



User's Manual

Sound Force 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 pasivas / Passive loudspeaker enclosures

Conserve y lea todas estas instrucciones.

Siga todas las advertencias.

El signo de exclamación dentro de un triángulo indica la existencia de componentes internos cuyo reemplazo puede afectar a la seguridad.



Keep these instructions.

Heed all warnings. Follow all instructions.

The exclamation point inside an equilateral triangle indicates the existence of internal components whose substitution may affect safety.

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.

El colgado del equipo sólo debe realizarse utilizando los herrajes de colgado recomendados y por personal cualificado.

The appliance should be flown only from the rigging points and by qualified personnel.

No exponga este equipo a la lluvia o humedad. 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 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%.

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.

The outer wiring connected to the device requires installation by an instructed person.

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.

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 aparato se haya dañado de alguna forma, tal como que haya caído líquido o algún objeto en el interior del aparato, haya sido expuesto a lluvia o humedad, no funcione correctamente o haya recibido un golpe.

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.



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.

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 *Sound Force series*:

Declares that *Sound Force 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.

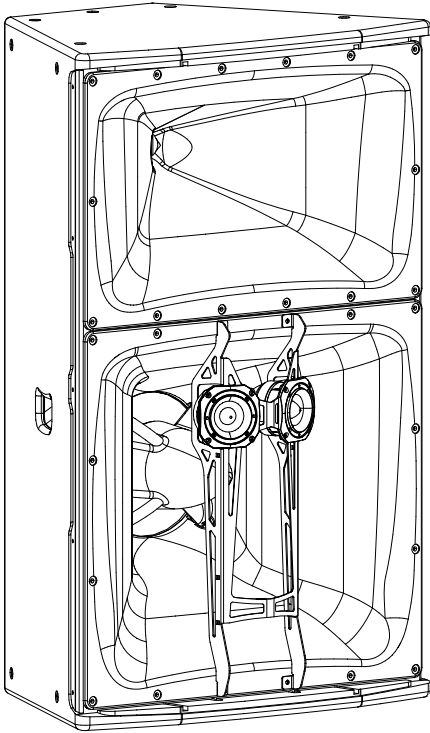
INTRODUCTION

The *Sound Force (SF) series* has been designed for today's high-level dance venues where exceptional sound, imposing power and impressive looks are key requisites.

Thanks to the modularity of the series, the designers of the rooms have a variety of combinations to mid-high, medium-low and subwoofers that can be adapted to specific local needs.

Designed for performance and reliability, built to exacting standards *Sound Force* by **D.A.S. Audio** .The first choice for high-level dance clubs worldwide.

Features



SF-112

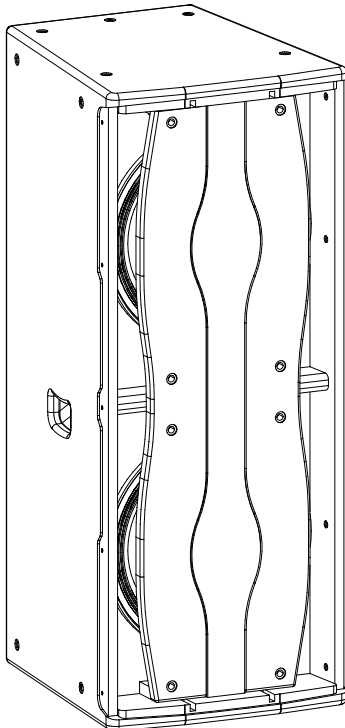
- 12" horn loaded mid-range
- M-75N* neodymium compression driver
- Twin bullet tweeters for very high frequency
- Custom color schemes
- Specific hardware for rigging and stacking

The *SF-112* is a three-way system designed for high level dance clubs. Two large format fiberglass horns comprising the mid and high frequency sections dominate the front of the cabinet. Crisp, articulate and loud, define the *SF-112*. Twin bullet tweeters mounted on the front provide the ultra high frequency reproduction required for dance systems.

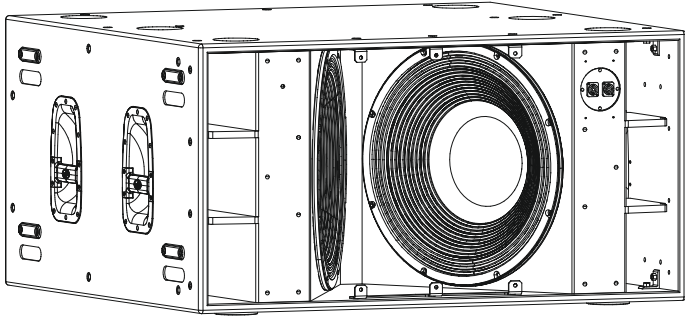
SF-215

- Twin 15" loudspeakers
- Elegant cabinet design
- Band-pass configuration
- Custom color schemes
- Specific hardware for rigging and stacking

The *SF-215* is a bass-mid system comprising twin 15" loudspeakers mounted in a band-pass enclosure. The *SF-215* provides the punch and definition needed for today's dance music. The *SF-215* can be stacked vertically or mounted on either side of the *SF-112* for flown horizontal arrays using the optional stacking and rigging hardware. The elegant cabinet design sports a decorative lacquered center piece which can be ordered with custom colors.



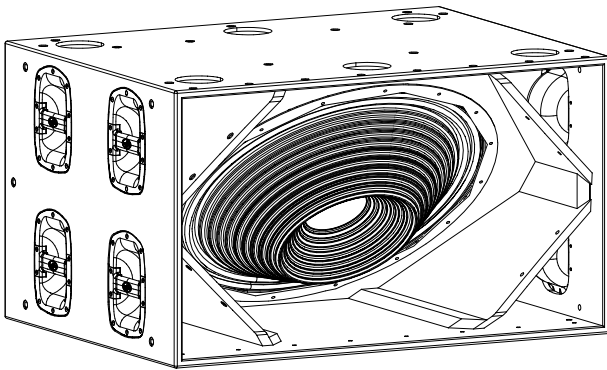
SF-221



- Twin 21" high power loudspeakers
- 6" voice coils for high power handling
- Cross-fire enclosure configuration
- Reinforced enclosure design
- Thunderous low frequency reproduction

The *SF-221* is a twin 21" subwoofer system designed to provide high levels of low frequency energy. The loudspeakers, equipped with 6" voice coils, highly effective heat dissipation schemes, and an extremely robust mechanical design are ideal for dance club applications where long hours of demanding use is the norm. The reinforced enclosure design and cross-fire configuration are key in providing stunning, high-intensity bass.

SF-30A



- Powered subwoofer system
- Single 30" high density polyethylene cone
- Unique moving magnet linear motor design
- Ultra high power amplifier design
- Differential Pressure Control (DPC®)
- Highly reinforced cabinet design
- Unmatched performance compared to conventional systems

The *SF-30A* makes use of an innovative and unique transducer based on the patented M-Force® moving magnet linear motor structure. Unparalleled performance in terms of power handling, electromagnetic conversion, reliability and maximum SPL are a few of the innovative features and improvements with respect to the conventional moving coil arrangement.

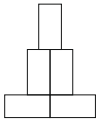
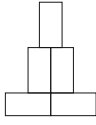
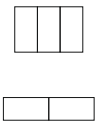
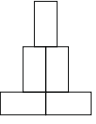
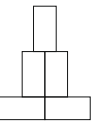
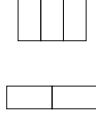
The motor system is driven by an ultra high power Class D amplifier module which is no less impressive than the motor design. Amazing figures in terms of both output voltage (310 V_{peak}) and current capabilities (200 A_{peak}), the M-Drive® amplifier is capable of exploiting the full potential of the M-Force®. The DPC® (Differential Pressure Control) is a powerful active acoustic processing tool which controls and enhances the performance of the system.

M-Force®, M-Drive® and DPC® are registered trademarks of Powersoft S.p.A.

CONFIGURATIONS

Now, the system typical configurations depending on the subwoofer (SF-221 or SF-30A) and the type of SF-112 configuration (passive / biamp) are shown.

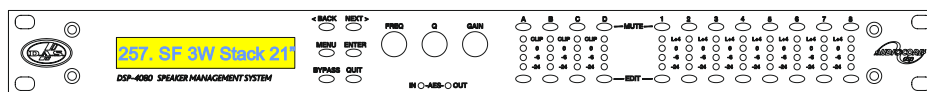
SUMMARY TABLE OF TYPICAL CONFIGURATIONS

Tipo de sistema System type	Modelo de SUB SUB model	Tipo de montaje Set up	Dibujos Drawings	Preset name (DSP2060A / DSP 4080)
3 vías / 3 way TRI-AMP	SF-221	Apilado Stacked		257. SF 3W Stack 21"
4 vías / 4 way QUAD-AMP	SF-221	Apilado Stacked		259. SF 4W Stack 21"
4 vías / 4 way * QUAD-AMP	SF-221	SF-112+SF-215 Colgadas Flown		261. SF 4W Flown 21"
3 vías / 3 way TRI-AMP	SF-30A	Apilado Stacked		258. SF 3W Stack 30"
4 vías / 4 way QUAD-AMP	SF-30A	Apilado Stacked		260. SF 4W Stack 30"
4 vías / 4 way * QUAD-AMP	SF-30A	SF-112+SF-215 Colgadas Flown		262. SF 4W Flown 30"

* Todos los parámetros bloqueados excepto los retardos de cada vía. Durante la instalación se debe proceder al alineamiento temporal adecuado.

* All parameters locked except delays of each way. Proper time alignment must be done during the installation.

Below, a list of Crossover presets for different systems with the DSP-4080 processor is shown. Each preset includes cross frequency, gain level between ways, polarity, set of limiters, etc. Most parameters are blocked by the manufacturer.



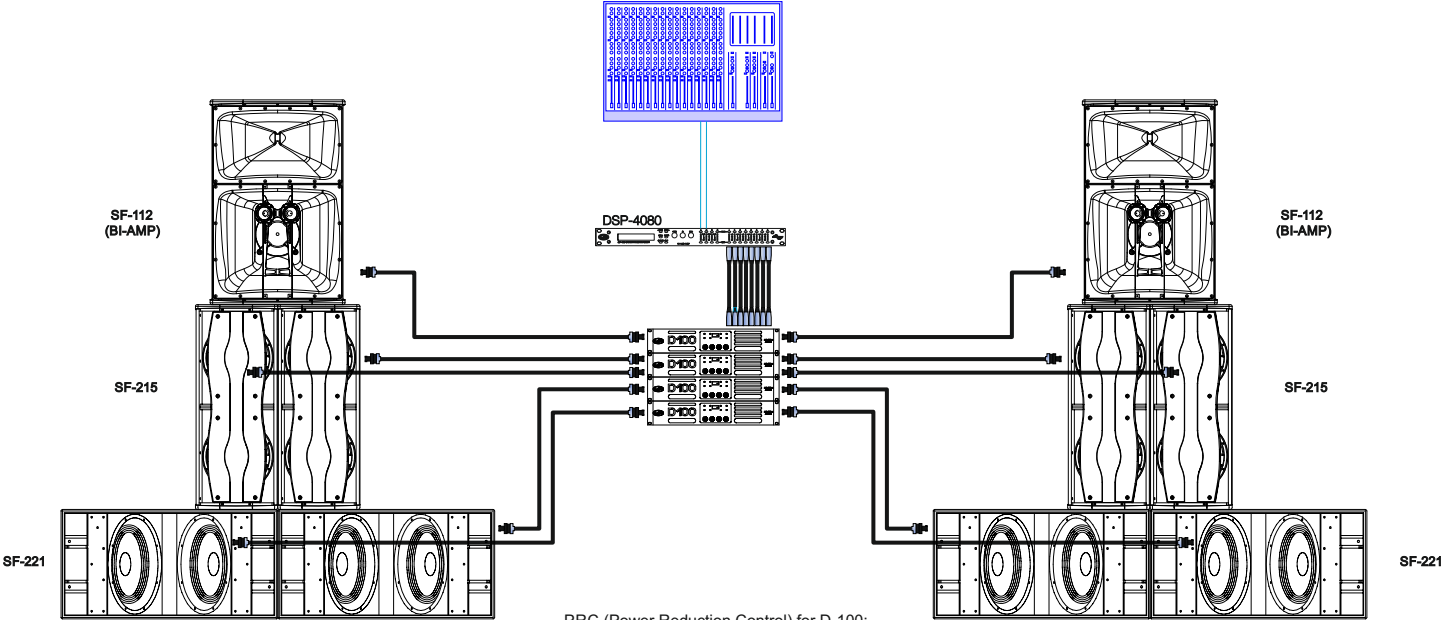
258. SF 3W Stack 30"
259. SF 4W Stack 21"
260. SF 4W Stack 30"
261. SF 4W Flown 21"
262. SF 4W Flown 30"

Remember that DAS Audio processors can be monitored or controlled using DASnet.

CONFIGURATIONS (cont'd)

Next, four configurations as examples are shown.

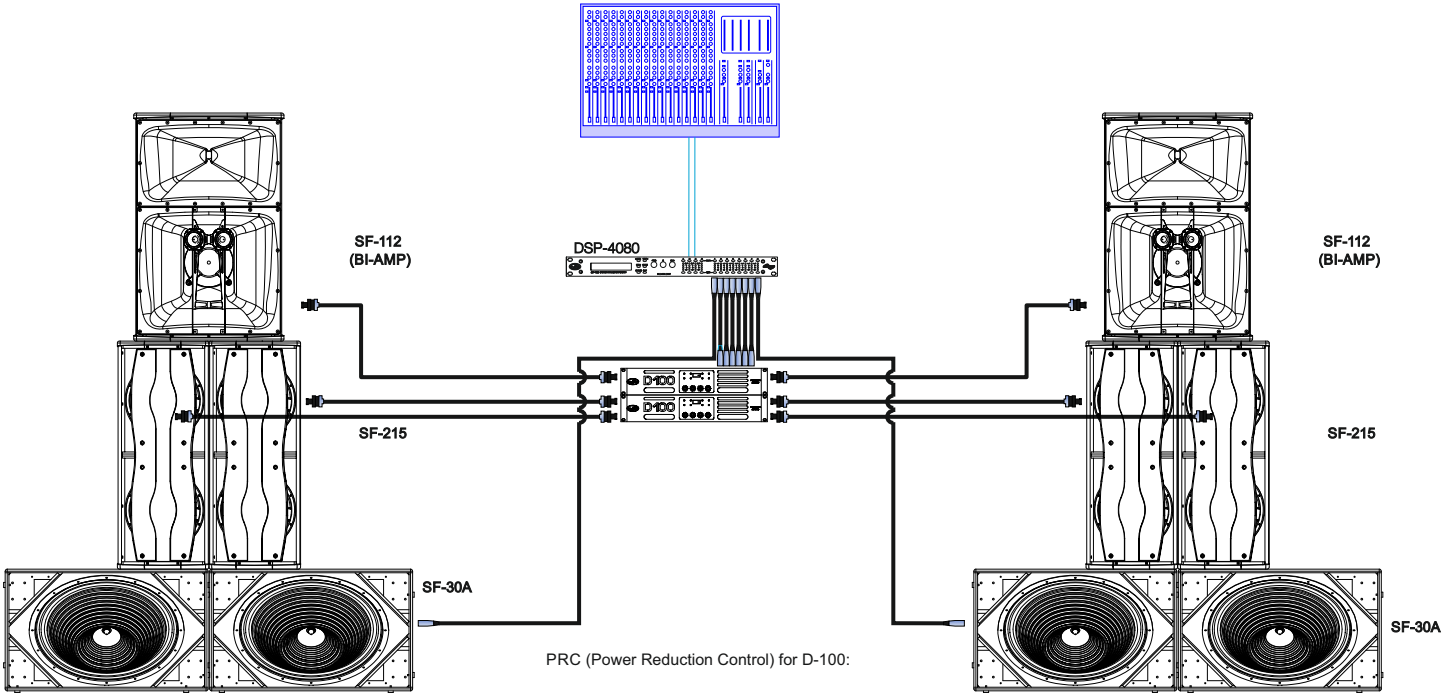
Sound Force Disco Systems
 5 Way System Quad-amplified - 2x21" subwoofers
 40KW



PRC (Power Reduction Control) for D-100:

PRC=0dB for SF-215
 PRC { -4dB for MF of SF-112
 -6dB for HF of SF-112

Sound Force Disco Systems
 5 Way Quad-amplified system - 30" subwoofers (Moving magnet linear motor transducer)
 52KW

