

XTE *electronic*

the Electronics Maker



Digital Technology Series

XTDT3200 – XTDT3800
XTDT4800F – XTDT6000F
Digital Power Amplifier

User's Manual

Important safety instructions



This symbol indicates the presence of important directions for use and information that should be given particular attention so as to use the product properly.



This symbol indicates the presence of “dangerous voltage” that may cause the risk of electrical shock. Pay the utmost attention and proceed cautiously.

1. Follow carefully the attached documentation and keep it for future reference
2. Comply with the warnings
3. Store the packaging and check that all material is in excellent conditions.
4. Do not use water near the product, do not pour water or any other liquid on the amplifier. Do not to use it with wet hands or feet into the water.
5. Do not use next to heat sources such as radiators, stoves or the like.
6. Check the integrity of the mains cable. Do not tread on the cable and do not squeeze the plug.
7. Connect the plug to a socket equipped with grounding. Do not camper the plug. If the plug supplied is not consistent with your socket, please apply to an electrician for its replacement.
8. Connect to supply mains with the same voltage as indicated on the back of the amplifier.
9. Install the amplifier in compliance with the instructions.
10. Do not obstruct the air ducts.
11. Disconnect the appliance in case of storm and if unused.
12. Connect according to the instructions only.
13. Do not connect input signal higher than that indicated in the manual.
14. Do not connect the amplifier output to the input of another channel.
15. Do not connect any output of the amplifier to power sources such as battery, voltage supply or outlet, regardless of the amplifier is on or off.
16. Keep the volume controls to a minimum during the amplifier switching on/off.
17. Do not remove the upper or lower cover: there is a risk of electrical shock.
18. Do not try to self-repair the appliance, but apply to qualified personnel.
19. Clean with a dry cloth only.
20. The product shall be handled by skilled personnel in the following cases:
 - mains cable or plug damaged
 - Exposure of the product to rain or humidity
 - Some liquid entered inside the unit.
 - An object fell on the unit
 - The unit fell down and is damaged
 - The product does not work correctly or shows a remarkable change of performance.
21. A careful supervision is necessary if the product is used in the presence of children or inexperienced adults.
22. This product could produce sound levels, which cause damage to the hearing.. Pay the utmost attention and do not operate at high level of volume or at an uncomfortable level for a long time. Consult an audiometric specialist in case of hearing loss or complaints.

Declaration of conformity

This device conforms to the requirements of the EMC directive 89/336/EEC, amended by 92/31/EEC, and the requirements of the Low Voltage Directive 73/23/EEC, amended by 93/68/EEC.

Standards Applied:

EN55103-1 (Emissions)

EN55103-2 (Immunity)

EN60065, Class I (Safety)



User's liability



Damages to the loudspeakers

Always check the peak and continuous power of the loudspeakers.

This amplifier is extremely powerful and can be potentially dangerous both for the loudspeakers and for the persons.

Most loudspeakers may be easily damaged or broken, especially by amplifiers operating in bridge. Even if there is a gain reduction through the attenuators on the amplifier's front panel, it is still possible to reach the maximum output power if the input signal level is high enough.



Dangerous output voltage

The amplifier can generate hazardous output voltage. Do not touch exposed cables of loudspeakers with the amplifier in operation.



Radio interferences

A sample of this product has been tested and approved to meet the requirements of the Electromagnetic Compatibility Directive (EMC). These requirements have been defined so as to provide reasonable protection against dangerous interference of electrical equipment. Whenever this product has not been installed or handled according to these guidelines, it might interfere with other equipment such as radio receivers. However, there is no guarantee that they should not occur in a specific installation. Should this equipment interfere with transceiver equipment (such possibility can be checked by switching on and off the device), the user should try to cancel the interference by observing one or more of the following measures:

- Increase the distance between the device and the receiver.
- Connect the device to a plug linked to a different circuit with respect to the one to which the receiver is connected.
- Redirect or move the receiver's antenna.
- Make sure that the unit concerned conforms to the EMC immunity limits (CE-labelled). All electrical equipment sold in the EC should be approved as for what concerns protection against electromagnetic fields, high tension and radio interference.
- Contact qualified personnel.

Introduction

Congratulations on choosing power XTE amplifiers and thanks for trusting us and our products. Your amplifier has been carefully planned in the smallest details, starting with every part of its equipment till final assemblage. All products XTE are made with the main purpose of guaranteeing our clients' full satisfaction, thus we underline that the product you have chosen uses the most advanced technology.

An improper use of the amplifier can compromise its correct operation. Therefore we recommend you to carefully and correctly use it.

Read this manual carefully as it contains essential information for a safe use of your amplifier.

Unpacking

Immediately inspect the package and its content so as to check whether there are any signs of damage. After unpacking check the product and all parts, if you notice any damage inform your dealer immediately.

It is advisable to save the packaging materials even if the amplifier shows no sign of shipping damage; you might have to return it to XTE or to one of its dealers. Use the original package only, which is the best way to protect the equipment from shipping mishandling.

Installation/Assembly

All models of the XTE Digital Technology amplifiers may be installed in a 19" standard rack strand.

For the assembly 4 holes are present on the front panel; in order to get an optimum fastening, that is important in movable systems, additional supports are placed on the back.

