



Operation Manual



44TDAP Series

Digital Amplifier Processed

*Keep these important operation instructions.
Check www.tecnare.com for updates*

General Information

44TDAP Series Operation Manual

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The information contained in this manual has been carefully checked for accuracy, at the time of going to press, however no guarantee is given with respect to the correctness.

Exel Acoustics SL accepts no responsibility for any errors or inaccuracies that may appear in this manual or the products and software described in it. Technical specifications, dimensions, weights and properties do not represent guaranteed qualities. As manufacturers we reserve the right to make alterations and modifications within the framework of legal provisions, as well as changes aimed at improving quality.

EXEL ACOUSTICS SL

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IMPORTANT SAFE INSTRUCTIONS

Before using our product, be sure to carefully read the manual and safe Instructions. Keep this document with the device all time.

1. Read these instructions
2. Keep these instructions.
3. Heed all warnings.
4. Follow all SAFETY INSTRUCTIONS as well DANGER and OBLIGATION warnings.
5. Only use attachments / accessories specified by Exel Acoustics SL.
6. Do not use this apparatus near water.
7. Clean only with dry cloth.
8. Do not block any ventilation openings. Install in accordance with Exel Acoustics' instructions.
9. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produces heat.
10. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wide than the other. A grounding type plug has two blades and a third pin are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Service is required when the apparatus has been damaged in any way, such as power-supply cord or plug damaged, liquid has been spilled or objects have fallen into the apparatus, this apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Use the mains plug to disconnect the device from mains.

CAUTION: To reduce the risk of fire of electric shock, do not expose this device to rain or moisture.

15. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
16. The mains plug of the power supply cord shall remain readily operable.
17. Do not connect the unit's output to any other voltage source, such as battery, main source, or power supply, regardless of whether the unit is turned on or off.
18. Do not remove the top (or bottom) cover. Removal of the cover will expose hazardous voltages. There are no user serviceable parts inside and removal may void warranty.

CAUTION: Do not remove any covers, loosen any fixings or allow items to enter any aperture.

CAUTION: The rear of the product may get hot. Avoid direct skin contact during operation and for at least 5 minutes after power has been isolated.

CAUTION: The product must only be positioned at floor level when operated in a horizontal position.

19. If the equipment is used in a manner not specified by the Exel Acoustics, the protection of the equipment may be impaired.

IMPORTANTES INSTRUCCIONES DE SEGURIDAD

Antes de usar este producto, asegúrese de leer cuidadosamente el manual y las instrucciones de seguridad.

1. Lea estas instrucciones.
2. Conserve estas instrucciones.
3. Respete y siga todas las advertencias.
4. Siga todas las INSTRUCCIONES DE SEGURIDAD, así como las advertencias de PELIGRO y OBLIGACIÓN.
5. Utilice solo accesorios autorizados por Exel Acoustics SL.
6. No use este aparato cerca del agua.
7. Limpiar solo con un paño seco.
8. No bloquee las aberturas de ventilación e instale de acuerdo con las instrucciones de Exel Acoustics.
9. No instale el aparato cerca de fuentes de calor tales como radiadores, calefactores estufas u otros aparatos que produzcan calor.
10. Esta unidad debe ser conectada mediante un cable de alimentación de 3 hilos. Por razones de seguridad, LA CONEXIÓN A TIERRA NO DEBE DESCONECTARSE EN NINGUNA CIRCUNSTANCIA.
11. Proteja el cable de alimentación de ser pisado o aplastado, especialmente los enchufes, receptáculos y en el punto en el que salen del aparato.
12. Desconecte este aparato durante tormentas eléctricas, terremotos o cuando no vaya a emplearse durante largos periodos.
13. Confíe las reparaciones a personal cualificado. Se requiere servicio cuando el aparato ha sido dañado de alguna manera como por ejemplo si el cable de alimentación o el enchufe está dañado, se ha derramado líquido o han caído objetos dentro del aparato, el aparato ha sido expuesto a lluvia o a la humedad, no funciona con normalidad o se ha caído.
14. Desconecte completamente este aparato de la red eléctrica desconectando el cable de alimentación.

15. No exponga este equipo a salpicaduras ni coloque sobre él objetos que contengan líquidos, tales como vasos o botellas. Equipo IP20.

PRECAUCIÓN: Para reducir el riesgo de incendio por descarga eléctrica, no exponga este aparato a la lluvia o a la humedad.

16. El enchufe o la conexión a red debe ser fácilmente accesible.
17. No conecte la salida de la unidad a ninguna otra fuente de voltaje, como batería o fuente de alimentación independientemente de si la unidad está encendida o apagada.
18. No retire la cubierta superior (o inferior). La retirada de la cubierta lo expondrá a voltajes peligrosos. No hay piezas reparables por el usuario en el interior y su extracción podría anular la garantía.
19. Si el equipo se utiliza de la forma no especificada por Exel Acoustics, la protección del equipo puede verse afectada.

PRECAUCIÓN: No retire la cubierta, afloje tornillos o permita la entrada de elementos por ninguna abertura.

PRECAUCIÓN: La parte trasera del equipo puede calentarse. Evite el contacto directo con la piel durante su funcionamiento y durante, al menos, 5 minutos después de que se haya apagado.

PRECAUCIÓN: El equipo solo debe colocarse en el suelo cuando se opera en posición horizontal.

SYMBOL USED



Warning

This symbol indicate **Risk of injury**. It is essential to observe this warning. Non-compliance can lead to serious injury or death.

*Este símbolo indica **Riesgo de lesiones**. Es fundamental observar esta advertencia. Su incumplimiento puede provocar lesiones graves o la muerte.*



Caution

This symbol indicate **Personal injuries**. It is essential to observe this warning. Non-compliance can lead to minor or slight injury.

*Este símbolo indica **Lesiones personales**. Es fundamental observar esta advertencia. Su incumplimiento puede provocar lesiones leves.*



Notice

This symbol indicate **Damage to the devices** or environment. It is essential to observe this warning. Non-compliance can lead to damage to property or equipment or environmental damage.

*Este símbolo indica **Daños a los dispositivos o al medio ambiente**. Es fundamental observar esta advertencia. Su incumplimiento puede provocar daños al equipo o daños al medio ambiente.*



tip or pointer

This symbol indicate **information** that contributes to better understanding.

*Este símbolo indica **Información** que contribuye a una mejor comprensión del producto.*



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

DO NOT EXPOSE TO
RAIN OR MOISTURE

ATTENTION

RISQUE DE CHOC ELECTRIQUE
NE PAS ENLEVER

NE PAS EXPOSER A LA
PLUIE NI A L'HUMIDITE



AVERTISSEMENT DE SECURITE

Pour déconnecter l'appareil de l'alimentation principale de façon permanente, débranchez le connecteur du câble fourni à l'arrière de l'appareil.

