors should be inserted in connector “Passive Out”.
- In Active Mode, WAGO Connector from filter should be directly connected into to speakers via speakers WAGO connectors (passive filter is then bypassed).



CONNECTOR PANEL



PASSIVE MODE



ACTIVE MODE

## 2.1.5 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 maximum cable length is given by:

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

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

Load Impedance (Ω)	2	3	4	6	8	12	16
Cable section	Maximum Length (meters)						
1,5 mm <sup>2</sup> (AWG #14)	3	4.5	6	9	12	18	24
2,5 mm <sup>2</sup> (AWG #12)	5	7.5	10	15	20	30	40
4 mm <sup>2</sup> (AWG #10)	8	12	16	24	32	48	64

### IMPORTANT

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

### 3 AMPLIFIER SELECTION FOR USE WITH PS-SERIES

NEXO recommends high power amplifiers in all cases. Budget constraints are the only reason to select lower power amplifiers. A lower power amplifier will not reduce the chances of driver damage due to over-exursion, and may actually increase the risk of thermal damage due to sustained clipping. If an incident occurs on an installation without protection, the fact that amplifiers only generating half their rated output power (-3dB) are used will not change anything in respect of possible damage. This is due to the fact that the RMS power handling of the weakest component in the system is always 6 to 10 dB lower than the amplifier rating.

#### 3.1 PS and LS recommended amplification

Nexo recommends amplifiers in agreement with table below:

Recommended Amplifier#	Channel 1 LF in Active Mode or LF+HF in Passive Mode	Channel 2 HF in Active Mode
LS400	300 to 700 W / 6 Ohms	
PS8	200 to 500 W / 8 Ohms	
LS600	1000 to 2000 W / 8 Ohms	
PS10R2	500 to 1250 W / 8 Ohms	
PS15R2 Passive Mode	1000 to 2000 W / 8 Ohms	
PS15R2 Active Mode	1000 to 2000 W / 8 Ohms	250 to 500 W / 16 Ohms

##### 3.1.1 Current rating

It is very important that the amplifier behaves correctly under low load conditions. A speaker system is reactive by nature: on transient signals like music it will require four to ten times more instantaneous current than its nominal impedance would indicate. Amplifiers are generally specified by continuous RMS power into resistive loads, however the only useful information about current capacity is the specification into a 2 Ohm load. It is possible to perform an amplifier listening test by loading the amps with twice the number of cabinets considered for the application (2 speakers per channel instead of one, 4 instead of 2) and running the amps up to the onset of clipping. If the signal does not noticeably deteriorate, the amplifier is well adapted (overheating after approximately ten minutes is normal but thermal protection must not operate too quickly after starting this test).

##### 3.1.2 Amplifier settings

###### Gain value

Gain is the key to correct alignment of the system. It is especially important to know the gain of all amplifiers used in your set-up. The tolerance should be about  $\pm 0.5$  dB. In practice this can be difficult to achieve because:

- Some amplifier brands have an identical input sensitivity for models of different power rating (this infers a different voltage gain for each model). For example, a range of amplifiers with different power outputs, all having a published input sensitivity of 775mV/0dBm or 1.55V/+6dBm, will have a wide range of actual gains – the higher the power, the greater the gain.
- Various other brands may offer constant gain but only within a given product range, for example they may fit fixed input sensitivity only on their semi-professional amps.
- Even if a manufacturer applies the constant gain rule to all models, the value selected will not necessarily be the same as that chosen by other manufacturers.

- Some products can exhibit manufacturing tolerances for the same model of  $\pm 1\text{dB}$  or more. Some amplifiers may have been modified, possibly without any label indicating the new values. Others may have gain switches fitted internally where it is impossible for the user to verify the actual setting without opening the amplifier casing.
- In cases where you don't know the gain of your amplifier (or want to check it) please follow this procedure:
  - 1) Unplug any loudspeakers from the amplifier outputs
  - 2) With a signal generator, feed a sine wave at 1000Hz at a known voltage (say 0.5V) to the input of the amplifier under test
  - 3) Measure the voltage at the output of the amplifier
  - 4) Calculate the gain using the formula  $\text{Gain} = 20 * \text{LOG}_{10}(\text{Vout}/\text{Vin})$ .

Some examples:

Vin / Gain	20dB	26dB	32dB	37dB (1.4V sensitivity / 1350Wrms)
0.1 V	1 V	2 V	4 V	7.1 V
0.5 V	5 V	10 V	20 V	35.4 V
1 V	10 V	20 V	40 V	70.8 V

Remember that constant sensitivity settings will give a different gain value when the amplifier power is different.

NEXO recommends low gain amplifiers: +26dB is recommended, as it is at the same time adequately low and quite common amongst amplifier manufacturers. This gain setting improves signal to noise ratio and allows all preceding electronic equipment, including the NX242 TDcontroller or PS TDControllers, to operate at optimum level. Remember that using a high gain amplifier will raise the noise floor proportionally.

## Operating Mode

Most two channel amplifiers available on the pro-audio market have the following operating modes:

- Stereo: two fully independent channels deliver identical power into identical loads
- NEXO recommends Stereo Mode for all amplifier channels feeding PS Series speakers.
- Bridge-Mono: the second signal channel processes the same input as the first channel, but with reversed phase. The (single) load is connected between the two positive channel outputs using a suitable connection. While the total output of the amplifier remains the same, the available output voltage, the minimum impedance that can be connected and the voltage gain are doubled as compared with stereo operation. Typically, only channel 1 input is active. Positive and negative output connections vary depending on amplifier manufacturers.
- NEXO does not recommend Bridge Mono Mode unless amplifier power is clearly not sufficient.

**IMPORTANT**

When in Bridge-Mono mode, check your amplifier user manual for proper connection of outputs 1(+) and (2+) in relation to input phase.

- Parallel-mono: the output terminals of the two channels are configured in parallel using an internal relay. The (single) load is connected either to the output of channel 1 or to that of channel 2 (as if in stereo). While the total output of the amplifier remains the same the output voltage level is also the same as in stereo mode. The minimum impedance that can be connected is reduced by half due to the fact that current capability is doubled. Typically, only channel 1 input is active.
- NEXO does not recommend Parallel-Mono Mode for any PS Series speaker amplification.

**Warning on amplifiers signal processing features**

Some high-end amplifiers may include signal processing functions similar to those found in the NX242 TDcontroller or in PS TDControllers ("loudspeaker offset integration", "limiter", "compressor," etc.). Moreover, when this processing is digital, computation latency time can introduce a few milliseconds delay from input to output. These functions are not adapted to specific system requirements and may interfere with the complex protection algorithms used in the NEXO TD Controllers.

NEXO do not advise using other protection systems in conjunction with the NEXO TD Controllers and they should be disabled.

**IMPORTANT**

For proper system protection, no latency time or non-linear devices should be introduced between the output of the NEXO TDcontroller and the input of loudspeakers through use of DSP modules such as internal amplifier signal processing.

**3.2 PS Series systems and NXAMP TDControllers**

NEXO Powered TDControllers NXAMP 4X1 & 4X4 are integrated solutions for Control and amplification for all NEXO speaker ranges.

NXAMP4x1 and NXAMP4x4 power capability is listed in the table below:

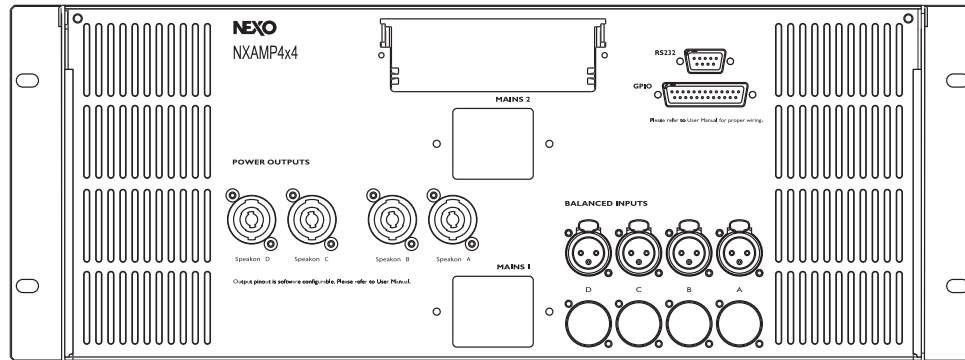
Mode	4 Channels	Bridge Stereo
NXAMP4x1	4 x 650 Watts / 8 Ohms	2 x 1800 Watts / 8 Ohms
	4 x 900 Watts / 4 Ohms	2 x 2600 Watts / 4 Ohms
	4 x 1300 Watts / 2 Ohms	
NXAMP4x4	4 x 1900 Watts / 8 Ohms	2 x 6800 Watts / 8 Ohms
	4 x 3400 Watts / 4 Ohms	2 x 8000 Watts / 4 Ohms
	4 x 4000 Watts / 2 Ohms	

**3.2.1 NXAMP connectors**

NXAMP4x1 and NXAMP4x4 rear panels feature:

- 4 analog inputs / outputs (links) on XLR3 connectors;
- 4 digital inputs / outputs on RJ45 connectors with optional card;
- 4 speaker level outputs on NL4FC connectors.

Figure below shows connectors implementation on the rear panel.



### 3.2.2 PS Series and NXAMP recommended configurations

Below table lists basic requirements for proper use of NXAMP TD Controllers in conjunction with PS Series:

	Passive Mode	Active Mode
1 or 2 PS8s	1 channel of NXAMP4x1 in 4 channels mode	
1 or 2 LS400	1 channel of NXAMP4x1 in Bridge Stereo Mode	
1 or 2 PS10	1 channel of NXAMP4x1 in Bridge Stereo Mode 1 channel of NXAMP4x4 in 4 channels Mode	
1 or 2 LS600	1 channel of NXAMP4x1 in Bridge Stereo Mode 1 channel of NXAMP4x4 in 4 channels Mode	
1 or 2 PS15	1 channel of NXAMP4x1 in Bridge Stereo Mode 1 channel of NXAMP4x4 in 4 channels Mode	2 channels of NXAMP4x1 in Bridge Stereo Mode 2 channels of NXAMP4x4 in 4 channels Mode
1 RS15 Omni	1 channel of NXAMP4x1 in Bridge Stereo Mode 1 channel of NXAMP4x4 in 4 channels Mode	

Please refer to following documents (available at [www.nexo-sa.com](http://www.nexo-sa.com)) for detailed information on specific configurations:

- NXAMP4x1 and NXAMP4x4 User Manual
- NXAMP Application Guideline
- NXAMP Load Setup list

## 4 PS SERIES SETUPS ON NEXO TD CONTROLLERS

### 4.1 Analogue PSTDControllers

Analogue PS TDControllers parameters have been optimized for 1 x Subwoofer (mono) used in conjunction with 2 x PS Series speakers (mono or stereo).

#### IMPORTANT

- PS8 TDControllers are unchanged in relation to previous version (color change only): previous generation PS8 TD Controllers and new PS8 TDControllers can be combined.
- PS10TD and PS15TD Controllers are totally incompatible with previous versions: confusion would lead to extremely bad results.

### 4.2 Digital NX242-ES4

Digital NX242-ES4 PS Series setups reproduce Analogue PS TDControllers parameters, with 4 independent processing channels.

### 4.3 NXAMP TDControllers

At PS Series User Manual current version printing time, 3 families of PS Series setups for NXAMP have been defined:

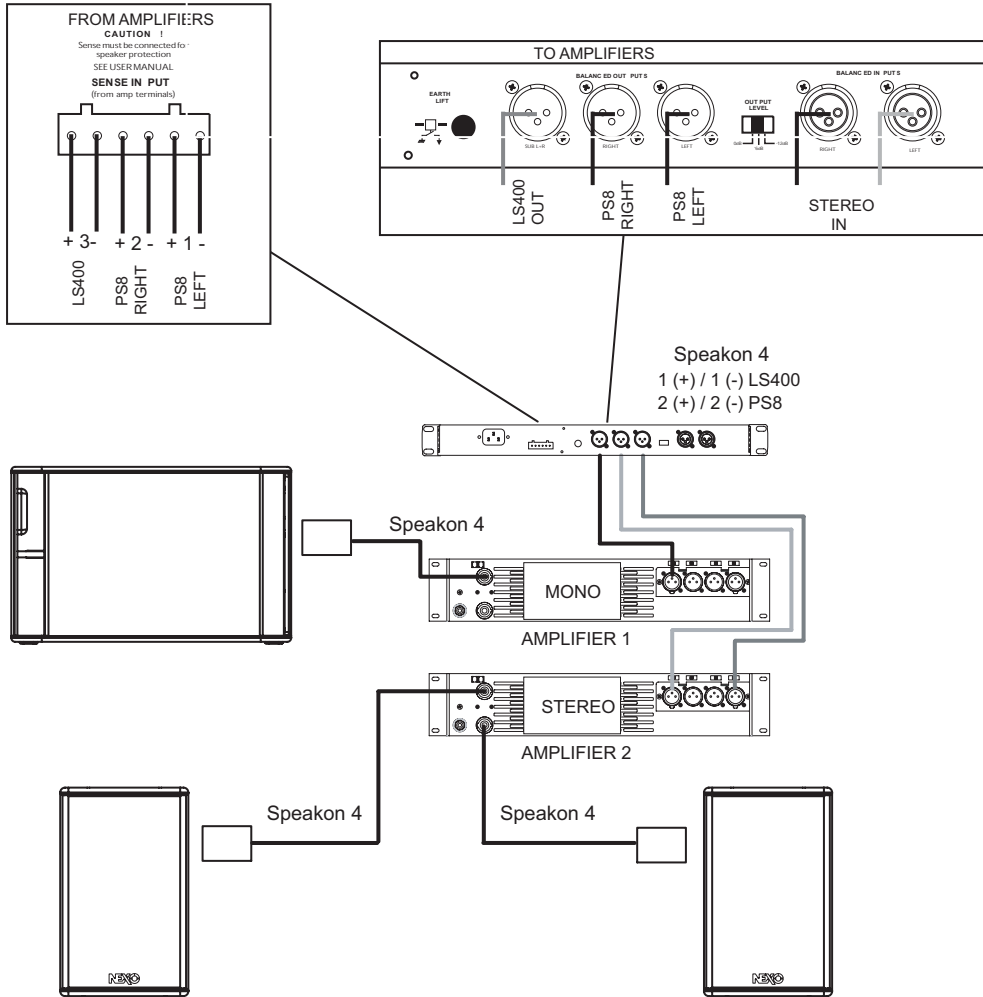
- standard, reproducing Analogue PS TDControllers parameters;
- NXStream setups, for FOH applications;
- MTR setups, for stage monitor applications.

Please consult [www.nexo-sa.com](http://www.nexo-sa.com) for setup list and upgrade releases.

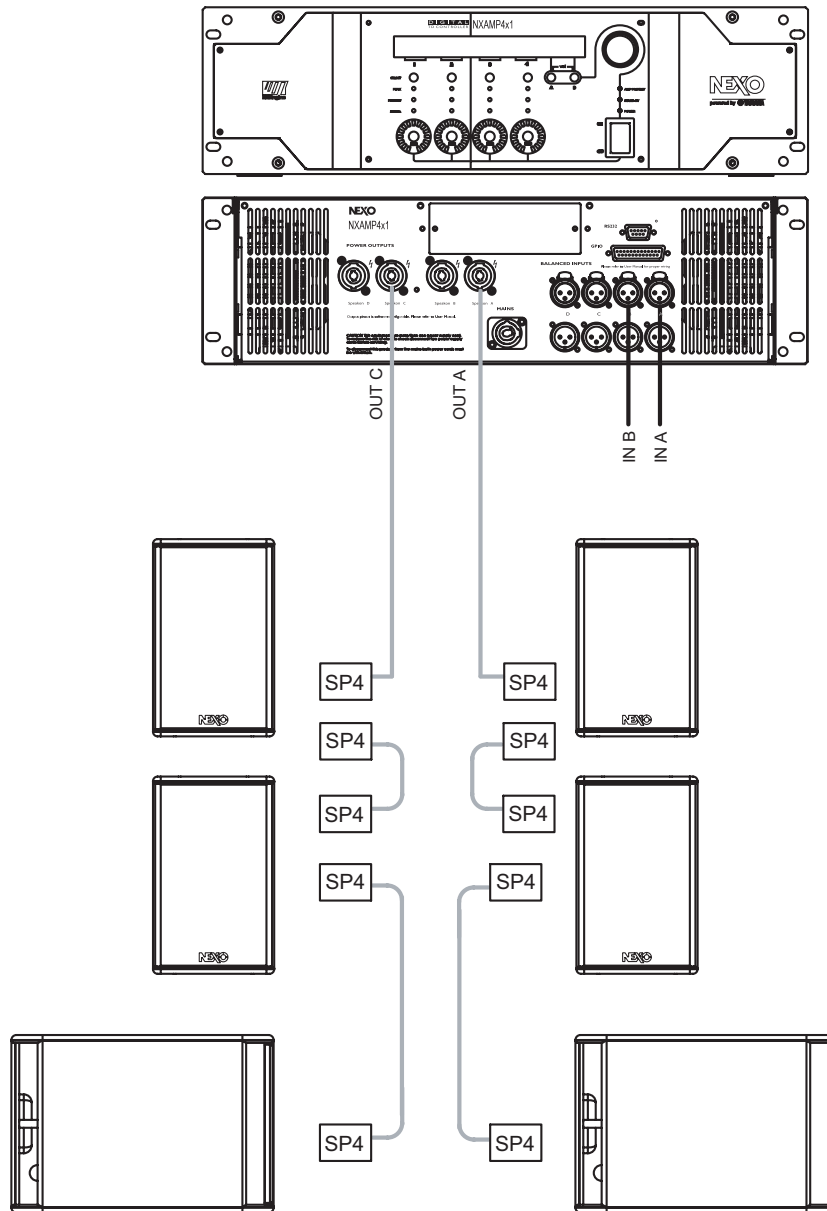


5 CONNECTION DIAGRAMS

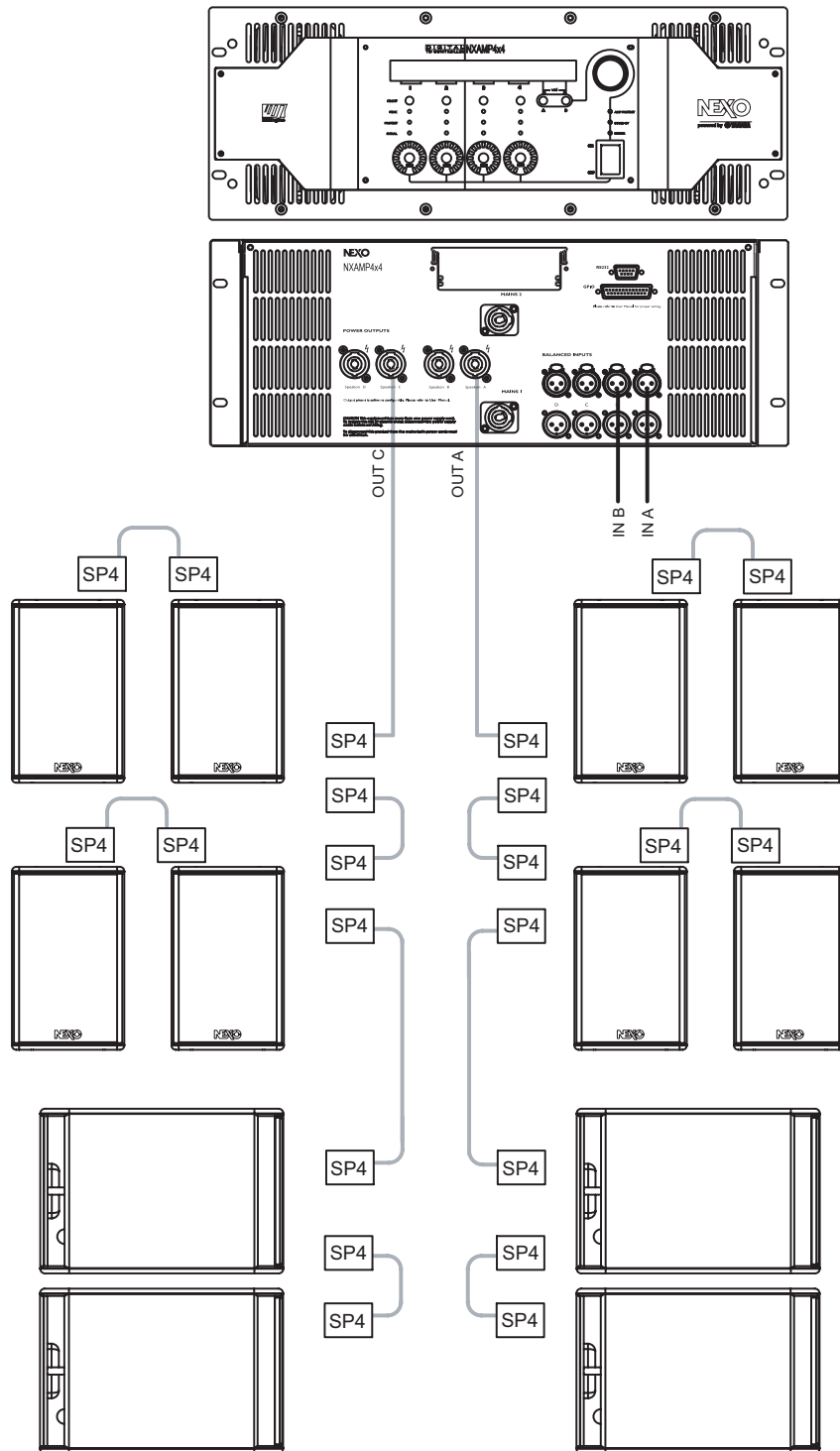
5.1 PS8 & LS400 with PS8 TDController



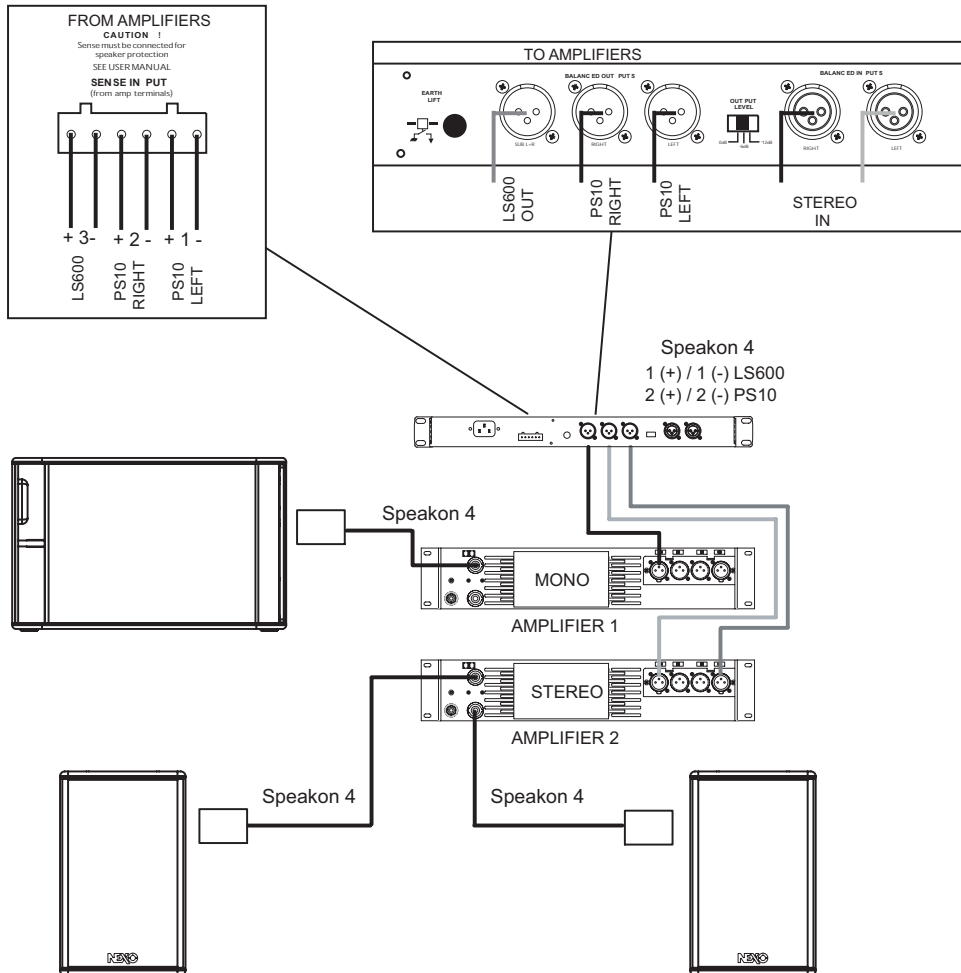
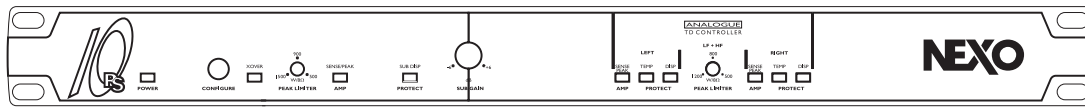
### 5.2 PS8 & LS400 with NXAMP4x1