Pay particular attention during the installation; we remind you that the amplifiers should not be installed in places with:

- High temperatures
- Dust and excessive humidity
- Presence of intense magnetic fields
- Water next to the component
- Vibrations
- Closed spaces inhibiting a proper ventilation

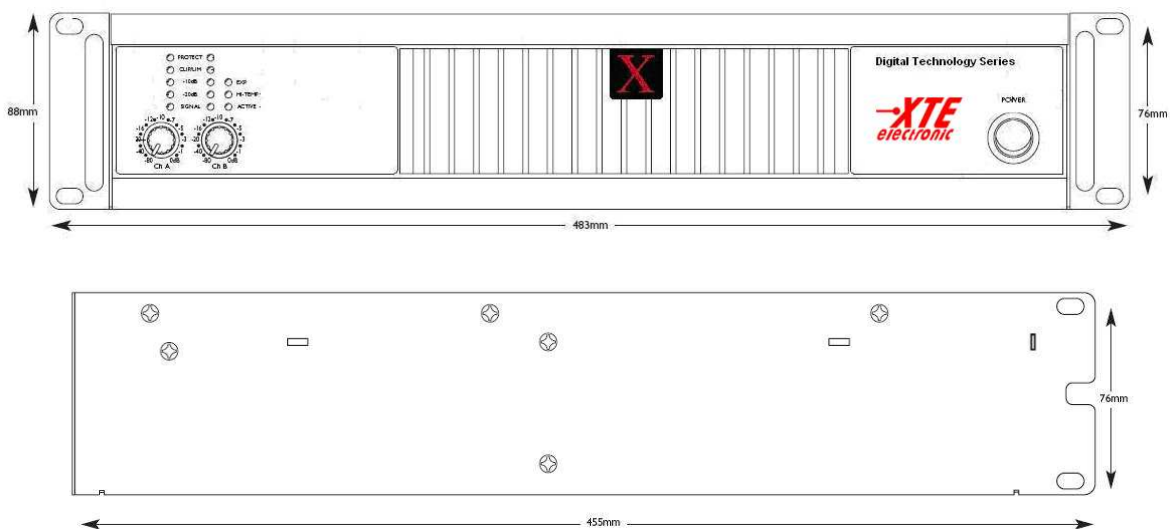


Fig.1 Dimensions

Front panel control and indicators

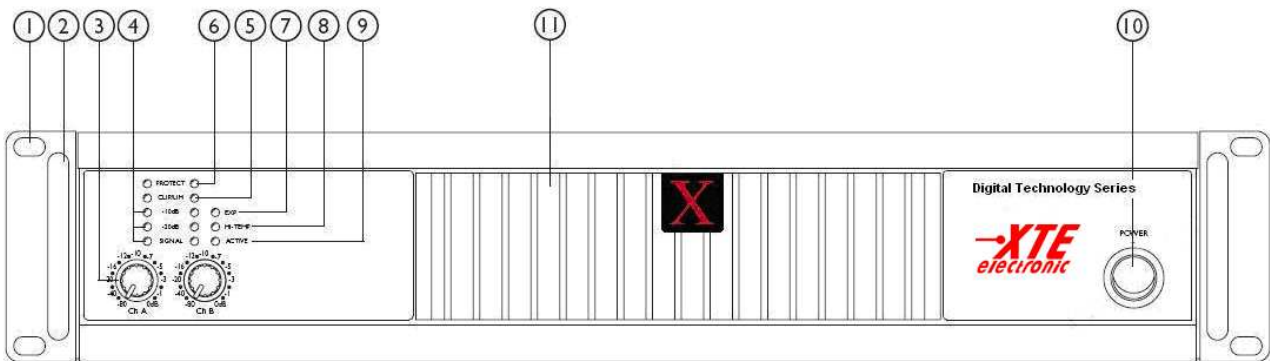


Fig.2a Front panel XTDT3200 XTDT3800

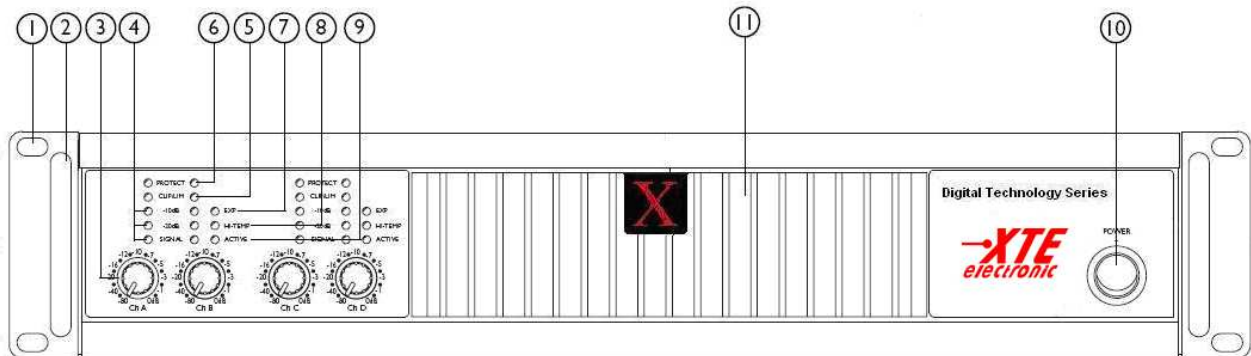


Fig.2b Front panel XTDT4800F XTDT6000F

1. Holes for the assembly

2. Standard rack handles

3. Input attenuators

A precision attenuator for every channel with 21 positions allows you to tune the amplifiers level for every channel.



