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GPA-400

Stereo Guitar Power Amp

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1 General information

This user manual contains important information on the 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 another user, be sure that they also receive this manual.

Our products and user manuals are subject to a process of continuous development. We therefore reserve the right to make changes without notice. Please refer to the latest version of the user manual which is ready for download under www.thomann.de.

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. Only operate the device within the ambient conditions specified in the chapter 'Technical specifications' of this user manual. Avoid heavy temperature fluctuations and do not switch the device on immediately after it was exposed to temperature fluctuations (for example after transport at low outside temperatures). Dust and dirt inside can damage the unit. When operated in harmful ambient conditions (dust, smoke, nicotine, fog, etc.), the unit should be maintained by qualified service personnel at regular intervals to prevent overheating and other malfunction.



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!

Possible damage due to installation of a wrong fuse

The use of different types of fuses can cause serious damage to the unit. Fire hazard! Only fuses of the same type may be used.

3 Features

- Maximum output power 400 W @ 8 Ω
- Operating modes: Bridged Mono, Stereo
- Volume, Resonance and Presence adjustable per channel
- Fanless operation

4 Installation and starting up

Unpack and check carefully there is no transportation damage before using the unit. Keep the equipment packaging. To fully protect the product 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.



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.

Rack mounting

The unit has been designed for rack mounting in a standard 19-inch rack; it occupies one rack unit.

4.1 Tips on handling speakers

We recommend you to set up the speakers in a way, that the sound signals can reach the audience unobstructedly. It will often be helpful to mount the speakers on tripods. Thus, the sound will be evenly spread with maximum range throughout the audience area.

Always use high grade cable to connect your equipment. Otherwise you won't reach maximum sound quality.

For optimum results both impedance and power handling of the speakers must match the requirements of the amplifier. Always follow the technical specifications of the speakers! The overall impedance of the connected loudspeakers must not exceed the minimum output impedance of the amp. The amps max. RMS output power should be 50 % above the power handling capacity of the connected speakers.

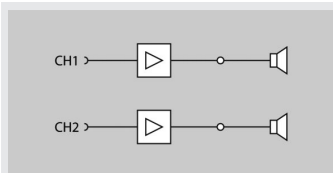
If you notice distortion during operation, either the amp or the speaker is overloaded. This may permanently damage the amp or the speaker. Always reduce the volume when you hear distortion.

4.2 Additional useful tips

Available operating modes

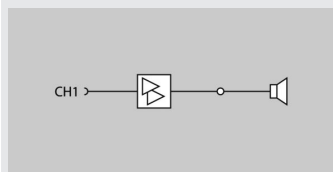
Depending on the respective application, the guitar amp can be used in various modes:

Stereo



Both power amp channels operate independently of each other, each input (CHA and CHB) is amplified by one channel, speakers are connected to both channels, the volume for both outputs can be controlled separately.

Bridged



Both power amp channels are internally wired for providing double the output power. Only the signal from input CHA is amplified, speakers are only connected to the accordingly labelled output. Use volume control CHA to adjust the volume.

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.

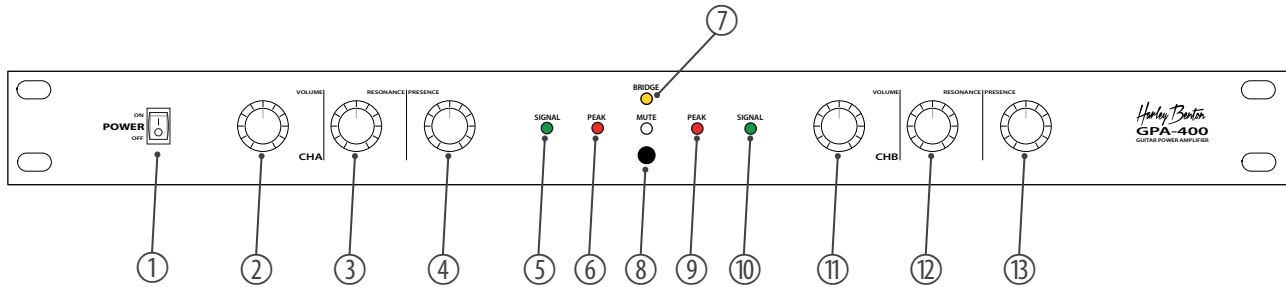
- when connecting speakers in parallel, the reciprocal value of the total impedance is equal to the sum of the reciprocal values of the individual impedances.