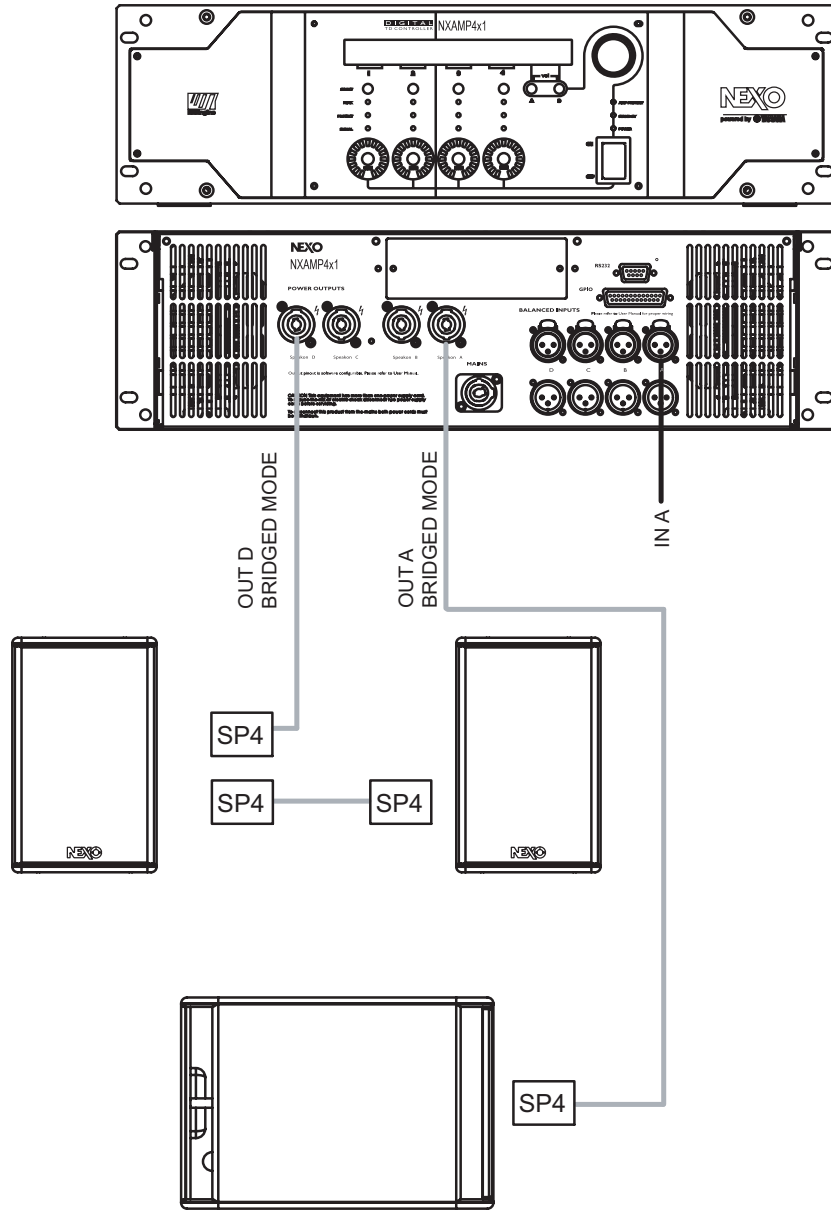
5.3 **PS8 & LS400 with NXAMP4x4**



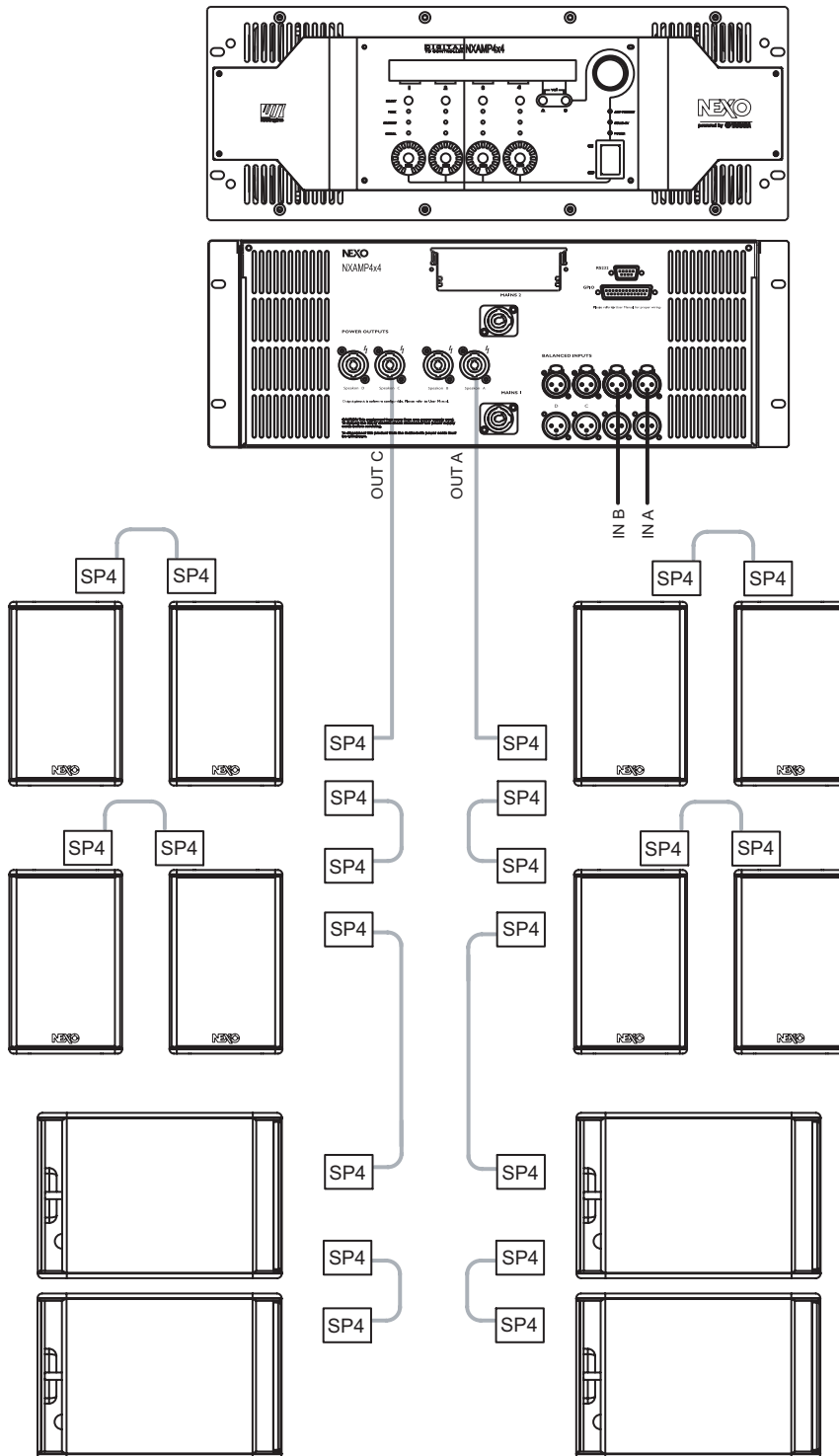
### 5.4 PS10 & LS600 with PS10 TDController



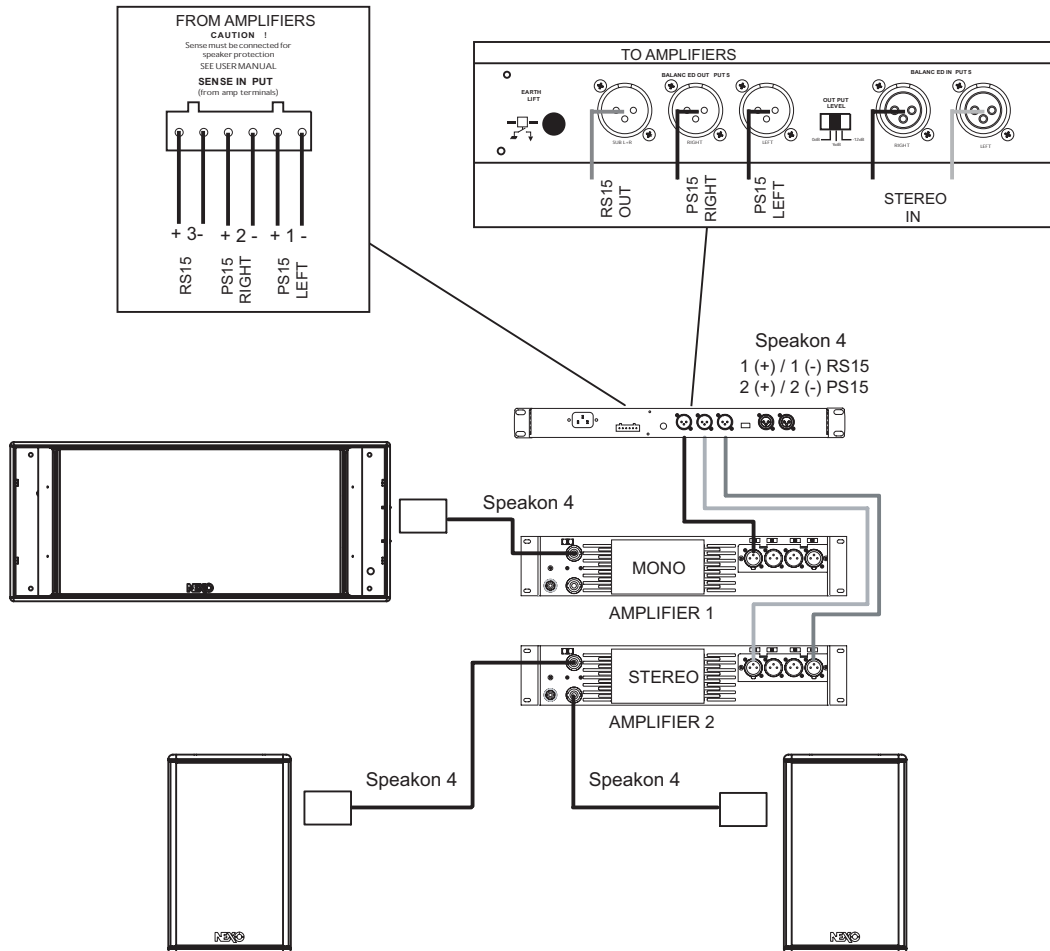
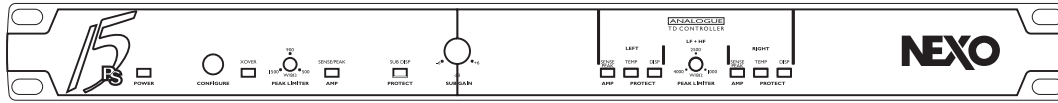
5.5 PS10 & LS600 with NXAMP4x1



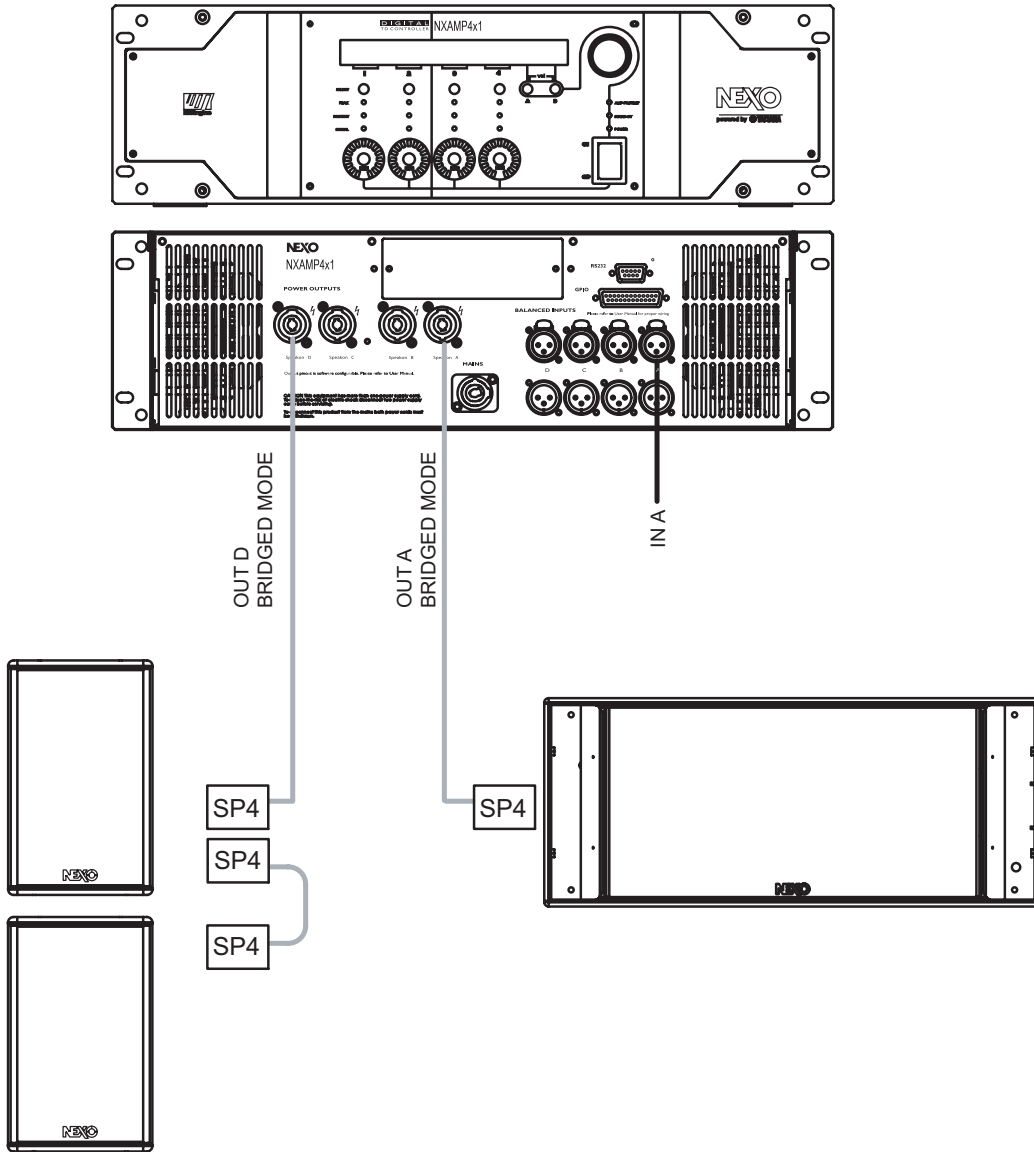
### 5.6 PS10 & LS600 with NXAMP4x4



### 5.7 PS15 Passive & RS15 Omni with PS15 TDController

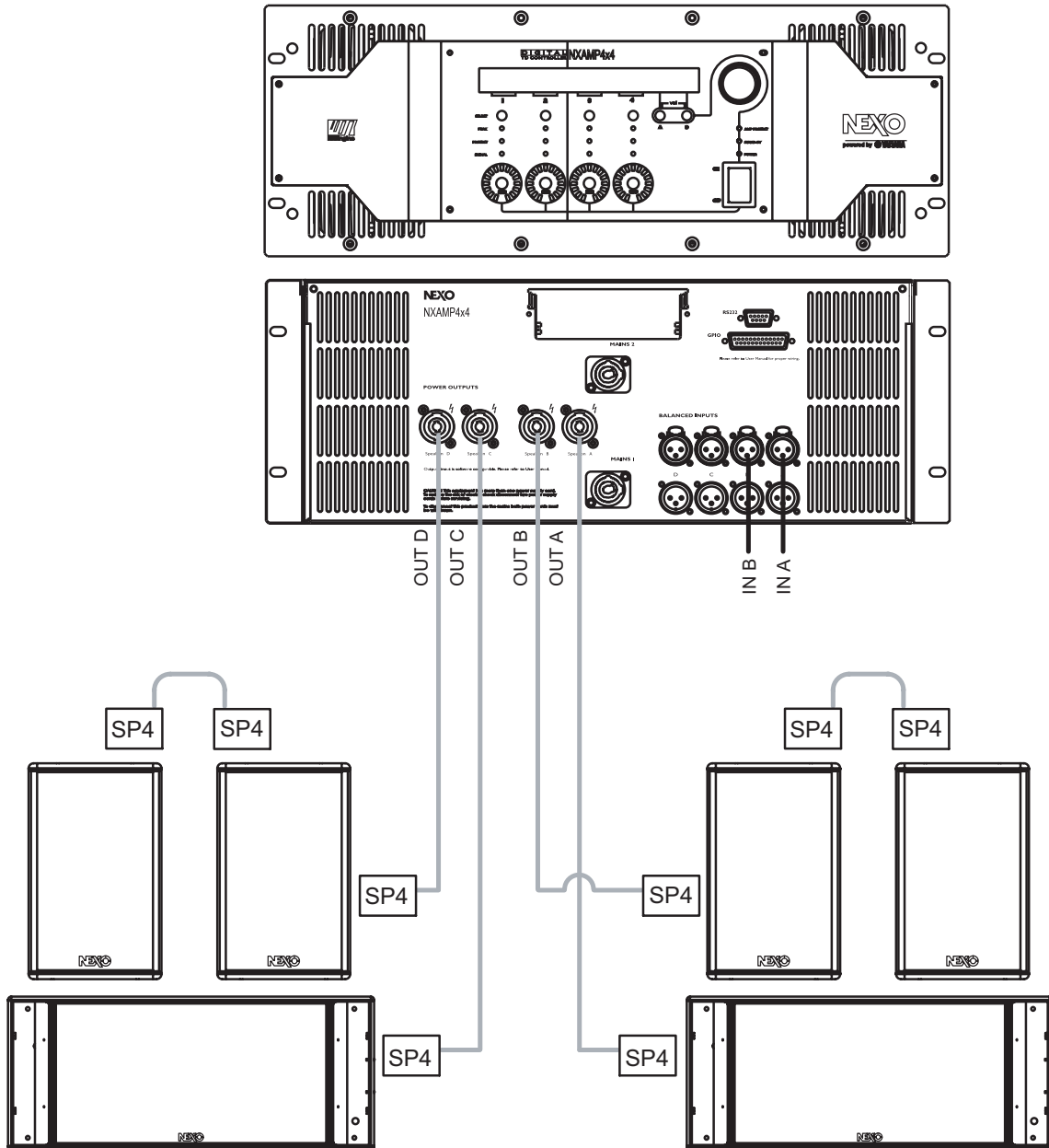


### 5.8 PS15 Passive & RS15 Omni with NXAMP4x1

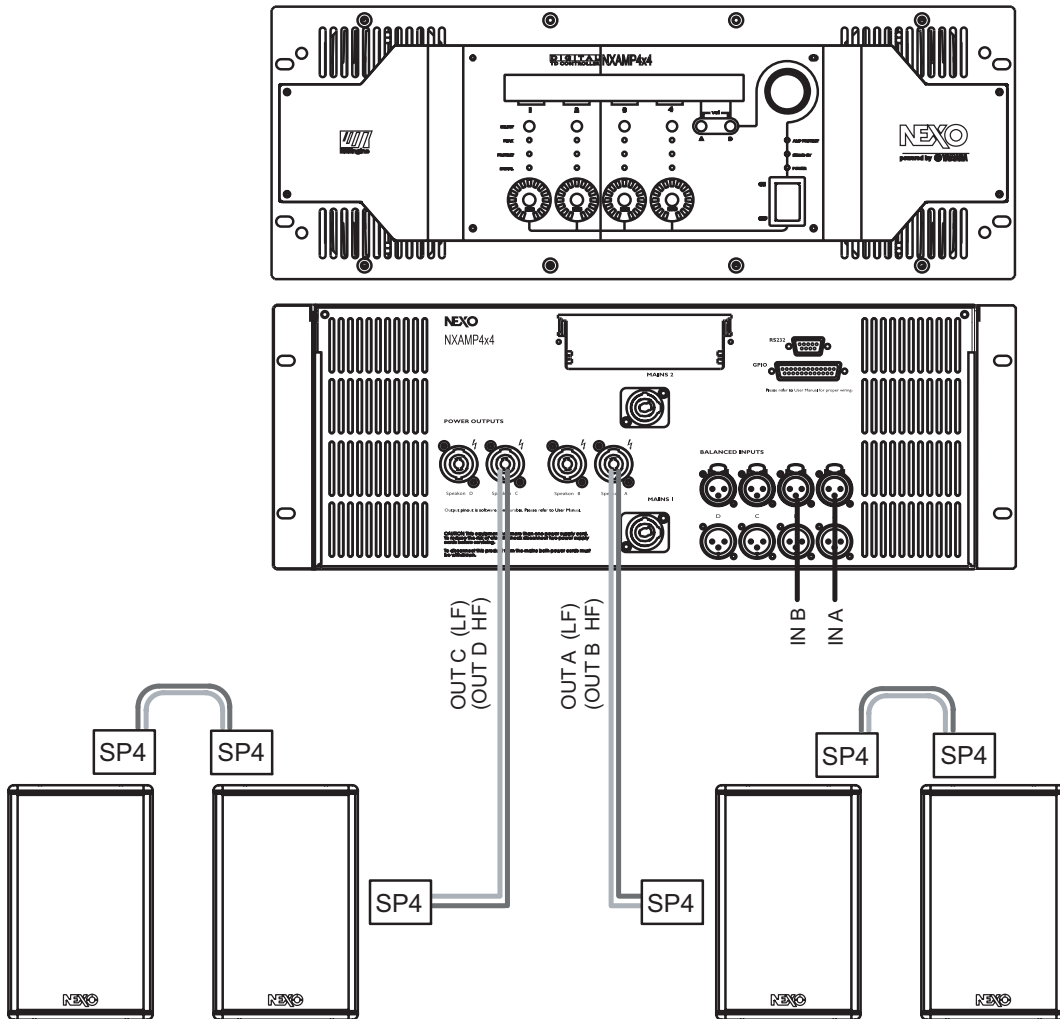




### 5.9 PS15 Passive & RS15 Omni with NXAMP4x4



### 5.10 PS15 Active with NXAMP4x4



## 6 CONFIGURABLE ASYMETRICAL HORN

### 6.1 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.

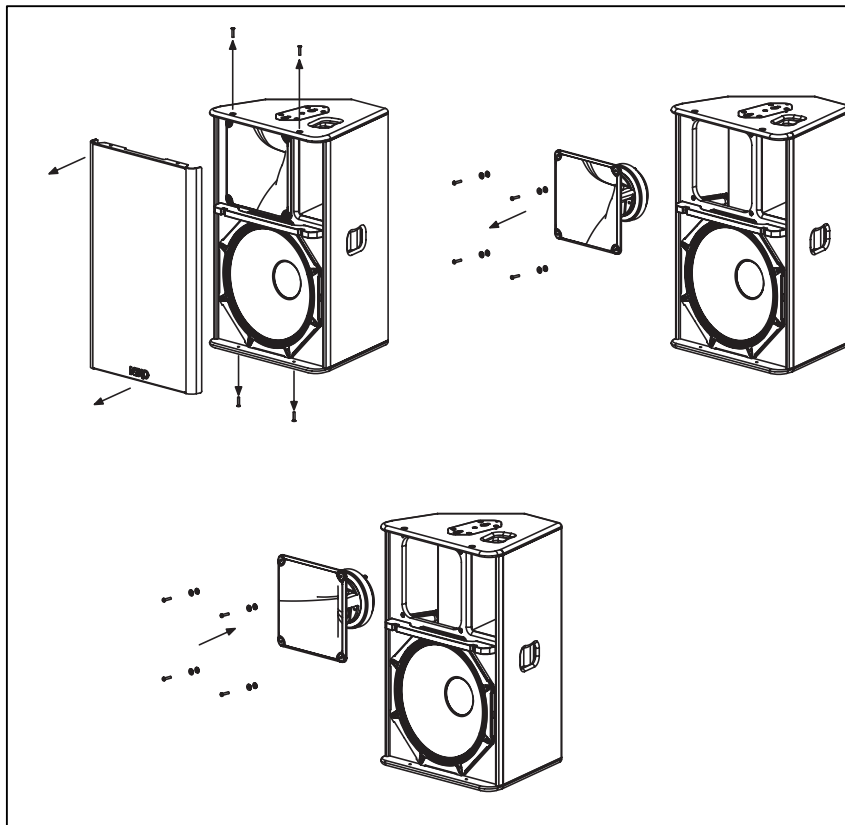
The proper configurations of the horn for two common applications are shown below. All 4 positions of the horn are possible and can be useful for specialized applications such as complex arrays, systems designed with CAD software and stage monitoring.

