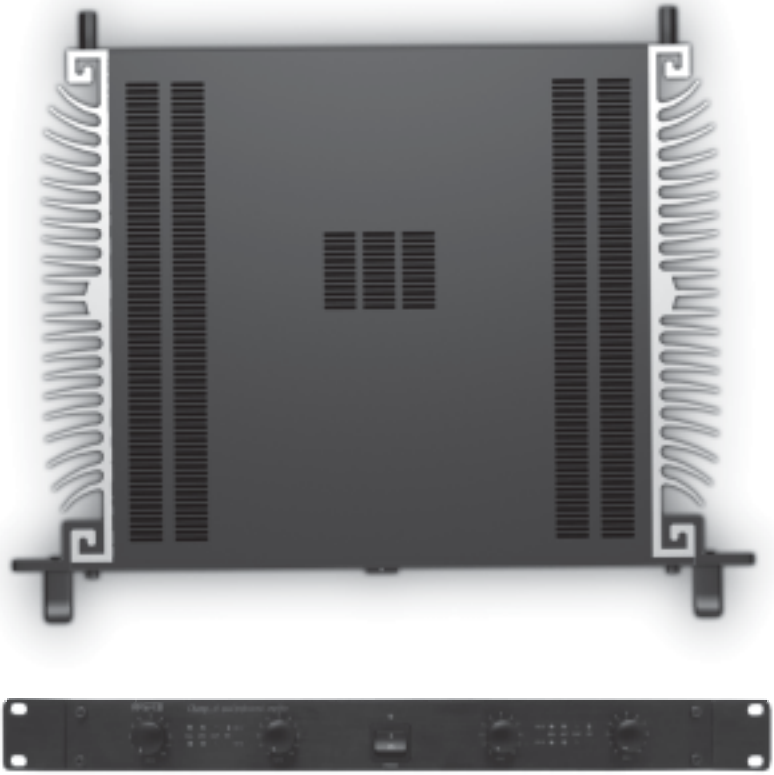
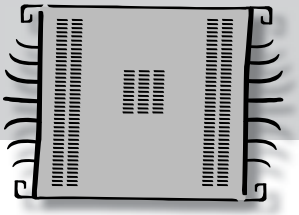


MANUAL



Champ - 4

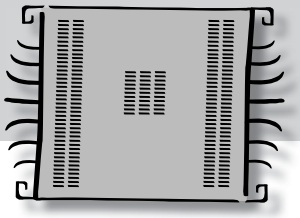
Professional quad power amplifier



Safety First!

- **Caution: hot and sharp surfaces ! This professional device needs to be installed by qualified personnel only.**
- Please check the carton box for any kind of damage on reception of the goods. In case of a damaged carton, please contact your dealer before opening the carton.
- !!!! Danger !!!! Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably to noise induced hearing loss but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient amount of time. Therefore it is recommended that all persons exposed to equipment capable of producing high sound pressure levels, such as this amplifier, be protected by hearing protection while installing or operating this unit.
- **Read all documentation before operating your equipment.**
- Keep all documentation for future reference.
- Save the carton and packing material even if the equipment has arrived in good condition.
- Should you ever need to ship the unit, use only the original factory packing.
- Do not spill water or other liquids into or on the unit.
- Make sure power outlets conform to the power requirements listed on the back of the unit.
- Do not use the unit if the electrical power cord is frayed or broken.
- Always operate the unit with the AC ground wire connected to the electrical system ground.
- Have gain controls on amplifiers turned down during power-up to prevent speaker damage if there are high signal levels at the inputs.
- Do not connect the inputs / outputs of amplifiers or consoles to any other voltage source, such as a battery, mains source, or power supply, regardless of whether the amplifier or console is turned on or off.
- Power down & disconnect units from mains voltage before making connections.
- Do not use the unit near stoves, heat registers, radiators, or other heat producing devices.
- Do not operate equipment on a surface or in an environment which may distort the normal flow of air around the unit. If the unit is used in an extremely dusty or smoky environment, the unit should be periodically “blown free” of dust.
- Do not remove the cover. Removing the cover will expose you to potentially dangerous voltages.
- Do not drive the inputs with a signal level higher than that required to drive equipment to full output.
- Do not run the output of any amplifier back into another input.
- Do not ground the red output terminal, never connect a red output terminal to another red output terminal.
- In case of mal-function this device should be serviced by qualified service personnel only.



