



User's Manual

UX series



Antes de utilizar el equipo, lea la sección "Precauciones de seguridad" de este manual. Conserve este manual para futuras consultas.

Before operating the device, please read the "Safety precautions" section of this manual. Retain this manual for future reference.

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Cajas acústicas activas / Self-powered loudspeaker enclosures

El signo de exclamación dentro de un triángulo indica la existencia de importantes instrucciones de operación y mantenimiento en la documentación que acompaña al producto. Conserve y lea todas estas instrucciones. Siga las advertencias. **ATENCIÓN:** Es un producto clase A, por lo que en entornos domésticos puede causar radio-interferencias, en cuyo caso el usuario tendrá que tomar las medidas oportunas. De acuerdo con EN55103-2, usar el equipo sólo en entornos E1, E2, E3 ó E4.



The exclamation point inside an equilateral triangle is intended to alert the users to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Heed all warnings. Follow all instructions. Keep these instructions.

WARNING: This is a class A product. In a domestic environment this product may cause radio interferences in which case the user may be required to take adequate measures.

Use this product only in E1, E2, E3 or E4 environments according to EN55103-2.

Do not remove mains connector ground, it is dangerous and illegal. Class I device.

No desconecte la tierra en el conector de alimentación pues el peligroso e ilegal. Equipo de Clase I.

El signo del rayo con la punta de flecha, alerta contra la presencia de voltajes peligrosos no aislados. Para reducir el riesgo de choque eléctrico, no retire la cubierta.



The lightning and arrowhead symbol warns about the presence of uninsulated dangerous voltage. To reduce the risk of electric shock, do not remove the cover.

No instale el aparato cerca de ninguna fuente de calor como radiadores, estufas u otros aparatos que produzcan calor. Debe instalarse siempre sin bloquear la libre circulación de aire por las aletas del radiador.

Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus that produce heat.

The circulation of air through the heatsink must not be blocked.

No exponga este equipo a la lluvia o humedad. No use este aparato cerca del agua (piscinas y fuentes, por ejemplo). No exponga el equipo a salpicaduras ni coloque sobre él objetos que contengan líquidos, tales como vasos y botellas. Equipo IP-20.

Do not expose this device to rain or moisture. Do not use this apparatus near water (for example, swimming pools and fountains). Do not place any objects containing liquids, such as bottles or glasses, on the top of the unit. Do not splash liquids on the unit. IP-20 equipment.

Este símbolo indica que el presente producto no puede ser tratado como residuo doméstico normal, sino que debe entregarse en el correspondiente punto de recogida de equipos eléctricos y electrónicos.



This symbol on the product indicates that this product should 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.

Equipo diseñado para funcionar entre 15°C y 42°C con una humedad relativa máxima del 95%, con un rango de $\pm 10\%$ de la tensión nominal de alimentación indicada en la etiqueta trasera (según IEC 60065:2001).

Working temperature ranges from 15°C to 42°C with a relative humidity of 95%, with $\pm 10\%$ of the rated main voltage value indicated on the rear label (according to IEC 60065:2001).

El cableado exterior conectado al equipo requiere de su instalación por una persona instruida o el uso de cables flexibles ya preparados.

The outer wiring connected to the device requires installation by an instructed person or the use of a flexible cable already prepared.

Si el aparato es conectado permanentemente, la instalación eléctrica del edificio debe incorporar un interruptor multipolar con separación de contacto de al menos 3mm en cada polo.

If the apparatus is connected permanently, the electrical system of the building must incorporate a multipolar switch with a separation of contact of at least 3mm in each pole.

Desconecte este aparato durante tormentas eléctricas, terremotos o cuando no se vaya a emplear durante largos periodos.

Unplug this apparatus during lightning storms, earthquakes or when unused for long periods of time.

No emplace altavoces en proximidad a equipos sensibles a campos magnéticos, tales como monitores de televisión o material magnético de almacenamiento de datos.



Do not place loudspeakers in proximity to devices sensitive to magnetic fields such as television monitors or data storage magnetic material.

No emplace el producto sobre un carro, base, trípode, soporte o mesa inestables. El dispositivo puede caer, causando serias heridas y dañándose gravemente.

Do not place the product on an unstable cart, stand, tripod, bracket or table. The device may fall, causing serious injury, and serious damage to the device itself.

El colgado del equipo sólo debe realizarse utilizando los herrajes de colgado recomendados y por personal cualificado. No cuelgue la caja de las asas.

The appliance should be flown only from the rigging points and by qualified personnel. Do not suspend the box from the handles.

No existen partes ajustables por el usuario en el interior de este equipo. Cualquier operación de mantenimiento o reparación debe ser realizada por personal cualificado. Es necesario el servicio técnico cuando el equipo se haya dañado de alguna forma, como que haya caído líquido o algún objeto en el interior del aparato, haya sido expuesto a lluvia o humedad, no funcione correctamente, haya recibido un golpe o su cable de red esté dañado.

No user serviceable parts inside. 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.

Limpie con un paño seco. No use limpiadores con disolventes.

Clean only with a dry cloth. Do not use any solvent based cleaners.

La reventa del producto sólo es posible incluyendo el manual de usuario. Cualquier cambio producido en el producto tiene que ser documentado por escrito y aprobado por el comprador en el momento de la reventa.

Reselling of the product is only possible if the user manual is available. Any changes made to the product have to be documented in writing and passed on to the buyer in the event of resale.



Caja acústica pasiva / Passive loudspeaker enclosure

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El doble cuadrado indica equipo de Clase II.



The double square indicates Class II device.

Las especificaciones se encuentran en la etiqueta de la parte posterior del producto.

The specifications can be found on the rear label of the product.

No exponga este equipo a la lluvia o humedad sin el protector de lluvia recomendado. No use este aparato cerca del agua (piscinas y fuentes, por ejemplo). No exponga el equipo a salpicaduras sin el protector de lluvia recomendado, ni coloque sobre él objetos que contengan líquidos, tales como vasos y botellas.

Do not expose this device to rain or moisture without the rain protector supplied. Do not use this apparatus near water (for example, swimming pools and fountains). Do not place any objects containing liquids, such as bottles or glasses, on the top of the unit. Do not splash liquids on the unit without the rain protector supplied.

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This symbol on the product indicates that this product should 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.

Equipo diseñado para funcionar entre 15°C y 42°C con una humedad relativa máxima del 95%.

Working temperature ranges from 15°C to 42°C with a relative humidity of 95%.

El cableado exterior conectado al equipo requiere de su instalación por una persona instruida o el uso de cables flexibles ya preparados.

The outer wiring connected to the device requires installation by an instructed person or the use of a flexible cable already prepared.

El equipo cuenta con dos conectores de entrada en paralelo para facilitar la conexión de varias cajas en paralelo.

Note that the two Speakon input connectors are wired in parallel to provide easy parallel connection of several enclosures.

No emplace altavoces en proximidad a equipos sensibles a campos magnéticos, tales como monitores de televisión o material magnético de almacenamiento de datos.



Do not place loudspeakers in proximity to devices sensitive to magnetic fields such as television monitors or data storage magnetic material.

El colgado del equipo sólo debe realizarse utilizando los herrajes de colgado recomendados y por personal cualificado. No cuelgue la caja de las asas.

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Clean only with a dry cloth. Do not use any solvent based cleaners.

