



User's Manual

SM 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.



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.



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.

Equipo de Clase I.

Class I device.

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 35°C con una humedad relativa máxima del 75%, 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.

Working temperature ranges from 15°C to 35°C with a relative humidity of 75%, 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.

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.

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 su máxima extensión es:

For enclosures with tripod socket, maximum safety height from floor to bottom of enclosure when mounting on a TRD-2 tripod with legs fully open:

SML-12A ----->115 cm
SML-15A ----->115 cm

SML-12A ----->115 cm
SML-15A ----->115 cm

Con equipos SML, el colgado del equipo sólo debe realizarse utilizando los herrajes de colgado recomendados y por personal cualificado. No cuelgue la caja de las asas.

With SML devices, 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



Caja acústica pasiva / Passive loudspeaker enclosure

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El doble cuadrado indica equipo de Clase II.



The double square indicates Class II device.

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

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

No exponga este equipo a la lluvia o humedad. 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.

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Working temperature ranges from 15°C to 35°C with a relative humidity of 75%.

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

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

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

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

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



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

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 su máxima extensión es:

For enclosures with tripod socket, maximum safety height from floor to bottom of enclosure when mounting on a TRD-2 tripod with legs fully open:

SML-15 ----->115 cm

SML-15 ----->115 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.

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.

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

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



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 stage monitors*:

Declares that *stage monitors 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.

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.



CB TEST CERTIFICATE

Ref. Certificate No.

BE-1367

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Issued by:	SGS Belgium NV - Division SGS CEBEC		
Product:	Self-powered loudspeaker cabinets		
Applicant:	D.A.S. Audio S.A.	Islas Baleares, 24 46988 Fuente Del Jarro, VALENCIA	Spain
Manufacturer:	D.A.S. Audio S.A.	Islas Baleares, 24 46988 Fuente Del Jarro, VALENCIA	Spain
Factory:	D.A.S. Audio S.A.	Islas Baleares, 24 46988 Fuente Del Jarro, VALENCIA	Spain
Rating and principal characteristics:	50/60 Hz, audio amplifier 500W LF + 100W HF Type SML-12A, SM-12A (120 V version) : 120 V AC, 2.5 A Type SML-12A, SM-12A (230 V version) : 230 V AC, 1 A Type SML-15A, SM-15A (120 V version) : 120 V AC, 2.5 A Type SML-15A, SM-15A (230 V version) : 230 V AC, 1 A		
Trade mark (if any):	D.A.S.		
Model/Type reference:	SML-12A, SM-12A (120 V version), SML-12A, SM-12A (230 V version), SML-15A, SM-15A (120 V version), SML-15A, SM-15A (230 V version)		
Additional information:	/		
Sample of product tested to be in conformity with IEC:	60065(ed.7)	National differences: EU Group Differences; EU Special National Conditions; AU; CA; NZ; US	
Test Report Ref. No:	579584.01		

This CB Test Certificate is issued by the National Certification Body:

SGS Belgium NV - Division SGS CEBEC
Avenue F. Van Kalken 9 A, B - 1070 Brussels, Belgium



Signed by: Ronan MAQUESTIAU

Date of issue: 2008-01-16

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INTRODUCTION

General

Thank you for purchasing D.A.S. products. The *stage monitors* series represents 30 years of expertise in transducer and enclosure design, achieving a system that utilizes the most advanced sound reinforcement technology to deliver outstanding audio performance and maximum reliability.

This manual contains the required information to make the best use of the system you have purchased. Please take the time to read it.

Our Web site at www.dasaudio.com contains further support information such as enclosure and system drawings, data for modelling software and specification sheets.

Features

- All models include amplifier except *SML-15*.
- Plug & play self-amplified systems.
- Lightweight Class-D high efficiency amplifiers (except HF amplifier).
- Control electronics for maximum performance and ease of set-up.
- Input and output PowerCon connectors.
- XLR (Cannon) balanced signal input.
- XLR (Cannon) parallel signal output.
- Handles.
- Rugged enclosure built from Wisa® Finnish Birch plywood for greater rigidity and longer life.

