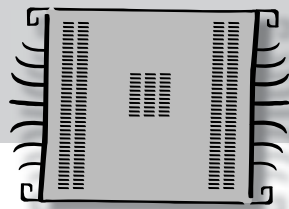
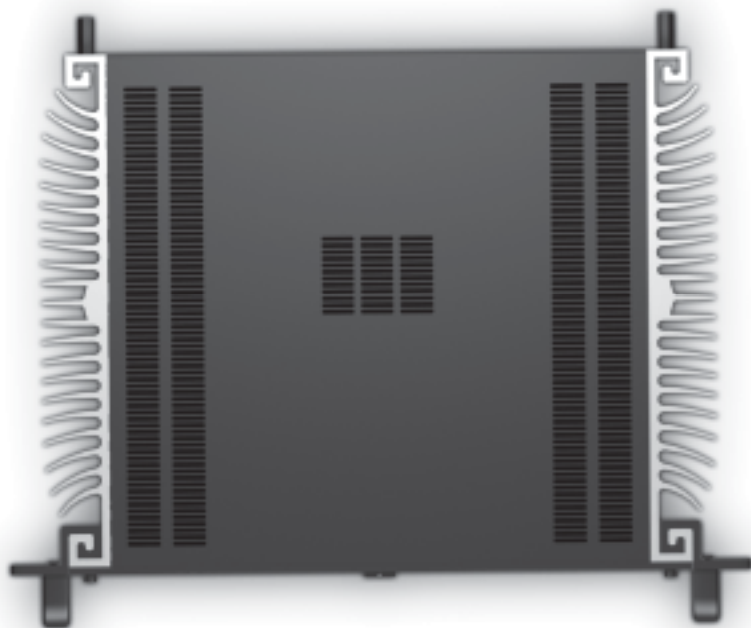


APart

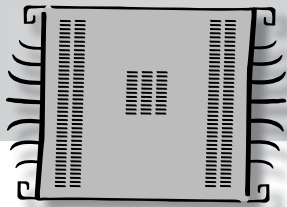


MANUAL



Champ - One

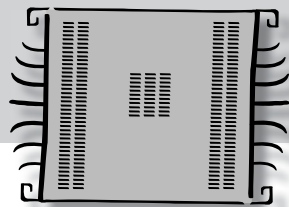
Audiophile Stereo Power Amplifier



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.





Introduction

Dear customer,

Why does **live music** leave an unforgettable impression on you ? The answer is simple: **dynamics**. The ability of a sound system to produce crystal clear low level sounds as well as extreme musical peaks without any distortion, the power to leave some headroom for those occasional peaks in music. Pure power ! This ease of music reproduction can not be described in figures or specifications.

In the following pages we will explain how we have reached our goal. *Champ-One* features an exceptionally dynamic output stage, a unique combination of class G and H amplifier topology, all packed in a two unit **fanless** enclosure. While our competitors are struggling with often poorly designed so called energy efficient class D digital amplifiers...well, we have taken a close look and listened carefully to some of these designs, and we were not impressed. We got inspired to make something **APart** from all the rest, and started from scratch.

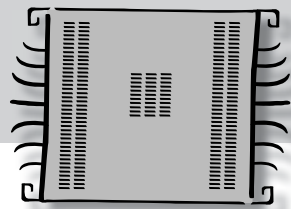
Take a look at our new champion with his striking design and powerful set of features that will exceed the demands of passionate music lovers as well as system integrators. Designed with a continuous 4 ohm, 2 ohm dynamically stable high current output stage, *Champ-One* will surprise you with its sonic excellence and dynamic capacities. Remember, this unique amplifier has been developed with the impact of live music dynamics in mind. A true beauty, inside as well as outside, but also a beast if necessary.

Take your time and listen to our new *Champ-One* amplifier. Please fasten your seatbelts and beware, you might get blown away, not by the cooling fan, simply because there isn't any.

Experience the pure musical power of *Champ-One*.