GARANTÍA

Todos nuestros productos están garantizados por un periodo de 24 meses desde la fecha de compra.

Las garantías sólo serán válidas si son por un defecto de fabricación y en ningún caso por un uso incorrecto del producto.

Las reparaciones en garantía pueden ser realizadas, exclusivamente, por el fabricante o el servicio de asistencia técnica autorizado.

Otros cargos como portes y seguros, son a cargo del comprador en todos los casos.

Para solicitar reparación en garantía es imprescindible que el producto no haya sido previamente manipulado e incluir una fotocopia de la factura de compra.

WARRANTY

All D.A.S. products are warrantied against any manufacturing defect for a period of 2 years from date of purchase.

The warranty excludes damage from incorrect use of the product.

All warranty repairs must be exclusively undertaken by the factory or any of its authorised service centers.

To claim a warranty repair, do not open or intend to repair the product.

Return the damaged unit, at shippers risk and freight prepaid, to the nearest service center with a copy of the purchase invoice.



DECLARACIÓN DE CONFORMIDAD DECLARATION OF CONFORMITY

D.A.S. Audio, S.A.

C/ Islas Baleares, 24 - 46988 - Pol. Fuente del Jarro - Valencia. España (Spain).

Declara que *UX series*:

Declares that *UX series*:

Cumple con los objetivos esenciales de las Directivas:

Abide by essential objectives relating Directives:

- Directiva de Baja Tensión (Low Voltage Directive) 2006/95/CE
- Directiva de Compatibilidad Electromagnética (EMC) 2004/108/CE
- Directiva RoHS 2011/65/UE
- Directiva RAEE (WEEE) 2012/19/UE

Y es conforme a las siguientes Normas Armonizadas Europeas:

In accordance with Harmonized European Norms:

- EN 60065:2002+A1:2006 +A11:2008+A2:2010 +A12:2011
Audio, video and similar electronic apparatus. Safety requirements.
- EN 55103-1:2009
Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1:Emission.
- EN 55103-2:2009
Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2:Immunity.

INTRODUCTION

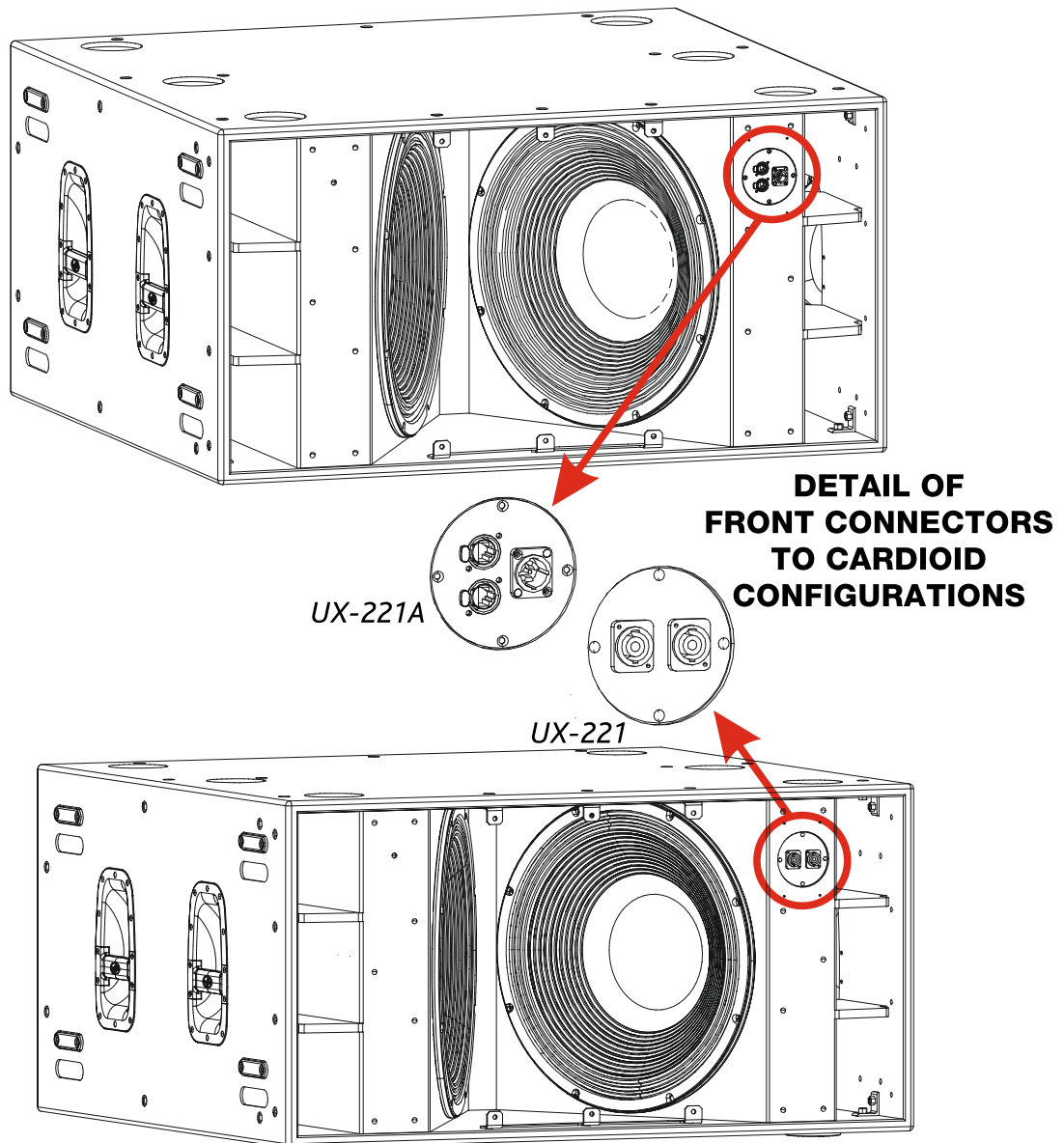
The *UX-221* and *UX-221A* are equipped with two 21" loudspeakers with impressive specifications. The *21UXN4* loudspeakers of 4 ohms are mounted into the *UX-221*, and the *21UXN*, of 8 ohms are mounted into the *UX-221A*. Both 21" models are equipped with 6" voice coils, a remarkable 60 mm peak-to-peak excursion, and powerful neodymium magnet assemblies. Efficient ventilation of the voice coil gap provides for a high thermal rating, and reduced power compression.

The *UX-221A* amplifier delivers 2 x 3400 W and incorporates the latest in Class D power amplification. A high efficiency, low consumption universal power supply with Power Factor Correction (PFC) allows for fail-safe use worldwide. State-of-the-art electronic design such as the fixed frequency switch mode output stage provides for the highest grade of audio accuracy. A comprehensive set of "smart" protections include thermal, over current, short circuit and overload on the output, clip limiter and high frequency protection keeping the amp and acoustic components safe.

The enclosure is manufactured using 21 mm birch plywood and D.A.S.'s strict standards for strength and durability. The enclosure is finished with the tough ISO-flex exterior coating and a punched steel grille protects the speaker components. The *UX-221* is the version designed for external amplification.

The *PL-221S* is an accessory (platform with casters) which allows the stacking and transporting up to 3 units. Also optionally, there are covers for the protection of the units during transport.

