



User's Manual

PA series



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

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

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Amplificadores de Potencia / Power Amplifiers

Conserve y lea todas estas instrucciones.
Siga todas las advertencias.

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



Keep these instructions.

Heed all warnings. Follow all instructions.

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

Aparato de Clase I.

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



Class I device.

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

Los signos de rayo cerca de los terminales de salida del amplificador alertan del riesgo de choque eléctrico en condiciones normales de uso (terminales peligrosos al tacto). No toque dichos terminales mientras el amplificador esté encendido.

The lightning and arrowhead symbol near the output terminals of the amplifier alert of the risk of electric shock in normal conditions of use (terminal dangerous to the tact). Do not touch these terminals while the amplifier is working.

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

The connected outer wiring to these terminals requires of its installation by an instructed person and the use of a flexible cable already prepared.

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.

La posición de encendido está indicada en el interruptor mediante los correspondientes símbolos normalizados (IEC 60417-1:1998 y IEC 60417-2:1998) y dos LEDs verdes encendidos cerca del interruptor.

The ON position is indicated in the switch by means of the corresponding standardized symbols (IEC 60417-1:1998 and IEC 60417-2:1998) and two green LEDs located near the switch.

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.

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.

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

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

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 a través de sus rejillas de ventilación. Tenga en cuenta que el aire circula de la parte posterior a la frontal.

Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus that produce heat. The circulation of air on the fan inlet grills must not be blocked. The air stream circulates from back to front.

Equipo diseñado para funcionar entre 15°C y 35°C con una humedad relativa máxima del 75%.

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

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.

Tenga en cuenta que la tensión nominal de alimentación es el valor indicado en la etiqueta, con un rango $\pm 10\%$ de ese valor (según IEC 60065:2001).

Take into account that the nominal AC voltage is the value shown in the equipment $\pm 10\%$ (according to IEC 60065:2001).

Si el cable o enchufe de alimentación está dañado, debe ser sustituido por un cable o conjunto especial a suministrar por el fabricante o por su servicio postventa.

If the cable or the mains plug are damaged they must be replaced. Contact the manufacturer to provide you with the necessary spare parts.

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

No user serviceable parts inside. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.

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 PA*:

Declares that *PA series*:

Cumple con los objetivos esenciales de las Directivas:

Abide by essential objectives relating Directives:

- Directiva de Baja Tensión (Low Voltage Directive) 2006/95/CE
- Directiva de Compatibilidad Electromagnética (EMC) 2004/108/CE
- Directiva RoHS 2011/65/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 55103-1:2009 Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1:Emission.
- EN 55103-2:2009 Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2:Immunity.

INTRODUCTION

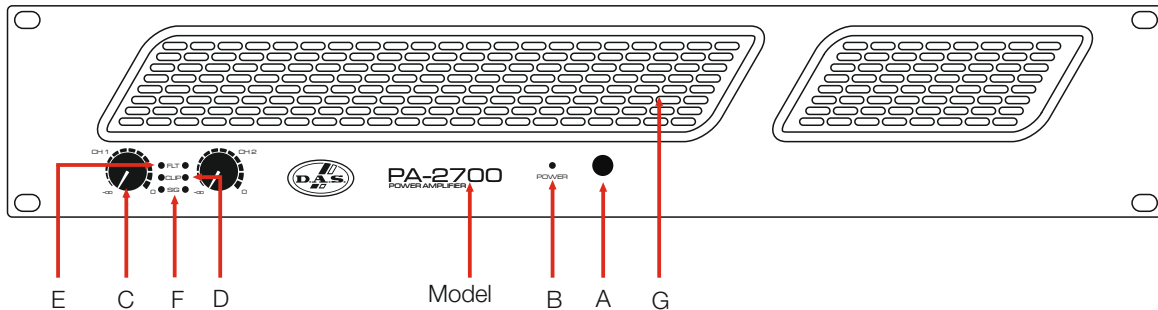
General

Thank you for purchasing a D.A.S. power amplifier. It has been built with the most advanced modular technology, and has been designed through the use of computer-aided design for both the electronic and mechanical parts.