Ne retirez pas les couvercles, ne desserrez pas les fixations et ne laissez aucune pièce s'introduire dans les ouvertures.

Ne placez pas d'objets contenant du liquide à proximité de l'appareil.

Ne remplacez le fusible de réseau principal que par un fusible du même type.

Le radiateur arrière de cet appareil devient chaud. Evitez tout contact direct avec la peau pendant le fonctionnement et au moins 5 minutes après la mise hors tension de l'appareil.

STANDARDS

FOR CUSTOMERS IN EUROPE



This product complies with both the LVD (electrical safety) 73/23/EEC and EMC (electromagnetic compatibility) 89/336/EEC directives issued by the commission of the European community.

Compliance with these directives implies conformity with the following European standards:

EN60065	Product safety
EN55103-1	EMC emissions
EN55103-2	EMC immunity

This product is intended for the following electromagnetic environments: E1, E2; E3 & E4.

THIS PRODUCT MUST BE EARTHED. Use only a flexible cable or cord with a green and yellow core which must be connected to the protective earthing terminal of a suitable mains plug or the earthing terminal of the installation. The cord must be a maximum of 2m long, have a 2.5mm² CSA, a 300/500V rating and comply with EN50525-2-11 / H05W-F.

THIS PRODUCT IS DESIGNED FOR PERMANENT INSTALLATION. It must be fitted in to a 19" rack enclosure and not operated unless so installed. The rack enclosure should be open at the front and back to allow free ventilation and movement of air through the product.

FOR CUSTOMERS IN THE USA

This product has been tested for electrical safety and complies with UL60065 7th edition.

THIS PRODUCT MUST BE EARTHED. Use only a flexible cable or cord with a green or green / yellow core which must be connected to the protective earthing terminal of a suitable mains plug or the earthing terminal of the installation. The cord must be a maximum of 6' long, be 14AWG, have a rating SJ, SJT, SJE or 300/500V H05W-F and be marked VW-1.

THIS PRODUCT IS DESIGNED FOR PERMANENT INSTALLATION. It must be fitted in to a 19" rack enclosure and not operated unless so installed. The rack enclosure should be open at the front and back to allow free ventilation and movement of air through the product.

DECLARATION OF CONFORMITY WITH FCC RULES

We, EXEL Acoustics SL, CL Encinar 282, Pol. Ind. Monte Boya, 45950 - Casarrubios del Monte (Toledo), España, declare under our sole responsibility that this family of devices, complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FEDERAL COMMUNICATIONS COMMISSION NOTICE

An example of this equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential and commercial installation.

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FOR CUSTOMERS IN THE CANADA

This product complies with CA /CSA C22.2 No.60065-03
Ce produit est conforme avec CA /CSA C22.2 No.60065-03

THIS PRODUCT MUST BE EARTHED. Use only a flexible cable or cord with a green or green / yellow core which must be connected to the protective earthing terminal of a suitable mains plug or the earthing terminal of the installation. The cord must be a maximum of 6' long, be 14AWG, have a rating SJ, SJT, SJE or 300/500V H05W-F and be marked VW-1.

CE PRODUIT DOIT ÊTRE MIS À LA TERRE. Utilisez uniquement un câble souple avec un noyau vert ou vert / jaune qui doit être relié à la borne de terre de connecteur d'alimentation ou la borne de terre de l'installation. Le cordon doit être un maximum de 6' (2m) de long, 14 AWG (2.5mm² CSA), être classé SJ, SJT, SJE ou 300/500V H05W-F et être marquée VW-1.

THIS PRODUCT IS DESIGNED FOR PERMANENT INSTALLATION. It must be fitted in to a 19" rack enclosure and not operated unless so installed. The rack enclosure should be open at the front and back to allow free ventilation and movement of air through the product.

CE PRODUIT EST CONÇU POUR UNE INSTALLATION PERMANENTE. Il doit être installé dans un boîtier rack 19-in. Le rack devrait être ouvert à l'avant et l'arrière pour permettre la ventilation et le mouvement d'air libre à travers le produit .

DECLARATION OF CONFORMITY WITH CANADIAN ICES-003

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

DECLARACIÓN DE CONFORMIDAD

DECLARATION OF CONFORMITY

EXEL ACOUSTICS SL

CL Encinar, 282. Polígono Industrial Monte Boyal. 45950 – Casarrubios del Monte (Toledo), España (Spain).

Declara que la serie de amplificadores 44TDAP y sus respectivas opciones, cumple con los objetivos de las Directivas:

Declare under our sole responsibility that the 44TDAP Series amplifier products comply with relating Directives:

- (1) Directiva de Baja Tensión - 2014/35/UE
- (2) Directiva de Compatibilidad Electromagnética - 2014/30/UE
- (3) Directiva RoHS - 2011/65/UE
- (4) Directiva RAEE - 2012/19/UE



- (1) *Low Voltage Directive 2014/35/EU*
- (2) *EMC 2014/130/EU*
- (3) *RoHS Directive 2011/65/EU*
- (4) *WEEE Directive 2012/19/EU*

Y es conforme a las siguientes Normas Armonizadas Europeas:
In compliance with these Harmonized European Norms:

- (1) EN60065 8th. Audio, video and similar electronic apparatus. Safety requirements.
- (2) EN55032:2012. EMC emissions & immunity.
- (3) EN55035-2017

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1. Welcome and unpacking

1.1. Welcome to Tecnare

Thank you for choosing a Tecnare® **44TDAP Series *Digital Amplifier Processed*** for your application.

Please spare a little time to study the contents of this manual, so that you obtain the best possible performance from this unit.

All Tecnare® products are carefully engineered for world-class performance and reliability.

If you would like further information about this or any other Tecnare® product, please contact us. We look forward to helping you in the near future.

As part of a continuous evolution of techniques and standards, Exel Acoustics SL as manufacturer of Tecnare® products reserve the right to change the specifications of its products and the content of its documents without prior notice.

Updates and supplementary information are available on the Tecnare® website:

<http://www.tecnare.com>

Tecnare Technical Support is available at:

- (T): +34 918 170 110 - +34 918 171 001
- (e-mail): support@tecnare.com

Thank you again for placing your confidence in Tecnare® products.

1.2. Unpacking

After unpacking the unit, please check carefully for damage. Every Tecnare product is tested and inspected before leaving the factory and should arrive in perfect condition. If damage is found, please notify the carrier concerned at once. You, the consignee, must instigate any claim. Please retain all packaging in case of future re-shipment.