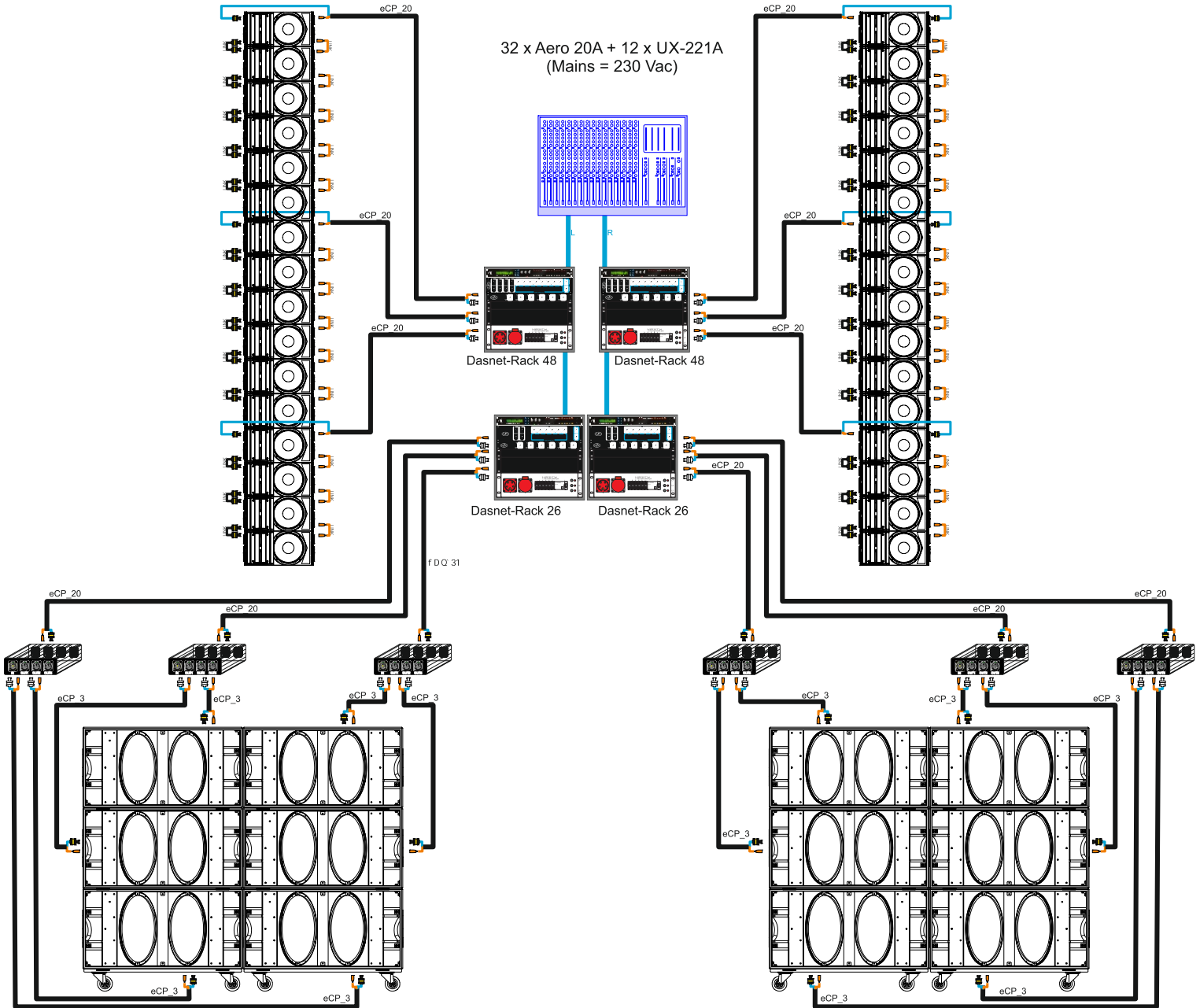
The enclosures incorporate front connectors which allow easy installation when used in cardioid configuration. The *UX-221A* are equipped with connectors for power and audio+data, *DASnet™* by EtherCon connectors. The *UX-221* are equipped with two more speakon connectors (as seen in the images below).



CONFIGURATIONS

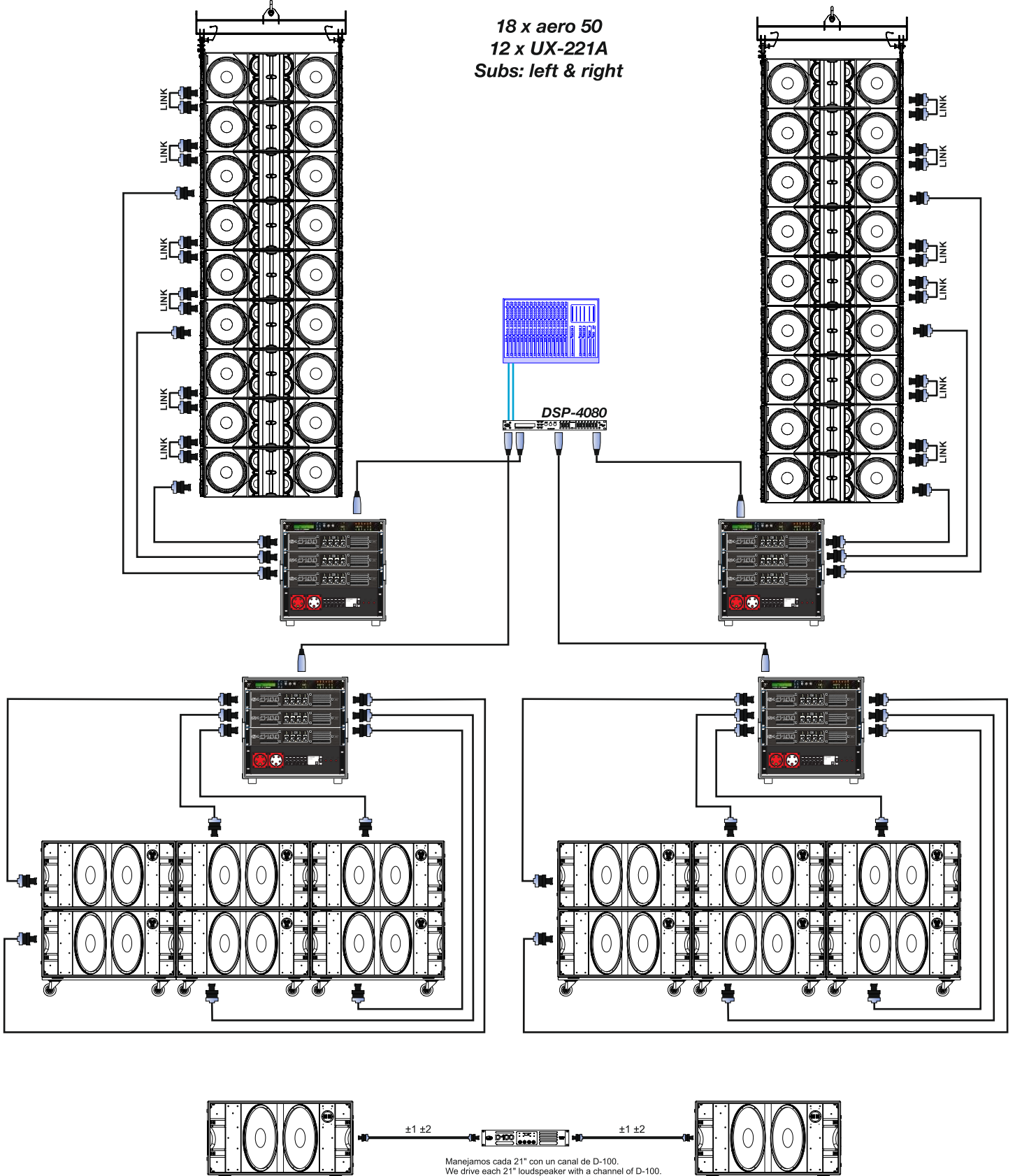
Next, you will see two examples. You will find more configurations on our website.