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).

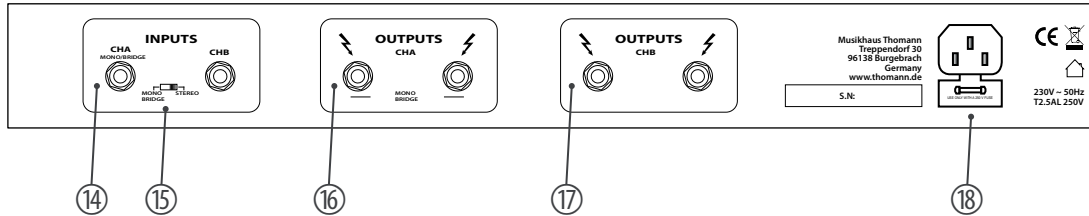
5 Connections and operating elements

Front panel



1	[POWER ON OFF] mains switch to turn the device on and off
2	[VOLUME] volume control for channel A
3	[RESONANCE] resonance control for channel A
4	[PRESENCE] presence control for channel A
5	[SIGNAL] indicator LED (green). This LED lights up when the device is turned on and a signal is present in channel A.
6	[PEAK] indicator LED (red). This LED lights up when channel A is overloaded by an excessive input signal.
7	[BRIDGE] indicator LED (yellow). This LED lights up when the device is operating in bridged mode.
8	[MUTE] switch to mute the device. The white indicator LED lights up when the device is muted.
9	[PEAK] indicator LED (red). This LED lights up when channel B is overloaded by an excessive input signal.
10	[SIGNAL] indicator LED (green). This LED lights up when the device is turned on and a signal is present in channel B.
11	[VOLUME] volume control for channel B
12	[RESONANCE] resonance control for channel B
13	[PRESENCE] presence control for channel B

Rear panel



14	[INPUTS] input sockets for channels A and B
15	[Mono Bridge Stereo] switch to toggle between bridged mono operation via channel A and stereo operation via channels A and B
16	[OUTPUTS CHA] output sockets to connect a passive speaker box in bridged mono mode (channel A)
17	[OUTPUTS CHB] output sockets to connect a second passive speaker box in stereo mode (channels A and B).
18	IEC chasis plug with fuse holder

6 Technical specifications

Amp class	D	
Input impedance	20 k Ω (balanced)	
	10 k Ω (unbalanced)	
Output power	16 Ω , stereo	2 $\times$ 50 W
	8 Ω , stereo	2 $\times$ 100 W
	4 Ω , stereo	2 $\times$ 200 W
	16 Ω , bridged	200 W
	8 Ω , bridged	400 W
Frequency response	20 Hz ... 20 kHz	
Signal-to-noise ratio	> 90 dB	
Total harmonic distortion (THD)	< 0.15 %	
Cooling	fanless	
Damping factor	> 80	
Sensitivity	335 mV	
Gain	39.5 dB	

Slew rate	8 ms	
Power consumption at 1/8 rated power	70 W (max. 300 W)	
Operating supply voltage	230 V ~ 50 Hz	
Fuse	5 mm × 20 mm, 2,5 A, 250 V, slow-blow	
Dimensions (W × H × D)	482 mm × 44 mm × 250 mm	
Weight	3 kg	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20 %...80 % (non-condensing)

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.

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



1	Signal
2	Ground, shielding

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



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

8 Cleaning

Fan grids

The fan grids of the device must be cleaned of any contamination, such as dust, etc. on a regular basis. Before cleaning, switch off the device and disconnect mains-operated devices from the mains. Only use pH-neutral, solvent-free and non-abrasive cleaning agents. Clean the unit with a slightly damp lint-free cloth.

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.