1.3. The User Guide

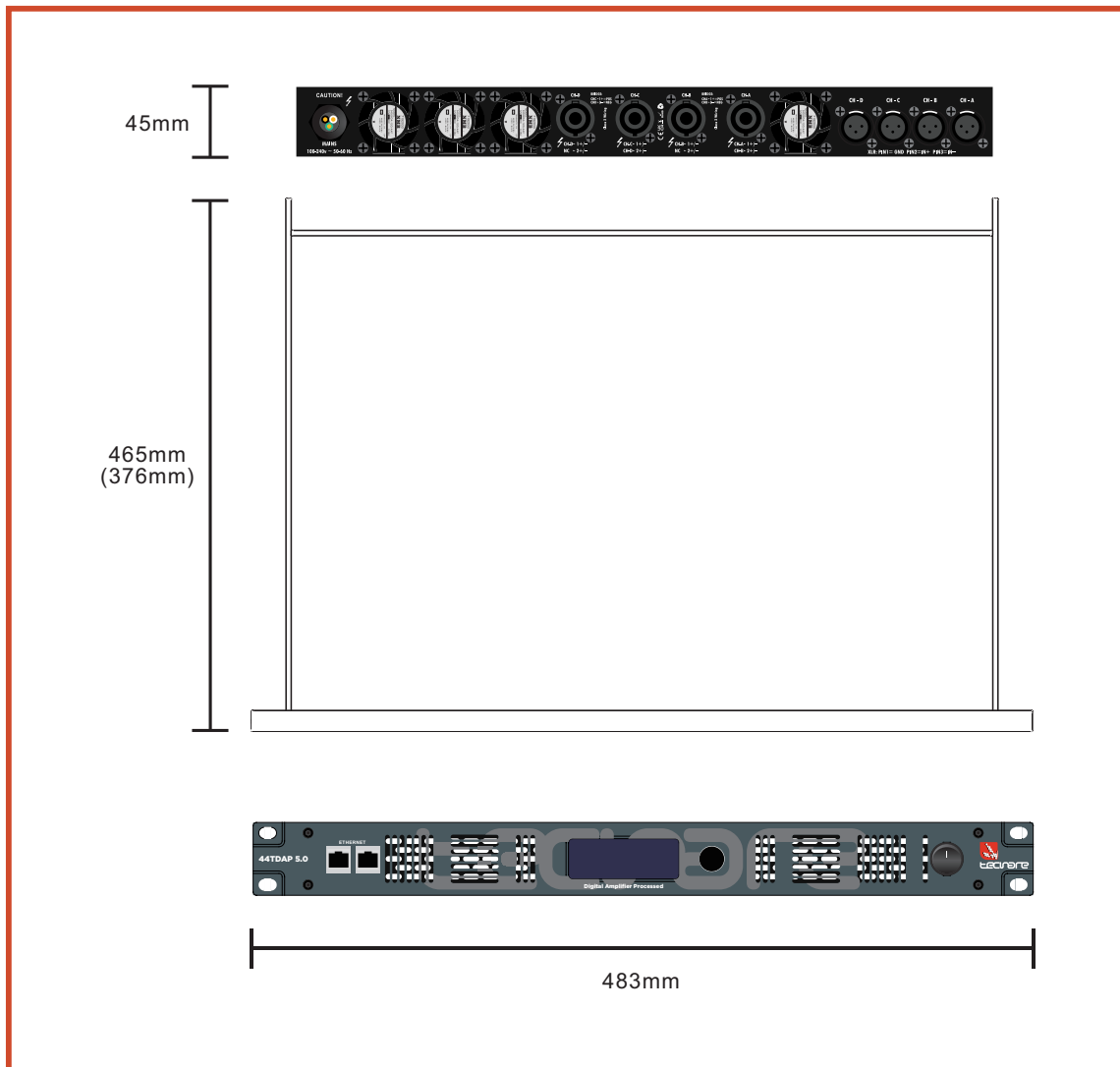
This user manual gives a progressively more detailed description of the functions of the Tecnare 44TDAP Series Digital Advanced Amplifier. A detailed explanation of the front and rear panel controls, in conjunction with Installation section, contains the basic information needed to safely install the amplifier and place it in service.

The final section describes each individual function or feature with annotated images explaining its use. Where appropriate, the graphical display is shown to further elaborate on the units operation.

To complete the manual a reference section is included, describing the technical performance and Mechanical drawing of the device.

2. Installation Instructions

2.1. Mechanical Installations



The 44TDAP Series Amplifier system is designed to be mounted in a standard 19" rack enclosure.

Where the amplifier is used in a fixed installation, as long as the bottom unit is supported and there are no gaps between units, it is acceptable to use only the front panel 19" rack holes when fitting it in a standard rack enclosure. If the amplifier is mounted in a mobile rack it is important that the rear is supported with a rear rack mounting kit (part number TDK-TS). Damage caused by insufficient support is not covered by the warranty.

To prevent damage to the front panel it is recommended that plastic cups or washers are fitted underneath the rack mounting bolt heads.

It is possible to mount multiple 44TDAP Series amplifiers without ventilation gaps between them, but it is essential that an unobstructed flow of clean air is available from the front of the unit to the rear (cooling mode of the 44TDA Amplifiers, *Also see "2.4. Cooling" on Page 15*). It is important that neither the air intakes on the front of the unit or the exhaust vents at the rear are covered. Steps must be taken to ensure that hot air does not continually circulate through the amplifier from the back of the rack to the front.

The amplifier should never be exposed to rain or moisture during operation or storage. If the unit does come into contact with moisture, disconnect the AC power cord immediately and leave it in a dry and warm location to dry out.

Note that when any equipment is taken from a cold location into a hot humid one, condensation may occur inside the device. Always allow time for the equipment to attain the same temperature as its surrounding environment before connecting the AC power cord.



IMPORTANT: *It is the responsibility of the user to ensure that dirt, liquids and vapour from theatrical smoke and fog machines is not ingested by the amplifier. Damage so caused is not covered by the manufacturer's warranty.*

2.2. AC Power Connection

The amplifier is fitted with a 3 x 2.5mm² power cord and a 3-pin Shucko (CEE 7/7) power connector.

If the power plug mounted at the factory is not appropriate for your country, it can be removed and the proper connector wired in its place as follows:

BLACK or BROWN

WHITE or BLUE

GREEN or GREEN&YELLOW

LIVE

NEUTRAL

EARTH (GROUND)



CAUTION: *If you are not 100% confident of your competence to replace the mains plug, engage qualified personnel to do the job*

The amplifiers are designed to operate on 50/60 Hz AC power ($\pm 10\%$). The power supply sections automatically configure themselves for either 115V or 230V nominal voltage at turn on. The amplifiers will operate over an extended range of supply voltages (please refer to the technical specifications). The threshold of these ranges are: [115V range = 100-126Vrms]; [230V range = 207 - 253Vrms].

Note that whilst the amplifier will operate correctly at voltages indicated, the specified output power will only be achieved when operating with the stated nominal voltages.

2.3. Audio Connections

2.3.1. Input connections

For each input channel there is a female XLR-3 connector for analogue inputs. The 44TDA Series can be fed with up to four balanced analogue audio signals.

