



User's Manual

action active 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.

CONTENTS

SAFETY PRECAUTIONS	3
WARRANTY	4
DECLARATION OF CONFORMITY	5
INTRODUCTION	6 a 7
CONFIGURATIONS	8 a 13
<i>2x action 12A (action 15A)</i>	
<i>2x action 12A (action 15A) + 1x action 18A</i>	
<i>2x action 12A (action 15A) + 2x action 18A</i>	
<i>2x action 12A (action 15A) + 2x action 218A</i>	
<i>2x action 215A</i>	
<i>4x action M12A</i>	
LINE DRAWINGS	14
AMPLIFIER	15 a 17
<u>Description</u>	
<u>ON / OFF</u>	
<u>Overload indicators</u>	
<u>Equalisation</u>	
<u>Overheating</u>	
<u>Low mains voltage</u>	
<u>Current consumption</u>	
<u>Troubleshooting</u>	
SPECIFICATIONS	18
RIGGING SYSTEM	19 a 20
APPENDIX	21
<u>Line connections: unbalanced and balanced</u>	

action active series

Precauciones de Seguridad Safety Precautions



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.



No desconecte la tierra en el conector de alimentación pues es 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.



Sólo use este equipo con el cable de red de alimentación adecuado para su país.

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.

Si los altavoces action se utilizan al aire libre en un día soleado, colocar los altavoces en un área sombreada o a cubierto. Los amplificadores de los altavoces tienen circuitos de protección que silenciarán temporalmente el altavoz cuando las temperaturas que se alcanzan sean extremadamente altas. Esto puede suceder en los días calurosos cuando el altavoz esté expuesto a la luz solar directa.

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.

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.



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). Si debe sustituir el fusible preste atención al tipo y rango.

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

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.

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

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



Para las cajas con vaso para trípode, la altura máxima de seguridad desde el suelo a la base de la caja montada sobre trípode modelo TRD-2, con pies a 55 cm del eje del trípode, es:

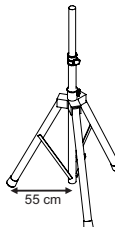
action-12A ----->115 cm
action-15A ----->105 cm

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

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.

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

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.



The exclamation point inside an equilateral triangle is intend 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.

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.

Only use this equipment with an appropriate mains cord for your country.

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.

If action loudspeakers are used outdoors on a sunny day, place the loudspeakers in a shaded or covered area. The loudspeaker amplifiers have protection circuits that temporarily shut the loudspeaker off when extremely high temperatures are reached. This can happen on hot days when the loudspeaker is in direct sunlight.

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.

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.

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). If the fuse needs to be replaced, please pay attention to correct type and ratings.

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

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.

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

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

For enclosures with tripod socket, the maximum safety height from floor to bottom of enclosure when mounting on a TRD-2 tripod, with legs spread 55cm from the central pole, is:

action-12A ----->115 cm
action-15A ----->105 cm

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

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.

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

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 la *serie action*:

Declares that *action 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 2002/95/CE
- Directiva RAEE (WEEE) 2002/96/CE

Y es conforme a las siguientes Normas Armonizadas Europeas:

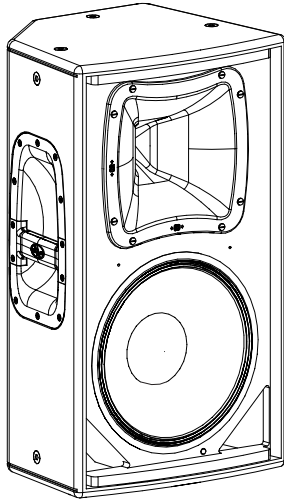
In accordance with Harmonized European Norms:

- EN 60065:2002 Audio, video and similar electronic apparatus. Safety requirements.
- EN 55103-1:1996 Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1:Emission.
- EN 55103-2:1996 Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2:Immunity.

INTRODUCTION

The *action series* inherits the exceptional sound quality and rugged build that have made D.A.S. professional systems an international sound reinforcement standard. Designed from “real-world” experience, they offer users outstanding performance, absolute reliability, and unparalleled convenience. Whether it is in a high-profile venue or on the stage of a major event, the *action series* will provide the power and definition needed to make your performance a success.

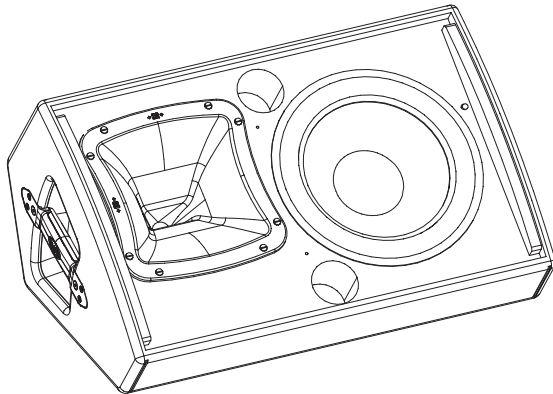
Features



action 12A

- Two-way powered system
- 12" bass loudspeaker
- Compression driver with titanium diaphragm
- Asymmetric enclosure design for stage monitor use
- Built-in rigging points (eyebolt based)
- Stand mountable

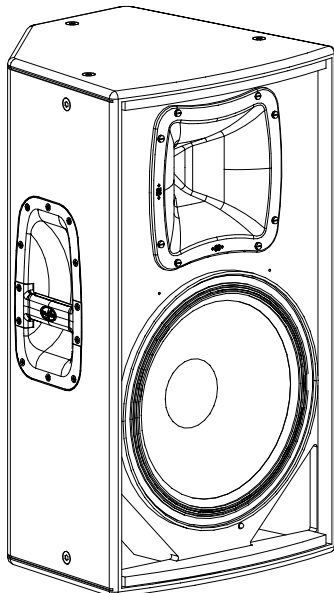
The *action 12A* is a powered loudspeaker (2 channel Class D amplifier), that utilizes a 12" low frequency transducer and a 1" exit compression driver. The multi-angle cabinet is constructed of Birch plywood protected by an environmentally friendly black paint finish. Two bar handles and a steel grille are provided. A 35mm tripod socket allows for stand mounting.



action M12A

- Dedicated powered stage monitor
- 12" bass loudspeaker
- Compression driver with titanium diaphragm
- Low profile enclosure design for minimum visual impact
- Black paint finish
- Stand mountable

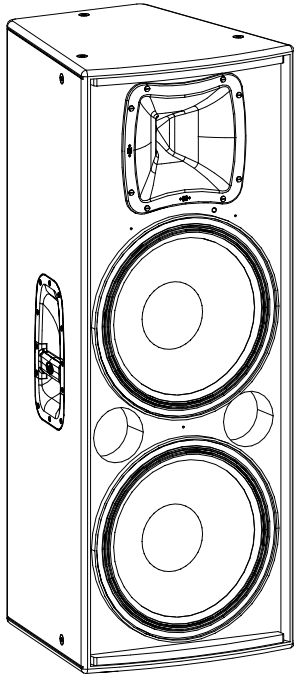
The *action M12A* is a dedicated powered stage monitor (2 channel Class D amplifier). The enclosure is constructed from Birch plywood and is protected with a black paint finish. Two side located handles facilitate handling and a steel grille protects the components. A pole mount socket adds versatility to the *action M12A*.



action 15A

- Two-way powered system
- 15" bass loudspeaker
- Compression driver with titanium diaphragm
- Asymmetric enclosure design for stage monitor use
- Built-in rigging points (eyebolt based)
- Stand mountable

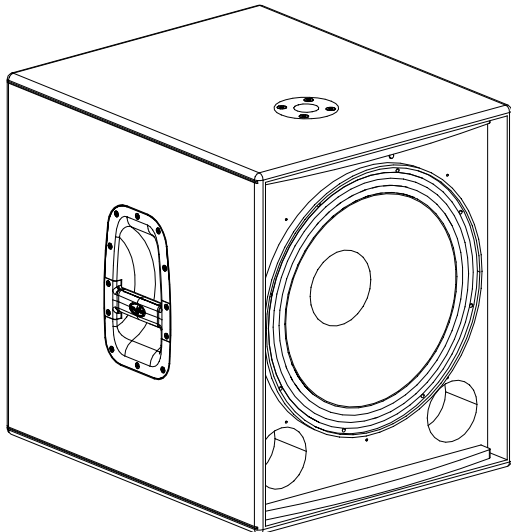
This is a powered loudspeaker (2 channel Class D amplifier), utilizes a 15" low frequency transducer and a 1" exit compression driver with titanium diaphragm. The cabinet is constructed of Birch plywood and finished with an environmentally friendly black paint finish. Two bar handles are provided and a steel grille protects components. A 35 mm tripod socket allows for stand mounting. Rigging points provide a safe and simple solution for suspending the *action 15A*.



