the t.amp

E4-130, E4-250

power amplifier

th•mann
MUSIC IS OUR PASSION

user manual

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Table of contents

1 General information

This manual contains important instructions for the safe operation of the unit. Read and follow the safety instructions and all other instructions. Keep the manual for future reference. Make sure that it is available to all those using the device. If you sell the unit please make sure that the buyer also receives this manual.

Our products are subject to a process of continuous development. Thus, they are subject to change.

1.1 Further information

On our website (*www.thomann.de)* you will find lots of further information and details on the following points:

Download	This manual is also available as PDF file for you to download.
Keyword search	Use the search function in the electronic version to find the topics of interest for you quickly.
Online guides	Our online guides provide detailed information on technical basics and terms.
Personal consultation	For personal consultation please contact our technical hotline.
Service	If you have any problems with the device the customer service will gladly assist you.

1.2 Notational conventions

This manual uses the following notational conventions:

Letterings

The letterings for connectors and controls are marked by square brackets and italics.

Examples: *[VOLUME]* control, *[Mono]* button.

1.3 Symbols and signal words

In this section you will find an overview of the meaning of symbols and signal words that are used in this 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.

Do not use the device if covers, protectors or optical components are missing or damaged.

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

With loudspeakers or headphones connected, the device can produce volume levels that may cause temporary or permanent hearing impairment.

Do not operate the device permanently at a high volume level. Decrease the volume level immediately if you experience ringing in your ears or hearing impairment.

NOTICE!

Risk of fire

Do not block areas of ventilation. Do not install 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

- Low mounting depth of only 408 mm
- Output power
  - the t.amp E4-130 (item no. 348232):
    4 × 130 W @ 8 Ω, 4 × 200 W @ 4 Ω
  - the t.amp E4-250 (item no. 348233):
    4 × 400 W @ 4 Ω, 4 × 250 W @ 8 Ω
- Inputs: XLR
- Outputs: NL4 (speakON) connectors for speakers
- Protection circuits: DC, short circuit, overtemperature, limiter, soft start
- Defeatable standby function

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.

Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.

DANGER!

Electric shock caused by high voltages at the power amplifier output

The output voltages of modern high-performance amplifiers may result in death or serious injury.

Never touch the bare ends of loudspeaker cables when the amplifier is on.

NOTICE!

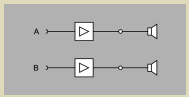
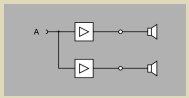
Magnetic fields

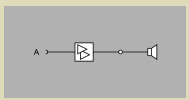
The device generates strong magnetic fields that can interfere with the function of poorly shielded devices. The strongest magnetic fields are directly above and below the power amplifier. Therefore, never place sensitive devices such as pre-amplifiers, radio transmission systems, or tape decks directly 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.

The following section explains the possible operating modes of the device. Channels 1 and 3 are marked there with 'A' and channels 2 and 4 are marked with 'B'.

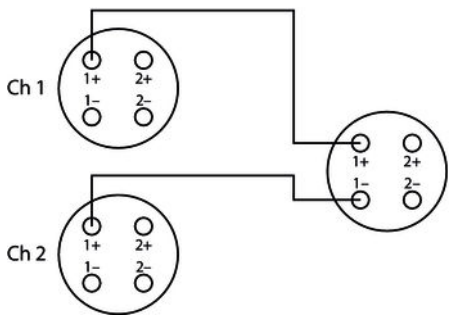
Available operating modes

Depending on the individual application, the amplifier can be used in different operation modes:

Stereo mode	
	Both power amp channels operate independently of each other, each input (A and B) is amplified by one channel, speakers are connected to both channels, the volume for both outputs can be controlled separately.
Parallel mode	
	Both power amp channels amplify the signal from input A, speakers are connected to both channels, the volume control of channel A is used to control the volume.

Bridged mode	
	Both power amp channels are internally wired for providing double the output power. Only the signal from input A is amplified, speakers are only connected to the accordingly labelled output. The volume is controlled via the control knob for channel A. The phase of the second or fourth channel is reversed. The speaker must be operated using a Y-adapter cable to CH1 1+ to 1+ and CH2 1+ to 1–, see figure below.

Speaker connection in bridged mode



Total impedance

On each output of the amplifier, the overall impedance resulting from the individual impedances of the connected speakers must not fall below the minimum allowable impedance of the amp's output. If you want to connect multiple speakers to one amplifier output, note the following:

- when connecting speakers in series, the impedances add up.
- when connecting speakers in parallel, the reciprocal value of the total impedance is equal to the sum of the reciprocal values of the individual impedances.

This means, for example with two speakers with the same impedance: In series connection, impedance is doubled. In parallel connection, it's halved.