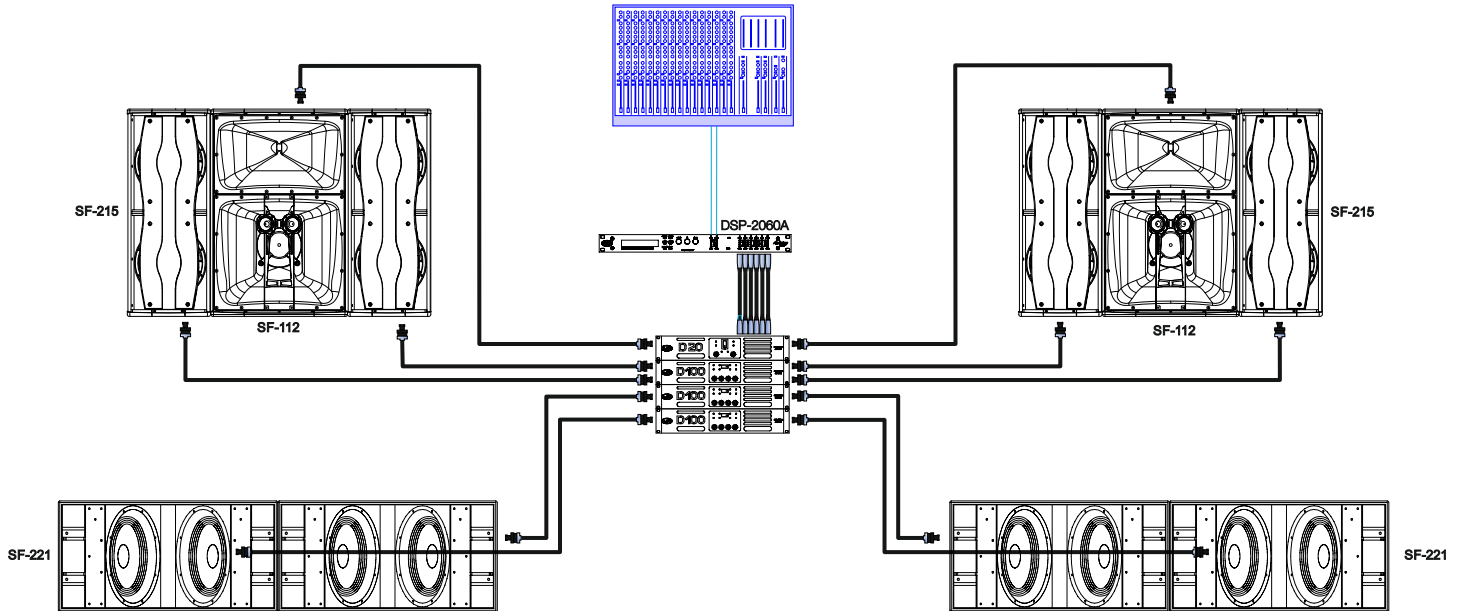


PRC (Power Reduction Control) for D-100:

PRC=0dB for SF-215
 PRC { -4dB for MF of SF-112
 -6dB for HF of SF-112

CONFIGURATIONS (cont'd)

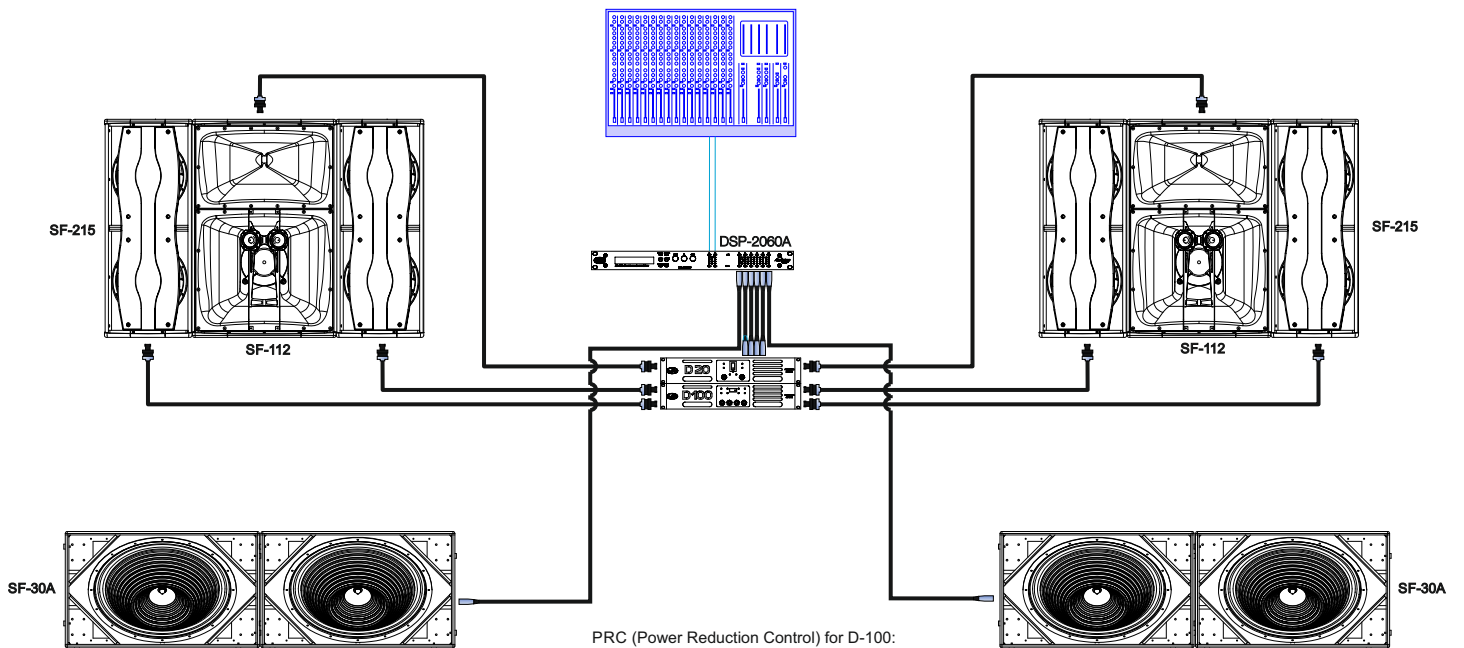
Sound Force Disco Systems
5 Way tri-amplified system - 2x21" subwoofers
32KW



PRC (Power Reduction Control) for D-100:

PRC=0dB for SF-215
PRC=-4dB for SF-112

Sound Force Disco Systems
5 Way tri-amplified system - 30" subwoofers (Moving magnet linear motor transducer)
44KW

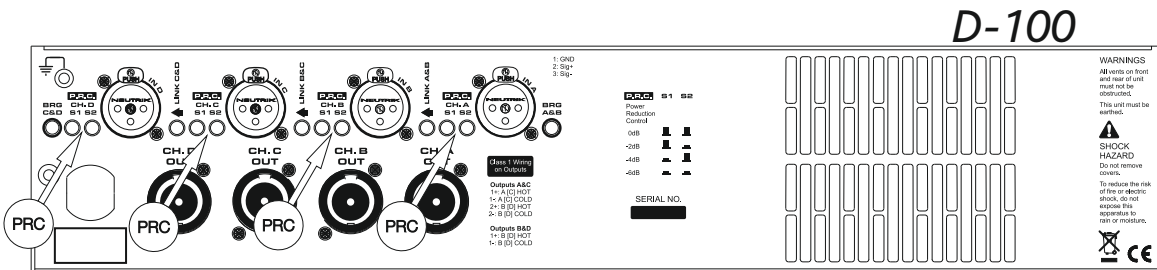


PRC (Power Reduction Control) for D-100:

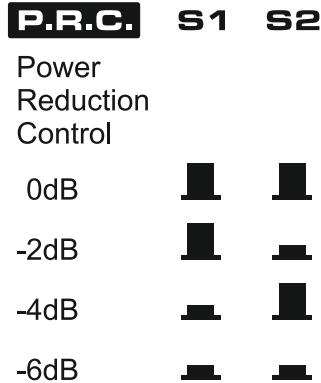
PRC=0dB for SF-215
PRC=-4dB for SF-112

CONFIGURATIONS (cont'd)

Remember the PRC on the *D-100* amplifier:



PRC switches: Each channel of the amplifier may be power limited independently using these pairs of switches in three stages, offering 2, 4 and 6dB of Power Reduction Control. The settings for these switches are on the rear panel for quick reference.



Power Current and Thermal Emissions: *D-100*

Mains (V)	Load (R)	Current Draw (A)				Thermal Emissions (W)			
		No Sig'l	Light	Average	Heavy	No Sig'l	Light	Average	Heavy
240	8	2.1	3.0	4.5	8.3	504	528	566	660
240	4	2.1	3.9	7.0	14.4	504	551	628	816
240	2	2.1	4.5	8.6	19.1	504	564	668	936
120	8	4.2	6.0	9.0	16.6	504	528	566	660
120	4	4.2	7.8	14.0	28.8	504	551	628	816
120	2	4.2	9.0	17.2	38.2	504	564	668	936

No Sig'l = Quiescent, Light = Crest Factor of 7.8(18dB), Average = Crest Factor of 4.8(14dB), Heavy = Crest Factor of 2.8 (9dB)
For details of measurement methods please refer to the Technical Support area of our website.

PRC Settings and Maximum Output: *D-100*

Power Reduction Control Setting	Per Channel	Bridged Pair
Maximum Power into 8 ohms (W)	1400	5300
-2dB PRC	980	3700
-4dB PRC	560	2100
-6dB PRC	310	1175
Maximum Power into 4 ohms (W)	2800	7400
-2dB PRC	1950	5160
-4dB PRC	1110	2940
-6dB PRC	620	1640
Maximum Power into 2 ohms (W)	3700	N/A
-2dB PRC	2580	N/A
-4dB PRC	1470	N/A
-6dB PRC	820	N/A

SPECIFICATIONS

<i>Model</i>	SF-112	SF-215	SF-221
RMS (Average) Power Handling	500W	1400W	2 x 2000W
Peak Power Handling	2000W	5600W	2 x 8000W
Frequency Range (-10 dB)²	80 Hz-20 kHz	60 Hz-250 Hz	28 Hz-125 Hz
Nominal Impedance	8 ohms	4 ohms	2 x 4 ohms
Crossover Modes	Passive / Bi-amp	Passive	Passive
On-axis Sensitivity 1 W/ 1 m	109 dB SPL	102 dB SPL	104 dB SPL
Rated Maximum Peak SPL at 1 m³	142 dB	134 dB	145 dB
HF Horn Coverage Angles (-6dB)	90° x 50°	-----	-----
Enclosure Material	Birch Plywood	Birch Plywood	Birch Plywood
Color/Finish	Black/ISO-flex paint	Black/ISO-flex paint	Black/ISO-flex paint
Rigging points	20 x M10 threaded hardware	20 x M10 threaded hardware	26 x M10 threaded hardware
Transducers/Replacement Parts	LF: 1 x 12HQ/ GM 12HQ HF: M-75N / GM-M75 VHF: 2 x TW1 / GM-TW1	LF: 2x 15GNR / GM 15G	LF: 2 x 21UXN4/ GM 21UXN4
Connectors	2 x NL4 SpeakON®	2 x NL4 SpeakON®	2 x NL4 SpeakON®
Dimensions (H x W x D)	112.4 x 74 x 52 cm 44.5 x 29 x 20.5 in	112.4 x 45.4 x 53.5 cm 44.3 x 18 x 21 in	61x119x109.5 cm 24x46.9x43.1 in
Weight	58 kg 128 lb	59 kg 130 lb	130 kg 286 lb
Accessories	ANL-2 AX-SF112VA AX-SF1 AX-SF3	ANL-2 AX-SF2215 AX-SF1 AX-SF3	ANL-2 AX-SF2215 AX-SF1 AX-SF2

- Notes: 1. Based on a 2 hour test continuously applying 6 dB crest factor pink noise.
 2. In Bi-amp mode, with recommended active settings.
 3. Maximum calculated Peak SPL based on sensitivity and RMS power handling.

<i>Model</i>	SF-30A
Nominal Amplifier Power	15000 W _{peak} – 7500W _{continuous}
Input type	Balanced Differential Line
Input Impedance	20 kohms
Sensitivity	Line: 4.9V (+16dBu)
Frequency Range (-10 dB)⁽¹⁾	28 Hz – 125 Hz
Rated Maximum Peak at 1m⁽²⁾	145 dB
Transducers/Replacement Parts	LF: 1 x M-force 30
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 (DASnet) Audio + Data OUTPUT: etherCON (DASnet) AC INPUT: powerCON TRUE 1
AC Power Requirements 1/3 Power (Pink Noise)	Universal Mains 85-230V 50/60Hz 12.4A at 115V, 6.2A at 230V
Dimensions (H x W x D)	61x105x79.5 cm 24x41.3x31.3 in
Weight	106kg (233 lb)
Accessories	ANL-2 AX-SF2215 AX-SF1 AX-SF2 AXB-SF30 PL-SF30S

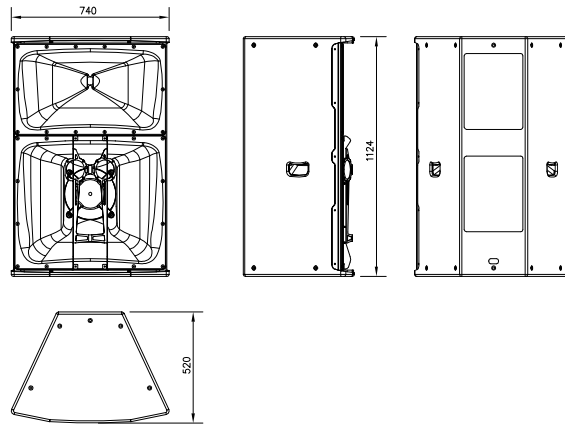
- Notes: 1. Frequency range measured with Low Pass filter set up at 100Hz. Amplifier includes four different Low Pass Filters (50Hz, 63Hz, 80Hz, 100Hz)
 2. Maximum calculated PEAK SPL based on sensitivity and PEAK amplifier power.

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.