action 215A

- 2-way powered system
- 2 x 15" bass loudspeaker
- Compression driver with titanium diaphragm
- Two steel-reinforced handles

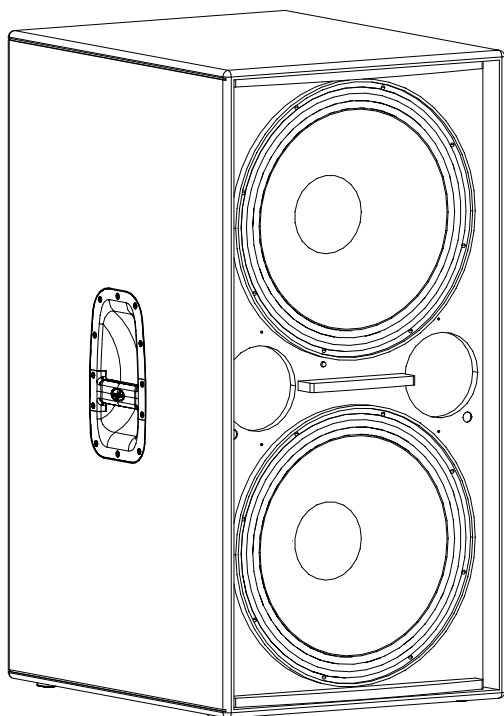
The **action 215A** is a powered loudspeaker (2 channel Class D amplifier), that utilizes two 15" bass loudspeakers for extra low frequency punch and higher SPL. High frequencies are handled by a 1" compression driver with titanium diaphragm. The trapezoidal cabinet is constructed using Birch plywood and protected with a hard-wearing black paint finish. Two bar handles and a steel grille sealed against corrosion using a polyamide powder coat finish are provided. Rigging points provide a safe and simple way to fly the **action 215A** cabinets.



action 18A

- Bass-reflex powered subwoofer system
- 18" low frequency transducer
- Precise and powerful bass reproduction
- Top located pole mount socket

The **action 18A** bass powered system (Class D amplifier) incorporates a 18" low frequency transducer with a 4" voice coil mounted as a direct radiator into a bass-reflex cabinet. The loudspeaker is protected by a perforated steel grille, sealed against corrosion using a powder coat finish. The **action 18A** is designed for use in biamped systems. A top located pole-mount socket permits mounting full-range systems above the **action 18A** and two bar handles makes moving easy.



action 218A

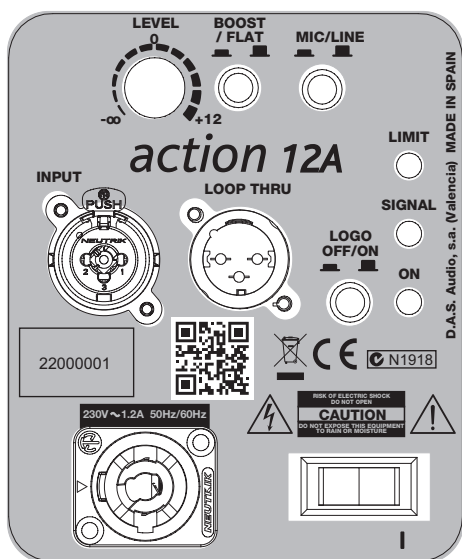
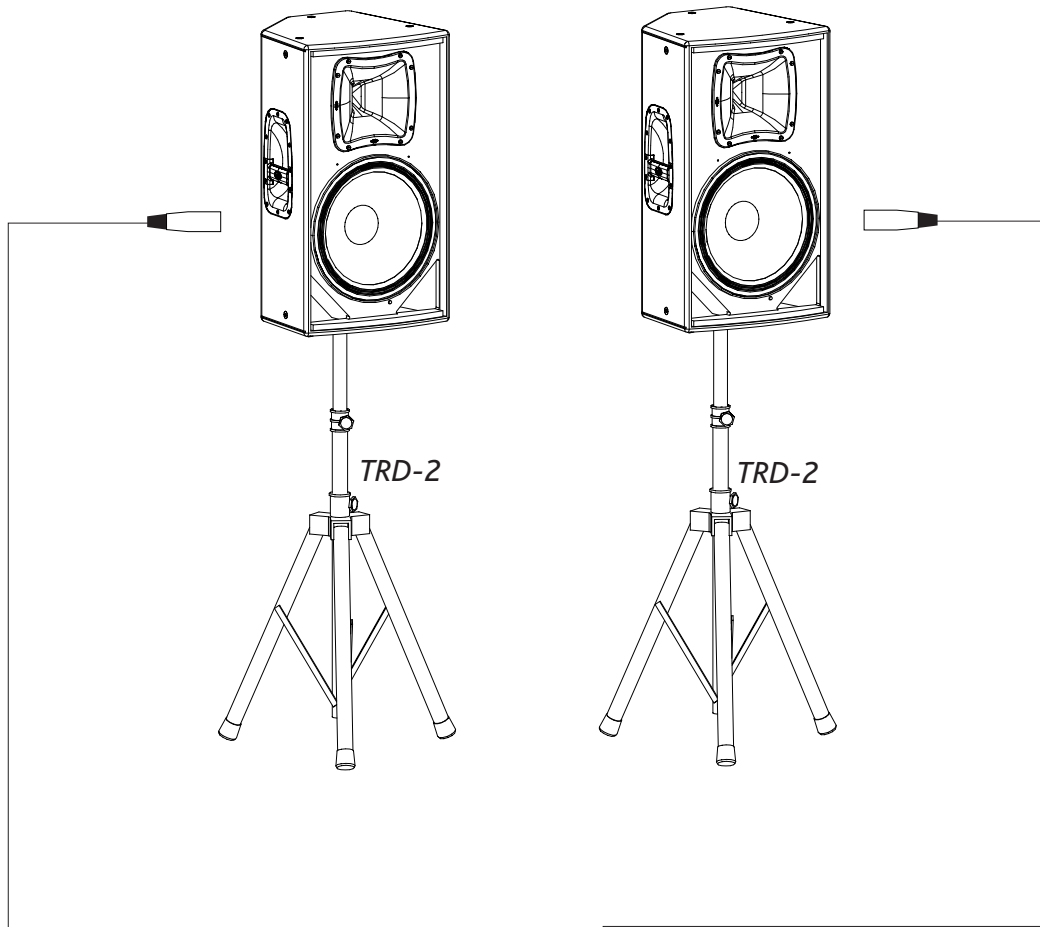
- High output bass-reflex powered subwoofer system
- Twin 18" loudspeakers
- Durable black paint finish
- Side located bar handles

This bass-reflex powered subwoofer system uses dual 18" bass loudspeakers equipped with 4" voice coils. The exceptional power handling capacity and efficiency provide high sound pressure levels of powerful bass. Two hand locations facilitate handling. The cabinet is designed to be stacked in the vertical position in order to reduce the units "on-stage" footprint.