SM-12A and *SM-15A*

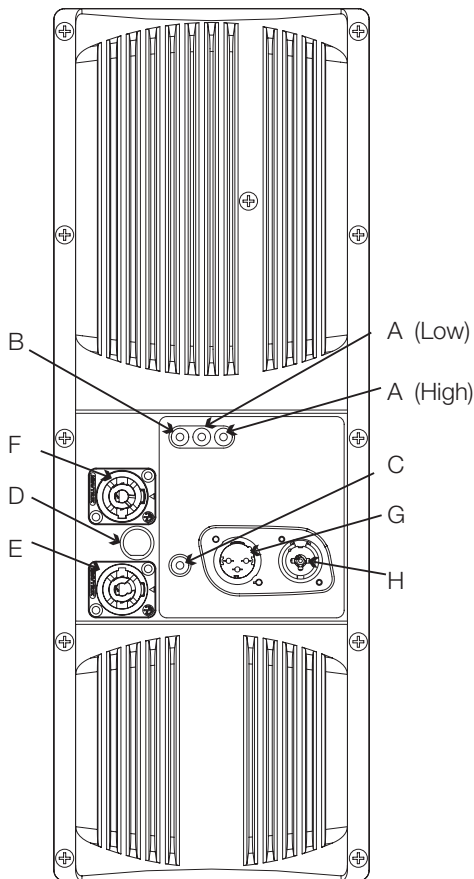
- Bi-amplified full-range 2-way system.
- 500 W (LF) and 100 W (HF) amplifiers.
- 12"/15" high efficiency speaker with 3" voice coil.
- Medium format high frequency compression driver. 3" voice coil diameter, exit 1.5" and Neodymium magnet.
- Exponential horn. Coverage angles (-6dB) 50°x50° (*SM-12A*).
- Constant directivity horn. Coverage angles (-6dB) 90°x60° (*SM-15A*).
- Wedge cabinet with 40° stage monitor angle.
- Extended bass response till 60 Hz/ 50 Hz due to internal volume.

SML-12A and *SML-15A*

- Multi-purpose low profile stage monitor.
- Bi-amplified full-range 2-way system.
- 500 W (LF) and 100 W (HF) amplifiers.
- 12"/15" high efficiency Neodymium speaker with 3" voice coil.
- Medium format high frequency compression driver. 3" voice coil diameter, 1.5" exit and Neodymium magnet.
- Exponential horn. Coverage angles (-6dB) 50°x50°.
- Constant rotatable directivity horn. Coverage angles (-6dB) 60°x40° (*SML-15A*).
- Wedge symmetric cabinet with 40° stage monitor angle.
- 12 x M10 rigging points included.
- Tripod socket.

SML-15

- Multi-purpose low profile stage monitor.
- External amplification. Bi-amplified or mono-amplified operation modes.
- 15" high efficiency Neodymium speaker with 3" voice coil.
- Medium format high frequency compression driver. 3" voice coil diameter, 1.5" exit and Neodymium magnet.
- Constant rotatable directivity horn. Coverage angles (-6dB) 60°x40°.
- Wedge symmetric cabinet with 40° stage monitor angle.
- 12 x M10 rigging points included.
- Tripod socket.



AMPLIFIER DESCRIPTION

Bi-amplified system (except *SML-15*).

Nominal amplifier power (RMS) per way: LF:500 W (class D) HF:100 W (Class AB).

Amplifier panel description:

A) LIMIT: Amplifier limiter indicator lights. When lit, the level of the signal source should be reduced.

B) SIGNAL: Signal presence indicator at the amplifiers' inputs.

C) ON: Indicator light for each amplifier channel.

D) FUSE.

E) AC INPUT: With PowerCon NAC 3 FCA connector. Only when the connector is inserted and rotated (clicked) into place will the AC turn on. The connector can be used as a switch, rotating the connector to or from the locked position will turn the unit on or off, respectively. Mute the signal feeding the INPUT before turning the unit on or off.

F) AC OUTPUT: With (white) PowerCon NAC 3 DFCB connector. This is used as an AC loop thru so that up to 4 boxes (at 230 V) can be powered from a single AC line.

G) INPUT: Balanced signal XLR. Pin assignments as follows :

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

H) LOOP THRU: Used for paralleling several units, which will share the same input. Could also be used to provide signal for an outboard power amplifier.

Switch on-off

A sound system should be switched on sequentially. Switch on the self-powered unit last in your sound 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.

Mute all signal sources before switching the unit on or off.

Limit indicators

It is recommended that the red LIMIT LED indicators are not lit continuously; at most it should blink only occasionally.

If you wish to have a visual indication at the mix position of whether the LIMIT LEDs are lighting, during equipment set-up, closely observe what mixer VUmeter level corresponds to the level that lights the enclosure's LIMIT LEDs. That level that should not be exceeded during the event.

Overheating

Due to their high efficiency, the Stage Monitor series amplifiers generate very little residual heat and therefore do not need a fan for cooling. In normal use, the amplifier panel will be warm to the touch.

If the unit stops playing (or just the mid-high or the bass sections), the amplifier's overheating protection may be activated to protect the components from thermal damage. Overheating may be due to insufficient cooling, or to very aggressive use in extremely hot conditions. Do not use the unit in proximity to high power lights. Once the amplifier cools down, it switches back on automatically. If the unit should shut down again, try reducing the volume a notch to avoid overheating.