Attention: when using a mono in bridge both level attenuators A-B (C-D) should be set to the same position. Please set them to position 0 dB.

4. Signal bar LED

Every channel has a LED bar that shows the input signal level.

Green LED shows the presence of a signal and level -20dB, yellow – 10dB. Respectively: 0.1%, 1%, and 10% of maximum power.

5. Clip/Limiter LED

Every channel has a LED that lightens at clip point and at the limiter intervention.

6. Protection LED

Protection LED that lightens when the load voltage is under 1 Ohm or the amplifier output has been short-circuited.

7. Exp LED

It indicates that an optional expansion board has been inserted.

8. Hi-Temp LED

It will start flashing when the dissipator temperature starts increasing. At 60°C the Hi-Temp LED will start flashing and the output power will be gradually reduced. At 75°C the Hi Temp LED will remain lit and A-B (C-D) channels will go into mute until the temperature reaches normal level, resetting is automatic.



Attention: this condition usually occurs due to inadequate ventilation clearance, please check thoroughly the amplifier installation.

9. Active LED

It lights to show that the amplifier is on and runs properly.

10. Starting up push button

A soft-start system limits absorption when starting up.

11. Ventilation grid

Grid with sponge filters for proper ventilation of the amplifier and to prevent dust infiltration.



Attention: Do not block the ventilation entries.

Back panel controls and connectors

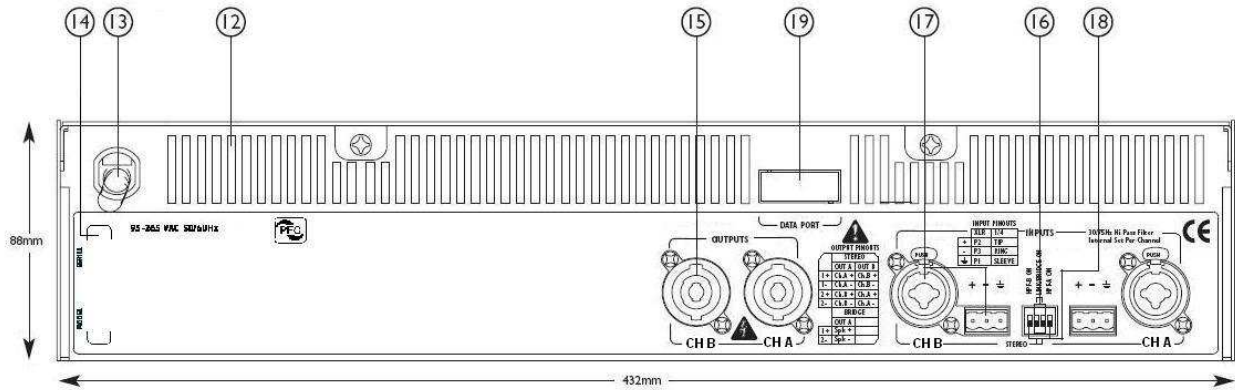


Fig.3a Back panel XTDT3200 XTDT3800

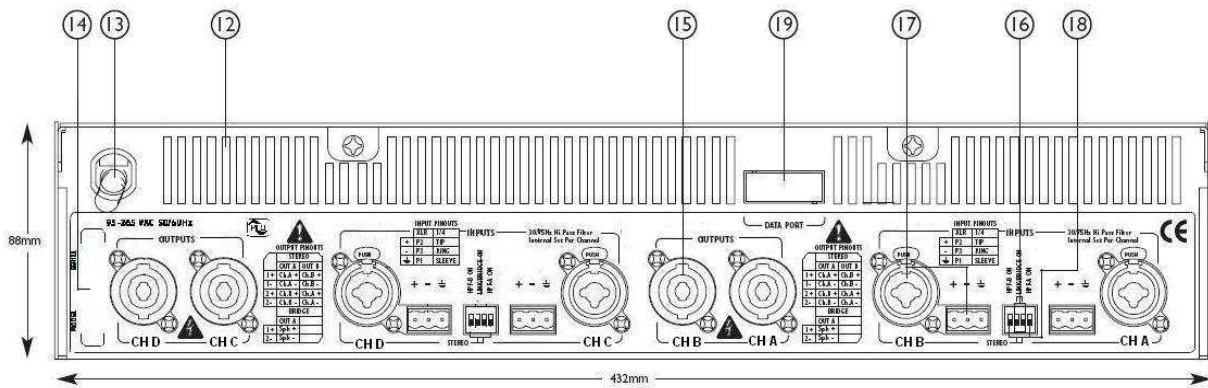


Fig.3b Back panel XTDT4800F XTDT6000F



Do **not** adjust the configuration switches while the amplifier is turned on.
Never connect a **hot (+)** output to ground or to another **hot (+)**

12. Fan discharge grids

The fan of the cooling system creates an airflow with for/back direction. The air for cooling the amplifier is taken from the opening on the front side and it is then discharged through the opening on the back.



