GROUND ZERO®
GERMAN ENGINEERING

HYDROGEN-SERIES AMPLIFIER

OWNER'S MANUAL

GZHA 2400XII

Features

- 1 Ohm stable Stereo
- 2 Ohm bridgeable
- Mosfet power supply
- SMD Technology
- Power & Protection indicator
- Variable 12dB bass boost (30 – 80 Hz)
- Phaseshift variable 0 - 180°
- Variable highpass / subsonic
- Variable lowpass
- Adjustable input sensitivity
- Soft delayed remote turn- on
- Bass remote control
- Thermal / Short / Overload protection

Tools and materials you need

- Screwdriver
- Electric drill, 3 mm / 0.12" carbide drill bit
- Mounting screws
- Power wire min. 25 mm^2 / 4AWG
- Ground wire min. 25 mm^2 / 4AWG
- Speaker wire min. 2 x 2,5 mm^2 / 13AWG

Please note!

- As a precaution it is advisable to disconnect the vehicle's battery before making connection to the +12 Volts supply wiring (see owner's manual of your car for further information).
- Please use great caution drilling your trunk. Your gas tank and brake lines can be damaged by puncturing with your drill bit – this could cause damage or failure of your cars operating systems.
- Never pass wires over sharp angles. It is recommended to buffer the power supply of the amplifier with a capacitor min. 1 Farad to guarantee a stable operation voltage.

WARNING !

High powered audio systems in a vehicle are capable of generating "Live Concert" levels of sound pressure. Continued exposure to excessively high volume sound levels may cause hearing loss or damage. Also, operation of a motor vehicle while listening to audio equipment at high volume levels may impair your ability to hear external sounds such as; horns, warning signals, or emergency vehicles, thus constituting to a potential traffic hazard. In the interest of safety, Consumer Electronics recommends listening at lower volume levels while driving.

Planning your system

Before beginning the installation, consider the following:

a. If you plan to expand your system by adding other components sometime in the future, ensure adequate space is left, and cooling requirements are met.

b. If your radio / source is equipped with pre-amp outputs, it is possible to utilize them to drive the amplifier

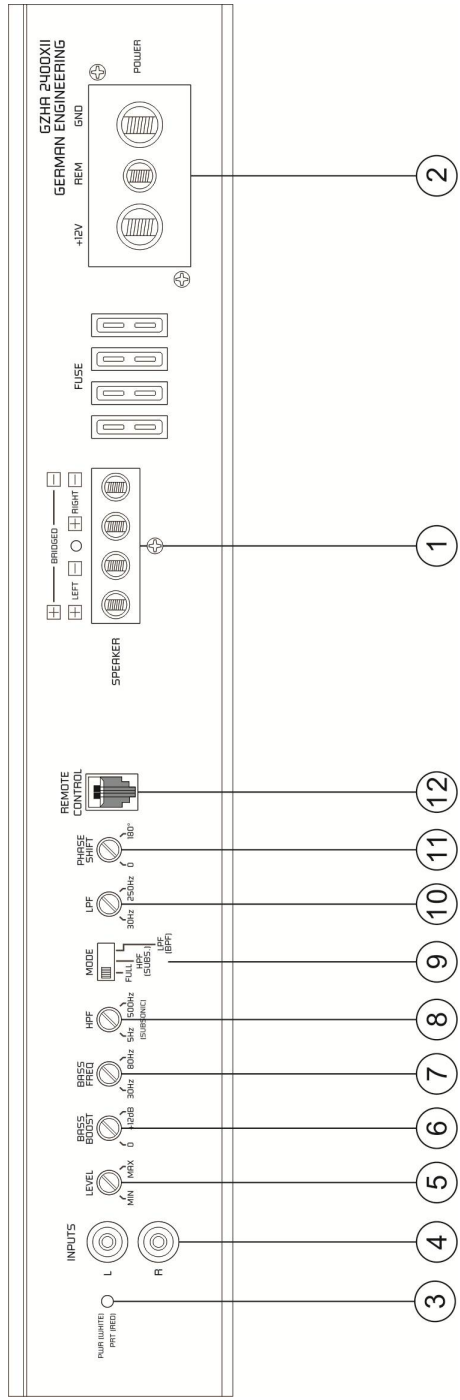
Mounting your amplifier

a. Select a suitable location that is convenient for mounting, is accessible for wiring and has ample room for air circulation and cooling.

b. Use the amplifier as a template to mark the mounting holes, remove the amplifier.