Example with UX-221A



Example with UX-221

18 x aero 50
12 x UX-221A
Subs: left & right



SPECIFICATIONS

UX-221

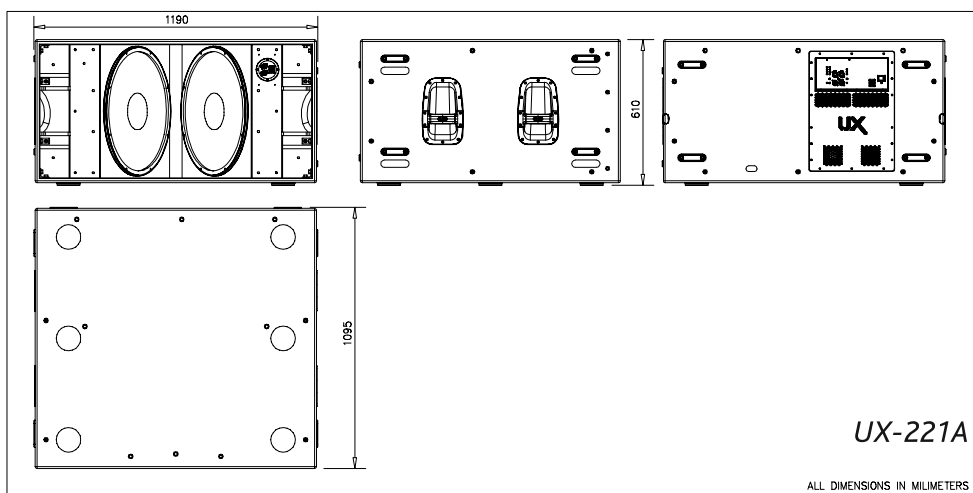
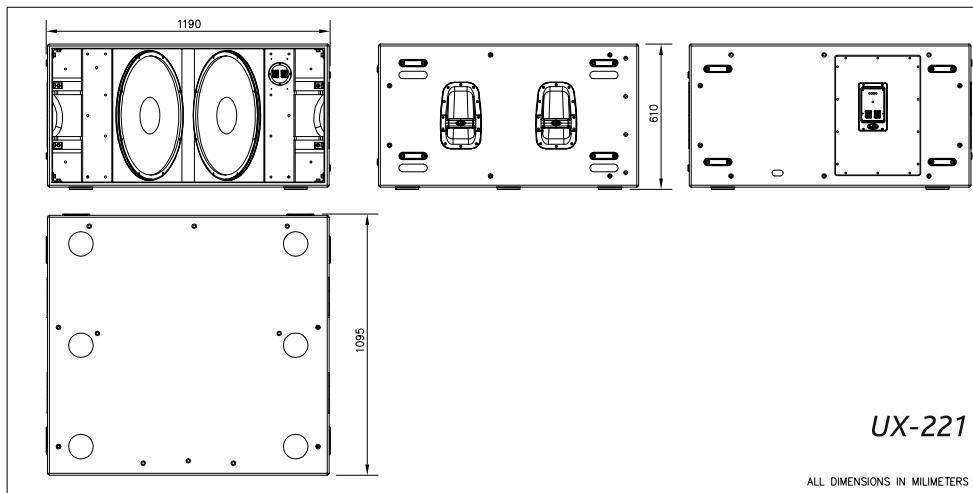
Frequency Range (-10 dB)	22 Hz – 95 Hz
RMS (Average) Power Handling	2 x 2000W
On-Axis Sensitivity 1W/1m	104 dB SPL
Rated Maximum Peak SPL at 1 m	145 dB
Transducers / Replacement Parts	LF: 2 x 21UXN4 / GM 21UXN4
Nominal Impedance	2 x 4 Ohms
Recommended Amplifier Power	2 x 2200W @ 4 Ohms (1 unit UX-221)
Enclosure Geometry	Rectangular
Enclosure Material	Birch Plywood
Color/Finish	Black ISO-flex Paint
Rigging System	Ground Stackable
Connectors	2 x NL4 speakON wired ±1 & ±2
Dimensions (H x W x D)	60 x 120 x 110 cm 23.6 x 47.2 x 43.3 in
Weight	140 kg (308 lb)
Accessories	ANL-2 Eye Bolt PL-221S FUN-2UX221

UX-221A

Nominal Amplifier Power	2 x 6800 W _{peak} - 2 x 3400 W _{continuous}
Input Type	Balanced Differential Line
Input Impedance	Line: 20 kohms
Sensitivity	Line: 1.95 V (+8 dBu)
Frequency Range (-10 dB)	22 Hz – 95 Hz
Rated Maximum Peak SPL at 1 m	145 dB
Transducers / Replacement Parts	LF: 2 x 21UXN / GM 21UXN
Enclosure Geometry	Rectangular
Enclosure Material	Birch Plywood
Color/Finish	Black ISO-flex Paint
Rigging System	Ground Stackable
Connectors	Audio INPUT: Female XLR Audio LOOP THRU: Male XLR Audio + Data INPUT: EtherCon Audio + Data OUTPUT: EtherCon AC INPUT: PowerCon TRUE1
AC Power Requirements	Universal Mains 85 - 230V 18.4A at 115 V, 9.2A at 230V
Dimensions (H x W x D)	60 x 120 x 110 cm 23.6 x 47.2 x 43.3 in
Weight	150 kg (330 lb)
Accessories	ANL-2 Eye Bolt PL-221S FUN-2UX221

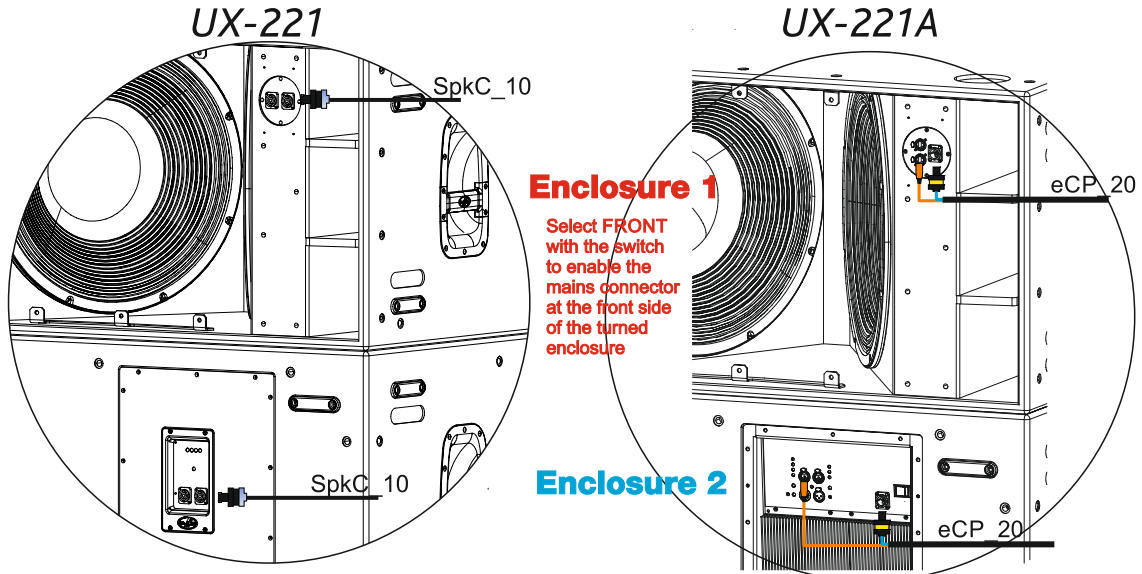
D.A.S. Audio S.A. continuously strives to enhance its products through investigation and development. All specifications are subject to change without prior warning.