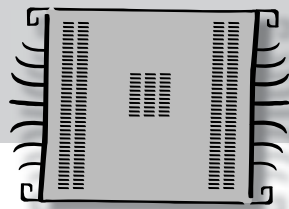
Manual contents

1. **Fanless design and highlights**
2. **Features**
3. **Inputs and outputs**
4. **Rack mounting and wiring**
5. **Standalone use**
6. **Technical specifications**



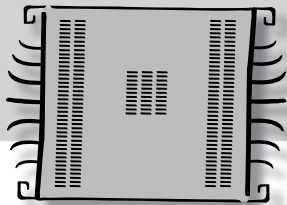
1. Fanless design and highlights

- Audiophile grade components mounted on solid aluminum and steel construction chassis for the highest possible signal integrity and reliability, even under difficult circumstances.
- High current, high voltage discrete output stage in class G and H configuration, capable of driving even the most demanding speaker systems and combinations. Either at low or high power, you **will** hear the *Champ-One* difference.
- Switchable “tube” characteristic is a unique feature on discrete power amps. It allows you to enjoy a warm, softer, more transparent sound resulting in zero listening fatigue.
- Custom designed side mount heatsinks, in combination with class G and H amplifier topology have made it possible to create a discrete high power amplifier without the need of a noisy dust collecting cooling fan inside the enclosure. This means less maintenance, no annual fan or dust filter exchange procedure, no more amplifier cleanout ... **no unwanted noise from cooling fans**, *Champ-One* relies on convectional cooling only, a unique feature in this output power class !
- Temperature controlled program power control: the APC circuitry continuously monitors output power demands and amplifier temperature and will automatically adjust program power to avoid overheating and thermal cycling.
- A stunning 46.000 μ F of high grade electrolytic capacitors, high power toroidal transformer for ultimate power reserve.
- Self-supporting low resonance steel subframe. 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 or as a standalone unit in high quality audio systems.
- Multi purpose input and output connector configuration: genuine Neutrik® speakon connectors, speaker wire binding posts, XLR input connectors, RCA connectors ...



2. Features

- Intelligent **APC power management circuitry** constantly analyses incoming music signals and keeps dynamics alive. An additional ultra fast peak limiter avoids amplifier clipping in case someone hits the inputs too hard. Please remember, this is a musical amplifier, please leave some headroom and enjoy the music.
- APC also allows you to configure the amplifier to your specific needs: average RMS output power is programmable from 150 to 600 watts. Under all circumstances dynamic headroom is respected as long as you don't overload the input stage. This circuit can also be used as an environmental noise limiter.
- Output sound selection: tube emulation circuitry for authentic sound from tube amplifiers. Solid for normal use. Try to find out and discover the subtle sonic differences.
- Bridge or stereo mode: double the output power and convert this amplifier into a monoblock amplifier with one push on a button. Minimum load impedance is 8 ohms in bridge mode.
- Protection circuitry: the protection circuitry is another unique design feature of this amplifier: together with the APC circuitry, output signals are constantly monitored by the protection circuit, and speaker outputs will be cut in case of extreme overload, short circuits, DC offset, overheating... This circuit is also capable (within certain limits) of reducing the input signal to prevent clipping, distortion and other musically destructive situations. We have done our best to make sure this amplifier will produce clean power, but **it is also the user who is responsible for the final result.**
- Versatile in- and output connector configuration for increased installation flexibility.
- User protected power and sound setting switches at the rear, accessible behind a removable cover plate.
- Ground lift switch to enable you to find the cause of system ground loops.

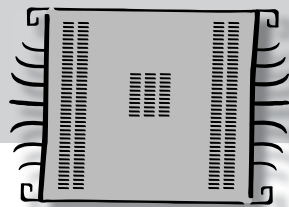


What is APC ?

APC is one of the most intelligent amplifier protection circuits ever designed, simply because it does the job without interfering with the typical dynamic character of music. APC allows you to fully exploit the potential of the amplifier, maintaining high power reserves and thus producing high, clean power.