Attention: do not obstruct these openings.

13. A.C. Mains cable

Make sure that the cable is undamaged and that the connecting plug has ground /earth connection.

14. S.N. tag

Every unit has a tag that shows: model, power consumption and serial number.

15. Speakon output connectors

There is a connector for every channel when operating in stereo or parallel mode. For operating in bridge use connector A (C) (refer to drw. page 9, 10, 11)

16. Switch for mode setting

Switch to set the usage mode (refer to drawings page 9, 10 and 11)

17. Input connectors

Combo connectors (female XLR with 6.3mm jack) and Europlug, a connector for every channel for balanced or unbalanced inputs. **Attention:** noises such as buzzing or disturbance on the loudspeakers may occur when installing wiring next to dimmer, motors, etc. Balanced connections reduce considerably such noises.



18. HPF filter Switch ON/OFF

This switch enables the filter circuit.

19. Data port

This port is used as Input/Output connection with the optional expansion cards such as DSP or customised modules to equalize or to filter the signal. For further information refer to the DSP User's Guide.

Usage

Connecting to the mains and power absorption

Check whether there is enough power to supply the amplifier. (refer to the data at the end of this manual).

Pay attention to the voltage of the network that should comply with the directions reported on the back of the amplifier.

Maximum power consumption is limited solely through the internal fuses



Attention: before any audio connection keep in mind that the regular procedure is to turn off the amplifier and to unplug it from the mains and to set the volume tuners to the minimum, during starting up.

Cooling

Pay particular attention to the ventilation/cooling conditions of the amplifier. An internal system of forced airflow, by a variable speed fan, allows cooling of the dissipators due to the heat generated by power parts.

The airflow is directed from the front panel to the back panel of the amplifier, which means that the air comes in from the front entry and is discharged through the back opening.

Pay particular attention so that there is enough space at the amplifier front side to allow the air to go in and enough space at the back to allow it to come out. If the amplifier is installed in a rack stand make sure that there is enough air clearance, the air should easily flow through the amplifier meeting no resistance.

Setting

Make sure that the equipment is turned off before setting it according to your needs. Use the internal switches and jumpers for setting; it is also possible to set the amplifier for the following functions:

Input sensitivity

For settings input sensitivity used internal jumper (refer to drawings page 12)

It is possible to select an independent setting for each channel, the available settings are 0.775V (0dB) and 1.23V (+ 4dB). The manufacturer's setting is 0.775V.

Selectable filter for low frequencies

Your amplifier is equipped with an HPF filter that can be selected for every channel. The cutting frequencies available are 30 or 75 Hz. To set the cutting frequencies use internal jumpers, (follow the procedures as shown in diagram 7 page 12),

starting up is made through the switch on the back.

When the filter is disabled, the amplifier will still be protected by the input DC.

Stereo mode (standard)

When using stereo mode every channel operates independently and its input attenuators control the respective level.

The minimum recommended load for running in stereo is 2 Ohms per channel for XTDT3200 and XTDT3800 and 4 Ohms per channel for XTDT4800F and XTDT6000F (please refer to technical specifications).

The input signal can be connected by using Combo or Europlug connectors cabled on the back panel. The loudspeakers are linked to the output connectors speakon A-B (C-D). (refer to fig. 4 page 9)

Bridged mono mode

The bridged mono mode is enabled when the Link/Bridge switches on the back panel are positioned to "ON". Using bridged mono mode implies that both channels of the amplifier (A and B or C and D) are running with the same input signal, but with inverted phases. For output power values refer to technical specifications on page 14.

For bridged mono usage a single input Ch A or Ch B (Ch C or Ch D) is required and you should pay particular attention so that both level attenuators (A and B, C and D) are set to the same position (we recommend you to set them to position 0 dB). To connect the signal both connectors Combo or Europlug can be used. The loudspeakers should be linked to the output connector speakon A. (C) (refer to fig. 5 page 10).

Parallel inputs (Link)

The parallel mode is enabled when the Link switches are set to position "ON". In parallel mode, the inputs of both channels are connected and receive the same signal. The input signal shall be connected to Ch A or Ch B (Ch C or Ch D). Both input connectors Combo or Europlug can be used.

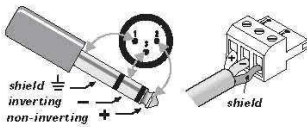
Level attenuators work independently, it is therefore possible to set a different level for every channel. The loudspeakers are linked to the speakon output connectors A or B (C or D). (See fig. 6 page 11)

Please pay attention so that only the inputs are connected in parallel. Never connect the positive output terminals on earth or parallel.



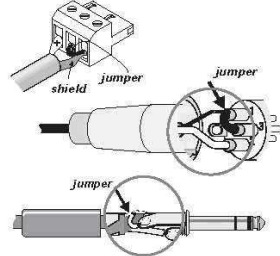
Attention: always unplug the Link switches when running the amplifier for Bi-amping.