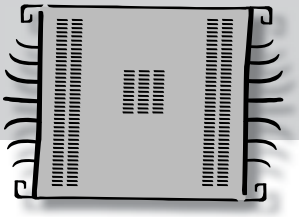


Manual contents

1. *Features*
2. *Inputs and outputs*
3. *Rack mounting and wiring*
4. *standalone use*
5. *Technical specifications*

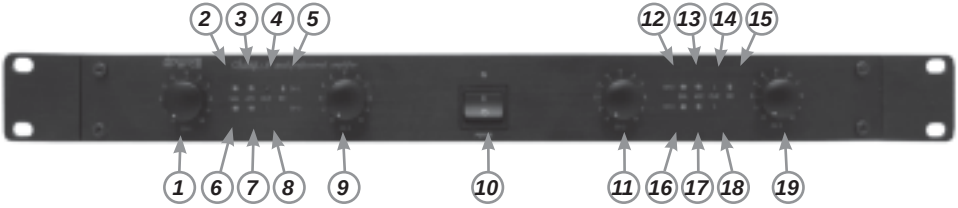
1. Features

- Custom designed side mount heatsinks, four discrete class AB amplifiers in a one unit 19” enclosure.
- Switchable high and low pass filters for easy and troublefree subwoofer/satellite applications.
- Integrated APC limiter circuitry and clip indication. This intelligent circuit will prevent harsh distortion caused by clipping, provided that the input signal itself is not distorted of course… what goes in, comes out.
- Bridgeable power amplifiers : double the output power by uniting the power of 2 amplifiers. Minimum load impedance in bridge mode is 8 ohms.
- Self-supporting low resonance frame. Torsion free front and side panel construction with integrated heatsink assembly.
- Solid aluminum brushed front panel with removable 19” brackets and handles for use in a rack, no additional support needed. Without the 19” brackets it will be a standalone unit in high quality audio systems.
- High power toroidal transformer.
- Low impedance power supply for improved dynamic response.
- Solid speaker binding posts.
- 4 sets of banana screw plugs included.



2. Inputs and outputs

Front panel layout:



1) Volume potmeter channel 1: use this potmeter to preset the volume. In case the amplifier has been switched to bridge mode, this potmeter sets the level for bridge operation.

2) Signal led channel 1: this led lights up green when a sufficiently strong signal is present on the first channel, after passing the input level control. At startup, the led will light up red during a few seconds, this is perfectly normal. When it lights up red during use, the power transformer or power amplifier is overheated or in protect mode and is shut down. Turn off the power. **The amplifier will not turn on automatically after most error conditions. In some cases, the user MUST turn off power, remove the overload or let it cool down and then power on again !**

3) APC activity led channel 1: this led lights up when the APC circuitry is active. The APC circuitry reduces the gain at the inputs to guarantee the full dynamic range of the power amplifier circuits, without allowing any harsh distortion.

4) Clip led channel 1: this led lights up whenever the amplifier clips. This is a warning sign: you are pushing things a little too far or you are overloading the amp. Reduce the input level by a few dB so that this led never lights up anymore !

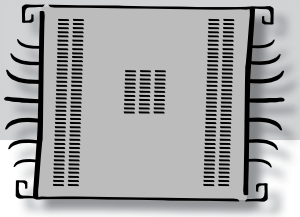
5) Bridge led: this led lights up to indicate that the amplifier is in bridge mode.

6) Signal led channel 2: this led lights up green when a sufficiently strong signal is present on the left channel, after passing the input level control. At startup, the led will light up red during a few seconds, this is perfectly normal. When it lights up red during use, the power transformer or power amplifier is overheated or in protect mode and is shut down. Turn off the power. **The amplifier will not turn on automatically after most error conditions. In some cases, the user MUST turn off power, remove the overload or let it cool down and then power on again!**

7) APC activity led channel 2: this led lights up when the APC circuitry is active. The APC circuitry reduces the gain at the inputs to guarantee the full dynamic range of the power amplifier circuits.