Warning

Chose a mounting position where all electric wires are protected from being damaged by sharp edges, heat or other conditions. +12Volt DC electrical connections must be fused on the battery side. Make sure your radio and all other devices will be turned off while connection your system. If you need to replace the power fuse, replace it only with a fuse identical to that supplied with the system. Using a fuse of different type or rating may result in damage to this system which isn't covered by the warranty.


GZHA 2400XII
GERMAN ENGINEERING
POWER
+12V
REM
GND
FUSE
SPEAKER
LEFT
BRIDGED
RIGHT
REMOTE CONTROL
PHASE SHIFT
180°
0
LPF
250Hz
30Hz
MODE
FULL
HPF (SUBS.)
LPF (BPF)
HPF
500Hz
5Hz
(SUBSONIC)
BASS FREQ
80Hz
30Hz
BASS BOOST
+12dB
0
LEVEL
MAX
MIN
INPUTS
L
R
PWR (WHITE)
PRT (RED)
1
2
3
4
5
6
7
8
9
10
11
12

Controls and functions

1	Speaker terminals	For connection of the speakers
2	Power terminals	GND -> Ground connection REM -> Remote antenna terminal BATT -> +12 Volt
3	Status indication	WHITE – OK RED – Error
4	RCA inputs	Terminal for connection of the RCA wires. To avoid failure, please use high quality RCA wires.
5	Input level controller	With this controller you can adjust the input sensitivity.
6	Bass boost controller	For adjusting of the bass boost level in the range from 0 to +12 dB.
7	Bass boost frequency	For adjusting the bass boost frequency between 30 and 80 Hz.
8	High pass controller (Subsonic)	Set the filter switch to „HIGH“ position. Adjust the variable HPF crossover frequency between 5 and 500 Hz.
9	Mode switch	Adjust the crossover for the chosen utilization. LPF – Only bass frequencies (below 30Hz - 250Hz) will be reproduced. At LPF adjustment, also the highpass (Subsonic) is activated. This equals a bandpass filter of 5 – 250 Hz. FULL – All frequencies will be reproduced. HPF – Only frequencies above 5 – 500Hz will be reproduced.
10	Low pass controller	Only frequencies below 30 - 250 Hz will be reproduced (depending on the LPF filter controller position). Set the filter switch to „LOW“ position. Adjust the variable LPF frequency to the desired frequency using the controller. At LPF adjustment, also the highpass (Subsonic) is activated. This equals a bandpass filter of 5 – 250 Hz.
11	Phase shift controller	This controller allows you to fit the subwoofer channel in-phase to the front system.
12	Remote control input	For connection of the bass remote control.

Turning on the amplifier

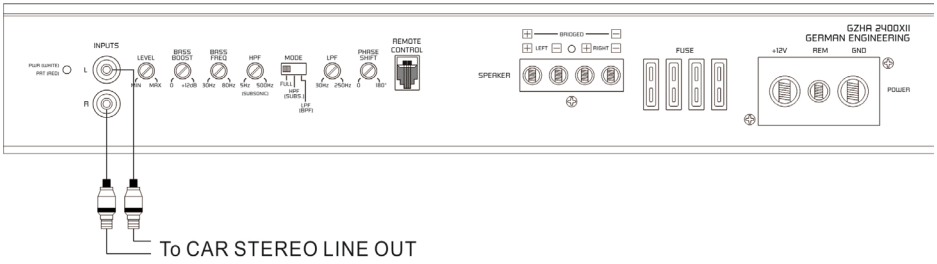
The amplifier automatically turns on a few seconds after you turn on your radio.