The specific dispersion of the PS8, PS10 & PS15 horn can be seen on figure 1 ("front of house" configuration):

- 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.

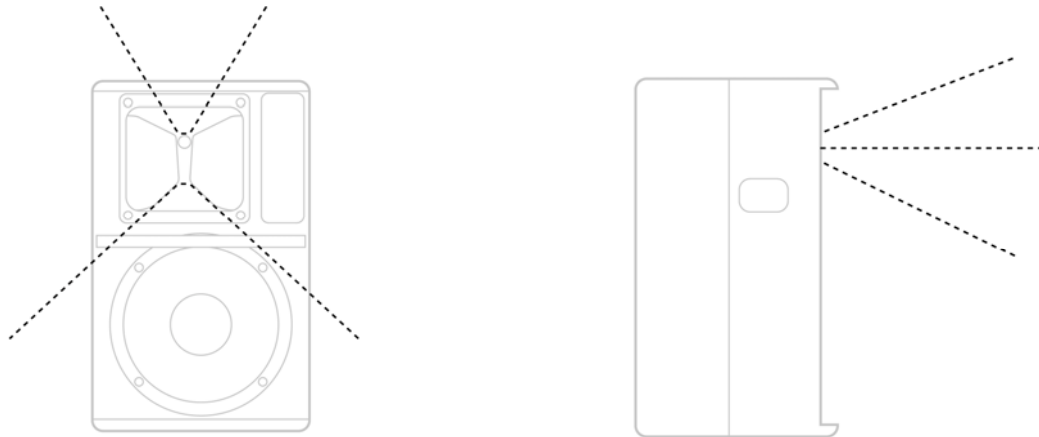
### 6.2 Change of configuration

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, see figure below). 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.



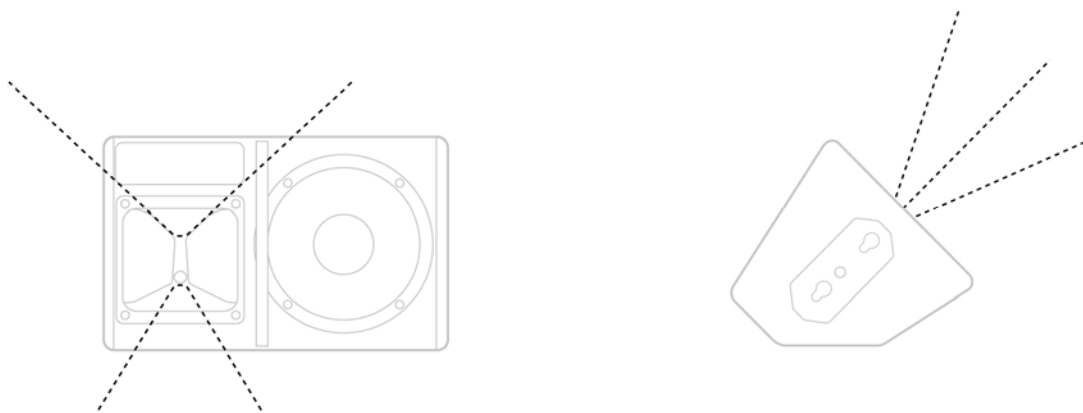
### 6.3 « Front of house » Configuration (default configuration)

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.



### 6.4 « 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. The specific dispersion pattern, the 2" driver and the very high power handling all contribute to the exceptional performance of the PS15 as a wedge monitor.



## 7 PS SERIES HARDWARE SETUP PROCEDURE

Before proceeding with installation of PS series, 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.

### 7.1 **SAFETY FIRST**

PS Series accessories structural computations and related documents are available at Nexo ([info@nexo.fr](mailto:info@nexo.fr)) upon request.

We include this section to remind you of safe practice when flying the PS Series. 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 Series accessory range is a professional precision tool set, and should be handled with extreme care. Only persons. Misuse of the these accessories could lead to dangerous consequences.

Used and maintained correctly, PS Series accessories will give many years of reliable service in portable systems. Please take the time to read and understand this manual. 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 PS Series accessories.
- 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 Series system always wear protective headwear, footwear and eye protection.
- Do not allow inexperienced persons to handle a PS Series 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 Series Rigging System are based on a 1/1.2 factor for hoist or motor acceleration).
- NEVER attach any item to the PS Series system other than the PS Series accessories.
- When flying outdoor systems ensure that the system is not exposed to excessive wind or snow loads and is protected from rainfall.

- The PS Series 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 Series components carefully to prevent damage in transit.

### 7.1.1 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 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 safety 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.

### 7.1.2 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:

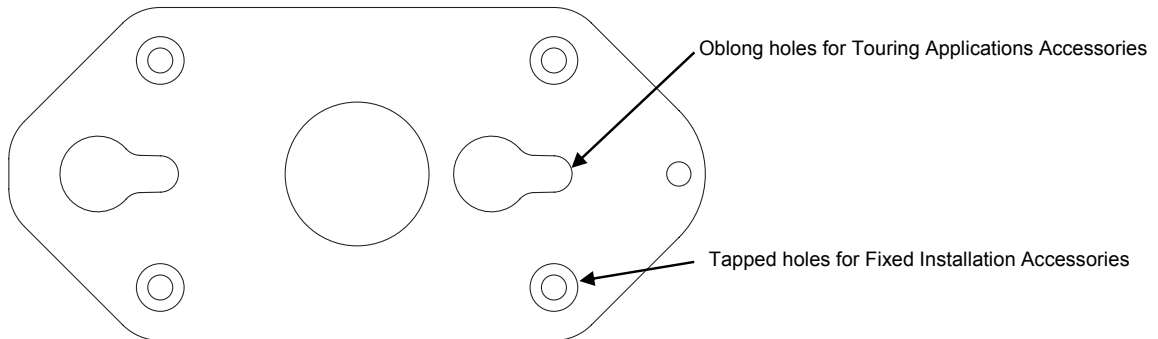
The Production Services Association  
(PSA),  
School Passage,  
Kingston-upon-Thames,  
KT1 SDU Surrey,  
ENGLAND  
Telephone: +44 (0) 181 392 0180

Rigstar Training and Testing Center  
82 Industrial Dr. Unit 4  
Northampton, Massachusetts 01060 U.S.A.  
Phone: 413-585-9869 -- Fax: 413-585-9872  
[school@rigstar.com](mailto:school@rigstar.com)

ESTA  
Entertainment Services & Technology Association  
875 Sixth Avenue, Suite 1005  
NEW YORK, NY 10001 USA  
Phone: 212-244-1505 – Fax: 212-244-1502  
[info@esta.org](mailto:info@esta.org) - [www.esta.org](http://www.esta.org)

## 7.2 General Description

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



PS10R2 AND PS15R2 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.

### 7.2.1 WARNINGS ON PS SERIES ACCESSORIES



#### WARNING 1T

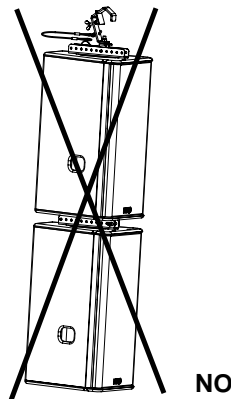
All PS Accessories are specifically rated in agreement with structural computations. Never use other accessories when installing PS Series cabinets than the ones provided by NEXO: NEXO will decline responsibility over the entire PS Series accessory range if any component is purchased from different supplier.



#### WARNING 2

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

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



## 7.3 PS Series in fixed installations

### 7.3.1 Fixed installation Accessories and kits

Accessories are:

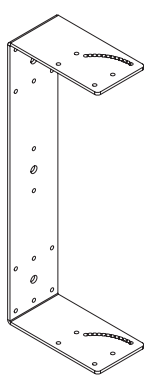
- “U” Bracket for PS8 (VNI-UBRK8)
- “U” Bracket for PS10R2 (VNI-UBRK10)
- “U” Bracket for PS15R2 (VNI-UBRK12)
- “L” Bracket for cable suspension for PS10R2 and PS15R2 (VNI-LBRK)
- Bracket for ceiling suspension for PS10R2 and PS15R2 (VNI-ABRK)
- Wall suspension system for PS8 and PS10R2 (VNI-WS10)
- Wall suspension system for PS15R2 (VNI-WS15)

Please refer to section 9.6 of this manual for more information of above references.

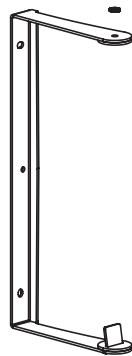
#### IMPORTANT

In order to prevent screws from getting loose in fixed installations, use blocking liquid LOCTITE™ 243 or equivalent for all screws used with PS Series fixed installation accessories.

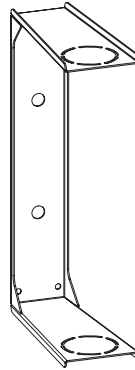
LOCTITE™ 243 is available at NEXO or at your local distributor upon request.



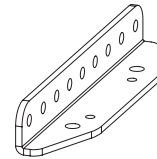
VNI-UBRK8



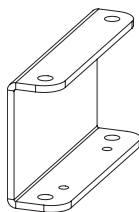
VNI-UBRK10



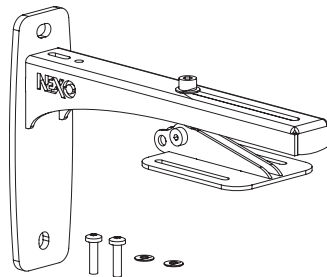
VNI-UBRK12



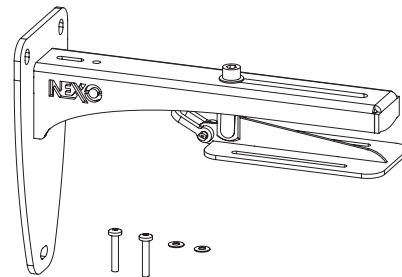
VNI-LBRK



VNI-ABRK



VNI-WS10



VNI-WS15



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

#### Required items

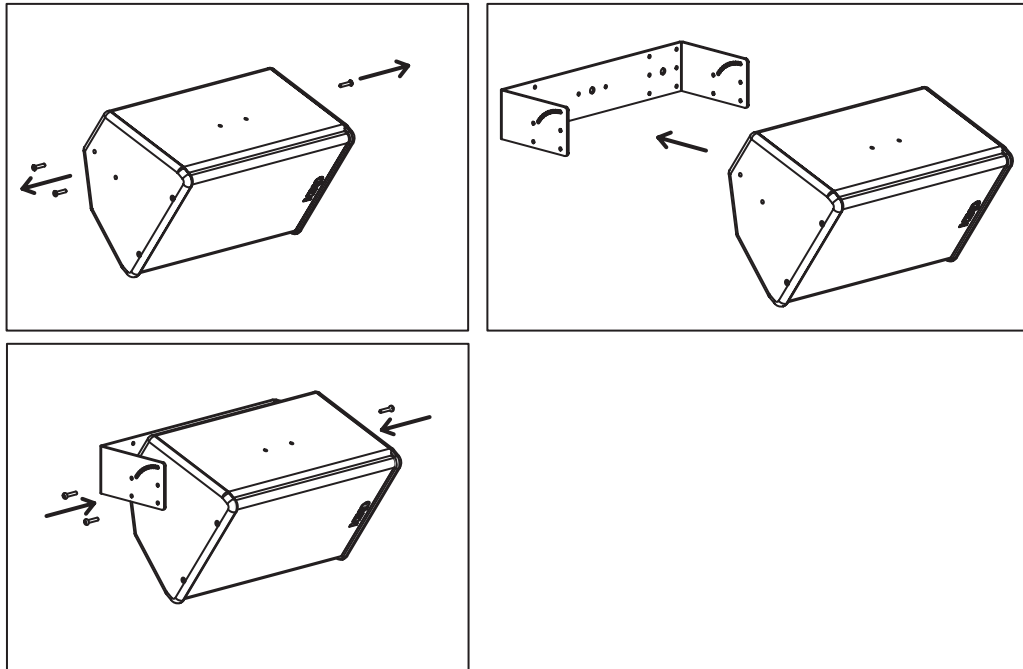
- 1 x VNI-UBRK (8 / 10 / 12) (allows all angles to be implemented)
- 4 x 12mm diameter screws (*not provided*)

#### IMPORTANT

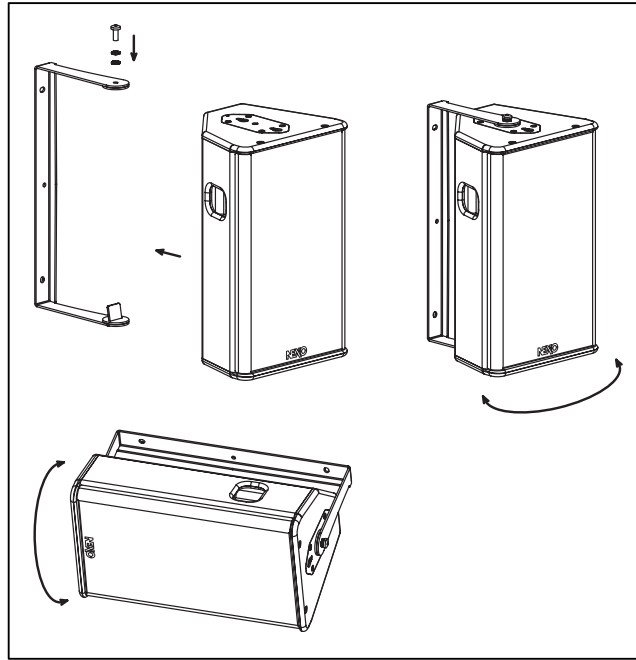
Ensure that the surface - wall or ceiling - is strong enough to hold PS cabinet weight and that the screws 12mm diameter and corresponding plugs required to fix the "U" bracket on the wall or under the ceiling are properly dimensioned.

#### Procedure

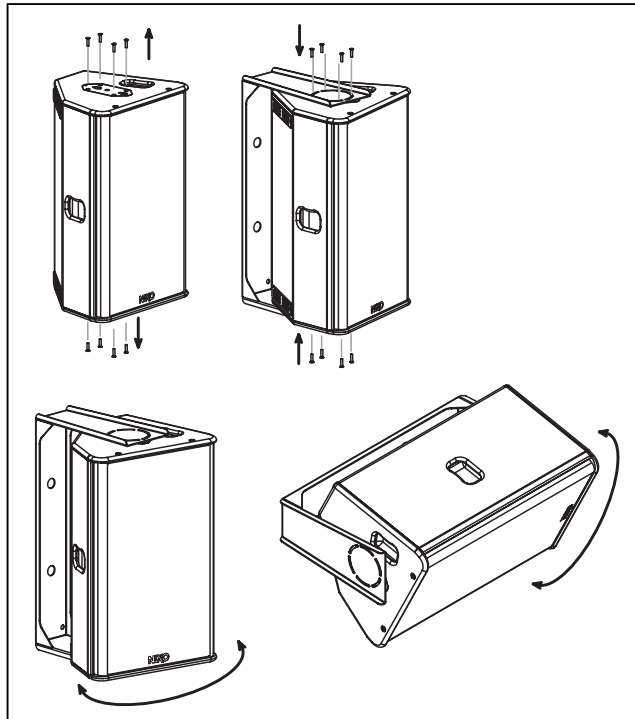
- 12mm diameter screws (not provided) are required to secure the "U" Bracket on the wall or ceiling;
- PS8: remove the two screws on each upper and lower side of PS8;
- PS15R2: remove the four TORX screws holding connector plates on both sides of PS15R2;
- Fill each screw hole with Loctite 243 or equivalent;
- 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*

### 7.3.3 PS10R2 and PS15R2 mounted on a ceiling (vertical or horizontal)

#### Required items

##### Ceiling Cable suspension:

- 1 or 2 x VNI-LBRK (holes for cable suspension are 10mm diameter);
- 2 or 4 slings and corresponding shackles (not provided)

##### Ceiling Rigid suspension

- 1 VNI-ABRK

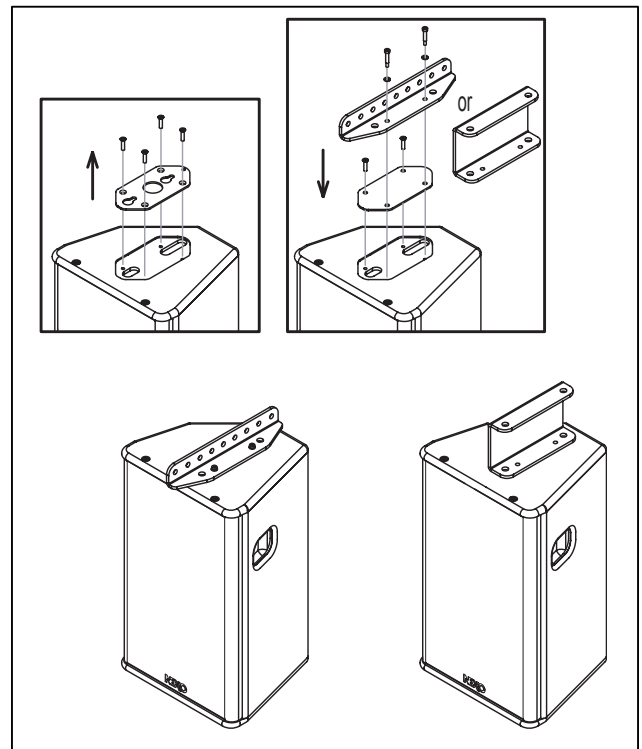
#### **IMPORTANT**

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

#### Procedure

##### Vertical (PS10R2 and PS15R2)

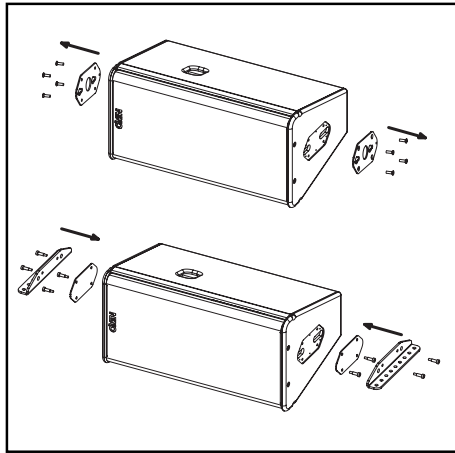
- Remove the four TORX screws holding connector plate on upper side of PS;
- Remove the connector plate from PS cabinet;
- Fill each screw hole with Locktite 243 or equivalent;
- Position external plate from VNI-LBRK kit or VNI-ABRK kit and secure it using the 2 of the 4 shoulder screws supplied with 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 cable suspension under the ceiling;



CABLE SUSPENSION MOUNTING PROCEDURE 2

Horizontal (PS15R2 only)

- Remove the four TORX screws holding connector plates on both side of PS15R2;
- Remove the connector plates from PS15R2;
- Fill each screw hole with Locktite 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 cluster under the ceiling;



CABLE SUSPENSION MOUNTING PROCEDURE FOR PS15R2

7.3.4 PS10R2 and PD15R2 wall suspension (vertical or horizontal)**Required item**Vertical

- 1 VNI-WS10 for PS10R2
- 1 VNI-WS15 for PS15R2
- 4 x 12mm diameter screws (*not provided*)

Horizontal

- 1 VNI-WS10 and 1 VNI-UBRK10 for PS10R2
- 1 VNI-WS15 and 1 VNI-UBRK12 for PS15R2
- 4 x 12mm diameter screws (*not provided*)

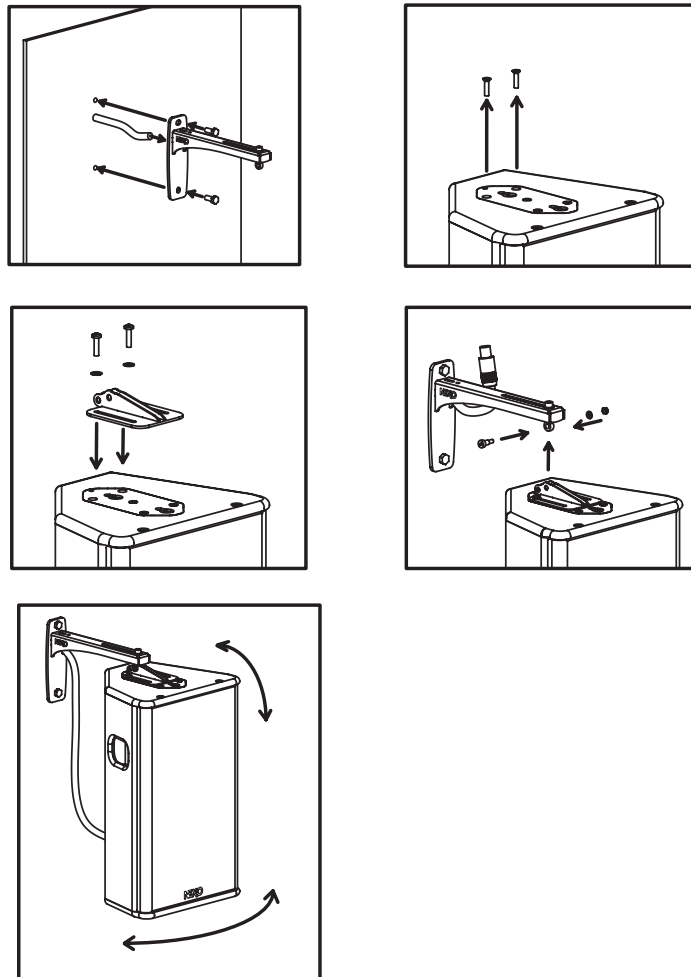
**IMPORTANT**

Ensure that the wall is strong enough to hold PS cabinet weight and that the screws 12mm diameter and corresponding plugs required to fix the VNI-WS on the wall are properly dimensioned.

