

the
t.amp **pro**

D4-500

digital
power amplifier

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1 General notes

This user manual contains important information on safe operation of the device. Read and follow all safety notes and all instructions. Save this manual for future reference. Make sure that it is available to all persons using this device. If you sell the device to other users, be sure that they also receive this manual.

Our products are subject to a process of continuous development. We therefore reserve the right to make changes without notice.

Symbols and signal words

This section provides an overview of the symbols and signal words used in this user manual.

Signal word	Meaning
DANGER!	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided.
CAUTION!	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor injury if it is not avoided.
NOTICE!	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.
Warning signs	Type of danger
	Warning – high-voltage.
	Warning – danger zone.

2 Safety instructions

Intended use

This device amplifies electric audio frequency signals to operate passive speakers. Use the device only as described in this user manual. Any other use or use under other operating conditions is considered to be improper and may result in personal injury or property damage. No liability will be assumed for damages resulting from improper use.

This device may be used only by persons with sufficient physical, sensorial, and intellectual abilities and having corresponding knowledge and experience. Other persons may use this device only if they are supervised or instructed by a person who is responsible for their safety.

Safety



DANGER!

Danger for children

Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!

Ensure that children do not detach any small parts (e.g. knobs or the like) from the unit. They could swallow the pieces and choke!

Never let children unattended use electrical devices.



DANGER!

Electric shock caused by high voltages inside

Within the device there are areas where high voltages may be present. Never remove any covers.

There are no user-serviceable parts inside.



DANGER!

Electric shock caused by short-circuit

Always use proper ready-made insulated mains cabling (power cord) with a protective contact plug. Do not modify the mains cable or the plug. Failure to do so could result in electric shock/death or fire. If in doubt, seek advice from a registered electrician.



CAUTION!

Possible hearing damage

The device can produce volume levels that may cause temporary or permanent hearing impairment. Over an extended period of time, even levels that seem to be uncritical can cause hearing damage.

Decrease the volume level immediately if you experience ringing in your ears or hearing impairment. If this is not possible, keep a greater distance or use sufficient ear protectors.



NOTICE!

Risk of fire

Do not cover the device nor any ventilation slots. Do not place the device near any direct heat source. Keep the device away from naked flames.



NOTICE!

Operating conditions

This device has been designed for indoor use only. To prevent damage, never expose the device to any liquid or moisture. Avoid direct sunlight, heavy dirt, and strong vibrations.



NOTICE!

Power supply

Before connecting the device, ensure that the input voltage (AC outlet) matches the voltage rating of the device and that the AC outlet is protected by a residual current circuit breaker. Failure to do so could result in damage to the device and possibly injure the user.

Unplug the device before electrical storms occur and when it is unused for long periods of time to reduce the risk of electric shock or fire.



NOTICE!

Magnetic fields

The device generates strong magnetic fields that can interfere with the function of poorly shielded devices. The strongest magnetic fields are directly above and below the power amplifier. Therefore, never place sensitive devices such as pre-amplifiers, radio transmission systems, or tape decks directly above or below the power amplifier. When installing the power amplifier into a rack, you should place it in the lowest position, and further equipment such as pre-amplifiers in the highest position.

3 Features

- Output power
 - 4 × 500 W @ 4 Ω
 - 4 × 250 W @ 8 Ω
- 4 inputs, 4 outputs
- Frequency response 20 Hz to 20 kHz
- 19" rackable (1 RU, installation depth 240 mm)

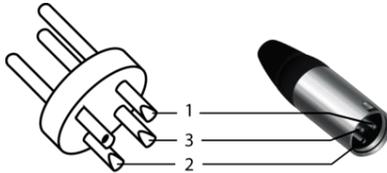
4 Installation and starting up

Unpack and carefully check that there is no transportation damage before using the unit. Keep the equipment packaging. To fully protect the device against vibration, dust and moisture during transportation or storage use the original packaging or your own packaging material suitable for transport or storage, respectively.

Establish all connections as long as the unit is switched off. Use the shortest possible high-quality cables for all connections.

4.1 Pin assignment

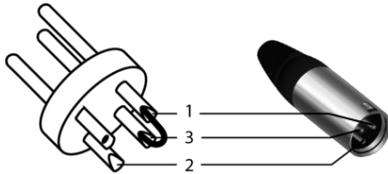
XLR connections for signal inputs



You can use XLR and 1/4" plugs with balanced or unbalanced wiring. In the following, we will give you an overview of the various options. Drawings and tables indicate the XLR pin assignment.

Balanced wiring:

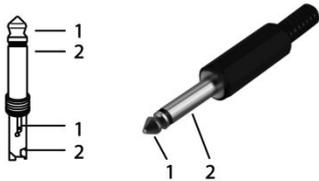
1	Ground, shielding
2	Positive signal (+)
3	Negative signal (-)



Unbalanced wiring:

1	Ground, shielding
2	Signal
3	Bridged to pin 1

1/4" phone sockets for signal inputs

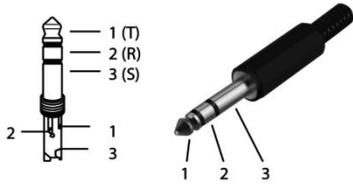


Drawings and tables indicate the pin assignment of 1/4" phone plugs to be used.