8) Clip led channel 2: this led lights up whenever the amplifier clips. This is a warning sign: you are pushing things a little too far or you are overloading the amp. Reduce the input level by a few dB so that this led never lights up anymore ! Don't ignore this !

9) Volume potmeter channel 2: use this potmeter to preset the volume. In bridge mode, this potmeter has no function.



10) Power switch and power led: flip the switch to power on the amplifier. The blue led will light up to indicate that mains power is present.

11) Volume potmeter channel 3: use this potmeter to preset the volume. In case the amplifier has been switched to bridge mode, this potmeter sets the level for bridge operation.

12) Signal led channel 3: this led lights up green when a sufficiently strong signal is present on the first channel, after passing the input level control. At startup, the led will light up red during a few seconds, this is perfectly normal. When it lights up red during use, the power transformer or power amplifier is overheated or in protect mode and is shut down. Turn off the power. **The amplifier will not turn on automatically after most error conditions. In some cases, the user MUST turn off power and remove the overload and then power on again !**

13) APC activity led channel 3: this led lights up when the APC circuitry is active. The APC circuitry reduces the gain at the inputs to guarantee the full dynamic range of the power amplifier circuits.

14) Clip led channel 3: this led lights up whenever the amplifier clips. This is a warning sign: you are pushing things a little too far or you are overloading the amp. Reduce the input level by a few dB so that this led never lights up anymore ! Don't ignore this !

15) Bridge led: this led lights up to indicate that the amplifier is in bridge mode.

16) Signal led channel 4: this led lights up green when a sufficiently strong signal is present on the left channel, after passing the input level control. At startup, the led will light up red during a few seconds, this is perfectly normal. When it lights up red during use, the power transformer or power amplifier is overheated or in protect mode and is shut down. Turn off the power. **The amplifier will not turn on automatically after most error conditions. In some cases, the user MUST turn off power and remove the overload and then power on again !**

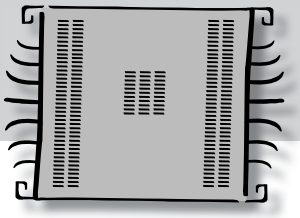
17) APC activity led channel 4: this led lights up when the APC circuitry is active. The APC circuitry reduces the gain at the inputs to guarantee the full dynamic range of the power amplifier circuits.

18) Clip led channel 4: this led lights up whenever the amplifier clips. This is a warning sign: you are pushing things a little too far or you are overloading the amp. Reduce the input level by a few dB so that this led never lights up anymore ! Don't ignore this !

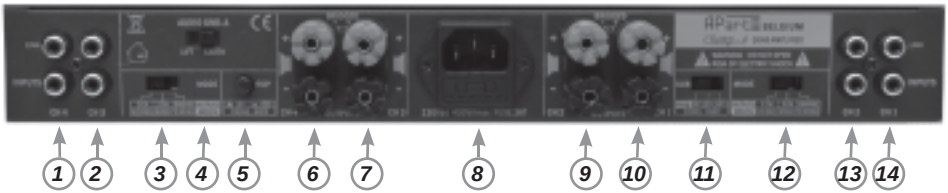
19) Volume potmeter channel 4: use this potmeter to preset the volume. In bridge mode, this potmeter has no function.

Note : signal leds 2, 6 , 12 and 16 have multiple functions: during the first few seconds of startup they light up red, this is perfectly normal. When a strong audio signal is present on the amplifier circuit, the leds light up green. When an error occurs during operation, they will turn red to indicate an error condition and the speaker relays will switch off automatically. Possible causes can be : amplifier error or DC on the output, amplifier overheat or transformer* overheat. In such cases, remove the error condition or overload and wait until the unit has cooled down before powering on again.