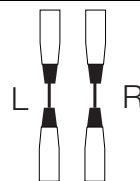
CONFIGURATIONS

action 15A (or action 12A)

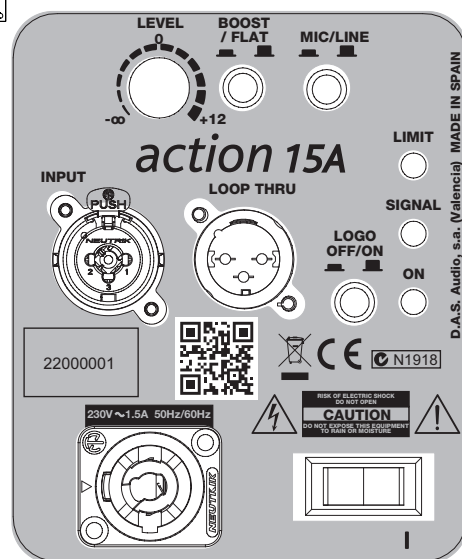
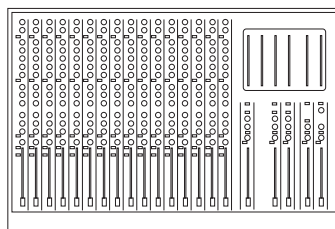
action 15A (or action 12A)



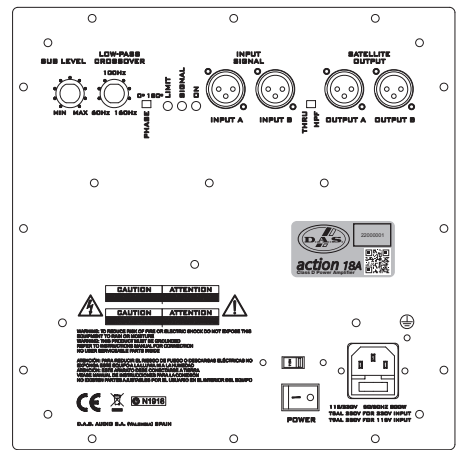
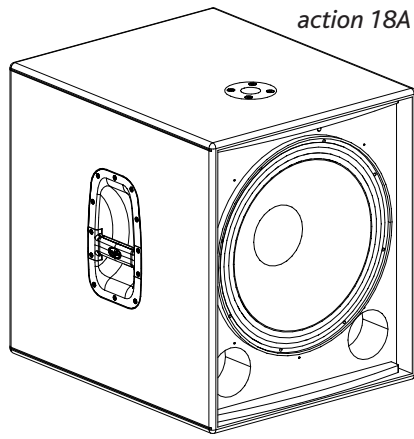
DSP-26



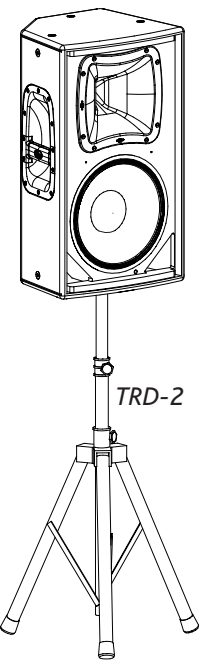
Mixer



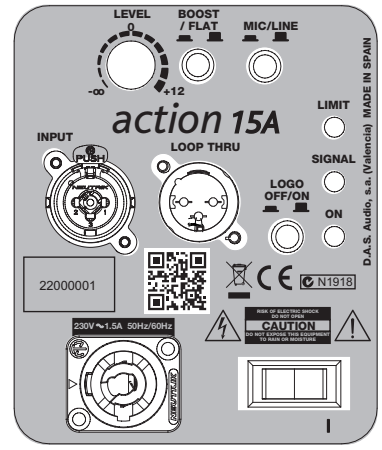
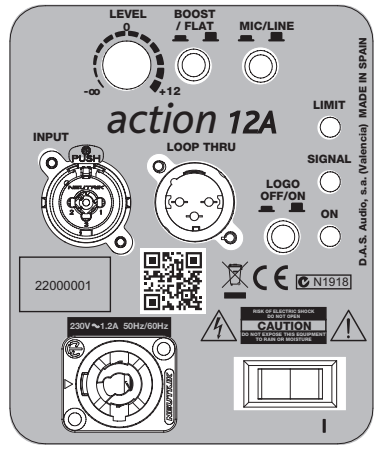
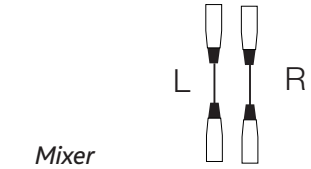
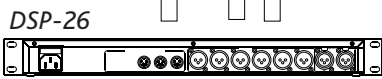
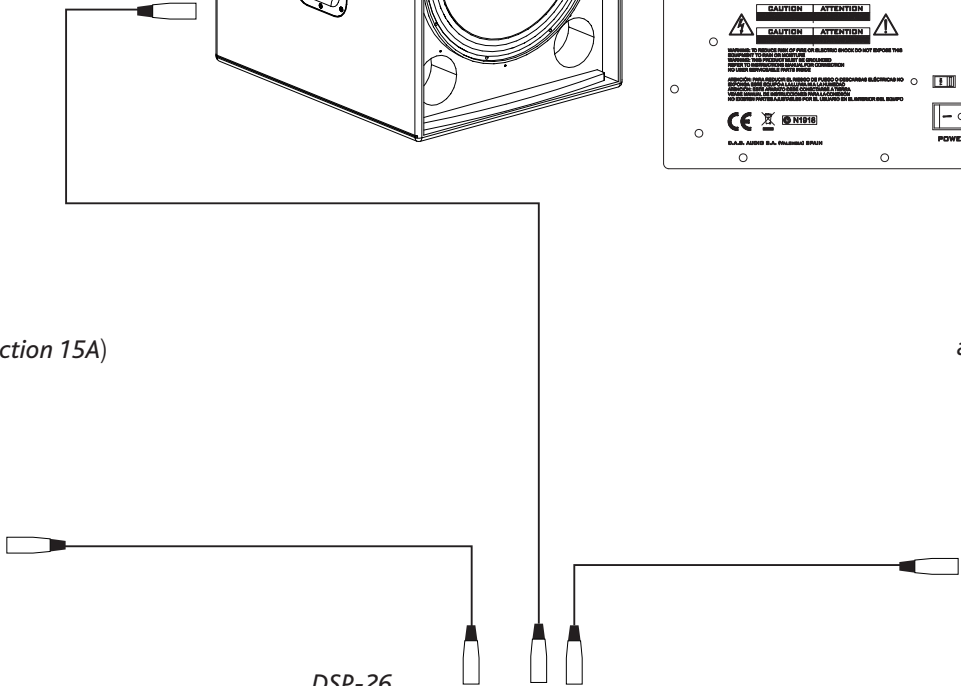
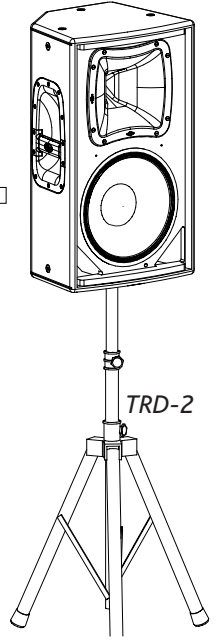
CONFIGURATIONS (cont'd)



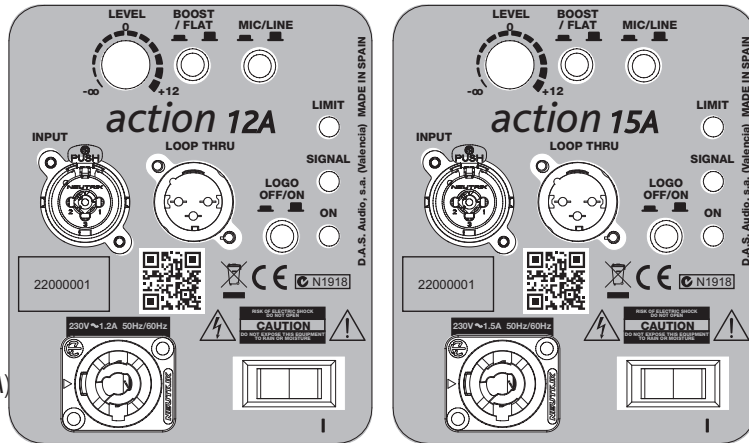
action 12A (or action 15A)



action 12A (or action 15A)

