



User's Manual

variant 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 cajas con adaptador para trípode *AXC-ZT*, 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 *AXC-ZT*, maximum safety height from floor to bottom of enclosure when mounting on a *TRD-2* tripod with legs fully open:

variant 25A (max.2u.)----->150 cm
variant 112A (max.1u.)----->150 cm

variant 25A (max.2u.)----->150 cm
variant 112A (max.1u.)----->150 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.

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.

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 variant*:

Declares that *variant 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.



CB TEST CERTIFICATE

Ref. Certificate No.

BE-1364

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 Variant 112A (120 V version) : 120 V AC, 3.4 A Type Variant 112A (230 V version) : 230 V AC, 1.7 A		
Trade mark (if any):	D.A.S.		
Model/Type reference:	Variant 112A (120 V version), Variant 112A (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:	580269.01		

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

The new D.A.S. Variant series was designed for use in fixed installations, portable A/V, or applications requiring high SPL and control of the vertical coverage. The series comprises three models, the **variant 25A** which features two 5" speakers for mid-low frequencies and one compression driver (2" voice coil and 1" exit) coupled to a **serpis-25** plane wave generator for the high frequencies. The **variant 25A** model can be used alone as a frontfill or under balcony unit for voice reproduction. The second model is the **variant 18A** bass system intended to be used in combination with the **variant 25A** for applications requiring extension of the low frequency range below 90 Hz. The third system is the **variant 112A** which has more efficiency and also bigger power handling. It is a two way active cabinet including a 12" speaker (with 3" voice coil diameter) to reproduce the low mid range (down to 63Hz) and two neodymium compression drivers (2" voice coil diameter) coupled to the **serpis-112** horn to reproduce the high frequency range. The **serpis-112** horn assures a nominal vertical coverage of 15° of the high frequency section.

All units are manufactured using 10/15mm Finnish Birch plywood. The **variant 25A/112A** enclosures' shape is trapezoidal with 7.5° angles. The **variant 18A** unit is rectangular. All enclosures feature a rugged, weather resistant, polyurethane black paint and incorporate stainless steel and aluminum captive rigging hardware which is designed to provide fast, simple and safe rigging by means of quick release safety pins. Splay angles can be changed from 0° to 10° in 1° increments. The **variant 112A** is a curved source system so the number of splay angles is restricted.

The components used in the system feature advanced technologies; new T.A.F. (Total Air Flow) cooling systems, neodymium magnets which allow for important weight reductions, titanium diaphragms for the high frequency sections, and low-mid frequency cones manufactured using crossed fibers and elastic suspension that provide exceptional stability in the vertical plane.

For mid-low frequencies, the **variant 25A** incorporates two **5B** 5" speakers with 1" voice coil and ferrite magnet assemblies in a bass-reflex configuration. High frequencies are handled by one **M-5N** compression driver with 2" voice coil, neodymium magnet and 1" exit coupled to one **serpis-25** plane wave adapter/high frequency horn assembly designed by D.A.S. Audio. In order to maintain coherent horizontal dispersion one of the 5" speakers features a low pass filter, avoiding destructive interference between the 5" speakers in the mid frequency range.

The **variant 18A** model includes one **18H** 18" speaker with 4" voice coil and neodymium magnet assembly in a bass-reflex configuration. It can be flown above the mid-high units or as an independent cluster.

The **variant 25A** incorporate two Class AB amplifiers featuring electronically balanced signal inputs and outputs. The AC input and output link utilize Neutrik PowerCon® connectors which allow up to 10 units to be daisy chained at 230 V.

A three position eq switch located on the amplifier panel allows for array effect correction (mid and low frequencies sum in phase when several units are assembled). This switch provides two additional equalizations to adjust the high frequency range.

The **variant 18A** incorporates one 1250 W (continuous) Class D amplifier along with the necessary signal treatment to perform as a sub-woofer unit. This amplifier features a high pass filtered output at 138 Hz intended to provide signal for the **variant 25A** units.

The **variant 112A** incorporates a two way amplifier with a Class D power module of 500W (continuous) for the low range, and a Class AB power module of 100W (continuous) for the high frequency range. The AC input and output link utilize Neutrik PowerCon® connectors which allow up to 6 units to be daisy chained at 230 V.

A three position eq switch located on the amplifier panel allows for array effect correction (mid and low frequencies sum in phase when several units are assembled). This switch provides two additional equalizations to adjust the high frequency range.

DESCRIPTION

VARIANT-25A

The *variant 25A* is a two way class AB self powered system. Nominal amplifier power (Continuous) per way: LF:125 W HF:75 W. 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.

E1) AC INPUT: Blue 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.

E2) AC OUTPUT: White PowerCon® NAC 3 DFCB connector. This is used as an AC loop thru so that up to 10 boxes (at 230V) can be powered from a single AC line.

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

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

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

H) ARRAY EQ: In order to compensate for the summing of the mid and low frequencies, the onboard signal processing of each *variant 25A* unit provides high frequency boost. The signal treatment has been designed to provide optimum response for arrays of 6 or more cabinets, so when employing just two or three units it may be appropriate to lower the high frequency level. The ARRAY EQ switch can be used to attenuate the equalization of the very high frequencies in -3 dB steps.

Current consumption

<i>variant 25A</i>	Pink noise
Maximum power	0.7A
1/3 Power	0.45A
1/8 Power	0.3A
Idle	0.15A

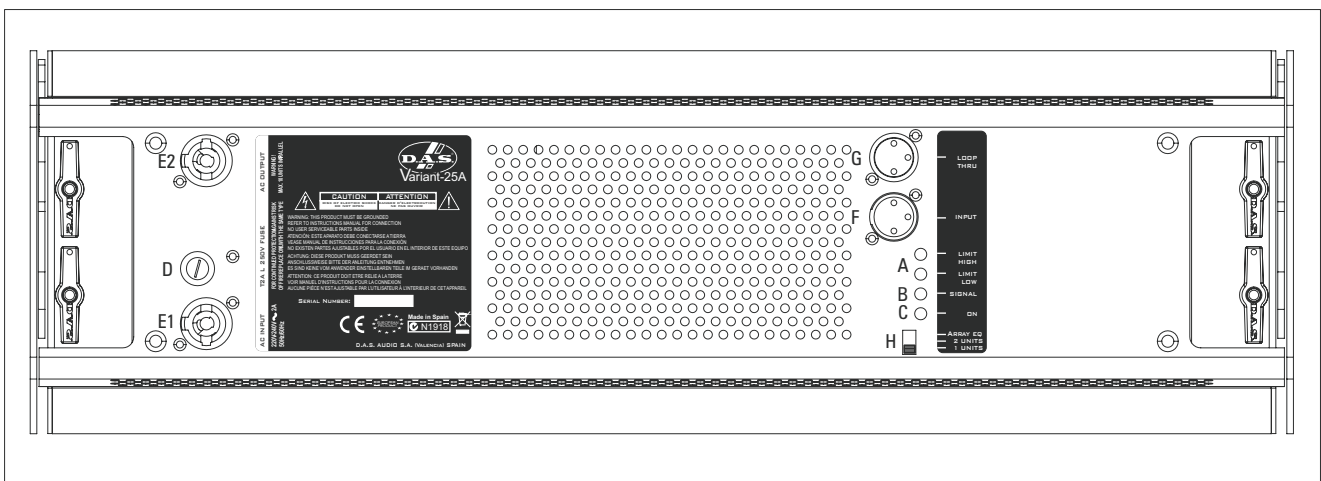
Data obtained at 230V, multiply per 2 for 115V.
Maximum power: Measured in conditions of severe clipping.

AC power requirements

The required voltage for all models is:
115V, 50Hz/60Hz - 230V, 50Hz/60Hz

Maximum voltage (divide by 2 for 115V):
255V

Shutdown voltage for *variant 25A* (divide by 2 for 115V):
160V



Rear amplifier panel on *variant 25A* systems.

VARIANT-112A

The **variant 112A** is a two way active system. Nominal RMS amplifier power (at driver impedance): LF : 500W HF: 100W. Amplifier panel description, **variant 112A**:

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

B) SIGNAL: Signal presence indicator at the amplifier's output.

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 8 boxes can be power 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 signal input. Could also be used to provide signal for an outboard power amplifier.

i) ARRAY EQ: In order to compensate for the summing of the mid and low frequencies, the onboard signal processing of each **variant 112A** unit provides high frequency boost. The signal treatment has been designed to provide optimum response for arrays of 3 or more cabinets, so when employing just one or two units it may be appropriate to lower the high frequency level. The ARRAY EQ switch can be used to attenuate the equalization of the very high frequencies in -3 dB steps.

Current consumption

variant 112A	Pink noise
Maximum power	1.7A
1/3 Power	0.75A
1/8 Power	0.4A
Idle	0.185A

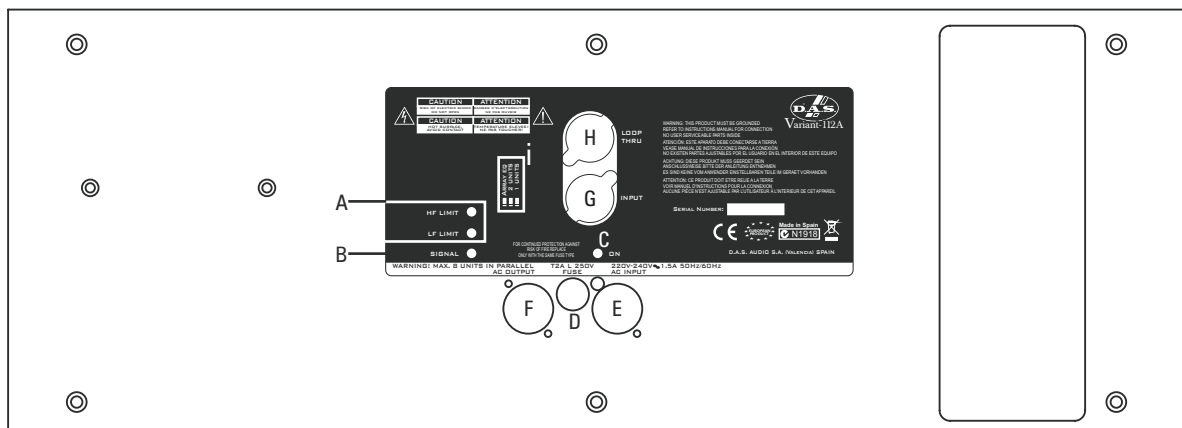
Data obtained at 230V, multiply per 2 for 115V. Maximum power: Measured in conditions of severe clipping.

