

**the
t.amp**

TA 450 MK-X

TA 600 MK-X

TA 1050 MK-X

TA 1400 MK-X

TA 2400 MK-X

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, include the manual for the next owner.

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.

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

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.



CAUTION!

Risk of injury due to heavy weight

Due to the heavy weight of the device, at least two persons are required for transport and installation.



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

- Inputs
 - 2 × XLR
 - 2 × 1/4" phone sockets
- Outputs
 - 2 × NL4 (lockable)
 - 2 × screw terminals
- Protection circuits
 - Audio limiter
 - Thermal protection
 - Short circuit protection
 - DC protection
 - Overcurrent
 - Subsonic noise protection
- Cooling via integrated two-stage fans
- Suitable for 19" racks (2 RU, installation depth 44 cm)

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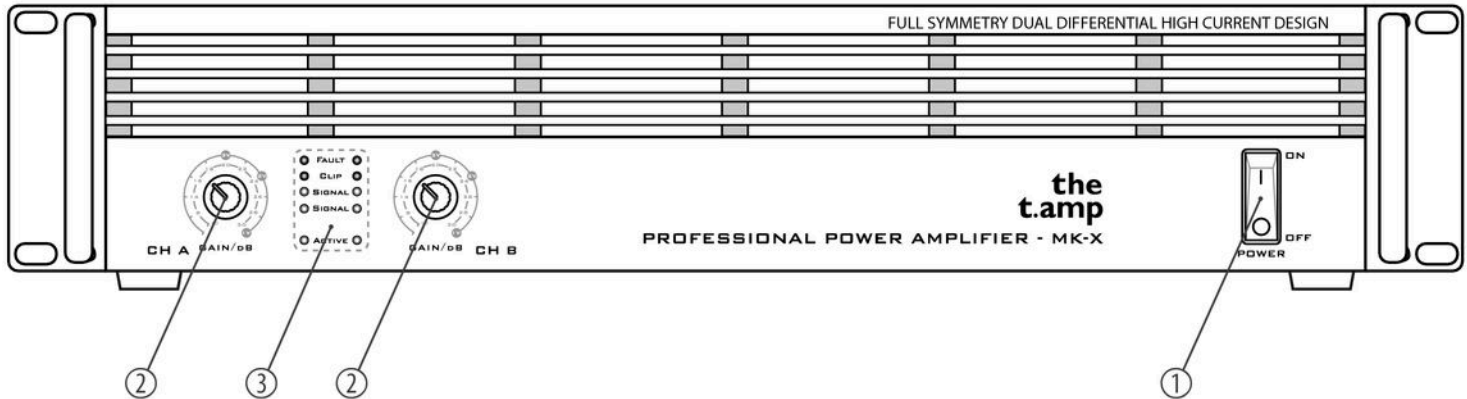
4 Installation and starting up

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.