LINE DRAWINGS



CONNECTIONS

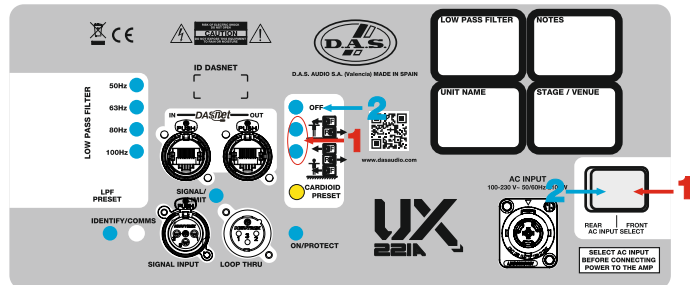
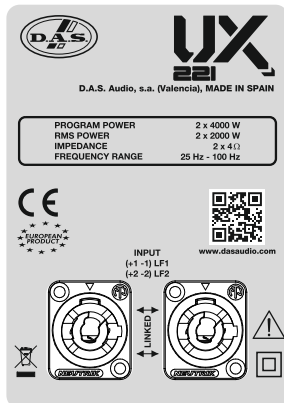
When boxes are flown in cardioid configuration the turned units must be fed by the front for wires' grouping, as shown in the figures (rear views).



With *UX-221* units, you only need to connect through the front connector. **Keep in mind the label directions for proper connection of speakers:**

LF1 (± 1), LF2 (± 2).

With *UX-221A* units, select FRONT with this switch to enable the mains connector at the front side of the turned enclosure (enclosure 1), while select REAR for the enclosure 2.



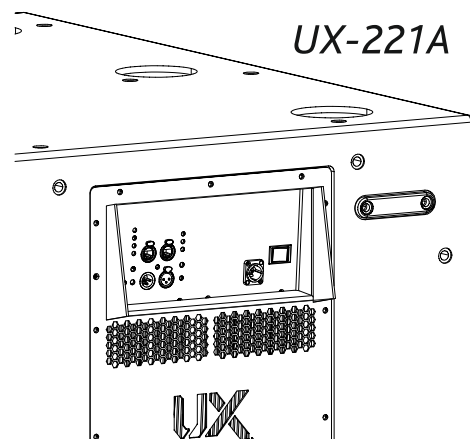
Rain protector

Electronic devices can be damaged when exposed to water or moisture. The *UX-221A* amplifiers must be protected when installed outdoors. A rain protector is supplied with each self powered *UX-221A* unit.

The rain protector is specially designed to withstand soft rain and other meteorological conditions for short periods of time. In the case of heavy rains, storms or permanent outdoor installations the sound system must be protected with additional elements.

The rain protectors supplied with each unit have been manufactured with fireproof materials.

The rain protector features several small holes on the top side to allow convection cooling of the amplifier.



UX-221A AMPLIFIER

1) SIGNAL INPUT :

XLR type input signal connectors. As the LOOP THRU connector, they are balanced with the following pin assignments:

- 1=GND (Ground).
- 2=(+) Non inverted input.
- 3=(-) Inverted input.

2) LOOP THRU :

XLR type output signal connector for connecting several units together and sending them all the same input signal.

3) SIGNAL / LIMIT :

Two color LED which indicates that there is signal presence if it shines green or indicates amplifier saturation and the amplifier limiter is activated, if it shines red.

4) IDENTIFY / COMMS :

Orange LED that shines flashing when we push IDENTIFY (to identify the unit) or blink faster if there is communication with *DASnet™*.

5) ON / PROTECT :

Two color LED indicates that the unit is ON if it shines green and protection if it shines red.

6) LPF PRESET :

This push button allows the "LOW PASS FILTER" selection. The LED shining indicates the selected value.

7) CARDIOID PRESET :

This push button allows the "CARDIOID PRESET" selection. The LED shining indicates the selected value: OFF, 2 units and 3 units.

8) IN/OUT :

Neutrik EtherCon connectors for audio+data input/output with *DASnet™*. With the output connector we can interconnect several units.

9) Zone for user notes.

10) AC INPUT SELECT :

This switch actives, or not, the mains connector at the front side of the enclosure. When we use a cardioid configuration, we should connect the mains at the front side of the turned enclosure for wires' grouping. **Select before connecting power to the unit.**

11) AC INPUT :

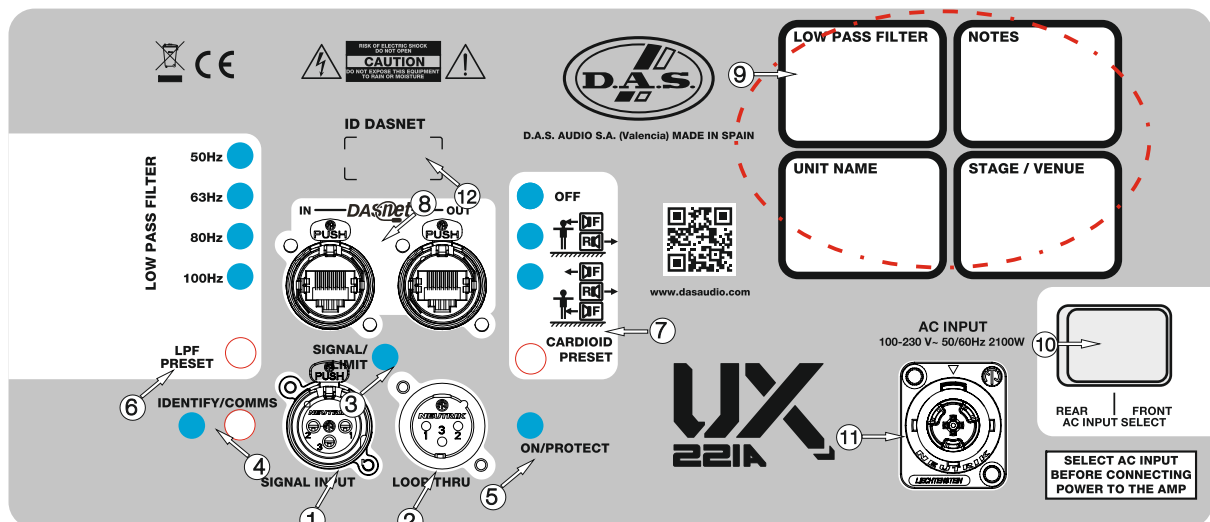
Neutrik PowerCon TRUE1 mains connector. **Only use this equipment with an appropriate mains cord.**

12) AC OUTPUT :

Neutrik PowerCon TRUE1 mains connector for connecting several units of *LX-118A* (please, see the maximum value on the label).