Balanced Connection



6.3mm (1/4-inch) TRS, XLR and Europlug

Unbalanced Connection



6.3mm (1/4-inch) TRS, XLR and Europlug

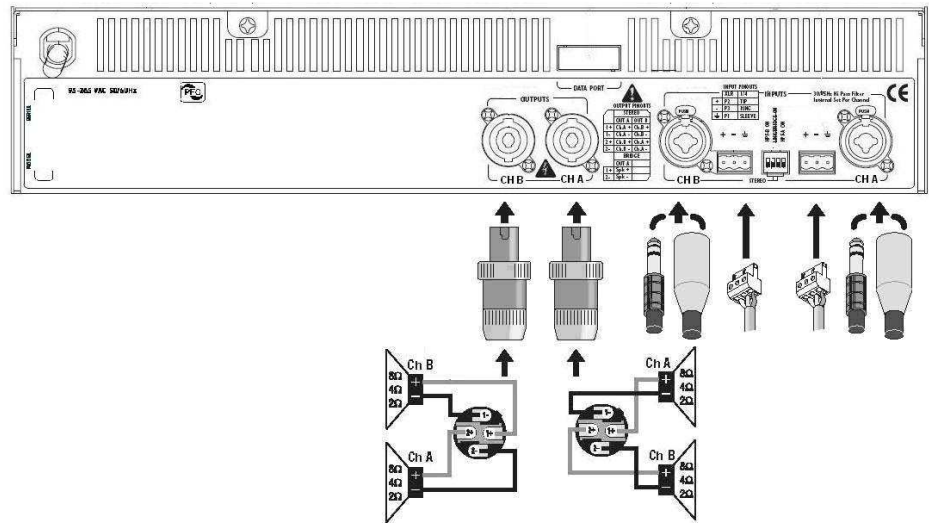


Fig. 4a Stereo Mode XTDT3200 XTDT3800

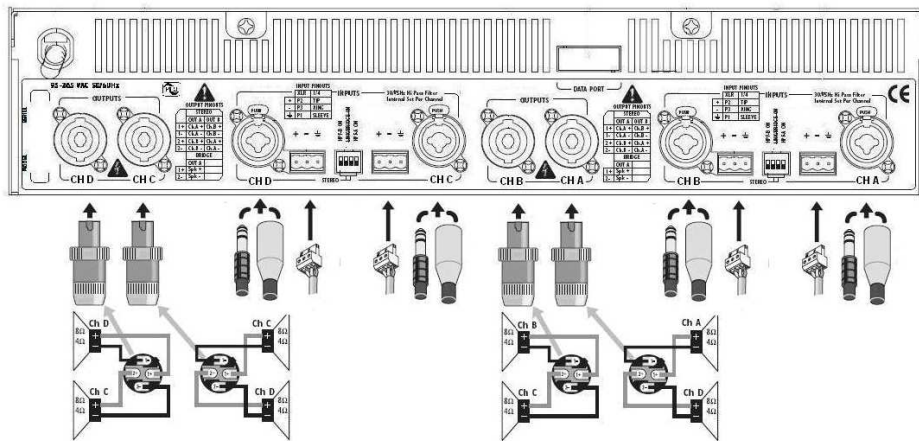


Fig. 4b Stereo Mode XTDT4800F XTDT6000F