Unbalanced wiring of a TS plug:

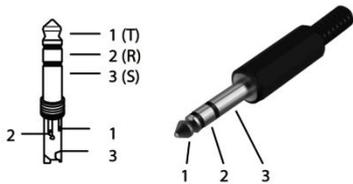
1	Signal
2	Ground, shielding

Unbalanced wiring of a TRS plug:



1	Signal
2, 3	Ground, shielding

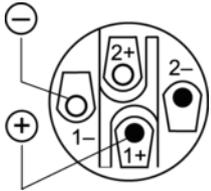
Balanced wiring of a TRS plug:



1	Positive signal (+)
2	Negative signal (-)
3	Ground, shielding

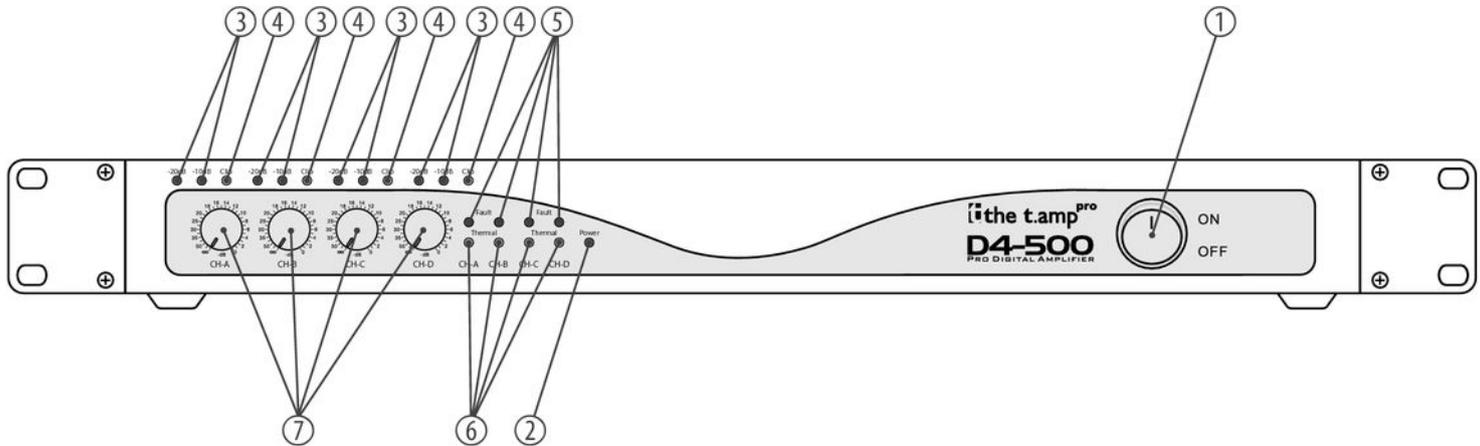
NL4 mounting connectors

The drawing alongside shows the pin assignment of the lockable NL4 mounting connectors.