13) ID DASNET :

Label with identification number for *DASnet™*.



View of the amplifier

Note: To "reset" without using *DASnet* press and hold the "CARDIOID PRESET" button, while turning the PowerCon and turn on the power.

ON/OFF

A sound system should be switched on sequentially. Switch on the self-powered units last in your sound system (switch on the subwoofer before the mid-high system). Switch on the sound sources such as CD players or turntables, then the mixer, then the processors, and finally the self-powered unit. If you have several units, it is recommended that you switch them on sequentially one at a time.

Follow the inverse order when switching off, turning self-powered units off before any other element in the sound system.

Disconnect the device by removing the mains connector from the mains socket. The mains connector and mains socket must always be freely accessible and never covered or blocked in any way.

The models use a power cable equipped with a Neutrik PowerCon TRUE1 connector. Power can be daisy chained via the TRUE1 output connector (see details on product label).

IMPORTANT: Do not disconnect the unit while in use.

Ensure that the device is disconnected from the mains by observing that the ON LED is turned off. Please note that the ON LED can stay on for several seconds after the mains power has been disconnected.

Overload indicator

This device has a SIGNAL/LIMIT indicator. The red light indicates the signal is excessive.

The indicator should not be lit continuously. This distorts the signal (quickly fatiguing your ears) and may damage the speakers.

Equalisation

The unit does not need extreme settings of equalisation to produce quality sound. Avoid high levels of gain on the equalisers. Gain values above +3 dB on a console's EQ are not recommended.

Overheating

This equipment does not normally overheat during normal conditions of use. When overheating occurs, the unit protects itself. You should then find out why and if necessary contact an authorised dealer for technical assistance.

Normally it is enough just to let the unit cool down after you have corrected the problem so that the system functions properly again.

Low mains voltage

If mains voltage falls below the shutdown voltage for the unit, it will stop playing. When acceptable levels are regained, the unit will switch back on automatically.

The unit recognised the value of mains automatically. The unit works from 80V to 260V (both rms).

Cardioid Preset

This unique feature facilitates the configuration of two or three units to create a cardioid response pattern. This is useful in situations where on-stage bass level projected from the subs needs to be kept to a minimum.

To set-up a cardioid configuration with two stacked units, place the bottom unit facing the audience and the top box facing the stage. Set the controls for level, polarity and cut-off frequency identically on both units. Daisy-chain the signal from one unit to the other (do not activate the satellite output high-pass filter). Activate the Cardioid Preset button on the box facing the stage. This provides the level and phase adjustments necessary to cancel the rear projected sound waves "cleaning" the stage of unwanted bass.

To assemble a cardioid configuration with three stacked units, the procedure is basically the same. Place the lower and top boxes facing the audience, the middle box facing the stage. Daisy-chain the signal, make sure the level, polarity and cut-off frequency are the same on all the boxes and lastly, activate the Cardioid Preset button on the box facing the stage.



View of DASnet™ with the cardioid presets

Low Pass Filter

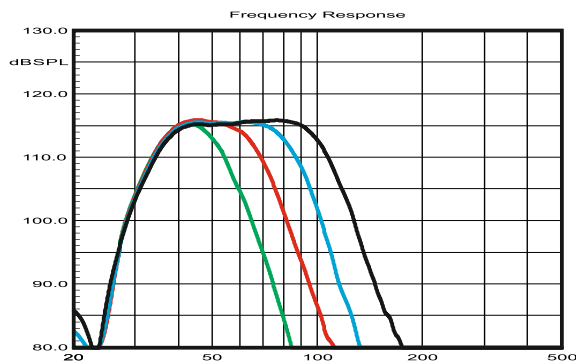
There are 4 cut frequencies available: 50, 63, 80 and 100 Hz.

To use *UX-221A* onto *Aero 20A*, you must select the 80Hz and the cardioid preset OFF. This preset is appropriate for aligning with *Aero 20A*.

Note: DO NOT APPLY high pass filter IN ANY *Aero 20A*! The power in the low frequency of the *Aero 20A* must be added to the power of the *UX-221A* and if we apply a High Pass filter to the *Aero 20A*, you will loose too much energy. Remember that the *Aero 20A* has an internal High Pass at 60Hz.



View of *DASnet™* with LowPass Filter presets



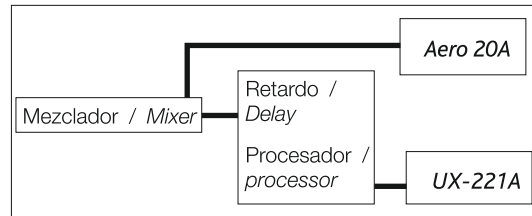
Current consumption: AC input =230 Vrms

UX-221A	
Full power	9.2A
1/3 Power	9.2A
1/8 Power	5.7A
Idle	0.4A

Remember: the consumption at 115Vac is double than that at 230Vac

Connections

The most common use will be combined with the satellite system. The use of an **external delay** to control and adjust the phase of the subs is recommended (with a digital processor, for example). The SUB units are linked with the THRU option setting.



The OUTPUT and LOOP THRU connectors are output XLR type connectors and are useful for daisy chaining the same signal to a number of boxes, connecting them in parallel.

The number of units that can be linked this way depends on the output impedance of the equipment driving the enclosure, such as the mixer or processor. Typically, to avoid signal degradation, the maximum number that can be daisy chained is given by the formula $Z_c > 10Z_s$, where Z_c is the load impedance and Z_s is the output impedance of the equipment driving the enclosure (mixer, console, etc). For instance, a mixing console with 100 ohm output impedance allows daisy chaining 20 boxes, when the input impedance of the cabinets is 20K ohm.