*In case the transformer is overheated, it may take a long time before the amplifier has cooled down sufficiently. In such cases, you may have overloaded the amplifier too much. Power off the amplifier immediately, correct the error and wait until the amplifier has cooled down.



Rear panel layout:



1) Channel 4 unbalanced input on cinch connectors: use the top or bottom cinch connector to apply an unbalanced signal on channel 4. These connectors are wired in parallel, this means you can use the second connector as a signal link connector.

2) Channel 3 unbalanced input on cinch connectors: use the top or bottom cinch connector to apply an unbalanced signal on channel 3. These connectors are wired in parallel, this means you can use the second connector as a signal link connector. In case of bridge operation of channel 3 and 4, use this connector and leave channel 4 input unused.

3) Mode switch : enables to switch to normal 2 channel stereo operation, 2 channels mixed and each playing this mono mix, or single channel bridge mode. In case of bridge mode, only the channel 3 volume control is used. This is indicated by the bridge led on the front panel.

4) Ground lift switch: use this switch to lift or connect audio ground to safety ground. This can be usefull in case of hum.

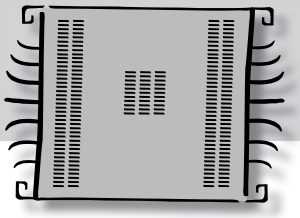
5) Top switch: when pushed in, an active highpass filter at 100 Hz, 12 dB/octave is applied to channels 3 and 4, when not pushed in, channels 3 and 4 operate as full range channels.

6) Channel 4 speaker binding post: this connector accepts speaker cable as well as 4 mm banana plugs. Remove the protective cover from the middle of the red/black binding post in case you want to use banana plugs. **For bridge mode applications, you MUST use the red binding posts only: channel 4 red plug is bridge mode negative speaker connector.**

7) Channel 3 speaker binding post: this connector accepts speaker cable as well as 4 mm banana plugs. Remove the protective cover from the middle of the red/black binding post in case you want to use banana plugs. **For bridge mode applications, you MUST use the red binding posts only: channel 3 red plug is bridge mode positive speaker connector.**

8) Mains cable connector: plug the mains cable connector here, this socket also contains a mains fuse holder. Replace this fuse only with the type as indicated on the rear panel.

9) Channel 2 speaker binding post: this connector accepts speaker cable as well as 4 mm banana plugs. Remove the protective cover from the middle of the red/black binding post in case you want to use banana plugs. **For bridge mode applications, you MUST use the red binding posts only: channel 2 red plug is bridge mode negative speaker connector.**



10. Channel 1 speaker binding post: this connector accepts speaker cable as well as 4 mm banana plugs. Remove the protective cover from the middle of the red/black binding post in case you want to use banana plugs. **For bridge mode applications, you MUST use the red binding posts only: channel 1 red plug is bridge mode positive speaker connector.**

11. With this switch, you can acivate/deactivate the integrated subwoofer filter circuitry. Standard crossover frequency is lowpass at 100 Hz. The position marked 'AP' has been optimized for use with optionally available APart-audio passive subwoofers.

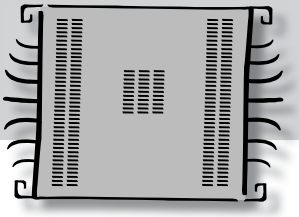
12. Mode switch : enables to switch to normal 2 channel stereo operation, 2 channel mixed (mono) operation or single channel bridge mode. In case of bridge mode, only the channel 1 volume control is used. This is indicated by the bridge led on the front panel.

13. Channel 2 unbalanced input on cinch connectors: use the top or bottom cinch connector to apply an unbalanced signal on channel 2. These connectors are wired in parallel, this means you can use the second connector as a signal link connector.

14. Channel 1 unbalanced input on cinch connectors: use the top or bottom cinch connector to apply an unbalanced signal on channel 1. These connectors are wired in parallel, this means you can use the second connector as a signal link connector. In case of bridge operation of channel 1 and 2, use this connector and leave channel 2 input unused.

What is bridge mode ?