## Procedure

### Vertical

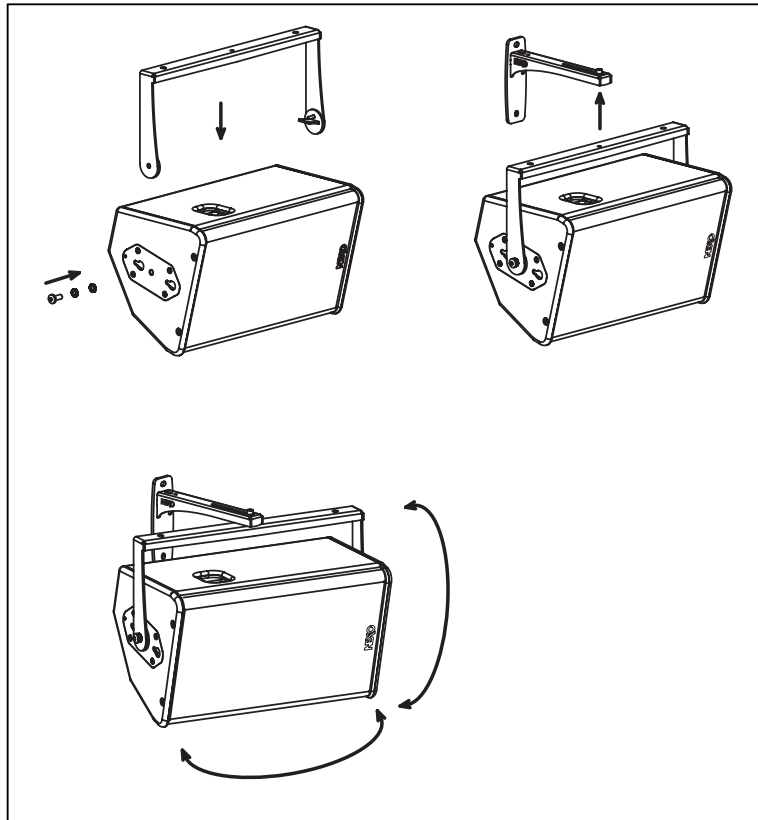
- 12mm diameter screws (not provided) are required to secure the wall suspension plate on the wall;
- Remove the 2 rear TORX screws holding connector plates on both sides of PS10R2 or PS15R2;
- Fill each screw hole with Locktite 243 or equivalent;
- Connect the suspension plate to the connector plate by using the screws provided with the VNI-WS kit;
- Position the screws in the oblong hole so that required vertical angle is obtained;
- Secure the screws;
- Suspend and secure the cabinet to the wall suspension;
- Adjust horizontal angle.



WALL SUSPENSION PROCEDURE FOR VERTICAL INSTALLATION

### Horizontal

- Install the “U” bracket as described in preceding section
- 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*

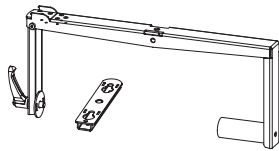
## 7.4 **PS Series in touring applications**

### 7.4.1 Touring Accessories

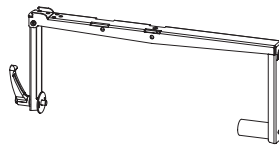
Accessories are :

- « U » bracket for horizontal suspension of PS8 (VNT-SSBRK8);
- “Flying Adaptor for PS8 (VNT-ADPT)
- « U » bracket for horizontal suspension of PS10R2 (VNT-SSBRK10);
- « U » bracket for horizontal suspension of PS15R2 (VNT-SSBRK15);
- Flying Rail for vertical suspension of PS (VNT-TTC)
- Lifting Ring for VNT-SSBRKs or VNT-TTC (VNT- -XHBRK)
- Truss hook for VNT-SSBRK or VNT-TTC (VNT-TCBRK)

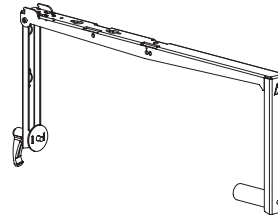
Please refer to section 9.5 of this manual for more informations of above references.



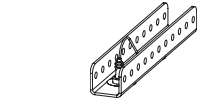
VNT-UBRK8 & VNT-ADPT



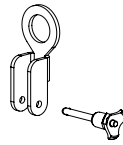
VNT-UBRK10



VNT-UBRK15



VNT-TTC



VNT--XHBRK



VNT-TCBR

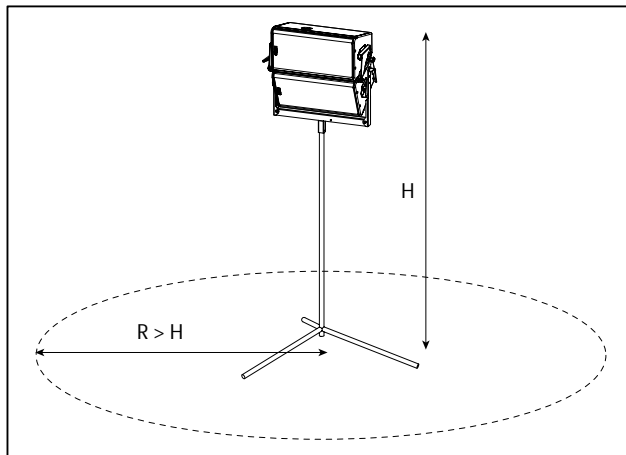
### 7.4.2 PS on speaker stand or on RS15 horizontally

#### Required items

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

#### IMPORTANT (SPEAKER STAND)

- Speaker stand must be rated for PS cabinet weight;
- Speaker stand must always be installed on a horizontal surface;
- Stand height and footprint must be defined to prevent assembly from collapsing;
- Ensure that audience is not allowed within a safety area which radius is equal or higher than assembly height.



#### Procedure

- Lift PS on speaker stand or on RS15 with STDPS pole stand;
- Ensure that all screws are properly tight;
- Test steadiness of the assembly by pushing in all directions



### 7.4.3 PS flown vertically

#### Required items

- 1 x Flying Bar for PS Series (VNT-TTC)
- PS8: flying adaptor for PS8 (VNT-ADPT)
- 1 x Lifting Ring and 1 ball-lock 8x45 (VNT-XHBRK & BL845, included)
- Or 1 x Truss hook and 1 ball-lock 8x45 (VNT-TCBRK & BL845, included)

#### IMPORTANT

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

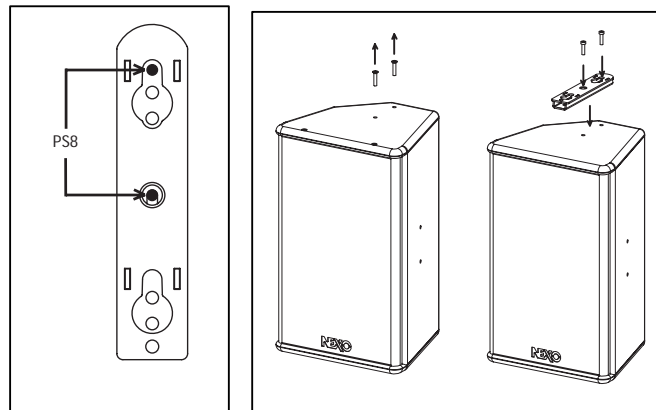
#### Procedure

##### PS8:

- install the flying adaptor by removing the two screws on the upper panel, and securing the flying adaptor 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

#### All PS series cabinets:

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

#### IMPORTANT

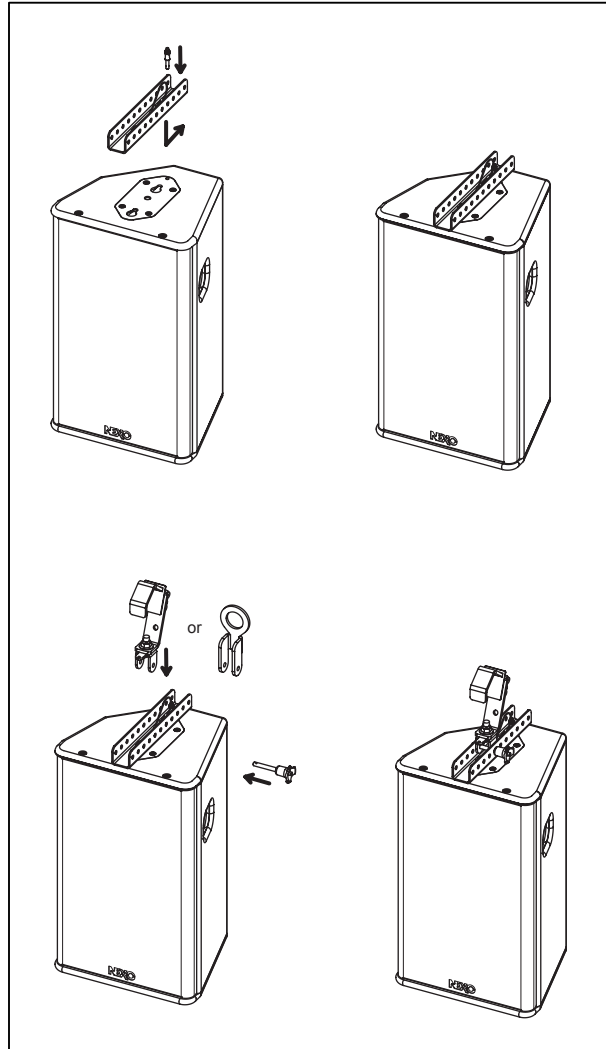
Ensure that safety pin is properly locked into PS connecting panel or adaptor.

#### 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*

#### 7.4.4 PS flown horizontally

##### Required items

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

##### IMPORTANT

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

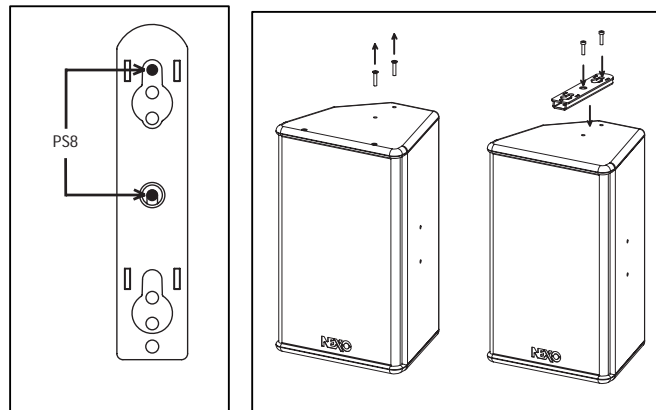
##### Procedure

##### PS8:

- install the flying adaptor by removing the two screws on the upper panel, and securing the flying adaptor 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

##### All PS series cabinets:

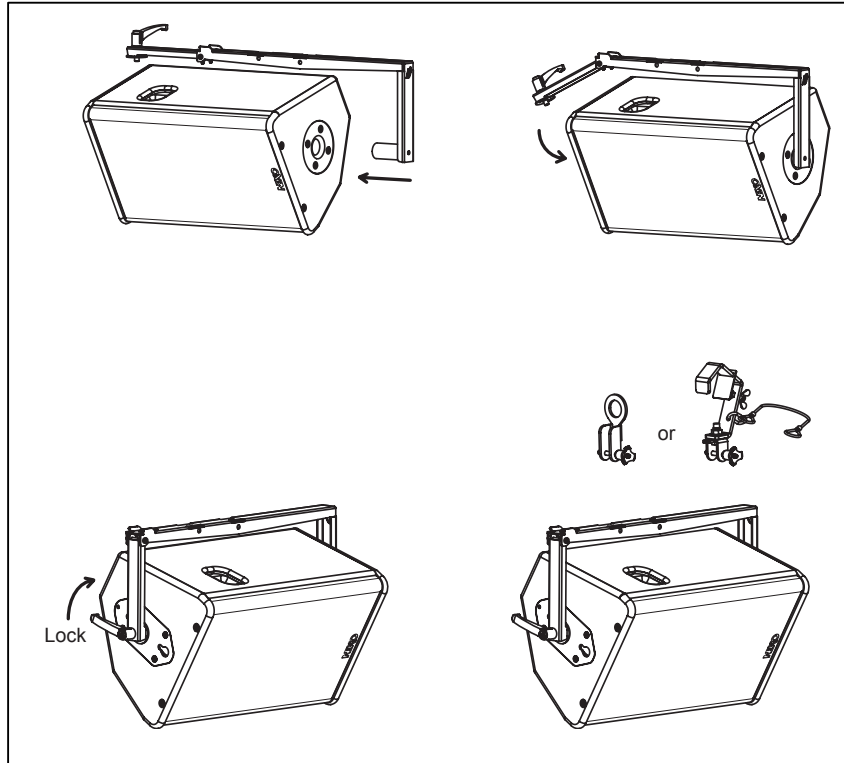
- Insert male pole side of bracket into PS cabinet;
- Fold the opposite bar of the bracket until it is locked at 90° (a “click” from the locker will ensure proper locking);
- Rotate the lever into the connecting panel until it is properly secured;

##### 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

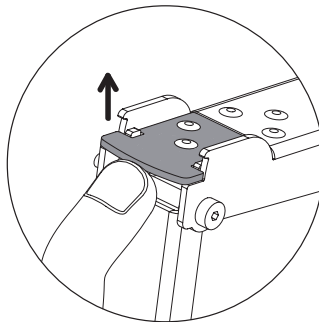
- Connect truss hook VNT-TCBRK to “U” bracket by inserting 8x45 quick release pin in dedicated holes;
- Ensure truss hook is properly locked to “U” bracket;
- Lift and position assembly, lock hook on truss suspension point and secure with hook cable.



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

## **7.5 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 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.
  - c) The screws attaching the directivity flanges to the front of 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 PS accessories 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.

## 8 NEXO ANALOGUE PSTD CONTROLLERS

### 8.1 Analogue TDcontroller Declaration of conformity

This equipment has been tested and found to comply with the safety objectives and essential requirements of European (73/23/EEC and 89/336/EEC directives) and international Standards, by fulfilling the requirements of the following harmonized standards:

Electrical Safety (EU) : IEC 60065 (12/2001) Audio, video and similar electronic apparatus

Electrical Safety (US) : UL60065 Seventh Edition, dated June 30, 2003 category AZSQ, E241312.

Electrical Safety (CAN) : CSA-C22.2 N°60065:03 Edition, dated April 2003 category AZSQ7, E241312

Electrical Safety (Rest of the World) : CB test certificate DK-8371 based on IEC60065-2001 7nd ed. with all national deviations.

Radiated Emission (EU) : EN55103-1 (1996) Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use.

Radiated Emission (US) : FFC part15 class B

Radiated Emission (CAN) : This Class B digital apparatus complies with Canadian ICES-003.

RF Immunity (EU) : EN55103-2 (1996) Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use.

**Note:** EMC conformance testing is based on the use of recommended cable types. The use of other cable types may degrade EMC performances.



### 8.2 IMPORTANT SAFETY INSTRUCTIONS

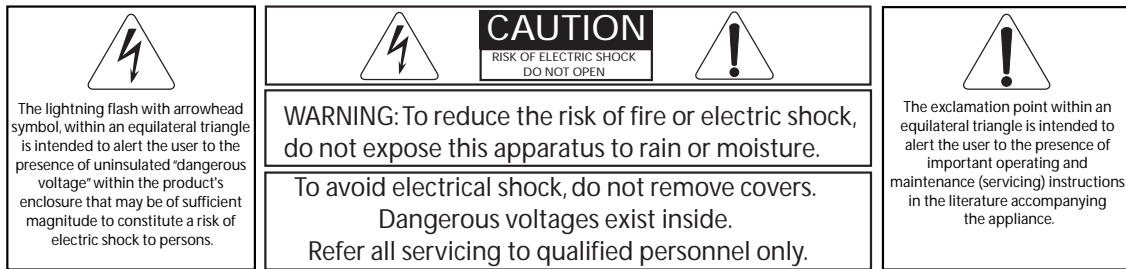
- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet. (US market)
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

#### **Information about products that generate electrical noise :**

NOTE: The United States Federal Communications Commission (in 47 CFR 15.105) has specified that the following notice be brought to the attention of users of this product:

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

- Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- The user may find the following booklet, prepared by the Federal Communications Commission, helpful: How to identify and Resolve Radio/TV Interference Problems. This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4. Use of a shielded cable is required to comply within Class B limits of Part 15 of FCC Rules. Pursuant to Part 15.21 of the FCC Rules, any changes or modifications to this equipment not expressly approved by NEXO S.A. may cause, harmful interference and void the FCC authorization to operate this equipment.



**WARNING ! THIS APPLIANCE CLASS 1 APPARATUS AND MUST BE EATHED.**



The green and yellow wire of the mains cord must always be connected to an installation safety earth or ground. The earth is essential for personal safety as well as the correct operation of the system, and is internally connected to all exposed metal surfaces. Additional recommendation for interconnection to other equipment can be found in the "Analogue TDcontroller Setting-Up Advice" section.

### 8.3 Analogue TDcontroller Setting-Up Advice

#### 8.3.1 Mains Power

NEXO TDcontrollers don't provide a mean to switch off the unit from the front panel. As they are intended to be rack mounted the back panel is not accessible during use. Therefore it is left to the user to provide a disconnection mean readily operable.

#### 8.3.2 Voltage setting

NEXO TDcontrollers use a switch mode power supply (SMS12). This SMS12 accepts universal AC power input voltages in the range 90V to 264V, and requires no manual adjustment for voltages in this range.

#### 8.3.3 Mounting the TDcontroller in a rack (Grounding, shielding & safety issues)

The TDcontroller is intended for rack mounting. The only accessible part during use shall be the front panel of the TDcontroller. Any space above or under the TDcontroller shall be obstructed with a blank panel.

The rack is a free grounding and shielding structure and it provides extra shielding. Therefore, it is desirable that the screws used to fix the TDcontroller in the frame or rack provide an electrical contact between the chassis of the TDcontroller and the rack.

The primary reason for grounding is safety. Conformance to the applicable requirements of the authorities having jurisdiction is, of course, mandatory. However, grounding also has an impact on electromagnetic compatibility. From the EMC point of view, it is desirable to have a low impedance ground network, as a current flowing in the ground network will then produce low voltage in the network. A low impedance network can be obtained using a multipoint ground scheme, with as many closed ground loops as is economically possible.

#### 8.3.4 Fuse



The fuse provided in the unit will not blow during normal operation. If the fuse blows the TDcontroller has malfunctioned. This fuse must only be changed by NEXO certified service personnel. In any case do not replace the fuse with a non-certified NEXO fuse, as this will invalidate the NEXO warranty.

**CAUTION!**

This servicing instruction is for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

### 8.3.5 Recommendations for wiring the sense lines

The impedance of the sense inputs of the TDcontroller are high, so currents are low and therefore light duty cable can be used. If the TDcontroller is housed in the amplifier racks an unshielded cable may be used.

If the TDcontroller is located remotely - at the mixing position - a shielded cable is recommended, without using the shield as a conductor. The cable must be well protected from public access, as it carries potentially dangerous amplifier voltage.

When one of the channels is not being used and the corresponding sense line is disconnected, cross talk onto the inactive sense line may in some cases produce signals capable of causing the inadvertent illumination of the Sense LED on that channel; although this has no effect on the internal operation of the TDcontroller, it can be cured by short-circuiting the terminals of the inactive sense line.

### 8.3.6 Recommendations for wiring the audio outputs

The output stages can drive several amplifiers in parallel; however it is not advisable to work with loads of less than 1kOhm (and strictly forbidden to drive less than 600Ohms). It is best to check the impedance characteristics of the amplifier inputs - supplied by the manufacturer - to check how many amplifier channels can be paralleled. Where precise information is not available (and taking 10kOhm as the minimum value possible), ten channels in parallel per output is a sensible maximum.

### 8.3.7 Electromagnetic environments

The emission (this word describes all types of electromagnetic noise radiated by the equipment) requirements which have been applied to Nexo's TDcontrollers are the stringent requirements of the "Commercial and light industrial environment" of the product family EMC standard for emission.

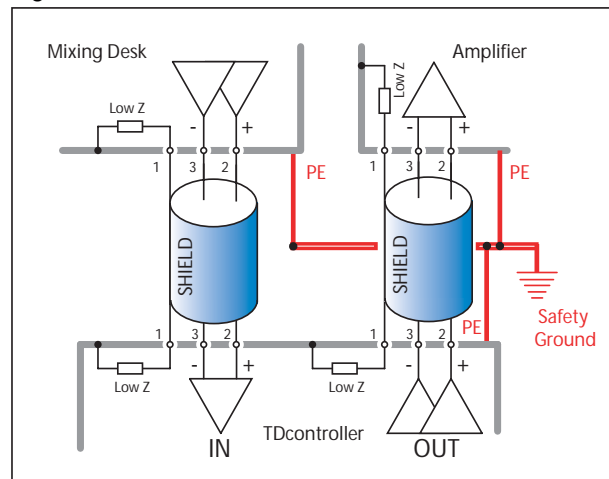
The immunity (this word describes the ability to cope with electromagnetic disturbance generated by other items and natural phenomena) requirements that we have considered exceed those applicable to the "Commercial and light industrial environment" of the product family EMC standard for immunity. In order to provide a further safety margin, we recommend that you do not operate the TDcontrollers in the presence of electromagnetic interference exceeding half of the limits found in this standard.

These two EMC standards are those applicable to pro-audio equipment for the implementation of the "EMC directive".

### 8.3.8 Analogue signal cables

Analogue signals should be connected to the input and output ports of the TDcontroller via shielded twisted pair or starquad cable fitted with XLR connectors on the TDcontroller side. We recommend the use of low transfer impedance cables with a braided shield and a transfer impedance below 10 mΩ/m. For the sense inputs, the noise requirements are not as stringent, and any kind of twisted pair cable will be adequate.