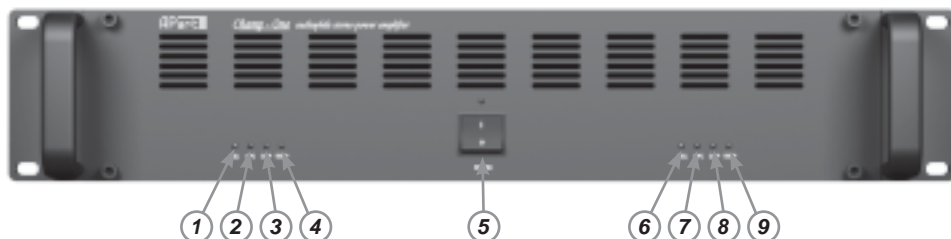
It is a common misunderstanding that high power amplifiers will overload or destroy lower power speakers, the opposite is true. You can easily destroy a 500 Watt rated speaker with a simple 50 watt power amplifier ! Why ? In order to produce a low tone, such as a kick drum or bass guitar, you need about 80 % or more of an amplifier's power. Because distortion is less audible in low frequencies, you would want to increase the level more than the amplifier can supply. This causes low frequency distortion which causes high frequency harmonics. These harmonics contain more high frequency energy than the high frequency speaker can deal with. Result: harsh distortion and sudden heat rise in the high frequency speaker's voice coil. After a short while, the high power speaker may burn out.

Conclusion: don't punish your speakers with weak amplifiers. Set the APC control to a power level equal to your speaker's RMS input power and avoid hitting the clip limiter !

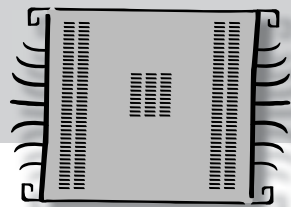


3. Inputs and outputs

Front panel layout:

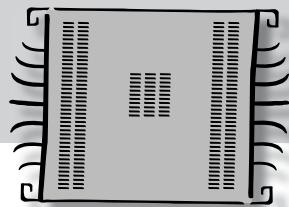


- 1) Signal led left channel, this led lights up green when a sufficiently strong signal is present on the left channel, after passing the input level control. When it lights up red, the power amp is overheated or in protect mode and is shut down. Turn off the power. **The amplifier will not turn on automatically after an error condition, the user MUST turn off power, wait for cooling down in case of overtemperature, or remove the overload and then power on again!**
- 2) APC activity led left channel: 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.
- 3) Clip led left channel: this led lights up whenever the amplifier clips. This is a warning sign: you are pushing things a little too far or overloading the amp (minimum load impedance is 4 ohms in 2 channel mode or 8 ohms in bridge mode). Reduce the input level by a few dB so that this led never lights up anymore ! Don't ignore this !
- 4) Temp led left channel: this led lights up when the amplifier is about to overheat. Output power will automatically be limited by the APC circuitry to avoid further overheating. This part of the protection circuit resets itself automatically when temperature has normalized. **Caution: turning off the APC circuit (rear switch '15') will also turn off this protection feature and will void warranty.**
When both signal led (1) and temp led (4) are red, it is possible that the power transformer's thermal protection is active and the amplifier is shut down. Turn off the power and let it cool down. The amplifier will not turn on automatically after it has cooled down, the user MUST turn off power, wait for cooling down and then power on again !
- 5) Power switch and power led: flip the switch to power on the amplifier. The led will light up to indicate that mains power is present.



- 6) Signal led right channel, this led lights up green when a sufficiently strong signal is present on the right channel, after passing the input level control. When it lights up red, the power amp is overheated or in protect mode and is shut down. Turn off the power. The amplifier will not turn on automatically after an error condition, the user **MUST** turn off power, wait for cooling down in case of overtemperature, or remove the overload and then power on again !
- 7) APC activity led right channel: 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 right channel: this led lights up whenever the ultrafast clip limiter becomes active. This is a warning sign: you are pushing things a little too far: reduce the input level by a few dB so that this led never lights up anymore ! Don't ignore this !
- 9) Temp led right channel: this led lights up when the amplifier is about to overheat. Input gain will automatically be reduced by the APC circuitry to avoid further overheating. This part of the protection circuit resets itself automatically when temperature has normalized. **Caution: turning off the APC circuit (rear switch '11') will also turn off this protection feature and will void warranty.**