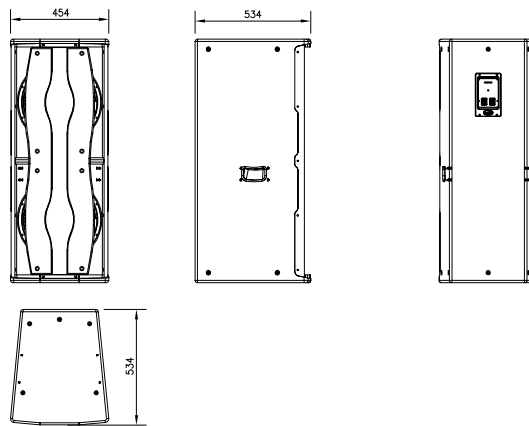
LINE DRAWINGS

ALL DIMENSIONS IN MILLIMETERS

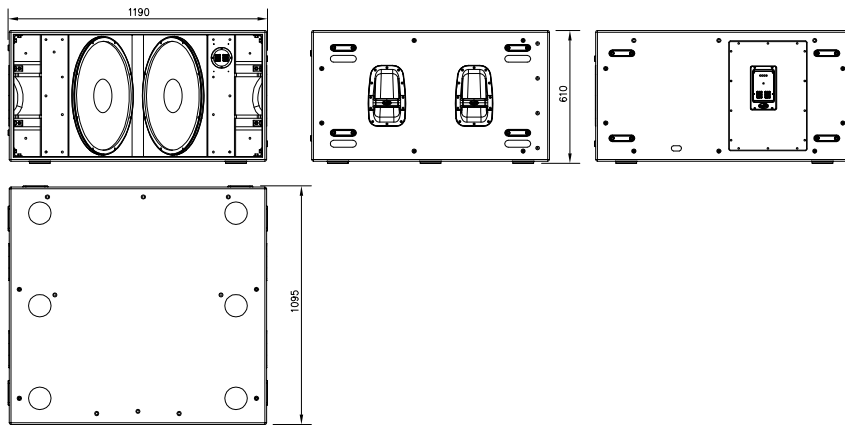
SF-112



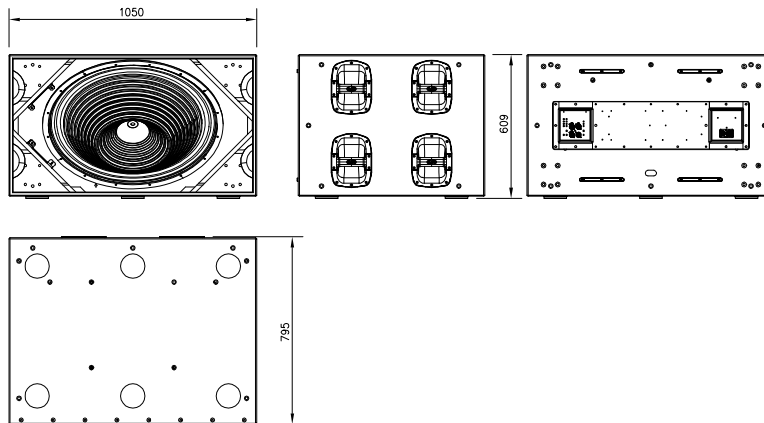
SF-215



SF-221



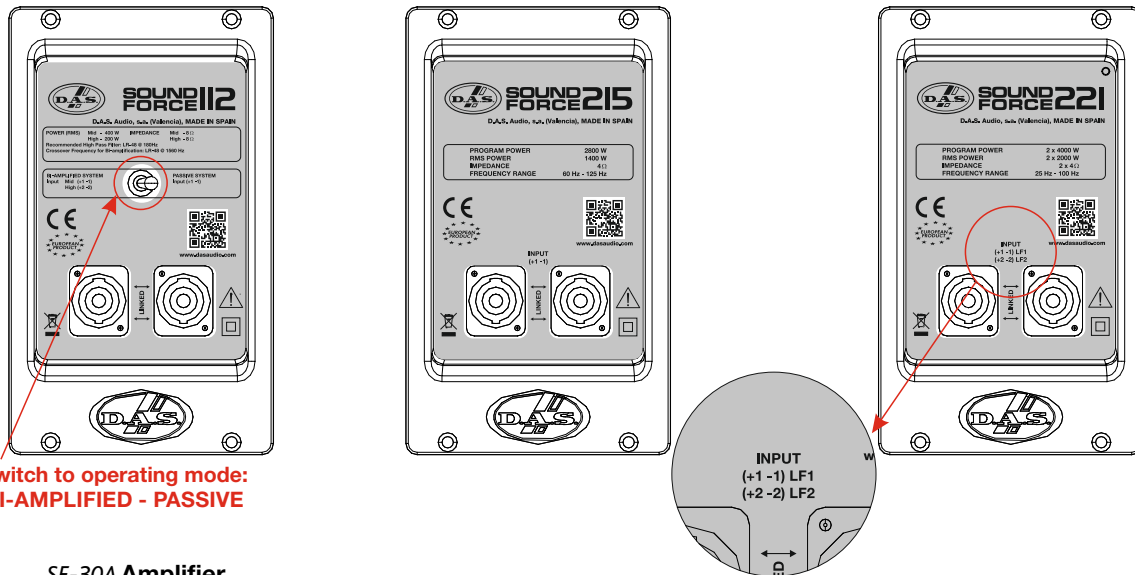
SF-30A



INSTALLATION AND ACCESSORIES

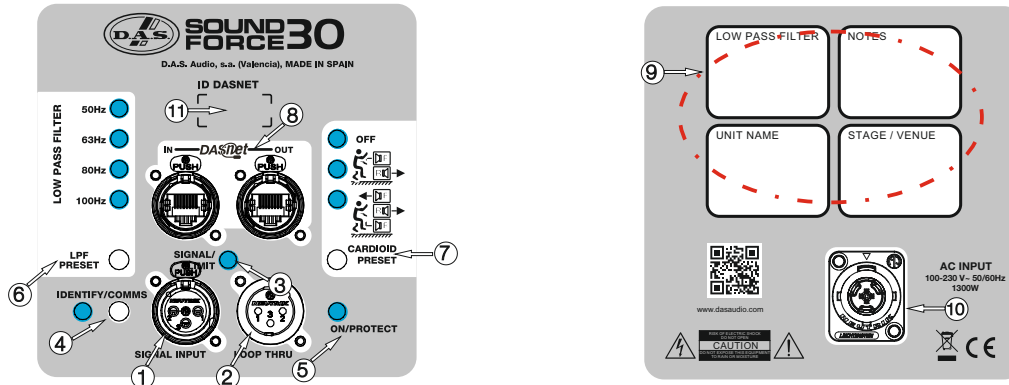
Connectors

The passive models of **D.A.S. SF series** is designed to facilitate the connection for installations, so it has been provided with connectors NL4 type, standard for professional audio equipment. These terminals are connected in parallel, so that we can carry the amplified audio signal up to a device and we can forward it to the next box, very easily. The polarity of the connectors and other important information for proper connection is indicated on the labels.



SF-30A Amplifier

The SF-30A is a self-powered subwoofer with an amplifier that it has the following features:



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 between 50, 63, 80 or 100 Hz.

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 :

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

11) ID DASNET :

Label with identification number for *DASnet™*.

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.

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.

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.

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 *SF-30A* 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.



View of *DASnet™* with LowPass Filter presets and the Frequency Response Curves

Current consumption: AC input =230 Vrms

SF-30A	
Full Power	7.5A
1/3 Power	5.5A
1/8 Power	3.7A
Idle	0.6A

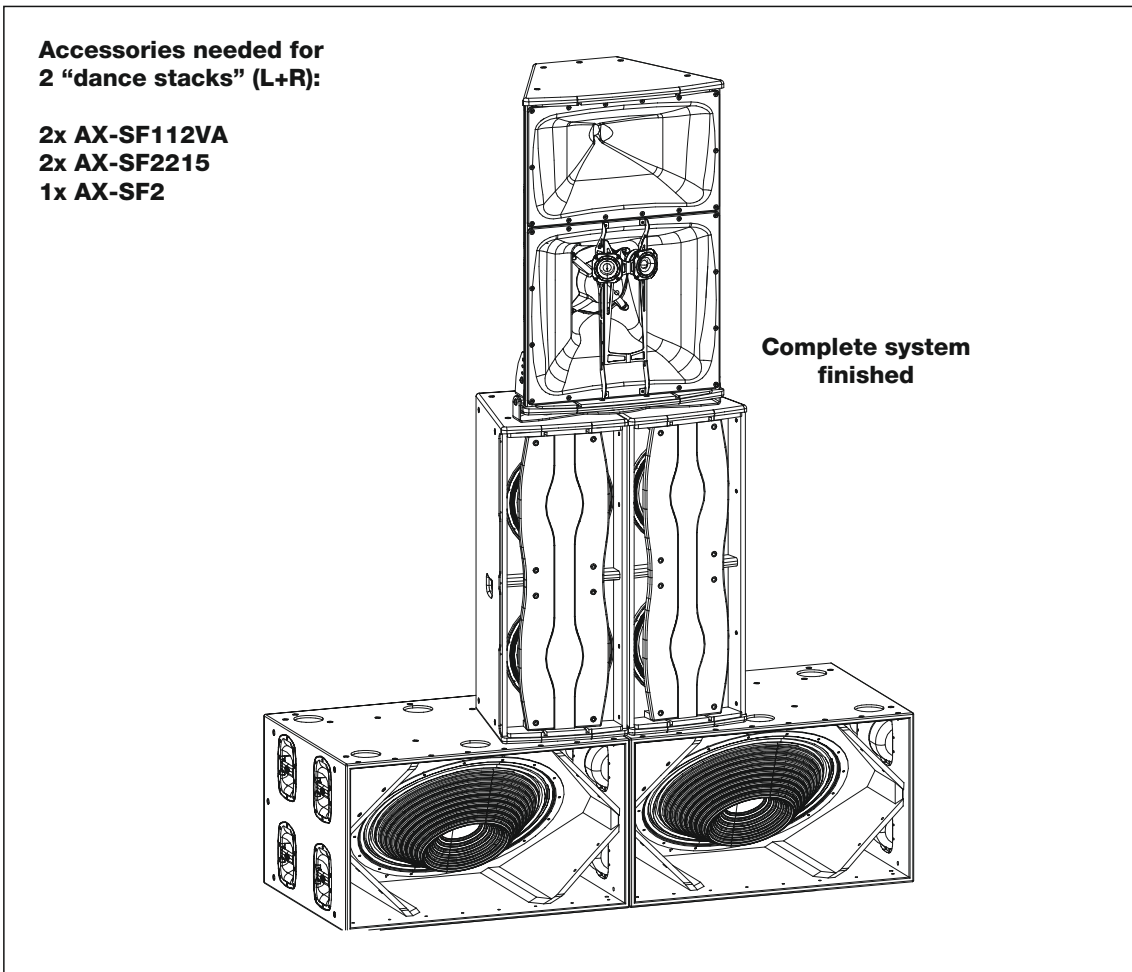
Remember: the consumption at 115Vac is double than that at 230Vac

Troubleshooting

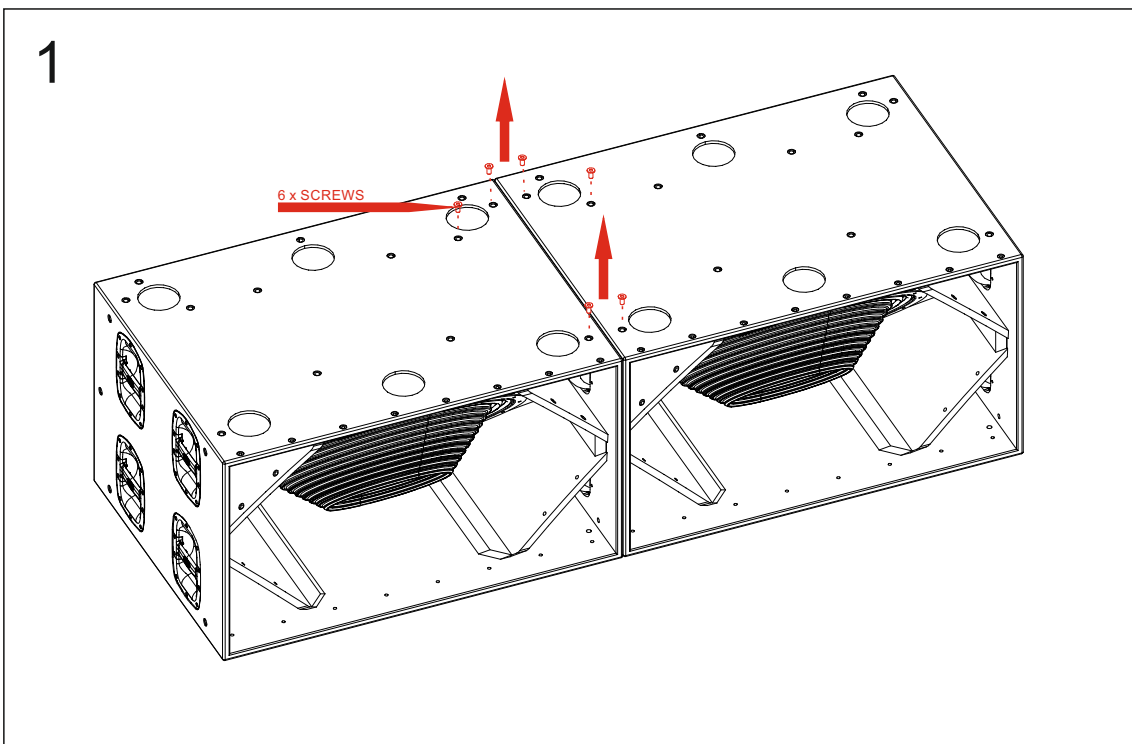
PROBLEM	CAUSE	SOLUTION
No sound from the unit. The SIGNAL LED does not light up.	<ul style="list-style-type: none"> 1 – The signal source is sending no signal. 2 – Defective cable. 	<ul style="list-style-type: none"> 1 – Check that the mixer or sound source is sending signal to the UNIT. 2 – Check that 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.

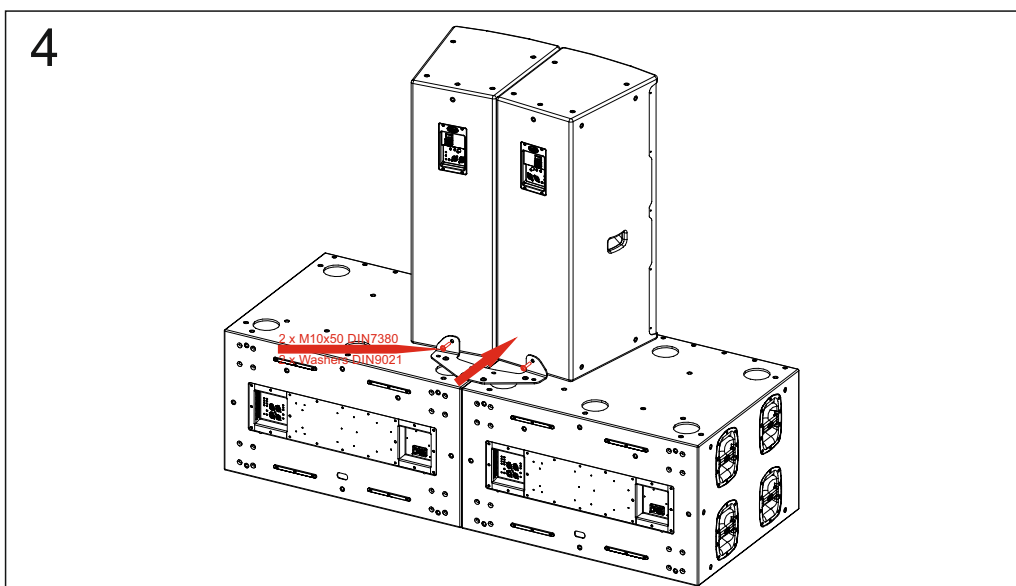
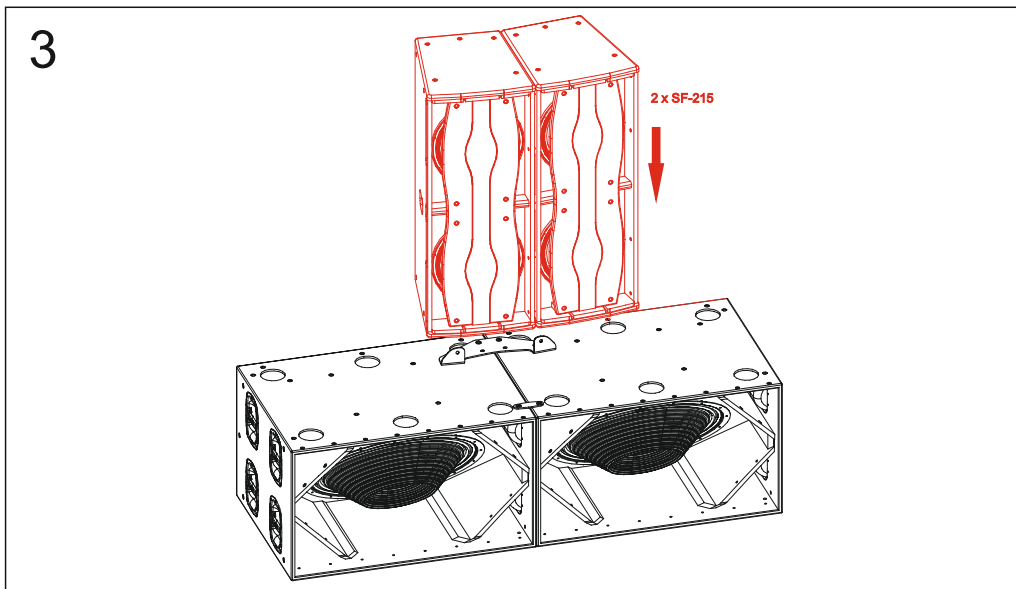
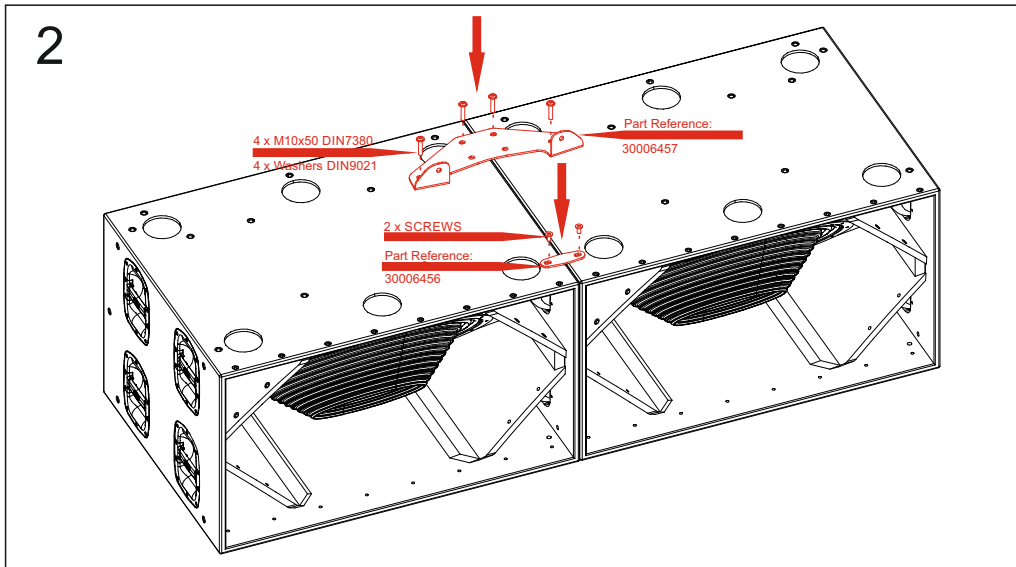
Connections