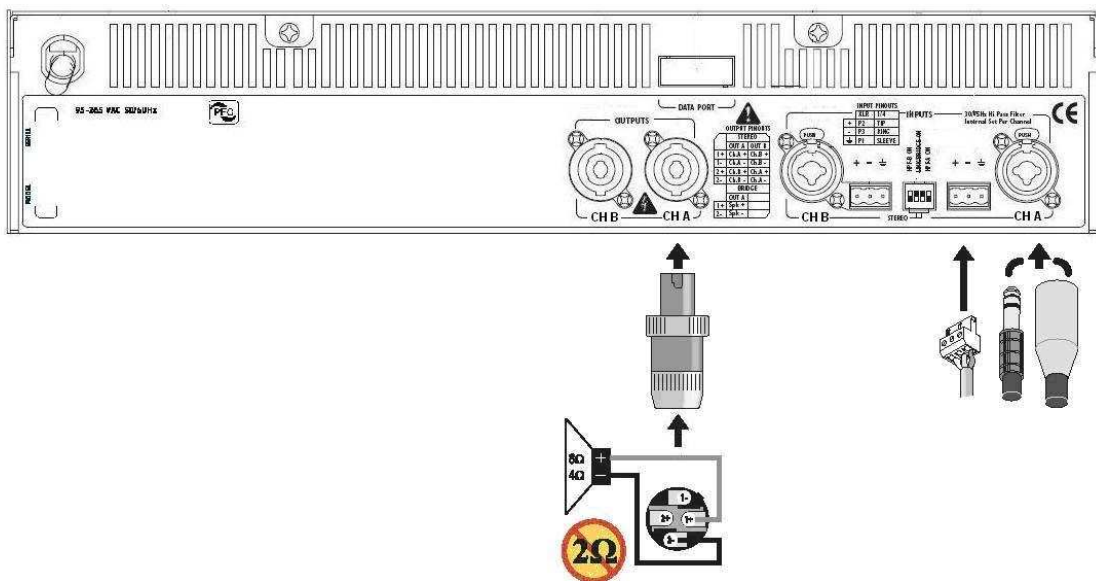


Fig. 5a Bridged Mono Mode XTDT3200 XTDT3800

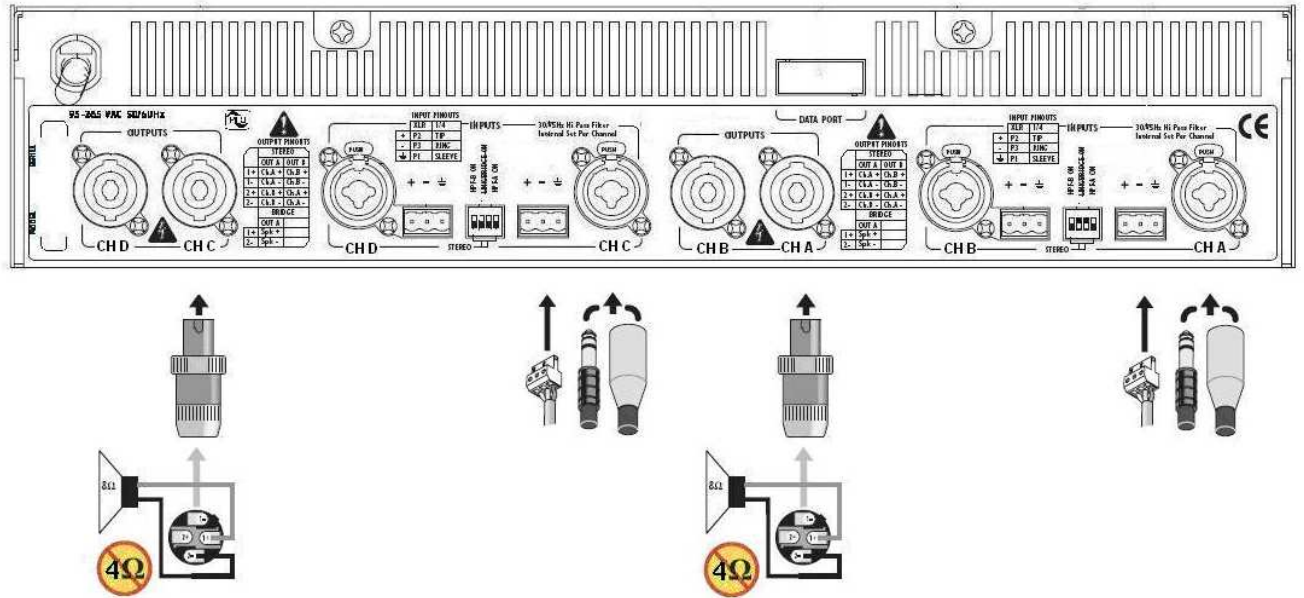
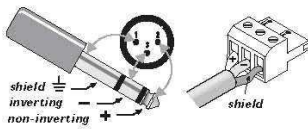


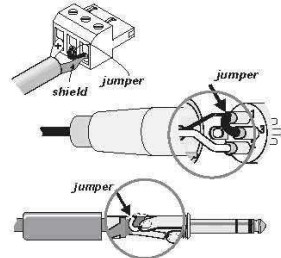
Fig. 5b Bridged Mono Mode XTDT4800F XTDT6000F