Equalization

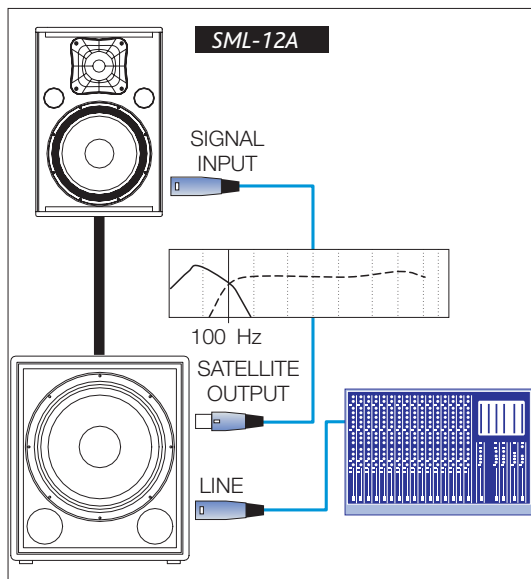
The units do not need extreme settings of equalisation to produce quality sound. Avoid high levels of gain on the equalisers. Gain values above +6 dB on a console's EQ are not recommended.

Low mains voltage

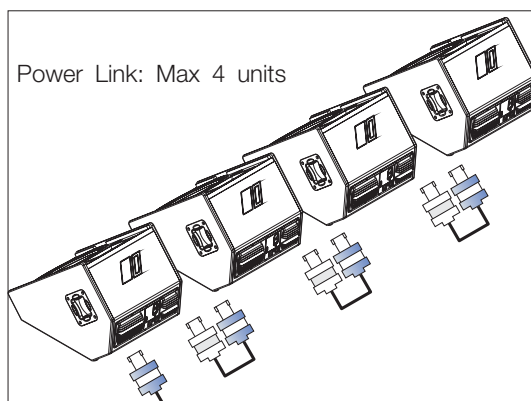
If mains voltage falls below the shutdown voltage for the unit, it will stop playing. When acceptable levels are regained, the unit will switch back on automatically.

Connections

stage monitors series units have been thought of to be used as full range systems not requiring any additional signal processing. Being *SML* a versatile multipurpose cabinets they can be used in combination with subwoofer units such as *sub-18HA*. It is recommended to plug the mixer into the *sub-18HA*'s input and then to connect the *sub-18HA* high pass filtered output (SATELLITE OUTPUT) to the *SML*'s input. That way the signal being fed into the *SML* will be high pass filtered at 100 Hz (dotted graph in the picture).

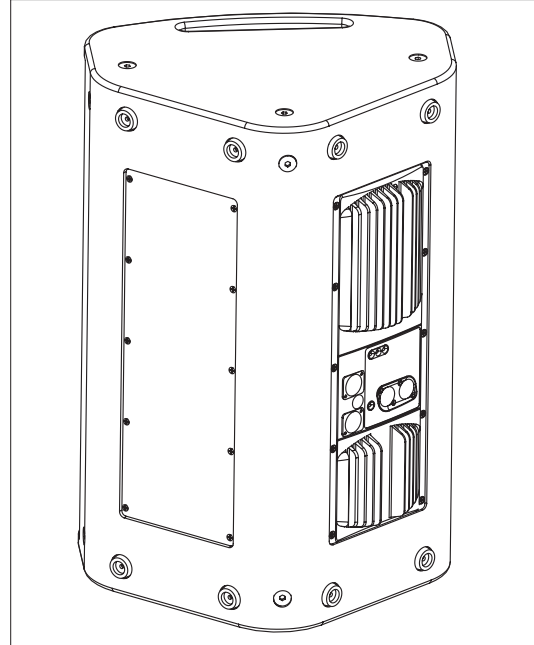


All of the models in the *stage monitors series* feature signal output connectors (XLR) and current output connectors (PowerCon) in order to allow linking both signal and mains power. Due to the PowerCon current limit, only a maximum of 4 units can be linked together.

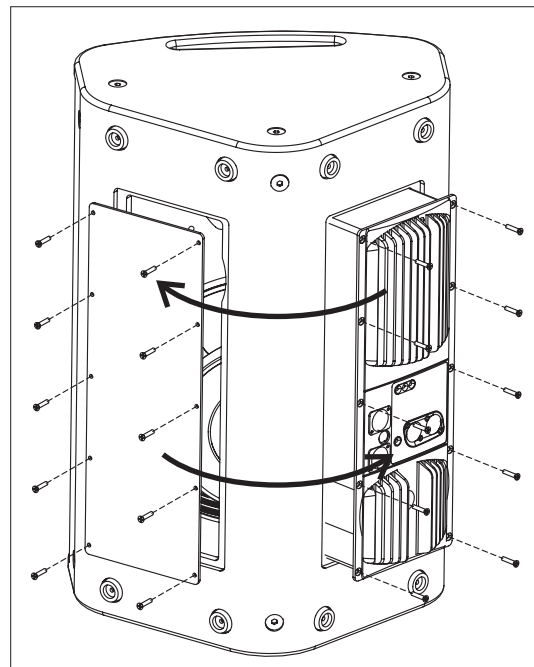


Side changing of the amplifier

SML-12A is provided with the high frequency driver on the right side. When used as a floor monitor, and when the high frequency driver is needed on the left side, the amplifier must swap places with the metal plate attached to the other flat side of the box.



Firstly unscrew the metal plate and the amplifier (20 M4x20 DIN 7985). Then unplug the white speaker connector and finally swap places.