Note: Your amplifier temporarily shuts down if it gets too hot, then restarts automatically once it cools (At about 80° / 176° F).

Adjusting the audio level

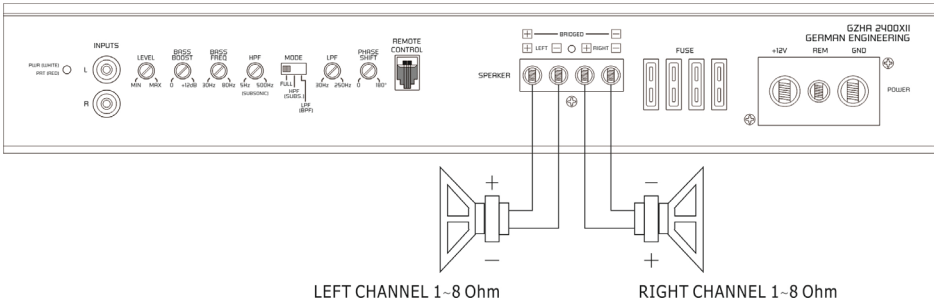
1. LEVEL (Min/Max): Turn fully counter- clockwise to MIN position
2. Turn the auto sound system's volume control to about two-third of its full range.
3. Adjust LEVEL to a comfortable listening level.