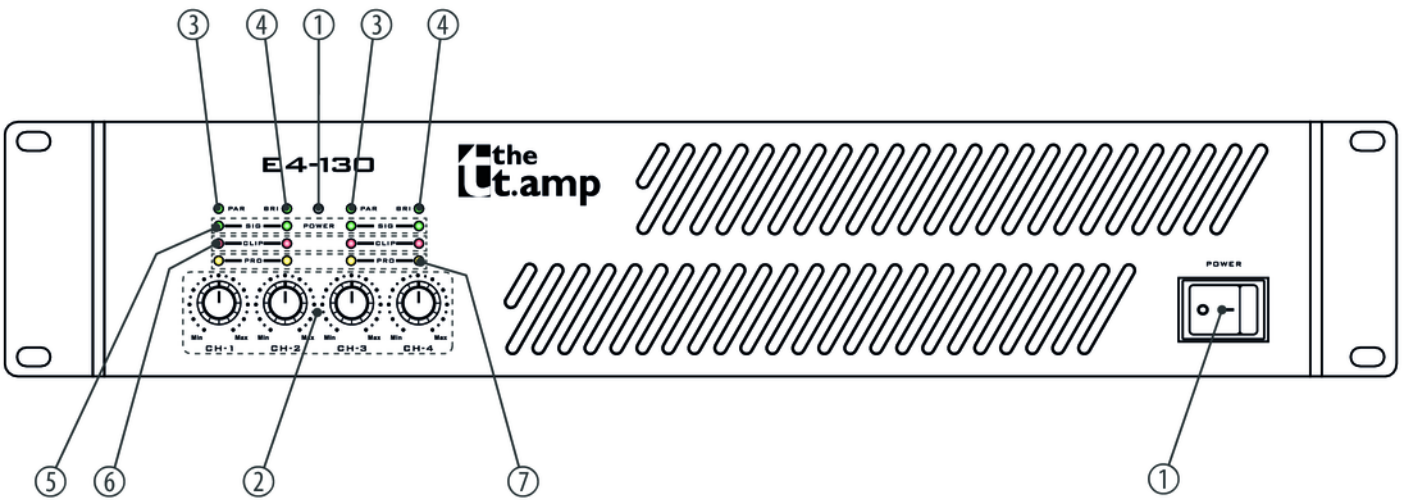
Detailed information on this topic can be found in our online guide ‘Speakers’ (*www.thomann.de*).

Rack mounting

The device has been designed for rack mounting in a standard 19-inch rack; it occupies two rack units.

5 Connections and operating elements

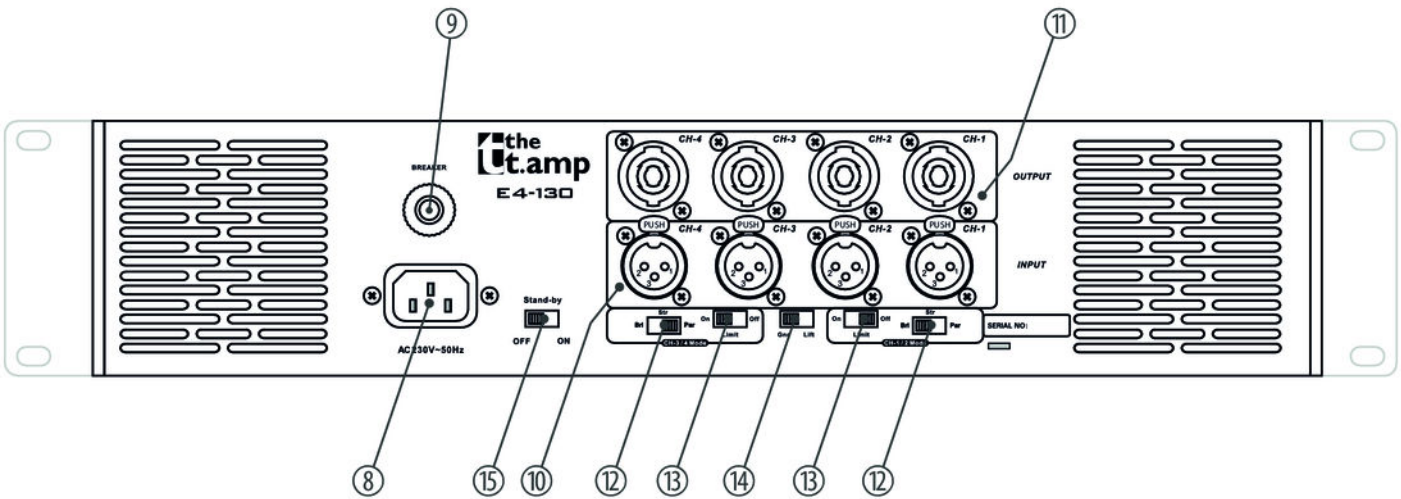
Front panel



1	*[POWER]* Mains switch. Turns the device on and off. The corresponding LED lights up green when the device is turned on. In standby mode, the LED lights red. As soon as the unit receives a signal, it switches back to normal mode and the LED will light up green again.	
2	*[CH-1]*, *[CH-2]*, *[CH-3]*, *[CH-4]*	Volume control for the respective channel
3	*[PAR]*	Lights up when the respective channel pair is operated in Parallel mode.
4	*[BRI]*	Lights up when the respective channel pair is operated in Bridged mode.
5	*[SIG]*	Indicates the presence of an input signal.