Features

- Efficient linear power supply.
- Dual balanced XLR inputs.
- Speakon output connections.
- Variable speed front to back fan cooling.
- Front located volume controls.
- Input sensitivity switchable between 0.775V and 1.4V.
- Circuit breaker protection.
- Stereo, parallel and bridge operation modes.
- Protection against output short-circuits, overloading and overheating.
- Power, Clip, protection and signal LED indicators.

FRONT PANEL DESCRIPTION



Power switch (A) and power LED (B)

Turns the amplifier on/off when the push button is pressed. When turned on, the power LED lights blue color.



Level controls (C)

Use to set the output level of each channel. The maximum gain is achieved when the LEVEL rotary potentiometer is turned fully clockwise.



Clip LED (D)

When the output signal distortion of the corresponding channel exceeds 1%, the LED will light, due to the signal level being too high.



Protection LED (E)

When circuit protection works, the LED will light, especially when the heat-sinks overheat or detect the DC voltage in the amplifier. Also, turn on the amplifier and within three seconds, the amplifier is ready to work, the LED will shine. When startup is complete or the problem is removed, the LED will extinguish, and resume working normally.



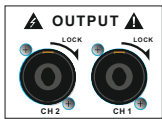
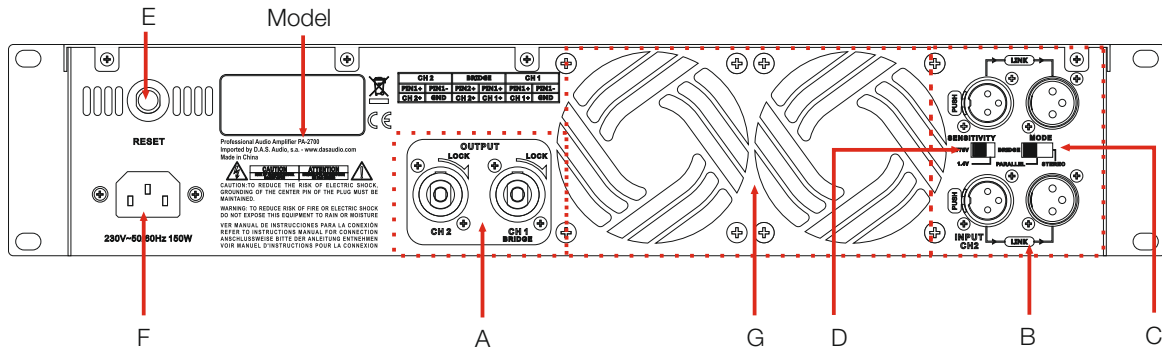
Signal LED (F)

When there is an input signal, the LED will light. If not, please check the gain settings. If necessary, the gain can be increased. Check the input connection and signal audio source. If the Clip LED shines a little or shows no signal, check the output wire whether it is in short-circuit or not.

Cooling air grilles (G)

Fan cooling permits airflow through the most vital parts of the amplifier. Since the airflow finds its way out through these grilles, keep them as clean and dust-free as possible to assure proper cooling.

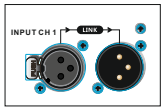
BACK PANEL DESCRIPTION



Speaker outputs (A)

Connecting speakers to each output it is done through Speakon-type connectors whose pin assignments are:

- Channel 1 (stereo and parallel modes) : pin +1 = positive / pin -1 = negative
- Channel 2 (stereo and parallel modes) : pin +1 = positive / pin -1 = negative
- Channel 1 (bridge mode) : pin +1 = positive / pin +2 = negative



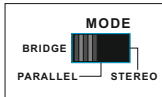
Inputs (B)

CH1 and CH2 are directly connected to the mixer, the input and output connectors of the respective channel are put together, to provide fixed connection, and no need to consider the power switch setting.

The nominal input impedance of 20kohms and 10kohms balanced mode in non-balanced mode.