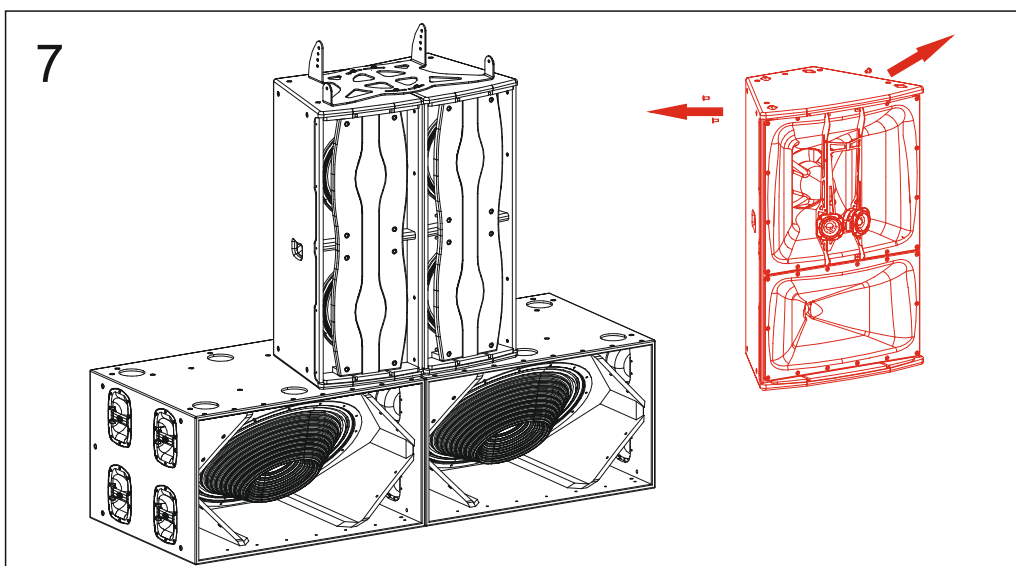
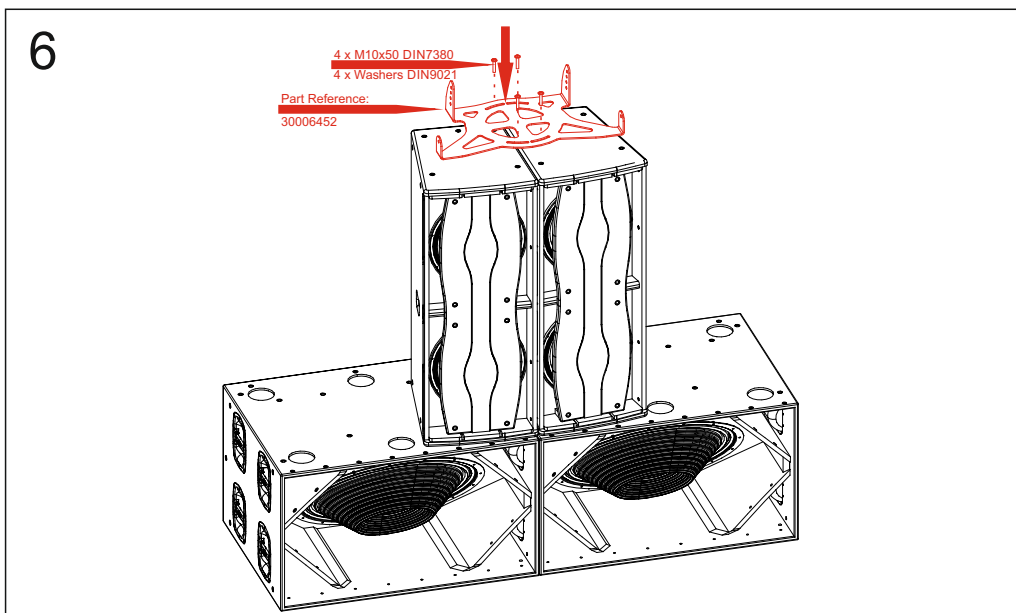
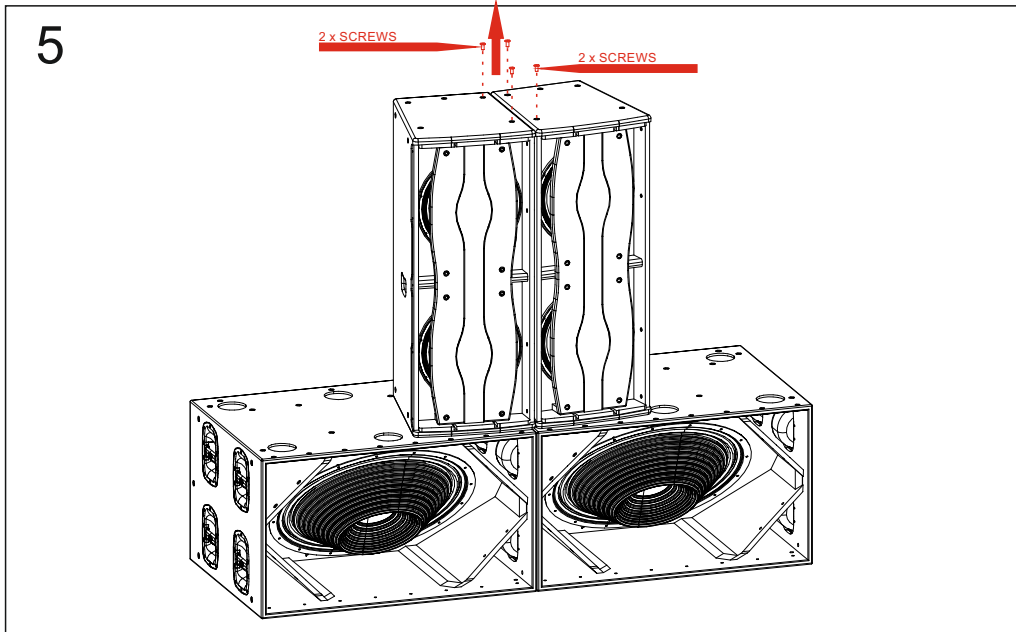
Let's look more closely at the connections of some configurations given as an example in this manual. Let's start with the 5-way cuadri-amplified system with SF-30A.

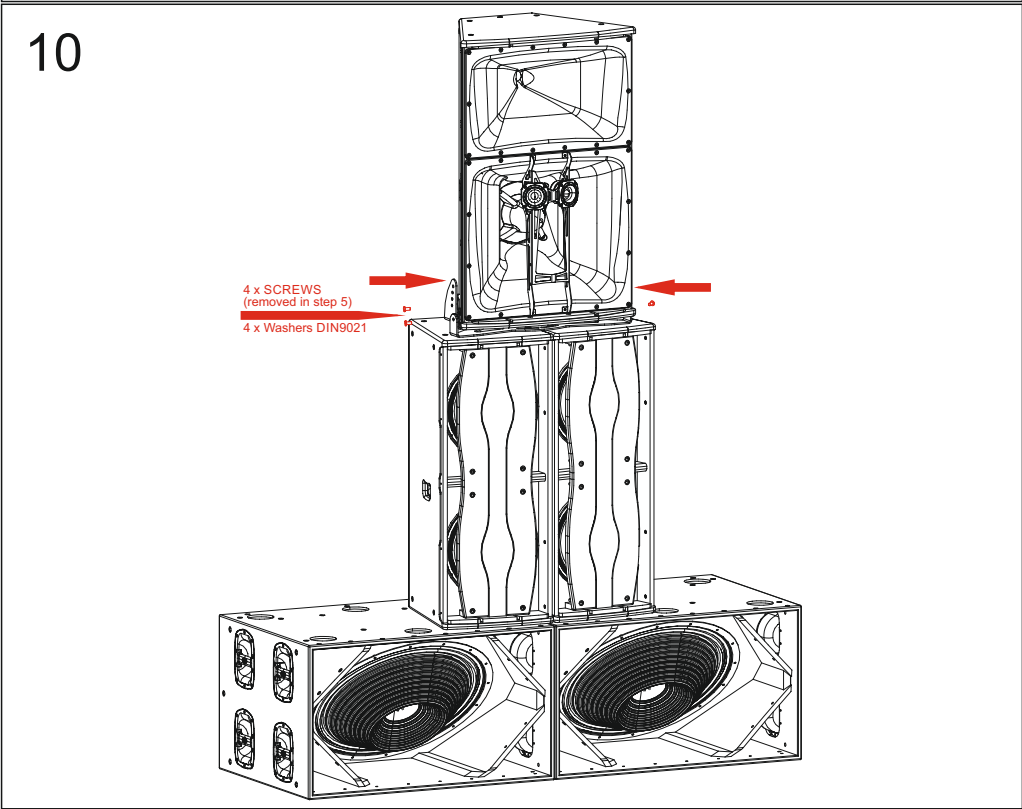
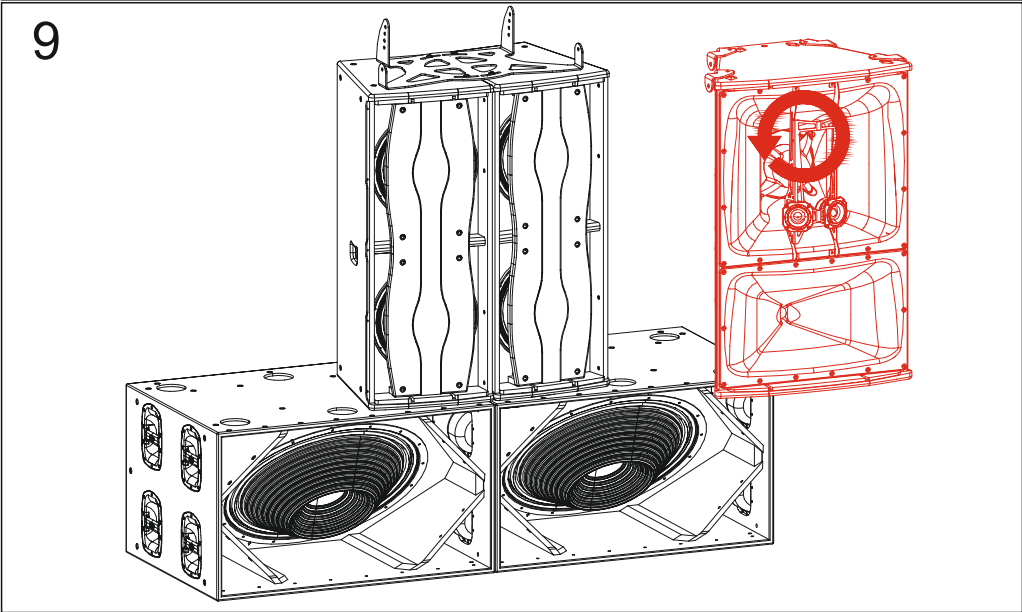
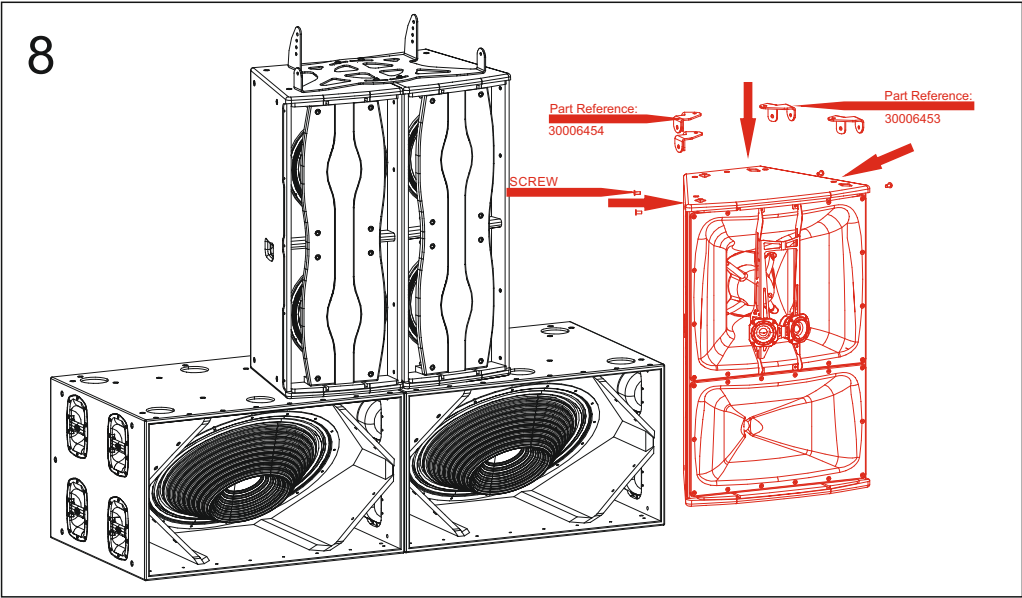


First we will see the mechanical assembly with accessories and then, the electric connections.