5 Connections and controls

Front panel



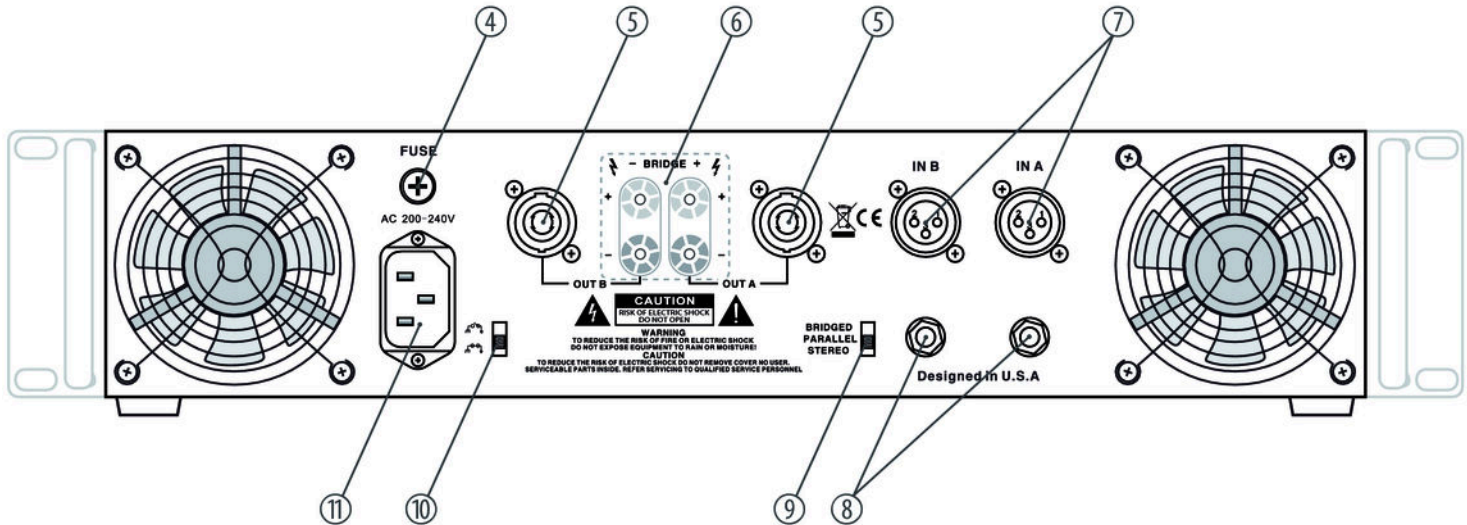
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1	<i>[POWER]</i> Main switch to turn the device on and off.
2	<i>[CH-A/B]</i> Controls for input gain of channels CH-A and CH-B.
3	LED indicators for channels CH-A/B These LEDs indicate the ready status of the device (<i>[Power]</i>), the input signal level (<i>[Signal]</i>), channel overdrive (<i>[Clip]</i>) and a fault condition (<i>[Fault]</i>).



The [Power] LED is permanently lit during operation. The [Signal] LEDs respond to the input signal. If one of these LEDs is lit without an input signal being present, disconnect the loudspeakers from the power amplifier and turn the input gain control knobs of channels CH-A and CH-B to their minimum levels. If the LEDs are still permanently lit, the device must be checked by an authorized technical service centre.

Rear panel



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4	Fuse holder
5	<i>[OUT A OUT B]</i> Signal outputs, designed as lockable NL4 panel sockets for connecting speakers.
6	<i>[OUT A OUT B]</i> Signal outputs, designed as screw terminals (+/-) to connect speakers.
7	<i>[IN A IN B]</i> Signal inputs, designed as XLR chassis sockets.
8	<i>[IN A IN B]</i> Signal inputs, designed as 1/4" phone sockets.
9	Switch <i>[STEREO PARALLEL BRIDGED]</i> Switch for operating modes 'STEREO' (channels operate independently of each other), 'PARALLEL' (two channels are interconnected) and 'BRIDGED' (two channels are interconnected to form one channel with double output).

10	<p><i>[Lift Ground]</i> selector switch</p> <p>The Ground/Lift switch allows you to interrupt the connection between the device's protective earth terminal and signal ground in order to prevent hum loops (Lift/unpressed state: disconnected. 'Ground' position / switch pressed: Earth pin and signal ground are electrically connected).</p>
11	<p>IEC chassis plug for the power supply.</p>

6 Current consumption

The following table contains information on the typical current consumption depending on the output power level (root mean square value A_{RMS}). All values based on a 230 V \sim mains voltage and a 1 kHz input signal at 0 dB (sine).

Tab. 1: TA 450 MK-X

Load	1/8 nominal power	1/3 nominal power
(2 ×) 8 Ω	215 W / 1,4 A	340 W / 2,1 A
(2 ×) 4 Ω	340 W / 2,1 A	540 W / 3,2 A

Tab. 2: TA 600 MK-X

Load	1/8 nominal power	1/3 nominal power
(2 ×) 8 Ω	250 W / 1,6 A	375 W / 2,3 A
(2 ×) 4 Ω	400 W / 2,5 A	650 W / 3,7 A

Tab. 3: TA 1050 MK-X

Load	1/8 nominal power	1/3 nominal power
(2 ×) 8 Ω	450 W / 2,9 A	690 W / 4,2 A
(2 ×) 4 Ω	735 W / 4,4 A	1150 W / 6,6 A

Tab. 4: TA 1400 MK-X

Load	1/8 nominal power	1/3 nominal power
(2 ×) 8 Ω	380 W / 2,4 A	986 W / 5,8 A
(2 ×) 4 Ω	665 W / 3,9 A	1730 W / 9,9 A