The HOT, + or 'in phase' connection should be made to pin 2 of the XLR connector.

The COLD, - or 'out of phase' connection should be made to pin 3 of the XLR connector.

Pin 1 of the XLR connectors is internally connected to the chassis.

The shield of the input cable should always be connected Pin 1 of the XLR to ensure the EMC performance and regulations are met.

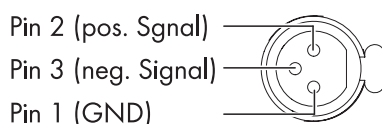


Fig. 02: PIN out assignment 44TDAP Series Analogue Input/Link - Balanced connection

2.3.2. Using unbalanced connection

Please note that the use of unbalanced connections is not recommended, however, when connecting the amplifier to an unbalanced audio source, the signal conductor should be connected to XLR pin2. The 'Cold' conductor or cable screen should be connected to XLR pin 1 with a short connection made between pin 1 and pin3 as shown in Figure 03.

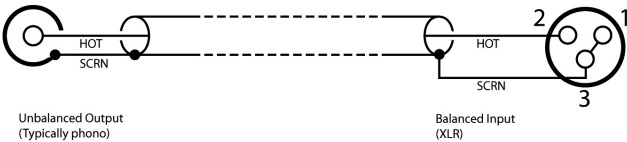


Fig. 03: Balanced to Unbalanced Analogue wiring and PIN out.

2.3.3. Amplifier Output Connections

The 44TDAP amplifiers are fitted with one SpeakON™ NL4 connector per amplifier channel. The appropriate conductor terminations are shown below and on the rear panel of the unit.

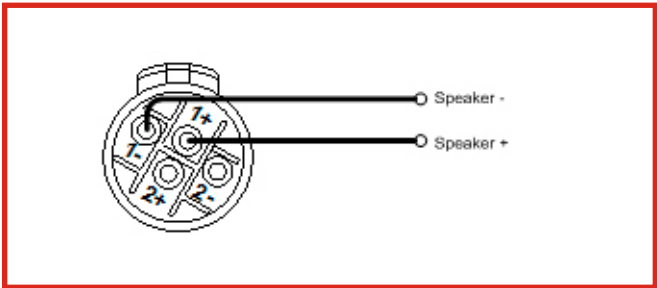


Fig. 04 Amplifier output connections - TDA Series

Additionally, the SpeakON™ NL4 connector for amplifier channel 1 carries the output for amplifier channels 1 and 2. Similarly, the SpeakON™ NL4 connector for amplifier channel 3 carries the output for amplifier channels 3 and 4. This can be useful for making a connection to two loudspeakers with one 4-core cable (i.e. Bi-amp).

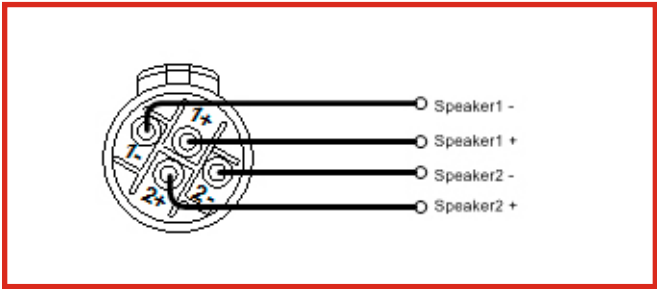
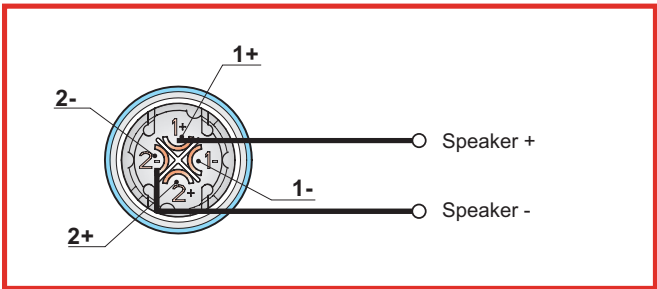


Fig. 05 Amplifier Output Bi-amp connexion (CH1) - TDA Series

In addition, the channel 1 or channel 3 connector can also be used if the pair of amplifier channels is being operated in bridged mode. It must be done, using the connection pin: 1+/2-



Bridge mode.

Pin No.	NL4# CHA/C
1+	CH1 o/p +
2-	CH2 o/p -

Fig. 06 Amplifier Output Bridge connexion (CH1)

2.3.4. Load Matching

Each output of the device can be optimised to drive either a low-impedance load (e.g. 2, 4 or 8 Ohms). The 44TDAP Series amplifiers have adequate current capability to fully drive loads up to two ohms, however, many high-performance “8-ohm” loudspeakers, especially multi-way systems with passive crossover network, have impedances at some frequencies which are far lower than the average rating. An impedance minimum of 2 ohms or less is not uncommon. For this reason, speaker impedance curves should be consulted before connecting speaker in parallel.

The 44TDAP Series amps will do an outstanding job with any 8-ohm, full-range loudspeaker system, and we expect equally outstanding performance when driving 4-ohm load. The 2-ohm load should be approached with caution, as there is not further margin for impedance dips. The amp should not be damaged, but high-power operation into reactive 2-ohm loads may result in overheating or excessive AC current consumption, causing shut-downs. In addition, some power may be lost at those frequencies where the impedance dips below 2 ohms. For these reason the operation with 2-ohm load should be tested thoroughly before putting into use.

2.4. Cooling

The 44TDAP Series devices use a force-air cooling system as follow: the cold air is sucked through the ventilation hole of the front panel, and the heat is taken out from the rear panel. It allows high continuous power levels without thermal problems.



CAUTION: ever attempt to reverse the airflow



Make sure an adequate air supply is provided in front of the 44TDAP, and that the rear of the 44TDAP has sufficient space to allow air to escape. If the 44TDAP is rack-mounted, never operate the unit with any front or rear rack doors or covers in position. It is recommended to keep the ambient temperature in the 0°~45°C (32°~113°F). An increased temperature can have a significant negative impact on the expected lifetime on the components inside the 44TDAP.

2.4.1. Temperature Sensing and Protection

The 44TDAP is equipped with a sophisticated temperature sensing system which protects it from any overheating which may occur as a result of inadequate ventilation. If the temperature exceeds 85 degrees, the output voltage will be reduced, avoiding an excessive temperature rise. If the temperature continues to increase up to 90 degrees, the power amplifier will be shunted down. Once the temperature has fallen to a safe temperature, the equipment will reboot automatically. After working for a while, if the cooling effect is not enough, please turn off the equipment and remove the dust net cover to clean up the dust. If even doing this, the device still unable to recover on its own, please contact our support team.

