EXPECT THE BEST

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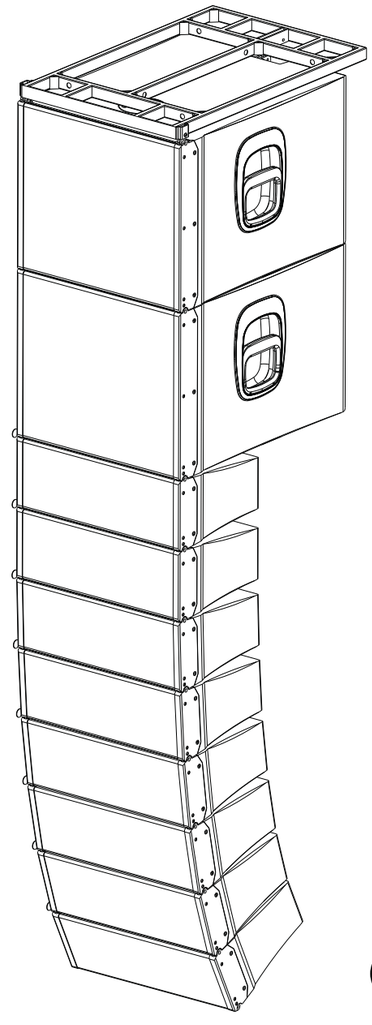
Studiomaster

V5/V5S



USER GUIDE

Studiomaster
Unit 11,
Torc:MK
Chippenham Drive
Kingston
Milton Keynes
MK10 0BZ
United Kingdom.
Tel: +44(0)1908 281072 email: enquiries@studiomaster.com
www.studiomaster.com

1. Introduction

V5 line array is a two way system, providing 60Hz-18KHz frequency and flat response of frequency and phase.
This line array consists of a 44mm compression driver and two 5 inch units，reducing weight and increasing SPL size ratio.

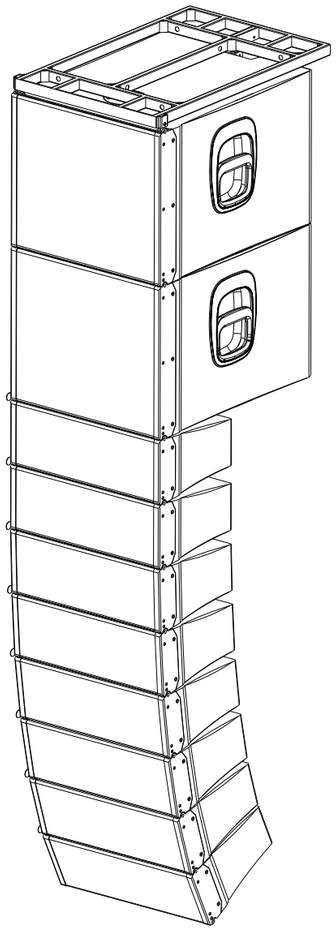
\MF/LF section of V5 adopts 50W 5 inch cone LF unit and acoustically designed grille in the front to prevent from interference due to comb filter and to optimize MF/LF directivity. HF section uses a 44mm compression driver. The plane wave converter changes spherical wave into plane wave to reduce filtering effect and to increase sound clearness in long distance. A 90 degree constant horn is also added to generate a consistent wave plane.

V5 enclosure is trapezoidal to minimize the gap between enclosures and to minimize the vertical side lobe.
Precise Al alloy suspension system is equipped. The adjustable angle range is 0° - 10° to meet the requirements of various applications. The durable elastic paint on the surface. Two NL4MP four pin connectors on the rear panel for link application.

V5S used two 10 " units with 2.6 " voice coils. The load design of inverted horn increases efficiency.

2. Application

* meeting room, multi-function hall
* theatre, auditorium, church



3. Specification

Model	V5
type	two way line array
frequency response	60Hz~20KHz (-10dB) 80Hz~18KHz (±3dB)
coverage (H)(-6dB)	90°
coverage(V)(-6dB)	changes as line array dimension and tilt angle change
LF unit	2×5" (127mm) / 1" voice coil
HF unit	1×1.7" (44 mm) compression driver
sensitivity(1W@1m)	LF : 90dB HF : 104dB
rated impedance	LF : 16Ω HF : 16Ω
Power handling	LF :50W x 2 (Continuous) ,200Wx2(Peak) HF: 50W (Continuous),200W(Peak)
max SPL(@1m)	LF : 116dB HF: 127dB
crossover	80Hz，1.7KHz
dimension(WxHxD)	483x171x300(mm)
weight	11kg
dispersion(V)	0° ~10° each step2°
connector	HF:+1 -1 MF:+2 -2

Model	V5S
type	LF loudspeaker
frequency response	50Hz~350Hz (-10dB) 55Hz~300Hz (±3dB)
LF unit	2×10" (254mm) /2.6" voice coil
sensitivity(1W@1m)	97dB
rated impedance	4Ω
Power handling	250W x 2 (Continuous),1000Wx2(Peak)
max SPL(@1m)	130dB
crossover	80Hz
dimension(WxHxD)	483×410×623(mm)
weight	31kg
connector	LF:+2 -2

EXPECT THE BEST

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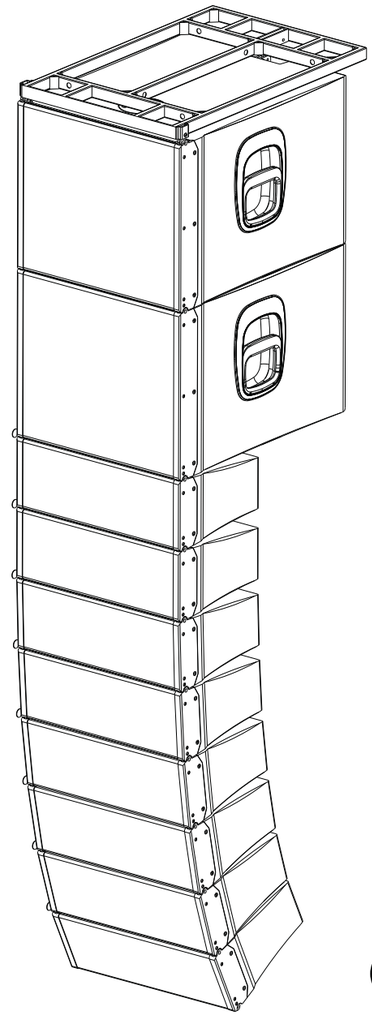
Studiomaster

V5/V5S



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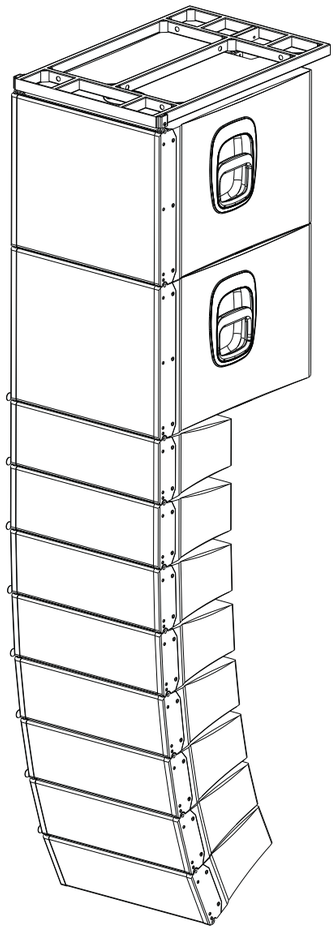

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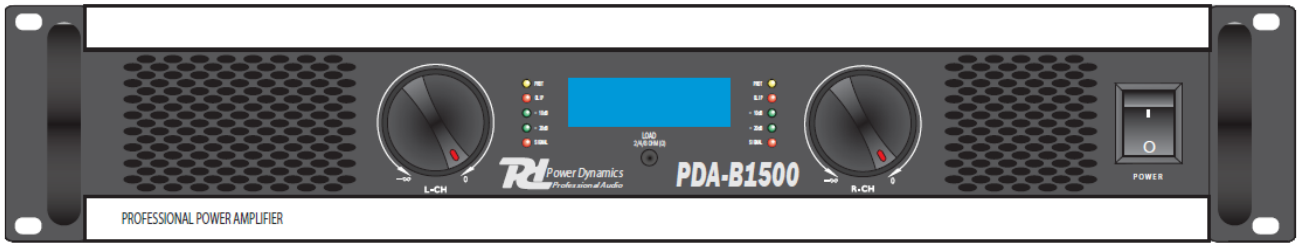
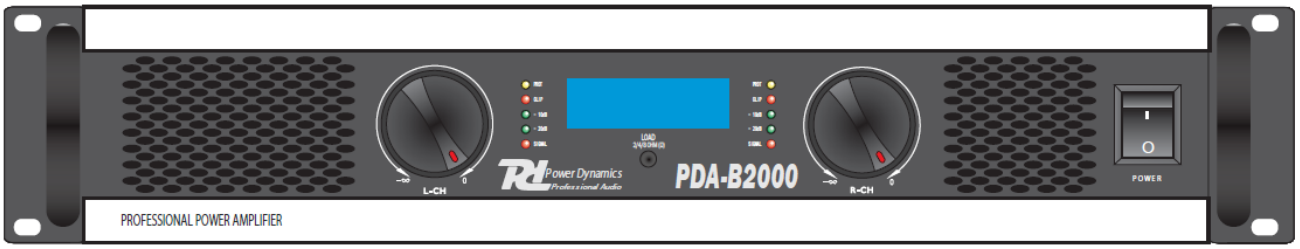
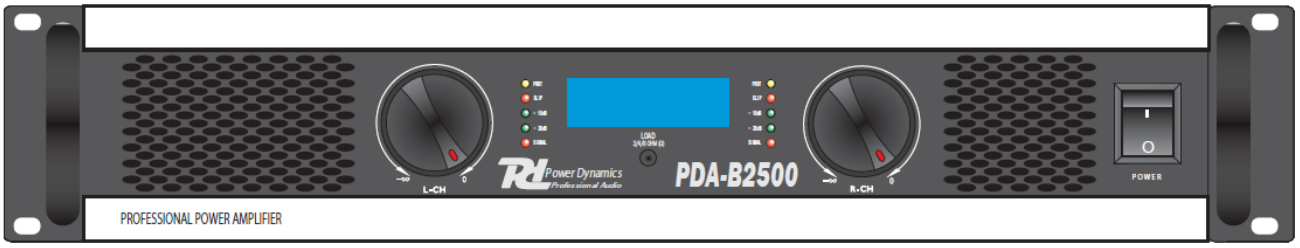
Power Dynamics
Professional Audio

PDA-B SERIES

171.193
171.194
171.196







PDA-B1500	2x 750W
PDA-B2000	2x 1000W
PDA-B2500	2x 1200W

Important Safety Information

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:
1. Handle the power supply cord carefully
Do not damage or deform the power supply cord. If it is damaged or deformed, it may cause electric shock or malfunction when used. When removing from wall outlet, be sure to remove by holding the plug attachment and not by pulling the cord.
2. In order to prevent electric shock, do not open the top cover. If a problem occurs, contact your dealer.
3. Do not place metal objects or spill liquid inside the unit. Electric shock or malfunction may result.

USE OF CONTROLS OR ADJUSTMENTS OR REFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE. THE UNIT SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL DOUBLE INSULATED. WHEN SERVICING, USE ONLY IDENTICAL REPLACEMENT PARTS.

CAUTION: TO REDUCE THE NOTE:
RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER (OR BACK) . THERE ARE NO SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.


The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un insulated
"dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.


The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

NOTE:
This unit may cause interference to radio and television reception

Important Safety Instructions

1. Read Instructions – All the safety and operating instructions should be read before this product is operated.
2. Retain Instructions — The safety and operating instructions should be retained for future reference.
3. Heed Warnings — All warnings on the appliance and in
the operating instructions should be adhered to.
4. Follow Instructions — All operating and use instructions should be followed.
5. Improper installaction can cause serious damage to people and property.
6. Water and Moisture — The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
7. Carts and Stands — The appliance should be used only with a cart or stand that is recommended by the manufacturer. An appliance and cart combination should be moved with care.

Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
8. Wall or Ceiling Mounting — The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
9. Heat — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources – This product should be operated only from the type of power source indicated on the making label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer the operating instructions.
11. Power-Cord Protection—Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to the cord in correspondence of plugs, convenience receptacles, and the point where they exit from the appliance.
12. Cleaning - The appliance should be cleaned only as recommended by the manufacturer. Clean by wiping with a cloth slightly damp with water. Avoid getting water inside the appliance.
13. Non-use Periods—The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
14. Object and Liquid Entry —Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

15. Damage Requiring Service—The appliance should be serviced by qualified service personnel when:

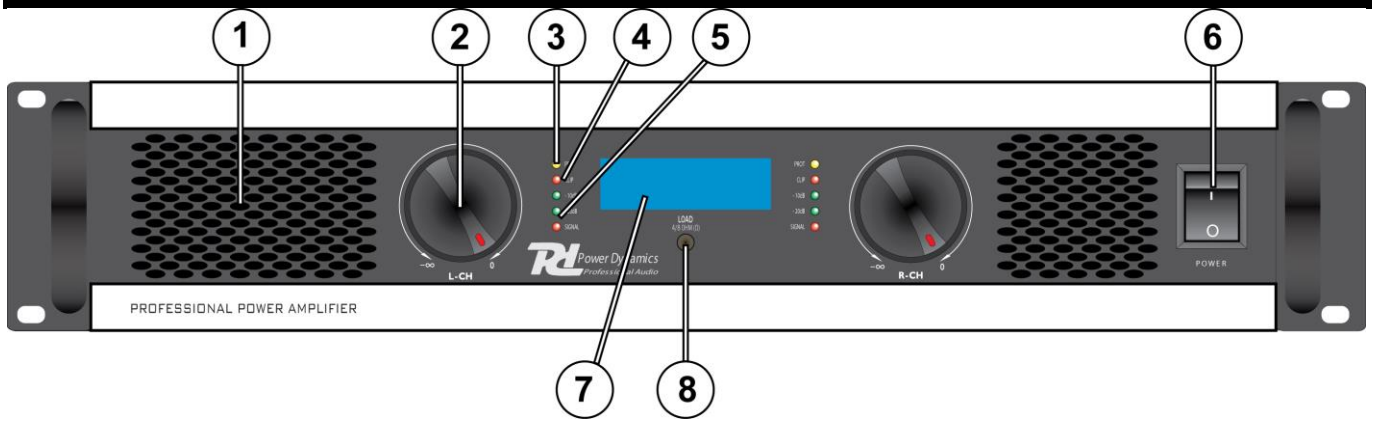
A. The power-supply cord or the plug has been damaged; or
B. Objects have fallen, or liquid has been spilled into the appliance; or
C. The appliance has been exposed to rain; or
D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
E. The appliance has been dropped, or the enclosure damaged.
16. Servicing—The user should not attempt any service to the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
17. Ventilation – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is the manufacturer's instructions have been adhered to.
18. Attachments – do not use attachments not recommended by the product manufacturer as they may cause hazards.
19. Accessories – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
20. Lightning – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
21. Replacement Parts – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
22. Safety Check – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Features

Power Dynamics Professional stereo audio amplifier featuring high output power and excellent value for money. The CPA range of amplifiers are ideal for the starting DJ, smaller fixed installations in pubs, clubs canteens etc. or as a complement in larger disco installations.

- Blue LCD display for temperature, operating mode, output power, protection and audio level indication.
- Active crossover, highpass or lowpass.
- Outstanding sound quality
- Protection against high temperatures
- Stereo and bridge mode
- Signal, Clip & Protect indication for each channel
- Inputs via XLR & 6.3mm jack
- Speaker NL4 & binding post outputs
- Temperature controlled cooling fans

Front Panel Features



1. **Cooling Vents.**
   Front to rear forced airflow.
2. **Volume Controls.**
   These controls adjust the volume level of both channels. Turn slightly to the left when the clip indicators (4) light up.
3. **Protect Indication.**
   When on any given point, something damaging might occur to your amplifier, it will switch in protect mode. The amplifier will disconnect the point where the damage is about to occur and switch on the protection led to indicate to you that something is wrong. Reasons might be: Bad ventilation, A low impedance (< 4 Ohm), Defect fan(s), A short circuit in cables.
4. **Clip Iindication.**
   These LEDs will light up when one or both channels are on max power. It can occur that these LEDs will lit up now and then, this is not a problem. But if it lights up continually you need to adjust the volume down, otherwise permanent damage to equipment might occur
5. **Signal indicators.**
   Three green LEDs indicate the amplifiers output signal levels.
6. **On/Off Switch.**
   For switching the amplifier on and off. Always adjust the volume down to its minimum before switching this amplifier on.

7. Blue LCD display
Information of the operation mode and parameters.

8. LOAD 2/4/8 Ohm
Select the speaker load for the correct calculation of the output power.

DISPLAY

Standard indication:

Line-1: Output power of both output channels. Amplifier calculated the output power.
NOTE: Select the correct load impedance (button 8)
Calculation not 100% correct in bridge operatio

Line-2: If CLIP ON the amplifier input/output is overloaded. Reduce in that case the input level.

Line-3: Protection information.