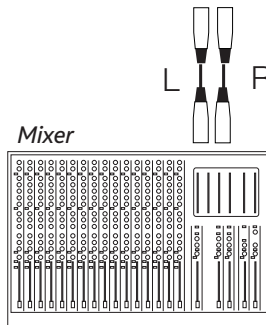
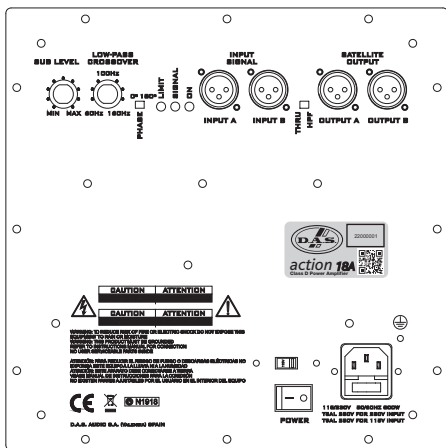
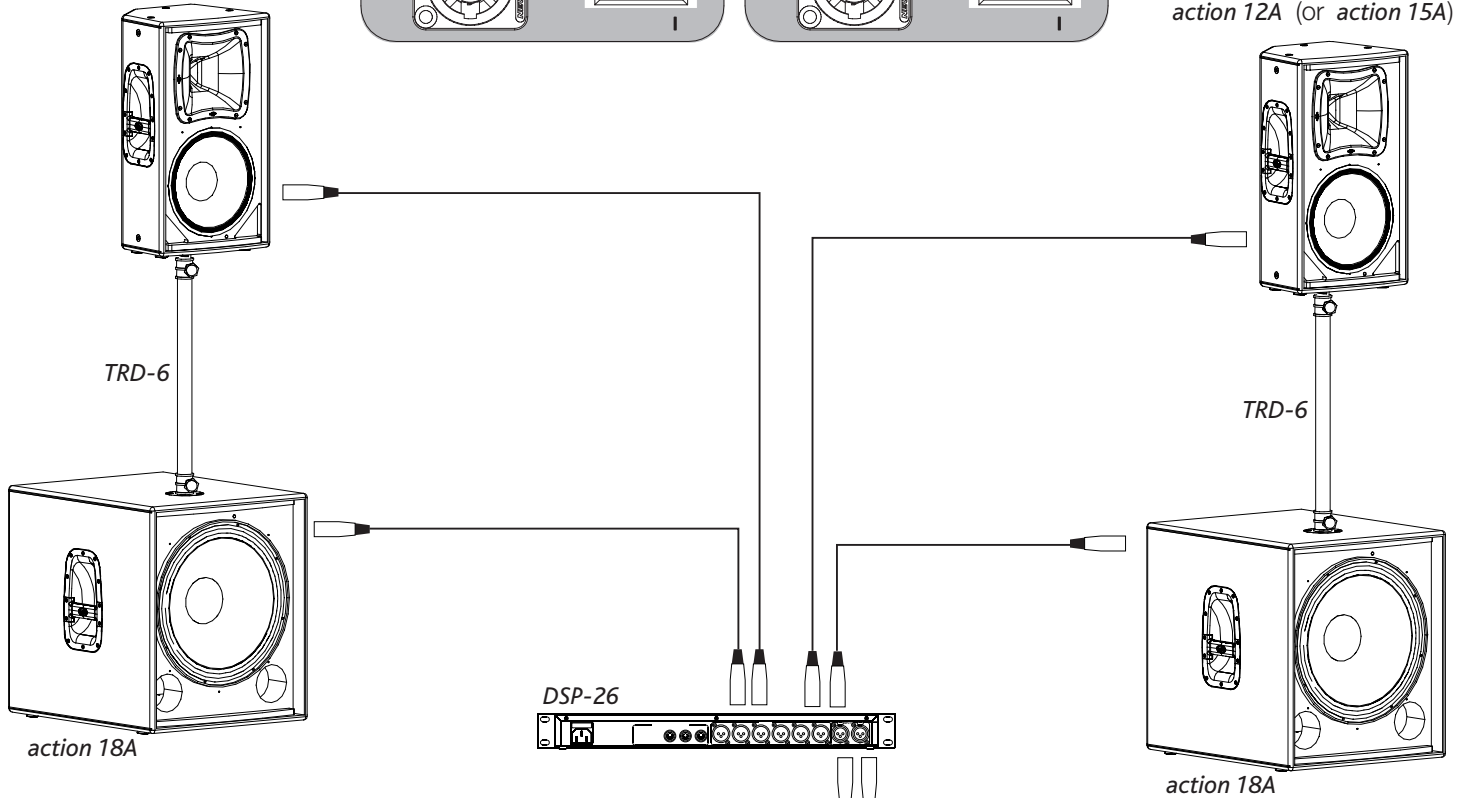


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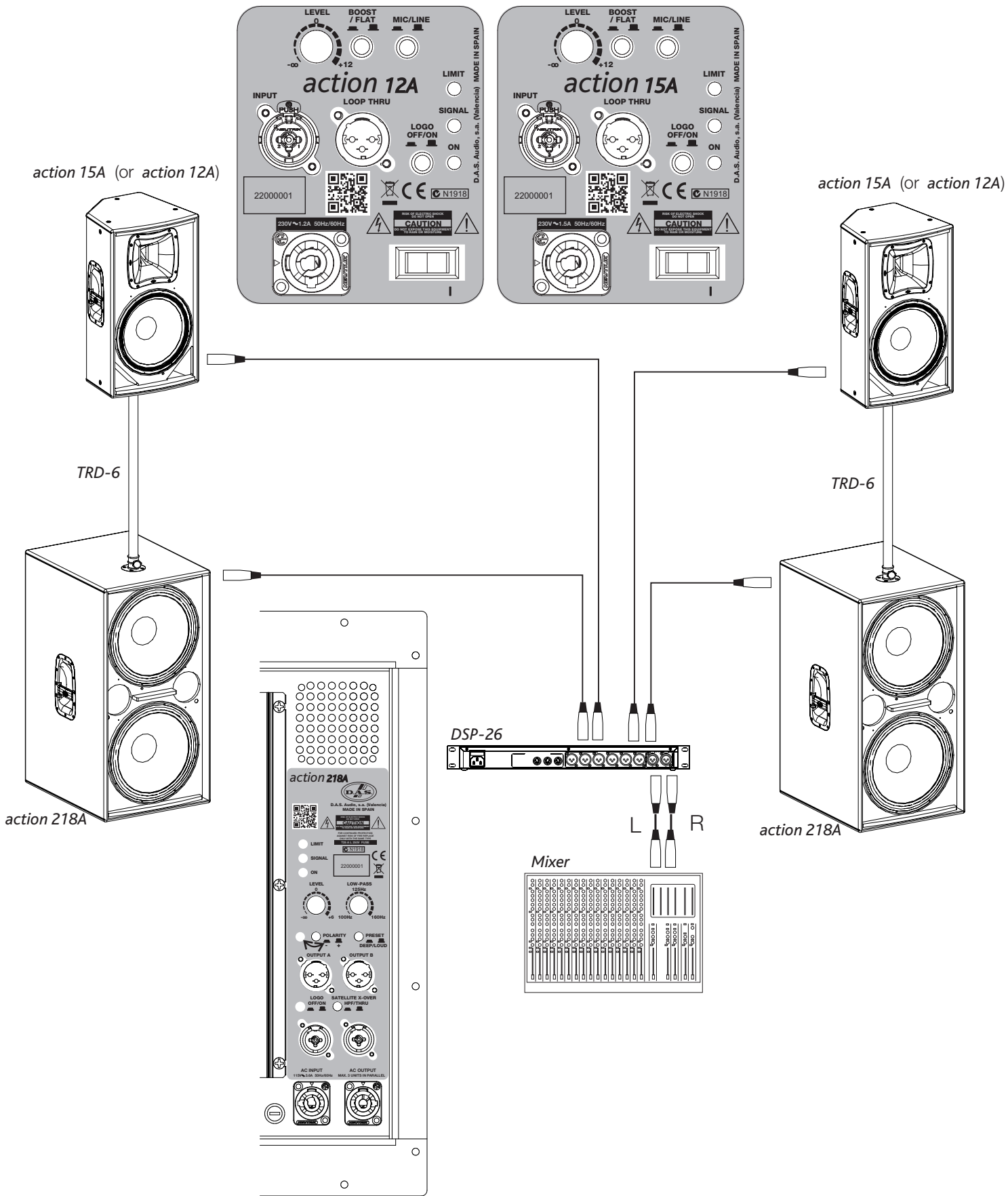


action 12A (or action 15A)