The TDcontroller is intended to be used with symmetrical (balanced) sources (for instance a mixer) and symmetrical loads (for instance a power amplifier (see figure)). You can see that the TDcontroller provides a low impedance path between pin 1 of its XLR connectors and its chassis. The TDcontroller can sustain high current in pin 1 without



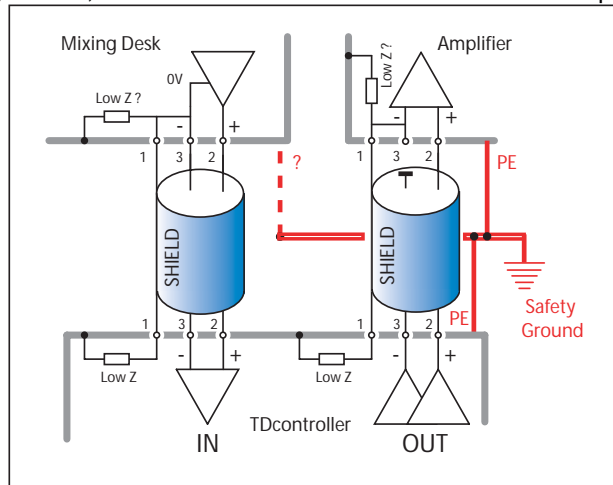


degradation of output noise. We recommend that the sources and loads you use have the same desirable characteristics.

It is sometimes claimed that connecting cable shield at both ends creates ground loop, and that the current flowing in such loop will produce noise. This is not the case for most professional audio equipment. In short, there are two kinds of loop in which voltages are present: the loop formed by signal wires, and the loop formed by grounded conductors, among which are protective earth conductors (PE) and signal cable shields.

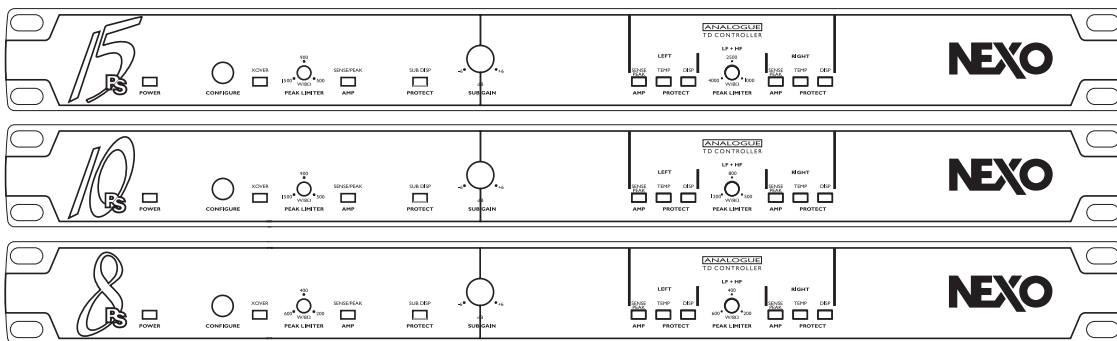
When a cable shield is grounded at both ends, a loop is closed, and the resulting current causes a reduction of the voltage induced on signal lines. This effect is what the cable shield is intended to produce, since this is how it protects your signal from magnetic fields.

If you are using an asymmetrical (unbalanced) source, it is recommended to use a shielded twisted pair and to connect wire 3 of the cable to the shield at the source output end (see figure). This technique prevents noise currents flowing on the return path of the signal. If you are using an amplifier with an asymmetrical (unbalanced) input, it is best to use a shielded twisted pair, and to connect wire 3 at the TDcontroller end only, as shown in Fig. 2. This keeps a good capacitance balance for the signal, however noise currents flow on the return path of the signal. (Note that this is only acceptable for a short cable).



If you are using a symmetrical (balanced) source or amplifier which is prone to become noisy when a current of less than 100 mA at the mains frequency (50 Hz or 60 Hz) is sourced into pin 1 of its XLR connectors, you might consider opening the ground loop.

### 8.4 Analogue TDcontroller USER GUIDE



### 8.4.1 Read before use

The Analogue TDcontroller is designed to be used with its proper set of speaker cabinet. They are not interchangeable. Its main functions are:

- To optimize the response of the system
- When operating with the SubBass system (optional), splitting the stereo (2 channel) signal into 2 frequency bands (PS and dedicated SubBass system)
- Active protection of the cabinets by dynamic audio signal processing (Temperature and Displacement servo control)
- Reduction of amplifier overload (Peak limiter function)

Analogue TDcontrollers also feature:

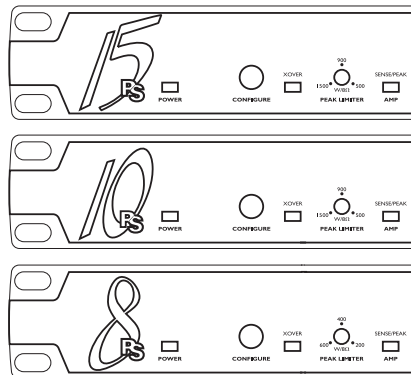
- Stereo operation (2 independent channels) for the main system
- Global switchable output level
- Adjustable level on the SubBass channel
- High CMRR input stage and High current drive output
- Compensation of power compression effects on the system response curve.

The Analogue TDcontroller is designed to be inserted between the Audio source (console, preamplifier, etc.) and the power amplifier.

### 8.4.2 Front Panel

Most front panel functions and indicators are located inside 2 distinct windows: left-hand areas relate to functions and indicators dedicated to the optional Sub-bass section, while right-hand window contains indicators concerning servo control operation for the S12 cabinets. For more technical details about servo control operation and internal electronic processing, please refer to section "TDcontroller REFERENCE GUIDE." Page 53.

#### Turning the LS channel Overlap / Crossover

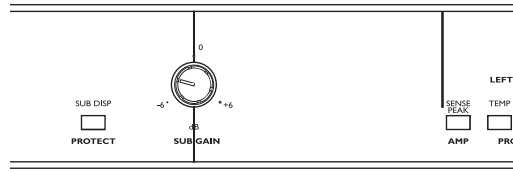


Pushing the CONFIGURE button modifies the high pass filtering. It does not affect the sub output, which will always be a filtered sub signal. (This is therefore not a Sub on/off button). In the « Overlap » position, PS is exploited to its maximum capability.

This position should be used if the system is being used without a Subbass. It can also be used with the Subbass; In this case, there will be a boost in the crossover area. The « Cross over » position is generally recommended when using the Subbass.

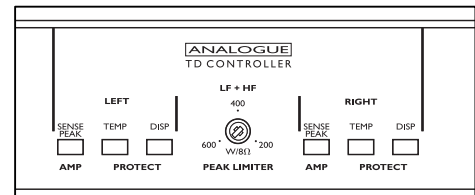
### Adjusting the Subbass level (Sub Level)

The potentiometer adjusts the level of the Subbass channel, a range of 12 dB allows a variety of configurations and application conditions to be accommodated. Center position of the knob is calibrated for 1 Subbass used with 2 distant S12.



### Amplifier & Protection indicator

The bicolor green/red AMP LED indicates signal presence at the sense input of the concerned channel, allowing visual confirmation of the return connection of the Sense cables from the amplifier output. The LED is flashing red, when the Peak limiter is acting, reducing excessive peak voltage or levels capable of overloading the channel amplifier.



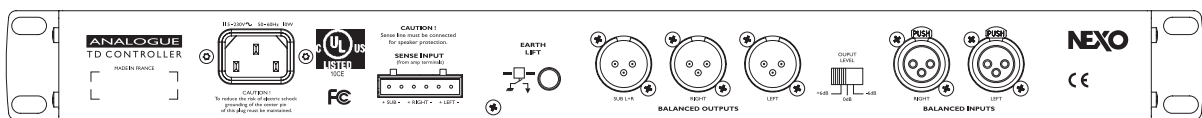
- The yellow VLF LED indicates that displacement protection for the Subbass are engaged on the SubBass channel. The temperature protection is not monitored.
- On each side of the PS main system window, yellow TEMP and DISP LEDs indicate when protection has been activated (temperature or displacement control) for the LF (the HF drivers temperature protection is not monitored).

### Peak Limiter adjustments

The Analogue TDcontroller features two independent peak limiter trims (one for the SubBass amplifier section, one for the PS amplifier section), which allows the peak limiter to be set to limit the maximum power of the amp (without affecting the protections threshold). The peak limiter has no real cabinet protection functions; it must be tuned to avoid overdriving the amp that in turn can generate obvious clipping noise.

To set the peak limiter to the correct value, either turn the trimmer clockwise until the red LED lights at the same time as the amp's clipping LED, or use the graduation (power value given for 8Ωload).

### 8.4.3 Rear Panel



### Audio Inputs

The audio inputs are two 3-pin female XLR connectors located in the area labeled BALANCED INPUTS. Signal is applied between pins 2 and 3, pin 1 is connected to ground. When the Controller is linked to a signal source with balanced outputs, the XLR connections are simply wired pin to pin (1 to 1, etc.). As a result of the balanced nature of the outputs (and providing that balancing is respected by way of the connection to the amplifier), there is no hot or cold pin - the Analogue TDcontroller being neutral regarding the polarity of the signal.

## Output Level Switch

The 3-position output level switch is used to match the processor gain to the amplifier gain for optimum signal to noise ratio. The three gain values available are +6, 0 or -6 dB. For minimum noise floor the -6dB setting should be chosen, for maximum headroom the +6dB position should be used.

## Audio Outputs

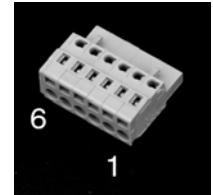
The audio outputs are the three 3-pin male XLRs located in the area labeled BALANCED OUTPUTS. The channel corresponding to each output connector is identified by the labels Left, Right and Sub L+R (mono SubBass).

Signal is applied between pins 2 and 3, pin 1 is connected to ground.

When used with an amplifier with balanced inputs, the wiring of the output XLR is simply pin to pin (1 to 1, etc.), the polarity of the signal being preserved if the source connected to the input is also balanced (see previous section).

## Sense inputs

The sense inputs of the three channels (left, right and SUB) are arranged on a six-pole barrier strip set into the rear panel within the area labeled SENSE INPUT. The Sense inputs are intended for connection to the output signals of the amplifiers driving one cabinet of each the channels being used. Connection is made via the female part - removable - of the connector (supplied with the Controller) as outlined below:

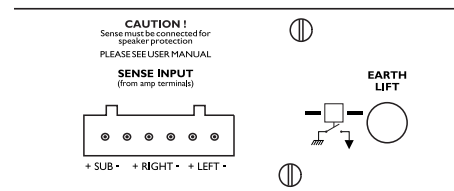


Channel	Amplifier Output Terminal	Barrier strip connector
S12 Left	- (black)	pin 1 (figure)
	+ (red)	pin 2
S12 Right	- (black)	pin 3
	+ (red)	pin 4
RS15	- (black)	pin 5
	+ (red)	pin 6

Input sense connection **MANDATORY** for proper operation of the servo-control system, the cabinets will NOT BE PROTECTED if the sense lines are unconnected.

## Earth Lift

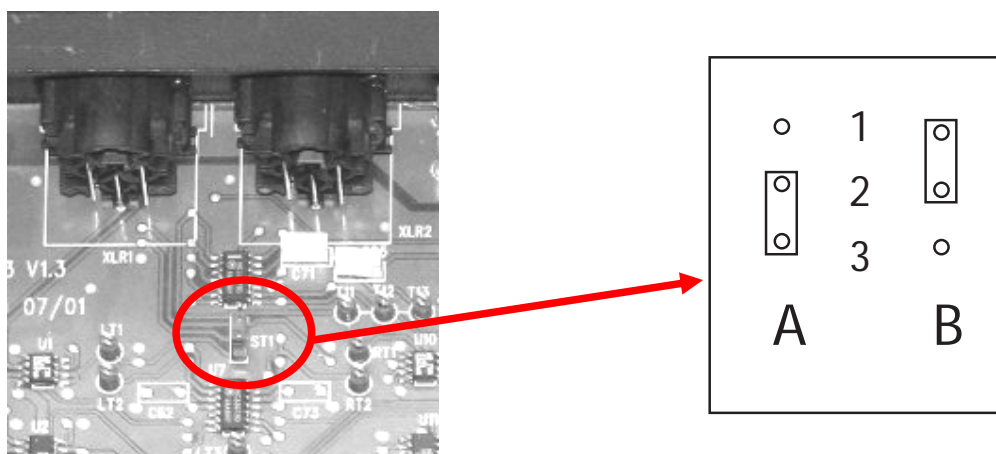
The push button labeled « Earth Lift » allows connection (depressed position), or disconnection (out position) between the signal ground and the mains earth, which is itself linked to the chassis. Using this button may help to eliminate hum due to ground loopS12 created in the system.



## Sub jumper

In certain applications you may wish to disable the mono summation (but keep the 6dB gain boost) on the sub channel. By moving the internal jumper ST1 inside the unit, the sub channel will only use the Right input (with 6dB gain to keep the same sub level when the mono summation is enabled).

Always ensure that your TDcontroller is disconnected from main before opening the unit. Remove the 3 screws fastening the top panel. The ST1 jumper is located near the Input XLR. The PIN1 being the PIN closest of the Input XLR. Strap PIN 1-2 (B in the drawing) in order to drive the sub only from input R. Strapping Pin 2-3 (labeled A, factory default) will provide the summation of channel R&L.



## 8.5 TDcontroller REFERENCE GUIDE

### 8.5.1 Linear section

The characteristics of the linear section are independent of signal level, as opposed to the servo control functions described in next paragraph.

#### Subsonic and VHF filtering

Low and high-pass filters are used to remove signals out of the usable frequency range, eliminating sub- and ultra-sonic components that could possibly degrade the performance of the Controller and amplifiers. These filters are optimized to realize the overall target system response.

#### Equalizing acoustical response

This equalization section provides the required correction to obtain a flat system response, as the cabinets are acoustically designed for maximum efficiency in the whole frequency range. Active rather than passive attenuation allows amplifier voltages to be lowering for a given output SPL and therefore increases the maximum SPL achievable with the same amplifier.

Active equalization also extends system bandpass, especially at low frequencies where acoustical performance is limited by cabinet size.

#### PS / Subbass Cross-Over

From input signals summed together, the resulting mono signal is low-pass filtered to feed the SubBass channel. When the channel is turned on (Subbass On), main channels (Left & Right) high-pass filters are reconfigured to filter out signal components below the crossover frequency. Slopes and other filter characteristics are optimized using techniques optimized for the actual acoustical data of each driver.

### 8.5.2 Servo Control section

Servo control of the PS TDcontroller is intended to work with amplifier return signals present at the Sense inputs (monitored by front panel LEDs).

#### VCA's and VCEQs

Each of the 3 Audio channels (Left, Right and SubBass) contains two voltage controlled elements driven by servo signals:

- One operates on the whole frequency range (wide band VCA).
- The other elements work selectively as dynamic equalizers (LF-VCEQ & HF-VCEQ).

Depending on the nature and origin of the servo signals, either one or the 3 combined elements is used to process the Audio signal. This feature allows more efficient processing while reducing audible effects.

### **Displacement control**

The signal from the sense input is fed through a shaping filter producing a signal proportional to the voice coil displacement. This control signal is compared to a fixed value and if exceeded, the LF-VCEQ is activated with very short attack time to reduce speaker excursion.

### **Temperature control**

Sense input is fed to a shaping filter to create a voltage proportional to the instantaneous voice-coil current. The signal is integrated over time to simulate heat buildup in the specific driver. When the resulting voltage exceeds a preset threshold, the VCA is activated to limit the voice coil temperature within its safety range. Power compression is also simulated by lowering the high frequencies when temperature protection is acting on the bass loudspeaker.

### **Dynamic control**

To reduce audible « pumping » effects due to very long time constants of temperature detection signals, an alternate integration is also processed with a shorter time constant. Whilst anticipating the temperature protection and reducing its unwanted effects, action of this signal also improves dynamics control.

### **Peak Limiter**

The above mentioned devices provide reliable protection against potential speaker over-heating and over-excursion. Nevertheless driving the cabinets at very high peak voltages (with oversized amplifiers) as well as delivering distorted signals might be dangerous for the speakers. The Peak limiter is both useful for:

- Maintaining good sound quality at high levels (it will reduce amplifier distortion).
- Increasing protection reliability (limiting peak voltages to levels that speakers can permanently withstand, and reducing the occurrence of subsonic signals delivered by overloaded amS12)

## 9 TECHNICAL SPECIFICATIONS

### 9.1 PS8 – LS400

#### 9.1.1 System specifications

SYSTEM SPECIFICATIONS	PS8 with PS8 TDcontroller	LSub 400 with PS8 TDcontroller
Frequency Response [a]	69 Hz - 19 kHz $\pm$ 3dB	43 Hz - 120 Hz $\pm$ 3dB
Usable Range @-6dB [a]	62 Hz – 20 kHz	40 Hz - 140 Hz
Sensitivity 1W @ 1m [b]	96 dB SPL Nominal - 94 dB SPL Wideband	99 dB SPL Nominal
Nominal Peak SPL @ 1m [b]	122 to 125dB Peak	128 to 131 dB Peak
HF Dispersion [c]	50° to 100° Hor. x 55° Vert. Rotatable Horn, 4 positions	-
Directivity : Q & DI [c]	Q : 10 Nominal DI : 10 dB Nominal ( f > 1.8 kHz )	-
Crossover Frequencies	2.5 kHz Passive	120 Hz Active through PS8TD
Nominal Impedance	8 $\Omega$	6 $\Omega$
Recommended Amplifiers	200 to 500 W / 8 $\Omega$	300 to 700 W / 4 $\Omega$

SYSTEM OPERATION	
Electronic Controller	The PS8 TDcontroller is precisely matched to the PS8 & LS400 cabinets and includes sophisticated protection systems. Using PS8 & LS400 without a properly connected PS8TD will result in poor sound quality and can damage the components. PS8 & LS400 can also be used with NXAMP4x1 and NXAMP4x4 Powered TDControllers.
Dispersion configuration	After dismantling the front grille from its fixings, the HF Horn can be rotated in 4 positions for dispersion configuration.
Subbass	The PS8 can be used without optional LS400 Subbass. Active two-way operation with the LS400 is included in the PS8TD. One LS400 matches 2 x PS8, additional LS400 may be used for enhanced LF capability.
Speaker Cables	PS8 are wired 2- & 2+ on Speakon connectors, LS400 on 1- & 1+. Loop through Speakons are present on both. Single identical cables can thus be used to loop through combinations of up to 2 x PS8 & 1 x LS400 in no particular order.

PRODUCT FEATURES	PS8	LSub 400
Components : LF [VLF] HF	1 x 8" (20cm) Shielded Neodymium 8 $\Omega$ driver 1 x 1" Shielded Neodymium throat driver + Low Distorsion, Constant Directivity Asymetrical Dispersion Horn.	1 x 12" (30cm) long excursion 6 Ohm driver -
Height x Width x Depth	406 x 250 x 219 mm (16"x 9 7/8"x 5 5/8")	338 x 500 x 406 mm (13 1/4"x 19 5/8"x 16")
Weight : Net	7.5 kg (16.5 Lb)	19.5 kg (43 Lb)
Connectors	2 x NL4MP SPEAKON 4 pole	2 x NL4MP SPEAKON 4 pole
Construction	Baltic Birch Ply finished with structured black coating	Baltic Birch Ply & structured black coating
Fittings: Handles	-	2 Metal Handles
Front finish	Molded Dark Grey Metal Grill	-
Flying Points & Fixed Installation	Threaded inserts are fitted as standard to all cabinet surfaces for connection of mounting accessories	-
Stand fittings	Built in Stand Fitting, 35mm (1"3/8)	Internal Stand Fitting on Top (35mm, 1"3/8) allows pole mounting ofr 1 PS8.

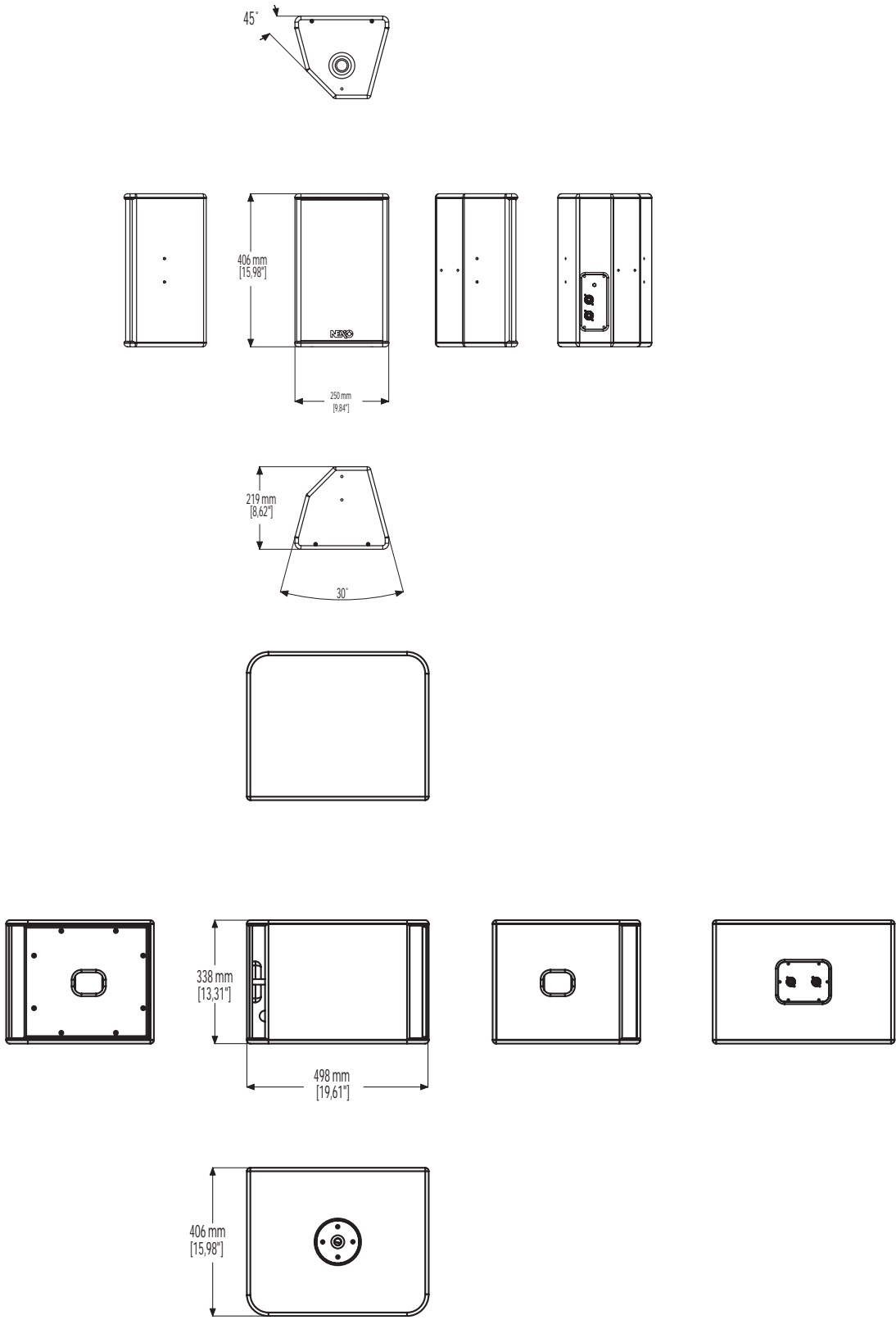
As part of a policy of continual improvement, NEXO reserves the right to change specifications without notice.