Balanced Connection



6.3mm (1/4-inch) TRS, XLR and Europlug

Unbalanced Connection



6.3mm (1/4-inch) TRS, XLR and Europlug

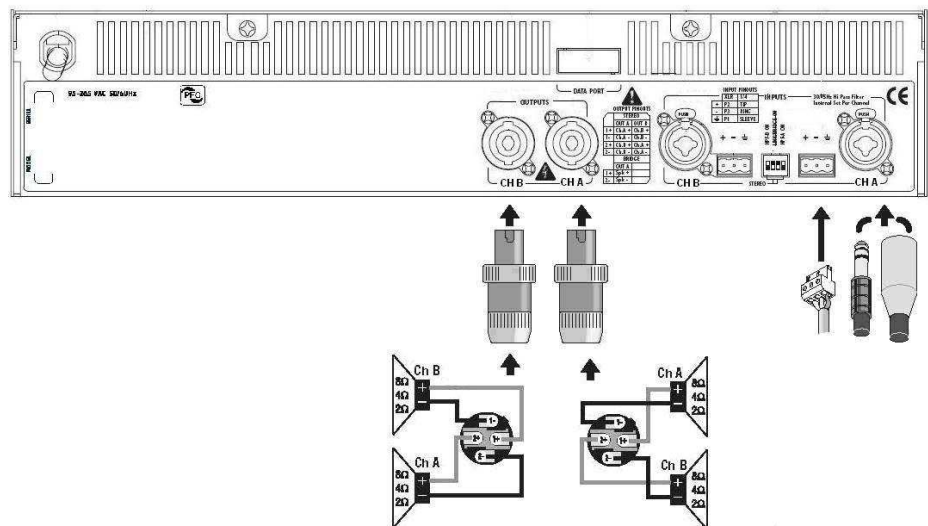


Fig. 6a Parallel Inputs (Link) XTDT3200 XTDT3800

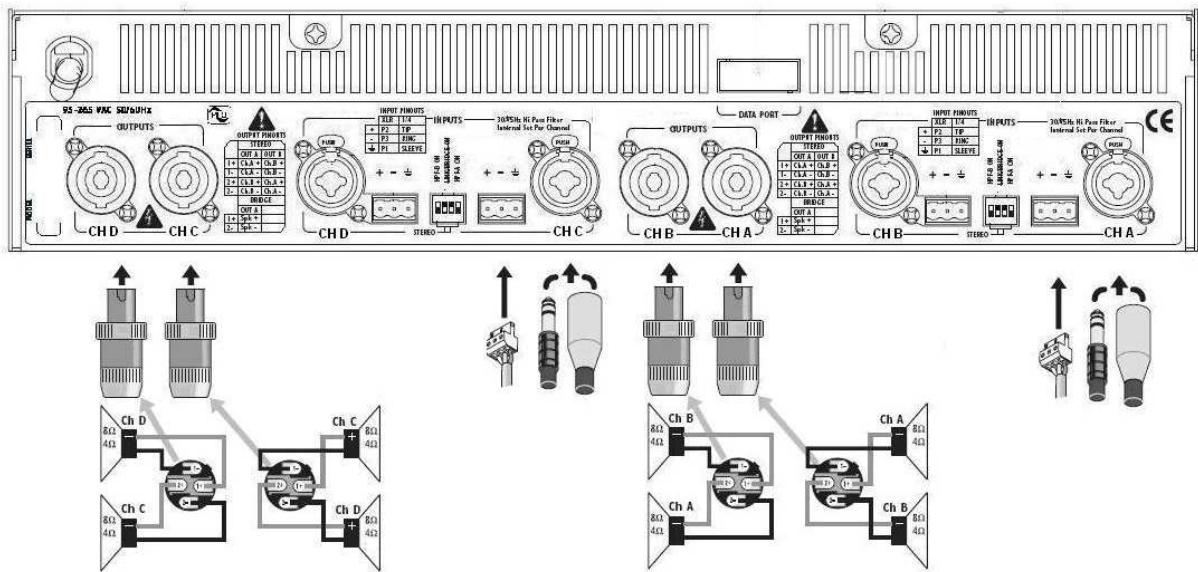


Fig. 6b Parallel Inputs (Link) XTDT4800F XTDT6000F

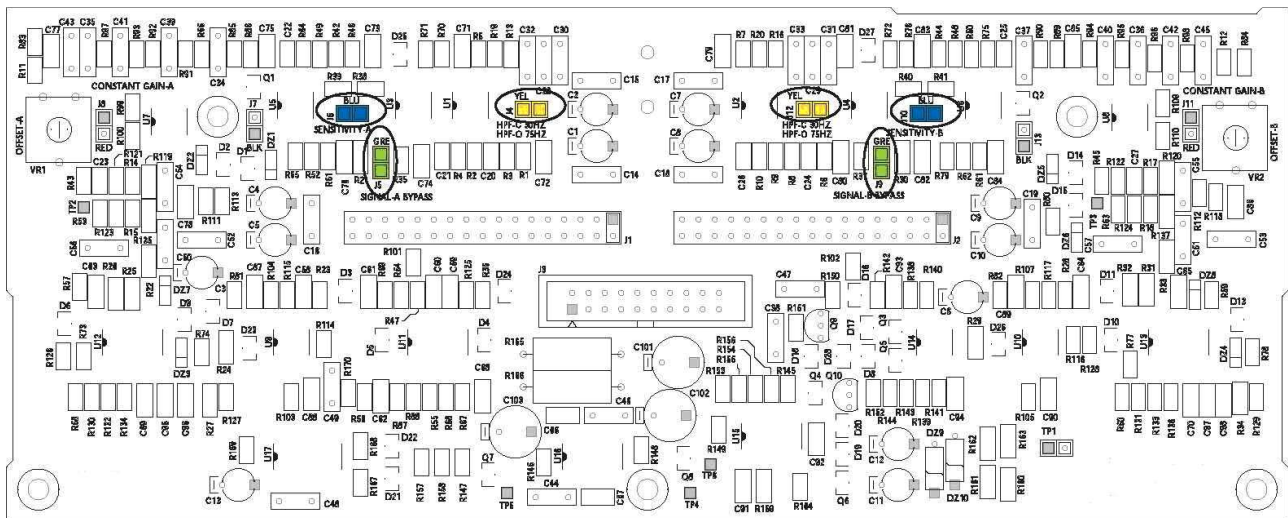


Fig.7 Jumper settings board

<p>Sensitivity setting BLUE Jumper J6 (Ch A (C)) J10 (Ch B (D)) Open Position= 1.23V@4Ω (+4dB) Closed position = 0.775V@4Ω (0dB) NOTE: the manufacturer's setting is: 0.775V@4 Ω</p>	<p>Selection of the Filter Frequency YELLOW Jumper J4 (Ch A (C)) J12 (Ch B (D)) Open position= 75Hz Closed position= 30Hz Default position: Closed NOTE: the filter is enabled by the switch on the back</p>	<p>By-pass of the Signal for Optional DSP cards or Dedicated modules GREEN Jumper J5 (Ch A (C)) J9 (Ch B (D)) Open position= card Present Closed position= card not Present Default position: Closed</p>
--	--	---

Protection features

All professional XTE amplifiers are equipped with strong protection systems that shelter the amplifier and its load. These protection systems ensure the power amplifier a long operating life.