AC power requirements

The required voltage for all models is:
115V, 50Hz/60Hz - 230V, 50Hz/60Hz

Maximum voltage (divide by 2 for 115V):
255V

Shutdown voltage for **variant 112A** (divide by 2 for 115V):
160V



Rear amplifier panel on variant 112A systems.

VARIANT-18A

Low frequency mono-amplified system.
Nominal amplifier power (Continuous) 1250 W.
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.

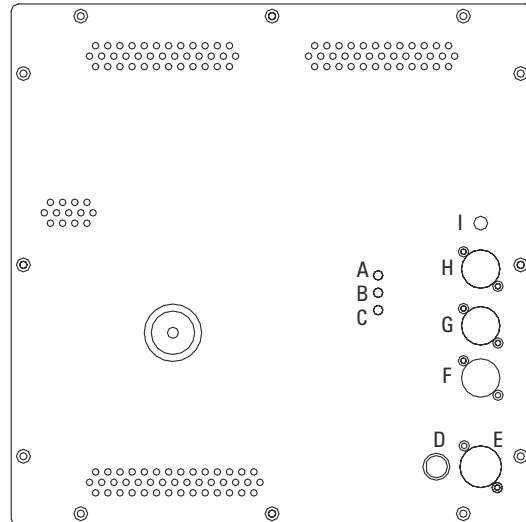
F) INPUT: Balanced signal XLR. Pin assignments as follows :

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

G) 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.

H) SATELLITE OUTPUT: This sends high-passed signal (138Hz) to the system that will reproduce mid-high frequencies.

I) SUB LEVEL: Used to control the subwoofer level. To prevent accidental mis-setting, a flat-blade screwdriver is needed to rotate the control, which is recessed and detented. Depending on the sensitivity, placement and configuration of your mid-high system, you may need to adjust this control for balanced frequency response.



Rear amplifier panel on variant 18A systems.

Current consumption

variant 18A	Pink noise
Maximum power	3.5A
1/3 Power	1.8A
1/8 Power	0.9A
Idle	0.1A

Data obtained at 230V, multiply per 2 for 115V.
Maximum power: Measured in conditions of severe clipping.

AC power requirements

The required voltage for all models is:
115V, 50Hz/60Hz - 230V, 50Hz/60Hz

Maximum voltage (divide by 2 for 115V):
255V

Shutdown voltage for variant 18A (divide by 2 for 115V):
160V

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.

Overload (*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

The *variant 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 EQ. Avoid high levels of gain on the equalizers. Gain values above +6 dB on a console's EQ are not recommended.

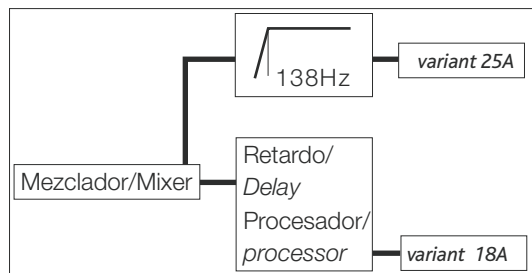
Low mains voltage

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

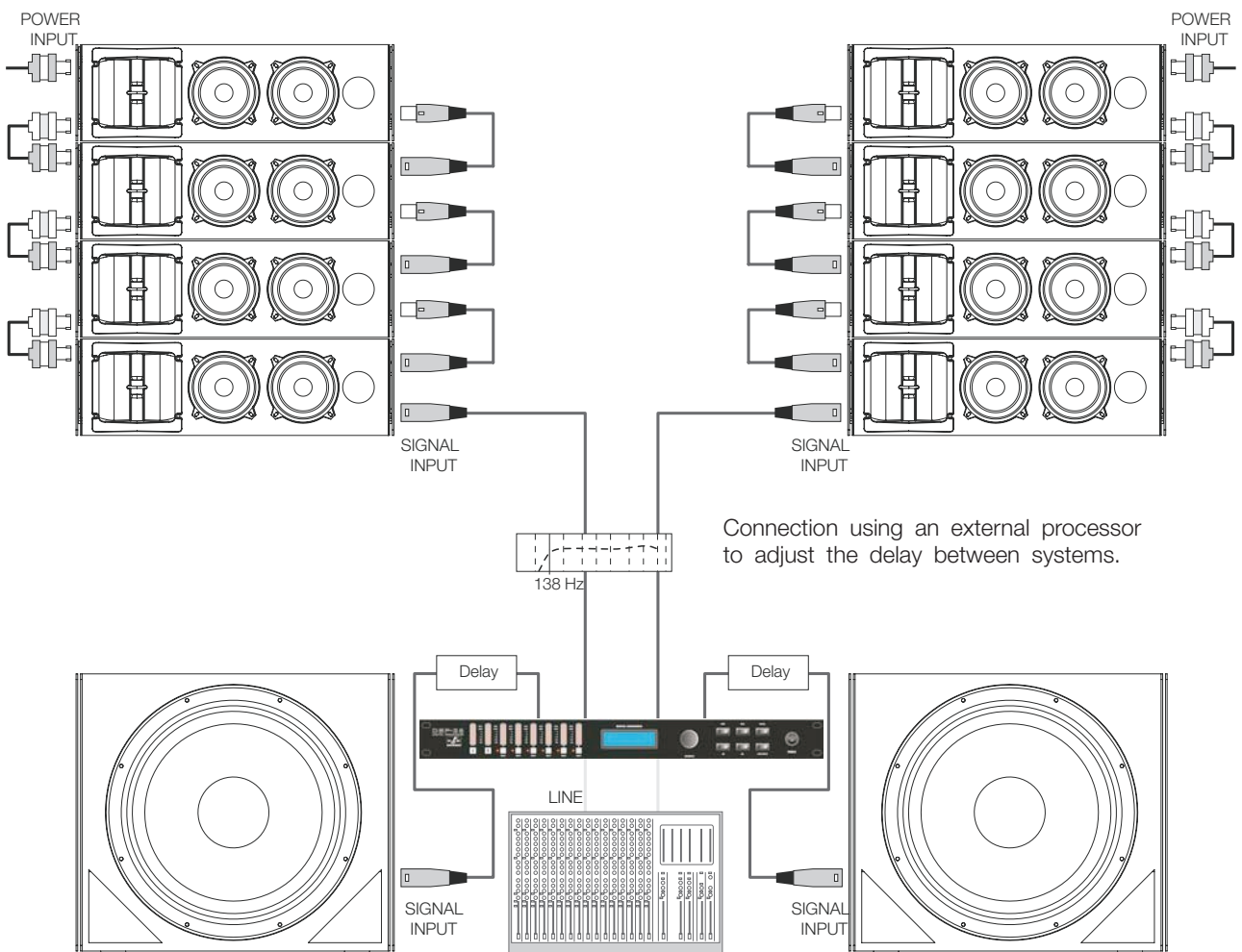
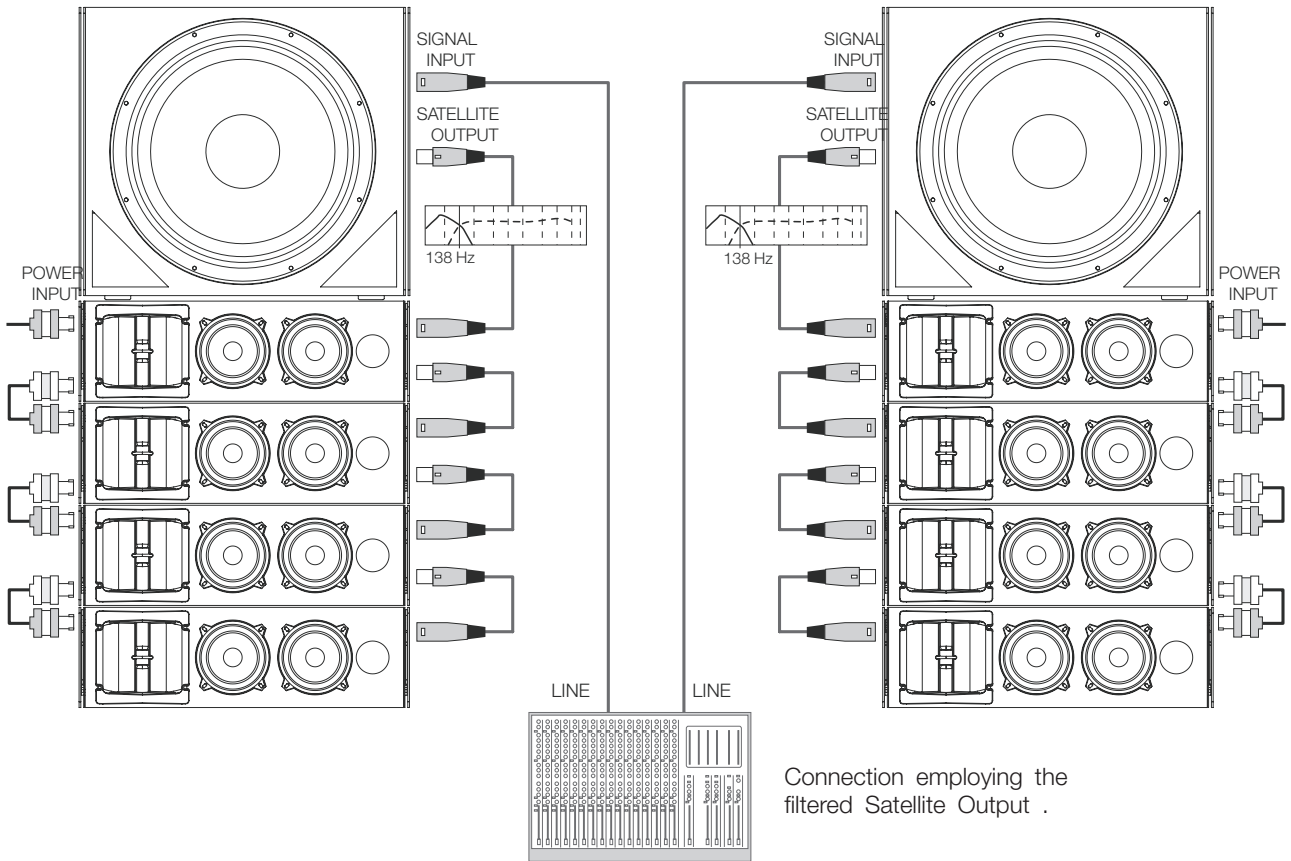
The *variant 25A* unit can be used alone for speech applications where low SPL is suitable. To use it in this mode simply plug the mixer into the input signal connector. To use it in combination with the *variant 18A* unit, plug the mixer into *variant 18A* (INPUT) and connect the SATELLITE OUTPUT to the signal input on the *variant 25A* unit.