3. Technologies and Key features

3.1. Introduction

The 44TDAP DSP amplifier systems integrate light-weight power supplies, high power sonically transparent class-D amplifiers, complete system monitoring and a fully featured ETHERNET network controlled 32 bit / 48kHz DSP processing platform, handled by the front panel dual Rj45 connectors, as standard.

44TDAP Series have been engineered for mid sized venues, rental and touring applications, adopting circuit architecture of multi-loop control technology, bearing-up constant resistance output and developed for low-impedance and high-current, as a result we obtain a power amplifier with a 90% efficiency and an incomparable stability.

All 44TDAP Series amplifiers come with built-in active Power Factor Correction and soft switching technology. It can ensure that a predominantly resistive load is presented to mains thus minimizing current distortion and voltage/current displacement. This leads to improved performance of the amplifier at high levels of output and avoids mains-voltage collapses, typical of standard and switching power supplies. Another great advantage of this technology is that its performance is, to a large extent, independent of mains voltage. The rated output power does not vary with load/line conditions.

The advanced 48kHz DSP is fully integrated into the product and provides an amount of useful features. Its powerful Limiter suite provides Peak and RMS limiting, as well as multi-band limiting for passive 2-way enclosures. Many convenient features are provided as Gain, delay, EQ and a powerful FIR filtering with 512 taps, bringing linear phase response to the Tecnares presets.

3.2. Main Features

- *High efficiency, energy-saving and emission-reduction*
- *Small size, light weight, 1U rack space*
- *Active Power Factor Correction (APFC)*
- *High reliability, meeting the requirements for high-quality audio system and engineering products*
- *Low noise of the power amplifier and the mute fan*
- *4-channels models*
- *Integrated 32bits, 48kHz DSP with FIR filters*
- *RMS & Peak limiter setting*
- *Multiband compressor*
- *Ethernet control*
- *100-253c vac wide voltage adaptation range*
- *Amplifier output DC protection*
- *Output overload/short-circuit protection*
- *High temperature power compression, over-temperature protection*
- *Undervoltage protection for power supply*

3.3. Preset Manager

The 44TDAP Series amplifier preset manager focusing to give a more speaker-based approach to controlling, designing and recalling speaker configurations.

The Device Preset module, provides access to a full device preset of the device. The Speaker config module gives access to only one output channel block.

3.4. FIR Filtering

The advantages of FIR filtering include more arbitrary and fine control of a filter's magnitude and phase characteristics, independent control of magnitude, very long minimum-phase FIR based system EQ, horn correction filtering, independent control of magnitude and phase, and mixed & maximum-phase characteristics.

4. Panel Interface User Guide

4.1. Front Panel

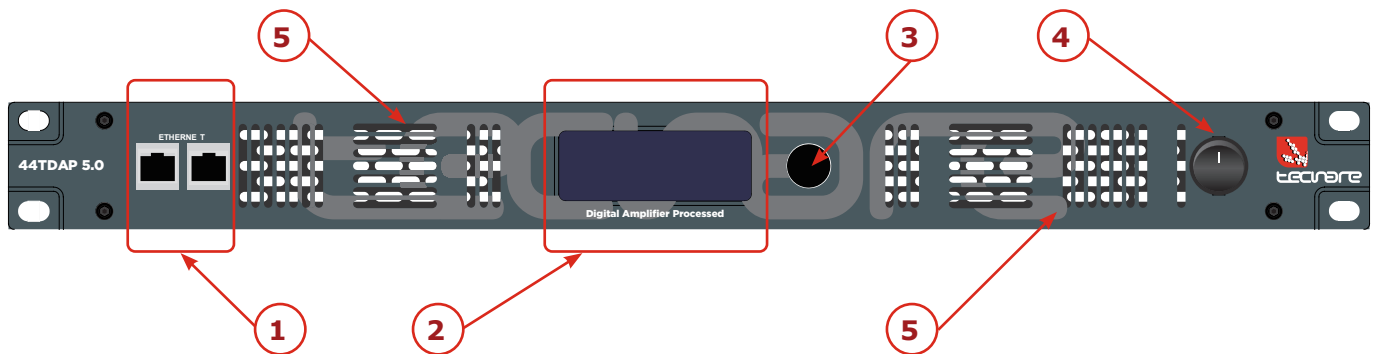


Fig. 7 Front panel

4.1.1. The Front Panel Layout

The front panel of the Device 44TDAP Series amplifiers is a combination of button together with the LCD display allows the user access to detailed information and control over the amplifier's status. This chapter illustrates all the functions and settings accessible via the amplifier front panel.

All the setup and setting functions described in this chapter can be also accessed via computer with **PCC-NET** software.

1. Ethernet Communication Port

The amplifier may be controlled entirely from another controller, typically a Personal Computer, running TecnaRE PCC-NET software. Connection will normally be made to the controller via this Ethernet port connector with shielded Cat-5e cables. This port is also used for updating the firmware in the unit. The port is dual Rj45 built-in switch chip.

2. LCD Graphical Display

When the device is switched on, it will show on the default screen. It will have access to a five setting submenu. The screen contrast can be changed by pressing the encoder button to navigate to *<Setting>* and using the encoder got to "Contrast" and using also the encoders to change the percentage; this can also optimise the viewing angle.

3. Parameter Encoders

A velocity sensitive parameter encoder is used to adjust parameters shown on the display.

4. Power Switch

Applies mains power to the device.

5. Cooling vents

These opening force airflow from front to back through the air filter.

4.2. The Rear Panel

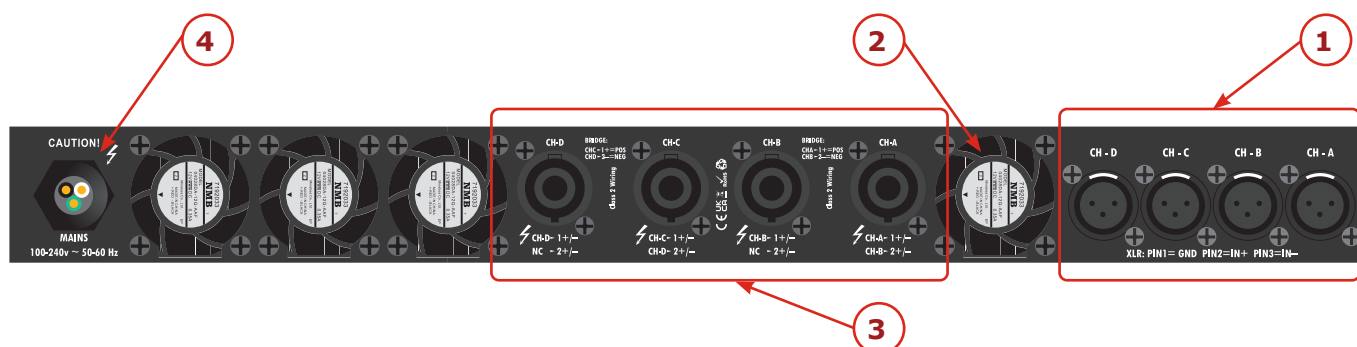


Fig.8 Rear panel

1. Audio Input Connectors

Analogue Audio Input Connectors- All audio connections are fully balanced and wired: pin-1 to ground (as required by the AES48 standard), pin-2 hot & pin-3 cold.