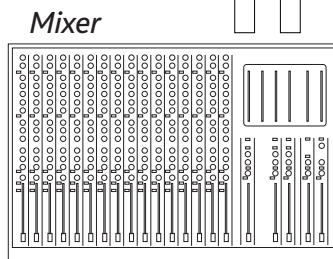
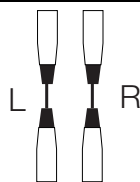
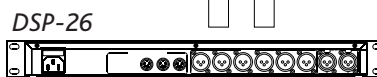
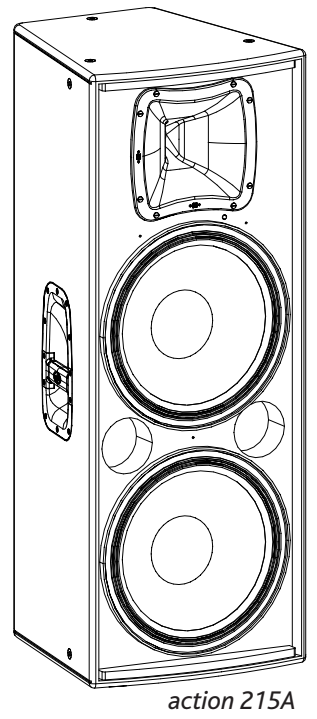
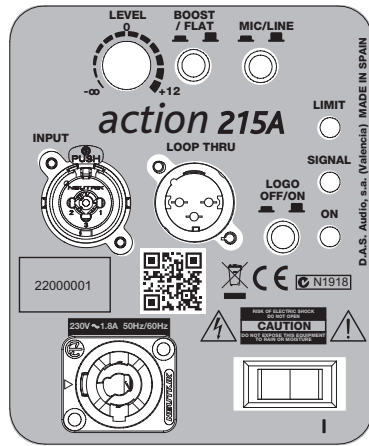
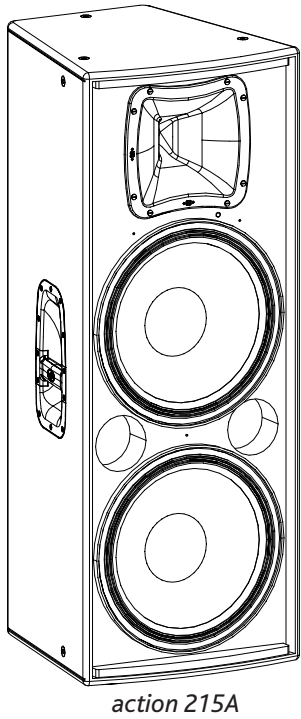
action 12A (or action 15A)



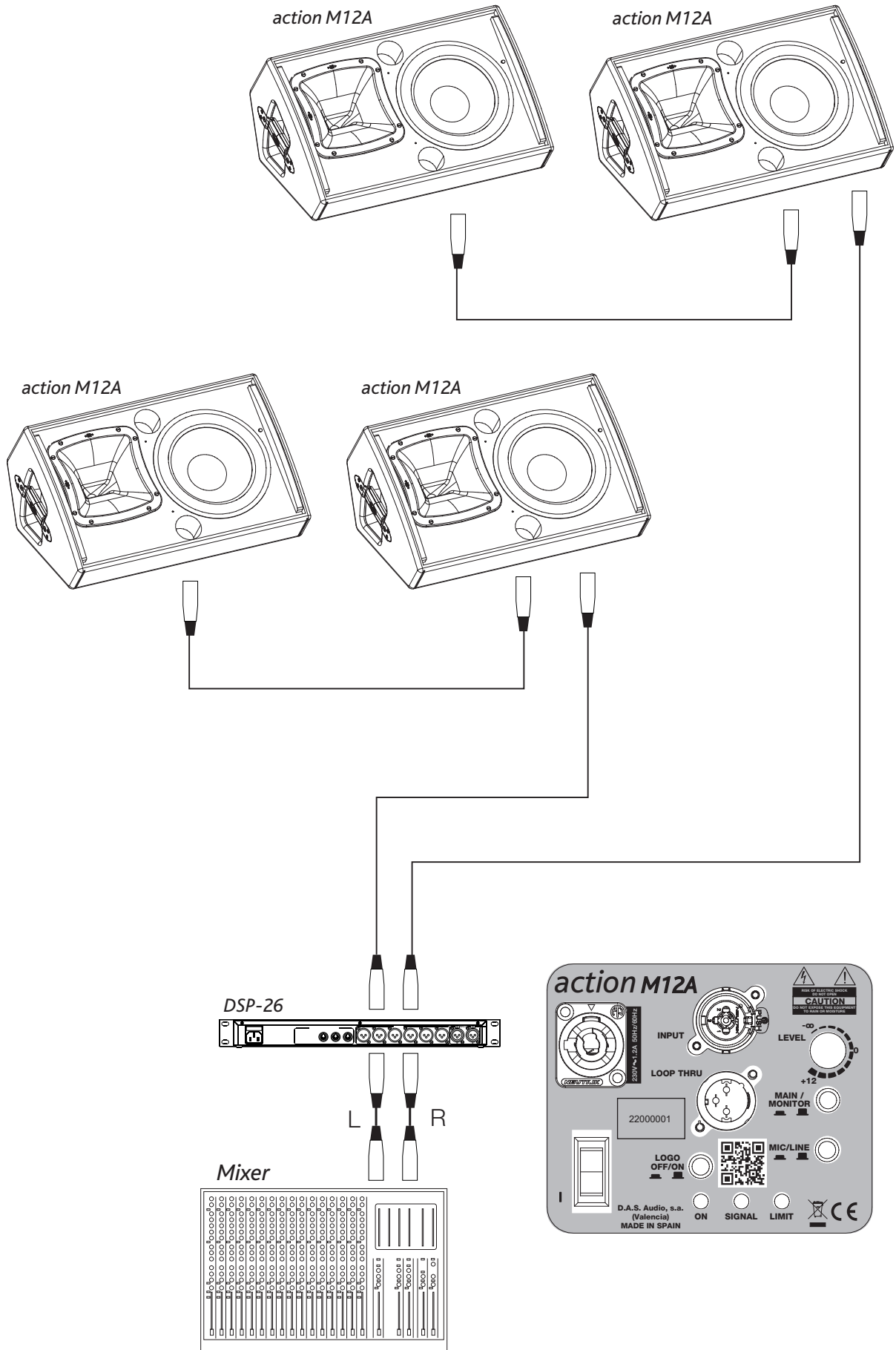
CONFIGURATIONS (cont'd)



CONFIGURATIONS (cont'd)



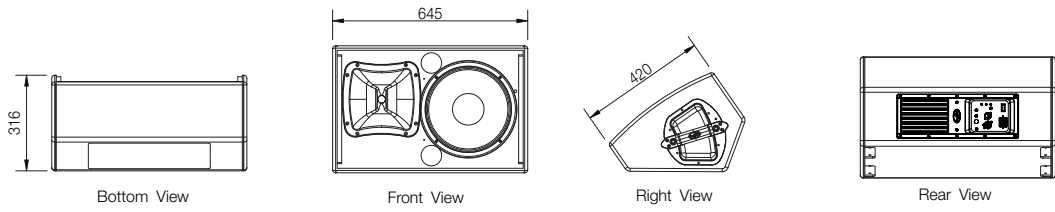
CONFIGURATIONS (cont'd)