Troubleshooting

PROBLEM	CAUSE	SOLUTION
No sound from the unit. The SIGNAL LED does not light up.	<ul style="list-style-type: none"> 1 - The signal source is sending no signal. 2 - Defective cable. 	<ul style="list-style-type: none"> 1 - Check that the mixer or sound source is sending signal to the UNIT. 2 - Check that the cable from the sound source to the UNIT is connected correctly. Replace the cable if defective.
Full power cannot be obtained. The LIMIT LED never lights up.	<ul style="list-style-type: none"> 1 - The signal source does not have a hot enough output. 2 - If the connections are correct, it might be overheating 	<ul style="list-style-type: none"> 1 - If using a mixer, use the balanced output if available. Use a professional mixer with a hotter output. 2 - Try to cool the unit turning down the master of the mixer.
Sound is distorted. The LIMIT LED is not on, or only lights up occasionally.	<ul style="list-style-type: none"> 1 - The mixer or signal source is distorting. 	<ul style="list-style-type: none"> 1 - Turn mixer channel gains down. Check that none of your signal sources are distorting.
Sound is distorted and very loud and LIMIT LED lights up.	<ul style="list-style-type: none"> 1 - The system is overloaded and has reached maximum power. 	<ul style="list-style-type: none"> 1 - Turn down the mixer's output.
Hum or buzz when a mixer is connected to the unit.	<ul style="list-style-type: none"> 1.- The console probably has un-balanced outputs. You may be using an incorrect un-balanced to balanced cable. 2.- The mixer and the powered speaker are not plugged into the same mains outlet. 3.- The audio signal cable is too long or too close to an AC cable. 4 - DASnet ecP_xx cable is defective. 5 - Error in DASnet Patch panel 485 net connection. 	<ul style="list-style-type: none"> 1.- Read the appendix of this manual to make a correct un-balanced to balanced cable. 2.- Connect the mixer and the unit to the same mains outlet. 3.- Use a cable that is as short as possible and/or move the audio signal cable away from the mains cables. 4 - Check that there aren't pins crossed in CAT7 cable. Possible short between audio par and DASnet signal. 5 - Make sure that Audio INPUT is not connected in DASnet INPUT and vice versa.
Hum or buzz when using lighting controls in the same building.	<ul style="list-style-type: none"> 1.- The audio signal cable is too long or too close to the lighting cable. 2.- In a sound system with three-phase AC, the lighting equipment and the UNIT are connected to the same phase. 	<ul style="list-style-type: none"> 1.- Move the audio signal cable away from lighting cables. Try to find out at what point the noise is leaking into the system. 2.- Connect the sound system to a different phase than the lights. You may need the help of an electrician.
The ON LED does not light up when the mains connector is connected and the unit is switched to ON.	<ul style="list-style-type: none"> 1.- Bad or loose AC connection to the UNIT or the mains outlet. 2 - Faulty AC cable. 3 - Internal fuse blown 	<ul style="list-style-type: none"> 1.- Check your connections. 2.- Check the cables, connectors and AC power with a suitable mains tester. 3 - Replace the fuse for another of the same size and type.

ACCESSORIES

Although they have integrated anchors on the enclosure for threaded rings (accessory ANL-2), the practical use of the *UX-221* and *UX-221A*, will be stacking.

With the dolly *PL-221S* (WLL = 450kg), we can stack and transport up to 3 units *UX-221* or *UX-221A*.

To perform any operations related to flying the system, read the present document first, and act on the warnings and advice given.

The goal is to allow the user to become familiar with the mechanical elements required to fly the acoustic system, as well as the safety measures to be taken during set-up and teardown.

Only experienced installers with adequate knowledge of the equipment and local safety regulations should fly speaker boxes.

It is the user's responsibility to ensure that the systems to be flown (including flying accessories) comply with state and local regulations.

The working load limits in this manual are the results of tests by independent laboratories. It is the user's responsibility to stay within safe limits. It is the user's responsibility to follow and comply with safety factors, resistance values, periodical supervisions and warnings given in this manual.

Product improvement by means of research and development is on going at D.A.S. Specifications are subject to change without notice.

To this date, there is no international standard regarding the flying of acoustic systems. However, it is common practice to apply 5:1 safety factors for enclosures and static elements.

For slings and elements exposed to material fatigue due to friction and load variation the following ratios must be met; 5:1 for steel cable slings, 4:1 for steel chain slings and 7:1 polyester slings.

Thus, an element with a breaking load limit of 1000 kg may be statically loaded with 200 kg (5:1 safety factor) and dynamically loaded with 142 Kg (7:1 safety factor).

The load capacity, of each lift motor, should be correspond to a safety factor of 10:1.

When flying a system, the working load must be lower than the resistance of each individual flying point in the enclosure, as well as each box.

Hanging hardware should be regularly inspected and suspect units replaced if in doubt.

This is important to avoid injury and absolutely no risks should be taken in this respect. It is highly recommended that you implement an inspection and maintenance program on flying elements, including reports to be filled out by the personnel that will carry out the inspections.

Local regulations may exist that, in case of accident, may require you to present evidence of inspection reports and corrective actions after defects were found.

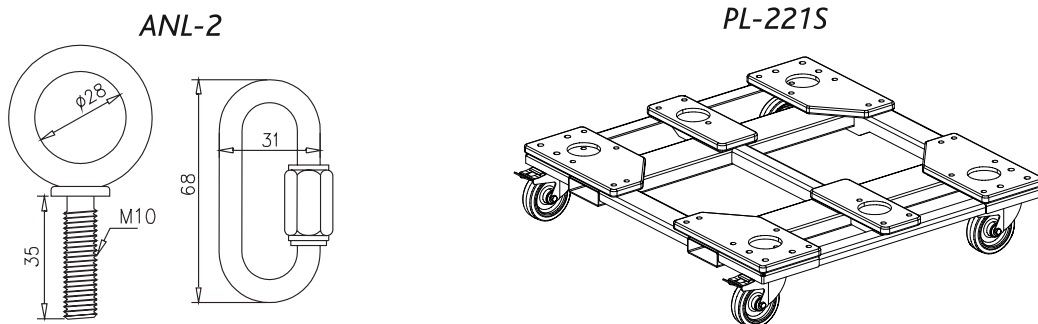
Absolutely no risks should be taken with regards to public safety.

When flying enclosures from ceiling support structures, extreme care should be taken to assure the load bearing capabilities of the structures so that the installation is absolutely safe.

Do not fly enclosures from unsafe structures.

Consult a certified professional if needed.

All flying accessories that are not supplied by D.A.S. Audio are the user's responsibility. Use at your own risk.



To hang the units, the Allen-head screws must be removed and replaced by M10 eyebolts on one side of the enclosure. Each rigging point has 200 kg (440 lb) working load limit.

Then choose the slings or chains of required load resistance and length, bearing in mind that the length difference between the front and back slings or chains will determine the vertical orientation. Alternatively, the back bottom eyebolt points can be used to provide vertical orientation.

The *ANL-2* set is an optional set of four eyebolts and four carabiners. (Dimensions are in millimetres).

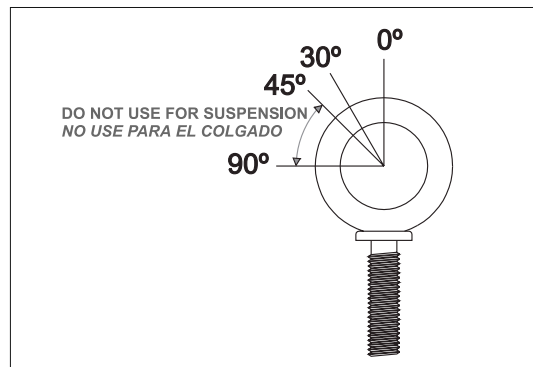
Each *ANL-2* eyebolt has a rated working load of 200 kg. (440 lb). Each *ANL-2* carabiner has a working load of 330 kg (726 lb). If using other hardware, make sure it is rated to handle the required load.

When using eyebolts it is important to bear in mind that the rated working load is only true for a load applied in the plane of the eye, and is significantly reduced for other angles. The drawing illustrates the concept.

The table shows the variation of the working load as a function of the load angle. In the case of the *ANL-2* eyebolt, this means that the 200 kg working load becomes 60 kg at 45 degrees. Do not use eyebolt flying if the load angle is higher than 45 degrees.

Note: As always, when we handle heavy loads, we should wear appropriate clothing and protective elements such as gloves, safety shoes, etc.