[a] Response curves & data : Anechoic Far Field for the PS8 + PS8TD. Half-Space Anechoic radiation for the LS400 + PS8TD.

[b] Sensitivity & Peak SPL data : these will depend on spectral distribution and crest factor of program material. Measured with band limited Pink Noise. Nominal refers to Voice Decade (300 Hz - 3 kHz), Wideband to the specified  $\pm$ 3dB range. Data are for speaker + processor + recommended amplifier combinations. Peak SPL is at clipping of recommended amplifier.

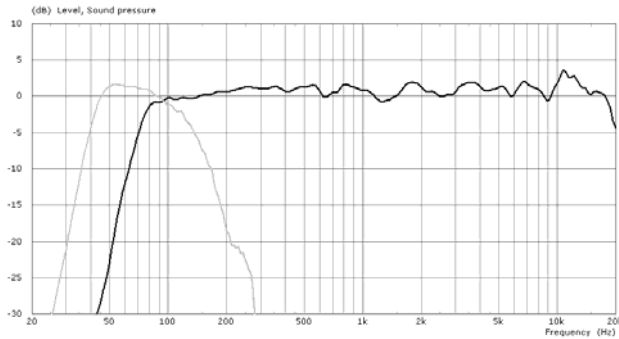
[c] Directivity curves & data : obtained by computer treatment on off axis response curves.

### 9.1.2 Dimensions

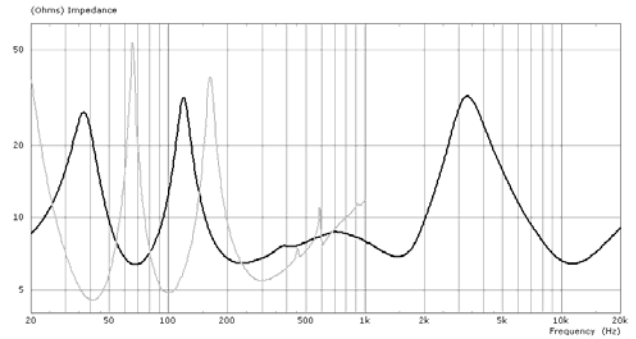




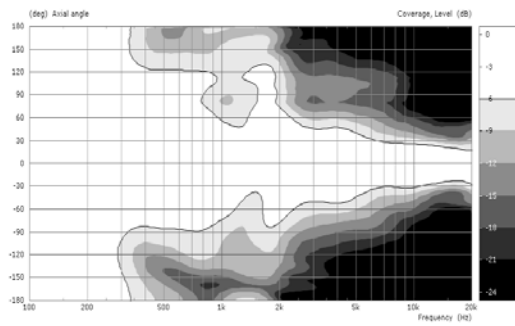
9.1.3 Diagrams



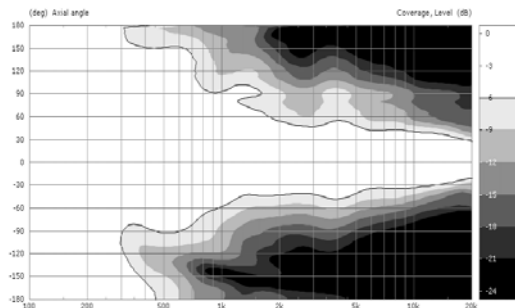
On-axis response LS400 (grey) & PS8 (black)



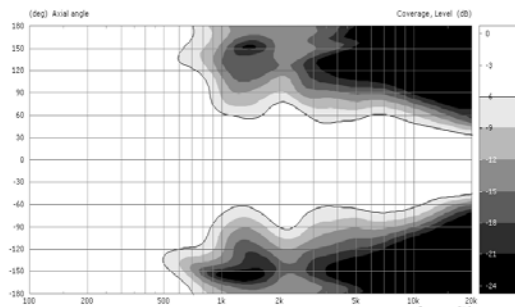
Impedance LS400 (grey) & PS8 (black)



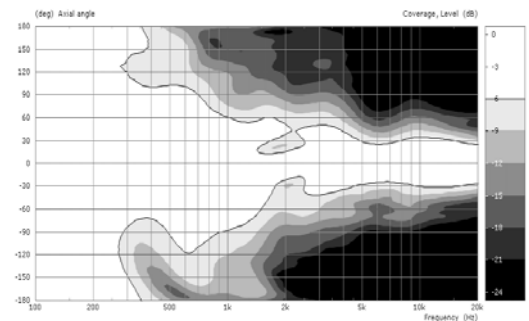
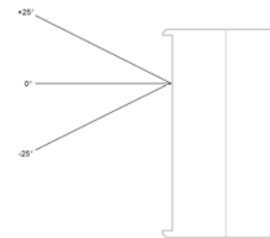
Horizontal plane coverage, vertical orientation +25°



Horizontal plane coverage, vertical orientation 0°



Horizontal plane coverage, vertical orientation -25°



Vertical plane coverage

## 9.2 PS10R2 – LS600

### 9.2.1 System specifications

SYSTEM SPECIFICATIONS	PS10R2 with PS10 TDcontroller	LS600 with PS10 TDcontroller
Frequency Response [a]	65 Hz - 20 kHz $\pm 3$ dB	40 Hz - 110 Hz $\pm 3$ dB
Usable Range @-6dB [a]	58 Hz - 21 kHz	38Hz - 120 Hz
Sensitivity 1W @ 1m [b]	99 dB SPL Nominal – 97 dB SPL Wideband	101 dB SPL Nominal
Nominal Peak SPL @ 1m [b]	129 to 132 dB Peak	135 to 138 dB Peak
HF Dispersion [c]	50° to 100° Hor. x 55° Vert. Rotatable Horn, 4 positions	-
Directivity : Q & DI [c]	Q : 16 Nominal DI : 12 dB Nominal ( f > 3 kHz )	-
Crossover Frequencies	2 kHz Passive	120 Hz Active through PS10 TDController
Nominal Impedance	8 $\Omega$	8 $\Omega$
Recommended Amplifiers	500 to 1250 W / 8 $\Omega$	1000 to 2000 W / 8 $\Omega$
SYSTEM OPERATION		
Electronic Controller	The PS10 TDcontroller is precisely matched to the PS10 & LS600 cabinets and includes sophisticated protection systems. Using PS10 & LS600 without a properly connected PS10 TD will result in poor sound quality and can damage the components.	
Dispersion configuration	After dismounting front grill from its fixings, the HF Horn can be rotated in 4 positions for dispersion configuration.	
SubBass	The PS10 can be used without optional LS600 SubBass. Active two-way operation with the LS600 is included in the PS10 TD. One LS600 matches 2 x PS10, additional LS600 may be used for enhanced LF capability.	
Speaker Cables	PS10 are wired 2- & 2+ on Speakon connectors, LS600 on 1- & 1+. Loop through Speakons are present on both. Single identical cables can thus be used to loop through combinations of up to 2 x PS10 & 1 x LS500 in no particular order.	
PRODUCT FEATURES	PS10R2	LS600
Components : LF [VLF] HF	1 x 10" (25cm) Shielded Neodymium 8 $\Omega$ driver 1 x 1" throat driver + Low Distorsion Constant Directivity Asymetrical Dispersion Horn.	1 x 15" (38cm) long excursion Neodymium 8 $\Omega$ driver -
Height x Width x Depth	515 x 316 x 277 mm (20.28"x 12.44"x 10.91")	435 x 688 x 528 mm (17.12"x 27.09"x 20.79")
Weight : Net	14 kg (31 Lbs)	30 kg (66 Lbs)
Connectors	2 x NL4MP Speakon 4 pole	2 x NL4MP Speakon 4 pole
Construction	Baltic Birch Ply finished with structured black coating	Baltic Birch Ply & structured black coating
Fittings: Handles	2 Metal recessed pockets	2 Metal recessed pockets
Front finish	Molded Dark Grey Metal Grill	
Flying Points	One plate connecting with external accessories	One plate connecting with external accessories
Stand fittings	Built in Steel Stand Fitting, 35mm (1"3/8)	Internal Steel Stand Fitting on Top (35mm, 1"3/8) allows pole mounting for 1 PS10.
Power Supply	110/220 Volts (internal wiring), 50/60Hz.	Earth-Lift (back panel)
Dimensions & Weight	1U 19" Rack. 190mm (7.5") Depth.	2.9 kg (6.6 Lbs) net

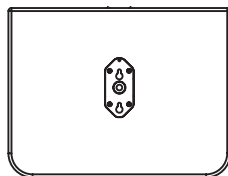
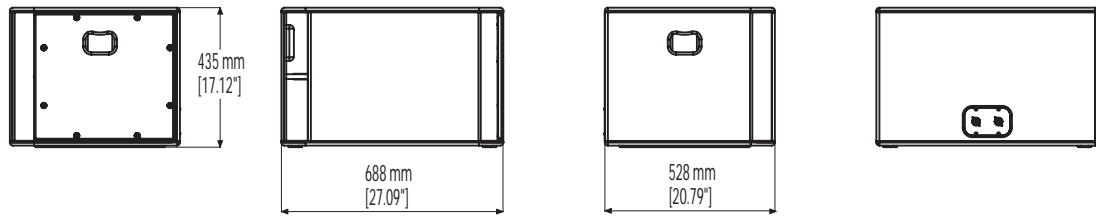
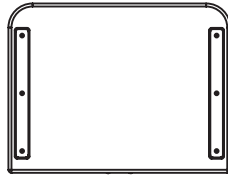
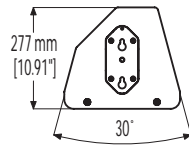
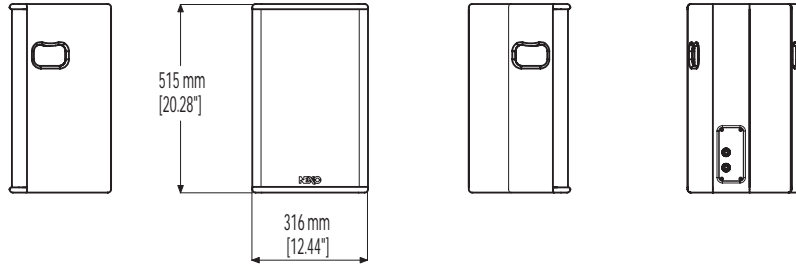
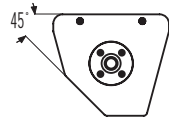
As part of a policy of continual improvement, NEXO reserves the right to change specifications without notice.

[a] Response curves & data : Anechoic Far Field for the PS10 + PS10TD. Half-Space Anechoic radiation for the LS600 + PS10TD.

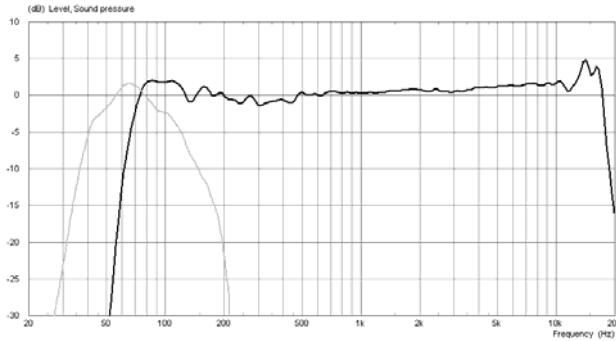
[b] Sensitivity & Peak SPL data : these will depend on spectral distribution and crest factor of program material. Measured with band limited Pink Noise. Nominal refers to Voice Decade (300 Hz - 3 kHz), Wideband to the specified  $\pm 3$ dB range. Data are for speaker + processor + recommended amplifier combinations. Peak SPL is at clipping of recommended amplifier.

[c] Directivity curves & data : obtained by computer treatment on off axis response curves.

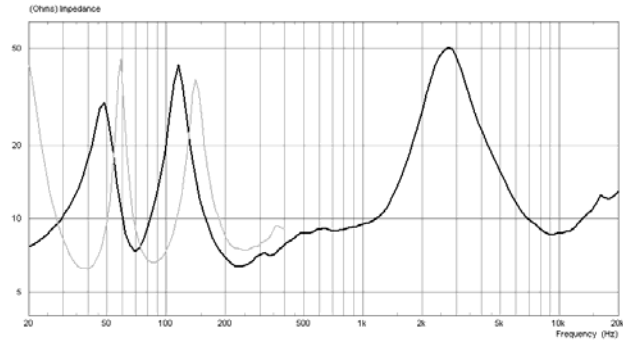
9.2.2 Dimensions



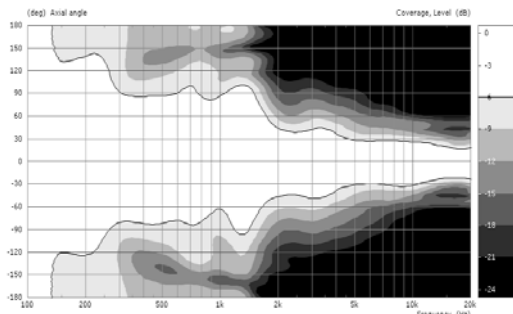
### 9.2.3 Diagrams



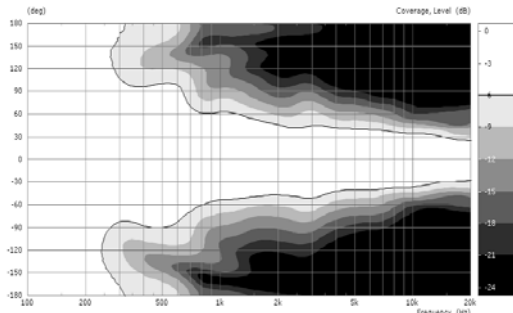
On-axis response LS600 (grey) & PS10 (black)



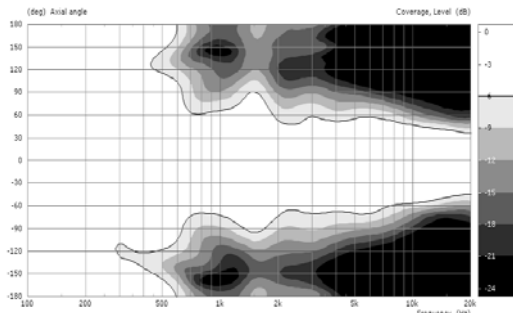
Impedance LS600 (grey) & PS10 (black)



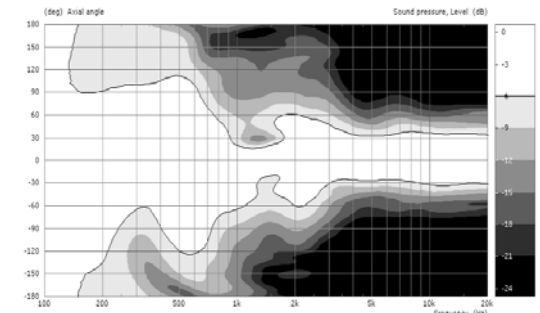
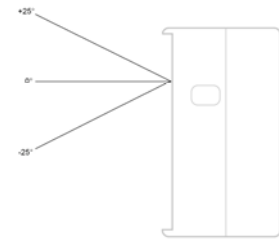
Horizontal plane coverage, vertical orientation +25°



Horizontal plane coverage, vertical orientation 0°



Horizontal plane coverage, vertical orientation -25°



Vertical plane coverage

### 9.3 PS15R2

#### 9.3.1 System specifications

SYSTEM SPECIFICATIONS	PS15R2 with PS15 TDcontroller	RS15 with PS15TDcontroller
Frequency Response @-3 dB [a]	50 Hz - 18 kHz ±3 dB	35 Hz - 100 Hz
Usable Range @-6 dB [a]	47 Hz - 18 kHz	35 Hz - 250 Hz
Sensitivity 1W @ 1m [b]	102 dB SPL Nominal. 99 dB SPL Wideband	105 dB SPL Nominal
Nominal Peak SPL @ 1m [b]	133 to 136 dB Peak	136 to 139 dB Peak
HF Dispersion [c]	50° to 100° Hor. x 55° Vert. Rotatable Horn - 4 positions	-
Directivity : Q & DI [c]	Q : 16 Nominal      DI : 12 dB Nominal      ( f > 1.5 kHz )	Omnidirectional
Crossover Frequencies	1.1 kHz Passive or Active (internally switchable)	80 Hz Active through PS15 TD
Nominal Impedance	Passive : 8Ω or Active : LF : 8Ω & HF : 16Ω <i>Important: Active Mode only available on NXAMP</i>	2 x 8Ω
Recommended Amplifiers	Passive: 1000 to 2000 W / 8Ω Active: (LF) 1000 to 2000 W / 8Ω - (HF) 250 to 500 W / 16Ω <i>Important: Active Mode only available on NXAMP</i>	2x700W to 2x1200W / 8Ω

SYSTEM OPERATION	
Electronic Controller	The PS15TDcontroller is precisely matched to the PS15 & RS15 cabinets and includes protections. Using PS15 & RS15 without a properly connected PS15 TD will result in poor sound quality and can damage the components.
Dispersion configuration	After dismantling the front grille from its fixings, the HF Horn can be rotated in 4 positions for dispersion configuration.
SubBass	The PS15 can be used without optional RS15 Subbass. Active two-way operation with RS15 is included in the PS15TD. One RS15 matches 2 x PS15, additional RS15 may be used for enhanced LF capability.
Speaker Cables	PS15 are wired 2-/2+ on Input Speakons in Passive Mode PS15 are wired LF 1-/1+ & HF 2-/2° on Input Speakons in Active Mode Please refer to RS15 User Manual for RS15 for RS15 connection.

PRODUCT FEATURES	PS15R2	RS15
Components : LF [VLF] HF	1 x 15" (38 cm) long excursion Neodymium 8 Ω driver 1 x 2" throat, 3" Titanium diaphragm, driver + Low Distortion, Constant Directivity Asymmetrical Dispersion Horn.	2 x 15" (38cm) long excursion Neodymium 8 Ω driver -
Height x Width x Depth	675 x 434 x 368 mm (26.57"x 17.08"x 14.48")	454 x 564 x 1074 mm (17.9"x 22.2"x 42.3")
Weight : Net	28 kg (62 Lb.)	52 kg (116 Lb.)
Speakon Connectors	2 x 4 pole (Passive In & Loop Thru) + 1 x 4 Pole (Active In)	2 x 4 pole (In & Loop Thru)
Construction	Baltic Birch Ply finished with structured black coating	Baltic Birch Ply & structured black coating Dark Grey Carpet also available
Fittings: Handles	2 Metal recessed pockets	Please refer to RS15 User Manual
Front finish	Molded Dark Grey Metal Grill	Molded Dark Grey Metal Grill
Flying Points	Two plate connecting with external accessories	Please refer to RS15 User Manual
Stand fittings	Built in Steel Stand Fitting, 35mm (1"3/8)	Internal Steel Stand Fitting on Top (35mm, 1"3/8) allows pole mounting for 1 PS15.
Power Supply	110/220 Volts (internal wiring), 50/60Hz.      Earth-Lift (back panel)	
Dimensions & Weight	1U 19" Rack.      190mm (7.5") Depth.      2.9 kg (6.6 Lbs) net	

As part of a policy of continual improvement, NEXO reserves the right to change specifications without notice.

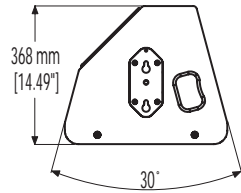
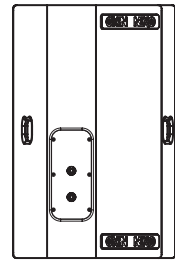
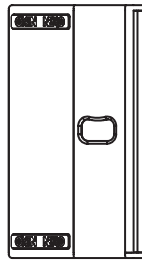
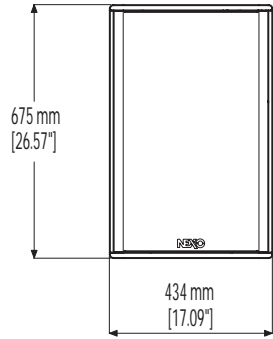
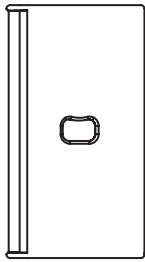
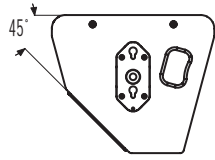
[a] Response curves & data : Anechoic Far Field for the PS15 + PS15TD. Half-Space Anechoic radiation for the RS15 + PS15TD.

[b] Sensitivity & Peak SPL data : these will depend on spectral distribution and crest factor of program material. Measured with band limited Pink Noise.

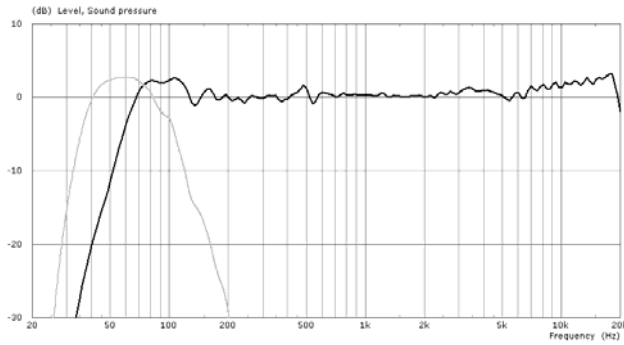
Nominal refers to Voice Decade (300 Hz - 3 kHz), Wideband to the specified ±3 dB range. Data are for speaker + processor + recommended amplifier combinations. Peak SPL is at clipping of recommended amplifier. Measurements made with PS15s in passive operation mode.

[c] Directivity curves & data : obtained by computer treatment on off axis response curves.