2. Fans

Provides forced ventilation for front to back cooling.

3. Loudspeaker Connector CH1

The amplifier SpeakON™ outputs. Connect the loudspeaker to the 1+ and 1- terminals. CH1 also carries the (duplicated) loudspeaker output for channel 2 on terminals 2+ and 2-. Similarly, CH3 carries the loudspeaker output for channel 4 on terminals 2+ and 2-. For Bridged mode, use terminals 1+ and 2- of either CH1 or CH3.

4. Power Supply Input

Main input 100-240V operation. Not selectable. 3 x 2.5 mm² Power cord.



IMPORTANT: The device must be earthed to a suitable power earth; failure to do so may affect performance and/or operation and will invalidate warranty and could be potentially hazardous.

5. Quick Start

The 44TDAP Series amplifier are not only powerful amplifiers but, have a comprehensive processing ability, allowing great systems as your design required. All you need to do is recall the appropriate Preset, connect your speakers and source and away you go. This section shows you how to achieve the quickest, most straightforward set up using an 44TDAP5.0.

5.1. Loading a 2-way (Bi-amp) Preset

1. Connect the amplifier. The 44TDAP requires mains connected to its main power and an input feed signal, balanced analogue to the input XLRs. A 2-way loudspeaker run in bi-amp mode can be connected directly to output SpeakON® 1 and 3 as these also have channels 2 and 4 respectively connected to pins 2± specifically for bi-amp operations. See the chapters on mains, input and output connections for more details.
2. Power up the amplifier, once it has completed its power-up cycle the home screen will show.

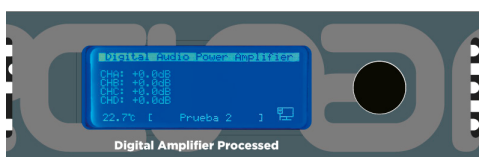


Fig. 9 Home Screen

3. Press one time the encoder button to access to preset menu.

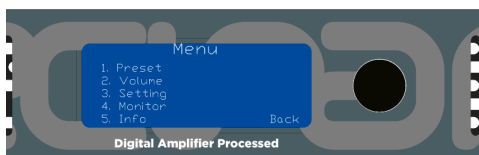


Fig. 10 Preset Screen

4. Using the encoder control to scroll round to the required preset 2-way preset, e.g. Flat

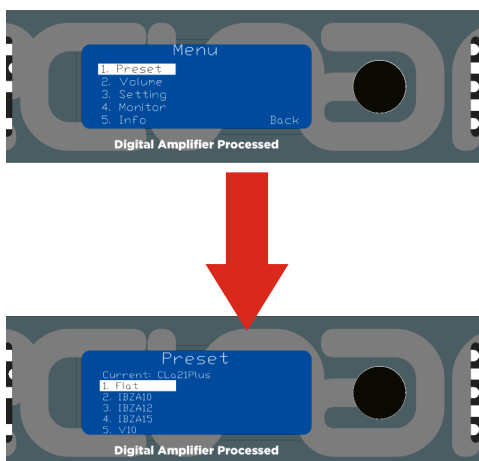


Fig. 11a & 11b Preset Screen

5. Press one time again the encoder button and them the LCD will be displayed “Recall the data, sure?”.

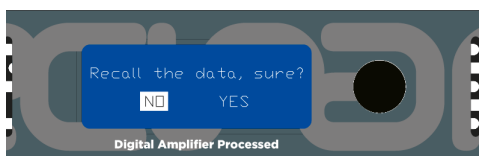


Fig. 12 Recall Screen

If you press “NO” you will come back to the preset menu. If you press “YES”, now the amplifier will be set with your desired preset.

6. Using the encoder button, scroll round to the end of preset menu and press “back”.

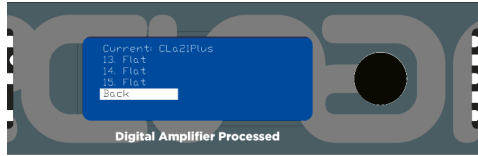


Fig. 13 Preset Screen

6. Menu Map

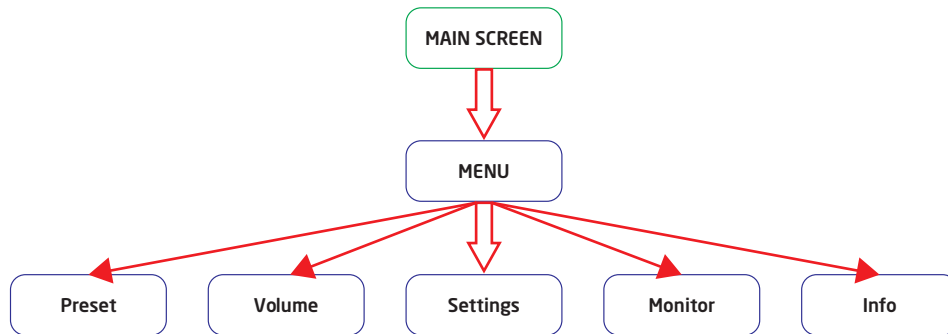


Fig. 14 Menu Map

6.1. Main Screen

Main Screen Page can control the volume of all output channels of the power amplifier. It will display the output volume level, output clipping and output compression of each output channel. Also, it displays the device operating temperature, network connection status and the current preset.

Press the rotary encoder to enter into the operation menu.

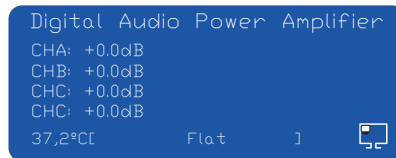


Fig. 15 Main Screen

6.2. Menu

6.2.1. Preset page

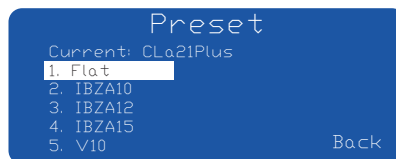


Fig. 16 Preset Screen

In the preset page, current is the currently loaded preset. The next lines show the available presets contain into the device. A total of 16 preset can be stored. The device may contain a library of Factory Presets designed to suit Tecna loudspeakers.

Factory Presets may contain some parameters that are fixed and hidden from view; the remainder of the parameters are available for user manipulation. Typically crossover frequencies, output delay and some EQs are hidden; those settings that are a function of the loudspeaker cabinet design and should not require adjustment for different applications.