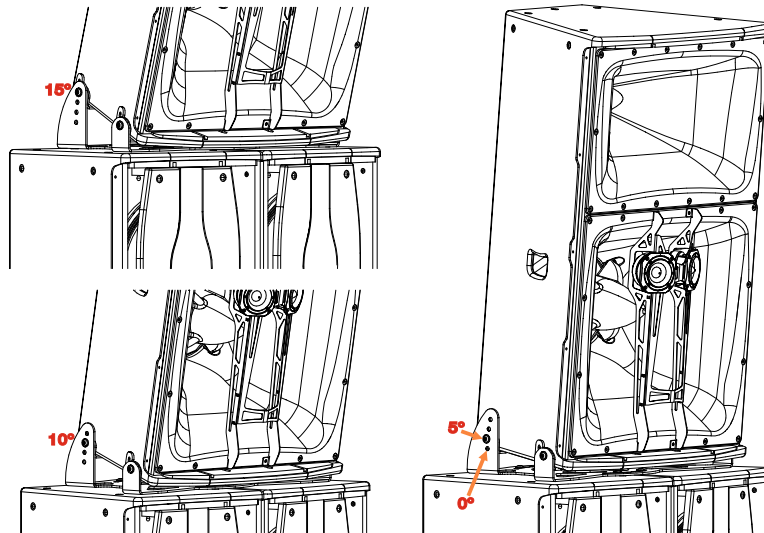




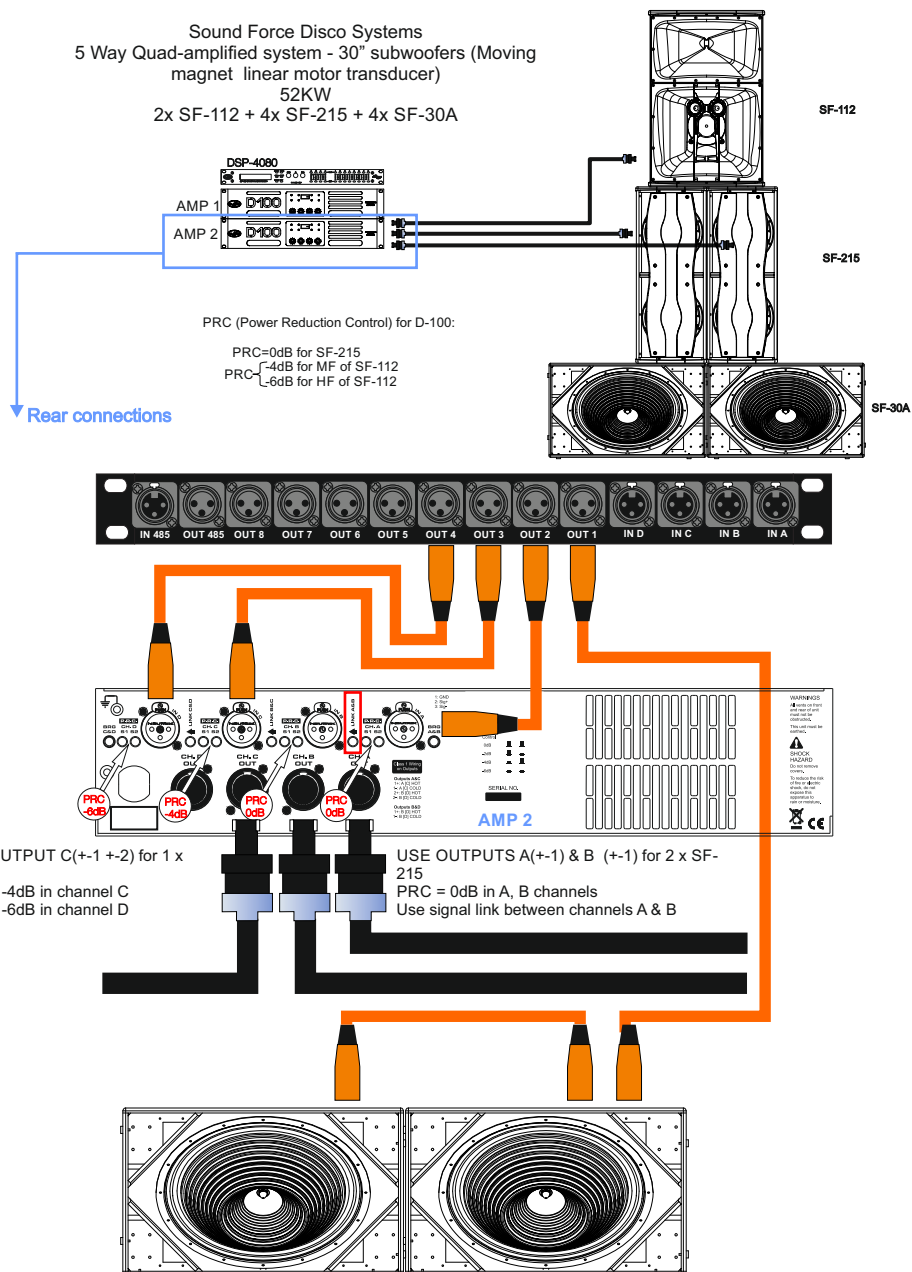




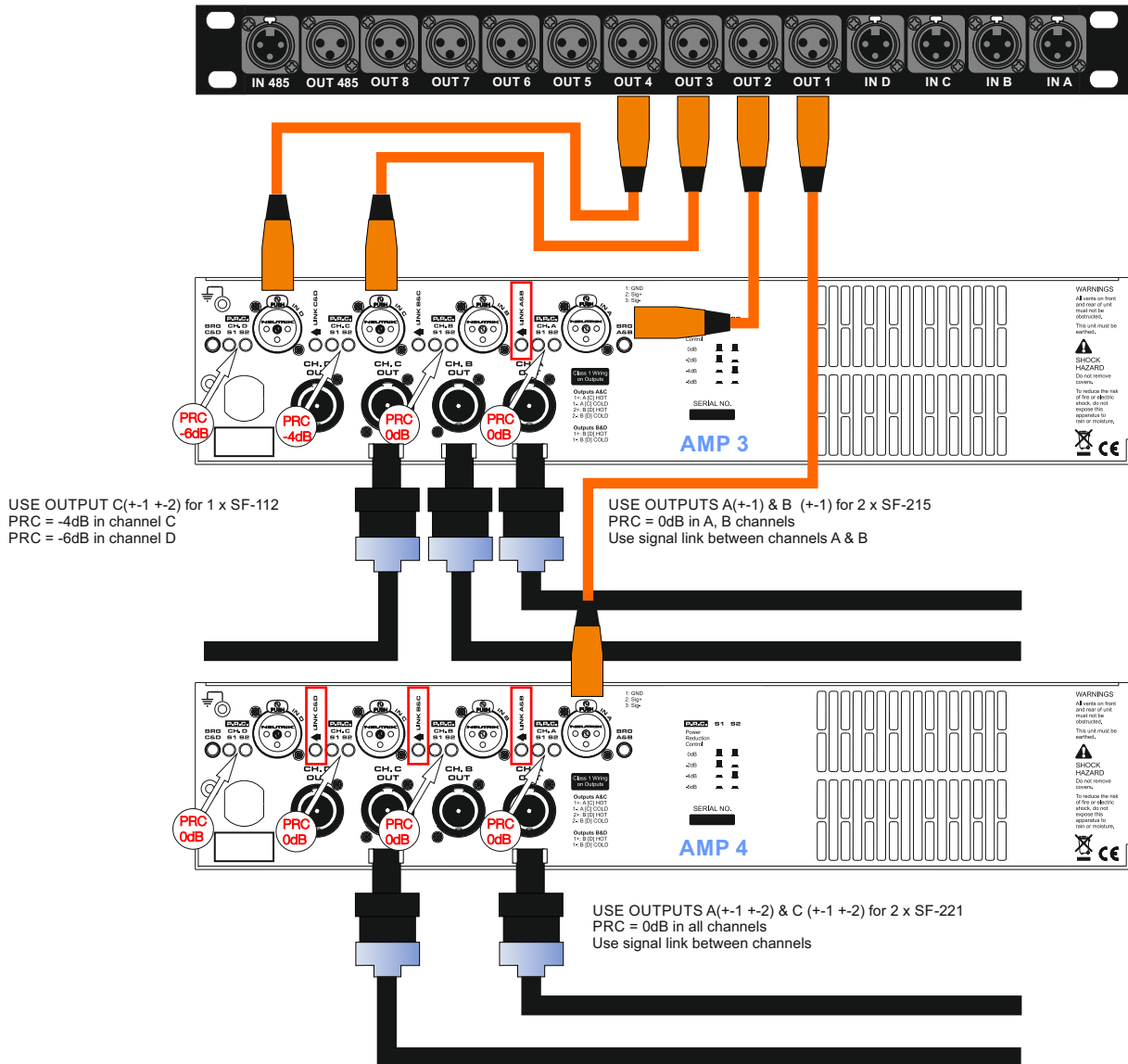
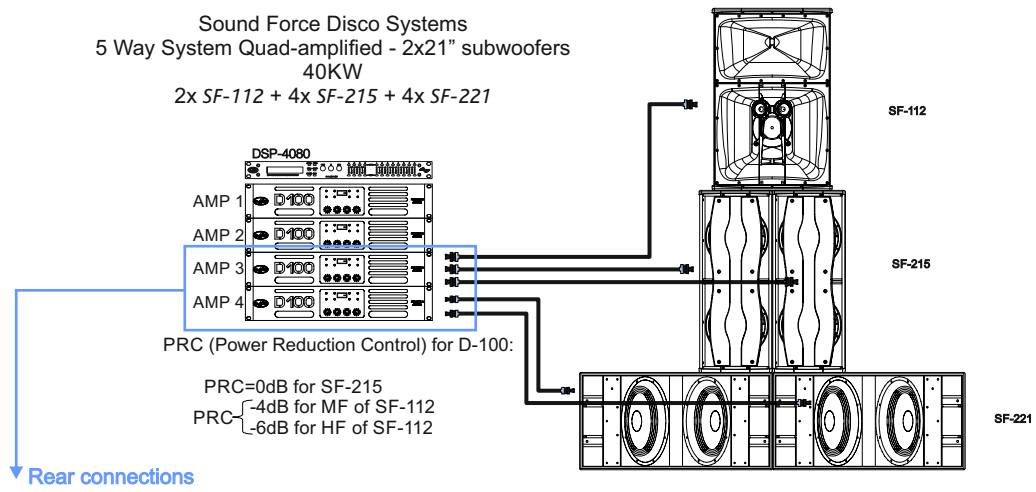
Note: The accessory AX-SF112VA lets you adjust the angles of SF-112, 0 °, 5 °, 10 ° or 15 ° as follows:



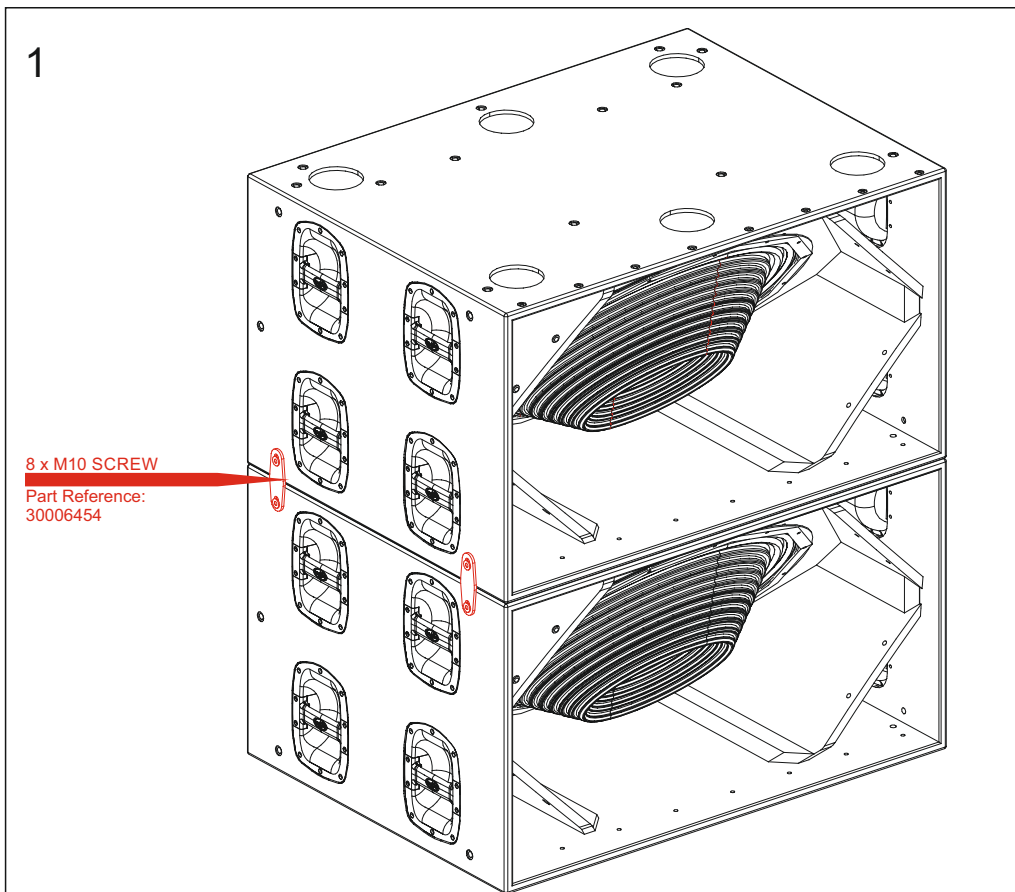
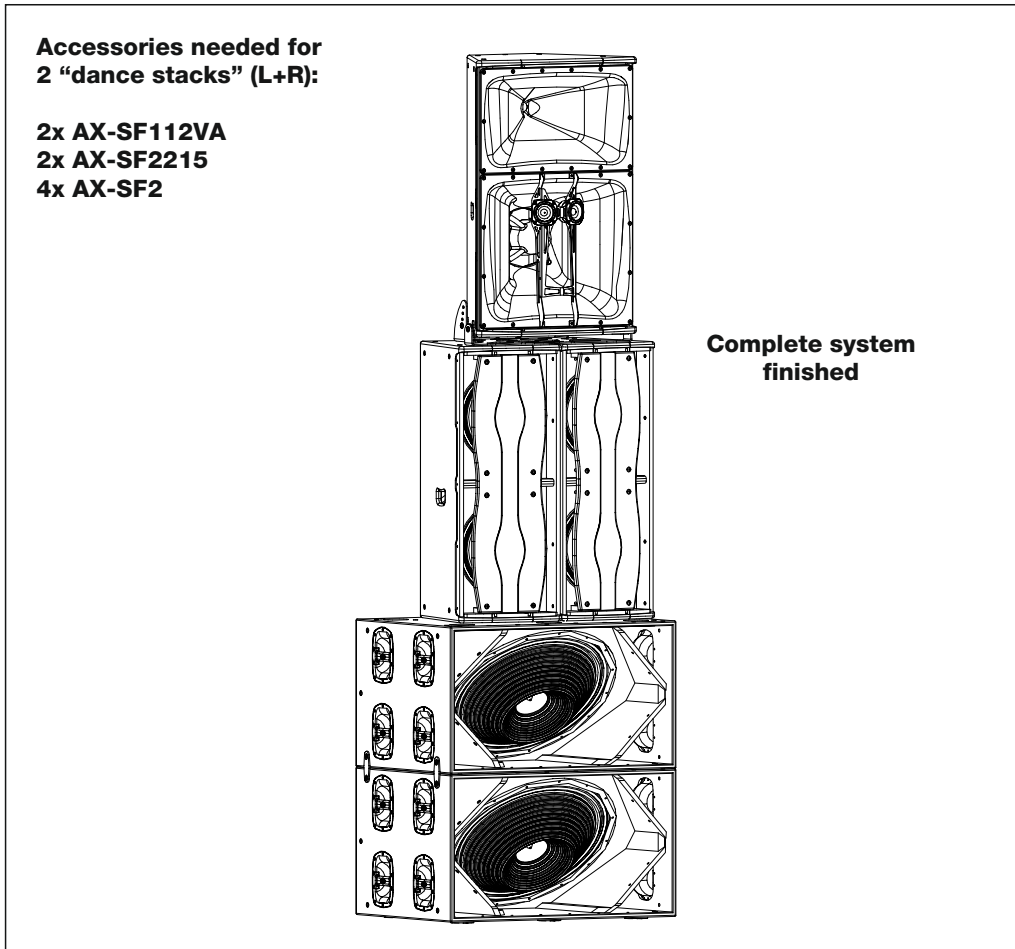
The figures below indicate the electric connections on one side and the other side is equal.

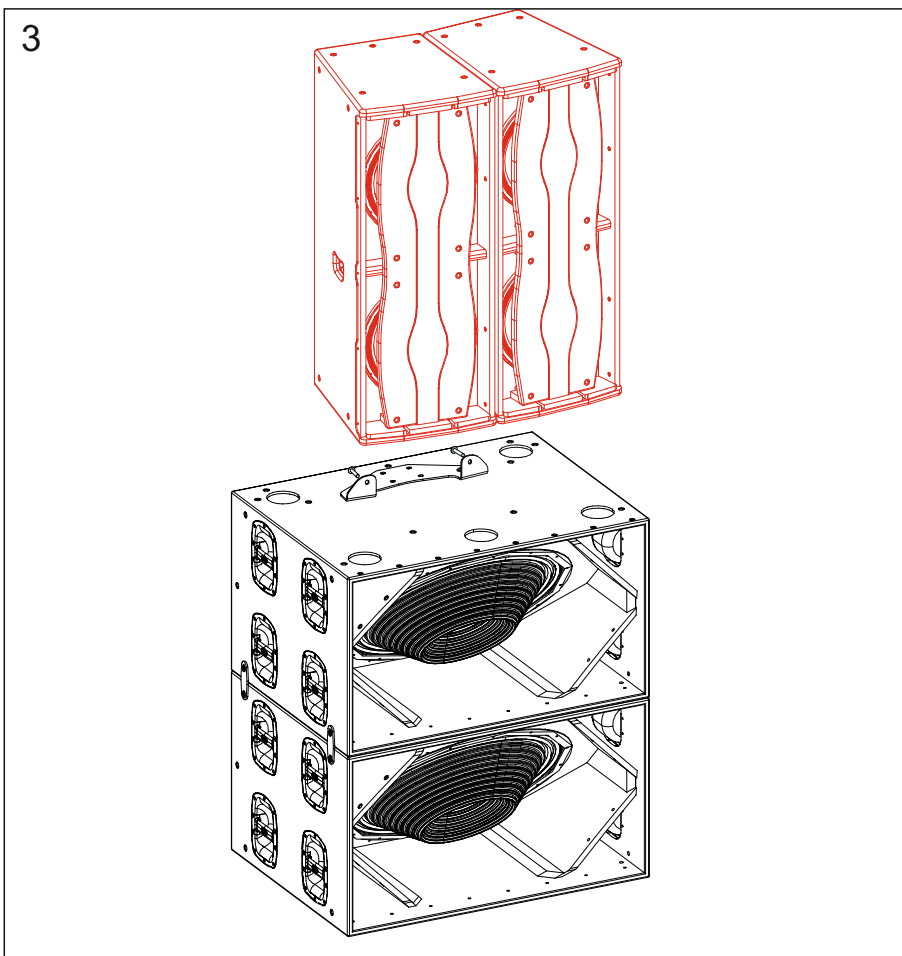
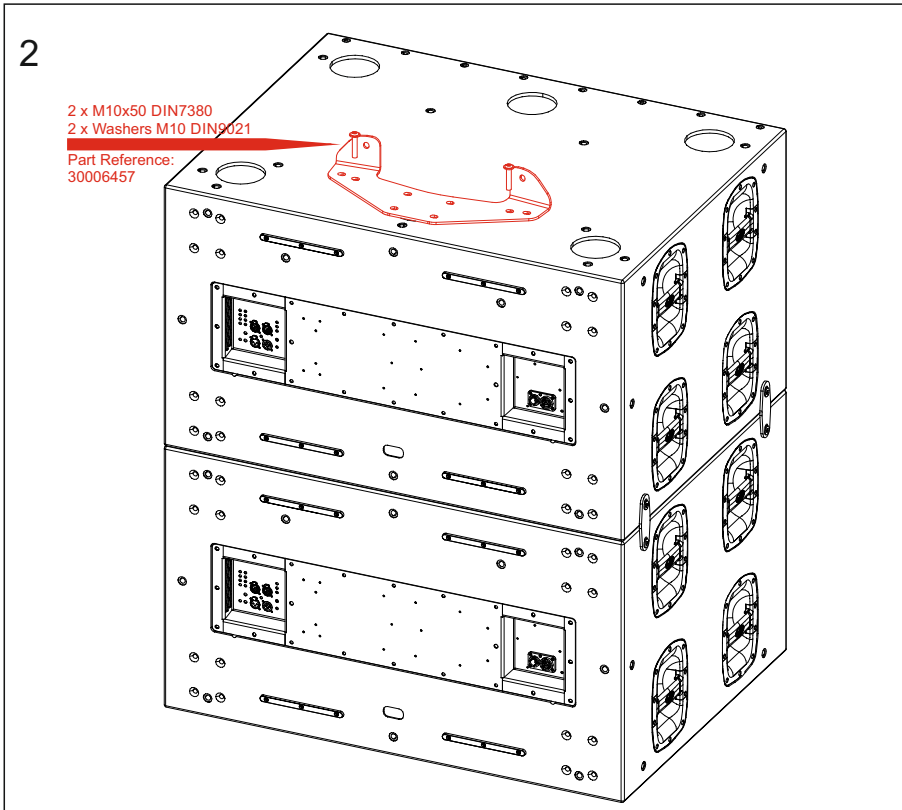


However, for electric connections in the configuration 5-way quadri-amplified system with SF-221:



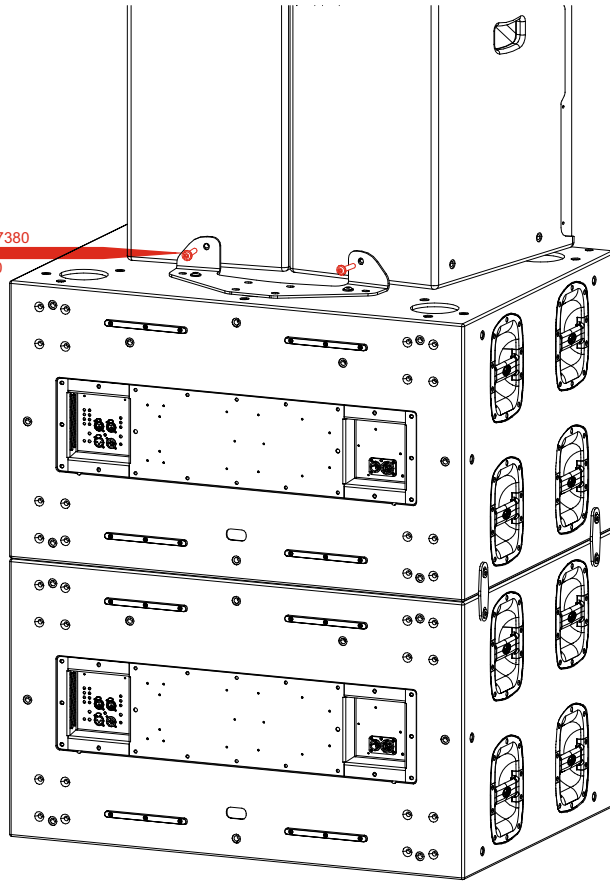
If you do not have much horizontal space for the system, but you have an unlimited height, you can make the following assemblies.