Limiter

When the limiter is ON the CLIP/LIM LED lights on. With the limiter intervention the channel gain will automatically lower to protect the load (loudspeaker) from damage caused by signal distortion. It is not possible to disable the limiter's circuit.

Thermal protection

The temperature state of the dissipator is constantly checked, the HI-Temp LED gives indications on the temperature status. The Hi-Temp starts flashing if the dissipater reaches a temperature of 60° C. In such case the input signal of the relevant channel will be automatically decreased until a temperature for the correct running is reached. If the Hi-Temp LED stops flashing and the light remains on (anomalous working condition) the whole system will go to mute until the temperature reaches normal levels.

Power security check

On XTE amplifiers the output current is constantly checked as well as the input signal condition. If the current exceeds the maximum allowed level, output tension will be automatically readjusted in order to assure the amplifiers' security status.

Power security control acts especially in case of connection to a load with impedance lower than the recommended levels or if at the amplifier's output a non acoustic signal is released during long periods of time.

DC protection

If a value higher than or equal to 7V occurs, the presence of a DC on channels will be monitored, and the amplifier's output stage and the switching supply will be blocked. This allows loudspeaker protection from the DC.

Absorption limitation

The power XTE amplifiers are provided with a soft-start system to reduce the absorption when switched on. This feature is particularly useful in multiple amplifiers installations.

Power supply protection

The A.C. voltage is monitored; if its value does not fall within the correct running range (over or under voltage) the supply will be automatically blocked. The amplifier will restart when the main supply voltage exceeds the minimum running tension or is under the maximum running voltage.

Switch-on/turn-off transients

A mute circuit (without relay), with a delayed starting up and immediate power turning off, has been inserted in order to avoid the switch-on/turn-off transients that may cause damage to the loudspeakers

Maintenance information

Please contact the nearest XTE Audio Professional Assistance Service, Distributor, Dealer, or XTE Audio (Italy), for maintenance assistance.

Specifications

MODEL	XTDT3200	XTDT3800	XTDT4800F	XTDT6000F
Power Output Per Channel	8 Ω 850W 4 Ω 1600W 2 Ω 2000W	1100W 1900W 1500W	700W 1200W -	850W 1500W -
Bridged Mono Power	8 Ω 3200W 4 Ω 4000W	3800W 3000W	2 x 2400W -	2 x 3000W -
(EIA 1kHz – 1%THD both ch.s driven @ 230VAC)				
Frequency Response	20Hz - 20kHz,			
Distortion THD+N	<0.2% @ 0.5dB rated power @ 4Ω, 1kHz; 0.4% @ 0.5dB below rated power @ 2 Ω, 1kHz,			
Distortion SMPTE-IM	<0.35% @ -3dB below rated power @ 8 Ω			
Damping Factor @ 8 Ω 10Hz to 200Hz	>500 @ 8Ω			
Input Sensitivity @ 4 Ω	0.775V (0dB) or 1.23V (+4dB)) (internally set) 0.775V is standard factory set			
Input Impedance	10kΩ unbalanced, 20kΩ balanced			
Hum and Noise	-100dB, A-weighted			
Input Connectors (each channel)	Balanced: Neutrik Combo™ (XLR and 1/4" jack), XLR pin 2 and TRS tip positive, and 3-pin detachable Europlug			
Output Connectors (each channel)	Neutrik Speakon™			
Controls	Front: power switch, Ch.A, Ch.B, ChC, ChD stepped gain knobs Rear: 4-position DIP switch			
Led Indicators	Active status, signal -35dB, level -20dB, level -10dB, clip/limiter, protect, hi-temperature, internal option module expansion			
Amplifier Protection	Full short circuit, open circuit, thermal, ultrasonic and RF, continuous non-musical signals, reactive or mismatched loads, mains AC outside the operating voltage			
Load Protection	On / off muting, clip limiter, DC-fault power supply shutdown			
Circuitry	digital technology			
Power Supply	Regulated global power supply (95 - 265VAC) works anywhere in the world with PFC (Power Factor Correction)			
Cooling	Continuously variable fans, front to rear air flow with front panel dust filter			
Power Requirements	95 - 265VAC, 50-60Hz			
Current Draw (230VAC) 1/8 power 4 Ω	3.2A	3.7A	4.5A	5.5A
1/3 power 4 Ω	6.5A	7.6A	9.5A	11.5A
at idle	0.5A	0.5A	0.5A	0.5A
Options	DSP module for signal processing, dedicated and customized module for signal filter and equalisation			
Dimensions (WxHxD)	483 x 88 x 455mm			
Weight Net	10 kg	10 kg	11.8 kg	11.8 kg
Shipping	13 kg	13 kg	14,8 kg	14,8 kg
Approvals	CE EN55103-1 (Emissions), EN55103-2 (Immunity), EN60065, Class I (Safety)			