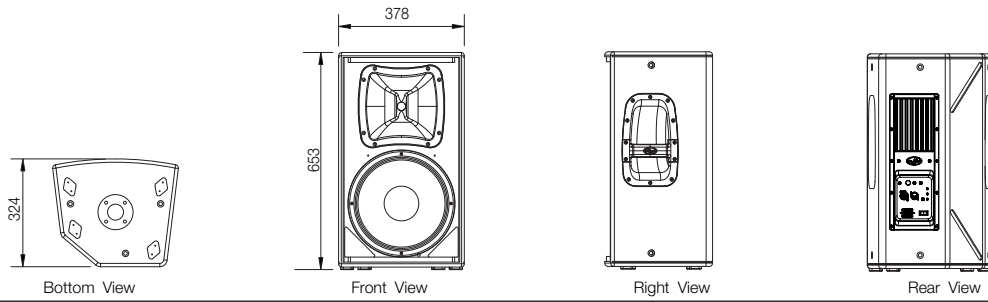
LINE DRAWINGS

ALL DIMENSIONS IN MILIMETERS

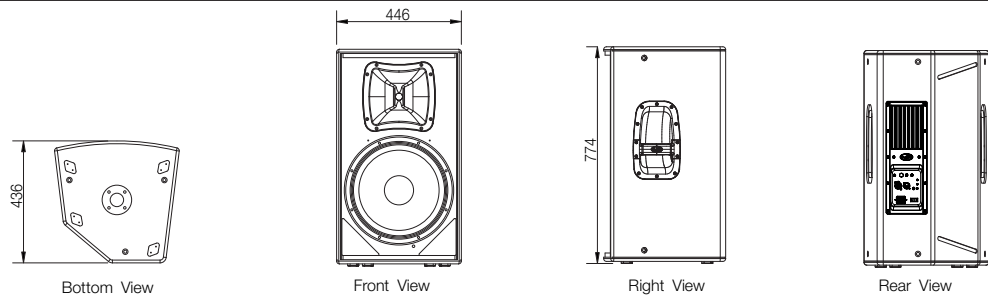
action M12A



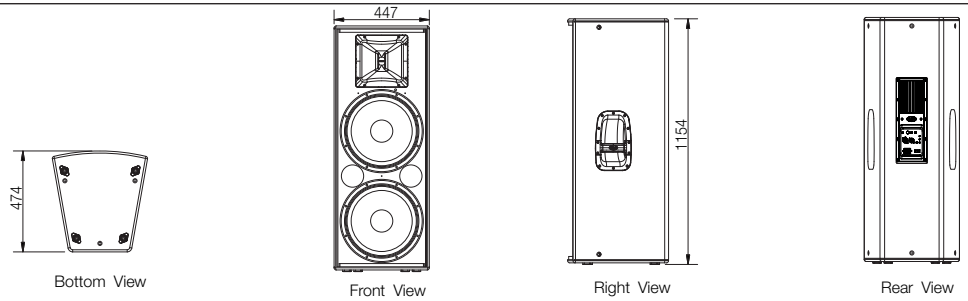
action 12A



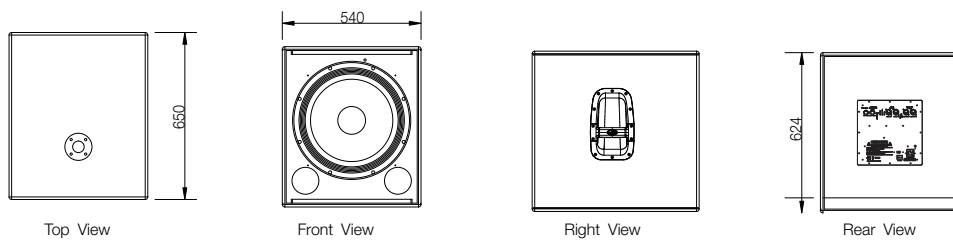
action 15A



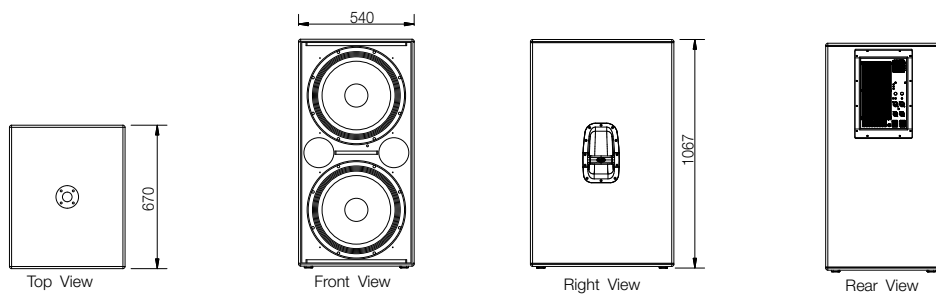
action 215A



action 18A



action 218A



AMPLIFIER

Description

1) INPUT :

1/4" Jack+XLR combined socket-type input signal connector. This is a balanced connector just like the LOOP THRU connector with the following pin assignments:

- 1 or S =GND (ground).
- 2 or T =(+) Non inverted input.
- 3 or R =(-) Inverted input.

2) LOOP THRU (except SUBS):

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

2) SATELLITE OUTPUT (only SUBS):

A and B, XLR-type output signal connectors for connecting several units together and sending them all the same input signal or filtered signal (by using THRU/HPF).

3) LIMIT :

Red LED indicates amplifier saturation. Amplifier limiter indicator lights.

4) SIGNAL :

Green LED indicates signal presence.

5) ON :

Green LED (blue for *action 18A*) indicates that the unit is ON.

6) LEVEL / SUB LEVEL :

Potentiometer for adjusting the unit level.

7) MAIN / MONITOR (only *action M12A*) / BOOST / FLAT :

Button for switching between two types of frequency response. Press the button to use the unit without subwoofer. Please note that the unit will therefore reach its limits sooner.

8) MIC / LINE :

Button for switching between microphone and line sensitivities. **NEVER PRESS THIS BUTTON WITHOUT FIRST REDUCING THE LEVEL OF THE UNIT TO AVOID EXTREMELY HIGH SPL.**

9) LOGO OFF / ON :

Press the button to illuminate the logo.

10) AC INPUT :

Standard IEC-60320 (only *action 18A*) or PowerCon NAC3FCA mains connector (inserted, rotated and locked for ON). **Only use this equipment with an appropriate mains cord.**

11) POWER :

Mains power ON/OFF switch.

12) THRU/HPF :

'SATELLITE OUTPUT' selector to switch between full range signal or pass filter **with cut-off frequency of 100 Hz.**

13) LINE SELECT (only *action 18A*) :

Mains voltage selector (115V AC or 230V AC). **Before operating, verify the voltage selection.**

14) LOW-PASS CROSSOVER :

Button for adjusting the upper cut-off frequency for the subwoofer unit. We recommend a cut-off frequency of 100 Hz.

15) PHASE :

Switch for inverting the phase of the unit.

16) FUSE (only *action 18A*) :

Fuse holder. Only use the recommended fuse type and size.

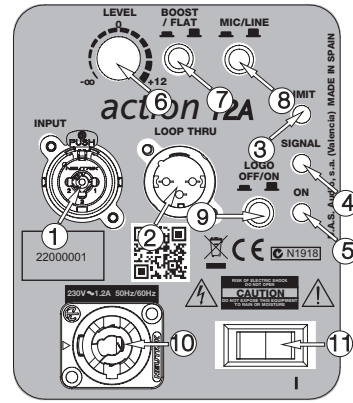
17) PRESET DEEP/LOUD (only *action 218A*) :

Button for switching between two types of frequency response, DEEP or LOUD.

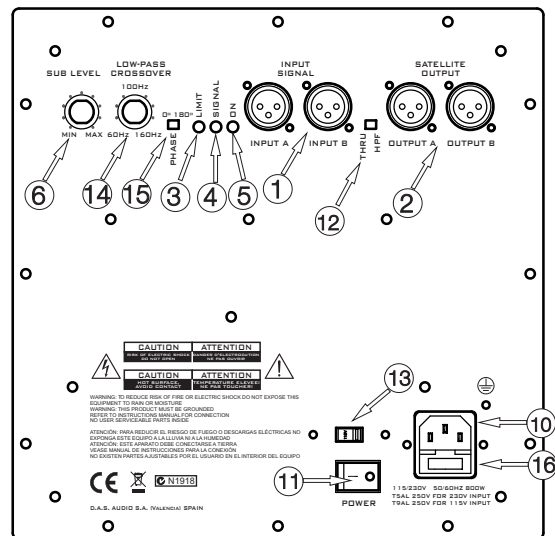
18) AC OUTPUT (only *action 218A*) :

PowerCon NAC3FCB connector for AC loop thru allows up to 6 units when using a 230V version (see unit's label)). **Only use this equipment with an appropriate mains cord.**

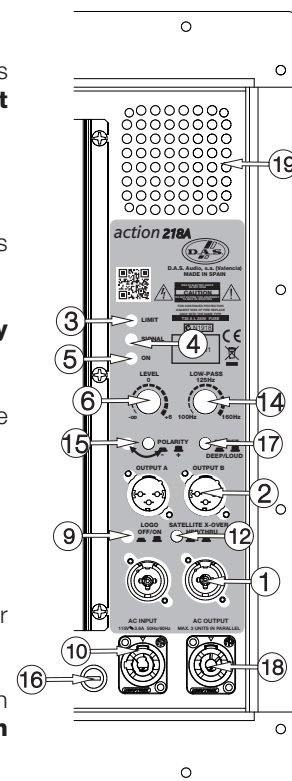
19) Fan (only *action 218A*).



action M12A, action 12A, action 15A & action 215A amplifiers



action 18A amplifier



action 218A amplifier

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 mains cable can be detached from the device by disconnecting the standard IEC-60320 connector (only *action 18A*). Always disconnect the device by removing the mains connector from the mains socket before detaching the mains cable at the standard IEC-60320 connector (only *action 18A*).