5 Connections and operating elements

Front panel

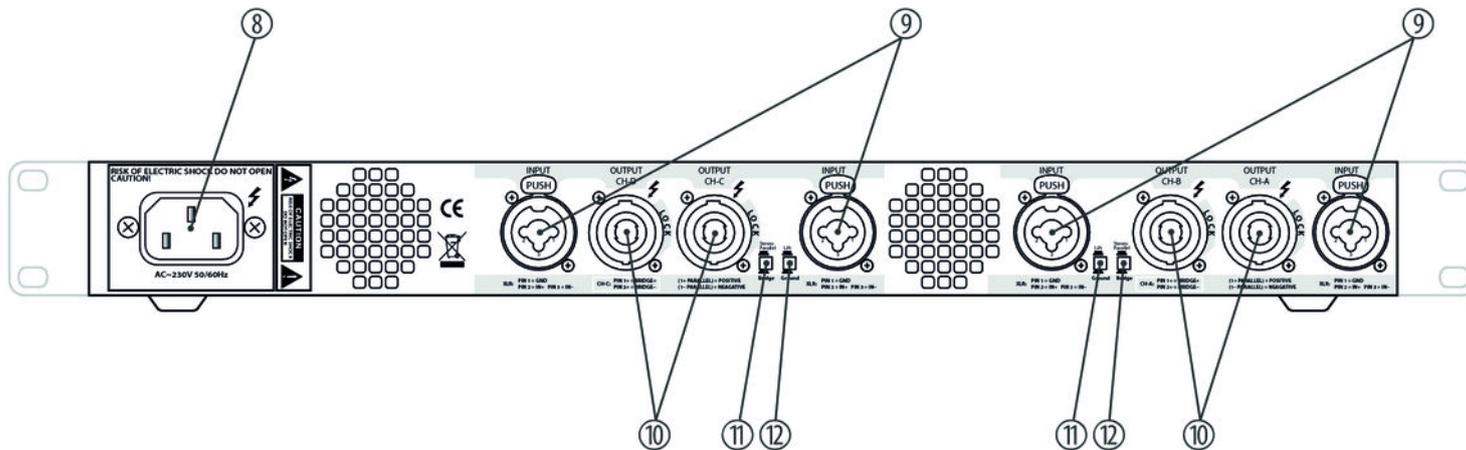


D4-500

1	ON OFF Main switch to turn the device on or off.
2	LED Power This LED indicates, that the unit is operational and lights up constantly as soon as the device is switched on.
3	LEDs –10 dB and –20 dB These LEDs indicate the intensity of the input signal (–10 dB or –20 dB). If none of the LEDs lights up, increase the signal level with the controls CH-A to CH-D and -if required- check the wiring. If these LEDs are lit without an input signal is present, there is an error. In this case, disconnect the speakers from the power amplifier and turn the controls for the input gain of channels CH-A to CH-D down to minimum. If the LEDs still light up, the device must be inspected by an authorized service centre.
4	LEDs Clip Overload indicator for channels CH-A to CH-D. These LEDs light up when the distortion of the output signal increases 1 %.

5	<p>LEDs Fault</p> <p>Error indication for channels CH-A to CH-D. These LEDs light up when one of the protective circuits triggers (see Chapter 7 'Technical specifications' on page 23).</p> <p>When turning the device on, the LEDs light up for three seconds. During this time, there is no signal present at the output yet . Once the LEDs turn off, the device is operational.</p>
6	<p>LEDs Thermal</p> <p>Over temperature indicator for the channels CH-A to CH-D. These LEDs light up when the respective heat sink exceeds a certain temperature.</p> <p>When turning the device on, the LEDs light up for three seconds. During this time, there is no signal present at the output yet . Once the LEDs turn off, the device is operational.</p>
7	<p>CH-A ...-D</p> <p>Input gain control for the channels CH-A to CH-D.</p>

Rear panel



8	IEC chassis connector with fuse holder for operating voltage supply.
9	INPUT CH-A ...-D Lockable XLR / 1/4" mounting combo connectors for signal inputs.
10	OUTPUT CH-A ...-D Lockable NL4 mounting connectors for signal outputs.
11	Pushbutton Stereo Bridge Toggle switch for the operating modes 'Stereo' (all channels operate independently of each other) and 'Bridge' (two channels are interconnected to form one channel with double output).
12	Pushbutton Lift Ground Use the Ground / Lift switch to separate the connection between the earth pin of the device and the signal ground in the unit. This prevents ground loops (position 'Lift' [switch is not pressed]: no connection. Position 'Ground' [switch is pressed]: earth pin and signal ground are electrically connected).

6 Power consumption

The following table shows the typical current consumption depending on the output power level (RMS value A_{RMS}).

Load	1/8 power (pink noise)	1/3 power (pink noise)	Full power (sine wave)
8 Ω ($\times 4$)	130 W / 1.3 A	190 W / 1.9 A	640 W / 4.2 A
4 Ω ($\times 4$)	180 W / 1.6 A	420 W / 3.1 A	1200 W / 7.4 A
8 Ω bridged ($\times 2$)	190 W / 1.6 A	430 W / 3.2 A	1200 W / 7.2 A

7 Technical specifications

Rated output power @ 8 Ω	4 × 250 W (THD = 1 %, 1 kHz)
Rated output power @ 4 Ω	4 × 500 W (THD = 1 %, 1 kHz)
Max. voltage swing (RMS)	35 V (THD = 1 %, 1 kHz)
Slew rate (1 kHz)	26 V/ μ s
THD	< 0.1 %, typical
DIM 30	< 0.1 % (3.15 kHz, 15 kHz)
Crosstalk	> 75 dB (ref. 1 kHz, 10 % rated power)
Frequency response	20 Hz ... 20 kHz (–2 dB) (–1 dB, ref. 1 kHz)
Input impedance	20 k Ω (balanced) 10 k Ω (unbalanced)
Input sensitivity	1 V _{rms} (for rated power @ 1 kHz)
Damping factor	> 500 (100 Hz / 1 kHz, 4 Ω)

Technical specifications

Signal-to-noise ratio	107 dB (A-weighted)
Protective circuits	VHF, direct voltage, temperature, short circuit, Undervoltage, overcurrent, limiter
Operating voltage supply	AC 230 V ~ , 50/60 Hz
Power consumption	see ↗ <i>Chapter 6 'Power consumption' on page 22</i>
Dimensions	1 RU in a 19" rack, installation depth 240 mm
Weight	4.6 kg

8 Cleaning

Fan grids

The fan grids of the device must be cleaned on a regular basis to remove dust and dirt. Before cleaning, switch off the device and disconnect AC-powered devices from the mains. Use a lint-free damp cloth for cleaning. Never use solvents or alcohol for cleaning.

9 Protecting the environment

Disposal of the packaging material



For the transport and protective packaging, environmentally friendly materials have been chosen that can be supplied to normal recycling.

Ensure that plastic bags, packaging, etc. are properly disposed of.

Do not just dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the notes and markings on the packaging.

Disposal of your old device



This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE). Do not dispose with your normal household waste.

Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.