Line-4: Tempeture of the output stage of both channels

Bargraph: Vertical bargraph in the middle of LCD display indication the output signal level of both channels

Indication for a few seconds after actuating a volume controller:

Line-1: Operation mode STEREO, BRIDGE or PARALL

Line-2: Limiter ON or OFF

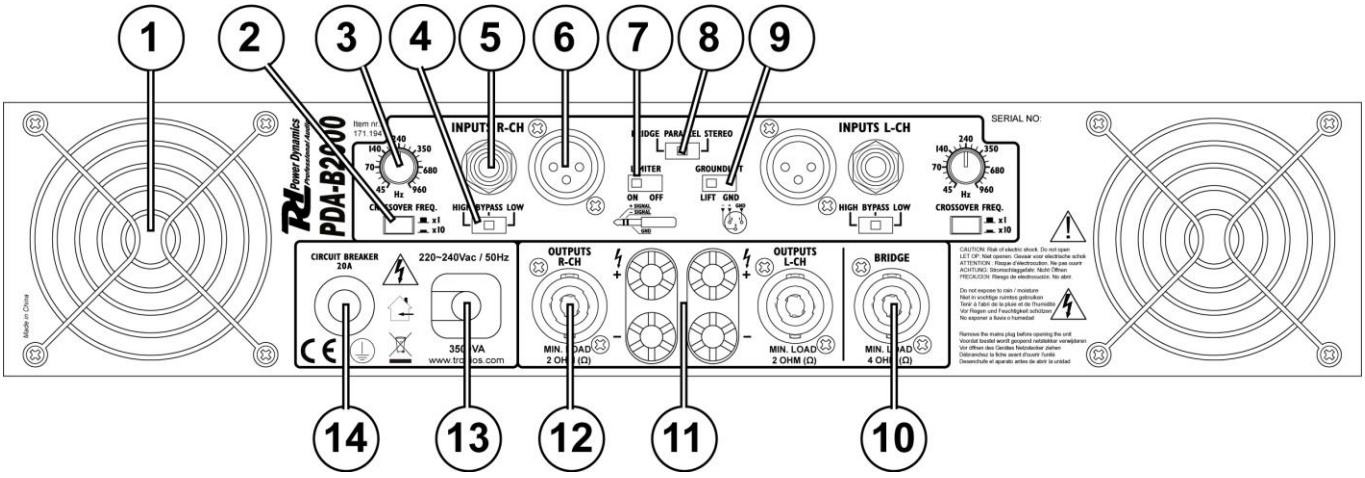
Line-3 & 4: ATTEN, attenuation of the input signals, line 4 shows the level.

Bargraph: Vertical bargraph in the middle of LCD display indication the output signal level of both channels

Indication for a few seconds after selection the output impedance button (8):

Selected the correct output load for the calculation of the output power.

Rear Panel Features



1. **Cooling Vents.**
   Front to rear forced airflow.
   Do not distruct air vents.

WARNING! Do not use switch 2 or 4 during operation. Only switch them when amplifier is switch off!

2. **Crossover Frequency Range**
   Selector to select the range of the filter frequency.
   x1 = 45-960Hz, x10 = 450-9600Hz

3. **Crossover Frequency**
   Adjust the crossover frequency.

4. **Filter Selection Switch**
   HIGH= High pass filter
   LOW= Low pass filter
   BYPASS= No filter, full range

5. **Unbalanced 6.3mm Stereo Jack inputs**.
   Two 6.3mm jack female input connector for connecting a signal source (mixer etc.).

6. **Balanced XLR inputs**.
   Two 3-pin female XLR input connector for connecting a signal source (mixer etc.).

7. **Limiter Switch**
   Limiter for the automatic level limitation.

8. **Mode Switch.**
   The amplifier can use 3 different modes: stereo, bridge & parallel (mono). Choose one of these functions:
   Stereo mode: Standard left/right stereo mode.
   Bridge mode: This mode combines both amps on one channel which results in double power on this channel. Connects the signal to the left input channel and the output level can now be adjusted with the left volume control.

9. **Ground Lift Switch.**
   Allows circuit and chassis grounds to be separated in case of problems with earth loops (hum).

10. **Bridge Speaker Outputs NL4.**
    Minium load in bridge mode 4 Ohm. Pin +1 & +2 = + output, Pin -1 & -2 = - output

11. **Binding Post Output Jacks.**
    Minium load in stereo mode 2 Ohm per channel. Minium load in bridge mode 4 Ohm.

12. **Stereo Speaker Outputs NL4.**
    Minium load in stereo mode 2 Ohm. Pin +1 & +2 = + output, Pin -1 & -2 = - output**.**

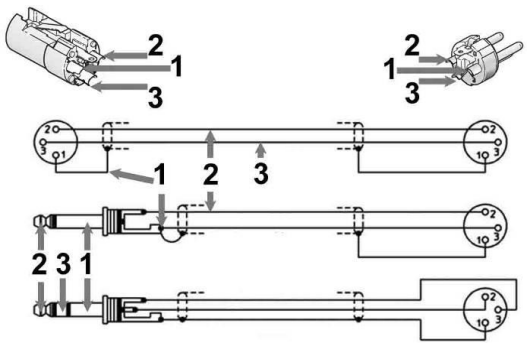
13. **Mains Power Cable**
    To connect to a mean power socket (220-240Vac / 16A)

14. **Circuit Breaker**
    This main fuse secures the amplifier and wires against defects. To reset the breaker press down the button with the unit switched off.

Installation

Connecting Input

Both inputs are balanced. If a balanced output is unavailable, you can also use a unbalanced one, connect pin 3 – with pin1 mass (see below). Unbalanced line may result in noise over long cable runs.



1= earth / mass, 2=signal +, 3=signal –

Connecting Output

Make sure the amplifier is turned off before you wire the system. Speakers can be connected using speaker NL4 plugs or bare wire for your binding post output connectors. Using the guidelines below select the appropriate size of wire bases on the disctance between the amplifier and speaker.

Distance	Wire Size
<10m	1.5mm2
>10m <20m	2.5mm2
>20m <30m	4.0mm2

NOTE: Never connect a hot (+) output to ground or (-) output and never connect the hot (+) to other hot outputs!

Connect to mains power

Before plugging the unit in always make sure that the power supply matches the product specification voltage. First connect the IEC end of the cordset to the IEC connector on the amplifier then plug the other end of the cordset to the AC mains.

Please read instructions below for reliable and problem free use:

- Be sure all connections made are made in the correct way.
- Check if the connected speakers are compatible with the amplifier.
- Ensure there is adequate ventilation.
- Prevent exposure to moisture.
- Never plug speakers in/or out while in use, this can result in serious damage.

Specifications

Specification	PDA-B1500	PDA-B2000	PDA-B2500
Ref. No.	171.193	171.194	171.196
4 Ohm Stereo Power (RMS)	2x 750W	2x 1000W	2x 1200W
8 Ohm Stereo Power (RMS)	2x 500W	2x 600W	2x 800W
2 Ohm Stereo Power (RMS)	2x 1000W	2x 1500W	2x 1700W
8 Ohm Bridge Power (RMS)	1500W	2000W	2400W
4 Ohm Bridge Power (RMS)	2000W	2800W	3200W
Frequency Response	10Hz – 50kHz (±1.5dB)		
Input Sensitivity	770mV		
Maximum Input Level	21dBv/9v		
Input Impedance	20kOhm		
Signal/Noise Ratio A-weighted RMS	>95dB		
Crosstalk @ Rated Output Power 8 Ohm / 1kHz	>105dB		
Damping Factor @ 8 Ohm / 1kHz	>500		
Slew Rate Internal	60V/µS		
Protection	Short Circuit, Current Limited, DC Fault, AC Line Fuse, Thermal Cut Off, Power Up/Down, Slow Start		
Power Supply	220-240Vac, 50Hz		
Dimensions (bxhxd)	482 x 380 x 88mm (19” x 2U)		
Weight	17kg	21,6g	22,1kg

Note: Specifications and design are subject to change without notice for purpose of improvement.

CE

Electric products must not be put into household waste. Please bring them to a recycling centre. Ask your local authorities or your dealer about the way to proceed.

WARRANTY CONDITIONS

The date the product leaves the importer is considered to be the date the warranty begins. The law obliges the retailer to offer a two year quarantee to the enduser.

Only companies approved by **Tronios** are allowed to work on the equipment.

During warranty period (defective) equipment must be returned to the dealer by pre-paid mail in the original box. Potentiometers have a limited lifetime and are not covered by the manufacturer for more than normal use. For all service enquiries,refer to your local distributor,as he is best able to help you.

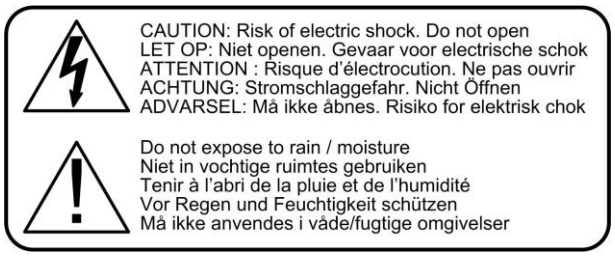
Veiligheidsinformatie

WAARSCHUWING:

OM BRAND OF ELEKTRISCHE SCHOKKEN TE VOORKOMEN, DIENT U DIT APPARAAT NIET BLOOT TE STELLEN AAN REGEN OF VOCHT.

LET OP:

1. Wees voorzichtig met het netsnoer en beschadig deze niet. Als het snoer kapot of beschadigd is, kan dit leiden tot electrische schokken of defecten. Als u de stekker uit het stopcontact neemt, trek dan niet aan het snoer, maar aan de stekker.
2. Open de behuizing nooit, dit om elektrische schokken te voorkomen. Als er problemen zijn, neem dan contact op met uw dealer.
3. Plaats geen metalen objecten en mors geen vloeistof in het product. Dit kan leiden tot elektrische schokken of defecten.



Belangrijke Veiligheidsinstructies

- Lees de **instructies** – Alle veiligheids- en gebruikersinstructies moeten doorgelezen worden **vóór gebruik**.
- Bewaar de instructies – Bewaar de veiligheids- en gebruikersinstructies voor toekomstig gebruik.
- Lees de waarschuwingen aandachtig door – Houd u aan de voorschriften en waarschuwingen.
- Volg de instructies op – De gebruiker dient zich aan alle gebruikersinstructies te houden.
- Water en vocht – Het product mag niet gebruikt worden in de buurt van water – bv. bij een bad, wasmachine, wastafel, in een natte kelder, bij een zwembad, vochtige ruimtes, etc.
- Vervoer en standaards – Gebruik voor dit product alleen vervoermiddelen en standaards die door de fabrikant worden aanbevolen. Verplaats dit product met grote zorg; snel stoppen, teveel kracht en niet vlakke ondergrond kunnen er voor zorgen dat het product en het vervoermiddel gaan kantelen, wees dus voorzichtig!
- Hitte – Het product mag niet gebruikt worden in de buurt van hittebronnen zoals radiatoren, fornuizen, boilers of andere apparaten (ook versterkers) die hitte produceren.
- Spanning – dit product mag alleen van die spanning worden voorzien zoals is aangegeven op het label aan de achterzijde. Bent u niet zeker , neem dan contact op met uw dealer of lokaal energiebedrijf. Sluit het product alléén aan op een 220-240VAC / 50Hz (geaard) stopcontact, verbonden met een 10-16A meterkastgroep.
- Netsnoer – Deze dient op een zodanige manier te worden geplaatst dat er niet overheen kan worden gelopen en deze niet wordt bekneld door andere apparaten. Verwijder of plaats een stekker nooit met natte handen resp. uit en in het stopcontact.
- Reinigen – Het product mag alleen schoongemaakt worden op de manier die de fabrikant u aanbeveelt : Neem het af met een licht vochtige doek. Tracht het product niet schoon te maken met chemische oplossingen Voorkom dat er water/vloeistof in het product lekt.
- Het netsnoer moet zijn losgekoppeld van het stopcontact wanneer het product voor een lange tijd niet gebruikt (gaat) wordt(en).
- Voorwerpen en vochtinname – Er moet met grote zorgvuldigheid op worden gelet dat er geen water of kleine voorwerpen door de openingen van de behuizing van het product vallen. Dit kan leiden tot serieuze schade aan het product. Ook kan men een **electrische schok** krijgen. **Dit is levensgevaarlijk!!**
- Reparaties – Het product dient door gekwalificeerde personen te worden gerepareerd als o.a.:
  A. Het netsnoer kapot of beschadigd is; of
  B. Er objecten of vocht in het product zijn gekomen; of
  C. Het product is blootgesteld aan regen; of
  D. Het product niet meer normaal functioneert, of de prestaties slecht zijn; of
  E. Het product is gevallen of de behuizing beschadigd is.

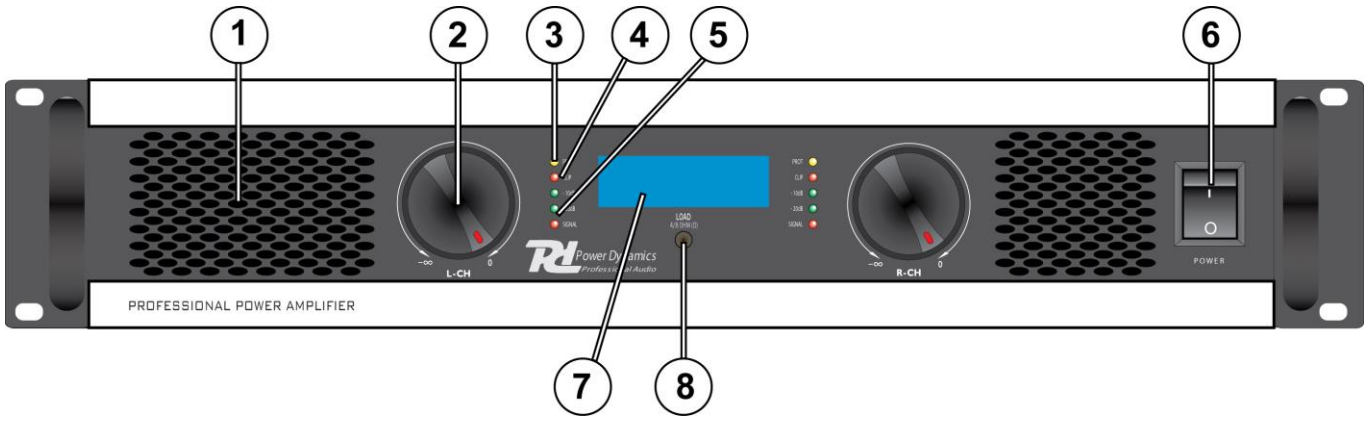
- Onderhoud – De gebruiker mag niet meer onderhoud verrichten dan dat er in de veiligheidsinstructies staat. Verder onderhoud moet worden verricht door gekwalificeerd personeel.
- Ventilatie – Gaten en openingen in de behuizing zijn aangebracht voor ventilatie van het product. Dit vanwege het garanderen van goede resultaten en het tegengaan van overhitting. Blokkeer deze openingen nooit door ze op een bed, tapijt, bank etc. te plaatsen. Plaats dit product nooit in een kast of rek, tenzij er goede ventilatie is en de voorschriften worden nageleefd.
- Bij sommige modellen is de stekker voorzien van een overspanningsbeveiliging ; bij vervanging een identieke stekker monteren.
- Accessoires – Plaats dit product niet op een onstabiele ondergrond, standaard, beugel, tafel of driepoot. Het product kan dan vallen en erge verwondingen veroorzaken aan personen, én het product kan zwaar worden beschadigd. Gebruik alleen accessoires die worden aangeraden door de fabrikant of worden verkocht in combinatie met het product. Monteren moet gebeuren m.b.v. instructies van de fabrikant en met de door de fabrikant aangeraden bevestigingsmaterialen.
- Blikseminslag – Als het product een lange tijd niet gebruikt wordt, trek dan de stekker uit het stopcontact. evt. ook antenne of kabelsystemen. Dit zal voorkomen dat er schade wordt veroorzaakt bij blikseminslagen en piekspanningen op het elektriciteitsnet.
- Vervanging van onderdelen – Als er vervangende onderdelen nodig zijn, wees er dan zeker van dat de reparateur originele reserve onderdelen installeert, of onderdelen met dezelfde karakteristieken. Verkeerde verwisselingen kunnen resulteren in brand, elektrische schokken , ongewenste straling of andere gevaren.
- Veiligheidscontrole – Na een reparatie of onderhoud van dit product door derden dient u de leverancier te vragen of deze het product wil gaan testen op veiligheid. Dit om vast te stellen dat het product in een goede staat verkeert en goed functioneert.
- Indien het product zo beschadigd is dat inwendige (onder)delen zichtbaar zijn mag de stekker NOOIT in het stopcontact worden geplaatst én het product NOOIT worden ingeschakeld. Neem in dit geval contact op met de dealer.
- Als u het product een tijd lang niet gebruikt heeft en het weer wil gebruiken kan er condens ontstaan; laat het product eerst op kamertemperatuur komen alvorens het weer in werking te stellen.
- Om ongevallen in bedrijven te voorkomen moét rekening worden gehouden met de daarvoor geldende richtlijnen en moeten de aanwijzingen/waarschuwingen worden gevolgd.
- Het product buiten bereik van kinderen houden.
- Gebruik geen overmatige kracht bij het bedienen van de schakelaars en knoppen.
- Indien zowel de stekker en/of netsnoer als snoeringang in het product beschadigd zijn dient dit door een vakman hersteld te worden.
- In het product bevinden zich onder spanning staande onderdelen; open daarom NOOIT dit product.
- Wanneer het product aan de muur bevestigd moet worden dient eerst zorgvuldig berekend te worden of het plateau en muurbeugels deze wel kunnnen dragen. Kunt u het niet berekenen schakel dan vakbekwaam personeel in.

Kenmerken

Power Dynamics Professionele stereo audio-versterkers hebben de volgende kenmerken :

- Blauw LCD Display
- Hoog uitgangsvermogen
- Buitengewone geluidskwaliteit
- Temperatuurbeveiliging
- Stereo en Bridge Mode
- Signaal, Clip & Protect -indicator voor elk kanaal
- XLR & 6.3mm jack ingangen
- Luidspreker NL4 & schroefaansluitingen
- Temperatuur afhankelijke ventilatoren

VOORZIJDE



1. **Koeling.**
   Rooster voor geforceerde koeling van de luchtstroom.

2. **Volume-regelaars.**
   Regelaars voor beide kanalen. Wanneer de clip indicatoren (4) branden dienen de regelaars linksom te worden gedraaid.