Tab. 5: TA 2400 MK-X

Load	1/8 nominal power	1/3 nominal power
(4 ×) 8 Ω	445 W / 2,8 A	1080 W / 6,6 A
(4 ×) 4 Ω	790 W / 4,8 A	2000 W / 10,3 A

7 Technical specifications

	TA 450 MK-X	TA 600 MK-X	TA 1050 MK-X	TA 1400 MK-X	TA 2400 MK-X
Power consumption	see ↪ Chapter 6 'Current consumption' on page 18				
Power output R_{MS} 8 Ω , stereo	2 × 125 W	2 × 200 W	2 × 350 W	2 × 450 W	2 × 650 W
Power output R_{MS} 4 Ω , stereo	2 × 200 W	2 × 300 W	2 × 525 W	2 × 700 W	2 × 1200 W
Power output R_{MS} 8 Ω , mono bridged	300 W	450 W	800 W	1200 W	2000 W
Total harmonic distortion (THD) 4 Ω at 1 kHz	< 0.05 % / 200 W	< 0.05 % / 300 W	< 0.05 % / 525 W	< 0.05 % / 700 W	< 0.05 % / 1200 W
IMD-SMPTE (60 Hz, 7 kHz)	< 0.01 % / 125 W	< 0.01 % / 200 W	< 0.01 % / 350 W	< 0.01 % / 450 W	< 0.01 % / 650 W
Damping factor (8 Ω , 1 kHz)	300:1			350:1	500:1

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Fuse	5 mm × 20 mm, 8 A, 250 V, fast blow	5 mm × 20 mm, 10 A, 250 V, fast blow	5 mm × 20 mm, 15 A, 250 V, fast blow		5 mm × 20 mm, 20 A, 250 V, fast blow
Voltage amplification	34.0 dB			36.9 dB	39.2 dB
Slew rate	40 V/μs				60 V/μs
Common mode rejection	> 60 dB (1 kHz)				
Frequency range	20 Hz ... 20 kHz (+ 0.1 ... - 3 dB, 1 W, 8 Ω)				
Input sensitivity	0,775 V at rated power (8 Ω)				
Input impedance	20 kΩ (balanced) 10 kΩ (unbalanced)				
Signal-to-noise ratio (SNR)	103 dB				
Crosstalk	60 dB				

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Technical specifications

	TA 450 MK-X	TA 600 MK-X	TA 1050 MK-X	TA 1400 MK-X	TA 2400 MK-X
Protective circuits	DC voltage protection, overtemperature protection, short-circuit protection, infrasound protection, overcurrent protection				
Cooling	2 × 2-speed DC fan				
Operating supply voltage	230 V ~ 50 Hz				
Dimensions (W × H × D)	483 mm × 103 mm × 475 mm	485 mm × 103 mm × 470 mm	483 mm × 103 mm × 475 mm		
Weight	13.3 kg	13.7 kg	16.4 kg	17.5 kg	19.7 kg

8 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.

1/4" TS phone plug (mono, unbalanced)



1	Signal
2	Ground, shielding

1/4" TRS phone plug (mono, balanced)



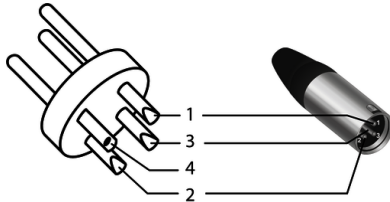
1	Signal (in phase, +)
2	Signal (out of phase, -)
3	Ground

1/4" TRS phone plug (stereo, unbalanced)



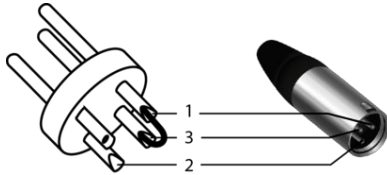
1	Signal (left)
2	Signal (right)
3	Ground

XLR plug (balanced)



1	Ground, shielding
2	Signal (in phase, +)
3	Signal (out of phase, -)
4	Shielding on plug housing (option)

XLR plug (unbalanced)



1	Ground, shielding
2	Signal
3	Bridged to pin 1

Speaker Twist chassis connector



1, +	Signal 1 (in phase)
1, -	Signal 1 (out of phase)
2, +	Signal 2 (in phase)
2, -	Signal 2 (out of phase)

9 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.

10 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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