4

2 x M10x50 DIN7380
2 x Washers M10
DIN9021

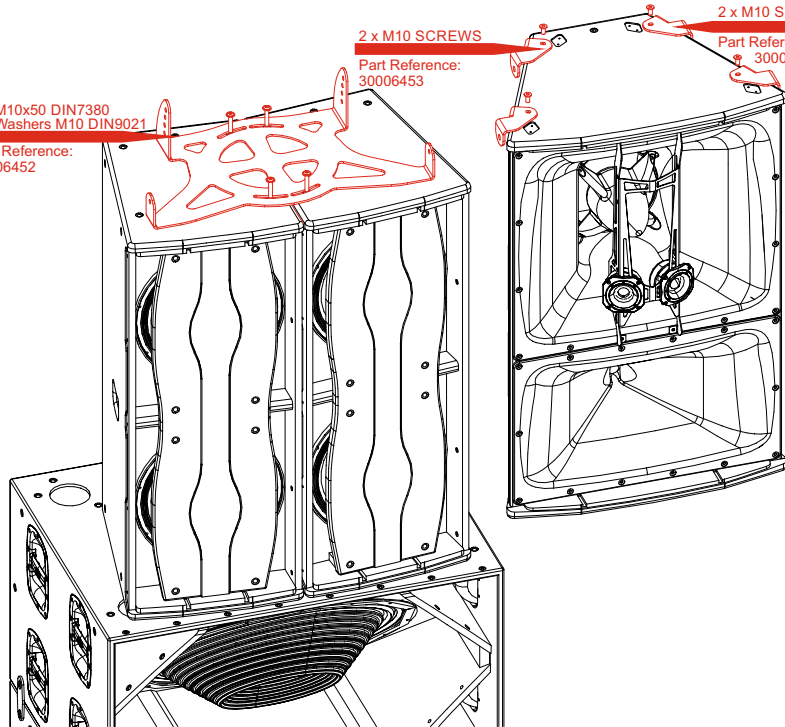


5

4 x M10x50 DIN7380
4 x Washers M10 DIN9021
Part Reference:
30006452

2 x M10 SCREWS
Part Reference:
30006453

2 x M10 SCREWS
Part Reference:
30006454

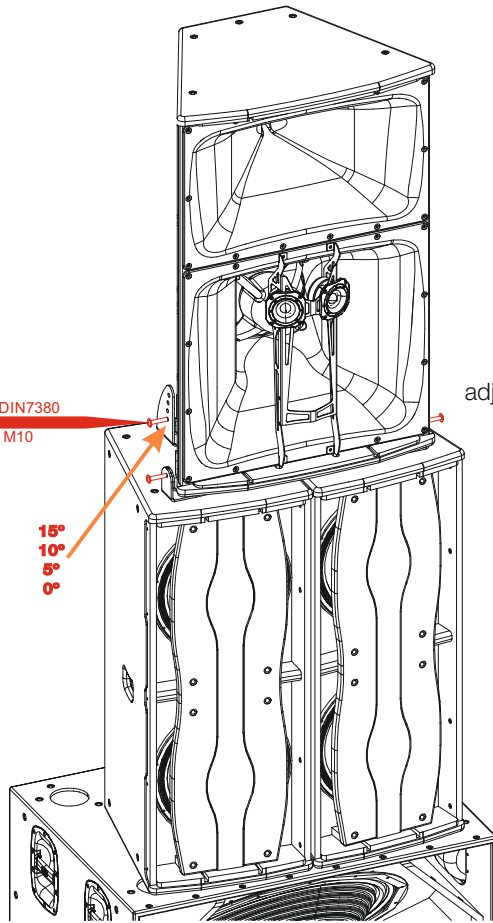


6

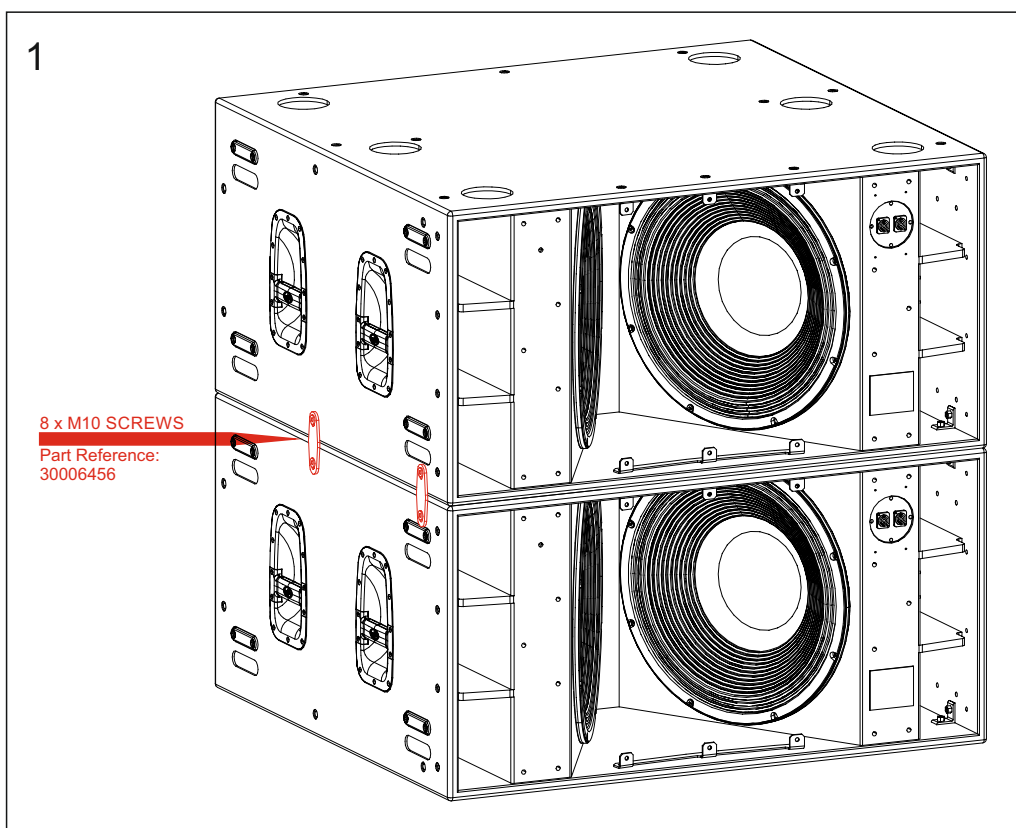
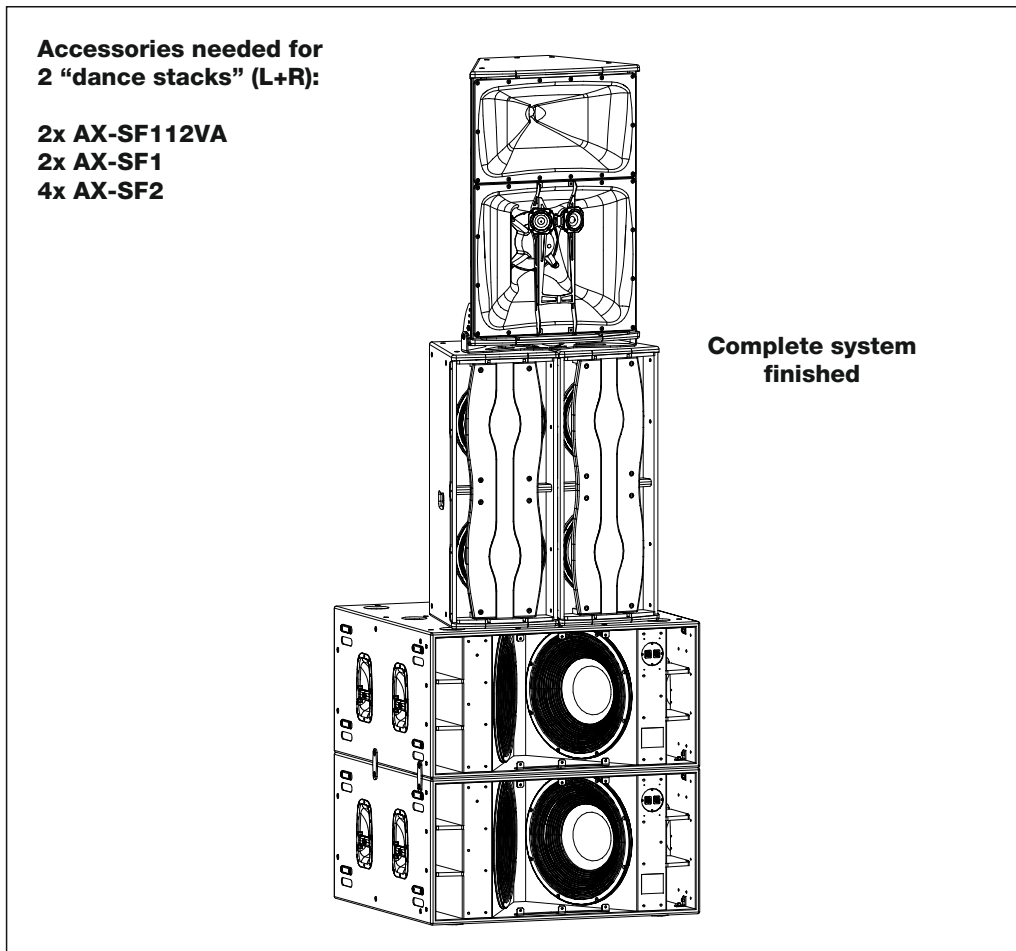
4 x M10x50 DIN7380
4 x Washers M10
DIN9021

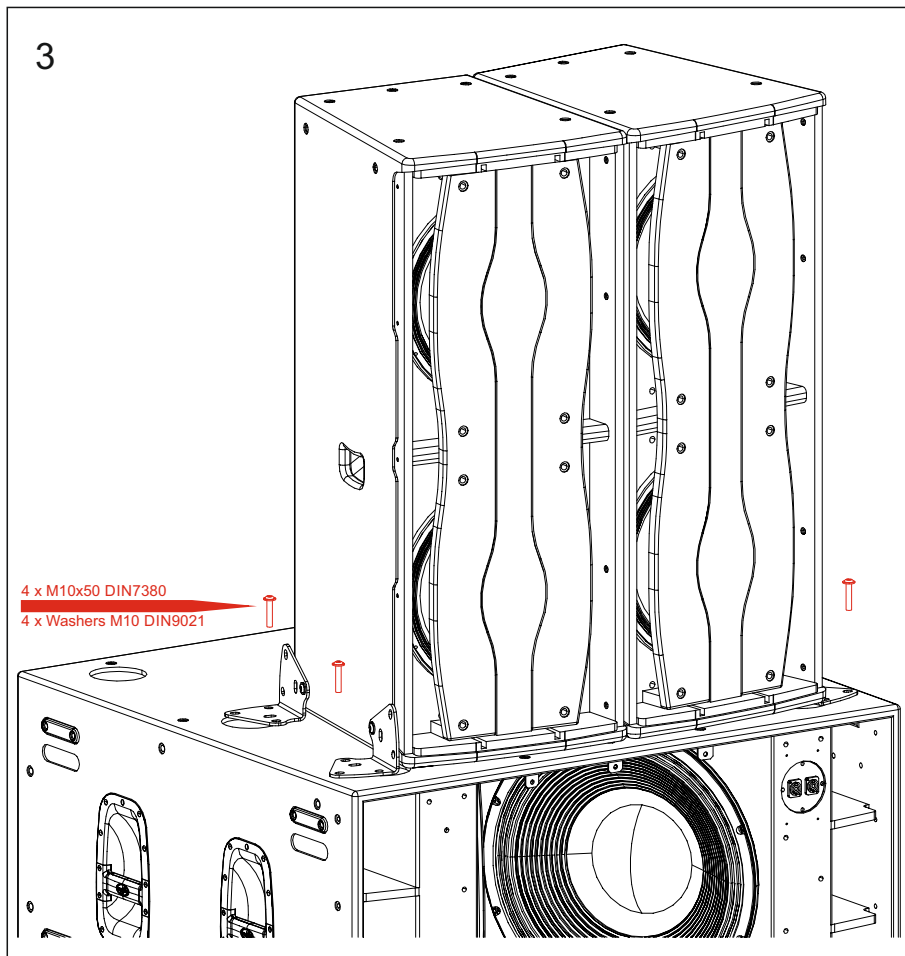
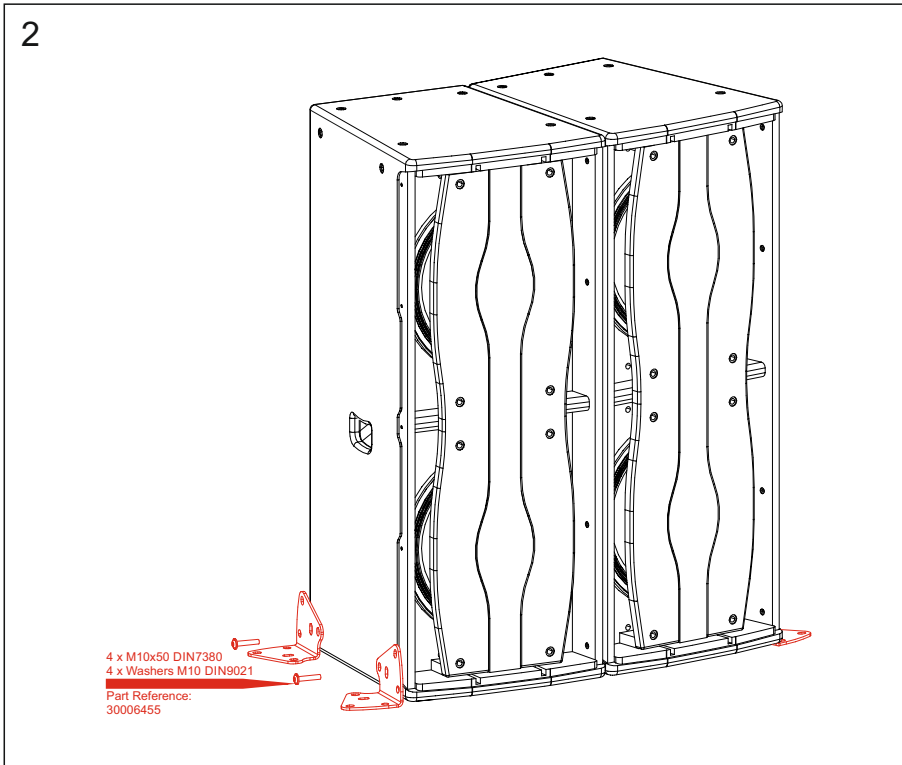
15°
10°
5°
0°

Remember that the
AX-SF112VA lets you
adjust the angles of SF-112,
0°, 5°, 10° or 15°



If we use SF-221, in the place of SF-30A, then we will have the following steps:





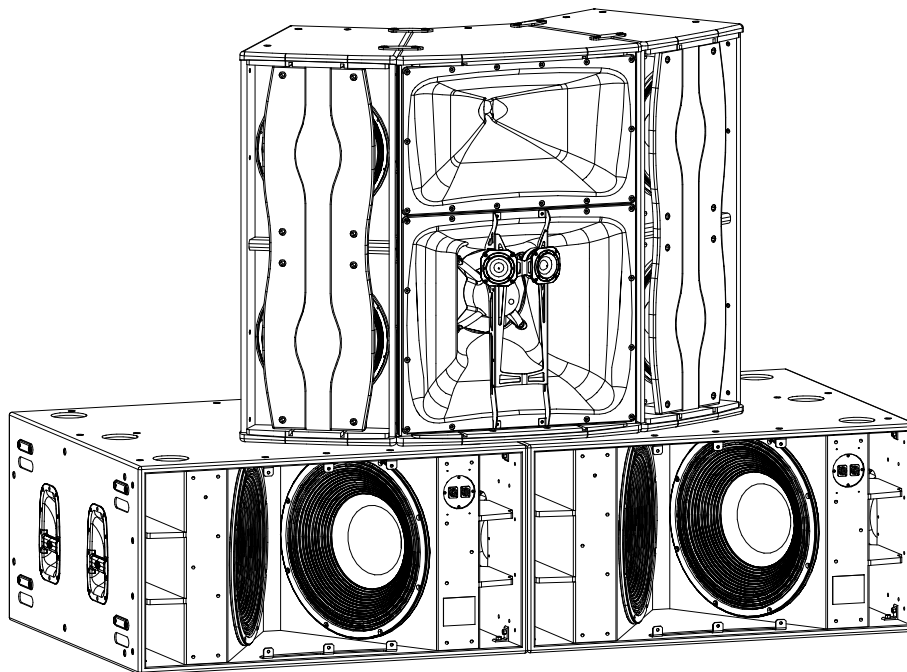
The following steps are described on page 27, steps 5 and 6 to place the *SF-112* in the top

However, if you do not have much vertical space for the system, but you have an unlimited horizontal space, you can make the following assemblies.