Troubleshooting

PROBLEM	CAUSE	SOLUTION
No sound from the unit. The SIGNAL presence LED indicator(s) do(es) not light up.	1- The signal source is sending no signal. 2- Defective cable.	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 indicator(s) never light(s) up.	1- The signal source does not have a hot enough output.	1- If using a mixer, use the balanced output if available. Use a professional mixer with a hotter output.
Sound is distorted. The LIMIT LED indicator(s) is/are not on, or only light up occasionally.	1- The mixer or signal source is distorting.	1- Turn mixer channel gains down. Check that none of your signal sources are distorting.
Sound is distorted and very loud. One or more LIMIT LED indicators light up.	1- The system is overloaded and has reached maximum power.	1- Turn down the mixer's output.
Hum or buzz when a mixer is connected to the unit.	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.	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 mains cables.
Hum or buzz when using lighting controls in the same building.	1- The audio signal cable is too long or too close to the lighting cable. 2- On a sound system with three-phase AC, the lighting equipment and the UNIT are connected to the same phase.	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 power on LED indicator(s) do(es) not light up when the power connector is rotated and locked at the ON (LOCK) position.	1- Bad or loose AC connection to the UNIT or the mains outlet. 2- Faulty AC cable. 3- Blown Fuse.	1- Check you connections. 2- Check the cables, connectors and AC power with a suitable mains tester. 3- Replace fuse on fuse holder with one of the same type. If it blows again, take the unit to a service centre.

RIGGING

Warning

This manual contains needed information for flying DAS Audio *stage monitors* 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 ongoing 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.

Introduction

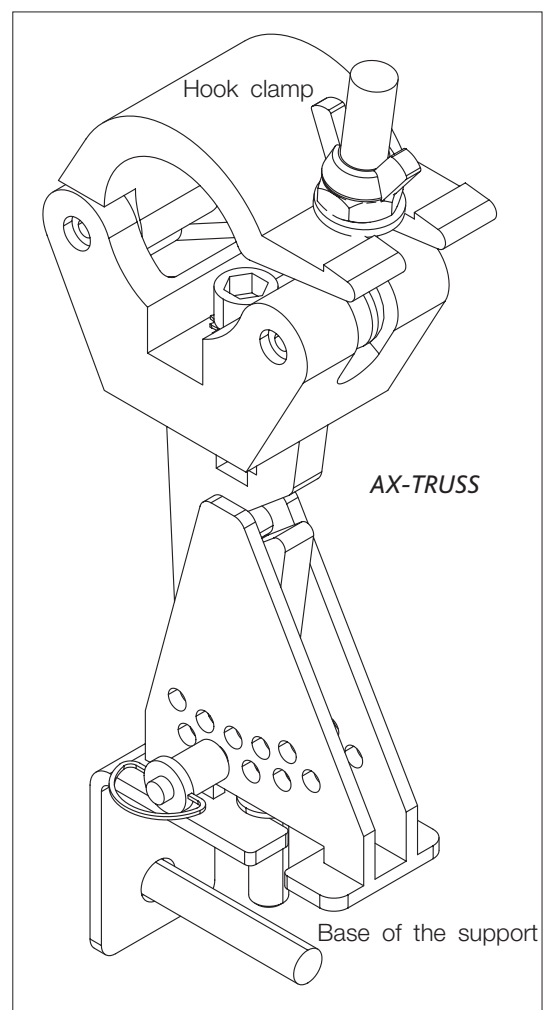
SML are the models in the *stage monitors series* that feature the necessary hardware to be flown. As has been said above, *SML* are versatile multipurpose cabinets which can also be used as a low profile floor monitor.

SML cabinets feature 6 "L" shaped internal metal hardware pieces, each one including 2 M10 nuts, thus providing a total of 12 rigging points.

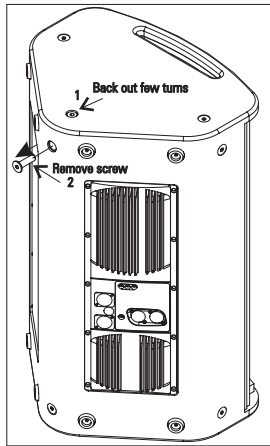
Rigging with AX-TRUSS

The *AX-TRUSS* rigging hardware has been designed to fly the cabinets from structure trusses of 50mm diameter (2 in diameter). The *AX-TRUSS* base must be fixed to the upper rear corner of the box by means of two M10 screws. The screw needed to attach the *AX-TRUSS* base to the upper side of the box is the same that comes with the box on that position. The screw to be inserted on the rear side of the box is a special one that is provided with the *AX-TRUSS* accessory.

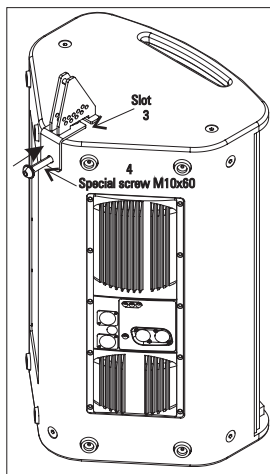
AX-TRUSS allows for several vertical angles from +10° to -35°. The vertical angle is set up by inserting a highly resistant quick release pin into the holes in the *AX-TRUSS* base.