The pin assignment is according to the standard AES14-1992 (ANSI S4.48-1992):

- Pin 1 (XLR) : GND (Ground)
- Pin 2 (XLR) : (+) Non-inverted signal
- Pin 3 (XLR) : (-) Inverted signal

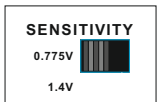


Mode switch (C)

STEREO mode makes the two channels work independently, CH1 input signal by CH1 output, CH 2 input by CH2 output.

BRIDGE mode makes CH1 input signals from the BRIDGE output socket, output must use CH1 volume control to adjust the volume.

PARALLEL mode makes CH1 input signal by CH1 and CH2 output socket output. The input socket of Ch2 has no effect. Channel's volume can be adjusted independently.



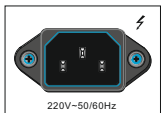
Sensitivity mode (D)

This switch allows to set the sensitivity between 0.775V or 1.4V.



Circuit breaker (E):

When amplifier is overloaded (caused by the small load impedance of the amplifier or the continuous input signal), the button of the circuit breaker will upspring immediately, and will be cutoff power automatically to protect the amplifier. You must exclude overload condition, and then press the button of the circuit breaker, and the power amplifier will resume to normal operation.



Power outlet (F)

The amplifier is provided with a socket IEC320-C14. **When using the amplifier, one should check whether the selected voltage is correct or not. If the voltage is wrong, it could damage the amplifier. Please ensure that the device is connected to the power supply with ground to use.**

Cooling air outlet grilles (G)

Fan cooling permits airflow through the most vital parts of the amplifier. Since the airflow finds its way out through these grilles, keep them as clean and dust-free as possible to assure proper cooling.

INSTALLATION

Racking

All amplifiers are 19-inch rack mount width and are 2U DIN in height.

Four front-panel mounting holes are provided for use with M5 or M6 or 1/4" screws. To avoid bending the chassis in rack mounting applications where the rack will be transported, mount the amplifiers to the back of the rack using the rear mounting holes. Alternatively, place the bottom amplifier against the base of the rack and pile the amplifiers with no clearance in between.

A fan cools the aluminum heat sinks from front to back.

Fan cooling permits airflow through the most vital parts of the amplifier.

When mounting the unit onto a 19-inch rack, a rack cooling system is not required, since the air is exhausted out through the front grille.

However, the rack must not be sealed, and it should at least have a large enough ventilation grille to allow air into the rack.

Input connection

A balanced connection is recommended with XLR connectors, but an unbalanced connection can also be used.

Speaker connection

Connect speakers at one or two output Speakon connectors. See the rear panel instructions.

Speakon connectors offer quick connection for portable applications. To enable a Speakon connection, plug the male connector into the outlet and rotate it clockwise. It will then lock into place and be ready for use.

Mains connection

Should check whether the selected voltage is correct or not. If the voltage is wrong, it could damage the amplifier.

The 230 V AC version has a nominal voltage plus minus 10%, i.e., the amplifier can operate from 207 V to 253 V AC.

Similarly, the 115 V AC version has a nominal voltage plus minus 10%, i.e., the amplifier can operate from 103 V to 127 V AC.

In both cases the operating voltage will be indicated on the back panel.

ON / OFF

The main power switch is a push button that turns the amplifier on/off.

When the amplifier turns on, the power LED and protection LED are illuminated. After a few seconds, when the start is finished the PROTECTION LED will go out and the amplifier will be ready for use.

To turn the amplifier off, push the button. At that moment the main power supply voltage and the secondary power supply voltage will turn off internally.

Switch your sound system on from back to front. Thus, switch on the amplifiers last on your sound system. Switch sound sources (CDs, turntables) first, then your mixer, then your processors and crossovers and finally the amplifiers. If you have more than one amplifier, switch them on sequentially, one at a time or use a sequencer.

Follow the reverse order when switching off, and switch off the amplifiers before any other element on your sound system.