Stereo wiring



To CAR STEREO LINE OUT

A) 2 CHANNEL MODE

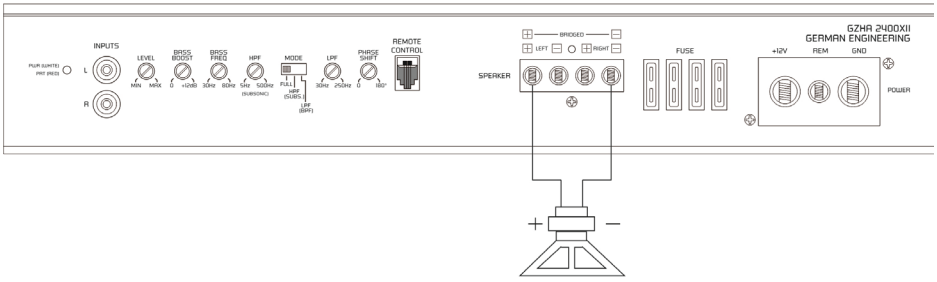


LEFT CHANNEL 1~8 Ohm

RIGHT CHANNEL 1~8 Ohm

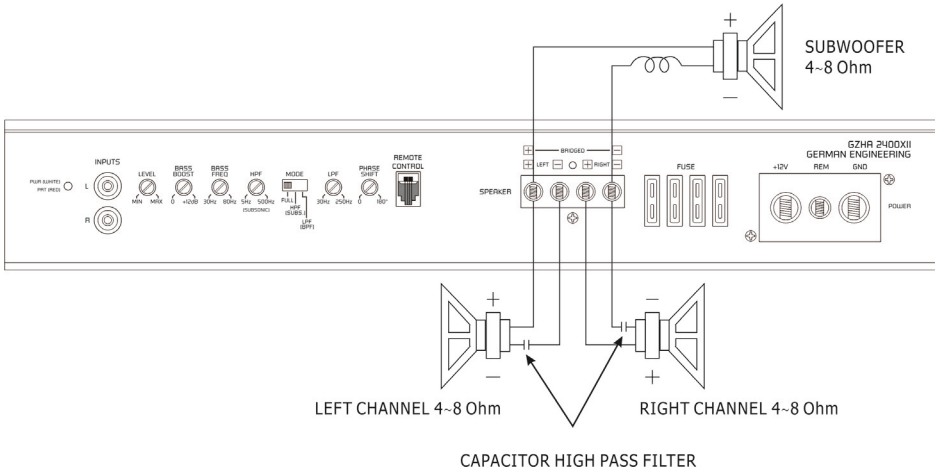
Mono wiring

B) MONO MODE



SUBWOOFER 2~8 Ohm

Trimode wiring



Spule / Inductor / Filtre Pass bas / Spoel Lowpass Filter

Kondensator / Capacitor / Condensateur / Condensator Highpass Filter

Trimode crossover

TRI MODE operation output allows a subwoofer to be operated in mono mode while the main speakers are playing in stereo. Leave the crossover switch on "Full" position.

Use 100 volt, non-polar capacitors for a high pass crossover to filter out low frequencies and Air- core or
Ferrit-core coils with a minimum diameter of 1 mm / 0.039" for the lowpass crossover to filter out high frequencies.

The capacitor and inductor values as written in the below table. The front and rear channels of this amplifier get this capability. Only the rear left and right channels are shown on the following pictures.

Values for 6dB passive crossover

Frequency	Inductor	Capacitor
80 Hz	7,5 mH	470 uF
100 Hz	6,5 mH	330 uF
120 Hz	5,5 mH	370 uF
150 Hz	4 mH	220 uF

Specifications

Model	GZHA 2400XII
Type	2 Kanal Class AB
RMS Power @ 4 Ω CEA Standard CEA-2006-A	2 x 270 W (1% THD+N)
RMS Power @ 2 Ω CEA Standard CEA-2006-A	2 x 480 W (1% THD+N)
RMS Power @ 1 Ω CEA Standard CEA-2006-A	2 x 750 W (1% THD+N) 2 x 900 W (10% THD+N)
RMS Power @ 4Ω Bridged CEA Standard CEA-2006-A	1 x 960W (1% THD+N)
RMS Power @ 2Ω Bridged CEA Standard CEA-2006-A	1 x 1500 W (1% THD+N) 1 x 1800 W (10% THD+N)
Damping factor	> 200
Lowpass	30 Hz – 250 Hz
Highpass	5 Hz – 500 Hz
Bandpass	5 Hz – 250 Hz
Bass boost	0 ~ +12 dB (30 – 80 Hz variable)
Phase shift	0 – 180° (variable)
Frequency response	5 Hz – 38 kHz (± 1 dB)
Input sensitivity	200 mV – 9 V (± 5%)
Bass remote control	✓
Fuse	4 x 40A
Dimensions W x H x L mm	293 x 67 x 400
Dimensions W x H x L inch	11.54" x 2.64" x 15.75"

Trouble shooting guide

Symptoms	Check Points	Cure
No sound	Is the POWER LED illuminated?	Check fuses in amplifier. Be sure remote lead is connected. Check +12 Volt connection Check ground connection
	Is the diagnostic LED illuminated?	Check for speaker short or amplifier overheating
Amp not switching on	No power to the amplifier	Check power wire or connections
	No power to remote wire with receiver on	Check connections to radio
No sound in one channel	Check speaker leads	Inspect for short circuit or an open connection
	Check audio leads	Reverse left and right RCA inputs to determine if it is occurring before the amp
Amp turning off at medium / high volume	Check speaker load impedance	Be sure proper speaker load impedance recommendations are observed (If you use an ohm meter to check speaker resistance, please remember that DC resistance and AC impedance may not be the same.)
Protection LED is on	Temperature shut down	Turn radio volume down
	Speaker wires short	Separate speaker wires and insulate

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Limited warranty - defective products must be returned in original packaging - please add a copy of the original purchasing invoice showing the purchasing date and a detailed description of the failure. Failure caused by overload, misuse or by using the product for competition purpose are not covered by the warranty. We reserve the right to make needed change or improvement to the product without informing customer about this in advance.

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