In order to attach the *AX-TRUSS* to the box, firstly the screw on the upper rear side must be backed out a few turns (1). Then the rear side screw must be completely removed (2).



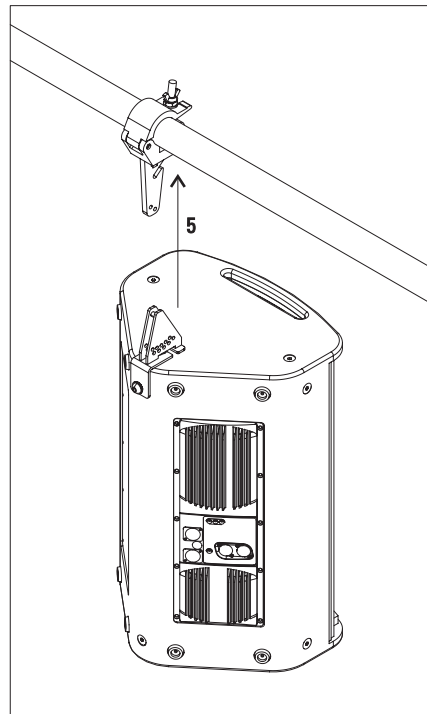
Once the rear side screw has been removed, the base of the *AX-TRUSS* will be placed on the corner, making sure that the head of the upper screw fits into the slot (3) on the base. Then the special rear side screw, provided with the hardware (4), will be fixed to the box.



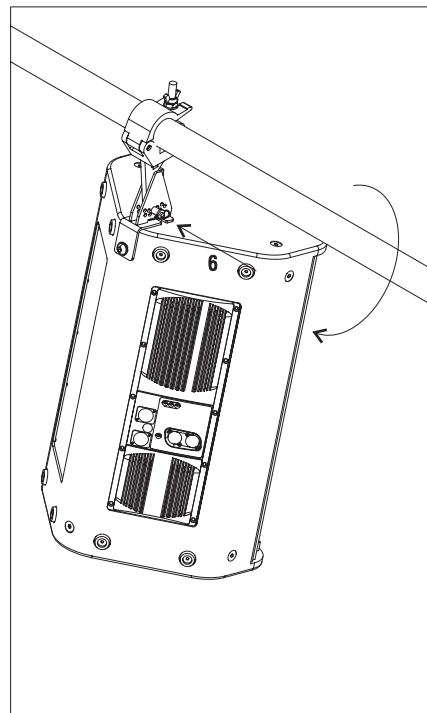
The next step will be to secure the fixing hardware part to the truss. In order to do so, the nut and the wing nut must be tightened. Make sure that the fixing hardware has been secured tightly to the truss, and that it is not able to swing. This way both parts of the rigging hardware will be fixed: one to the truss and the other one to the box.

Note: Maximum load capacity for *AX-TRUSS* is 50Kg. Never exceed this limit.

Once the fixing hardware has been attached to the truss, then the box can be attached (5).



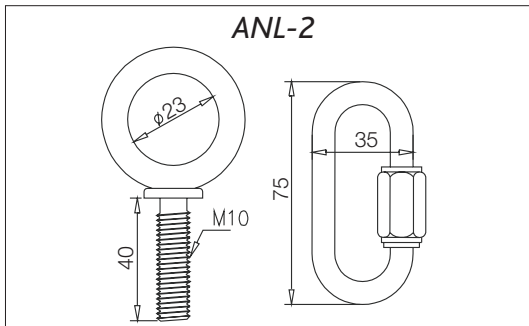
The vertical splay angle depends on the hole where the quick release pin has been inserted (6).



Rigging with eyebolts (kit ANL-2)

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, vertical orientation can be achieved by using the back bottom eyebolt points on the units that feature them.

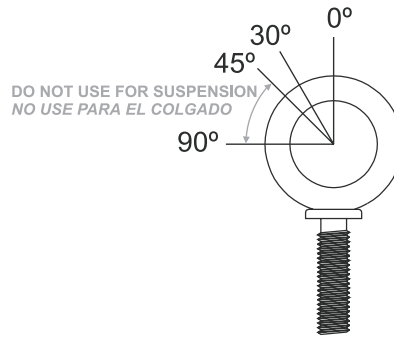
The ANL-2 set is an optional set of eyebolts and carabiners.