6	*[CLIP]*	Lights under the following conditions: ■ Channel overload. Reduce in this case the volume until the LED goes out. ■ Output short circuit. Turn off the device immediately, correct the short circuit and turn on the device again.
7	*[PRO]*	Lights under the following conditions: ■ Three to five seconds after switching on or off when the device is in an unstable condition. ■ No speaker connected. ■ The temperature of the power amp blocks has reached 85 °C. ■ One or more protection circuits have been triggered, or the device is faulty.

Rear panel


9
11
BREAKER
the t.amp
E4-130
CH-4
CH-3
CH-2
CH-1
OUTPUT
PUSH
INPUT
Stand-by
OFF
ON
AC 230V~50Hz
SERIAL NO:
8
15
10
12
13
14
13
12

8	IEC chassis connector for the power supply of the device.
9	*[BREAKER]* Resettable electronic fuse. If the fuse is triggered, fix the cause and then push the button to reset the fuse.
10	*[INPUT]* XLR chassis sockets as inputs for channels 1 to 4
11	*[OUTPUT]* speakON chassis connectors as speaker outputs (1+, 2+: positive; 1–, 2–: negative) for channels 1 to 4
12	Selector switch for the operating mode of the respective channel pair ■ Par: Parallel mode ■ Str: Stereo mode ■ Bri: Bridged mode
13	*[LIMIT]* Limits the output level so that the distortion is at most 5%.

14	*[Gnd / Lift]* Ground / lift switch. If hum is caused by a ground loop, you can use this switch to disconnect the connection between the earth pin of the device and the signal ground of the device.
15	*[Stand-by ON | OFF]* On / off switch for standby function. If the standby function is enabled, the device automatically switches to standby mode after thirty minutes without any input signal.

6 Technical specifications

	the t.amp E4-130 (item no. 348232)	the t.amp E4-250 (item no. 348233)
Output power (RMS), stereo, 8 Ω	4 × 130 W	4 × 250 W
Output power (RMS), stereo, 4 Ω	4 × 200 W	4 × 400 W
Output power (RMS), bridged, 8 Ω	2 × 400 W	2 × 800 W
Max. power consumption	1500 W @ 4 Ω	2700 W @ 4 Ω
Frequency response, ±0,5 dB	20 Hz … 20 kHz	
Input sensitivity	1000 mV	
Class	AB	
Signal-to-noise ratio	≥ 94 dB	
THD	≤ 0.05 %	
Crosstalk (at rated power @ 8 Ω, 1 kHz)	> 64 dB	
Damping factor (at rated power @ 8 Ω, 1 kHz)	> 200	

	the t.amp E4-130 (item no. 348232)	the t.amp E4-250 (item no. 348233)
Slew rate	15 V / µs	
Inputs	XLR sockets	
Input impedance	20 kΩ (balanced), 10 kΩ (unbalanced)	
Outputs	speakON chassis connector	
Operating supply voltage	AC 230 V ~ , 50 Hz	
Dimensions (W × H × D)	482 mm × 88 mm × 408 mm	
Weight	12.9 kg	15.0 kg

7 Plug and connection assignment

Introduction

This chapter will help you select the right cables and plugs to connect your valuable equipment in such a way that a perfect sound experience is ensured.

Please note these advices, because especially in 'Sound & Light' caution is indicated: Even if a plug fits into the socket, an incorrect connection may result in a destroyed power amp, a short circuit or 'just' in poor transmission quality!

Balanced and unbalanced transmission

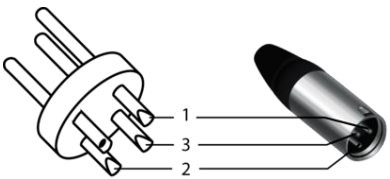
Unbalanced transmission is mainly used in semi-professional environment and in hifi use. Instrument cables with two conductors (one core plus shielding) are typical representatives of the unbalanced transmission. One conductor is ground and shielding while the signal is transmitted through the core.

Unbalanced transmission is susceptible to electromagnetic interference, especially at low levels, such as microphone signals and when using long cables.

In a professional environment, therefore, the balanced transmission is preferred, because this enables an undisturbed transmission of signals over long distances. In addition to the conductors 'Ground' and 'Signal', in a balanced transmission a second core is added. This also transfers the signal, but phase-shifted by 180°.

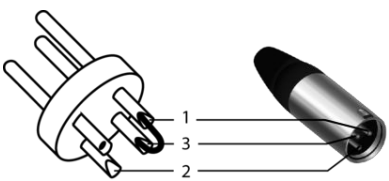
Since the interference affects both cores equally, by subtracting the phase-shifted signals, the interfering signal is completely neutralized. The result is a pure signal without any noise interference.

XLR plug (balanced)



1	Ground, shielding
2	Signal (in phase, +)
3	Signal (out of phase, –)

XLR plug (unbalanced)



1	Ground, shielding
2	Signal
3	Bridged to pin 1

NL4 mounting connectors

1, +	Signal 1 (in phase)
1, –	Signal 1 (180 degree phase shift)
2, +	Signal 2 (in phase)
2, –	Signal 2 (180 degree phase shift)

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) in its currently valid version. 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.

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