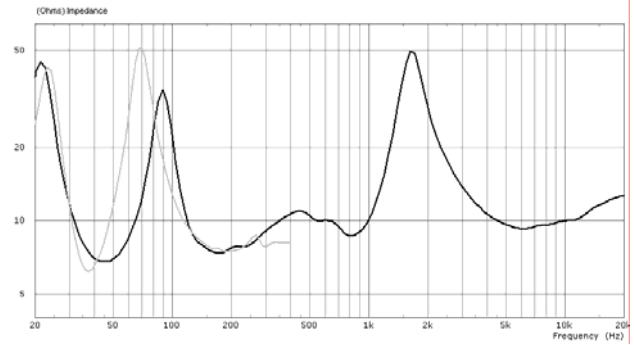
### 9.3.2 Dimensions



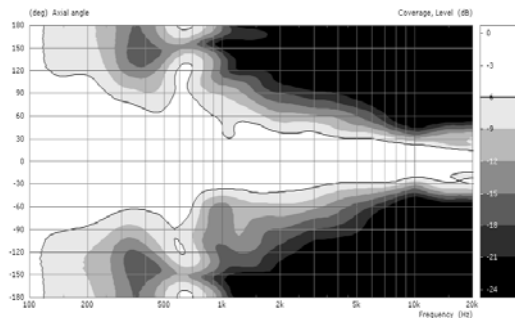
### 9.3.3 Diagrams



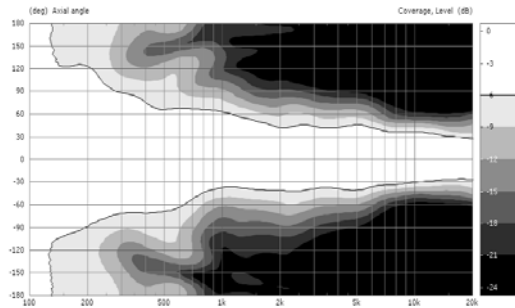
On-axis response RS15 (grey) & PS15 (black)



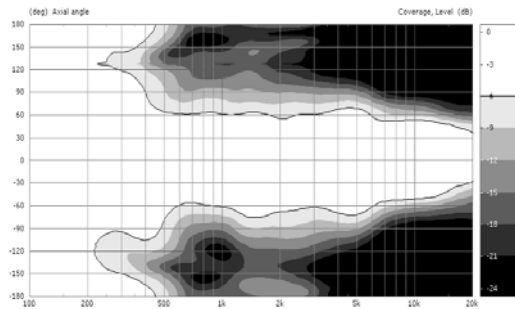
Impedance RS15 – 1 channel - (grey) & PS15 (black)



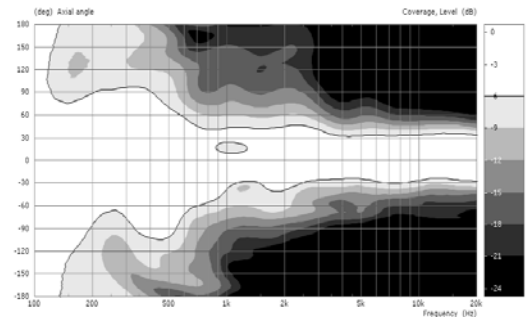
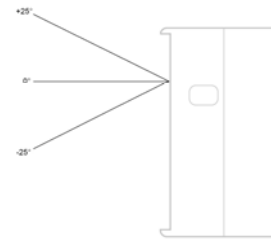
Horizontal plane coverage, vertical orientation +25°



Horizontal plane coverage, vertical orientation 0°



Horizontal plane coverage, vertical orientation -25°



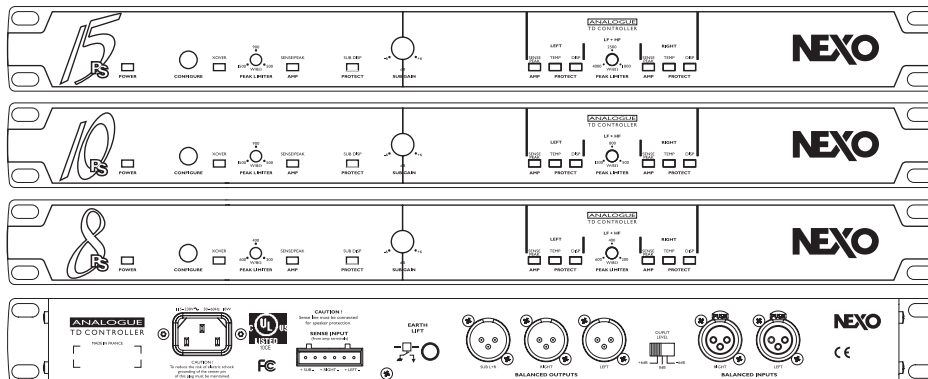
Vertical plane coverage

## 9.4 PS Analogue TDcontrollers

### 9.4.1 Specifications

SPECIFICATIONS	
Output Section	+22 /+16/+10 dBm typical into 600 Ω load (+6/0/-6dB back panel switch).
Input Section	Maximum input level : 22dBu. CMRR 80dB @ 1kHz typical.
THD+N	0.1% @ 1kHz Typ. for +10dBm output
Noisefloor	PSTD -100 dBV for 0dB switch position (22 Hz - 22 kHz, unweighted)
Dynamic Range	111 dB unweighted (THD+N at-60dB sine wave @1kHz relative to maximum output)
Crosstalk	104dB
Filtering & EQ.	L&R: 12dB/oct Low Pass, 12dB/oct High pass (crossover or overlap), 4 Parameter EQs. Factory defined
Protections	VCA temp. (SUB,LF & LF), VCEQ disp. (SUB & LF), Peak Limiter (all chanel), Power compression regulation
Power Supply	100-250 Volts (continuous operation), 50/60Hz. Power 9W. Peak inrush current 0.5A. Earth-Lift.
Conformity	Comply with safety objective of 73/23/EEC & 89/336/EEC directives. (EN60065-12/2001, EN55103-1996). CB scheme DK-8371, cULus 60065 AZSQ E241312, FCC part15 class B
PRODUCT FEATURES	
Audio Inputs	Two XLR-3F connectors (differential non floating L&R audio inputs, 50 kΩ).
Sense Inputs	6 Pole Removable Strip Terminal (three amplifier sense inputs - Left, Right and Sub - 400 kΩ).
Audio Outputs	Two XLR-3M connectors (balanced non floating L&R audio outputs, 51 Ohm) One XLR-3M connector (balanced non floating Sub audio outputs, 51 Ohm)
Controls	Gain switch (back panel), 3 positions : -6 / 0 /+6dB. Peak Limiter trimmer for PS & Sub Sub Overlap / Crossover switch & Sub Gain Control (-/+ 6dB).
Indicators	LF speakers Protect Yellow LED's (Temp. & Disp), Power ON (green), Amp Sense & Peak LED's (green/Red)
Dimensions	1U (19") Rack - 165mm (6.5") Depth
Weight :	2.9 kg (6.6 lbs) net
SYSTEM OPERATION	
Applicable Products	PSTDcontrollers are precisely matched to the PS & dedicated Subbass, and includes sophisticated protection systems. Use of either product without properly connected PSTDController will result in poor sound quality and may damage the components.
SubBass	Active two-way operation of the PS Loudspeakers with dedicated Subbass is included in Analogue PSTDcontrollers.

### 9.4.2 Front and Rear Panel view

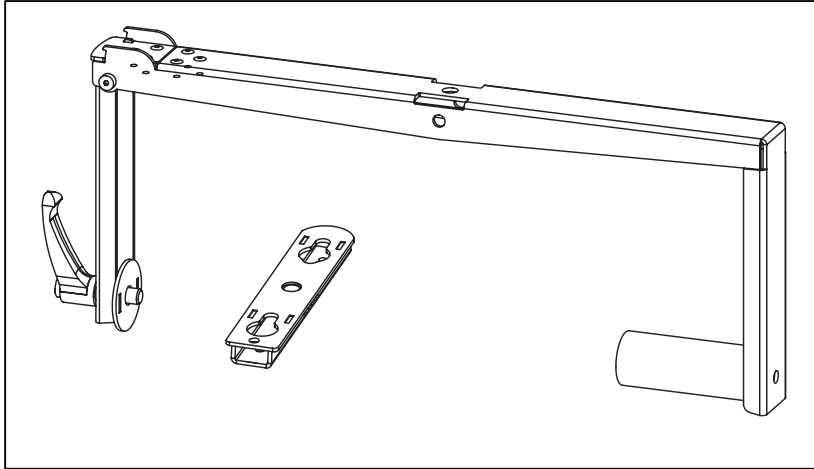




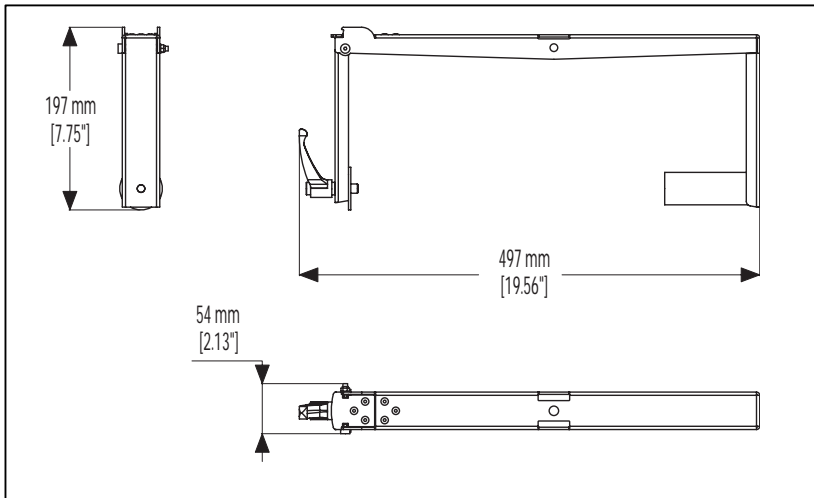
## 9.5 PS Touring Applications Accessoires

### 9.5.1 "U" Bracket for PS8 (VNT-SSBRK8, includes VN-ADPT)

#### Parts

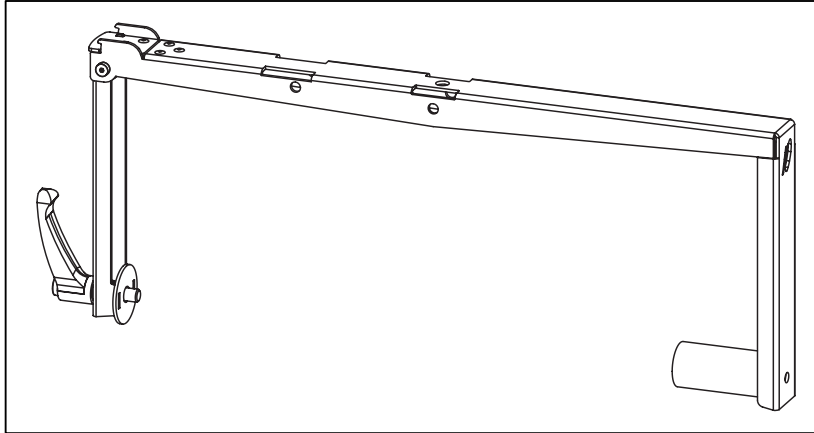


#### Dimensions

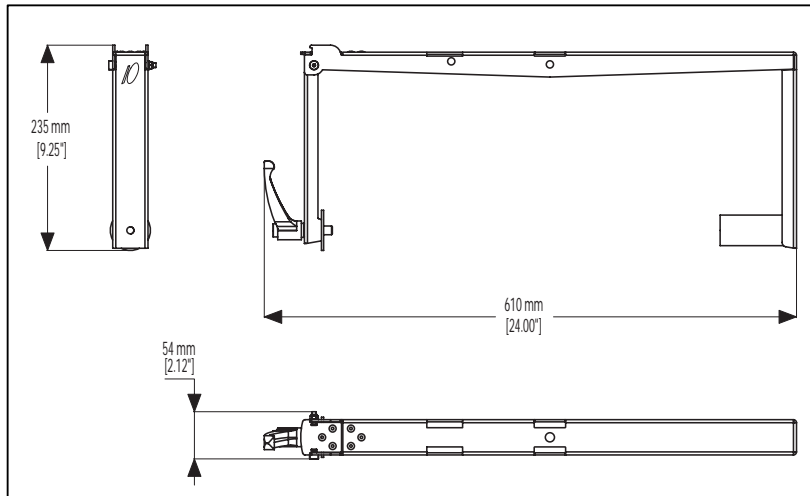


### 9.5.2 "U" Bracket for PS10R2 (VNT-SSBRK10)

#### Parts

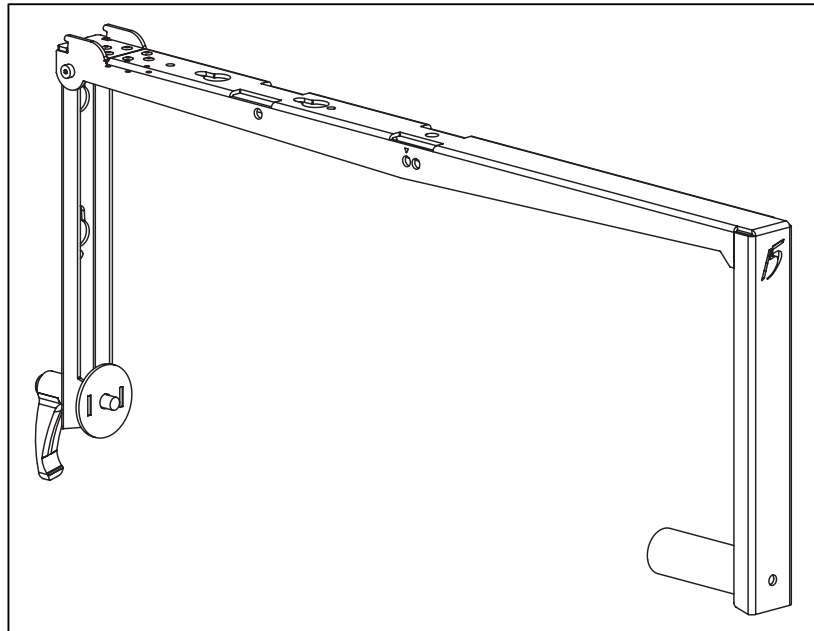


#### Dimensions

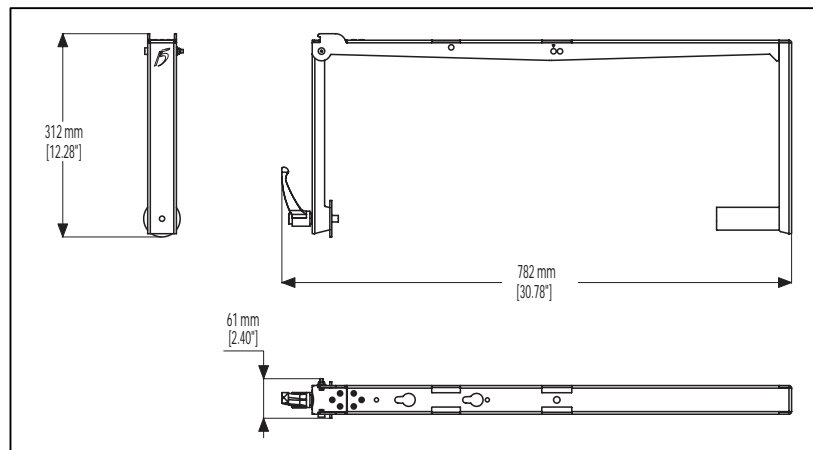


9.5.3 "U" Bracket for PS15R2 (VNT-SSBRK15)

Parts



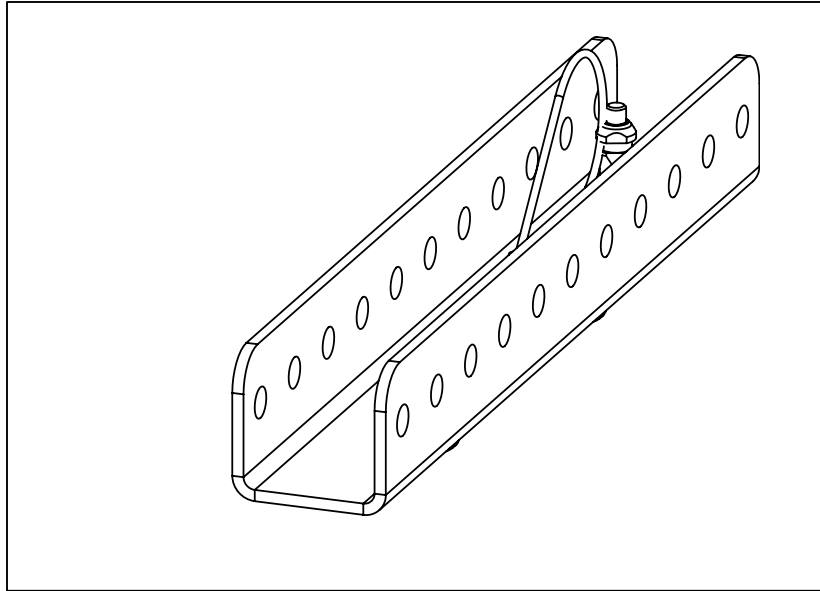
Dimensions



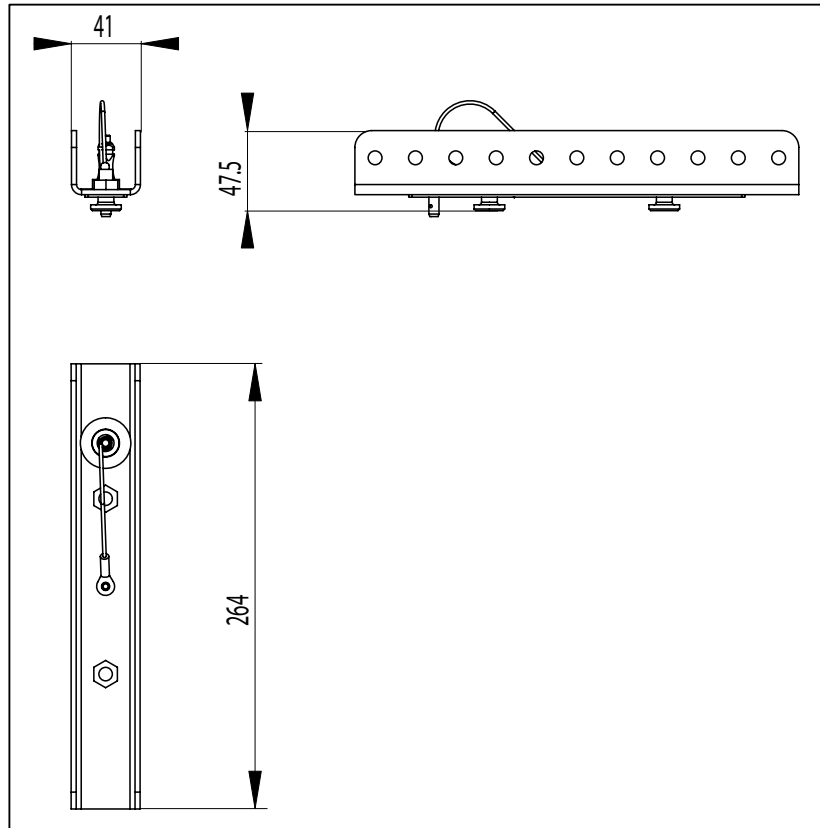
### 9.5.4 Flying Rail for PS8\* / PS10R2 / PS15R2 (VNT-TTC)

\* VNT-ADPT required for PS8

#### Parts

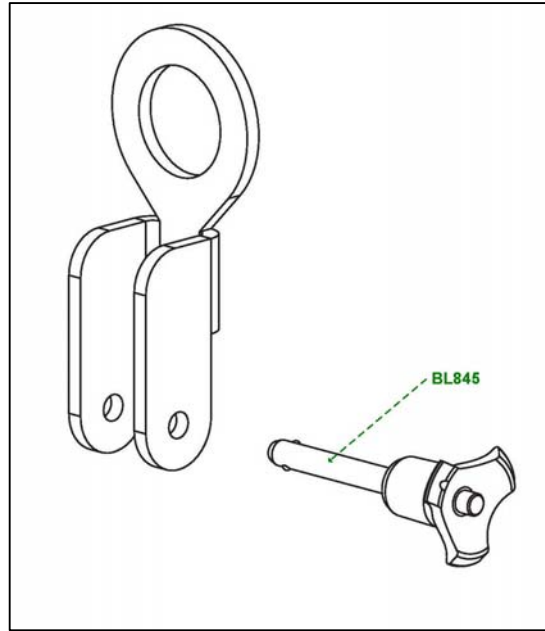


#### Dimensions

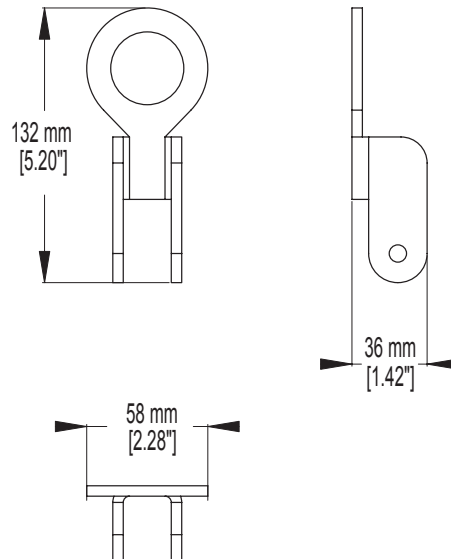


9.5.5 Lifting Ring for "U" bracket or Flying Rail (VNT-XHBRK, includes BL845)

Parts

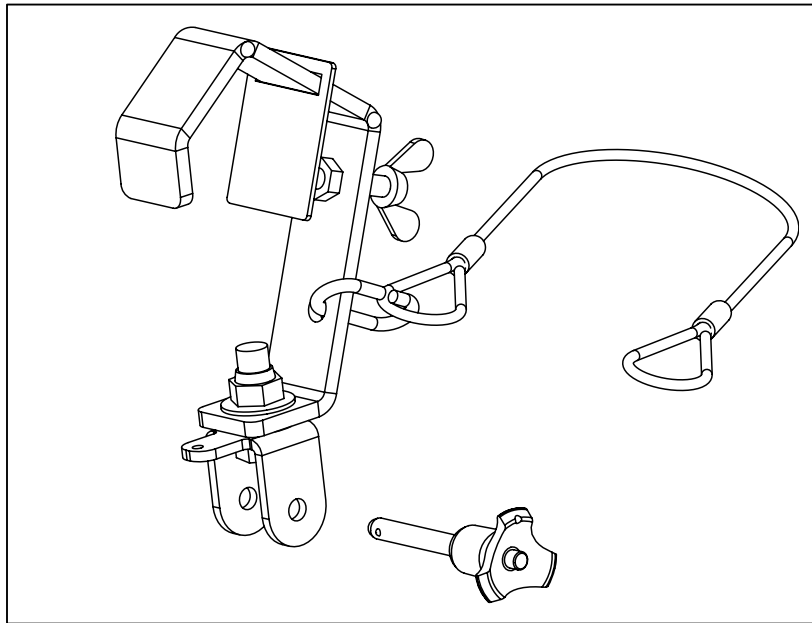


Dimensions

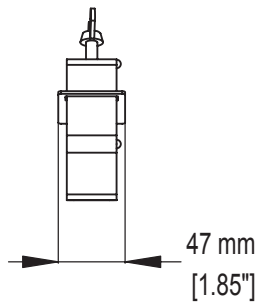
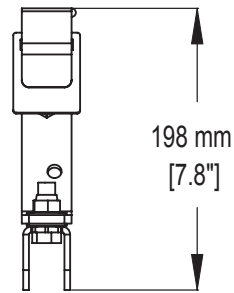
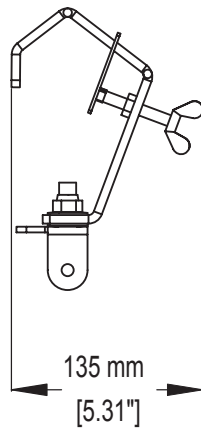