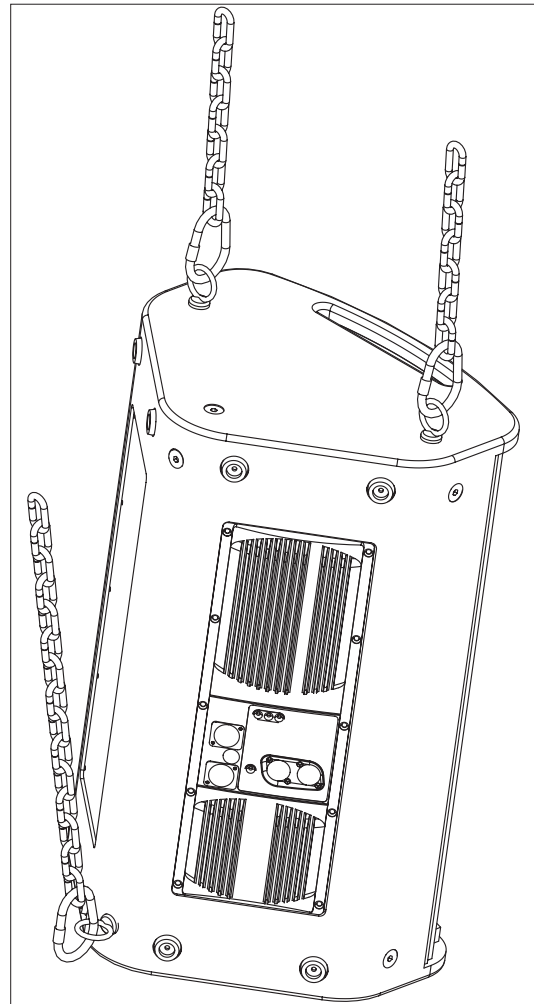
Each ANL-2 carabiner has a working load of 330 kg (726 lbs.). If using other hardware, make sure it is rated to handle the required load.

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%



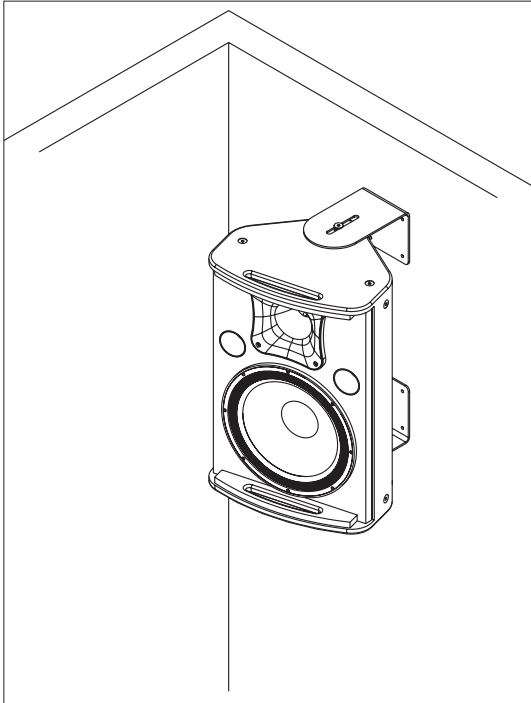
In the following picture an SML-12A unit can be seen flown from two fixing points. A chain has been attached to a rear eyebolt through a carabiner in order to tilt the box downwards.



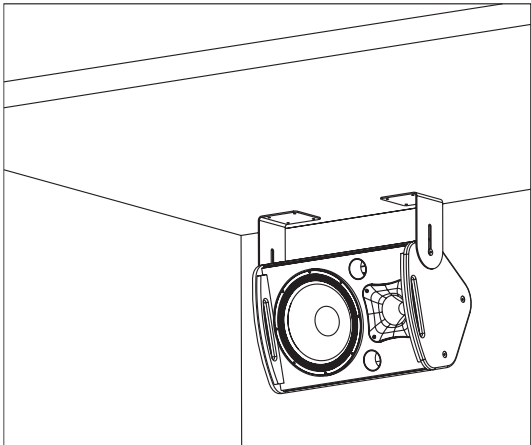
SML-12A features 12 rigging points, so the box can be flown not only vertically but also horizontally.

Rigging with AX-L

AX-L is a two pieces L shaped wall mount accessory which is fixed to the internal metal structure included inside the *SML-12A*. By means of this accessory the unit can be fixed both vertically and horizontally.



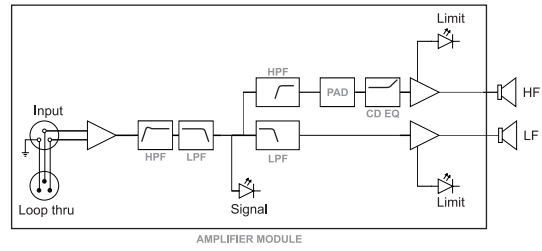
SML-12A fixed vertically



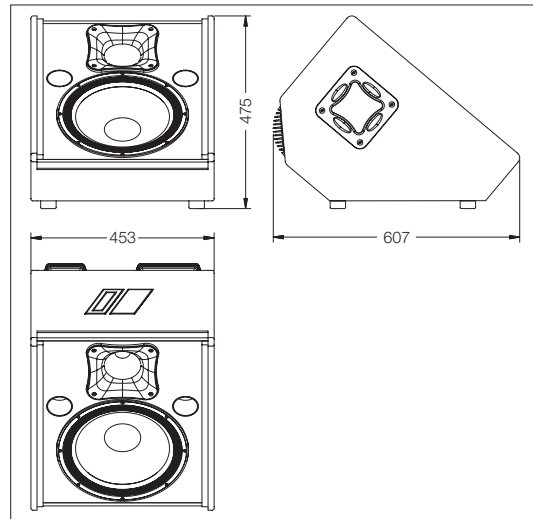
SML-12A fixed horizontally

The AX-L accessory can be fixed to the wall or the ceiling with 8mm screws and plugs. A total of eight screws and plugs are needed to do so. For more detailed information please refer to the instructions sheet included with every AX-L accessory.