The rest of models use a power cable equipped with a Neutrik PowerCon NC3FCA connector. Power can be daisy chained via the NC3FCB 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 an indicator (LIMIT LED) that lights when the signal is excessive.

The indicator should not be lit continuously. This distorts the signal (quickly fatiguing your ears) and may damage the speakers. Therefore, it is recommended that you never work with this LED on; at most it should blink only occasionally.

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.

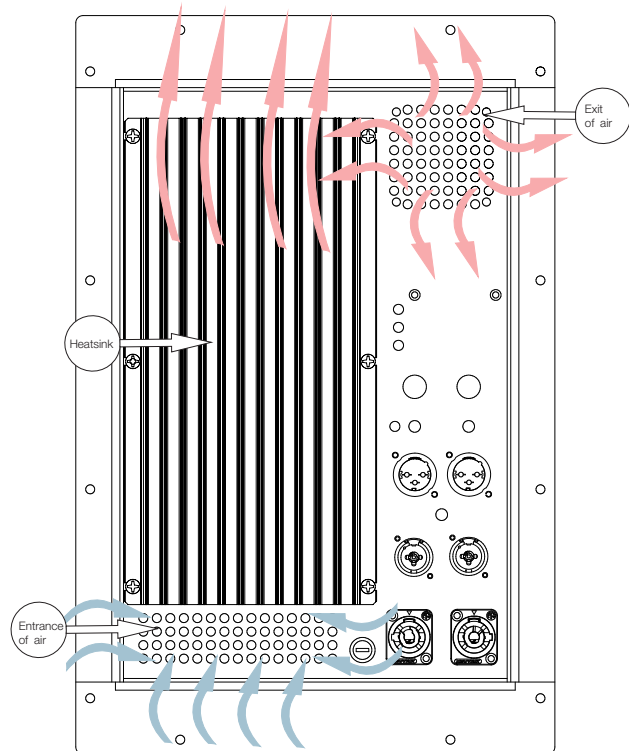
Normally it is enough just to let the unit cool down after you have corrected the problem so that the system functions properly again.

The *action 218A* amplifier is equipped with fan and heatsink to maintain the correct operating temperature.

Keep grilles clean and dust-free.

Do not block or obstruct in any way the air entrance or exit while the equipment is in use.

Air circulates from the bottom to the top of the amplifier.



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.

Therefore the current consumed by a 115V version is double the 230V version to achieve the same acoustic power level.

Pink Noise Mains 230 Vrms	1/3 Power
<i>action 12A</i>	1.2A
<i>action M12A</i>	1.2A
<i>action 15A</i>	1.5A
<i>action 215A</i>	1.8A
<i>action 18A</i>	1.5A
<i>action 218A</i>	2.7A

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
No sound from the unit. The SIGNAL LED does not light up.	<p>1 – The signal source is sending no signal.</p> <p>2 – Defective cable.</p> <p>3 - The amplifier has overheated.</p>	<p>1 – Check that the mixer or sound source is sending signal to the UNIT.</p> <p>2 – Check that the cable from the sound source to the UNIT is connected correctly. Replace the cable if defective.</p> <p>3 - Allow the unit to cool down for some minutes and it will function again. Check the main output level of the mixer or channel gains since the unit will have been functioning with excessive levels.</p>
Full power cannot be obtained. The LIMIT LED never lights up.	The signal source does not have a hot enough output.	If using a mixer, use the balanced output if available. Use a professional mixer with a hotter output.
Sound is distorted. The LIMIT LED is not on, or only lights up occasionally.	The mixer or signal source is distorting.	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.	The system is overloaded and has reached maximum power.	Turn down the mixer's output.
Hum or buzz when a mixer is connected to the unit.	<p>1.– The console probably has un-balanced outputs. You may be using an incorrect un-balanced to balanced cable.</p> <p>2.– The mixer and the powered speaker are not plugged into the same mains outlet.</p> <p>3.– The audio signal cable is too long or too close to an AC cable</p>	<p>1.– Read the appendix of this manual to make a correct un-balanced to balanced cable.</p> <p>2.– Connect the mixer and the unit to the same mains outlet.</p> <p>3.– Use a cable that is as short as possible and/or move the audio signal cable away from mains cables.</p>
Hum or buzz when using lighting controls in the same building.	<p>1.– The audio signal cable is too long or too close to the lighting cable.</p> <p>2.– On a sound system with three-phase AC, the lighting equipment and the UNIT are connected to the same phase.</p>	<p>1.– Move the audio signal cable away from lighting cables. Try to find out at what point the noise is leaking into the system.</p> <p>2.– Connect the sound system to a different phase than the lights. You may need the help of an electrician.</p>
The ON LED does not light up when the mains connector is connected and the unit is switched to ON.	<p>1.– Bad or loose AC connection to the UNIT or the mains outlet.</p> <p>2 – Faulty AC cable.</p> <p>3 – Blown Fuse.</p> <p>4 - The mains voltage is out of range.</p>	<p>1.– Check your connections.</p> <p>2.– Check the cables, connectors and AC power with a suitable mains tester.</p> <p>3.- Replace the blown fuse for another of the same type and size.</p> <p>4.- If the multimeter determines that the mains voltage is out the range, you may need the assistance of an electrician to find an appropriate solution.</p>