When the *variant 25A* and *variant 18A* units cannot be on the same cluster it is recommended to drive each model separately from a signal processor using a 138 Hz High Pass Filter for the *variant 25A*, adding the necessary time delay if required and feeding the *variant 18A* with the full range signal.



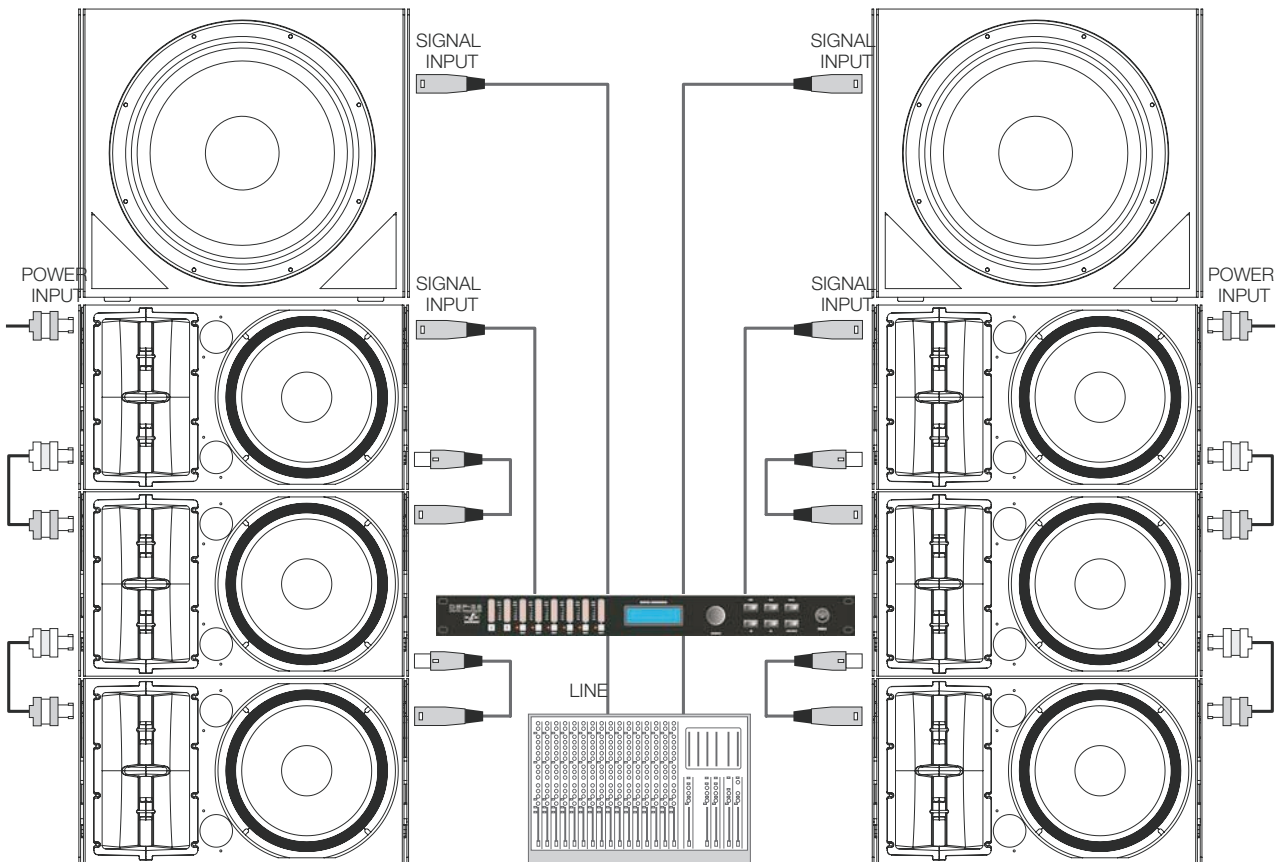
The LOOP THRU connector is an output XLR in parallel with the input connector and is useful for daisy chaining the input signal to a number of boxes, connecting them in parallel.

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



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The *variant 112A* can reproduce frequencies down to 63Hz , so in those applications where no high sound pressure level is required (speech, vocals, etc) and there is no need of extending the low frequency range the system can be installed without subwoofers. If it is required extending the low end then the *variant 18A* is recommended.



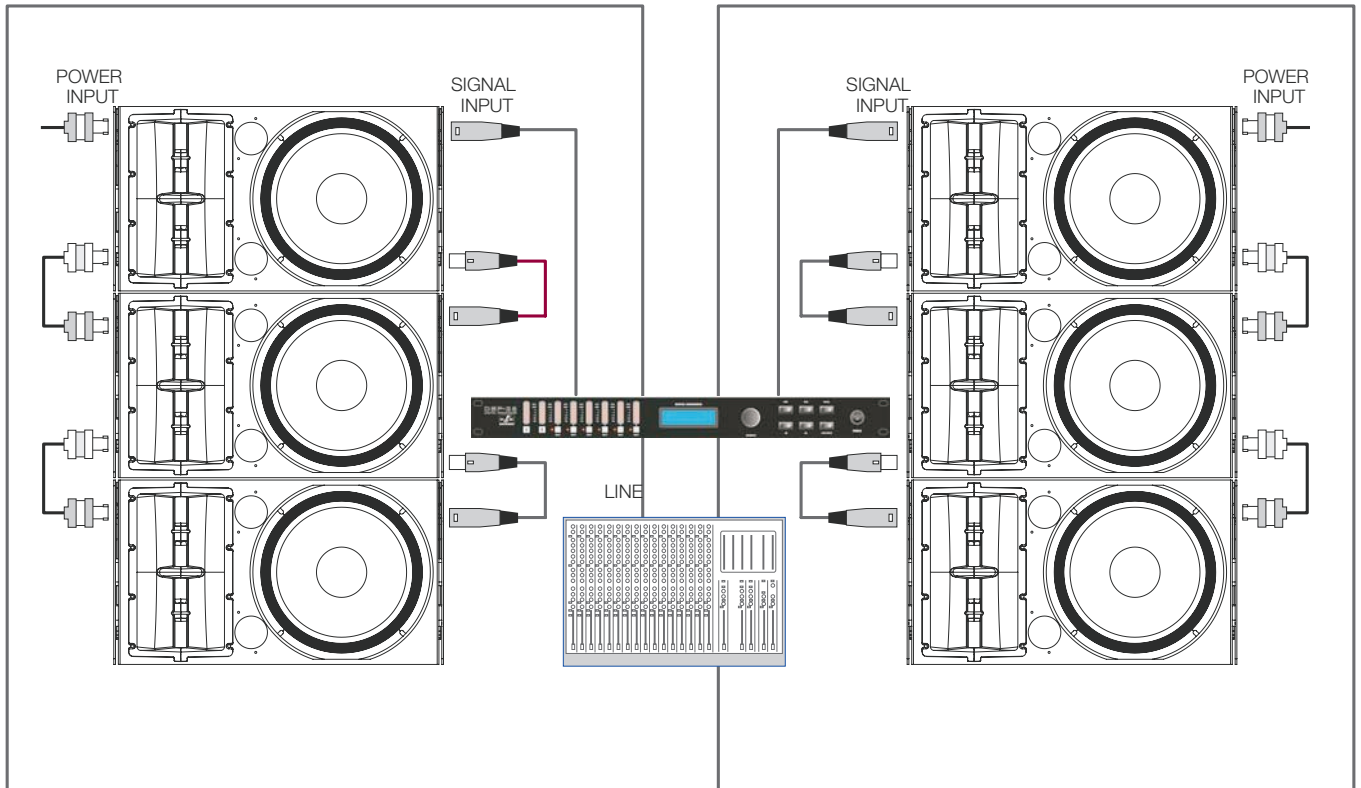
Two independent signal lines per side at the DSP's output have been used to align both systems

It is also recommended when combining systems to use two different signal lines (subwoofer line and satellite line) and one external DSP to align both systems.