In bridge mode, you can unite the power of 2 small amplifiers into 1 giant amp. The resulting power usually is more than double the power of both amplifiers used individually with the same load. There is a simple reason for this power boost: because the speaker load is wired to the channel's positive (hot) connectors, the amplifiers 'feel' half of the actual speaker's impedance. This means that, despite the fact that you connect for example an 8 ohm speaker, the amp thinks there is a 4 ohm load, resulting in higher power output per amplifier, and since both amplifiers work in bridge mode, this increased power is doubled. As a result, the minimum load impedance in bridge mode is limited to 8 ohms, because every amplifier only 'feels' half of this impedance. Set the speaker impedance selector of channel 1 to the 4-8 ohms position for 8 ohms(or higher) loads in bridge mode.

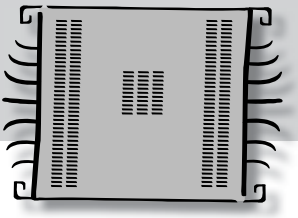


3. Rack mounting and wiring

Champ-4 can be mounted in a 19” rack, taking up only 1 rack space. Always allow a good airflow around the amplifier’s front, rear, side, top and bottom. When installing in a rack with multiple audio devices, it is compulsory to leave one rack space between units. Fill the empty rack spaces with meshed blind panels for improved ventilation. Never mount the amplifier in a sealed cabinet, unless adequate forced ventilation is provided. The amplifier may not be able to meet the specifications when installed in a poorly ventilated environment. Support the unit at the rear when installing in a rack!

Always remember: excessive heat is one of your amplifier’s biggest enemies!

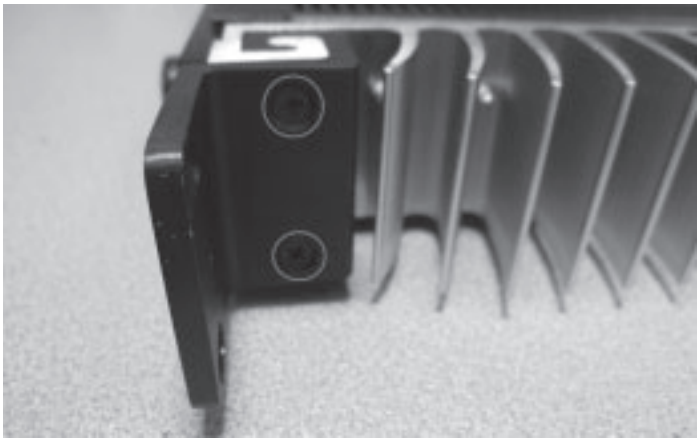
When wiring an audio rack, it is a good installation practice to route all AC wiring along one side of the rack and all audio wiring along the other side to avoid coupling mains cable interference into the audio path. Please use only high quality signal and speaker cables and connectors. Pay special attention to avoiding ground loops when installing audio devices in metal racks, use special insulating rack mounting hardware, such as the so called ‘humfrees’. This mounting hardware will make sure that several devices mounted in a rack will be electrically isolated from the rack, and thus are a great help in avoiding ground loops. Any damage caused by user induced ground loops are not covered by warranty! Ground loops can cause hum or other strange side effects that will affect stable and safe operation of audio hardware and peripheral devices. Ground loops are often created by connecting tuners to cable distribution sockets. Always use a RF isolating transformer whenever there is a cable signal tuner or digital TV tuner in the audio path!

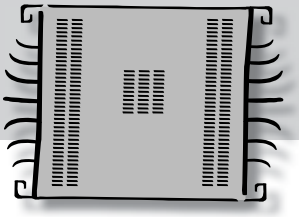


4. Stand alone use

It is possible to integrate **Champ-4** in a high quality audio chain. In order to adapt the front panel dimensions to the dimensions of other equipment, it is possible to remove the 19” brackets and handles for an even more sleek and refined look.

Remove the two screws marked in red circles and slide off the handles.