3. **Protect-indicator.**
   Wanneer er iets defect raakt in de versterker zal deze in protect mode gaan en zullen de LED(s) gaan branden. Oorzaak kan zijn: Slechte ventilatie, een lagere impedantie dan 4 Ohm, defecte ventilator(en), kortsluiting (ook in de bekabeling).

4. **Clip-indicator.**
   Deze LEDs gaan branden wanneer de versterker aan het maximum van z'n vermogen zit, de versterker gaat dan vervormen. De volume regelaars dienen dan onmiddellijk lager (minimum) gedraaid te worden. Soms gaan deze LEDs aan en uit, dit kan nóg geen probleem zijn.

5. **Signaal-indicatoren.**
   Deze LEDs geven aan wanneer er audiosignalen aanwezig zijn..

6. **Netschakelaar.**
   Voor het inschakelen van de versterker. Altijd de volume regelaars op minimum zetten alvorens de versterker in te schakelen.

7. **Blauw LCD Display**

8. **Belasting 2/4/8 Ohm**.
   Selecteer de belasting die overeenkomt met de impedantie van de luidsprekers.

DISPLAY

Standaard indicatie:

Lijn-1: Hier staat het uitgangsvermogen van beide kanalen door de versterker berekent.
NB: Selecteer de juiste impedantie (toets 8 aan voorzijde)

Lijn-2: Als hier staat “CLIP ON” is het kanaal overbelast. Zet volumeregelaar(s) op een lager niveau.

Lijn-3: Als hier staat “PROT ON” is het kanaal in protectie.

Lijn-4: Hier is de temperatuur van beide kanalen weergegeven.

Bargraph: Het niveau (verticale balk) van het uitgangssignaal van beide kanalen wordt in het midden van de LCD display weergegeven.

Weergave gedurende een paar seconden indien aan de volumeregelaar wordt gedraaid:

Lijn-1: Mode STEREO of BRIDGE wordt hier weergegeven.

Lijn-2: Limiter (begrenzer) ON (Aan) of OFF (Uit).

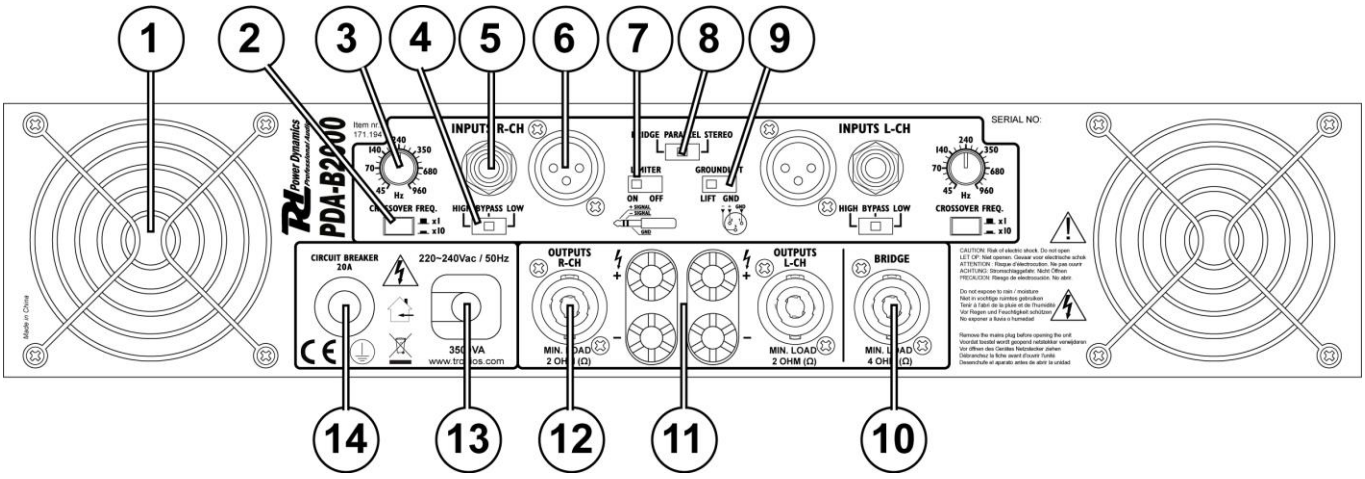
Lijn-3 & 4: ATTEN = het ingangsniveau van beide kanalen, deze worden in lijn 4 weergegeven.

Bargraph: Het niveau (verticale balk) van het uitgangssignaal van beide kanalen wordt in het midden van de LCD display weergegeven.

Gedurende een paar seconden wordt de uitgangsimpedantie weergegeven die met toets 8 wordt ingesteld:

De versterker heeft deze instelling nodig om het uitgangsvermogen te berekenen.

ACHTERZIJDE

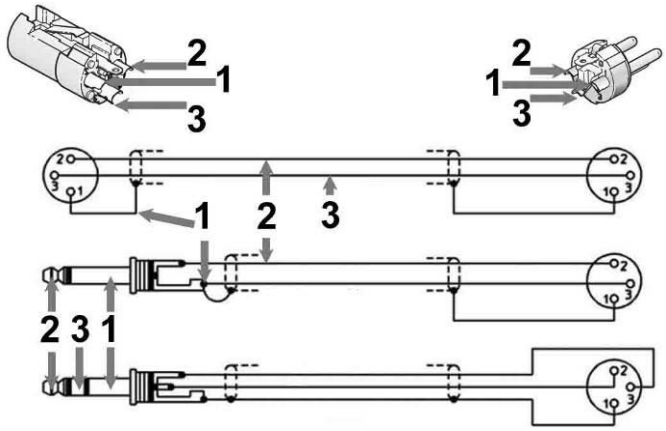


1. **Ventilator-opening.**
   Ventilator-opening voor het geforceerd koelen van de luchtstroom.
2. **Cross-over schakelaar.**
   x1=45-960Hz, x10=450-9600Hz
3. **Instellen cross-over frequentie.**
4. **Filter selectieschakelaar.**
5. **Ongebalanceerde 6.3mm Stereo Jack -ingangen**.
   Twee 6.3mm stereo jack -ingangen om een audiobron op aan te sluiten (mixer etc.).
6. **Gebalanceerde XLR -ingangen**.
   Twee 3-pin XLR -ingangen om een audiobron op aan te sluiten (mixer etc.).
7. **Limiter Schakelaar**
   Schakelaar voor automatische begrenzing van het signaal.
8. **Mode Schakelaar.**
   De versterker kent 3 verschillende modes: stereo, bridge & parallel (mono) :
   Stereo mode: Standaard Links / Rechts stereo mode.
   *Bridge mod*e: Deze mode combineert beide versterkers met één uitgang, hetgeen resulteert in een dubbel uitgangs-vermogen op die uitgang. Het vermogen kan worden geregeld met de linker volume-regelaar.
9. **Ground Lift Schakelaar.**
   Om massa van het chassis te scheiden in geval van een aardlus (hum).
10. **Bridge NL4 uitgang.**
    In bridge mode is de uitgangs-impedantie 4 Ohm per kanaal.
    Pin +1 & +2 = + uitgang, Pin -1 & -2 = - uitgang
11. **Schroefaansluitingen.**
    Luidspreker-uitgangen : 4 Ohm per kanaal. In bridge mode 8 Ohm.
12. **Stereo NL4 uitgang.**
    In stereo mode is de uitgangs-impedantie 2 Ohm per kanaal.
    Pin +1 & +2 = + uitgang, Pin -1 & -2 = - uitgang
13. **Netentree.**
    Netsnoer ingang
14. **20A Automatische zekering**

Installatie

Ingangen

Beide ingangen zijn gebalanceerd. Als een gebalanceerde uitgang niet beschikbaar is, kan ook een ongebalanceerde gebruikt worden, verbind pin 3 – met pin1 massa (zie hieronder). Ongebalanceerde kabels/snoeren kunnen noise veroorzaken over lange afstand.



1= aarde / massa, 2=signaal +, 3=signaal –

Aansluiten van de uitgang

Zorg er voor dat de versterker uitgeschakeld is tijdens de bekabeling van de installatie. Luidsprekers kunnen worden aangesloten m.b.v. NL4 connectoren of via schroefaansluitingen. Gebruik onderstaande informatie voor het bepalen van de dikte van de aansluitsnoeren:

Afstand(m)	Dikte(mm2)
<10m	1.5mm2
>10m <20m	2.5mm2
>20m <30m	4.0mm2

Sluit de luidsprekers aan op de positieve (+) uitgangen van beide uitgangen **en nooit op de (-) of massa**. Gebruik de (–) negatieve uitgangen **nooit** in Bridge Mode.

Netaansluiting

Zorg er voor dat de aangegeven netspanning op de achterkant van de versterker overeenkomt met de aangeboden netspanning. Sluit het netsnoer eerst aan op de versterker, zet alle volume-regelaars op minimum, zet de netschakelaar van de versterker in de Uit-stand en steek dan pas de stekker in de wandcontactdoos (stopcontact). Zet de versterker aan.

Lees eerst onderstaande informatie:

- Zorg er voor dat de bekabeling juist is aangesloten!
- Zijn de luidsprekers geschikt voor deze versterker?
- Nooit ventilatiegaten afdekken!
- Voorkom blootstelling aan regen en/of vocht!
- Verwijder nooit de luidsprekersnoeren tijdens gebruik!

Specificaties

Specification	PDA-B1500	PDA-B2000	PDA-B2500
Ref. No.	171.193	171.194	171.196
4 Ohm Stereo Power (RMS)	2x 750W	2x 1000W	2x 1200W
8 Ohm Stereo Power (RMS)	2x 500W	2x 600W	2x 800W
2 Ohm Stereo Power (RMS)	2x 1000W	2x 1500W	2x 1700W
8 Ohm Bridge Power (RMS)	1500W	2000W	2400W
4 Ohm Bridge Power (RMS)	2000W	2800W	3200W
Frequentie bereik	10Hz – 50kHz (±1.5dB)		
Ingangsgevoeligheid	770mV		
Maximum ingangsniveau	21dBv/9v		
Ingangs Impedantie	20kOhm		
Signal/Noise Ratio	>95dB		
Crosstalk @ 8 Ohm / 1kHz Rated Output Power 8 Ohm / 1kHz	>105dB		
Damping Factor @ 8 Ohm / 1kHz	>500		
Slew Rate Intern	60V/µS		
Protectie	Short Circuit, Current Limited, DC Fault, AC Line Fuse, Thermal Cut Off, Power Up/Down, Slow Start		
Aansluitspanning	220-240Vac, 50Hz		
Afmetingen (bxhxd)	482 x 380 x 88mm (19” x 2U)		
Gewicht	17kg	21,6g	22,1kg

N.B. Veranderingen en modificaties kunnen door de fabrikant worden doorgevoerd zonder u er van in kennis te stellen.

Afgedankte artikelen !!

Raadpleeg eventueel www.wecycle.nl en/of www.vrom.nl v.w.b. het afdanken van elektronische apparaten in het kader van de WEEE-regeling. Vele artikelen kunnen worden gerecycled, gooi ze daarom niet bij het huisvuil maar lever ze in bij een gemeentelijk depot of uw dealer. Lever ook afgedankte batterijen in bij uw gemeentelijk depot of bij de dealer, zie www.stibat.nl .

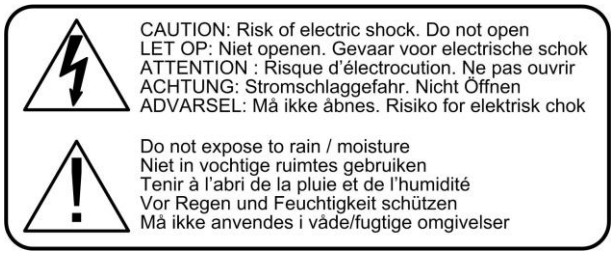
Garantie is niet van toepassing indien ongelukken of beschadigingen plaatsvinden veroorzaakt door onjuist gebruik of het niet opvolgen van het gestelde (o.a waarschuwingen) in deze handleiding.
Tronios BV kan niet verantwoordelijk worden gehouden voor schade in welke vorm dan ook, indien het gestelde in de handleiding (o.a waarschuwingen) niet wordt gerespecteerd.
Alle (defecte) artikelen dienen gedurende de garantieperiode altijd retour te worden gezonden in de originele verpakking.

Sicherheitshinweise

WARNUNG: UM FEUER- UND STROMSCHLAGGEFAHR ZU VERMEIDEN, DAS GERÄT VOR REGEN UND FEUCHTIGKEIT SCHÜTZEN.

VORSICHT:

1. Behandeln Sie die Netzschnur mit Sorgfalt und beschädigen oder verformen Sie sie nicht. Eine beschädigte oder verformte Netzschnur kann Stromschlag und Defekte verursachen. Beim Abziehen des Steckers aus der Steckdose immer am Stecker anfassen, nie an der Schnur ziehen.
2. Niemals das Gehäuse öffnen, um Stromschlag zu vermeiden. Im Problemfall wenden Sie sich an Ihren Fachhändler.
3. Keine Metallgegenstände oder Flüssigkeiten ins Gehäuse dringen lassen. Sie können zu Stromschlag und Störungen führen.



Wichtige Sicherheitshinweise

Das Gerät niemals auf einen unsicheren Wagen, Ständer, Stativ oder Tisch stellen. Das Gerät kann herunterfallen und Menschen verletzen. Nur mit einem vom Hersteller zugelassenen oder mit dem Gerät zusammen verkauften Wagen, Stativ, Ständer oder Tisch benutzen

Beim Anbringen des Geräts an der Decke oder Wand die Anweisungen des Herstellers befolgen und die vom Hersteller empfohlenen Montagematerialien benutzen.

Wenn das Gerät auf einem Gestell steht, das Ganze vorsichtig bewegen. Plötzliches Bremsen, große Kraftanwendung und unebene Flächen können zum Umkippen führen.

Bitte lesen Sie diese Anleitung sorgfältig vor der Inbetriebnahme durch. Anleitung für spätere Bezugnahme aufbewahren.

Alle Warnhinweise auf dem Gerät und in der Anleitung genau befolgen.

Das Gerät nicht in der Nähe von Wasser benutzen z.B. neben einer Badewanne, Spüle, Waschmaschine, in einem nassen Keller oder in der Nähe eines Swimming Pools.

Das Gerät muss so installiert sein, dass die Belüftung nicht behindert wird. Es darf nicht auf ein Sofa, ein Bett, einen Sessel oder ähnliche Unterlagen gestellt werden, die die Belüftungsöffnungen blockieren können. Nicht in ein geschlossenes Gehäuse wie einen Schrank einbauen, wo die Hitze nicht abgeführt werden kann.

Das Gerät nicht in der Nähe von Wärmequellen wie Heizkörpern, Öfen und ähnlichen Geräten, die Wärme abgeben (Verstärker inbegriffen) aufstellen.

Das Gerät nur an eine Netzsteckdose anschließen, deren Spannung und Frequenz der auf der Rückseite des Geräts angegebenen entspricht.

Das Netzkabel muss so verlegt werden, dass es nicht betreten oder gequetscht werden kann, besonders in der Nähe der Steckdose und am Geräteaustritt.

Vor dem Reinigen den Netzstecker abziehen.

Das Gerät niemals mit Benzin, Verdünnungsmitteln und anderen Lösungsmitteln reinigen. Nur ein weiches, feuchtes Tuch benutzen.

Bei längerem Nichtgebrauch den Netzstecker abziehen.

Das Gerät muss von einem Techniker überprüft werden, wenn:

- das Netzkabel oder die –schnur beschädigt sind;
- das Gerät Regen oder anderen Flüssigkeiten ausgesetzt war;
- das Gerät nicht richtig funktioniert oder eine beachtliche Leistungsänderung aufweist;
- das Gerät gefallen oder das Gehäuse beschädigt ist.

VERSUCHEN SIE NIE, DAS GERÄT SELBST ZU REPARIEREN. REPARATUREN DÜRFEN NUR VON QUALIFIZIERTEM FACHPERSONAL AUSGEFÜHRT WERDEN.

Nach Durchführung von Wartungs- und Reparaturarbeiten holen Sie sich von dem Reparaturbetrieb die Versicherung ein, dass nur vom Hersteller empfohlene Ersatzteile verwendet wurden, die genau dieselben technischen Daten aufweisen wie die Originalteile, und dass alle Routineüberprüfungen durchgeführt wurden, um die Sicherheit des Geräts zu gewährleisten.

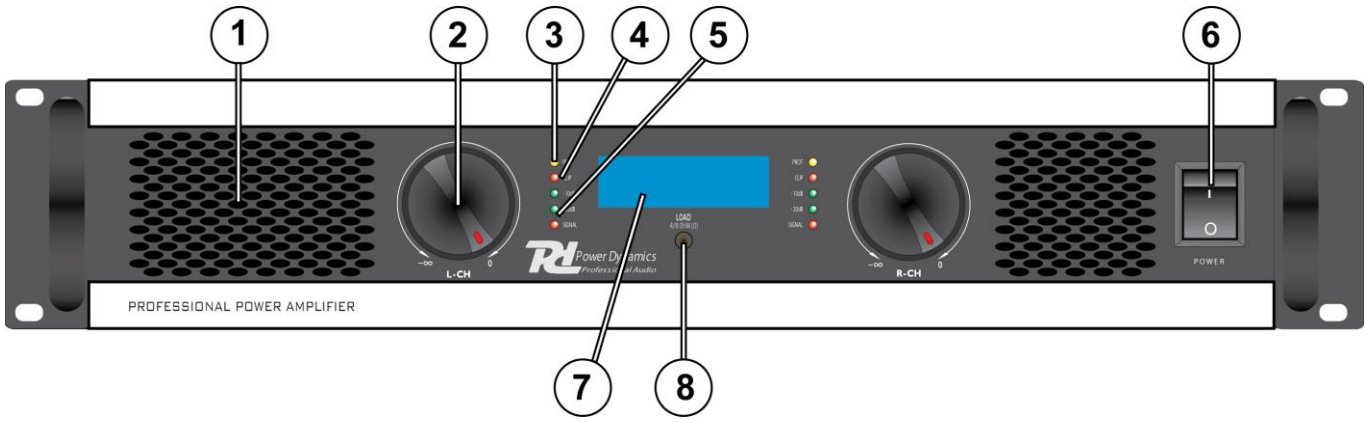
DER GEBRAUCH UNGEEIGNETER ERSATZTEILE KANN FEUER AUSLÖSEN

Merkmale

Professionelle Audio Stereo-Verstärker von Power Dynamics zeichnen sich durch hohe Ausgangsleistung und ein ausgezeichnetes Preis-/Leistungsverhältnis aus. Die CPA Serie ist ideal für den Einsteiger-DJ, kleine Festanlagen in Pubs, Clubs, Kantinen usw. oder als Ergänzung in grösseren Disco Anlagen

- Blaue LCD Anzeige
- Hohe Ausgangsleistung
- Ausgezeichnete Klangqualität
- Hitzeschutz
- Stereo und Brückenbetrieb
- Signal, Clip & Schutzanzeige für jeden Kanal
- XLR & 6.3mm Klinkeneingänge
- NL4 Lautsprecherbuchsen & Schraubanschlüsse
- Temperaturgeregelte Ventilatoren

FRONTSEITE



1. **Belüftungsgitter**

Forcierte Kühlung von vorne nach hinten.