Clip LED

The clip LED should never be on continuously. This will distort the signal and may damage the speakers. In fact, severe clipping is an easy way of burning a speaker's voice coil.

The amplifiers feature an automatic limiting system that impedes prolonged saturation, but the dynamic nature of music signals stops it from being a brick wall protection. Thus at most, the clip light could be lit occasionally.

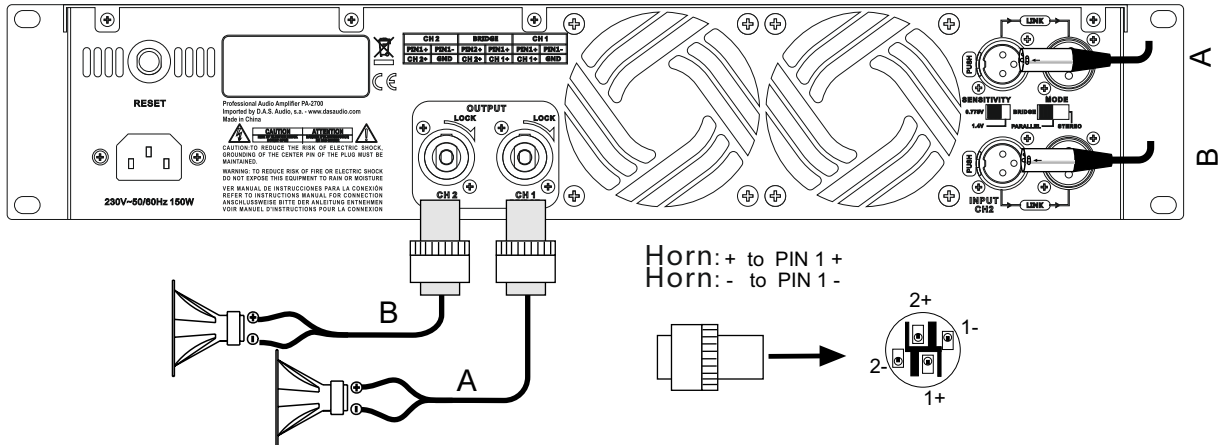
Level controls

The level rotary potentiometer is used for changing the input gain. Although related to output power, it is not a direct representation of it. Thus, we can have maximum output power with the gain at mid position. Similarly, we may have the gain controls at maximum and not have maximum output if our source signal is not strong enough.

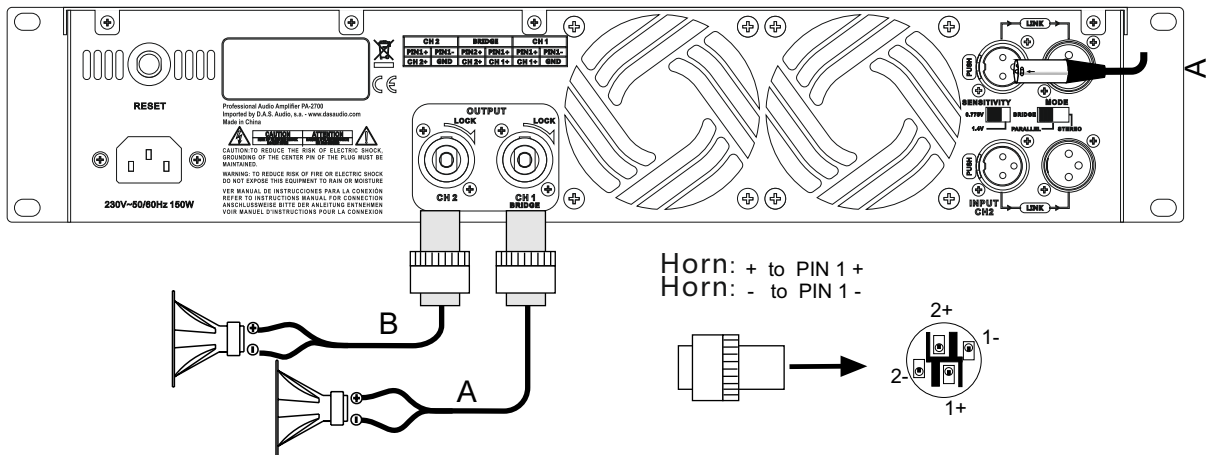
One way to use the volume controls is to set them such that when the mixer's faders are at their maximum level, we are just below clipping level on the amplifier or clipping very occasionally.