	0 Degrees	30 Degrees	45 Degrees	More than 45 Degrees
% Working load	100%	65%	30%	25%

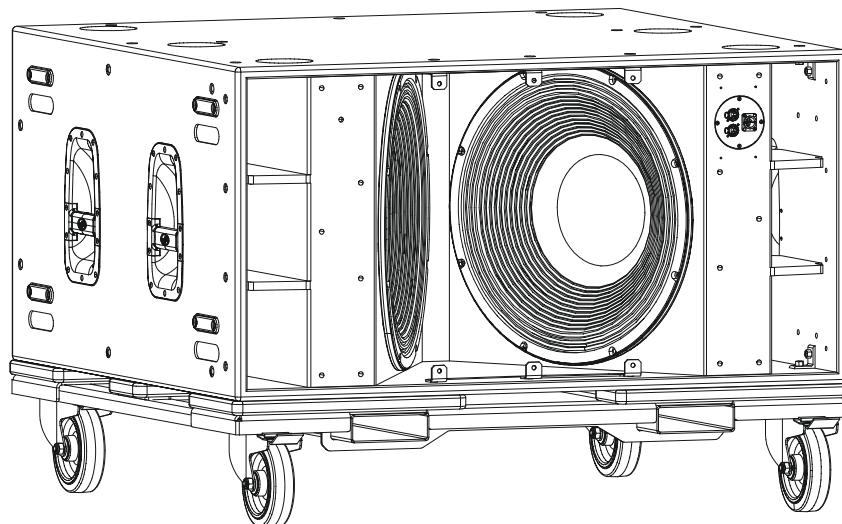


PL-221S

The platform *PL-221S* with a *UX-221A* unit, for example, is shown in the image below.

The platform allows stacking up to 3 units, so when units are transported on the platform, precaution must be taken to avoid tipping, and prevent injuries.

Note: As always, when we handle heavy loads, we should wear appropriate clothing and protective elements such as gloves, safety shoes, etc.



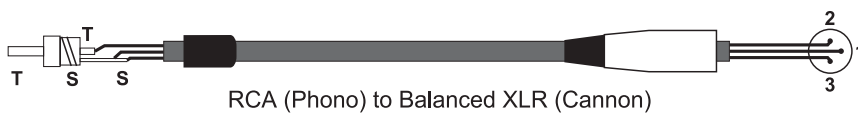
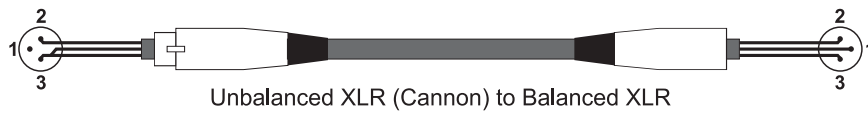
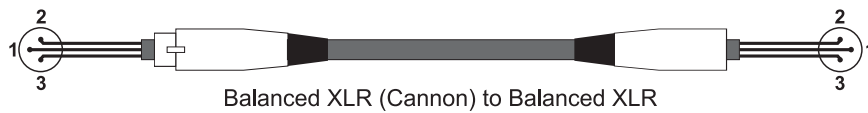
APPENDIX I: Line connections: unbalanced and balanced

There are two basic ways to transport an audio signal with microphone or line level:

Unbalanced line: Utilising a two conductor cable, it transports the signal as the voltage between them. Electromagnetic interference can get added to the signal as undesired noise. Connectors that carry unbalanced signals have two pins, such as RCA (Phono) and ¼" (6.35mm, often referred to as jack) mono. 3 pin connector such as XLR (Cannon) may also carry unbalanced signals if one of the pins is unused.

Balanced line: Utilising a three conductor cable, one of them acts as a shield against electromagnetic noise and is the ground conductor. The other two have the same voltage with respect to the ground conductor but with opposite signs. The noise that cannot be rejected by the shield affects both signal conductors in the same way. At the device's input the two signals get summed with opposite sign, so that noise is cancelled out while the programme signal doubles in level. Most professional audio devices use balanced inputs and outputs. Connectors that can carry balanced signal have three pins, such as XLR (Cannon) and ¼" (6.35mm) stereo.

The graphs that follow show the recommended connection with different types of connectors to balanced processor or amplifier inputs. The connectors on the left-hand side come from a signal source, and the ones on the right hand side go to the inputs of the processor or amplifier. Note that on the unbalanced connectors on the left-hand side, two terminals are joined inside the connector. If hum occurs with balanced connections, try disconnecting the sleeve (ground) on the input connector. Note that the illustrations show what should be connected to what, but that pin locations on an actual XLR connector are different. Also, pin 2 hot is assumed on XLR connectors.



APPENDIX II : DASnet cables

With each system, **cabling and patch panels are provided**. It is very important to use the system with the intended cables to prevent electromagnetic interferences between the analog audio signal, the DASnet data and the power. Be sure to check the specifications provided by the cable manufacturer. It is also especially important when installing connectors yourself, to note that when termination is not accurate, a cable will be unable to achieve its maximum performance and could have interferences.

There are 4 different types of cables:

- The main feeds which include power and a STP, CAT7 cable. These cables are named **eCP_xx** (xx refers to cable length, and the standard values are 3m or 20m).



- The links between cabinets (aero40A/Convert15A/LX-218CAnet), which are STP CAT7 cables. Cable code **eC_09**



- Power Links between cabinets. Cable code **Plink1_09**



- Links for RoadNet series. Power+STP CAT7. eCPk_1/eCPk_5



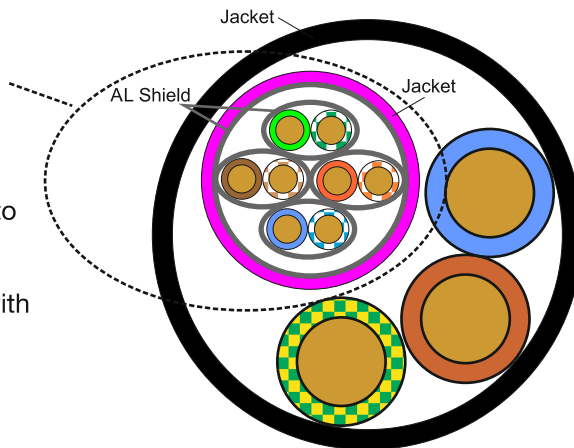
Important

The main feed cable eCP_xx has the following structure:

STP CAT 7 cable with Aluminium Shield for each individual pair and a main aluminium Shield.

The main Shield has to be soldered to the etherCon housing.

The eC_09 cable is a CAT5e cable with global Aluminium Shield.



ecP_xx: Power cable 3x2,5mm² + CAT7 4x (2 x 0,14mm²)

The pin out of the EtherCon to XLR is the following on the eCP cables:

etherCon	XLR
1 Orange-White	Audio+ 2
2 Orange	Audio- 3
3 Green-White	Audio Earth 1
4 Blue	
5 Blue-White	
6 Green	Data Earth 1
7 Brown-White	Data- (A) 3
8 Brown	Data+ (B) 2

www.dasaudio.com



D.A.S. AUDIO, S.A.
C/. Islas Baleares, 24
46988 Fuente del Jarro
Valencia, SPAIN
Tel. +34 96 134 0860

D.A.S. AUDIO OF AMERICA, INC.
6900 NW 52th Street
Miami, FL. 33166 - U.S.A.
TOLL FREE: 1 888 DAS 4 USA

D.A.S. AUDIO ASIA PTE. LTD.
3 Temasek Avenue, Centennial Tower #34-36
Singapore 039190
Tel. +65 6549 7760