2. **Lautstärkeregler**

Sie reglen die Lautstärke jedes Kanals. Leicht nach links drehen, wenn die Clip Anzeiger (4) aufleuchten.

3. **Schutzanzeige**

Wenn ein Problem auftritt, dass den Verstärker beschädigen könnte, schaltet er in Schutzbetrieb und die ‘Protect’ LED leuchtet auf. Der Grund kann sein: unzulängliche Belüftung, niedrige Impedanz (<4 Ohm), defekte Ventilatoren, Kurzschluss in den Kabeln.

4. **Clip Anzeige**

Diese LEDs leuchten auf, wenn einer oder beide Kanäle auf Höchstleistung eingestellt sind. Es kann vorkommen, dass diese LEDs zeitweilig aufleuchten. Das ist kein Problem. Wenn sie aber ständig aufleuchten, müssen Sie die Lautstärke reduzieren, sonst kann der Verstärker dauerhaften Schaden nehmen kann.

5. **Signal Anzeige**

Diese LEDs zeigen an, wenn ein Audiosignal anliegt.

6. **Netzschalter**

Zum Ein- und Ausschalten des Verstärkers. Drehen Sie immer die Lautstärke herunter, bevor Sie den Verstärker einschalten.

7. **Blaue LCD Display**

8. **Impedanz Schalter 2/4/8 Ohm**

Kontrolieren Sie ob die Impedanz des Lautsprechers 2,4 oder 8 Ohm ist und schalten Sie mit Schalter 8 auf 2/4/8 Ohm.

DISPLAY

Standard Indikation:

Zeile-1: Hier wird die Ausgangsleistung angezeigt der beiden Kanäle, vom Verstärker berechnet.
Hinweis: Selektieren Sie 4 oder 8 Ohm Impedanz (Frontseite taste 8)

Zeile-2: Bei Überlastung eines Kanals lautet die Anzeige “CLIP ON” . Drehen Sie die Lautstärkeregler auf Minimum.

Zeile-3: Wenn die Anzeige lautet “PROT ON” tritt den Überlastschutz in Kraft.

Zeile-4: Hier wird die Temperatur von beiden Kanälen angezeigt.

Balkendiagramm: Das Niveau (vertikaler Strich) der Ausgang der beiden Kanäle wird in der Mitte des LCD-Displays angezeigt.

Indikation (für ein paar Sekunden) wenn der Lautstärkeregler gedreht wird:

Zeile-1: STEREO oder BRIDGE-Modus wird hier gezeigt.

Zeile-2: Limiter ist ON (Ein) oder OFF (Aus).

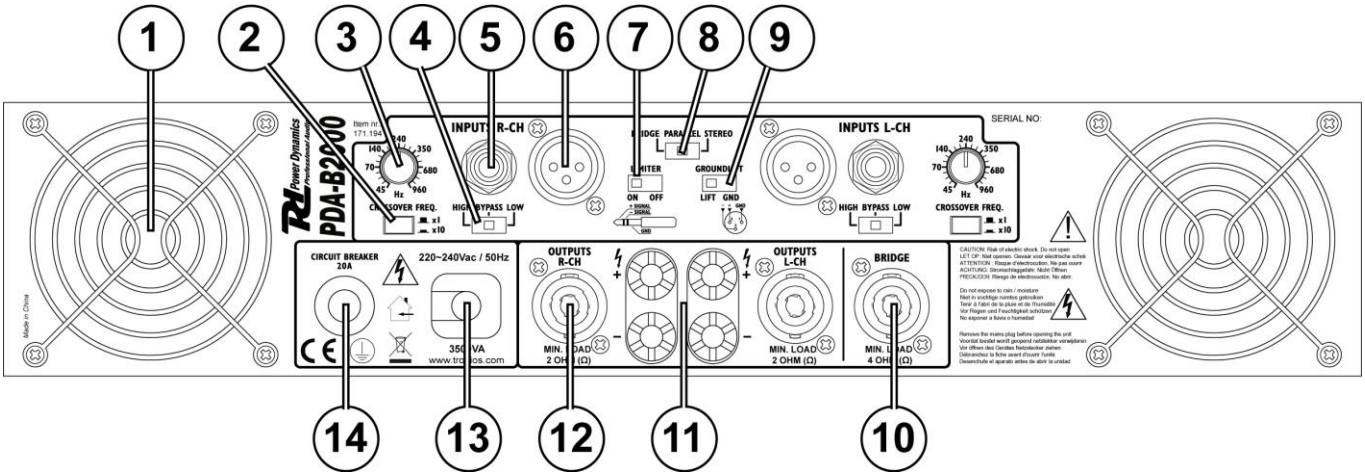
Zeile-3 & 4: ATTEN = Eingangspegel der beide Kanäle wird hier gezeigt.

Balkendiagramm: Das Niveau (vertikaler Strich) der Ausgang der beiden Kanäle wird in der Mitte des LCD-Displays angezeigt.

Für ein paar Sekunden wird der Ausgangsimpedanz gezeigt (mit Taste 8 gewählt):

Der Verstärker benötigt die Einstellung um die Ausgangsleistung zu berechnen.

RÜCKSEITE

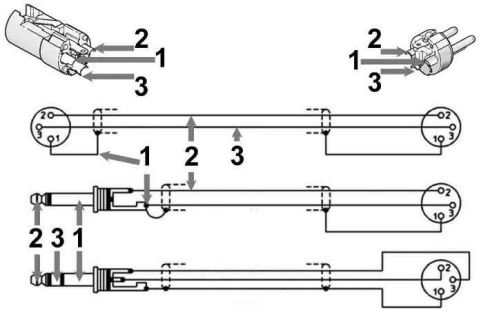


1. **Belüftungsgitter**
   Ventilatoröffnung zur Kühlung des Verstärkers.
2. **Cross-over Schalter**
   X1=45-960Hz , x10=450-9600Hz
3. **Einstellung Cross-over Frequenz**
4. **Filter wahlschalter**
5. **Asymmetrische 6.3mm Stereo Klinkeneingänge**
   Zwei 6,3mm Stereo Klinkenbuchsen zum Anschluss einer Signalquelle (Mischpult usw.).
6. **Symmetrische XLR Eingänge**.
   Zwei 3-pol. XLR Eingangsbuchsen zum Anschluss einer Signalquelle (Mischpult usw.)
7. **Limiter Schalter**
8. **Mode Schalter**
   Der Verstärker kann in 3 Betriebsarten funktionieren: Stereo, Mono und gebrückt . Wählen Sie eine dieser Betriebsarten:
   Stereo Betrieb: Standard Links / Rechts Stereo Betrieb.
   Brückenbetrieb: Diese Betriebsart vereinigt beide Kanäle auf einem Kanal, wodurch sich die Leistung dieses Kanals verdoppelt. Schliessen Sie das Signal an den linken Eingangskanal an und der Ausgangspegel kann nun mit dem linken Lautstärkeregler eingestellt werden.
9. **Ground Lift Schalter**
   Trennt die Schaltungen von der Masse, falls Probleme mit Erdschleifen auftauchen (Brummgeräusche).
10. **Brückenbetrieb NL4 Ausgang.**
    Im Brücken Betrieb beträgt die Lastimepdanz 4 Ohm pro Kanal.
    Pin +1 & +2 = + Ausgang, Pin -1 & -2 = - Ausgang
11. **Schraubanschlüsse**
    Lautsprecherausgänge: 4 Ohm pro Kanal. Im Brückenbetrieb 8 Ohm.
12. **Stereo NL4 Ausgang.**
    Im Brücken Betrieb beträgt die Lastimepdanz 2 Ohm pro Kanal.
    Pin +1 & +2 = + Ausgang, Pin -1 & -2 = - Ausgang
13. **Netzkabeleingang**
14. **20 Amp Auto-Sicherung**

Aufbau

Eingänge

Beide Eingänge sind symmetrisch. Wenn kein symmetrischer Ausgang zur Verfügung steht, können Sie auch einen asymmetrischen Ausgang benutzen. Schliessen Sie Pin 3 mit Pin 1 Masse (s.u.) zusammen. Bei einer asymmetrischen Verbindung können bei längeren Kabelwegen Störungen auftreten.



1= Erde/Masse, 2=Signal +, 3=Signal –

Anschluss des Ausgangs

Während der Anschlüsse muss der Verstärker ausgeschaltet sein. Die Lautsprecher können über die NL4 Buchsen oder über Drähte an die Schraubklemmen angeschlossen werden. Wählen Sie in der nachstehenden Tabelle die geeignete Drahtstärke, die der Entfernung zwischen Verstärker und Lautsprecher entspricht.

Abstand(m)	Stärke(mm²)
<10m	1.5mm²
>10m <20m	2.5mm²
>20m <30m	4.0mm²

Schliessen Sie die Lautsprecher an die positiven (+) Ausgänge beider Ausgänge an **und nicht an die den (-) Ausgang oder die Masse**. Die negativen Ausgänge dürfen im Brückenbetrieb **NICHT** benutzt werden.

Netzanschluss

Bevor Sie den Verstärker ans Netz anschliessen, vergewissern Sie sich, dass die Netzspannung der Versorgungsspannung des Verstärkers entspricht. Schliessen Sie erst das IEC Ende ans Gerät an und dann den Netzstecker.

Lesen Sie bitte nachstehende Anweisungen, um einen zuverlässigen und problemlosen Betrieb zu gewährleisten:

- Achten Sie darauf, dass alle Kabel richtig angeschlossen sind!
- Prüfen Sie, ob die Lautsprecher für diesen Verstärker geeignet sind!
- Niemals die Belüftungsgitter abdecken!
- Vor Regen und Feuchtigkeit schützen!
- Lautsprecherkabel nicht während des Betriebs einstecken oder abziehen!

Technische Daten

Specification	PDA-B1500	PDA-B2000	PDA-B2500
Ref. No.	171.193	171.194	171.196
4 Ohm Stereo Power (RMS)	2x 750W	2x 1000W	2x 1200W
8 Ohm Stereo Power (RMS)	2x 500W	2x 600W	2x 800W
2 Ohm Stereo Power (RMS)	2x 1000W	2x 1500W	2x 1700W
8 Ohm Bridge Power (RMS)	1500W	2000W	2400W
4 Ohm Bridge Power (RMS)	2000W	2800W	3200W
Frequenz Bereich	10Hz – 50kHz (±1.5dB)		
Eingangs Empfindlichkeit	770mV		
Maximum Eingangspegel	21dBv/9v		
Eingangs Impedanz	20kOhm		
Signal/Noise Ratio	>95dB		
Crosstalk @ 8 Ohm / 1kHz Rated Output Power 8 Ohm / 1kHz	>105dB		
Damping Faktor @ 8 Ohm / 1kHz	>500		
Slew Rate Intern	60V/µS		
Protektion	Short Circuit, Current Limited, DC Fault, AC Line Fuse, Thermal Cut Off, Power Up/Down, Slow Start		
Stromversorgung	220-240Vac, 50Hz		
Abmessungen (bxhxd)	482 x 380 x 88mm (19” x 2U)		
Gewicht	17kg	21,6g	22,1kg

Tronios BV Registrierungsnummer : DE51181017 (ElektroG).
Dieses Produkt darf am Ende seiner Lebensdauer nicht über den normalen Haushaltsabfall entsorgt werden, sondern muss an einem sammelpunkt für das Recycling abgegeben werden. Die Werkstoffe sind gemäß ihrer Kennzeichnung wieder verwertbar. Hiermit leisten Sie einen wichtigen Beitrag zum Schutze unserer Umwelt.

Tronios BV Registrierungsnummer : 21003000 (BatterieG).
Lithiumbatterien und Akkupacks sollten nur im entladenen Zustand in die Altbatteriesammelgefäße bei Handel und bei öffentlich-rechtlichen Entsorgungsträgern gegeben werden. Bei nicht vollständig entladenen Batterien Vorsorge gegen Kurzschlüß treffen durch Isolieren der Pole mit Klebestreifen.

Der Entnutzer ist zur Rückgabe von Altbatterien gesetzlich verpflichtet.

Die Spezifikationen sind typisch. Die Werte können leicht von einem Gerät zum anderen ändern. Spezifikationen können ohne vorherige Ankündigung geändert werden.

Garantie gilt nicht, wenn Unfälle oder Schäden, durch unsachgemäße Handhabung oder Nichtbeachtung der vorgeschriebenen (einschließlich Warnungen) in diesem Handbuch, entstehen.
Tronios BV haftet nicht für Schäden in jeglicher Form, wenn die Vorschriften im Handbuch (zB Warnungen) nicht eingehalten werden.
Alle (fehlerhafte) Ware werden während der Garantiezeit immer in der Originalverpackung an den Fachhändler gesendet.

Información Importante de Seguridad

ADVERTENCIA:
PARA PREVENIR INCENDIOS O DESCARGAS ELÉCTRICAS, NO EXPONGA ESTE APARATO A LA LLUVIA O A LA HUMEDAD.

PRECAUCIÓN:
1. Trate con cuidado el cable de la fuente de alimentación. No lo dañe o deforme. Si se daña o deforma, puede causar descargas eléctricas o fallos cuando se utilice. Cuando lo desconecte de la toma de corriente, asegúrese de hacerlo sujetando la clavija, no estirando del cable.
2. Para prevenir descargas eléctricas, no abra la tapa superior. Si hay algún problema, contacte con su distribuidor.
3. No coloque objetos metálicos o derrame líquido dentro del aparato. Puede resultar en descarga eléctrica o mal funcionamiento.

EL USO DE OTROS CONTROLES, AJUSTES O REFORMAS DE PROCEDIMIENTOS QUE NO SE ESPECIFICAN AQUÍ PUEDEN RESULTAR EN LA EXPOSICIÓN DE RADIACIÓN PELIGROSA. EL APARATO NO DEBERÍA AJUSTARSE O REPARARSE POR CUALQUIERA QUE NO SEA PERSONAL DEBIDAMENTE CUALIFICADO CON EL AISLAMIENTO ADECUADO. CUANDO SE REPARE, UTILICE SOLAMENTE PIEZAS DE RECAMBIO IDÉNTICAS.

PRECAUCIÓN: PARA PREVENIR:
RIESGOS DE DESCARGAS ELÉCTRICAS, NO ABRA LA TAPA SUPERIOR (O LA TRASERA). NO HAY PIEZAS REPARABLES DENTRO. DEJE LAS REPARACIONES PARA UN SERVICIO TÉCNICO CUALIFICADO.


El símbolo del rayo acabado en flecha, dentro de un triángulo equilátero, se utiliza para alertar al usuario de la presencia de “voltaje peligroso” sin aislamiento dentro del recinto del producto, que puede ser de suficiente magnitud como para constituir un riesgo de descargas eléctricas a personas.


El símbolo de exclamación dentro de un triángulo equilátero, se utiliza para alertar al usuario de la presencia de instrucciones importantes de funcionamiento y mantenimiento (reparación) en el manual que acompaña al aparato.

NOTA:
Este aparato puede provocar interferencias en la recepción de su radio y televisión.

Instrucciones Importantes de Seguridad

1. Lea las instrucciones – Todas las instrucciones de funcionamiento y de seguridad deberían leerse antes de utilizar el producto.
2. Guarde las instrucciones — Las instrucciones de funcionamiento y de seguridad deberían guardarse para futuras consultas.
3. Preste atención a las advertencias — Todas las advertencias en el producto y en el manual de instrucciones deben seguirse al pie de la letra
4. Siga las instrucciones — Deberían seguirse todas las instrucciones de utilización y funcionamiento.
5. La instalación inapropiada puede provocar daños serios a personas y propiedades.
6. Agua y humedad — El aparato no debería usarse cerca del agua - por ejemplo, cerca de una bañera, lavabo, fregadero, lavadero, en un suelo mojado, o cerca de una piscina, o parecido.
7. Carretillas y soportes — El aparato debería utilizarse únicamente con carretillas o soportes que se recomienden por el fabricante. El aparato colocado en una carretilla debería moverse con cuidado.