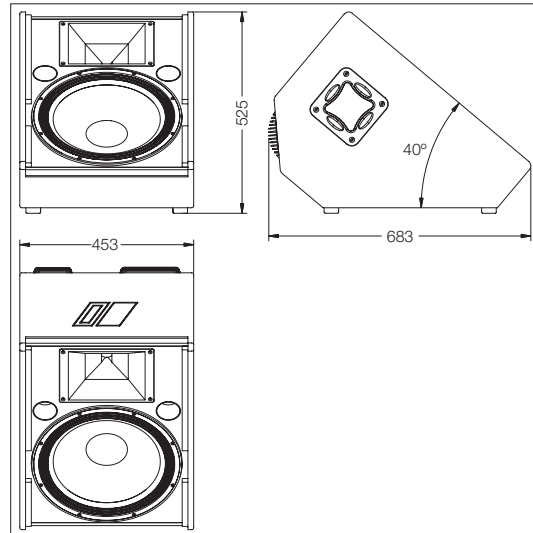
BLOCK DIAGRAMS



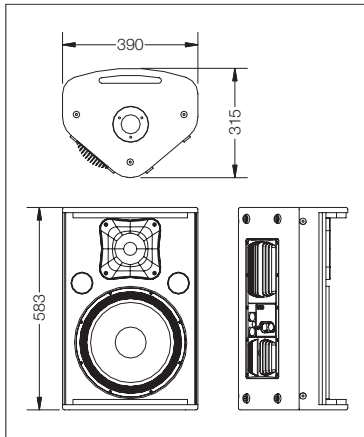
LINE DRAWINGS



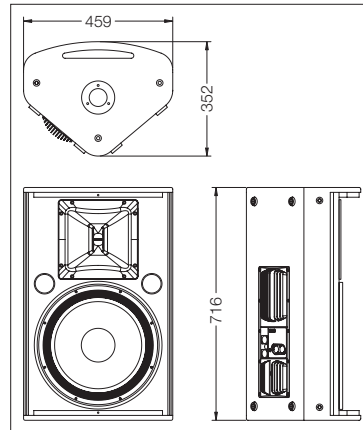
SM-12A



SM-15A



SML-12A



SML-15A SML-15

ALL DIMENSIONS IN MILLIMETERS

SPECIFICATIONS

Model	SM-12A	SM-15A	SML-12A	SML-15A
Nominal LF Amplifier Power	500 W (Class D)	500 W (Class D)	500 W (Class D)	500 W (Class D)
Nominal HF Amplifier Power	100 W (Class AB)	100 W (Class AB)	100 W (Class AB)	100 W (Class AB)
Input Type	Balanced Differential Line	Balanced Differential Line	Balanced Differential Line	Balanced Differential Line
Input Impedance	Line: 20 kohms	Line: 20 kohms	Line: 20 kohms	Line: 20 kohms
Sensitivity	Line: 1.23 V (+4 dBu)	Line: 1.23 V (+4 dBu)	Line: 1.23 V (+4 dBu)	Line: 1.23 V (+4 dBu)
Frequency Range (-10 dB)	60 Hz-17 kHz	50 Hz-17 kHz	70 Hz-17 kHz	55 Hz-18 kHz
Horizontal Coverage (-6dB)	50° Nominal	90° Nominal	50° Nominal	60° Nominal
Vertical Coverage (-6dB)	50° Nominal	60° Nominal	50° Nominal	40° Nominal
Rated Maximum Peak SPL at 1 m	133 dB	133 dB	133 dB	133 dB
Transducers/Replacement Parts	LF: 12L/GM 12P HF: M-10N/GM M-10	LF: 15L/GM 15P HF: M-10N/GM M-10	LF: 12LN/GM 12P HF: M-10N/GM M-10	LF: 15LN/GM 15P HF: M-10N/GM M-10
Enclosure Geometry	Wedge, multi-angle	Wedge, multi-angle	Wedge, multi-angle	Wedge, multi-angle
Enclosure Material	Birch Plywood	Birch Plywood	Birch Plywood	Birch Plywood
Color/Finish	Black Paint	Black Paint	Black Paint	Black Paint
Rigging System	No rigging system included	No rigging system included	Included: 12 x M10 rigging points	Included: 12 x M10 rigging points
Connectors	INPUT: Female XLR LOOP THRU: Male XLR AC INPUT: PowerCon NAC 3 FCA AC OUTPUT: Powercon NAC 3 DFCB	INPUT: Female XLR LOOP THRU: Male XLR AC INPUT: PowerCon NAC 3 FCA AC OUTPUT: Powercon NAC 3 DFCB	INPUT: Female XLR LOOP THRU: Male XLR AC INPUT: PowerCon NAC 3 FCA AC OUTPUT: Powercon NAC 3 DFCB	INPUT: Female XLR LOOP THRU: Male XLR AC INPUT: PowerCon NAC 3 FCA AC OUTPUT: Powercon NAC 3 DFCB
AC Power Requirements	115 V, 50 Hz/60 Hz, 230 V, 50 Hz/60 Hz	115 V, 50 Hz/60 Hz, 230 V, 50 Hz/60 Hz	115 V, 50 Hz/60 Hz, 230 V, 50 Hz/60 Hz	115 V, 50 Hz/60 Hz, 230 V, 50 Hz/60 Hz
Shutdown voltage (divide by 2 for 115V)	160 V	160 V	160 V	160 V
Current consumption (Data for 230V) (For 115V multiply by 2)	Maximum Power 1.4A 1/3 Power 0.6A 1/8 Power 0.4A Idle 0.2A	Maximum Power 1.4A 1/3 Power 0.6A 1/8 Power 0.4A Idle 0.2A	Maximum Power 1.4A 1/3 Power 0.6A 1/8 Power 0.4A Idle 0.2A	Maximum Power 1.4A 1/3 Power 0.6A 1/8 Power 0.4A Idle 0.2A
Dimensions (H x W x D)	47 x 45 x 59 cm 18.5 x 17.7 x 23.3 in	53 x 45 x 67 cm 20.9 x 17.7 x 26.4 in	58.3 x 39 x 31.8 cm 23 x 15.4 x 12.5 in	71.6 x 45.9 x 35.2 cm 28.2 x 18 x 13.9 in
Weight	29.2 kg (64.3 lb)	31.5 kg (69.3 lb)	23 kg (50.6 lb)	28.5 kg (62.7 lb)
Accessories	-----	-----	-----	ANL-2, AX-TRUSS, AX-L, TRD-2, TRD-3