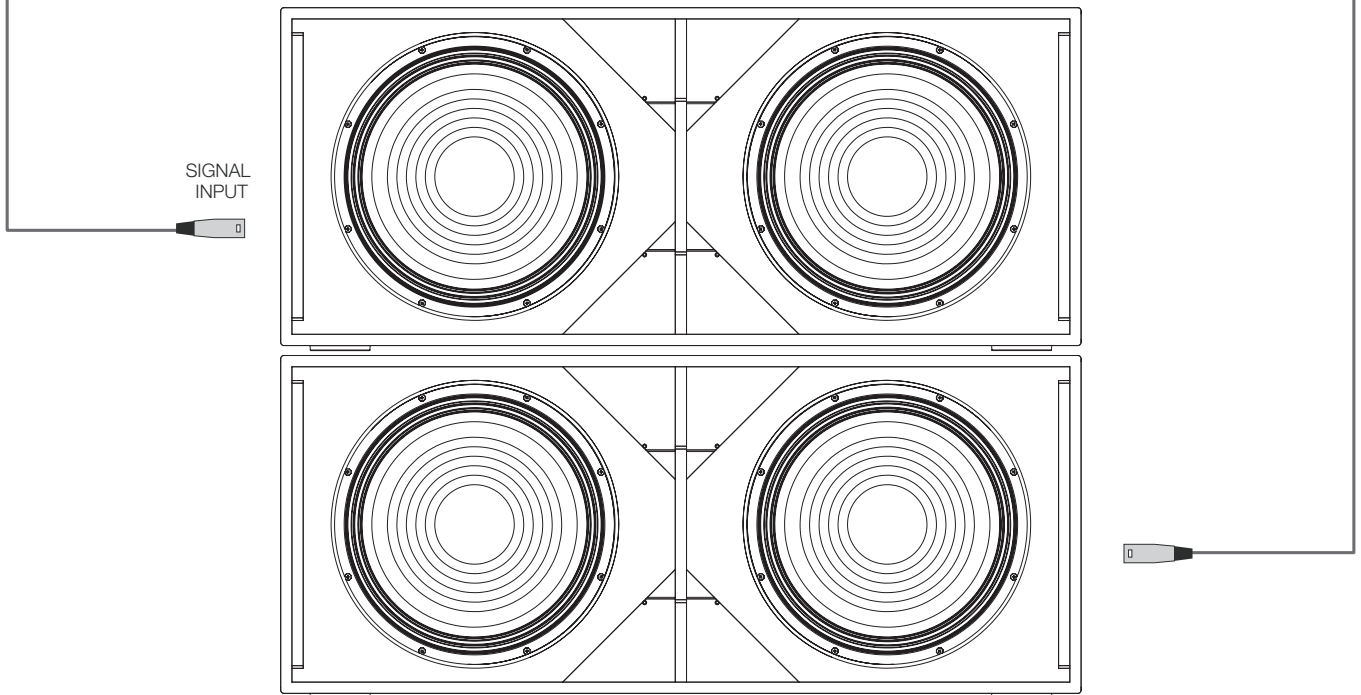
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In applications like live sound concerts, disco dance music, where high sound pressure level is required double eighteen subwoofers should be used. DAS Audio recommends the *LX-218A*. To align both systems an external DSP with two different signal lines will be needed.

Note: the relationship between the number of subwoofers and the number of *VARIANT 112A* depends on the application and is a parameter to be defined by the user.



Two independent signal lines per side at the DSP's output have been used to align both systems



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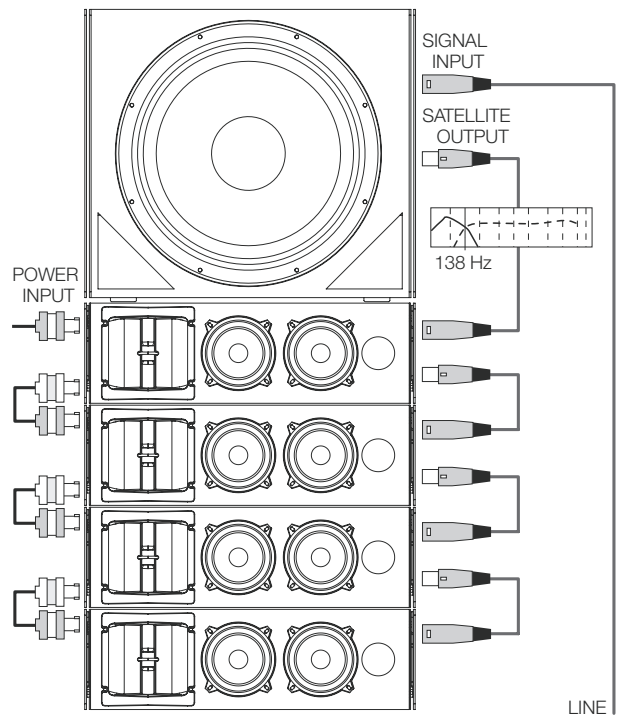
Troubleshooting

Problem	Cause	Solution
No sound from the unit. The SIGNAL presence LED indicator(s) do(es) not light up.	<ol style="list-style-type: none"> 1- The signal source is sending no signal. 2- Defective cable. 	<ol 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 indicator(s) never light(s) up.	<ol style="list-style-type: none"> 1- The signal source does not have a hot enough output. 	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 1- The mixer or signal source is distorting. 	<ol 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. One or more LIMIT LED indicators light up.	<ol style="list-style-type: none"> 1- The system is overloaded and has reached maximum power. 	<ol style="list-style-type: none"> 1- Turn down the mixer's output.
Hum or buzz when a mixer is connected to the unit.	<ol 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. 	<ol 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 mains cables.
Hum or buzz when using lighting controls in the same building.	<ol style="list-style-type: none"> 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. 	<ol 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 power on LED indicator(s) do(es) not light up when the power connector is rotated and locked at the ON (LOCK) position.	<ol style="list-style-type: none"> 1 Bad or loose AC connection to the UNIT or the mains outlet. 2 Faulty AC cable. 3 Blown Fuse. 	<ol style="list-style-type: none"> 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.

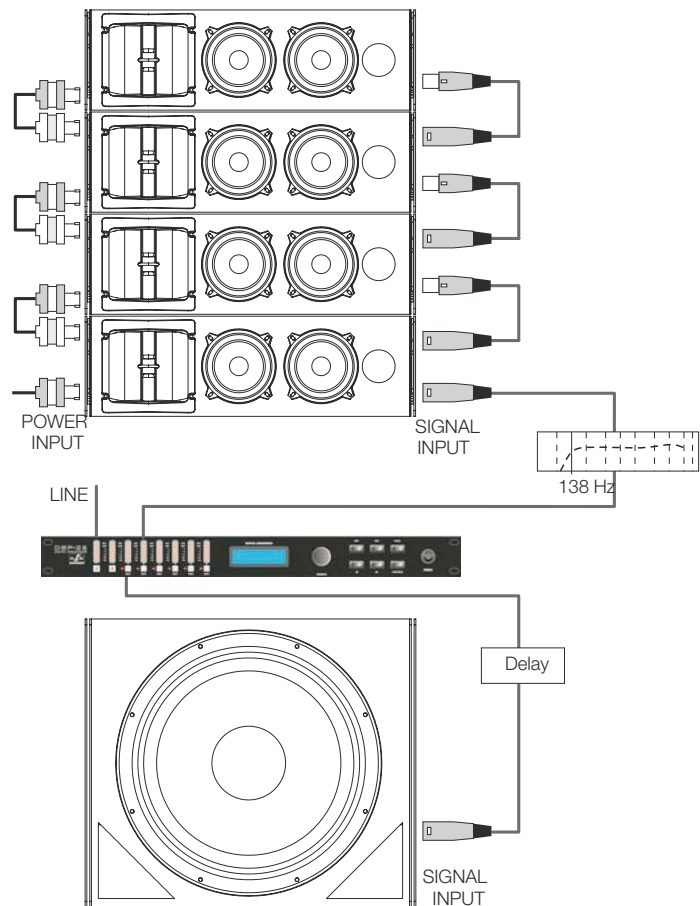
USING THE SYSTEM WITH SUBS

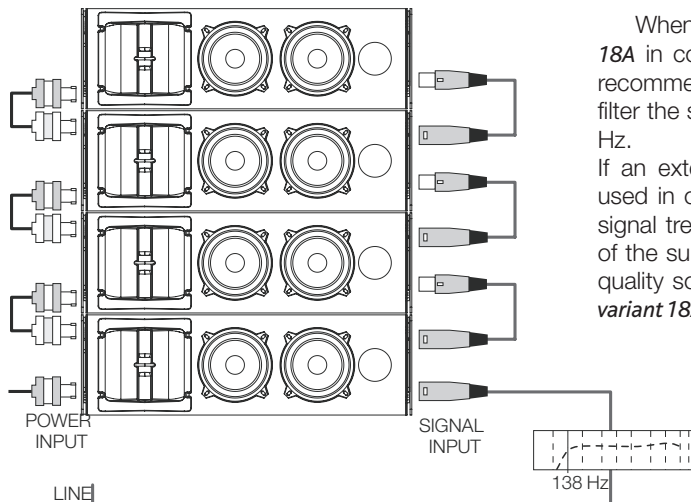
When *variant 25A* units are used in combination with *variant 18A* subwoofers it is recommended to plug the mixer into the *variant 18A's* input and then to connect the *variant 18A* 138Hz high pass filtered output to the *variant 25A* input.