SPECIFICATIONS

Model	<i>action M12A</i>	<i>action 12A</i>	<i>action 15A</i>
Power Amplifier	1000 W peak 500 W continuous (Class D Bi-amplified)	1000 W peak 500 W continuous (Class D Bi-amplified)	1000 W peak 500 W continuous (Class D Bi-amplified)
Input Type	Balanced Differential Line	Balanced Differential Line	Balanced Differential Line
Input Impedance	Line: 20 kohms	Line: 20 kohms	Line: 20 kohms
Sensitivity	Line: 1.95V (+8dBu)	Line: 1.95V (+8dBu)	Line: 1.95V (+8dBu)
Frequency Range (-10 dB)	60 Hz - 20 kHz	50 Hz - 20 kHz	45 Hz - 20 kHz
HF Horn Coverage Angles (-6 dB)	80° x 50°	80° x 50°	80° x 50°
Maximum Peak SPL at 1m	130 dB	131 dB	131 dB
Transducers/ Replacement Parts	LF: 12Mi / GM 12Mi HF: M-34 / GM M-34	LF: 12Mi / GM 12Mi HF: M-34 / GM M-34	LF: 15Mi / GM 15Mi HF: M-34 / GM M-34
Enclosure Material	Birch Plywood	Birch Plywood	Birch Plywood
Color/Finish	Black Paint	Black Paint	Black Paint
Connectors	INPUT: Female XLR LOOP THRU: Male XLR AC INPUT: PowerCon NAC 3 FCA	INPUT: Female XLR LOOP THRU: Male XLR AC INPUT: PowerCon NAC 3 FCA	INPUT: Female XLR LOOP THRU: Male XLR AC INPUT: PowerCon NAC 3 FCA
AC Power Requirements	115V, 2.4A, 50 Hz / 60 Hz 230V, 1.2A, 50 Hz / 60 Hz	115V, 2.4A, 50 Hz / 60 Hz 230V, 1.2A, 50 Hz / 60 Hz	115V, 3A, 50 Hz / 60 Hz 230V, 1.5A, 50 Hz / 60 Hz
Dimensions (H x W x D)	42 x 64.5 x 31.6 cm 16.6 x 25.4 x 12.5 in	65.3 x 37.8 x 32.4 cm 25.7 x 14.9 x 12.8 in	77.4 x 44.6 x 43.64 cm 30.5 x 17.6 x 17.2 in
Weight	19 kg (41.8 lb)	20 kg (44 lb)	26 kg (57.2 lb)
Accessories	TRD-2 TRD-6	ANL-2 TRD-2 TRD-6	ANL-2 TRD-2 TRD-6
Model	<i>action 215A</i>	<i>action 18A</i>	<i>action 218A</i>
Power Amplifier	1000 W peak 500 W continuous (Class D Bi-amplified)	1500 W peak 750 W continuous (Class D)	2500 W peak 1250 W continuous (Class D)
Input Type	Balanced Differential Line	Balanced Differential Line	Balanced Differential Line
Input Impedance	Line: 20 kohms	Line: 20 kohms	Line: 20 kohms
Sensitivity	Line: 1.95V (+8dBu)	Line: 1.95V (+8dBu)	Line: 1.95V (+8dBu)
Frequency Range (-10 dB)	45 Hz - 20 kHz	35 Hz - 160 Hz	35 Hz - 160 Hz
HF Horn Coverage Angles (-6 dB)	80° x 50°	- - -	- -
Maximum Peak SPL at 1m	134 dB	133 dB	139 dB
Transducers/ Replacement Parts	LF: 2x 15Mi4 / GM 15Mi4 HF: M-44 / GM M-44	LF: 18H / GM 18G	LF: 2x 18H4 / GM 18G4
Enclosure Material	Birch Plywood	Birch Plywood	Birch Plywood
Color/Finish	Black Paint	Black Paint	Black Paint
Connectors	INPUT: Female XLR LOOP THRU: Male XLR AC INPUT: PowerCon NAC 3 FCA	INPUT: 2x Female XLR LOOP THRU: 2x Male XLR AC INPUT: Male IEC	INPUT: 2x Female XLR LOOP THRU: 2x Male XLR AC INPUT: PowerCon NAC 3 FCA AC OUTPUT: PowerCon NAC 3 FCB
AC Power Requirements	115V, 3.6A, 50 Hz / 60 Hz 230V, 1.8A, 50 Hz / 60 Hz	115V, 3A, 50 Hz / 60 Hz 230V, 1.5A, 50 Hz / 60 Hz	115V, 5.4A, 50 Hz / 60 Hz 230V, 2.7A, 50 Hz / 60 Hz
Dimensions (H x W x D)	115.4 x 44.7 x 47.4 cm 45.5 x 17.6 x 18.7 in	62.4 x 54 x 65 cm 24.6 x 21.3 x 25.6 in	106.7 x 54 x 67 cm 42 x 21.3 x 26.4 in
Weight	44 kg (88 lb)	36.5 kg (80.3 lb)	63 kg (138.6 lb)
Accessories	ANL-2	TRD-6	TRD-6

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.

RIGGING

Warnings

This manual contains needed information for flying D.A.S. Audio line array systems, description of the elements and safety precautions. 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).

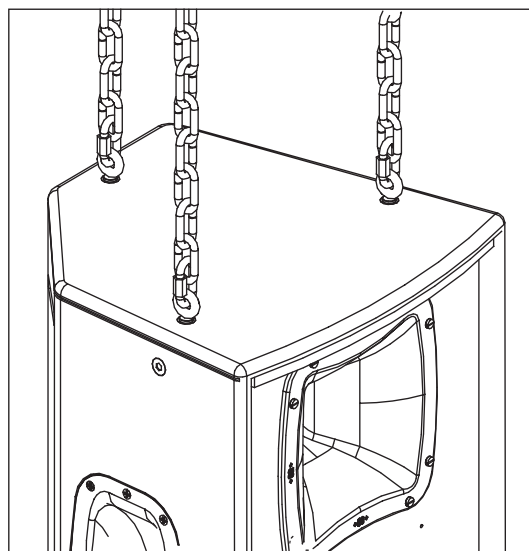
When flying a system, the working load must be lower than the resistance of each individual flying point in the enclosure, as well as each box. Hanging hardware should be regularly inspected and suspect units replaced if in doubt. This is important to avoid injury and absolutely no risks should be taken 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.

Introduction

Flyable *action series* models feature 6 internal steel angles, with 2 mounting threads each, so that 12 flying points are available (2 on each side, 3 on the top panel and 3 on the bottom panel and 2 on the rear panel). Eyebolt flying points are factory sealed with M10 screws, which are replaced with eyebolts on the flying points as required. Flying with eyebolts is very economical and safe, and is specially recommended for fixed installations where the boxes are permanently fixed.

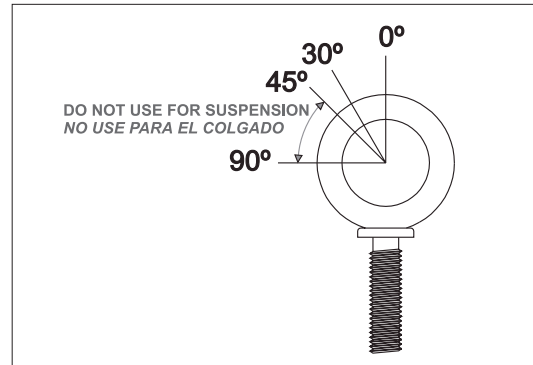
The illustration shows the internal metal hardware of an enclosure with eyebolt flying.



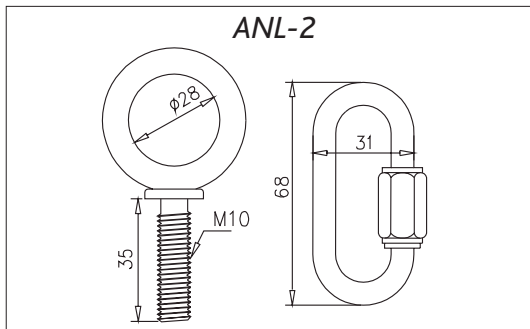
Flying with eyebolts

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 three eyebolts and three carabiners. (Dimensions are in millimetres).



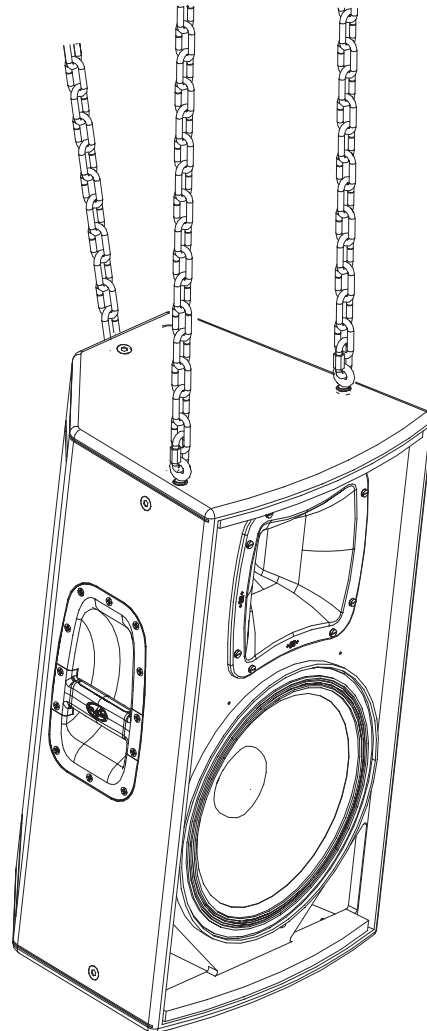
The following illustrations show different views on eyebolt flying for a single box. The length of the back cables or chains determines the vertical angle of the box.



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.

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



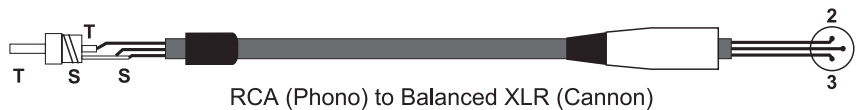
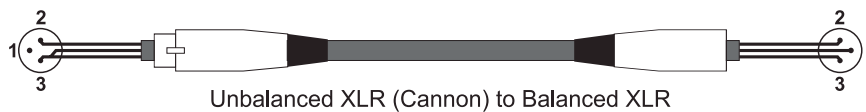
APPENDIX: Line connections: unbalanced and balanced

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.



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