**Accessories needed for
2 "dance stacks" (L+R):**

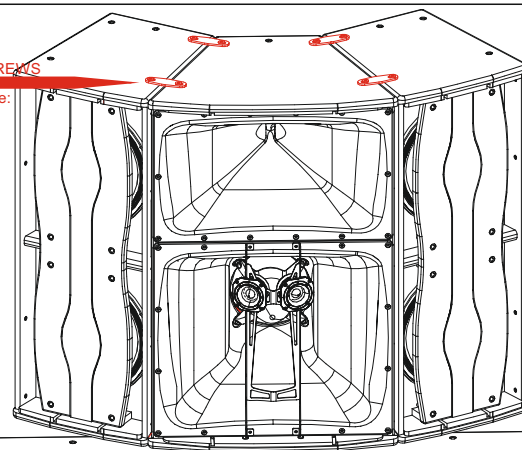
**2x AX-SF1
6x AX-SF2**

**Complete system
finished**

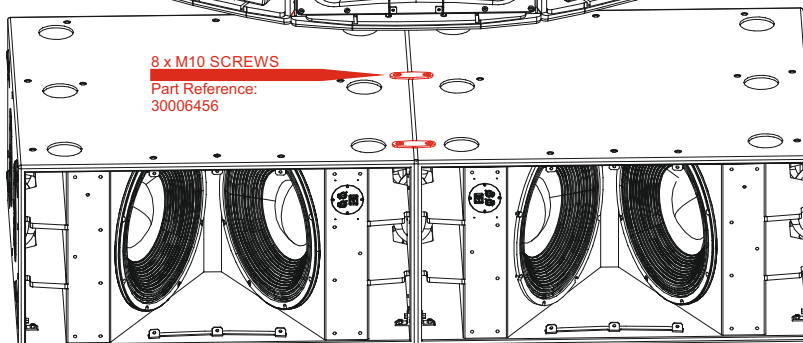


1

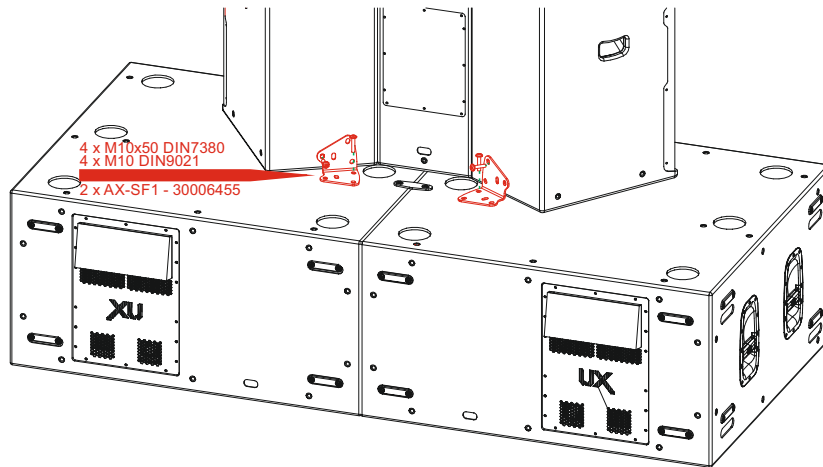
16 x M10 SCREWS
Part Reference:
30006744



8 x M10 SCREWS
Part Reference:
30006456



2

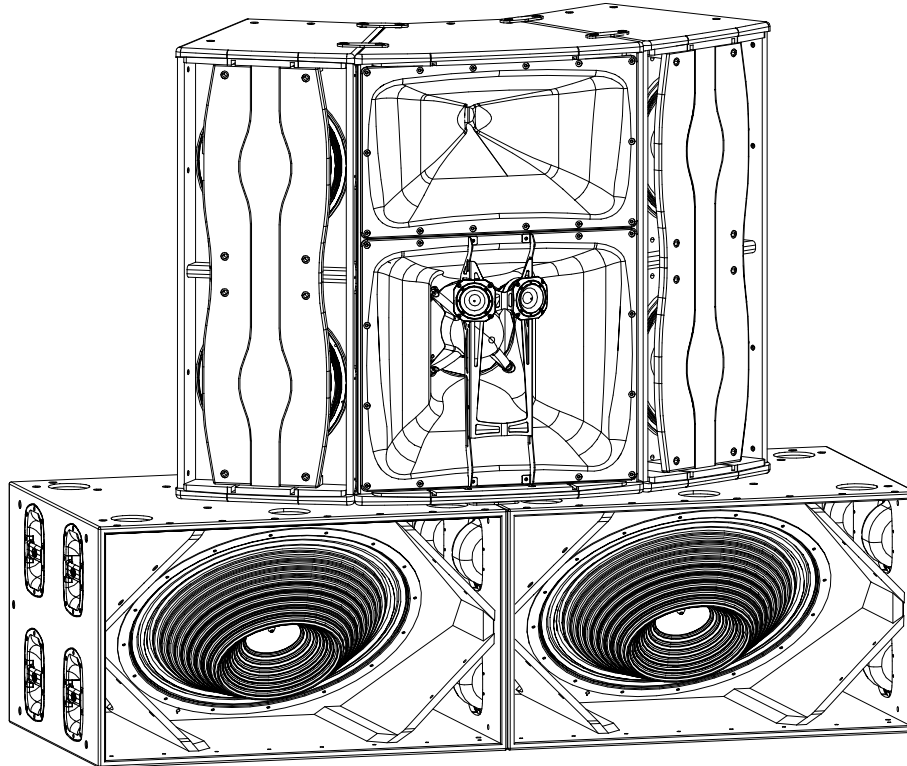


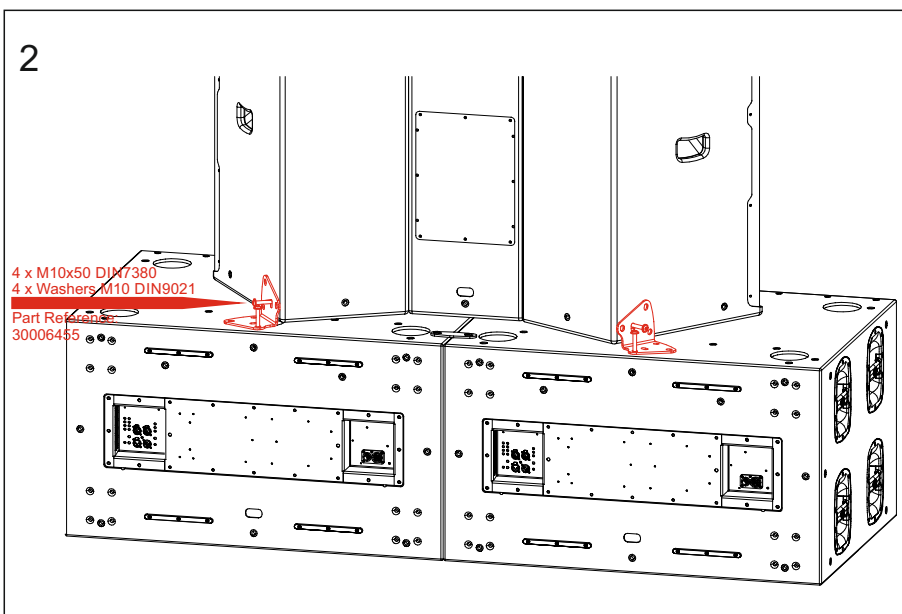
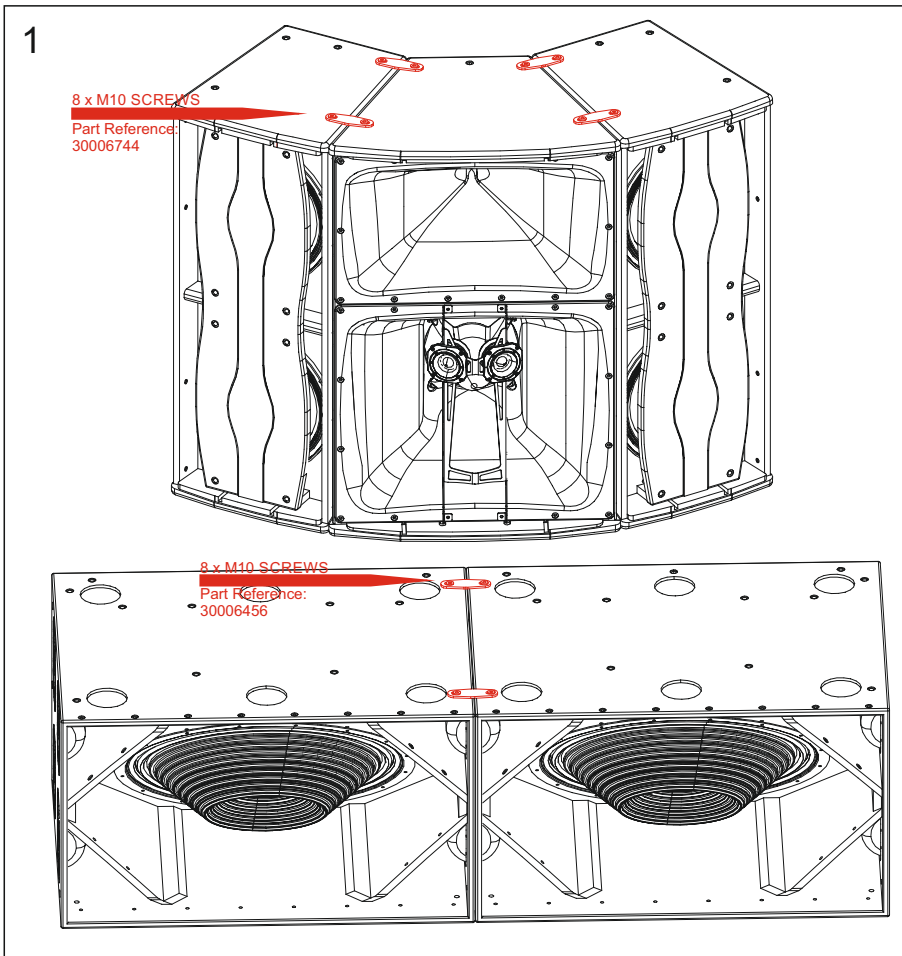
And, for *SF-30A* in the place of *SF-221*, we will have:

**Accessories needed for
2 “dance stacks” (L+R):**

**2x AX-SF1
6x AX-SF2**

**Complete system
finished**





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).

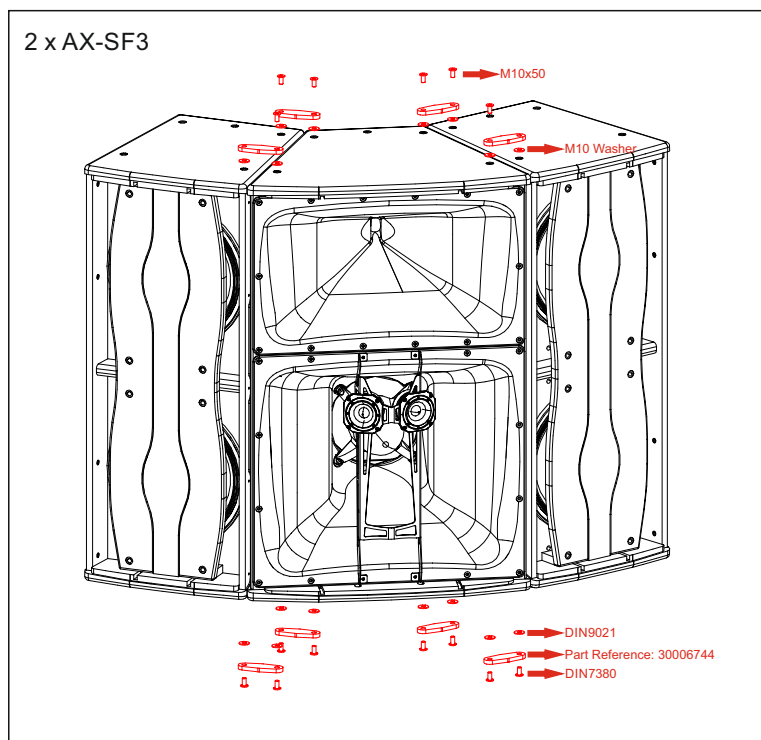
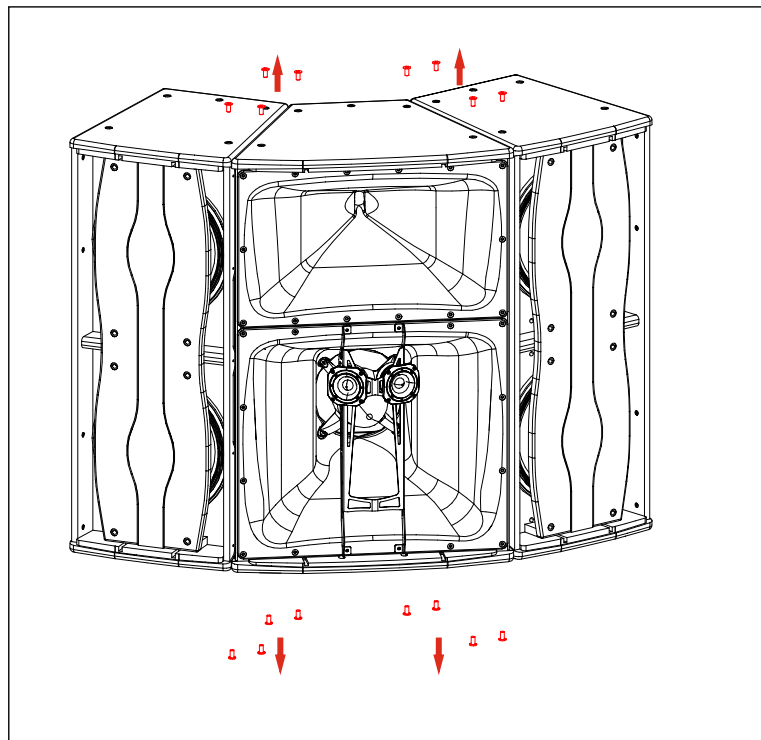
The load capacity, of each lift motor, should be correspond to a safety factor of 10:1.

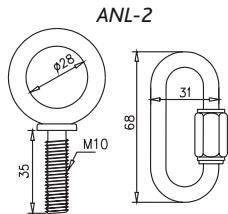
When flying a system, the working load must be lower than the resistance of each individual flying point in the enclosure, as well as each box.

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.





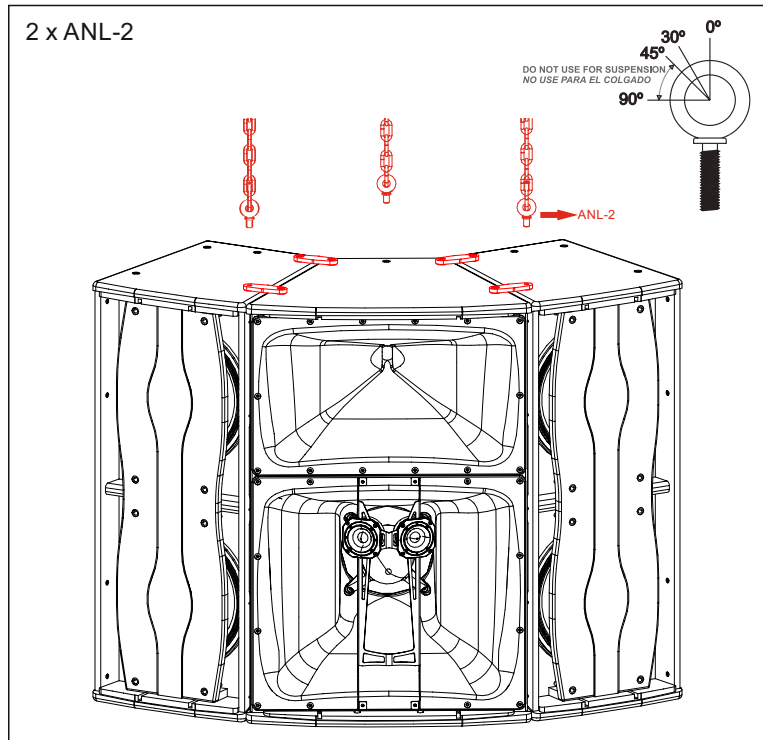
Absolutely no risks should be taken with regards to public safety.