CONNECTIONS ACCORDING TO OPERATION MODE

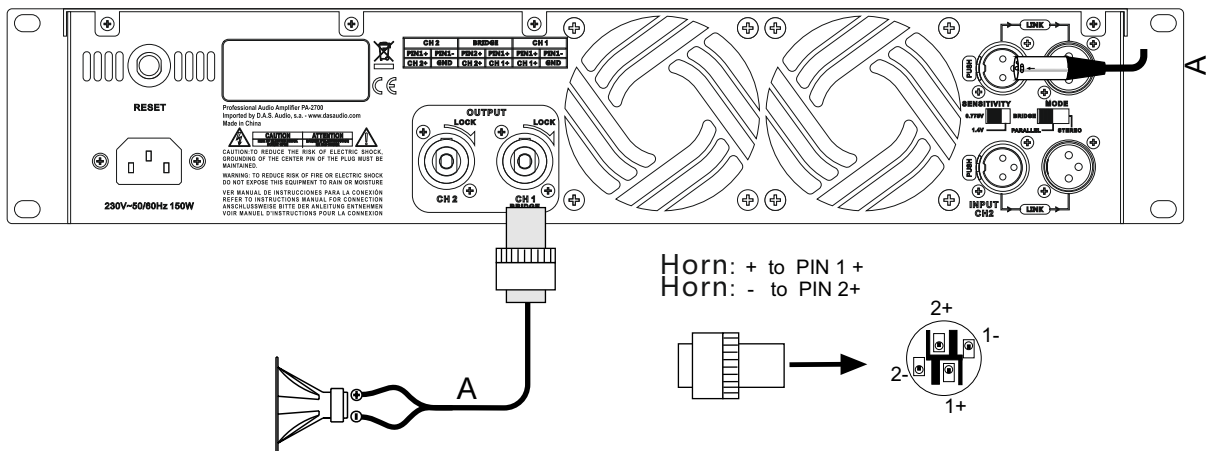
Stereo connection



Mono connection



Bridge connection



SPECIFICATIONS

Rated power /model	PA-500	PA-900	PA-1500	PA-2700
1kHz(HIA)with0.5%THD				
4Ω stereo(per channel)	250W	450W	750W	1350W
8Ω stereo(per channel)	150W	350W	500W	1000W
8Ω bridge mono	500W	900W	1500W	2700W
Performance				
Frequency Response(at 1 Watt)	20Hz-20KHz, +0-1dB			
Total Harmonic Distortion(THD)	<0.5%,20Hz-20kHz			
Intermodulation Distortion60Hz and 7KHz at 4:1from full rated output to -30dB	=/ $<0.35\%$			
Slew Rate	$>10V/us$			
Voltage Gain	27dB	31dB	33dB	36dB
Damping Factor(8ohms)10Hz-400Hz	>200			
Signal-to-Noise Ratio (below rated power,20Hz to 20kHz. A-weighted)	$>100dB$			
Crosstalk(below rated power) At 1kHz At 20kHz	-75dB -58dB			
Input Sensitivity for full rated power at 8Ω	0.775V or 1.4V			
Input impedance(nominal) Balanced Unbalanced	20K ohms 10k ohms			
Construction				
Protection	Protection against short circuits, no-load, on/off muting, RF interference.			
Ventilation	Flow-through ventilation from front to back			
Cooling	Internal heat sinks with forced air. Fan cooled, speed regulated, thermal protection			
Power cord specification	Plug : 10A , 250V Wire:3x1.0mm ²			
Chassis size(unit mm)	482x227x88			482x294x88
Net weight	10.1kg	12.7kg	13.5kg	19.5kg

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