6.2.2. Volume

The volume of each output channel of the power amplifier can be controlled independently. It can independently control the mute of each output channel of the power amplifier.

OUT	Volume	Mute
A:	+0.0dB	🔊
B:	+0.0dB	🔊
C:	+0.0dB	🔊
D:	+0.0dB	🔊
Back		

Fig. 17 Volume Screen

6.2.3. Setting

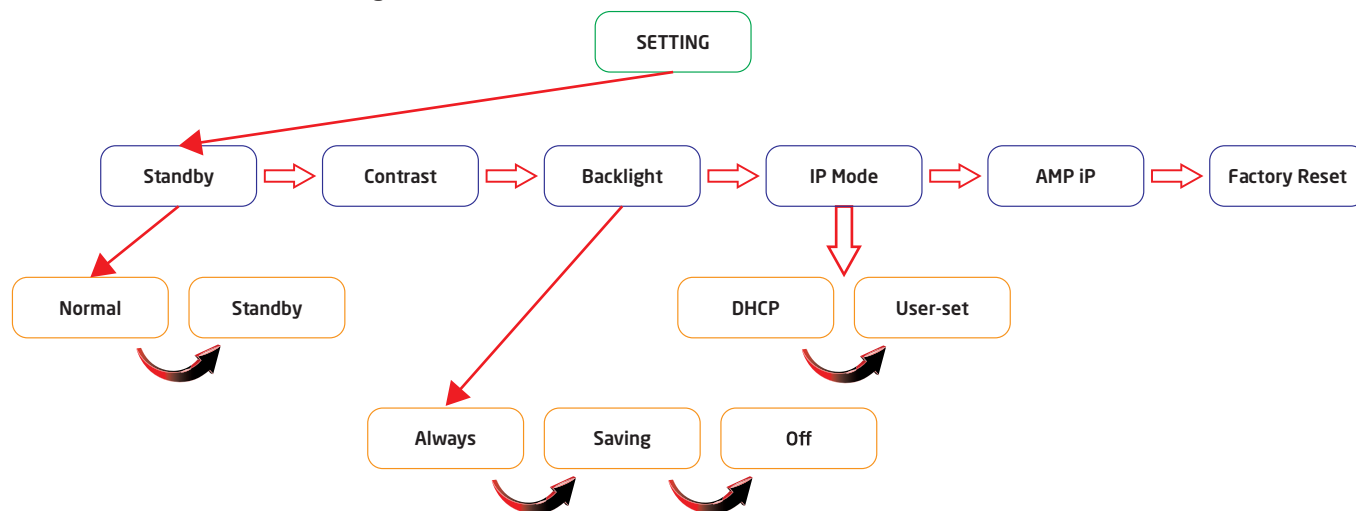


Fig. 18 Setting Menu Map

- **Standby:** Select the “standby mode” between normal or standby.
- **Contrast:** Screen contrast range: 30-100. Default 75
- **Backlight:** Selectable between Always/Saving/OFF
- **IP Mode:** Auto-DHCP (automatic acquisition) or User-Set (Set manually)
- **AMP-IP:** The IP address of the power amplifier can be changed in manual mode.
- **Factory Reset:** Restore factory setting

6.2.4. Monitor

The MONITOR menu provides real-time measurements and information on the amplifier:

- **For each output channel:**
- **Real-time RMS output voltage (in volts)**
- **Output current**
- **Output module temperature (In °C degrees)**
- **State, whether all channels of power amplifier are protected**

6.2.5. Info

- **Model:** Power amplifier Model
- **Run time:** Total working time
- **Communication:** Communication interface type
- **SN:** Amplifier Serial Number
- **FW:** Display the version number of amplifier onboard firmware