The ratio between *variant 25A* and *variant 18A* units that DAS Audio recommends to achieve a correct balance is 4:1 (As it depends on the kind of music and the application, it is subject to changes). A level knob can be found on the *variant 18A* amplifier panel which allows for decreasing the subwoofer level when less than four *variant 25A* units are to be used, allowing to correct the balance between Mid-High and Low frequencies.



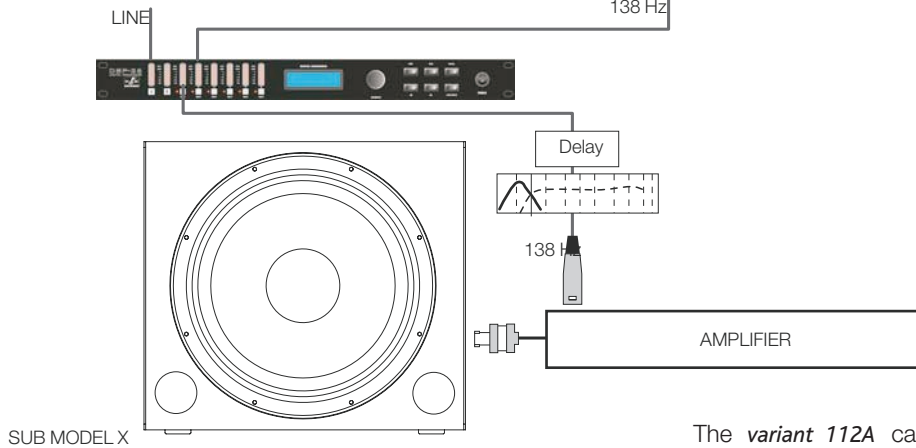
If, for any reason, the Satellite Output on the subwoofer is not going to be used to feed the *variant 25A* units, then it is recommended to make use of an external processor to high pass filter the signal fed into the *variant 25A* unit at 138 Hz, and add the necessary time delay to match the phase at the cut off frequency.





When using a subwoofer other than the *variant 18A* in combination with the *variant 25A* units, it is recommended that external processor be used to filter the signal fed into the *variant 25A* units at 138 Hz.

If an externally amplified subwoofer unit is to be used in combination with *variant 25A* satellites, the signal treatment will depend on the characteristics of the subwoofer used. In order to achieve a good quality sound, DAS Audio recommends the use of *variant 18A* subwoofers.

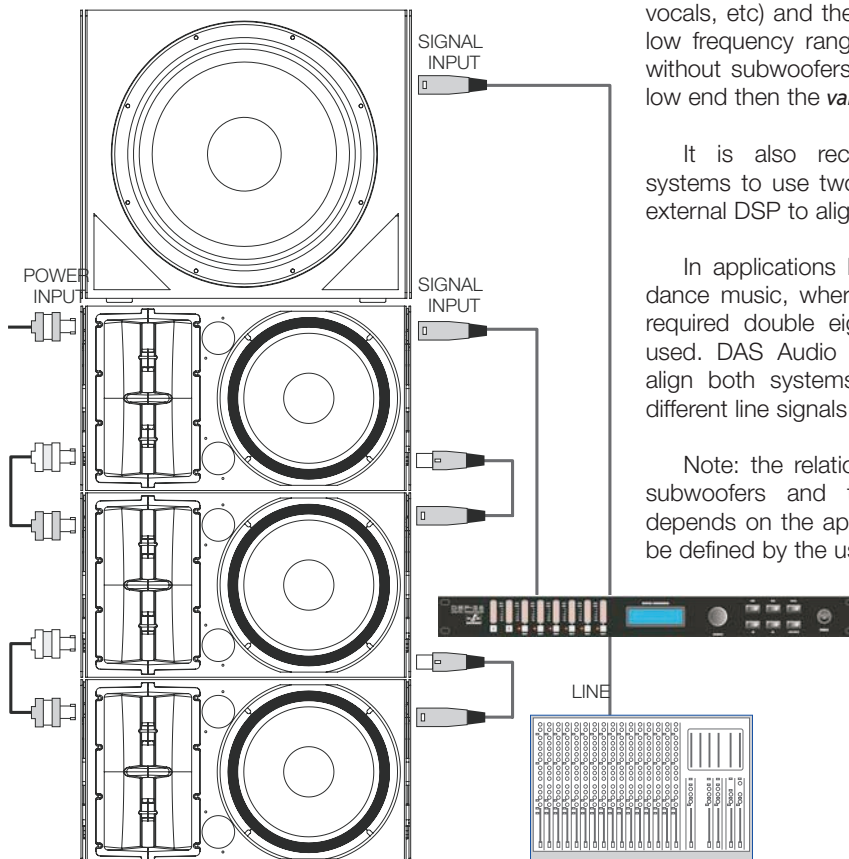


The *variant 112A* can reproduce frequencies down to 63Hz, so in those applications where no high sound pressure level is required (speech, vocals, etc) and there is no need of extending the low frequency range the system can be installed without subwoofers. If it is required extending the low end then the *variant 18A* is recommended.

It is also recommended when combining systems to use two different signal lines and one external DSP to align both systems.

In applications like live sound concerts, disco dance music, where high sound pressure level is required double eighteen subwoofers should be used. DAS Audio recommends the *LX-218A*. To align both systems and external DSP and two different line signals will be needed.

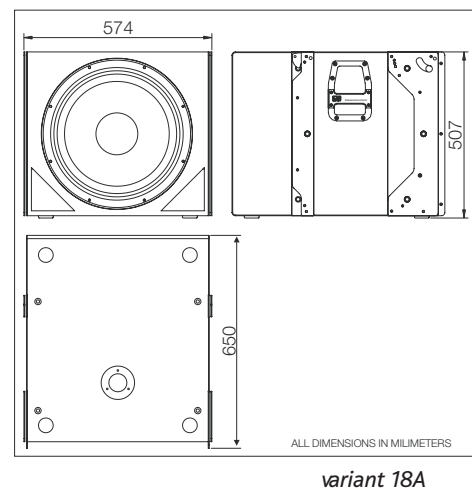
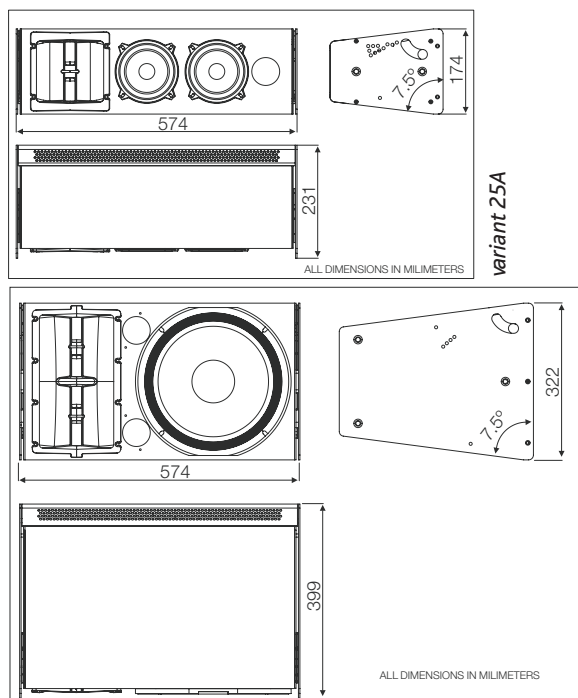
Note: the relationship between the number of subwoofers and the number of *variant 112A* depends on the application and is a parameter to be defined by the user.



EN

SPECIFICATIONS

MODEL	<i>variant25A</i>	<i>variant 112A</i>	<i>variant 18A</i>
LF Amplifier Power	250 Wpeak - 125 Wcontinuous	1000 Wpeak - 500 Wcontinuous	2500 Wpeak - 1250 Wcontinuous
HF Amplifier Power	150 Wpeak - 75 Wcontinuous	200 Wpeak - 100 Wcontinuous	
Input Type	Balanced Differential Line	Balanced Differential Line	Balanced Differential Line
Input Impedance	Line: 20 kohms	Line: 20 kohms	Line: 20 kohms
Sensitivity	Line: 1.54 V (+6 dBu)	Line: 1.54 V (+6 dBu)	Line: 1.54 V (+6 dBu)
Frequency Range (-10 dB)	75 Hz-17 kHz	63 Hz-18 kHz	33 Hz-156 Hz
Horizontal Coverage (-6dB)	90° Nominal	90° Nominal	N/A
Vertical Coverage	Splay Dependent	15° Nominal	N/A
Rated Maximum Peak SPL at 1 m	120 dB	128 dB	134 dB
Transducers/Replacement Parts	LF: 2 x 5B/5B HF: 1 x M-5N/GM M-5	LF: 1 x 12V4/GM 12P4 HF: 2 x M-50N/GM M-5	LF: 1 x 18H/GM 18G
Enclosure Geometry	Trapezoidal 7.5°	Trapezoidal 7.5°	Rectangular
Enclosure Material	Birch Plywood	Birch Plywood	Birch Plywood
Color/Finish	Black or White Paint	Black or White Paint	Black or White Paint
Rigging System Splay Angles	0° to 10° in 1° increments	12° to 15° in 1° increments	0° to 5° in 1° increments (V-25A under V-18A)
Safety Factor	Maximum 20 cabinets @ 7:1	Maximum 6 cabinets @ 7:1	Maximum 6 cabinets @ 7:1
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 SATELLITE OUT: Male XLR AC INPUT: PowerCon NAC 3 FCA
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
Dimensions (H x W x D)	17.4 x 57.4 x 23.1 cm 6.9 x 22.6 x 9 in	32.2 x 57.4 x 39.9 cm 12.7 x 22.6 x 15.7 in	50.7 x 57.4 x 65 cm 19.9 x 22.6 x 25.6 in
Weight	12.5 kg (27.5 lb)	26.4 kg (58.1 lb)	49 kg (108 lb)
Accessories	AX-V25 (Black)/AX-V25W (White) AXW-V25 (Black)/AXW-V25W (White) AXC-V25 (Black)/AXC-V25W (White)	AX-V25 (Black)/AX-V25W (White) AXW-V25 (Black)/AXW-V25W (White) AXC-V25 (Black)/AXC-V25W (White)	AX-V25 (Black)/AX-V25W (White)



Product improvement through research and development is an ongoing process at D.A.S. All specifications are subject to change without notice.