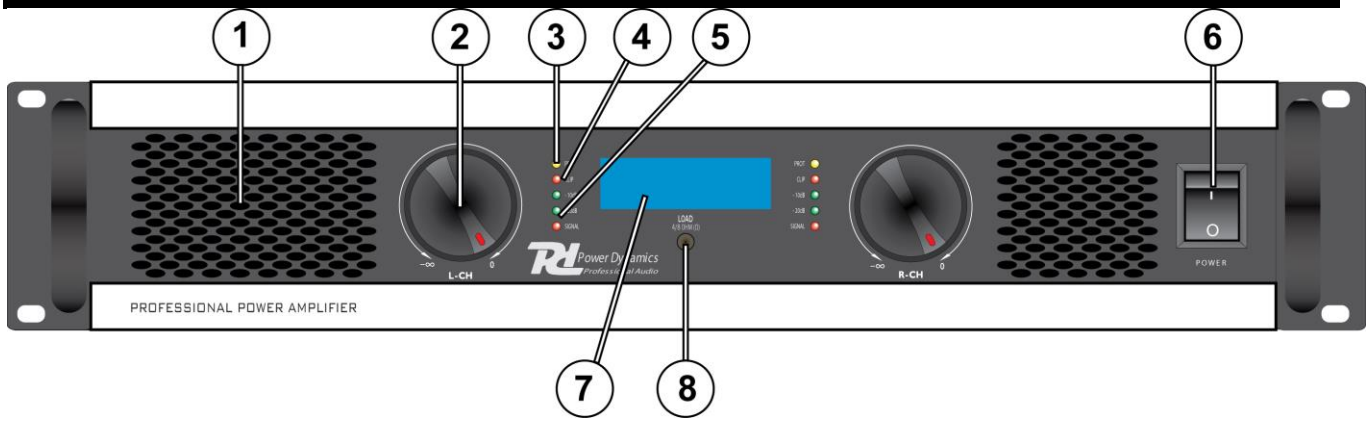
Las paradas bruscas, la fuerza excesiva, y las superficies irregulares pueden hacer que la carretilla y el aparato vuelquen.
8. Montaje en techo o pared — El producto debería montarse en techo o paredes según las recomendaciones del fabricante.
9. Calor — El aparato debería colocarse fuera del alcance de fuentes de calor tales como radiadores, registros de calor, estufas, u otros aparatos (incluyendo amplificadores) que desprendan calor.
10. Fuentes de alimentación – Este producto debería funcionar solo con el tipo de alimentación que indica en la etiqueta. Si no está seguro de la corriente que se suministra en su hogar, consulte con su distribuidor o a la compañía eléctrica. Para los productos previstos para que funciones con baterías, u otras fuentes, consulte las instrucciones de funcionamiento.
11. Protección del cable de alimentación — Los cables de alimentación deberían colocarse de manera que no puedan ser pisados o pinchados por productos colocados encima o apoyados en ellos, prestando especial atención a la parte del cable donde está situada la clavija, las bases de enchufe, y los puntos desde donde sale el cable del aparato.
12. Limpieza – El aparato debería limpiarse según las instrucciones del fabricante. Límpielo pasándole un trapo ligeramente humedecido con agua. Evite que le entre agua al aparato.
13. Periodos sin utilización — El cable de alimentación debería estar desenchufado cuando se deje de utilizar el aparato por un largo periodo de tiempo.
14. Entrada de objetos y líquido — Debería cuidar de que no cayeran objetos o se derramara líquido dentro del aparato a través de los orificios.
15. Daños que requieran reparación — El aparato debería repararse por un servicio técnico cualificado cuando:
A. El cable de alimentación o la clavija están dañados; o
B. Objetos han caído, o se derrame líquido en el aparato; o
C. El aparato haya estado expuesto a la lluvia; o
D. El aparato parece que no funciona correctamente o muestra un cambio notable en el funcionamiento; o
E. Se ha caído el aparato, o la carcasa de ha dañado.
16. Reparaciones — El usuario no debería intentar hacer ninguna reparación al aparato fuera de las descritas en el manual de funcionamiento. Todas las otras reparaciones deben dejarse en manos de un servicio técnico cualificado.
17. Ventilación – Las ranuras y orificios en el chasis están provistos para la ventilación y para asegurar el funcionamiento confiable del producto y la protección de sobrecalentamiento, y estos orificios no deben bloquearse ni taparse. Los orificios no deberían bloquearse al colocar el producto en una cama, sofá, alfombra, u otra superficie similar. Este producto no debería colocarse en lugares cerrados como librerías o racks sin ventilación apropiada según las instrucciones del fabricante que han de cumplirse.
18. Acoplamientos – no use acoplamientos que no haya recomendado el fabricante del producto ya que pudiera producir daños.
19. Accesorios – No coloque el producto en carretillas, soportes, trípodes, soportes de pared o tablas inestables. El producto podría caer, causando daños serios a niños o a adultos, y dañar seriamente el producto. Use solamente carretillas, soportes, trípodes, soportes de pared, o tablas recomendadas por el fabricante, o vendidas con el producto. Cualquier montaje del producto debe seguir las instrucciones del fabricante, y deberían utilizarse accesorios recomendados por el.
20. Rayos – Para proteger este producto durante una tormenta, o cuando no va a utilizarse durante un largo periodo de tiempo, desenchúfelo de la toma de corriente y desconecte la antena o sistema de cables. Esto evitará posibles daños en el producto debido a subidas de tensión producidas por un rayo o por la compañía eléctrica.
21. Recambios – Cuando se necesite cambiar una pieza, asegúrese de que el servicio técnico ha utilizado piezas de recambio especificadas por el fabricante o que poseen las mismas características que la pieza original. Los repuestos no autorizados pueden provocar incendios, descargas eléctricas, u otros daños.
22. Comprobaciones de seguridad – Una vez terminada cualquier servicio o reparación de este producto, pida al servicio técnico que efectúe comprobaciones de seguridad para determinar si el producto funciona correctamente.

CARACTERÍSTICAS

El amplificador de audio estéreo Power Dynamics Professional proporciona una alta potencia de salida por poco dinero. El gama de amplificadores CPA son ideales para los DJs amateurs, instalaciones fijas de menor tamaño en pubs, casinos, etc. o como complemento en grandes instalaciones de disco.

- LCD azul que indica temperatura, modo operativo, potencia de salida, protección y nivel de audio.
- Excelente calidad acústica
- Protección contra altas temperaturas
- Modo estéreo y puenteable
- Indicación de Señal, Clip & Protección para cada canal
- Entradas mediante XLR & jack 6.3mm
- Salidas de altavoz por NL4 & bornes
- Refrigeración por ventiladores

Panel Frontal



1. **Ventilación.**
   Flujo de aire de delante hacia atrás.
2. **Controles de volumen.**
   Estos controles ajustan el nivel del volumen de ambos canales. Gírelo ligeramente a la izquierda cuando se enciendan los indicadores de clip (4).
3. **Indicación de protección.**
   Cuando en algún punto determinado, se produce una avería en su amplificador, se conmutará al modo protección. El amplificador desconectará el punto donde se ha producido la avería y encenderá el led de protección para indicarle que hay algo que está mal. Las razones pueden ser: Mala ventilación, Baja impedancia (< 4 Ohm), Ventiladores defectuosos, Un cortocircuito en los cables.
4. **Indicación de Clip.**
   Estos LEDs se encenderán cuando uno o ambos canales están en la máxima potencia. Puede ocurrir que estos LEDs se enciendan de vez en cuando, esto no es un problema. Pero si se enciende continuamente es necesario que disminuya el volumen, de otro modo podría provocar un daño irreparable al equipo.
5. **Indicadores de señal.**
   Estos LEDs naranjas indican los niveles de señal de salida de los amplificadores.
6. **Interruptor On/Off.**
   Para encender o apagar el amplificador. Siempre reduzca el volumen al mínimo antes de encender este amplificador.
7. **Display azul LCD.**
   Informa de los parámetros de trabajo y operativa actual.
8. **Carga 2/4/8 Ohms**.
   Selecciona la carga de altavoces para el calculo correcto de la potencia de salida.

DISPLAY

Indicaciones estandar:

Linea-1: Potencia de salida de ambos canals calculado por el amplificador.
NOTA: Selecione la carga correcta (boton 8)
El calculo no es 100% correcto en modo bridge

Linea-2: Si CLIP ON el amplificador esta sobrecargado. Reduzca el nivel de entrada.

Linea-3: Informacion sobre proteccion.

Linea-4: Temperatura de la salida (finales) de ambos canales

Grafico: Grafico de barras vertical en el centro del display indicando el nivel de salida de ambos canales

Indicaciones unos segundos despues de modificar el volumen:

Linea-1: Modo operacion STEREO o BRIDGE

Linea-2: Limitador ON o OFF

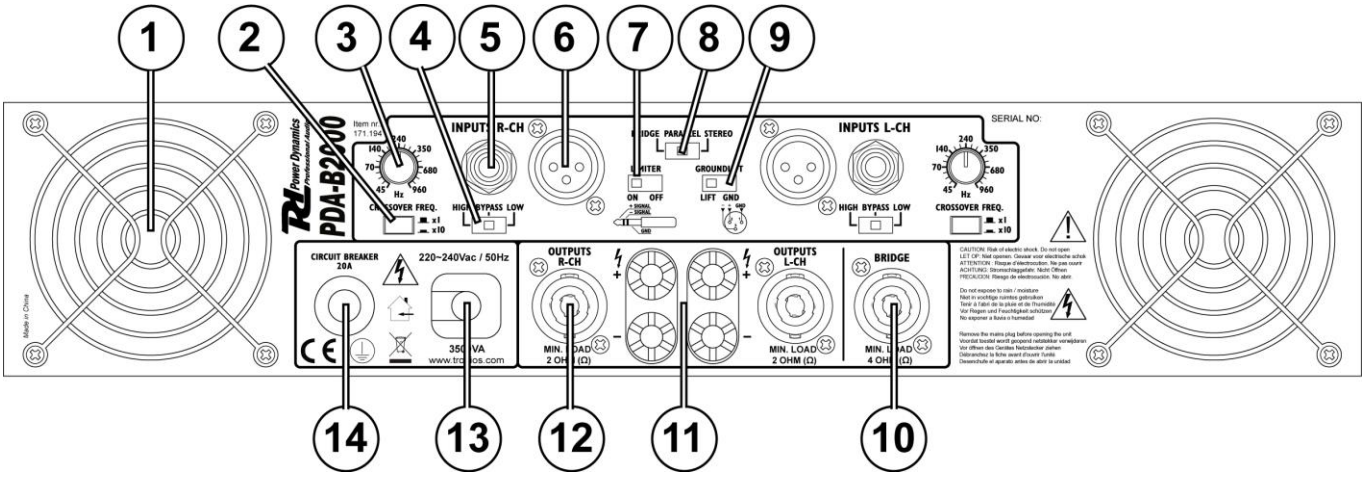
Linea-3 & 4: ATTEN, atenuacion de señal de entrada, linea 4 muestra el nivel.

Grafico: Grafico de barras vertical en el centro del display indicando el nivel de salida de ambos canales

Indicaciones unos segundos despues de modificar la impedancia (8):

Seleccione la correcta impedancia o carga para el calculo de potencia

Panel trasero



1. **Ventilador.**
   Ventilación forzada de delante hacia atrás.

2. **Conmutador de Crossover.**
   x1=45-960Hz ; x10=450-9600Hz

3. **Frecuencia Crossover**
   Ajuste de la frecuencia Crossover

4. **Filtro interruptor de selección**
   High=Filtro High Pass
   Low=Filtro Low Pass
   Bypass=Sin Filtro

5. **Entradas estéreo por Jack 6.3mm**.
   Dos entradas con conector hembra jack de 6.3mm para conectar una fuente de señal (mezclador etc.).

6. **Entradas XLR balanceadas**.
   Dos entradas con conector hembra XLR de 3-pin para conectar una fuente de señal (mezclador etc.).

7. **Interruptor limitador**
   Limitador para controlar la potencia de salida automaticamente.

8. **Conmutador de modo.**
   El amplificador puede trabajar en 3 modos diferentes: estéreo, puente & paralelo (mono). Escoja una de estas funciones:
   Modo estéreo: Modo estéreo estándar izquierdo/derecho.
   Modo puente: Este modo combina ambos amplificadores en un solo canal lo que proporciona el doble de potencia en este canal. Conecta la señal del canal de entrada izquierdo y el nivel de salida ya se puede ajustar con el control de volumen izquierdo.

9. **Conmutador de masa.**
   Permite separar la masa de los circuitos y del chasis en caso de problemas zumbidos típicos de masa.

10. **Salidas de altavoz NL4.**
    Máxima carga en modo puente 4 Ohm por canal.
    Pin +1 & +2 = + salida, Pin -1 & -2 = - salida

11. **Salidas de altavoz por bananas.**
    Máxima carga en modo estéreo/mono 4 Ohm por canal. Máxima carga en modo puente 8 Ohm.

12. **Salidas de altavoz NL4.**
    Máxima carga en modo estéreo 2 Ohm por canal.
    Pin +1 & +2 = + salida, Pin -1 & -2 = - salida

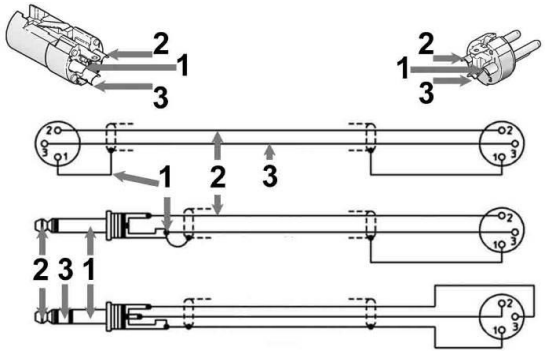
13. **Base de alimentación.**
    220-240Vac / 50Hz

14. **Fusible 20A**

Instalación

Conectar entradas

Ambas entradas son balanceadas. Si no dispone de una salida balanceada, también puede usar una no balanceada, puentee el pin 3 – con el pin1 (masa) (véase debajo). Las líneas no balanceadas pueden generar ruidos si las distancias son muy largas.



1= tierra / masa, 2=señal +, 3=señal –

Conectar salidas

Asegúrese de que el amplificador está apagado antes de hacer las conexiones. Los altavoces pueden conectarse usando conectores NL4 o cable pelado para los bornes. Utilizando la guía que damos a continuación seleccione la sección apropiada del cable según la distancia entre el amplificador y el altavoz.

Distancia	Sección del cable
<10m	1.5mm2
>10m <20m	2.5mm2
>20m <30m	4.0mm2

NOTA: ¡Nunca conecte la salida (+) a masa o a la salida (-) y nunca conecte la salida (+) a otras salidas!

Conecte la alimentación

Antes de enchufar el aparato siempre asegúrese de que la fuente de alimentación se ajusta al voltaje especificado. Primero conecte extremo del cable con el conector IEC a la base IEC en el amplificador y luego conecte el otro extremo del cable a la toma de corriente.

Por favor lea las siguientes instrucciones para un funcionamiento fiable y sin problemas:

- Asegúrese de que todas las conexiones se hayan hecho correctamente.
- Compruebe si los altavoces conectados son compatibles con el amplificador.
- Asegúrese de que haya la ventilación adecuada.
- Evite exponerlo a la humedad.
- Nunca conecte o desconecte los altavoces mientras esté en funcionamiento, ya que puede resultar en serios daños.

Especificaciones

Specification	PDA-B1500	PDA-B2000	PDA-B2500
Modelo Ref. No.	171.193	171.194	171.196
4 Ohm Stereo Potencia (RMS)	2x 750W	2x 1000W	2x 1200W
8 Ohm Stereo Potencia (RMS)	2x 500W	2x 600W	2x 800W
2 Ohm Stereo Potencia (RMS)	2x 1000W	2x 1500W	2x 1700W
8 Ohm Bridge Potencia (RMS)	1500W	2000W	2400W
4 Ohm Bridge Potencia (RMS)	2000W	2800W	3200W
Respuesta en Frecuencia	10Hz – 50kHz (±1.5dB)		
Sensibilidad de Entrada	770mV		
Maximo nivel de entrada	21dBv/9v		
Impedancia de entrada	20kOhm		
Nivel señal/ruido medido A-RMS	>95dB		
Cruce entre canales @ Salida 8 Ohm / 1kHz	>105dB		
Factor Damping @ 8 Ohm / 1kHz	>500		
Slew Rate Interno	60V/µS		
Proteccion	Short Circuit, Current Limited, DC Fault, AC Line Fuse, Thermal Cut Off, Power Up/Down, Slow Start		
Alimentacion	220-240Vac, 50Hz		
Dimenciones (an x a lx pr)	482 x 380 x 88mm (19” x 2U)		
Peso	17kg	21,6g	22,1kg

The products referred to in this manual conform to the European Community Directives to which they are subject:

European Union

Tronios B.V.,

Bedrijvenpark Twente Noord 18,

7602KR Almelo, The Netherlands

2014/35/EU

2014/30/EU

2011/65/EC

CE

United Kingdom

Tronios Ltd.,

130 Harley Street,

London W1G 7JU, United Kingdom

S.I. 2016:1101

S.I. 2016:1091

S.I. 2012:3032

UK CA

www.amateaudio.com

LMS206

Loudspeaker Management System

User's manual

January 2020

Amate Audio S.L.

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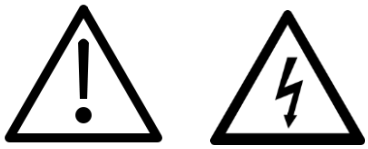
Safety Instructions

1. All safety instructions must be read before using this device.

2. Keep and follow these instructions

3. Heed all warnings



4. The exclamation mark in the triangle indicates internal components which if replaced can affect safety.

5. The lightning symbol within the triangle indicates the presence of dangerous uninsulated voltages.

6. Only clean the device with a dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install the device near heat sources such as radiators, heaters or other heat-emitting elements.

9. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus

10. The equipment must be repaired by qualified technical service personnel when:
A. The mains supply cable is damaged, or
B. Any object or liquid has damaged the device; or
C. The equipment does not function normally or correctly; or
D. The equipment has been exposed to the rain; or
E. The chassis is damaged

11. Disconnect the device in the case of electric storms or during long periods of disuse.

12. WARNING – To reduce the risk of fire or electric shock, do not expose this device to rain or moisture

13. The equipment shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the device.

14. For hanging and installation, use manufacturer recommended accessories only.

1 INTRODUCTION

The **LMS**206 is a complete digital loudspeaker management system designed for the touring or fixed sound installation markets. The absolute latest in available technology is utilized with 64-bit floating point processors and high performance 24-bit Analogue Converters. The high-bit DSP prevents noise and distortion induced by truncation errors of the commonly used 24-bit fixed-point devices. A complete set of parameters include I/O levels, 2 second-delay per channel, polarity, 10 bands of parametric EQ per channel, multiple crossover selections, full function compressor and peak limiter. Precise frequency control is achieved with its 1 Hz resolution. Inputs and outputs can be routed in multiple configurations to meet any requirements.

The **LMS**206 can be controlled or configured in real time on the front panel or with the intuitive PC/Mac GUI accessed via the USB interface. Software upgrade for CPU and DSP via PC keeps the device current with newly developed algorithms and functions once available. Multiple setup storage and system security complete this professional package.

Shipped contents:
- **LMS**206 unit
- AC power cord
- USB cable for PC connection
- 4x Adhesive Rubber feet

2 FEATURES

- Electronically balanced inputs
- Matched-impedance balanced outputs
- 64-bit floating point DSP
- High Performance 24-bit A/D Converters
- 1 Hz Frequency Resolution
- 10 Parametric Equalizers for each Input and Output (EQs can be set as Bell, Notch, High Shelf, Low Shelf, Notch, Allpass, Band Pass, High Pass, Low Pass)
- Multiple Crossover types: Butterworth, Bessel, Linkwitz-Riley, up to 4^{th} order (24dB / oct).
- Up to 2 seconds delay per each input/output
- RMS compressor and ultra-fast attack Peak Limiter.
- Precise Level, Polarity and Delay
- 2-Line x 16 Character Blue Backlit LCD Display
- Signal LED’s on every Input and Output
- Security Lock
- USB Interface for PC/Mac Control and Configuration (on front panel)
- CPU and DSP firmware upgrade via PC/Mac interface
- 2 Inputs and 6 Outputs with flexible routing
- 110dB dynamic range (inputs) / 114dB dynamic range (outputs)
- 48kHz sampling rate
- Low latency (1.32ms)
- Storage of up to 100 Program Setups

3 MAIN CONTROLS AND CONNECTIONS

3.1 The front panel

A) **Mute keys** – Press for Mute/Unmute input and output channels. When a channel is muted, this key will light up in red for indication.

B) **Input signal LEDs** - Show the current level of the Signal: Signal (-48dBu), -6dBu, Limit (orange), Clip (red). The Limit led lights up if a gain reduction is taking place (due to a programmed compressor). The Clip LED references to the device's maximum headroom (+22dBu).

C) **USB Connector** – A standard type B USB connector for interface with a PC or Mac. Software and driver must be installed prior to usage.

D) **Menu Control keys** - There are 6 menu keys: <*Channel* (Previous Channel), *Channel*> (Next Channel), <*Select* (Previous Option), *Select*> (Next Option), *Menu* and *Exit*. The functions of each key is explained below:

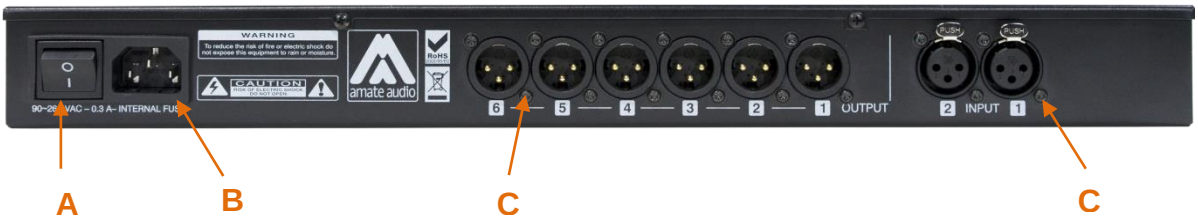
<*Channel:*	Choose previous channel for editing.
Channel>:	Choose next channel for editing
<*Select*:	Select previous parameter for editing
Select>:	Select next parameter for editing
Menu:	This key has different functions depending on when it is used: - In the Main Screen: Access the System Menu. - In the Main Menu allows entering the System Menu.
Exit:	Exit to the Main Menu

E) **LCD** - Shows all the necessary information to control the unit.

F) **Rotary Thumb Wheel** – Turn the wheel to change parameter data values. Click on it to confirm the value entered. The center click of the wheel is also use to browse different parameters of the same feature.

G) **Output signal LEDs** - Show the current level of the output Signal: Signal (-48dBu), -6dBu, Limit (orange), Clip (red). The Limit led lights up if a gain reduction is taking place (due to a programmed compressor). The Clip LED indicates a gain this reduction is higher than 12dB.

3.2 The rear panel



A) **Power switch** - Controls power On/Off.

B) **Main Power** - Connects via a standard IEC socket. A compatible power cord is supplied with the unit. The input voltage range is 85 to 240VAC, 50-60Hz.

C) **XLR input and outputs** - Separate 3-pin XLR connectors are provided for each audio input and output. The device's output stage employs the balanced impedance topology. All I/O connectors have pin 1 as ground (shield), pin 2 as + and pin 3 as -.

4 QUICK INSTALLATION

4.1 Before you start

Before powering up the unit, make sure that the input and output XLR cables are in good state and following the following pinning diagram: 1 for shield, 2 for live(+), 3 for return (-) as defined by the AES14 standard.

Do not connect the unit to your computer before installing the software and the USB Driver. Please refer to installation instructions in this manual.

When connecting the **LMS**206 to the amplifiers, mute the DSP outputs (or turn down the amplifier's volume knobs) until you configure your processing. Loudspeakers may be damaged due to a wrong setup. It is advisable to unmute first the high frequency channels: in case they are connected to low frequency drivers by mistake, they cannot be damaged. Otherwise, high frequency speakers may be damaged because of trying to reproduce low frequencies.

4.2 Power Up

After powering up the unit, all LEDs will be lit for about six seconds, while the following message is displayed on the LCD:

```
Initialising...
```

After that, the DSP unit displays its main screen:

```
AMATE AUDIO
DEFAULT PRESET
```

Now the **LMS**206 unit is ready to operate. The screen shows the name of the unit (above line) and the program name currently active (below line). The program assigned is always the last program the user recalled or stored before powering down the unit.

An admiration mark (!) beside the program name means that the program has been modified but not stored. This symbol does not appear when the modified program is the default preset.

4.3 1 Control Software

The **LMS**206 units can be controlled via a Computer Software which provides a Graphic User Interface (GUI) application - DSPLink. DSPLink allows the user to control the DSP unit from a computer via the USB communication link. For the USB connection, a driver must be installed (included with the DSPLink installation package).

The GUI application makes it much easier to control and monitor the device, allowing the user to get the whole picture on one screen. Programs can be recalled and stored from/to Computer's hard drive, thus expanding the storage to become virtually limitless. See Section 6 of this manual for instructions to operate the software.

DSPLink is available for PC and Mac. Check Amate Audio's website for a latest version download (www.amateaudio.com).

Installation for PC-Windows:
Double click the installation file, depending whether you have a 32 or a 64-bit system:
Amate_Audio_DSPLink_32_bit_v_10_X_X_BuildNr.msi
Amate_Audio_DSPLink_64_bit_v_10_X_X_BuildNr.msi
Follow the on-screen instructions. You may be prompted to install the Microsoft Visual Runtime libraries before finishing the installation. Click the checkbox to proceed with this action.

Installation for Mac:
First unzip the provided installation file:
Amate_Audio_DSPLink_v_10_X_X_BuildNr.mpkg.zip
Then select the .mkpg file with CONTROL+Click and select "Open". Then follow the on-screen instructions.

4.4 Connecting the device to a computer

WARNING: Always install the software package DSPLink before connecting your unit to the computer. See previous section for details.

After installing DSPLink, please use the provided USB cable to connect the unit to your computer. The first time you connect a device, the system will ask you to look

for the driver. Choose the option “do not look for updates and to automatically select the best driver”.

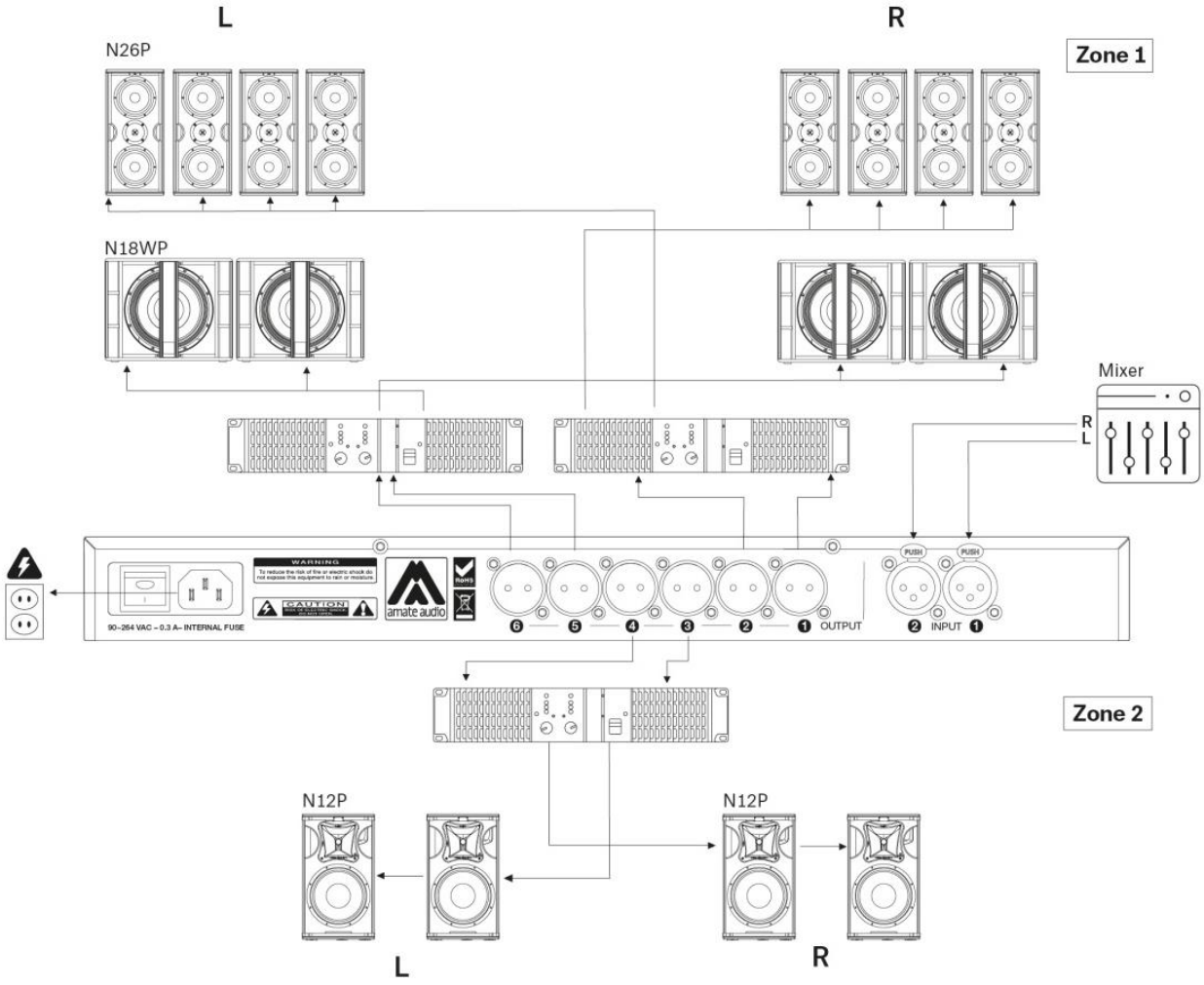
Run DSPLink and the unit will be automatically detected. Click on the arrow next to the detected unit to open the window for parameter edition.

4.5 System Optimization

In order to have a proper start of your system and an optimized configuration, follow these steps by the first configuration:

1. Play a signal at the nominal level from your mixing desk, and set the input gain of your processor to 0dB (Default Preset setting)
2. Set the crossovers that you want to use, while keeping the output gains also at 0dB.
3. With DISCONNECTED loudspeakers, turn up the volume of the power amplifiers entirely clockwise (full volume).
4. Reduce the output gain and / or the output limiter setting to get the desired gain, so that the amplifier is just clipping and the built-in limiters of your processor are just limiting (Orange led blinking at the output channels).
5. Turn down the volume of the power amplifiers, connect your speakers, and slowly increase the volume while checking the sound.
6. Check if the loudspeakers are reproducing distortion-free sound, and the limiter LEDs are flashing or off, but not continuously on. If they are continuously on, reduce the output gain of your processor.
7. If you cannot reach enough signal level, increase the processor's input gain or turn up the level from your mixing desk

4.6 Diagram of a typical setup



With illustrative purposes, a diagram of a **LMS**206 working as audio manager in a typical setup is shown above. The audio processor is used for splitting the stereo signal coming from a mixer in two zones for different public. In fixed setups, is common that these two zones have different acoustical properties so different audio gear is expected. Due the previous considerations, a different signal processing for each zone is expected.

5 OPERATING THE DEVICE

5.1 Input Menus

To access the Input Menus press the <*Channel* or *Channel*> key. Press *Exit* to finish editing or again <*Channel* or *Channel*> to edit other channels.

The following menus are available for each input channel. Please note that by default the inputs and outputs channels are linked in groups of two. The following options are shown for the input group composed of In1 and In2

5.1.1 Input Gain

Adjust the gain of each input, using the rotary knob.

```
In 12   Gain
    -1.25dB
```

5.1.2 Delay

Adjust the delay by turning the rotary knob. Push this knob to switch the unit between ms, ft or m.

```
In 12  Delay
     0.090ms
```

5.1.3 Crossover

• **Low Pass** – First adjust the Low Pass Filter cut-off frequency. To switch it off, turn the rotary knob clockwise until “Off” is displayed.

Second, press the rotary knob and select from the available types and slopes:
Type: Butterworth, Slopes: 6dB, 12dB, 18dB or 24dB
Type: Bessel. Slopes: 6dB, 12dB, 18dB or 24dB
Type: Linkwitz-Riley. Slope: 12dB or 24dB

```
In 12   LowPass
Freq:   15000Hz
```

```
In 12   LowPass
Type: BUT 24dB
```

• **High Pass** – First adjust the High Pass Filter cut-off frequency. To switch it off, turn the rotary knob counter-clockwise until “Off” is displayed.

Second, press the rotary knob and select from the available types and slopes:
Type: Butterworth, Slopes: 6dB, 12dB, 18dB or 24dB
Type: Bessel. Slopes: 6dB, 12dB, 18dB or 24dB
Type: Linkwitz-Riley. Slope: 12dB or 24dB

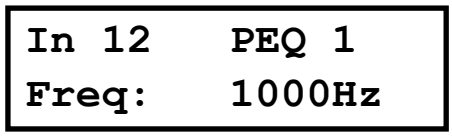
```
In 12   HighPass
Freq:   40Hz
```

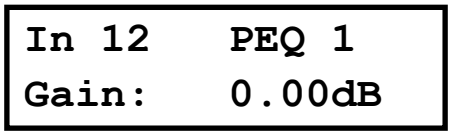
```
In 12   HighPass
Type:   BUT 24dB
```

5.1.4 Parametric EQ

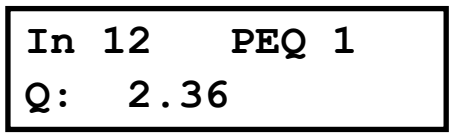
Select between one of the 10 available Equalizers on each input channel by using the keys < *Select* and *Select* >. Browse the parameters by turning the rotary knob and push the knob to select and confirm the values. The following parameters can be adjusted for each EQ:

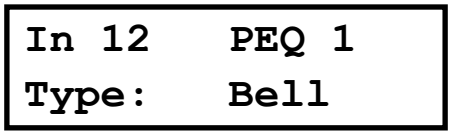
• **Freq** - EQ center frequency.
• **Gain** - EQ level gain.



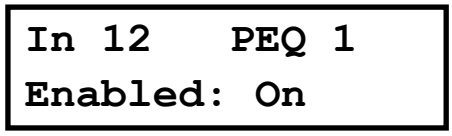


• **Q** - EQ Bandwidth. For shelving filters the Q sets the transition in dB/Oct. See Annex[1] for further information about the Q factor implementation in the **LMS**206.
• **Type** - Shape of EQ. The available types are:
Bell: Modifies the gain of a certain frequency range, with bell shape
Notch: Eliminates a range around a center frequency
Low-Shelf: Modifies the gain of all the range below a selected frequency.
High-Shelf: Modifies the gain of all the range above a selected frequency.
All Pass: Modifies the phase response, without influencing the frequency response.
Band Pass: Filters out all the range except the defined band.
High Pass: Filters out all the range below a certain frequency.
Low Pass: Filters out all the range above a certain frequency.





• **Enabled** – When set On, the currently selected EQ is on line.



5.1.5 Dynamics Compressor

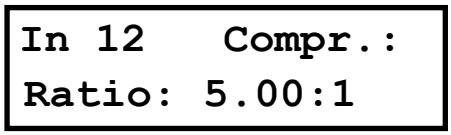
A true RMS compressor can be set to avoid the input signal go above a certain RMS value. The following parameters can be adjusted:

• **Thr.** - Compressor Threshold. Sets the level at which the compressor will activate.
• **Att.** - Attack time. Time it takes the compressor to start actuating after reaching the threshold.

• **Hold** - Hold time. Sets up a delay before the compressor enters the release cycle. Useful for compressing low frequency long notes.

• **Rel.** - Release time. Time the compressor uses to return to unity gain after the signal is below the threshold.