5. Technical specifications

RATED OUTPUT POWER, BOTH CHANNELS DRIVEN:

dynamics program power, all channels driven

bridge-mono operation 8 ohm	*230 W*
8 ohm / ch	*75 W*
4 channel mode 4 ohm	*125 W*
dynamics capacity at 2 ohm / single ch*	*180 W*

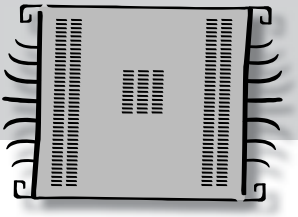
** this value represents the dynamics at impedance dips at certain frequencies of some speakers,*
** this amplifier is NOT designed to drive full 2 ohm loads (example 2 or 3 speakers of 8 ohm in parallel)*

Sine wave power, both channels driven (not recommended, for reference only)
This amplifier is designed for an audiophile music experience, not for lab testing!

Bridge-mono operation 8 ohm	*130 W*
4 channel mode 8 ohm	*60 W / ch*
4 channel mode 4 ohm	*80 W / ch*

GENERAL TECHNICAL SPECIFICATIONS:

Input impedance / sensitivity unbalanced (RCA) / 4 ohm	*10 KOhm / 1 V 0dBV*
Frequency response (0, -0.5 dB)	*20 Hz – 40 KHz*
THD	*< 0.1 %*
IMD	*< 0.15 %*
Noise	*>100 dBA*
Gain	*26 dB (32 dB in bridged mode)*
Damping factor	*>100*
Dynamics and level control	*APC limiter*
Protection circuits	*DC, clip, overcurrent, short-circuit*
Active filter channel 1 and 2 '100' position	*lowpass at 100Hz/12 dB/oct*
Active filter channel 1 and 2 'AP' position	*APart-audio specific filter characteristic optimized for APart-audio passive subs*
Active filter channels 3 and 4	*highpass at 100Hz/12 dB/oct*
Temperature protection	*90°C/ch + transformer 105°C*
Cooling	*convectional, no fan*
Power consumption	*26 VA idle, 400VA full program*
Mains power requirements	*230VAC, 50-60Hz*



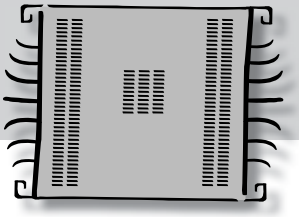
PHYSICAL SPECIFICATIONS:

Net dimensions (cm) (W x H x D)	*48.3 x 4.4 x 36*
Gross dimensions (cm) (W x H x D)	*56 x 10 x 55*
Net weight	*7.5 kg*
Gross weight	*9.0 kg*

APart-Audio general warranty conditions:

APart-Audio warrants this product to be free of defects in material and workmanship for a period of one year for parts and for a period of one* year for labor from the date of original end-user purchase. This warranty is valid only for the original end-user and cannot be transferred.*
During the warranty period APart-Audio orone of its authorized service partners shall either repair or replace any product, free of charge, that proves to be defective on inspection by APart-Audio or its authorized service representative.
All warranty claims must be accompanied by a detailed description of the problem. All returns must be sent to APart-Audio or an authorized APart-Audio repair centre, postage prepaid, insured and properly packaged. Proof of purchase must be presented in the form of a valid invoice or some other positive proof that the product is within the warranty period.
This warranty does not cover any defects caused by faulty installation, damage due to abuse, neglect, alteration or attempted repair by unauthorized personnel, system mismatch, insufficient maintenance or any damage caused by excessive mechanical stress and is strictly limited to failures arising during normal use that are due to defects in material or workmanship in the product.
Under no circumstance, APart-Audio or one of its service centres can be held responsible for the loss of data caused by a repair or exchange operation.
APart-Audio reserves the right to change or improve the design and/or specification of the product at any time without prior notice.

**warranty period may be different for your country. Please consult your local dealer.*



ANY SUGGESTION?

They are well appreciated and eventually rewarded!
Send your ideas or suggestions to

suggestions@apart-audio.com

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CHAMP-4 is developed by

Audioprof nv
Lanteernhofstraat 90
BE-2100 Deurne
BELGIUM