RIGGING SYSTEM

Introduction

This section 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. Additional information is included in the document System Guide which can be found on the D.A.S. website.

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.

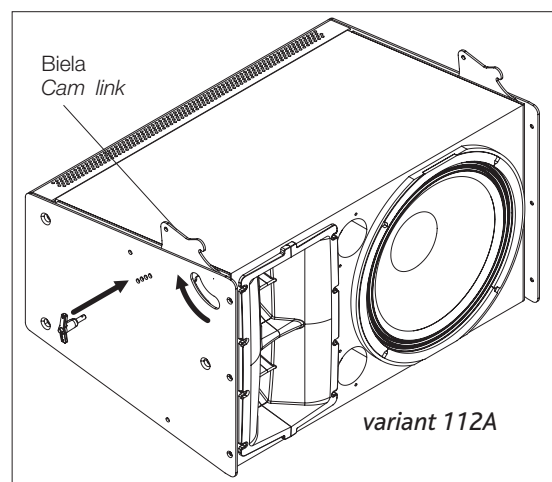
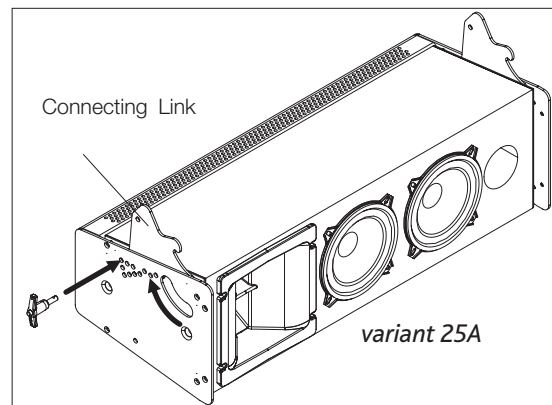
Absolutely no risks should be taken with regards to public safety. When flying enclosures from ceiling support structures, extreme care should be taken to assure the load bearing capabilities of the structures so that the installation is absolutely safe. Do not fly enclosures from unsafe structures. 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.

Accessories description

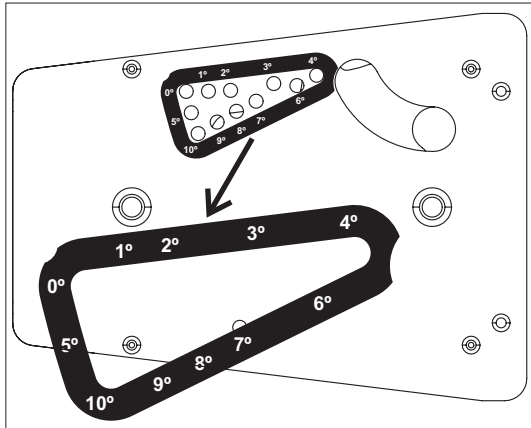
D.A.S. Audio *variant 25A*, *variant 18A* and *variant 112A* units include two rigging structures on each side of the enclosure. Manufactured from stainless steel and aluminum, they are affixed with special M8 crop resistant screws to the wood sides on both models. A special connecting link is part of each rigging structure and allows for both stacking or flying with splay angles ranging from 0° to 10° in 1° increments (*variant 25A*) or angles ranging from 12° to 15° (*variant 112A*).

In order to set up the splay angles the quick release pins supplied with each unit must be used.

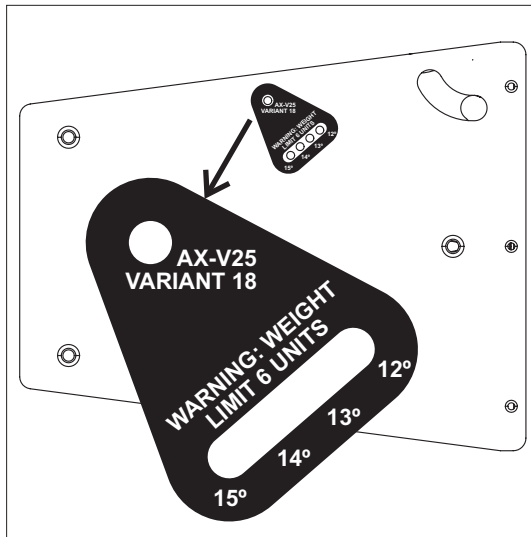
4 quick release pins are provided with *variant 25A/112A* and 6 quick release pins with the *variant 18A*.



To facilitate the insertion of the connecting links in the corresponding slot of the top box, each angle has an associated pin hole which is labeled and located on each side of the box. Highly resistant 6mm quick release pins with a ball safety lock are used to set the angles.

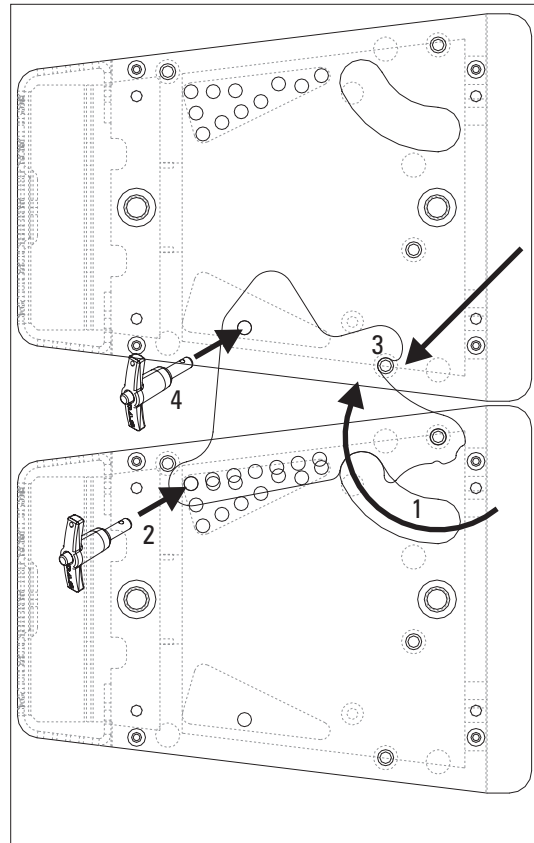


variant 25A

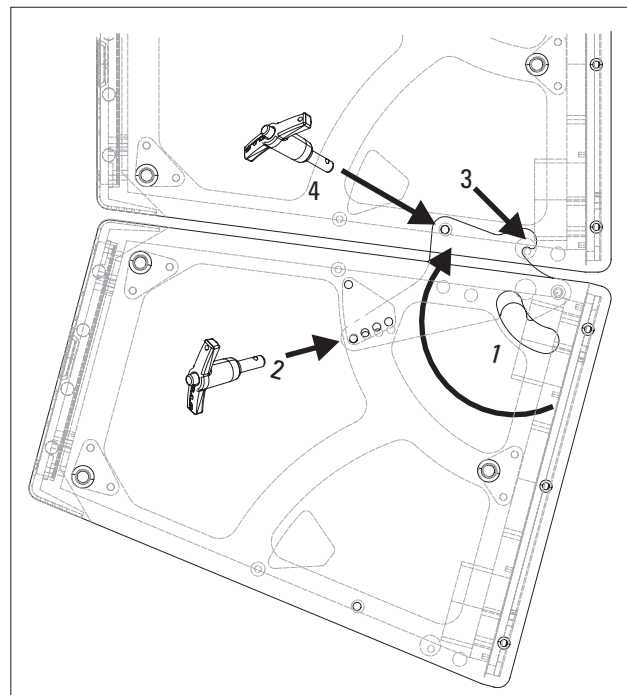


variant 112A

In order to fly the units, the connecting link must be rotated until the desired splay angle is reached first (1). Then the quick release pin must be introduced into the pin hole labeled with the desired splay angle (2). The box will be flown from the rotating point located in the top box as shown in the figure (3), and finally the lower box will be secured by introducing one more quick release pin in the top box (4).



variant 25A

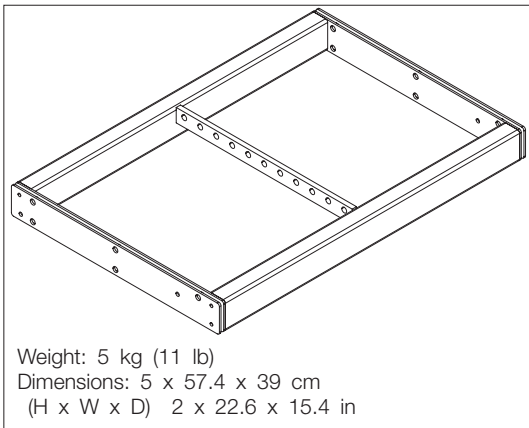


variant 112A

Most of the accessories needed to fly or stack the units are integral to the enclosures. The only additional items needed are the rigging bumpers.