### 9.5.6 Truss hook for "U" bracket or Flying Rail (VNT-TCBRK)

#### Parts



#### Dimensions



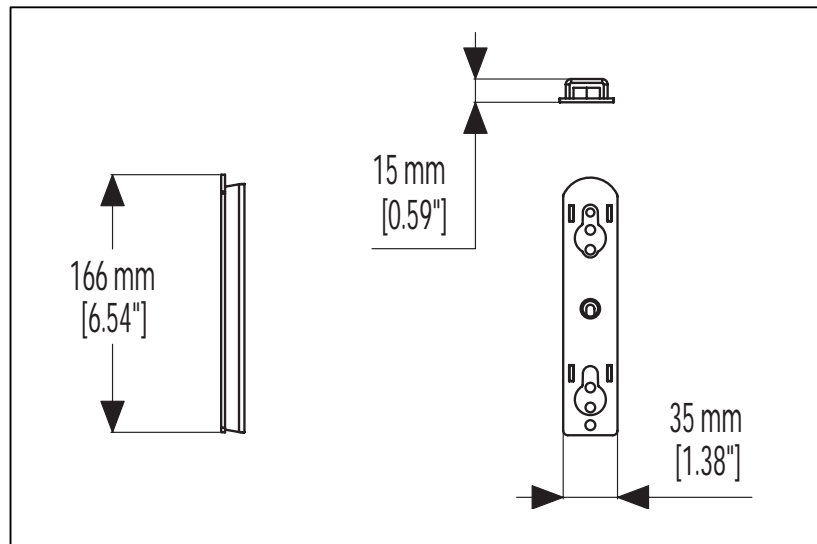
9.5.7 Flying Adaptor for PS8 (VNT-ADPT)

(mandatory for use in conjunction with VNT-SSBRK8 or VNT-TTC)

Parts



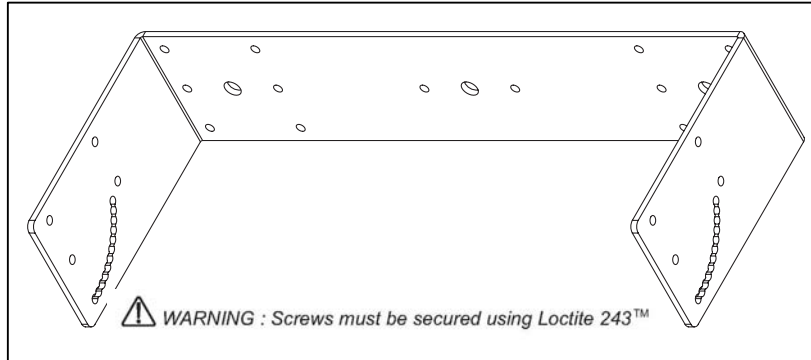
Dimensions



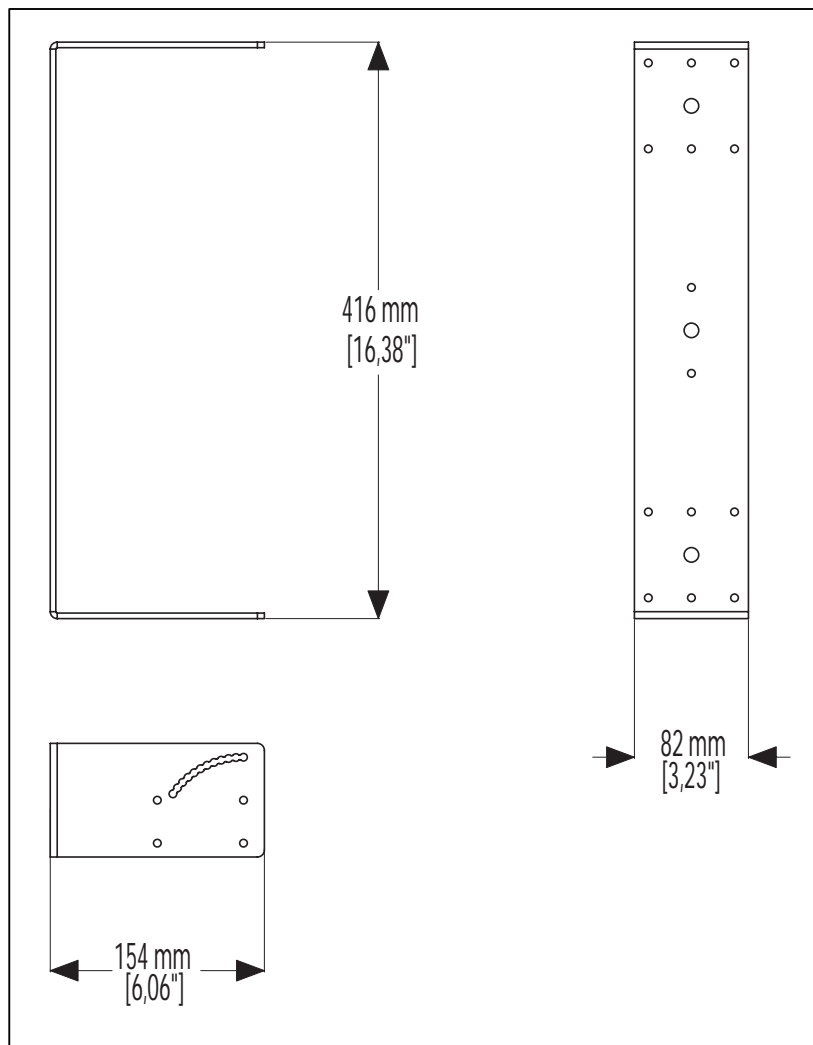
### 9.6 PS Fixed Installations Accessories

#### 9.6.1 PS "U" Bracket (VNI-UBRK8)

##### Parts



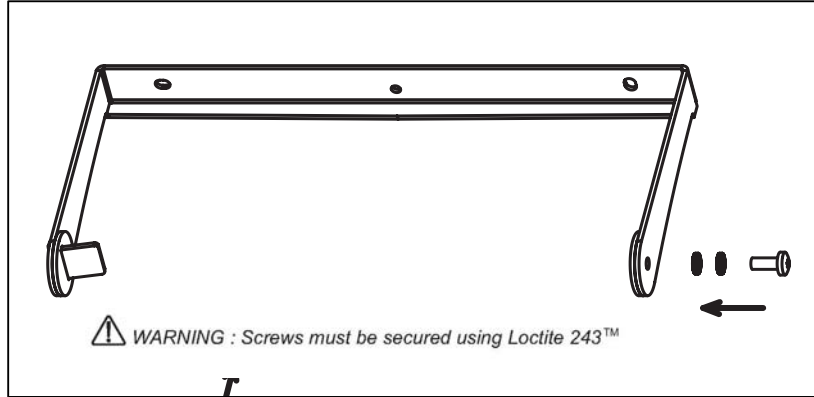
##### Dimensions





## 9.6.2 PS10R2 "U" Bracket (VNI-UBRK10)

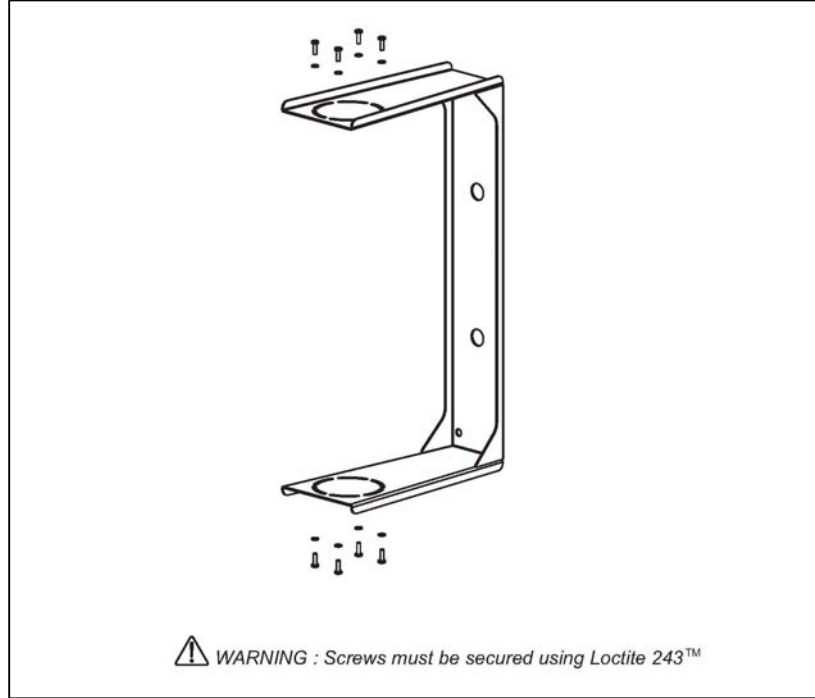
### Parts



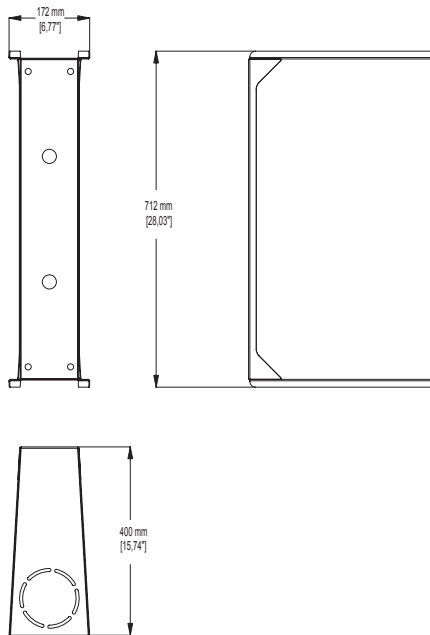
### Dimensions

### 9.6.3 PS15R2 “U” Bracket (VNI-UBRK12)

#### Parts

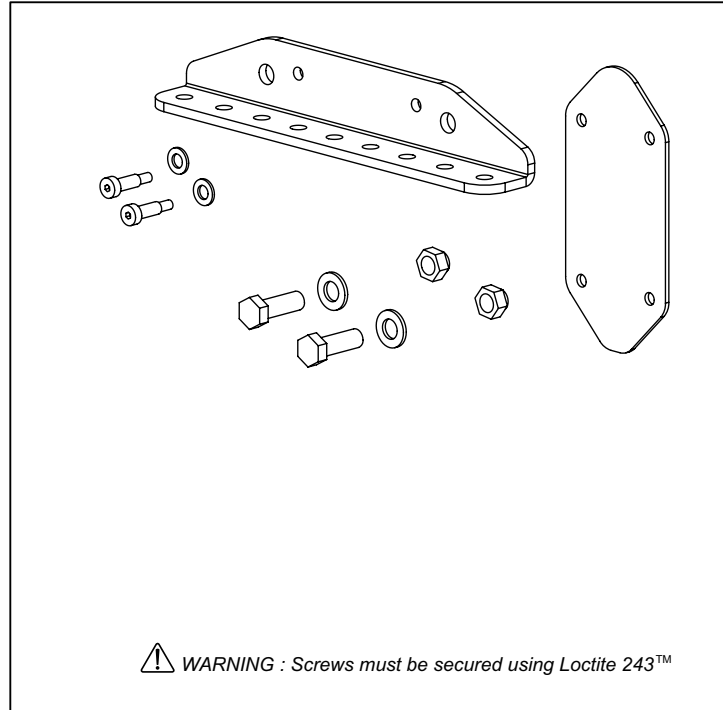


#### Dimensions

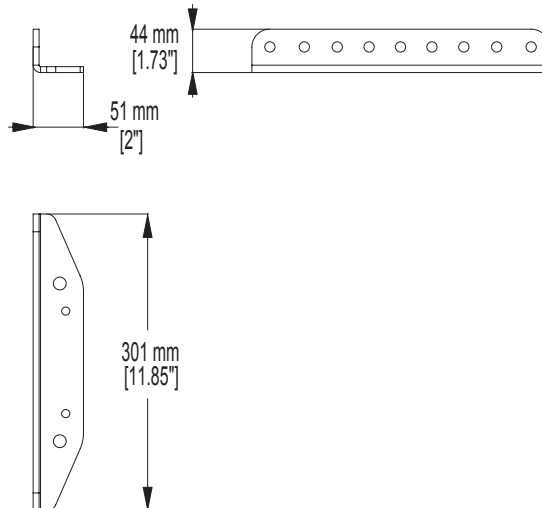


9.6.4 "L" Bracket for cable suspension for PS10R2 and PS15R2 (VNI-LBRK)

Parts

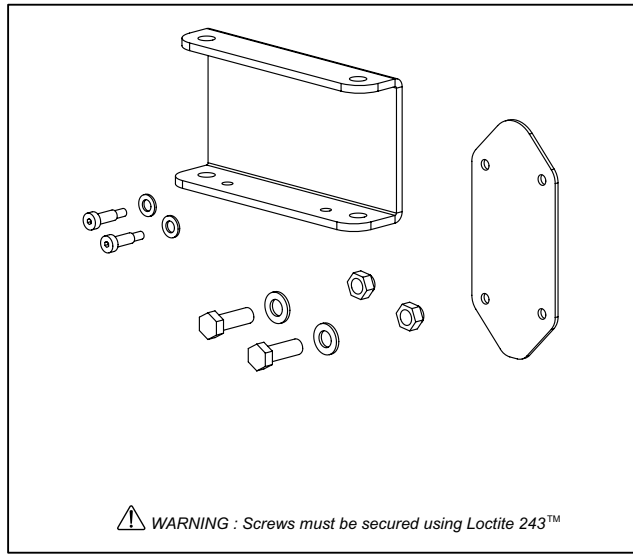


Dimensions

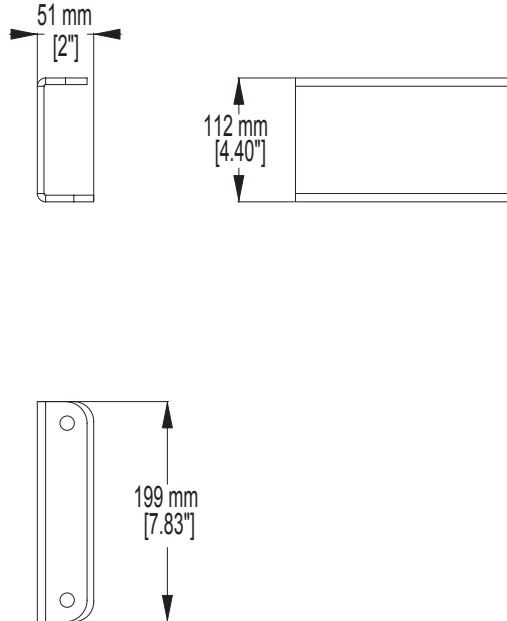


9.6.5 "U" Bracket for rigid suspension for PS10R2 and PS15R2 (VNI-ABRK)

Parts

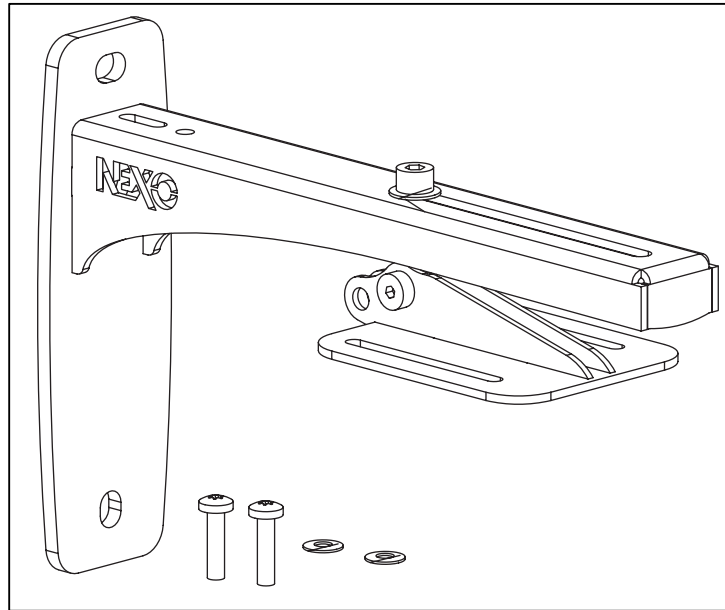


Dimensions

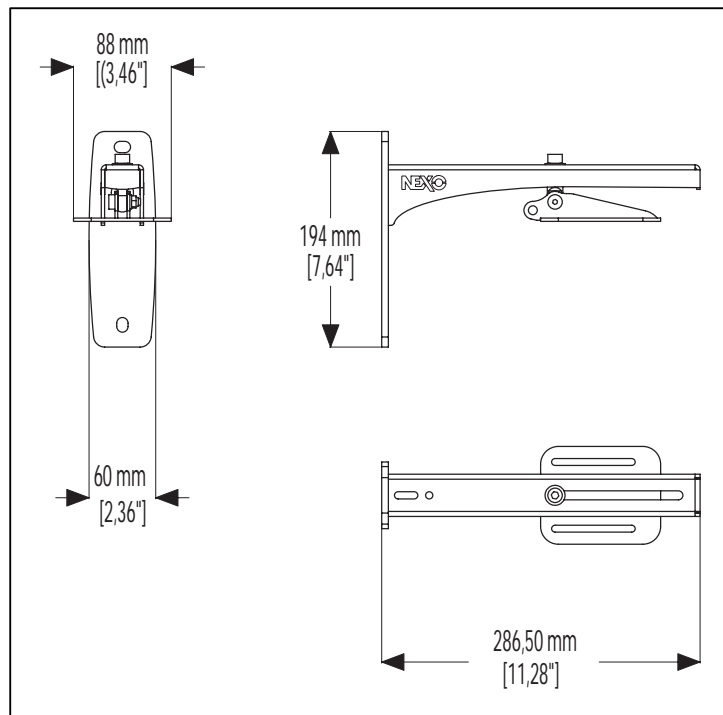


9.6.6 Wall suspension for PS8 & PS10 (VNI-WS10)

**Parts**

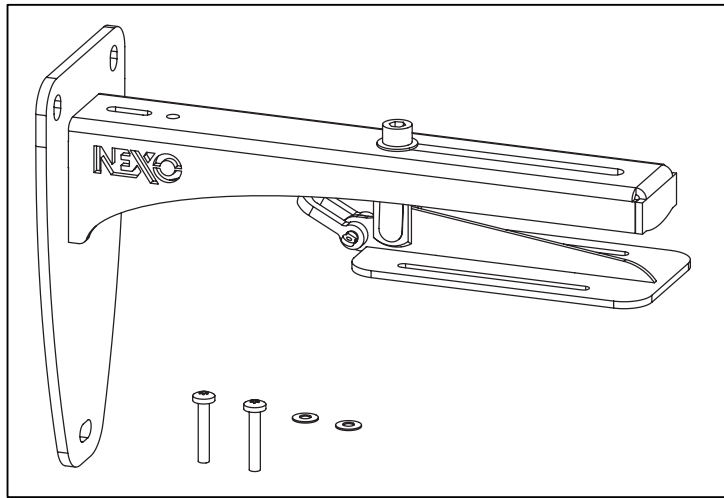


**Dimensions**

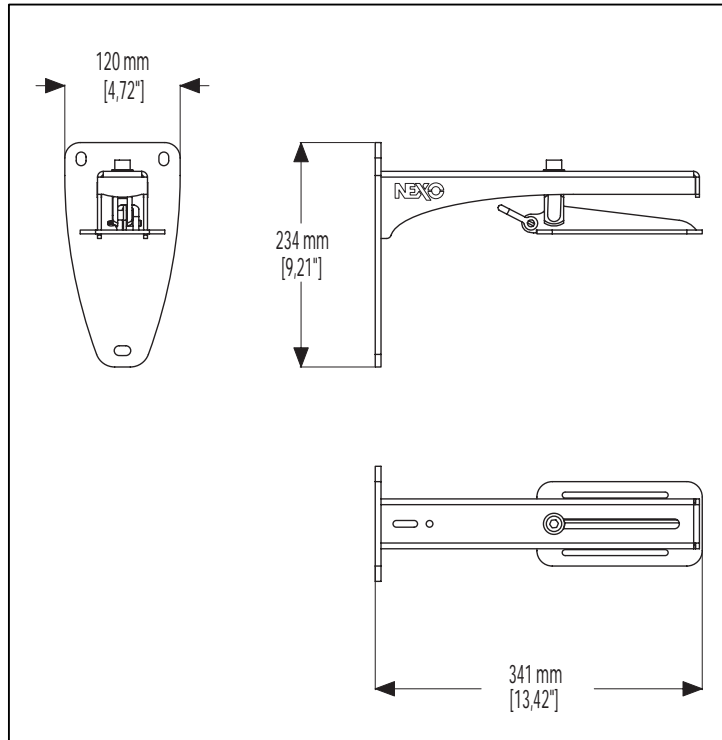


### 9.6.7 Wall suspension for PS15R2 (VNI-WS15)

#### Parts


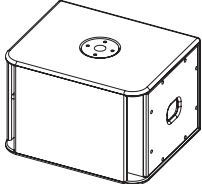
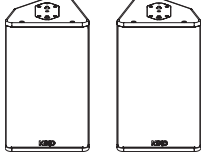
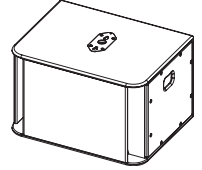
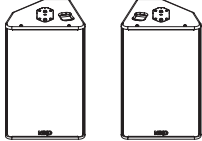


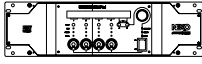
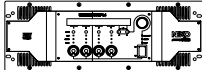


#### Dimensions







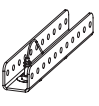
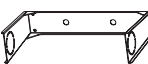
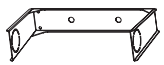
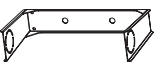

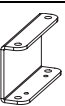


## PS SERIES PARTS & ACCESSORIES LIST

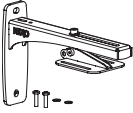
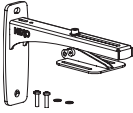
### 9.7 Modules & Control Electronics List

MODEL	DRAWING	DESCRIPTION
PS8		PS8 speaker
LS400		LS400 Subwoofer for PS8
PS10R2-L PS10R2-R		PS10R2 speaker Left and Right versions
LS600		LS600 subwoofer for PS10R2
PS15R2-L PS15R2-R		PS15R2 speaker Left and Right versions
NX 242-ES4		Digital TDcontroller
PS8TD		Analogue PS8 TDController for PS8
PS10TD-R2		Analogue PS10 TDController for PS10R2
PS15TD-R2		Analogue PS15 TDController for PS15R2
NXAMP4x1		Digital Powered Controller 4x1300W
NXAMP4x4		Digital Powered Controller 4x4000W

## 9.8 Accessories List

MODEL	DRAWING	DESCRIPTION
VNT-SSBRK8		Touring "U" bracket for PS8
VNT-ADPT		Touring Flying Adaptor for PS8
VNT-SSBRK10		Touring "U" bracket for PS10R2
VNT-SSBRK15		Touring "U" bracket for PS15R2
VNT-TCBRK		Truss hook for all VNT-SSBRKs (includes 8x45 Quick Release Pin)
VNT-XHBRK		Lifting Ring for all VNI-SSBRKs (includes 8x45 Quick Release Pin).
VNT-TTC		Truss hook for PS8 / PS10R2 / PS15R2
VNI-UBRK8		Fix installation "U" bracket for PS8
VNI-UBRK10		Fix installation "U" bracket for PS10R2
VNI-UBRK12		Fix installation "U" bracket for PS15R2
VNI-LBRK		Fix installation "L" Bracket for cable suspension for PS10R2 & PS15R2
VNI-ABRK		Fix installation bracket ceiling mounting for PS10R2 & PS15R2



MODEL	DRAWING	DESCRIPTION
VNI-WS10		Fix installation wall mounting for PS8 & PS10R2
VNI-WS15		Fix installation wall mounting for PS15R2

## 10 USER NOTES

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