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.

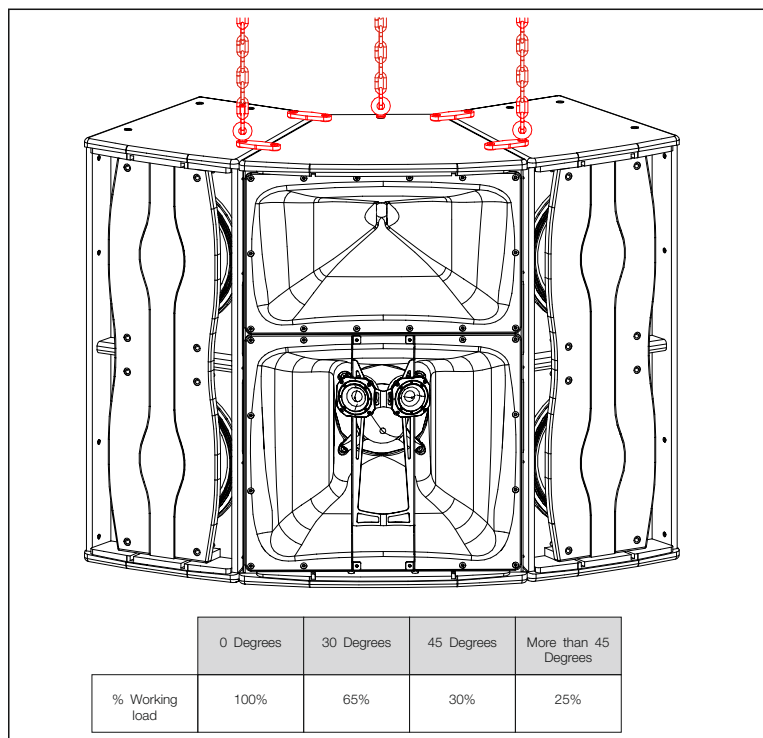
The ANL-2 set is an optional set of four eyebolts and four carabiners. (Dimensions are in millimetres).

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.



ANNEX I : Table for cable selection

This table shows the power loss in % and dB, for different cable lengths and sections shown. It is recommended that the losses do not exceed 30% in any case (around 3dB). Although it is recommended minimizing losses, the maximum acceptable losses are usually around 15% (approximately 1.4dB).

Longitud / Length		Calibre	Area	R	Perdida de potencia / Power Loss			
m	ft	AWG	mm2	Ohms	% @ 8 ohms	% @ 4 ohms	dB @ 8 ohms	dB @ 4 ohms
5	16,4	18	0,8	0,2250	2,74	5,33	-0,241	-0,475
		16	1,31	0,1374	1,69	3,32	-0,148	-0,293
		14	2,1	0,0857	1,06	2,10	-0,093	-0,184
		12	3,3	0,0545	0,68	1,35	-0,059	-0,118
		10	5,3	0,0340	0,42	0,84	-0,037	-0,073
		8	8,35	0,0216	0,27	0,54	-0,023	-0,047
10	33	18	0,8	0,4500	5,33	10,11	-0,475	-0,926
		16	1,31	0,2748	3,32	6,43	-0,293	-0,577
		14	2,1	0,1714	2,10	4,11	-0,184	-0,364
		12	3,3	0,1091	1,35	2,65	-0,118	-0,234
		10	5,3	0,0679	0,84	1,67	-0,073	-0,146
		8	8,35	0,0431	0,54	1,07	-0,047	-0,093
15	49	18	0,8	0,6750	7,78	14,44	-0,704	-1,354
		16	1,31	0,4122	4,90	9,34	-0,436	-0,852
		14	2,1	0,2571	3,11	6,04	-0,275	-0,541
		12	3,3	0,1636	2,00	3,93	-0,176	-0,348
		10	5,3	0,1019	1,26	2,48	-0,110	-0,218
		8	8,35	0,0647	0,80	1,59	-0,070	-0,139
25	82	18	0,8	1,1250	12,33	21,95	-1,143	-2,153
		16	1,31	0,6870	7,91	14,66	-0,716	-1,377
		14	2,1	0,4286	5,08	9,68	-0,453	-0,884
		12	3,3	0,2727	3,30	6,38	-0,291	-0,573
		10	5,3	0,1698	2,08	4,07	-0,182	-0,361
		8	8,35	0,1078	1,33	2,62	-0,116	-0,231
50	164	18	0,8	2,2500	21,95	36,00	-2,153	-3,876
		16	1,31	1,3740	14,66	25,57	-1,377	-2,565
		14	2,1	0,8571	9,68	17,65	-0,884	-1,686
		12	3,3	0,5455	6,38	12,00	-0,573	-1,110
		10	5,3	0,3396	4,07	7,83	-0,361	-0,708
		8	8,35	0,2156	2,62	5,11	-0,231	-0,456
75	246	18	0,8	3,3750	29,67	45,76	-3,057	-5,314
		16	1,31	2,0611	20,49	34,01	-1,991	-3,610
		14	2,1	1,2857	13,85	24,32	-1,295	-2,421
		12	3,3	0,8182	9,28	16,98	-0,846	-1,616
		10	5,3	0,5094	5,99	11,30	-0,536	-1,041
		8	8,35	0,3234	3,88	7,48	-0,344	-0,675
100	328	18	0,8	4,5000	36,00	52,94	-3,876	-6,547
		16	1,31	2,7481	25,57	40,72	-2,565	-4,542
		14	2,1	1,7143	17,65	30,00	-1,686	-3,098
		12	3,3	1,0909	12,00	21,43	-1,110	-2,095
		10	5,3	0,6792	7,83	14,52	-0,708	-1,362
		8	8,35	0,4311	5,11	9,73	-0,456	-0,889

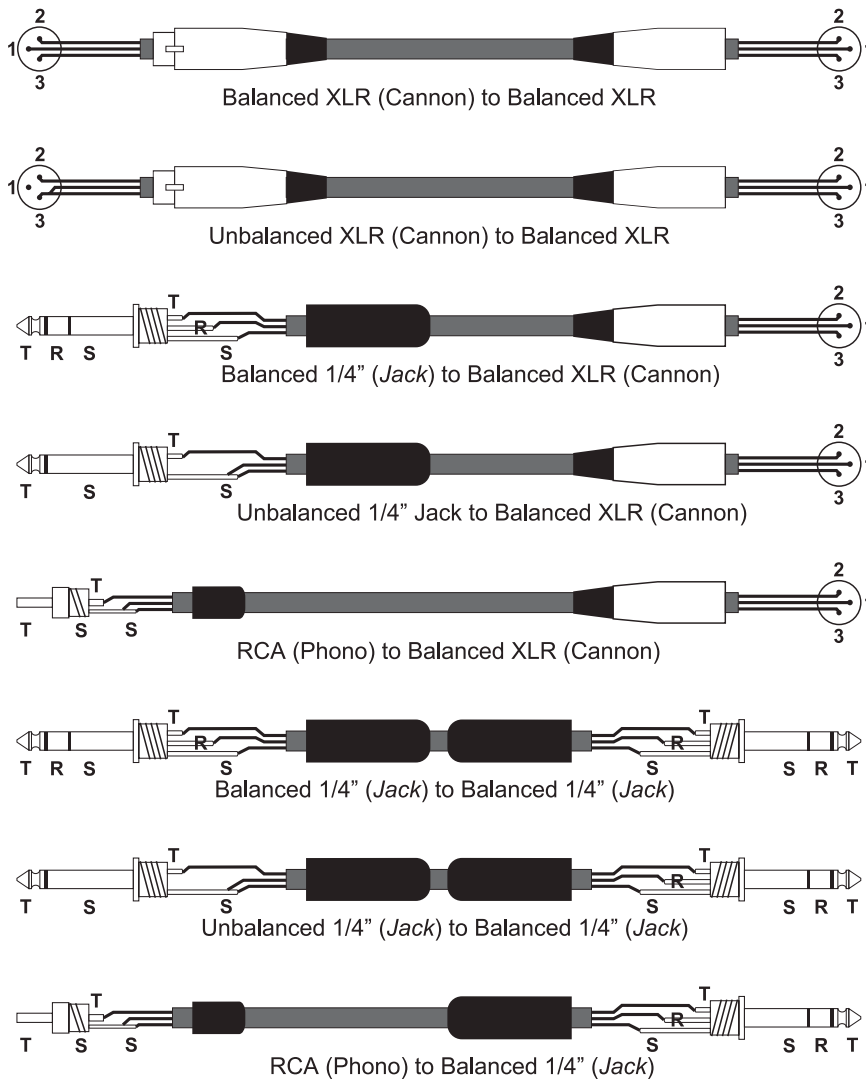
ANNEX II : Line connections: unbalanced and balanced

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.



ANNEX III : 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 leng



- 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



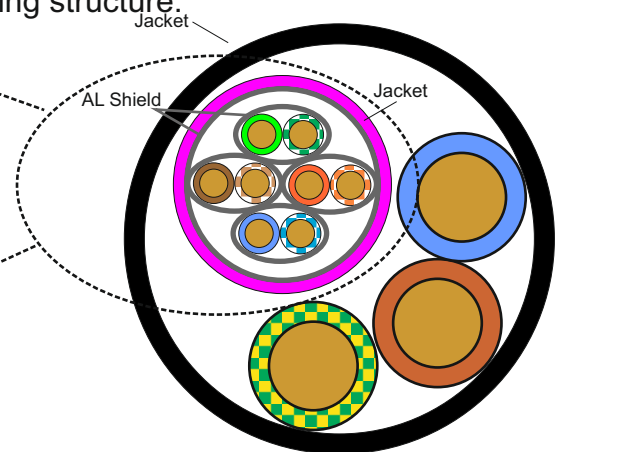
Important

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.


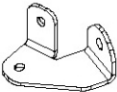
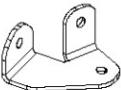




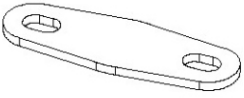
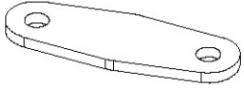
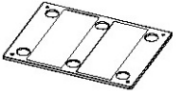
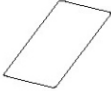
ecP_xx: Power cable $3 \times 2.5\text{mm}^2$ + CAT7 $4 \times (2 \times 0.14\text{mm}^2)$

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

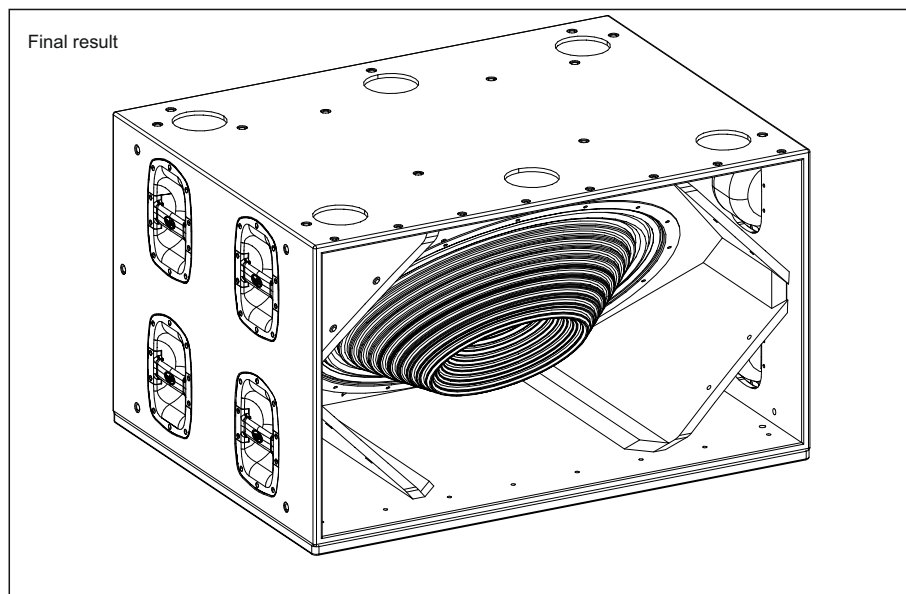
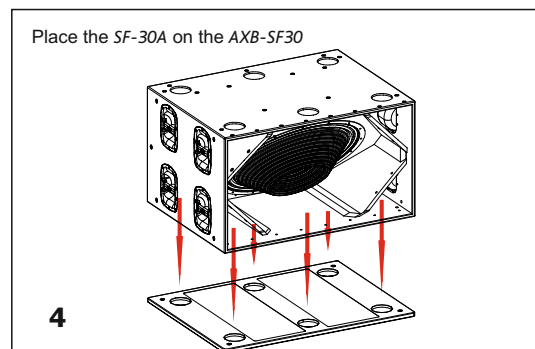
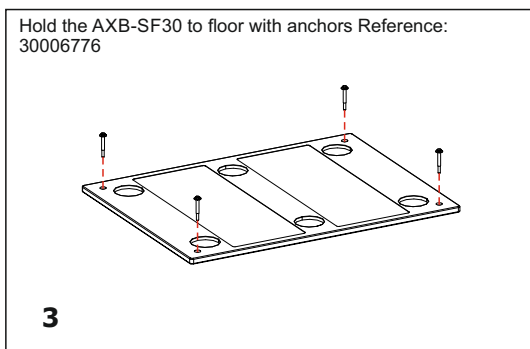
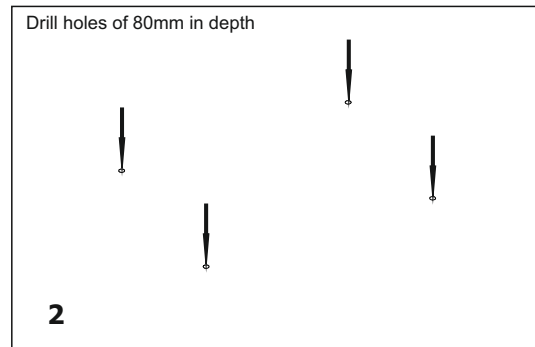
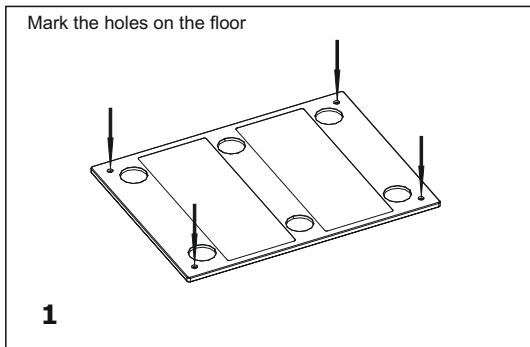
ANNEX IV : Table of accessories

<i>kit name</i>	<i>components</i>	<i>Description</i>	<i>Qty.</i>
AX-SF112VA		dance stack with SF-112 on top of two SF-215	
	<i>Part reference</i>		
	30006452	Metal Base for SF-112	1
	30006453	right metal angle for SF-112	2
	30006454	left metal angle for SF-112	2
	TM10x50DIN7380-2 NG	Metric10 Screw DIN7380-2	4
	A10 DIN9021 NG	M10 Washer	8
	TM10x30extraplano A2NG	Metric10 Flat head Screw	4
	ALLEN WRENCH 5		1
	ALLEN WRENCH 6		1
AX-SF2215		dance stack with 2xSF-215 on top of subwoofers	
	<i>Part reference</i>		
	30006457	Metal base for 2 x SF-215	1
	TM10x50DIN7380-2 NG	Metric10 Screw DIN7380-2	6
	A10 DIN9021 NG	M10 Washer	6
	ALLEN WRENCH 5		1
	ALLEN WRENCH 6		1
AX-SF1		metal angle to join cabinets	
	<i>Part reference</i>		
	30006455	Metal angle	2
	TM10x50DIN7380-2 NG	Metric10 Screw DIN7380-2	4
	A10 DIN9021 NG	M10 Washer	4
	ALLEN WRENCH 5		1
	ALLEN WRENCH 6		1

<i>kit name</i>	<i>components</i>	<i>Description</i>	<i>Qty.</i>
AX-SF2		5mm width plate to join subwoofers	
	<i>Part reference</i>		
	30006456	5mm metal plate	2
	TM10x40 BN1206 NG	Metric10 Screw BN1206	4
	ALLEN WRENCH 5		1
AX-SF3		10mm width plate to rig cabinets	
	<i>Part reference</i>		
	30006744	10mm metal plate	4
	A10 DIN9021 NG	M10 Washer	8
	ALLEN WRENCH 5		1
	ALLEN WRENCH 6		1
AXB-SF30		SF-30A base	
	<i>Part reference</i>		
	30008701	Wooden base	1
	AM D10x80	Metallic anchor D10	4
	30006776	Rubber base	2

ANNEX V : AXB-SF30

Next, the steps for installing the platform fixed to the ground, preventing unwanted slippage of the *SF-30A*. For this feature we need the accessory *AXB-SF30*.



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