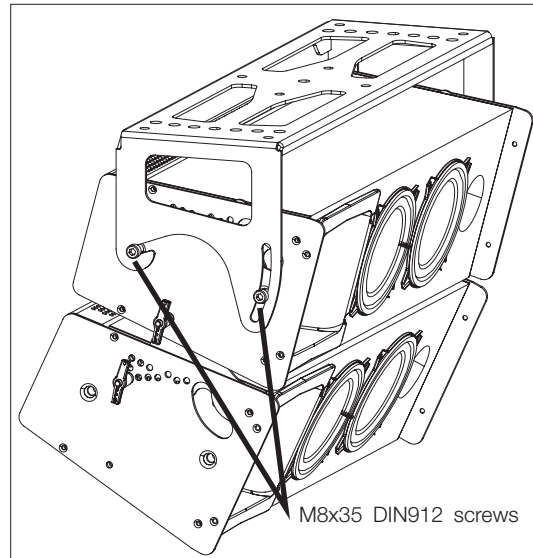
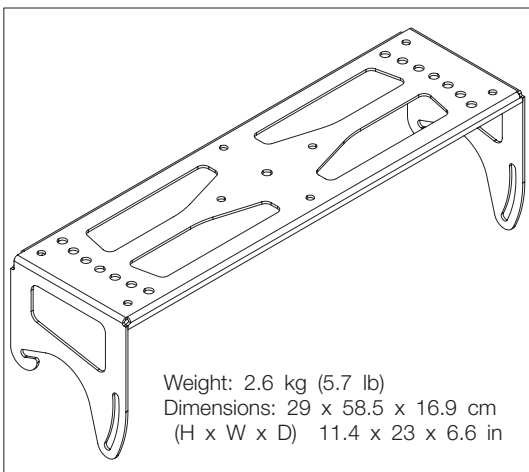
A) AX-V25

The AX-V25 rigging grid (bumper) is made from steel beams and is designed to handle great loads. It features a center reinforcement bar that is also used for the lifting slings. One chain can be used to determine the tilt angle of the whole cluster, depending on the hole used to attach the chain to the center bar. The first box in the array will be attached to the AX-V25 by means of the above described connecting links and quick release safety pins. All the *variant* systems can be attached to the AX-V25 bumper. Up to 20 *variant 25A* units can be flown from the AX-V25 bumper while maintaining a 7:1 safety ratio. Up to 6 *variant 112A* can be flown from the AX-V25 with a 7:1 safety factor.

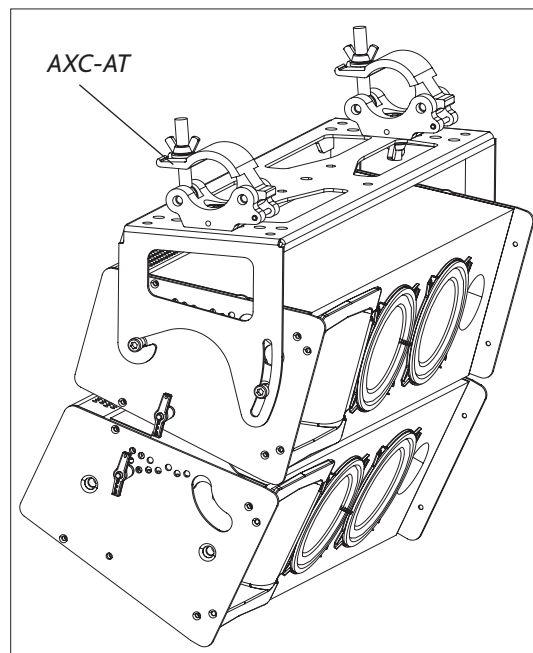


B) AXC-V25

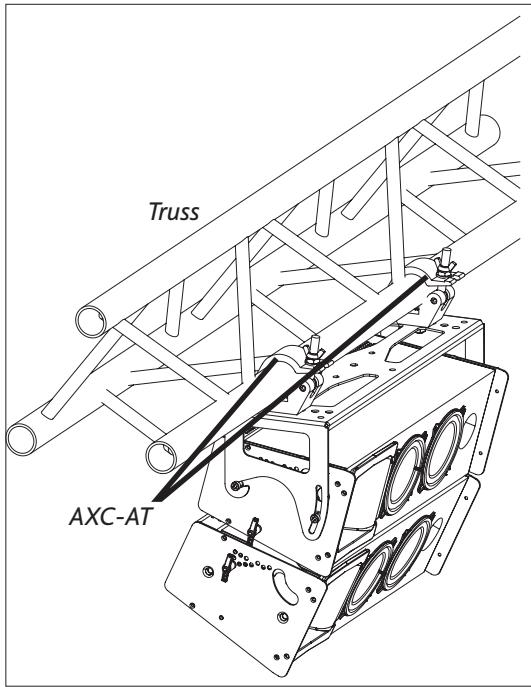
The AXC-V25 is made from stainless steel and has been specially designed to ceiling mount up to 4 *variant 25A* units. This ceiling mount accessory also allows for hook clamps to be fixed to it, so up to 4 boxes can be attached to truss structures. The *variant 25A* units must be fixed to the ceiling mount accessory by means of 4 M8x35 DIN912 screws.



The AXC-V25 ceiling mount accessory features several holes on the top plate which allow for hook clamps (AXC-A7) to be fixed to them, so up to 4 units can be flown from truss structures.

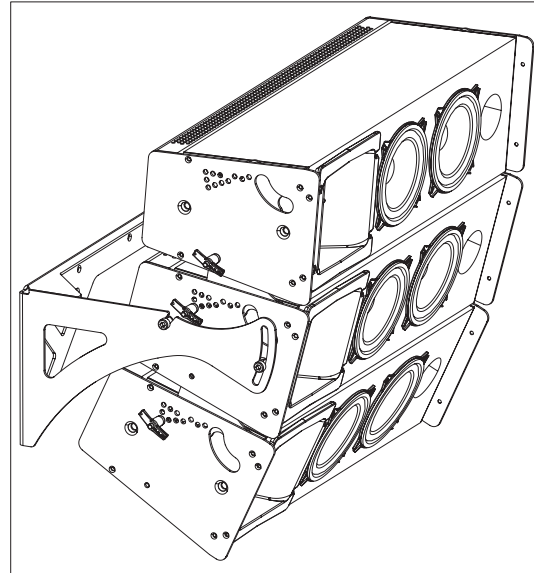


One slot on each side of the AXC-V25 accessory allows for the setting of the tilt angle of the whole cluster by means of the M8x35 screws supplied.



C) AXW-V25

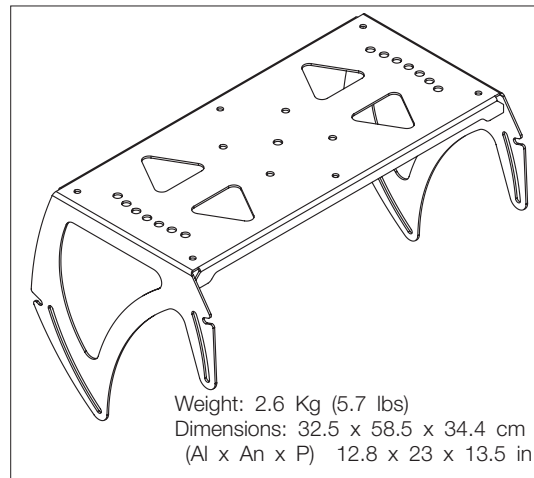
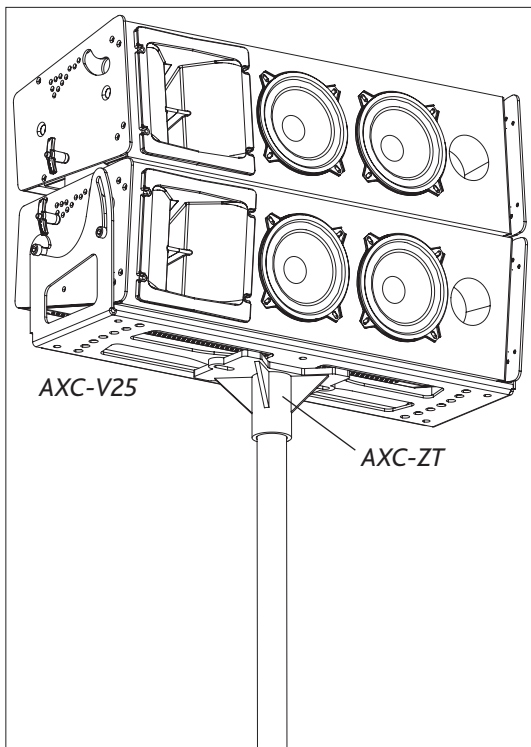
The AXW-V25 is made from stainless steel and has been specially designed to wall mount up to 3 *variant 25A* units. Six special M8x35 DIN912 screws must be used to attach the accessory to the wall. The whole cluster can be tilted as in the AXC-V25 accessory.

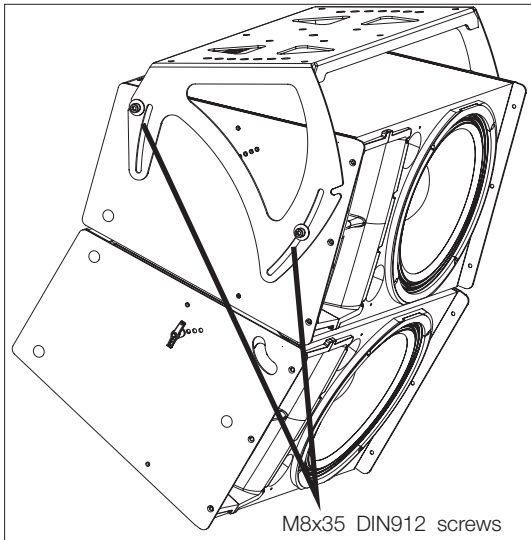


The AXW-V25 can also be used to pole mount up to two units on top of one *variant 18A* unit or on a tripod by making use of a special adaptor (AXC-ZT).