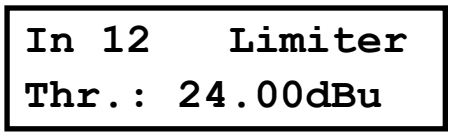
• **Ratio** - The compressor ratio determines the slope in which the signal is compressed. The higher this value is, the higher the compression.
• **Gain** – The compressor make up Gain. Use it in case the level of the compressed signal must be corrected (0dB by default)

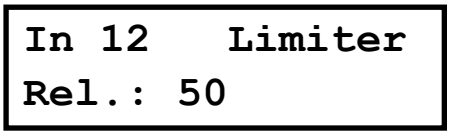


5.1.6 Limiter

A peak-limiter can be set at each input. It is a zero attack time limiter, so it will immediately act on the signal. The parameters that can be changed are:

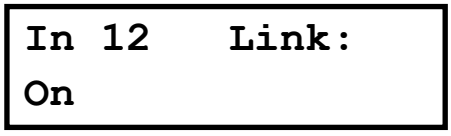
• **Thr.** – Threshold: input level at which the signal will be limited.
• **Rel.** – The release value, expressed in dB/seconds





5.1.7 Channel Link

Input channels 1 and 2 can be linked in order to set the same parameters on both. The factory setting is that channel 1 and 2 are linked. Turn the rotary knob set the link off.



5.2 Output Menus

To access the Input Menus press the <*Channel* or *Channel*> key. Press Exit to finish editing or again <*Channel* or *Channel*> to edit other channels.

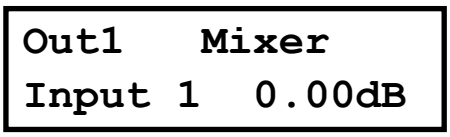
The following menus are available for each output channel. Please note that by default the inputs and outputs channels are linked in groups of two. The following options are shown for the output group composed of Out1 and Out2.

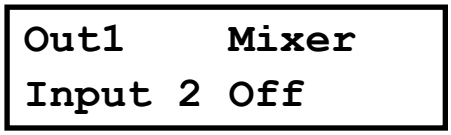
5.2.1 Input Gain

Adjust the gain of each output, using the rotary knob.

5.2.2 Mixer

Select the level to be routed from each input by turning the rotary knob. Select 0dB for maximum level of an input. To disable one input, turn the rotary knob counter-clockwise until “Off” is displayed. Push the rotary knob to select the next input.





5.2.3 Delay

Adjust the delay by turning the rotary knob. Push this knob to switch the unit between ms, ft or m.

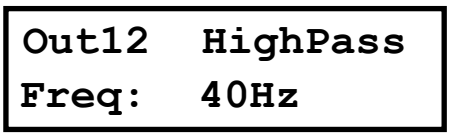
5.2.4 Crossover

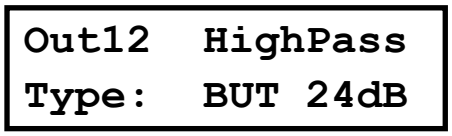
• **Low Pass** – First adjust the Low Pass Filter cut-off frequency. To switch it off, turn the rotary knob clockwise until until “Off” is displayed.

Second, press the rotary knob and select from the available types and slopes:
Type: Butterworth, Slopes: 6dB, 12dB, 18dB or 24dB
Type: Bessel. Slopes: 6dB, 12dB, 18dB or 24dB
Type: Linkwitz-Riley. Slope: 12dB or 24dB

• **High Pass** – First adjust the High Pass Filter cut-off frequency. To switch it off, turn the rotary knob counter-clockwise until “Off” is displayed.

Second, press the rotary knob and select from the available types and slopes:
Type: Butterworth, Slopes: 6dB, 12dB, 18dB or 24dB
Type: Bessel. Slopes: 6dB, 12dB, 18dB or 24dB
Type: Linkwitz-Riley. Slope: 12dB or 24dB

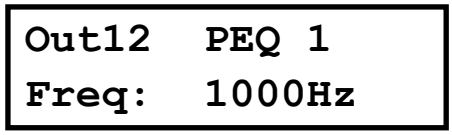


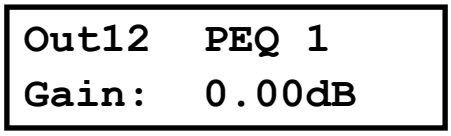


5.2.5 Parametric EQ

Select between one of the 10 available Equalizers on each output channel by using the keys < *Select* and *Select* >. Browse the parameters by turning the rotary knob and push the knob to select and confirm the values. The following parameters can be adjusted for each EQ:

• **Freq** - EQ center frequency.
• **Gain** - EQ level gain.





• **Q** - EQ Bandwidth. For shelving filters the Q sets the transition in dB/Oct. See Annex[1] for further information about the Q factor implementation in the **LMS**206.
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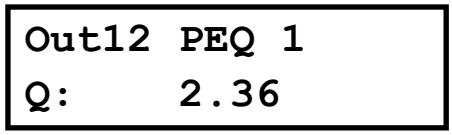
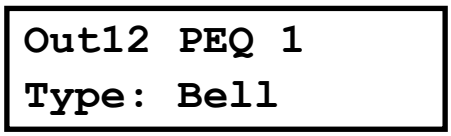
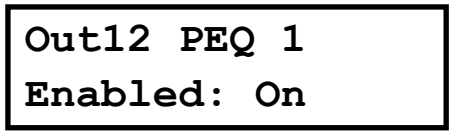




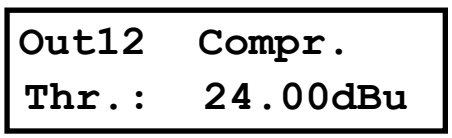
• **Enabled** – When set On, the currently selected EQ is on line.

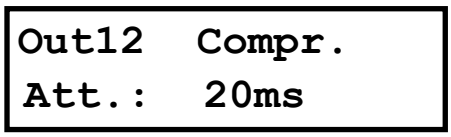


5.2.6 Dynamics Compressor

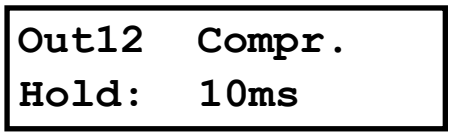
A true RMS compressor can be set to avoid the output signal go above a certain RMS value. The following parameters can be adjusted:

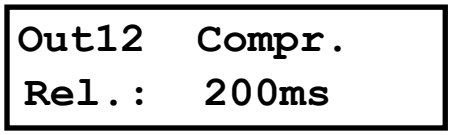
• **Thr.** - Compressor Threshold. Sets the level at which the compressor will activate.
• **Att.** - Attack time. Time it takes the compressor to start actuating after reaching the threshold.





• **Hold** - Hold time. Sets up a delay before the compressor enters the release cycle. Useful for compressing low frequency long notes.
• **Rel.** - Release time. Time the compressor uses to return to unity gain after the signal is below the threshold.



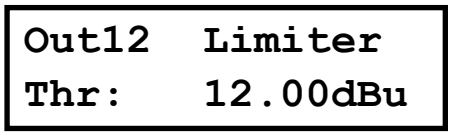


• **Ratio** - The compressor ratio determines the slope in which the signal is compressed. The higher this value is, the higher the compression.
• **Gain** – The compressor make up Gain. Use it in case the level of the compressed signal must be corrected (0dB by default)

5.2.7 Limiter

A peak-limiter can be set at each output. It is a zero attack time limiter, so it will immediately act on the signal. The parameters that can be changed are:

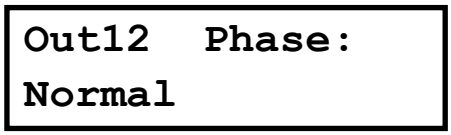
• **Thr.** – Threshold: input level at which the signal will be limited.
• **Rel.** – The release value, expressed in dB/seconds



For Amate Audio passive cabinets, there is a tool that easily computes the correct value of the limiter threshold for each output. These values are the result of a deep study made in out R+D facilities, thus its use guarantee protection without compromising the performance of the system. This tool is available at www.amateaudio.com/en/LimCal.

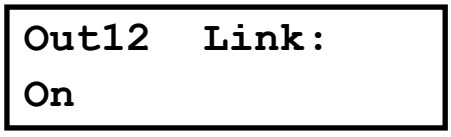
5.2.8 Phase – Phase inversion

Change the polarity of the channel by a 180º phase inversion. Select between Normal or Inverted.



5.2.9 Channel Link

Output channels can be linked in order to set the same parameters on both. The factory setting is that output channels 1&2, 3&4, 5&6 are linked. Turn the rotary knob set the link off.



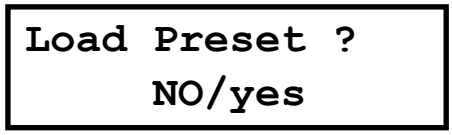
5.3 System Menu

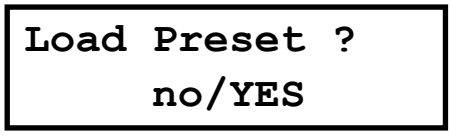
The System Menu allows the user to control and change parameters that are related to the system behaviour and general operation. It can be accessed by pressing the *Menu* key on the front panel. The available options are:

5.3.1 Load - Program Recall

The **LMS**206 unit has a built-in non-volatile memory that can store different program setups. A program can be recalled using this menu. Use the rotary knob to browse the desired program to load and click it to accept

Confirm your selection by turning the rotary knob until “YES” is in capital letters and press enter again.



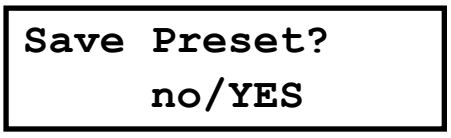


5.3.2 Save - Program Store

A program can be stored using this menu. The old program with the same program number will be replaced. Once the program is stored in the flash memory, it can be recalled at a later time, even after power down.

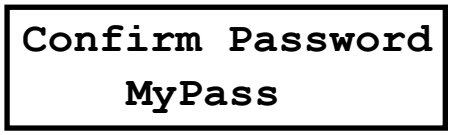
Select the number of slot where the current setting will be stored by rotating the thumbwheel and pressing it to confirm. After that, it is required to enter a name for the new preset, using the rotary wheel to select the characters and the center click to confirm:

Once you finish typing the name of the preset, press again the *Menu* key to confirm. Press the rotary knob to select “YES”. A confirmation message is displayed.



5.3.3 Access Level – Lock the front panel through a password

To lock the system, turn the rotary knob until the word “Locked” is displayed. The system will prompt for a password.



The password may be up to 8 characters long. When entering shorter passwords, use the *Menu* key to finish and confirm. Use the *Exit* key to go back and make the password shorter.

WARNING: If blank spaces are included in the password, they will be stored and must be entered in the same position in order to unlock the device.
NOTE: The factory default password is “Password”

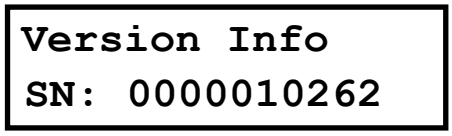
After that the system will be LOCKED and only the Mute buttons and the Menu key will be active.

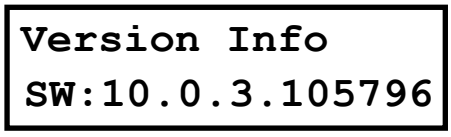
To UNLOCK the device, proceed with the following steps:
Press the menu key. The Lock screen will appear. Turn the rotary knob counterclockwise to select “Unlocked”

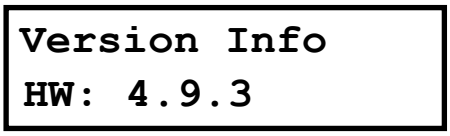
Then enter the password. Click enter to finish.

5.3.4 Version Info

Shows the device software and hardware information. Turn the rotary knob to display the information available:







6 PRESETS

The **LMS**206 is shipped with several presets pre-loaded in the unit that help in the set-up of the sound system. These presets have been designed and selected for deliver an active loudspeaker response (with internal amplification) when using them with our passive cabinets, as well for positive interfering in low frequency range and for protecting the sound system in over-voltage case.

In the following diagram, the list of the presets is displayed:

Nº	Tipo	Nombre	OUT1 a OUT4	OUT 5 & 6
1	Read-Only	N6P	N6P / FLAT	N6P / FLAT
2	Read-Only	N6P & N12WP	N6P / XOVER	N12WP / LPF90+3
3	Read-Only	N26P	N26P / FLAT	N26P / FLAT
4	Read-Only	N26P & N12WP	N26P / XOVER	N12WP / LPF90+3
5	Read-Only	N12P	N12P/ FLAT	N12P/ FLAT
6	Read-Only	N12P & N18WP	N12P / XOVER	N18WP / LPF90+3
7	Read-Only	N12PR	N12PR / FLAT	N12PR / FLAT
8	Read-Only	N12PR & N18WPR	N12PR / XOVER	N18WPR/LPF90+3
9	Read-Only	N15P	N15P / FLAT	N15P / FLAT
10	Read-Only	N15P & N18WP	N15P / XOVER	N18WP / LPF90+3
11	Read-Only	N15P & N218WP	N15P / XOVER	N218WP/LPF90+3
12	Read-Only	N15PR	N15PR / FLAT	N15PR / FLAT
13	Read-Only	N15PR & N18WPR	N15PR / XOVER	N18WPR/LPF90+3
14	Read-Only	KEY10	KEY10 / FLAT	KEY10 / FLAT
15	Read-Only	KEY10 & N12WP	KEY10 / XOVER	N12WP / LPF90+3
16	Read-Only	KEY10 & N18WP	KEY10 / XOVER	N18WP / LPF90+3
17	Read-Only	KEY12	KEY12 / FLAT	KEY12 / FLAT
18	Read-Only	KEY12 & N18WP	KEY12 / XOVER	N18WP/ LPF90+3

In the case of set-ups without subwoofer units, the presets configure the passive loudspeakers as full-range loudspeakers so they will reproduce all the frequency range.

For the case of set-ups with subwoofers, the output channels from 1 to 4 (Corresponding to the “tops”) are configured with a high pass filter, and the channels 5 to 6 (Corresponding to the “subs”) are configured with a low pass filter and a boost of 3 dB in the tuning frequency. In this way we obtain a set-up with a balanced frequency response.

These presets are read-only, in consequence they can’t be overwritten, edited nor deleted. If you want to edit a preset, before is necessary to copy it to another free memory available.

The presets don’t include the proper limiter threshold, since it depends in the number of cabinets and amplifier type that are part of the sound system. For computing the proper limiter threshold, it is highly recommended to use the tool we have available in the following link: amateaudio.com/en/LimCal

7 OPERATING THE SOFTWARE

7.1 Device List

Once the software DSPLink is started, a window with the list of connected devices is shown. The main controls are as following:

 MUTE: The device will be completely muted when this button is clicked. Click it again to unmute.

 IDENTIFY: When pressing this button, the device will blink 5 times its leds on the front panel. Useful for installations with several DSP connected to the computer, in order to identify each unit.

 STANDBY: When this button is clicked, the DSP will go into standby mode (low power consumption). In this mode, there is no output signal. Click the button again to recover the normal operation mode.

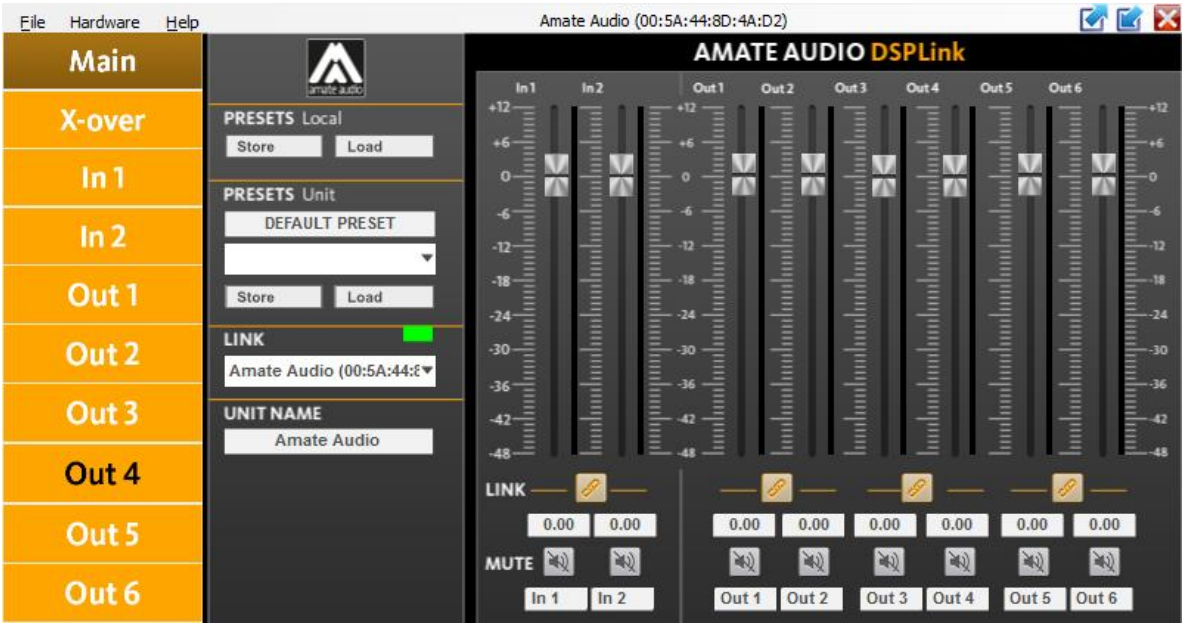
 EDIT: Open control window for full control of the device.
The following options are available in this window:

- **File / Quit**: Close the program.
- **Tools**
  - **Change software password**: allows the user to create a password to access the software. By default, no passwrod is needed. If a password is set and then forgotten, the software must be reinstalled.
  - **New Group**: create a group that associates 2 or more DSP.
  - **Enter Demo Mode**: enables to use the software without a connected device.
  - **Enable Update**: Enables the firmware upgrade of the units in the list (an Administrator password is required, see Section 8).
- **Help**
  - **Request Support**: sends a report about a problem in the software,
  - **About**: Shows basic info about the application

7.2 Device Options

7.2.1 Main window

In this window the Preset options, the device name, and the input and output levels and VUMeters, as well as the link and mute settings are displayed.