Model	SML-15
RMS Power Handling	Passive 400 W Bi-amplified LF 400 W HF 160 W
Frequency Range (-10 dB)	60 Hz - 18kHz
Horizontal Coverage (-6dB)	60°
Vertical Coverage (-6dB)	40°
On-axis Sensitivity 1 W / 1m	99 dB SPL
Rated Peak SPL at full power	133 dB
Nominal Impedance	8 ohms
Transducers/Replacement Parts	LF: 15L/GM 15P HF: M-10N/GM M-10
Enclosure Geometry	Wedge, multi-angle
Enclosure Material	Birch Plywood
Color/Finish	Black Paint
Rigging System	Included: 12 x M10 rigging points
Connectors	2 x NL4 Speakon
Dimensions (H x W x D)	71.6 x 45.9 x 35.2 cm 28.2 x 18 x 13.9 in
Weight	22 kg (48.4 lb)
Accessories	ANL-2, AX-TRUSS, AX-L, TRD-2, TRD-3

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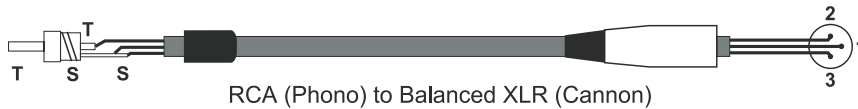
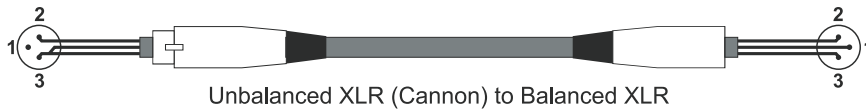
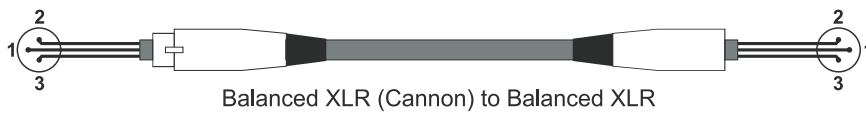
APPENDIX: Line connections: unbalanced and balanced

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 in side the connector. If hum occurs with balanced to 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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D.A.S. AUDIO, S.A.

C/. Islas Baleares, 24
46988 Fuente del Jarro
Valencia, SPAIN
Tel. 96 134 0525
Tel. Intl. +34 96 134 0860
Fax 96 134 0607
Fax Intl. +34 96 134 0607

D.A.S. AUDIO OF AMERICA, INC.

Sunset Palmetto Park
6816 NW 77th Court.
Miami, FL. 33166 - U.S.A.
TOLL FREE: 1-888DAS4USA
Tel. +1 305 436 0521
Fax +1 305 436 0528

D.A.S. AUDIO ASIA PTE. LTD.

25 Kaki Bukit Crescent #01-00/02-00
Kaki Bukit Techpark 1
Singapore 416256
Tel. +65 6742 0151
Fax +65 6742 0157