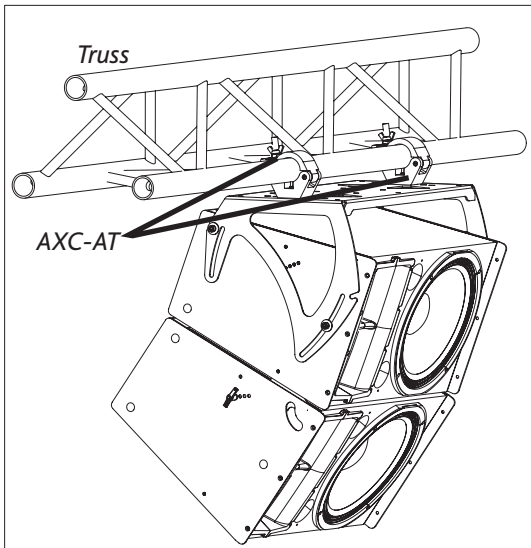
D) AXC-V112

The structure AXC-V112 is made of stainless steel and has been designed to ceiling mount up to 2 units *variant 112A*. It also allows fixing two hook clamps to it so a set up of two cabinets can be attached to truss structures. The cabinets are fixed to the structure by means of 4 M8x35 DIN 912 screws.



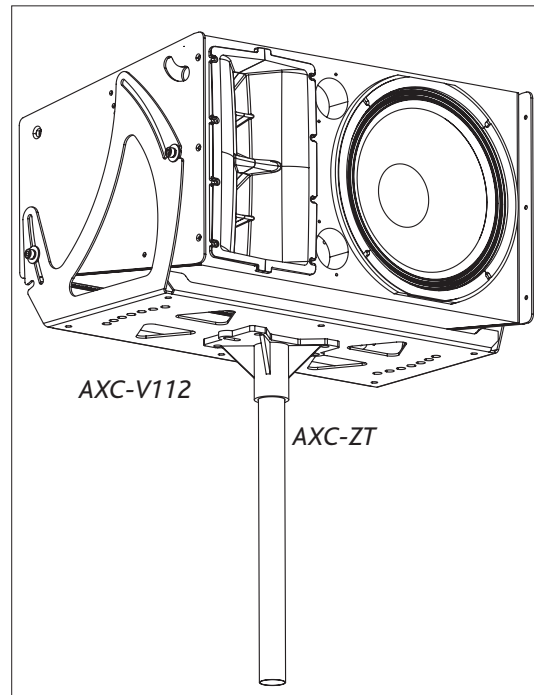


The AXC-V112 ceiling mount accessory features several holes on the top plate which allow for hook clamps to be fixed to it, so up to 2 units can be flown from truss structures.



One slot on each side of the AXC-V112 accessory allows for the setting of the tilt angle of the whole cluster by means of the M8x35 screws supplied.

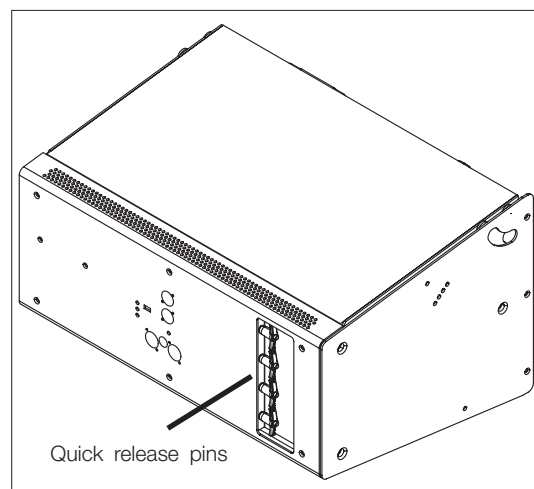
The AXC-V25 can also be used to pole mount up to one unit on top of one *variant 18A* or on a tripod by making use of special adaptor (AXC-ZT).

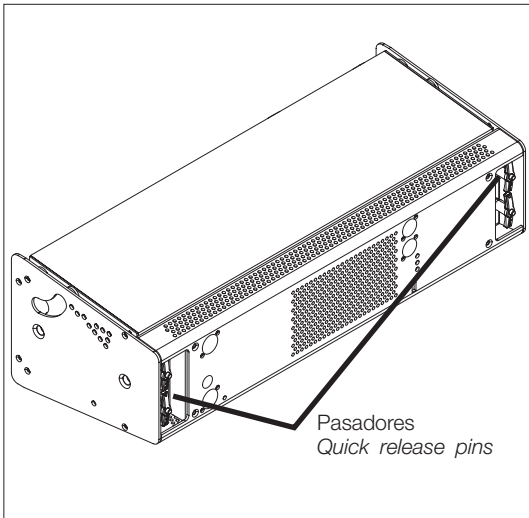


E) Quick release pins

Each cabinet *variant 25A/112A* includes 4 steel heavy duty quick release pins stored on the rear panel. Each cabinet *variant 18A* includes 6 steel heavy duty quick release pins stored on the rear panel.

All systems can be flown using steel/aluminium rigging hardware located on both sides of the cabinets. NEVER REPLACE QUICK RELEASE PINS WITH SCREWS OR OTHER ELEMENTS!!!



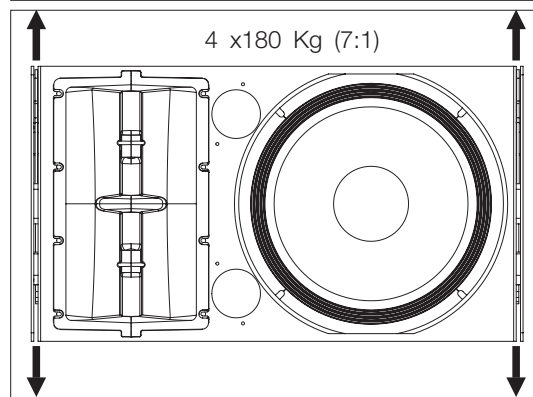
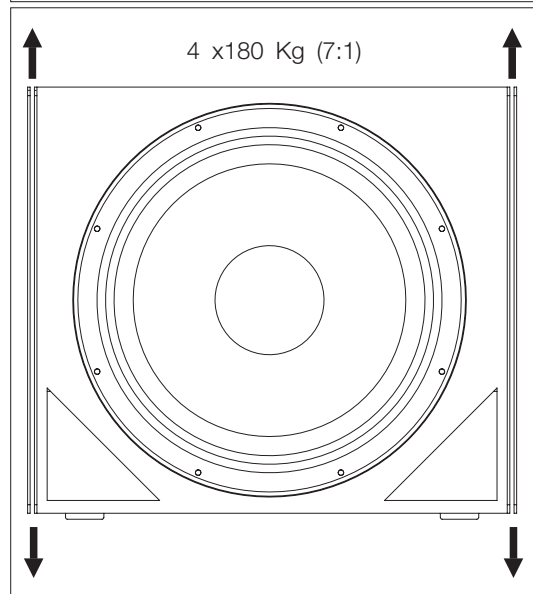
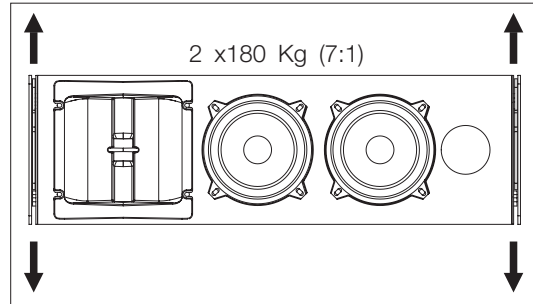


F) Chain hoists

All units in a column will be flown from the **AX-V25** rigging grid (bumper), which should be used with one hoist. The maximum load that can be flown using the **AX-V25** is 250 kg (550 lb) so one 0.25 Ton hoist will be enough.

Safety factors

The safety factor is defined as the coefficient between the breaking load limit and the maximum safe working load limit (SWLL). In this case, the breaking load limit of each of the flying points is 875 kg (1925 lb) as determined by destructive testing in independent laboratories. With a 7:1 safety factor, a total amount of 20 units **variant 25A** can be suspended from the **AX-V25**.



Each flying point withstands 180 Kg with a 7:1 safety ratio.

The maximum number of **variant 25A** units that can be flown from the **AX-V25** bumper is 20 units with a 7:1 safety ratio. The maximum number of **variant 18A/112A** units that can be flown from the **AX-V25** bumper are 6 units. Never exceed the maximum number of units recommended.

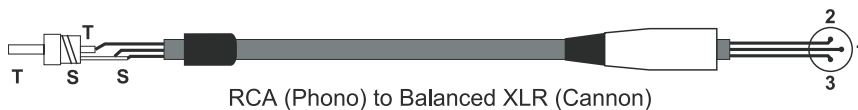
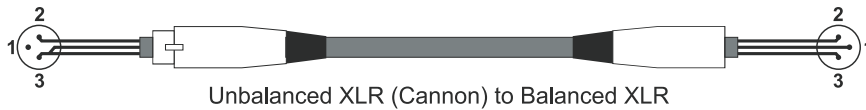
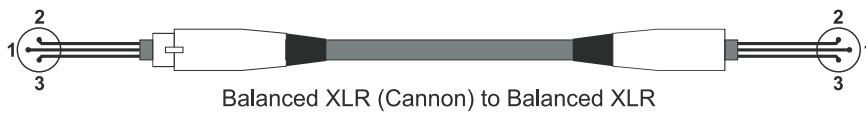
APPENDIX: Line connections: unbalanced and balanced

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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