7. Processing Block Diagram

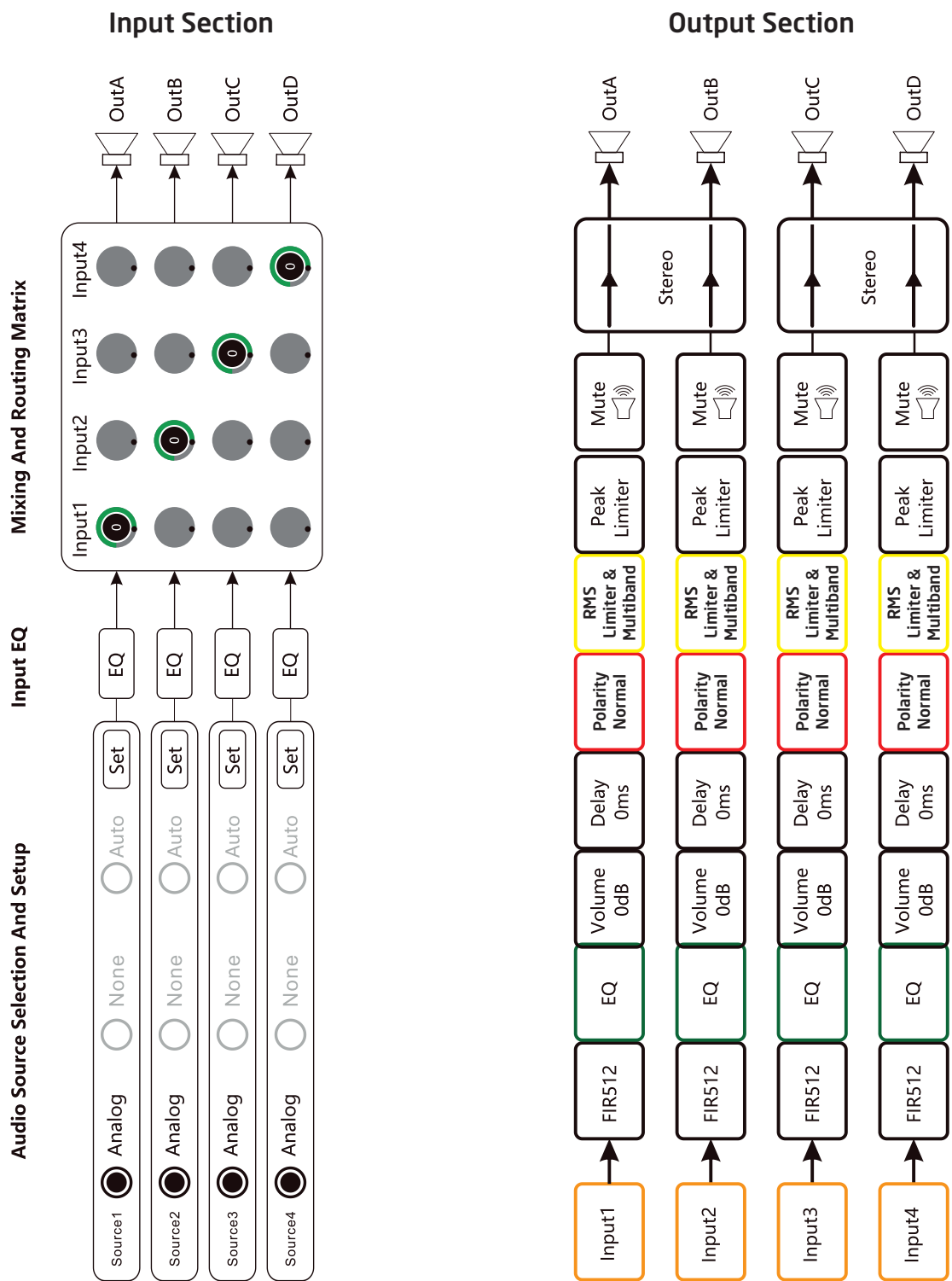


Fig. 19 Processing block Diagram

8. Technical Specifications

General	
Number of input channels	4
Input types	4 x Analogue
Number of output channels	4
Control and monitoring	Ethernet
System sleep and wakeup	Front panel switch, network command and audio detection
Max ambient temperature (full power, no limiting)	45degC (113degF)

Audio			
Amplifier modulation scheme	Proprietary Multi-Loop control technology architecture - Class D		
Dynamic range (analog input to speaker output)	>100dBA typ (20Hz - 20kHz, 8Ω)		
Frequency response	±0.5dB (10% Rate Power, 20Hz-20kHz, 8Ω) (Note 1)		
Total harmonic distortion, THD+N	Typical: 0.05% (10% Rated Power, 1kHz, 8Ω)		
Inter-channel crosstalk (worst combination of channels)	≥90dB (Below Rated Power, 20Hz - 1kHz, 8Ω)		
Damping factor (Ref 8 Ohms)	≥ 1000(20Hz-200Hz)		
Maximum analog input level	+21dBu (8.7Vrms)		
Analog input sensitivity range for full output	0dBu to +21dBu, continuously adjustable		
Gain volt (Rated Power, @1kHz)	44TDAP1.3	44TDAP3.0	44TDAP5.0
	18dB	21dB	24dB
Analog input impedance	20k Ohm, electronically balanced		
Analog ground scheme	AES48 standard compliant		

Note 1: The frequency response can be reduced on outputs which have FIR enabled

Digital processing	
Resolution	32bits, using proprietary algorithms
Sample rate	48kHz
Special functionality	
Class leading limiter suite	RMS & Peak limiter setting and Multiband compressor on each output
Bypass, Reset, Copy, Paste, Save, Phase display	
Filter Setting	Peaking, Low shelf, High Shelf, All-Pass, General Low, General High, Butterworth Low (12dB/Oct), Butterworth High (12dB/Oct), Bessel Low (12dB/Oct), Bessel High (12dB/Oct)
Crossover Filters	Butterworth: 12dB/Oct, 18dB/Oct, 24dB/Oct, 36dB/Oct, 48dB/Oct Bessel: 12dB/Oct, 24dB/Oct, 48dB/Oct Linkwitz-Riley: 12dB/Oct, 24dB/Oct, 48dB/Oct
FIR Output filters	512Taps, 48kHz

Power Output			
Model	44TDAP1.3	44TDAP3.0	44TDAP5.0
Power specification	RMS output power per channel, all channels driven @1kHz continue sine wave and a nominal ambient temperature of 40degC / 105degF, THD+N=1%		
Crest Factor of 7.8 (18dB), 2-ohm nominal load (Note 2)	1.300W	3.000W	5.000W
Crest Factor of 4.8 (14dB), 4-Ohm nominal load	750W	1.700W	3.400W
Crest Factor of 2.8 (9dB), 8-Ohm nominal load	450W	1.000W	2.000W
Bridged, per channel pair, 4 Ohm load (Note 2)	2.600W	6.000W	9.600W
Bridged, per channel pair, 8 Ohm load	1.500W	3.400W	7.000W
RMS Voltage	72.1V	109.5V	126.5V

Note 2: Test condition=20ms

Power supply	
Topology (main power supply)	3rd generation Series Resonant
Mains input voltage range (automatically configured)	100V to 253V AC
Mains input frequency range	47Hz to 63Hz.

Protection system



NOTE: Under all circumstances the control and protection systems will endeavor to deliver the maximum power possible for a given set of conditions, applying limiters only in extreme circumstances. Muting will only occur when a dangerous situation is detected, normal operation automatically resuming when the condition clears

System protection	
System protection	Speaker protection
Excessive output current	Audio soft-clip limiter
Excessive Voltage Limit	DC offset protection
Over Temperature	RMS Limiter, Peak Limiter and Multiband limiter
Overload Protection	
Mains voltage out of range	

Monitoring	
Supply current logged of each channel	Run time
Supply voltage logged of each channel	Serial Number
Operating temperature of each channel	Thermal Capacity of power supply
Power module of each channel	Protection limiting for each output

Physical			
Cooling	Variable speed fans		
Airflow	Front to back		
Air filtration	PPI5 Washable media.		
Analog IN	XLR Connector		
Audio output connector	NL4 SpeakON®		
Network and Communication	1 x RJ45 socket + 1 x RJ45 switching link; TCP/UDP, 10/100base-T/100base-TX		
Mains input	3 x 2.5mm² Power cord		
Front panel display (backlit)	Graphical, high contrast, daylight visible		
Front panel encoder	One, indented, velocity sensitive		
Enclosure	Standard 19" / 1HU (45mm) and optional rear support system		
	44TDAP1.3	44TDAP3.0	44TDAP5.0
Depth	376mm / 14.8-in	376mm / 14.8-in	465mm / 18.3-in
Net Weight	8,3kg. / 9.37lbs	9,4kg. / 10.8lbs	12,45kg. / 11.24lbs

Options	
Rear rack support kit	TDK-TS
T-Rack3U	Modular 19"/3HU Slim & Slam Rack, 600P, four collapsible handles
T-Rack6U	Modular 19"/6HU, Pro-Rack Side Sliding door (Front & Rear). Made of black PVC
TS-Rack10U	Modular 19"/10HU, Pro-Rack Side Sliding door (Front & Rear). Made of black PVC
TRBP1U	Blank panel 19"/1HU
TP-B1U	19"/1HU connection panel for the connection of two TDA Series Amplifier with 2 Analogue IN /Link, 2 single Analogue IN port, 1 AES3 IN/Link port, 1 Ethernet port, 4 SpeakON® NL4 and 1 SpeakON® NL8 and 1 PowerON® 32A
TPD32	Power distribution panel, 19"/2HU with 3 16A schuko socket, 3 discrete 32A circuit breaker, 1 P17 Plug In and CEE32A out socket, 3 Neon light on the front and 3 3 16A schuko socket and 3 PowerON® 32A on the back.



Reinventing The Rules

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44TDAP Series Operation manual

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