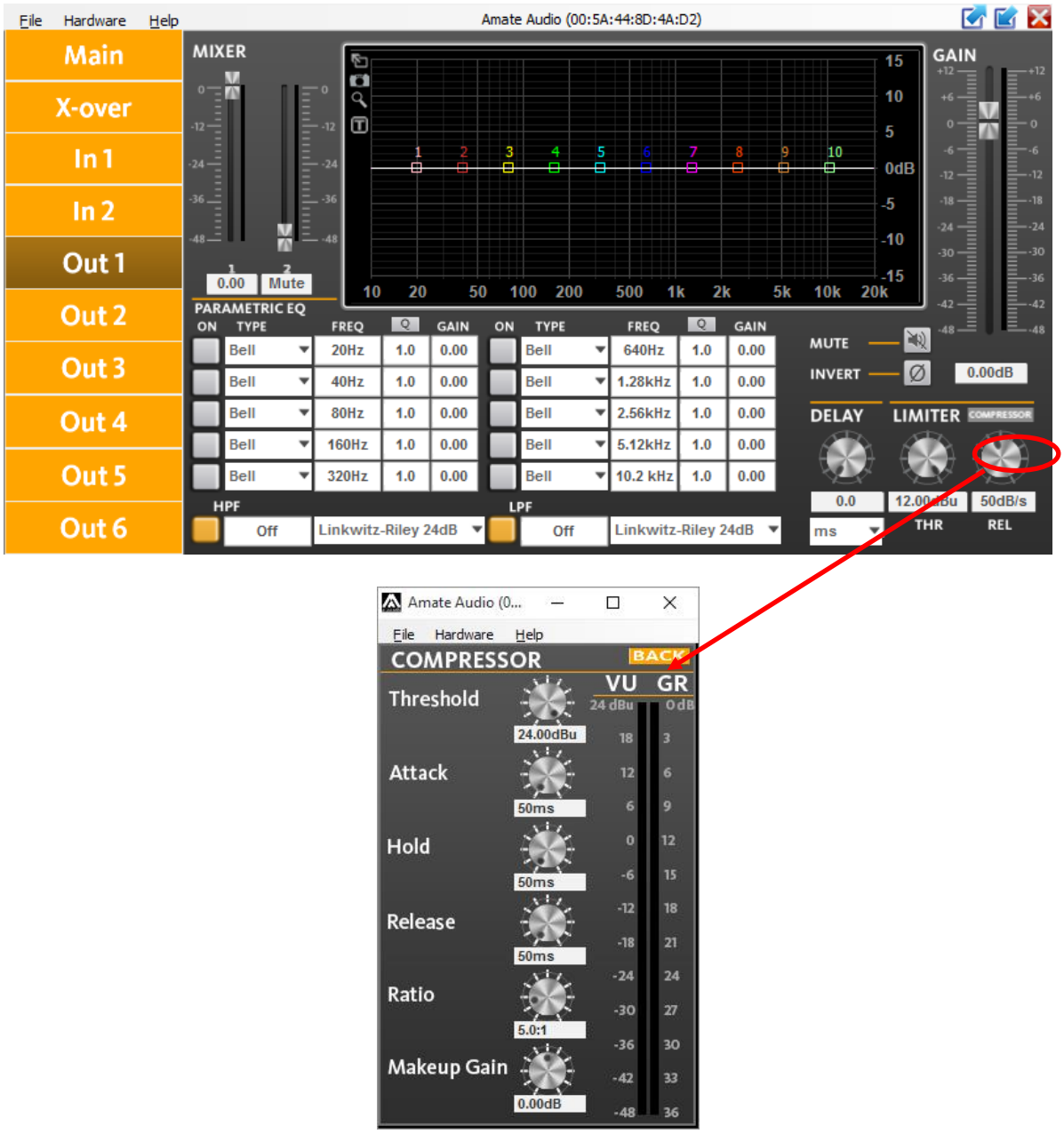
7.2.2 X-over window

In this window all the crossover settings for each output are displayed and can be set. The same information can be found on each channel's window.

7.2.3 Input / Output window

When selecting one of the inputs or outputs on the left side, a window with all available controls will be displayed: Mixer, PEQ, Xover, Gain, Mute, Polarity, Limiter and Compressor.

To access all available parameters of the Compressor, click on the word "COMPRESSOR" besides the Limiter control. A new window will display showing the controls for Threshold, Attack, Hold, Release, Ratio and Makeup Gain.



7.2.4 File Menu

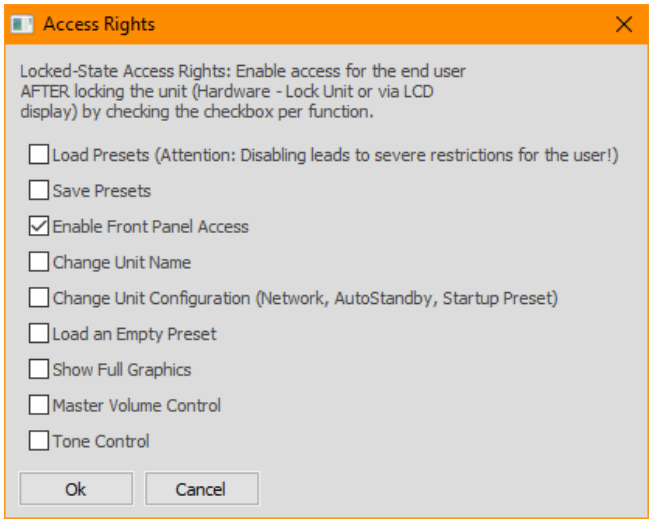
- **Open**: Load a preset from a previously stored file.
- **Save**: Save current preset to a file in the hard disk.
- **Restore Presets**: Load a set of presets from a previously stored file.
- **Backup Presets**: Backup all the presets of the device to the hard disk.
- **Quit**: Exit the device's main window.

7.2.5 Hardware Menu

- **Enter Password**: Enter a password here to unlock the unit (only needed if the unit has been previously locked using the option "Hardware>Lock Unit").
- **Configure**:
  - **Change password**: change the factory default password. The new password may have up to 8 characters. You will be first asked for the

old password. **NOTE**: The factory default password is “Password” (case sensitive)

- **Power On Preset**: Set here the preset that will be selected at startup. The default setting is “last setting”.
- **Global Access Rights**: select which controls will be unlocked even the “Lock Unit” control is selected. Click on the checkbox of the functions that should be available to the user without entering a password:



- **Output mode**: pre-select the input assignment to outputs, in groups of two (Dual Bridge or Mono).

- **Lock unit**: In order to lock the unit by password, select “Hardware > Lock Unit”. To unlock the unit again, select “Hardware > Enter Password”.

- **Set Pin**: Set a 4-digit pin to allow the access to the unit via software. If the PIN needs to be removed, select this function and leave the PIN field blank (the message “Invalid PIN” will be shown). If the PIN is forgotten, a firmware upgrade is needed (see Chapter 9).

- **Status Details**: A quick information window about the device is displayed.

8 QUICK REFERENCE

Menu Function	Channel	Parameter	Value	Units
Gain	I / O	Gain	-48 to +12; Step: 0.25	dB
Mixer	Outputs	Input 1/2/3/4	-48 to 0; Step: 0.25	dB
Delay	I / O	Delay	0 to 2000; Step depends on range	ms
LowPass / High Pass	I / O	Freq.	20 to 20000; Step depends on range	Hz
		Type	BUT 6dB / BES 6dB / BUT12 dB / BES 12 dB / LR 12 dB / BUT 18 dB / BES 18dB / BUT 24dB / BES24 dB / LR 24dB	
		Enabled	On / Off	
PEQ 1 to PEQ 10	I / O	Freq.	20 to 20000; Step depends on range	Hz
		Gain	-12 to 12; Step: 0.25	dB
		Q	0.2 to 25; Step: 0.1	
		Type	Bell / Notch / High Shelf / Low Shelf / Allpass/ Band Pass/ High Pass/ Low Pass	
		Enabled	On / Off	
Compres-sor	I / O	Thr.	-48 to +24; Step: 0.25	dBu
		Att.	1 to 10000; Step: 1	ms
		Hold	1 to 10000; Step: 1	ms
		Release	1 to 10000; Step: 1	ms
		Ratio	1.2:1 to 25:1	
		Makeup Gain	-12 to +12; Step: 0.25	dB
Limiter	Input	Thr.	-48 to +24; Step: 0.25	dBu
		Rel.	10 to 100; Step: 1	dB/s
Limiter	Output	Thr.	-48 to +12; Step: 0.25	dBu
		Rel.	10 to 100; Step: 1	dB/s
Phase	Output	Phase	Normal / Inverted	
Link	I / O	Link	Off / On	

9 TROUBLESHOOTING

9.1 How to perform a firmware upgrade

To perform a firmware upgrade, proceed as following:

WARNING: In the Firmware Upgrade Process all your presets will be erased. Please make a backup of them before upgrading the unit. During the upgrade process you will be asked to perform this backup.

1. Connect the unit to the computer
2. Using DSPLink, enter the Device Main Window
3. Choose “Hardware > Enter Password”
4. Enter the administrator password, which is “Ad_min”
5. Go to “Hardware > Firmware Upgrade”
6. Be careful to answer “Yes” if you want your settings and presets to be backed up
7. Wait until firmware is upgraded. Do not plug off or disconnect the unit from the computer during this process.
8. Your presets will be restored automatically

9.2 Password recovery

The unit is shipped unlocked, so no password will be necessary unless the unit is locked by the user. The default user password is “Password”.

In case this Password has been changed by the user (Using the Menu “Hardware > Configure > Change Password”) and is no longer remembered, a Firmware Upgrade is needed to re-establish the password to the default value (see previous section).

10 SPECIFICATIONS

	DSP206
Analog Inputs	
Number	2
Input Impedance	>10 kOhms
Maximum Level	+23 dBu
Type	Electronically balanced
Analog Outputs	
Number	6
Maximum Level	+12 dBu
Type	Impedance Matched
Audio Performance	
Frequency Response	20Hz to 20kHz (+/- 0.5dB)
Input Dynamic Range	110 dB (unweighted)
Crosstalk	< -80 dB
Distortion	0.005% (A-weighted)
Digital Audio Performance	
Processing	64-bit
Analog Converters	High Performance 24-bit
Sampling Rate	48 kHz
Propagation Delay	1.32 ms
Front Panel Controls	
Display	2 x 16 Character. White Backlit LCD
Level Meters	Per I/O: Signal Present, -6dB; Limiter, Clip
Buttons	Illuminated Mute Controls, Menu Controls
Dial Encoder	Rotary Thumb Wheel
Connectors	
Analog Audio	3-pin XLR Pin 1: shield 2: live (+) 3: return (-)
USB	Type B (on front panel)
Power	Standard IEC Socket
General	
Power	85 to 240 VAC (50 / 60 Hz)
Dimensions (H x W x D)	1U 19” Rack 44 x 483 x 165 mm
Weight	2.3kg
System Parameters	
No. of Programs	100
Program Names	16 character length
Security Lock	Password Lock/Unlock

Note: Specifications subject to change without notice

11 ANNEX

[1] For bell parametric filters (PEQ), the bandwidth definition differs among the different DSP manufacturers. For this reason, it is difficult to successfully copy filter settings between different processors.

The frequency span of the filter is defined by either the bandwidth or the Q factor. These parameters are inversely proportional, meaning the bigger the bandwidth, the smaller the Q. The formulas relating both parameters are:

$$Q = \frac{f_0}{f_H - f_L} = \frac{f_0}{B}$$

$$B = f_H - f_L$$

The border frequencies of the bandwidth are usually set at the point where the energy decreases three decibels, as shown in *Figure 1*.

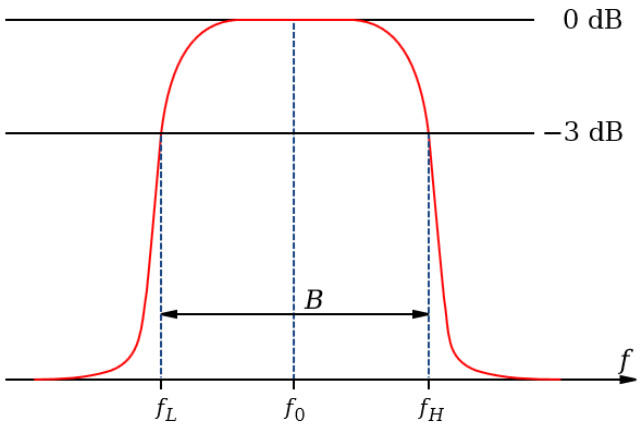


Fig. 1: Bandwidth graphical representation

The majority of audio processor manufacturers implement the Q in four different ways: Bandpass-Q, Constant-Q, dB/2 and 3dB hybrid method. The first two are based in analogue filters, while the last two take advantage of the capabilities of digital processing.

The Bandpass-Q method builds the bell filter adding the response of a band-pass filter plus a gain block to the input signal, as shown in Figure 2.

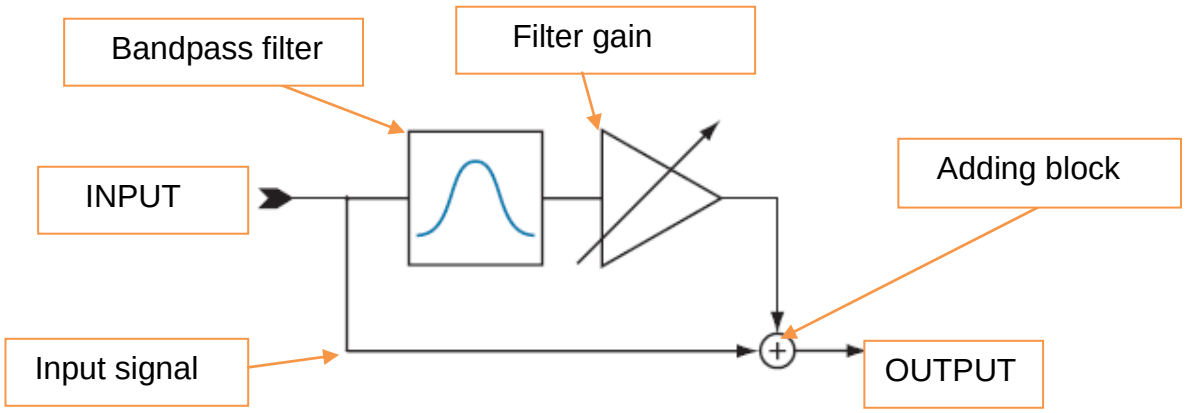


Fig. 2: Block diagram of a bell filter

As shown in Fig. 2, when adding both processed and original signals at the output, the bandwidth of the resulting signal is higher than the bandwidth of the bandpass filter used. The Bandpass-Q method defines the Q of the bandpass filter block, and not of the resulting filter. The difference is shown in Figure 3.

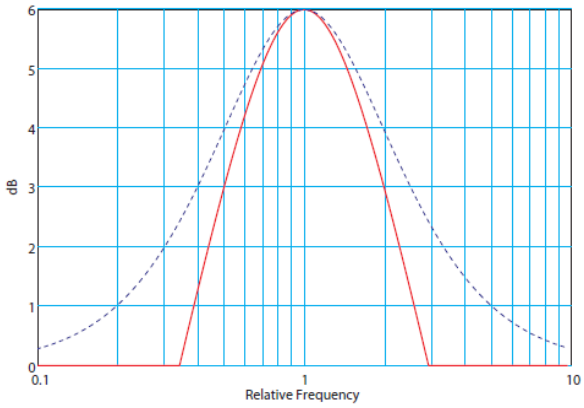


Fig. 3. Red line: Bandpass filter with 6dB gain. Dotted blue line: Parametric bell filter.

To avoid this difference, Constant-Q implementations lower the Q that the user selects in the bandpass filter, just enough to compensate this difference. In consequence, the resulting Q at the output is the same as the user expects. However, this solution cannot be applied for filters with a peak gain lower than 3dB.

The dB/2 method always sets the bandwidth as one-half of the peak gain, so the definition works no matter what the peak gain is. Amate Audio **LMS**206 uses the dB/2 method, because it keeps the bell shape independent from the peak gain.

The 3dB Hybrid Method works in two ways: If the peak gain is greater than 6dB, the bandwidth is set at -3dB of the peak (Constant-Q), otherwise it uses the dB/2 definition, setting the bandwidth to one-half of the peak gain.

CERTIFICATION

amate audio
Great sound from Barcelona since 1972

DECLARATION OF CONFORMITY

In accordance with EN 45014:1998

Manufacturer's Name: "AMATE AUDIO S.L."

Manufacturer's Address: C/ Perpinyà 25, Polígon Industrial Nord
08226 Terrassa, (Barcelona), SPAIN

Brand: "AMATE AUDIO"

We declare under our own responsibility that:

Product: Audio signal processor. Audio apparatus for professional use
Name: LMS206

Conforms to the following product specifications:

Safety: IEC 60065-01 + A1

EMC: EN 55022:2006
EN 55103-1:2009
EN 55103-2 2009
FCC Part 15

WARNING:

In accordance to EN55022, this is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Supplementary Information:
The product herewith complies with the requirements of the:

Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC
RoHS Directive 2002/95/EC
WEEE Directive 2002/96/EC

With regard to Directive 2005/32/EC and EC Regulation 1275/2008 of 17 December 2008, this product is designed, produced, and classified as Professional Audio Equipment and thus is exempt from this Directive.

Date of issue: April 30th, 2019

Signature:

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