When both signal led (6) and temp led (9) are red, it is possible that the power transformer's thermal protection is active and the amplifier is shut down. Turn off the power and let it cool down. **The amplifier will not turn on automatically after it has cooled down, the user MUST turn off power, wait for cooling down and then power on again!**



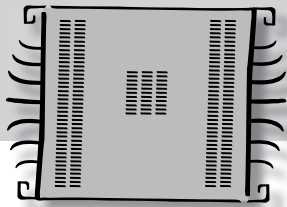
Led status messages

<i>Fault condition</i>	<i>SGL led L = red</i>	<i>Temp led L = red</i>	<i>SGL led R = red</i>	<i>Temp led R = red</i>	<i>What to do ?</i>	<i>Output signal condition</i>
<i>Left amp temp high</i>		Yes			Reduce input signal	limited output power
<i>Right amp temp high</i>				Yes	Reduce input signal	limited output power
<i>Left amp overheated</i>	Yes	Yes			Reduce input signal, wait for cool down	output muted
<i>Right amp overheated</i>			Yes	Yes	Reduce input signal, wait for cool down	output muted
<i>Amp error L (DC, HF, short circuit)</i>	Yes		Yes		Remove error, power off and on	output muted
<i>Amp error R (DC, HF, short circuit)</i>	Yes		Yes		Remove error, power off and on	output muted
<i>Transformer thermal protection</i>	Yes	Yes	Yes	Yes	Wait for cool down*, power off and on	output muted

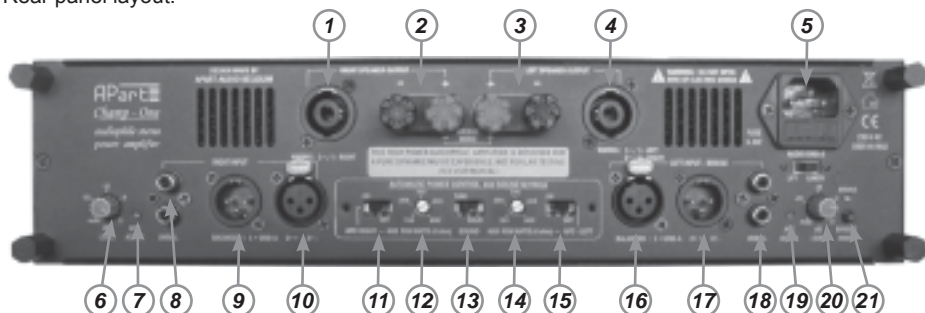
**In case the transformer is overheated, it may take a few hours before the amplifier has cooled down sufficiently. In such cases, you may have overloaded the amplifier too much. Power off the amplifier immediately, correct the error and wait until the amplifier has cooled down.*

Please note that in some cases, such as DC on the output, strong HF signals or short circuits, the user must power off the amplifier. Remove the error condition and power on again.

Under normal circumstances, this amplifier will not overheat. If any of the above mentioned overheating situations occur, please check the load impedance, the ventilation and last but not least, input levels. The intelligent APC circuitry will reduce input gain and level to a safe margin within certain limits. This circuitry can not correct an input signal that is already clipped and distorted.



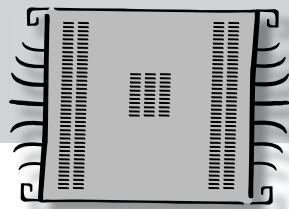
Rear panel layout:



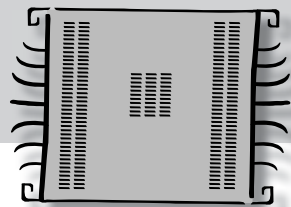
- 1) Right speaker output on genuine Neutrik® Speakon connectors. Only pin 1+ and 1- are used here.
- 2) Right speaker cable binding posts, these will also accept 4 mm banana plugs on 19 mm spacing.
- 3) Left speaker cable binding posts, these will also accept 4 mm banana plugs on 19 mm spacing.
- 4) Left speaker output on genuine Neutrik® Speakon connectors. **Warning: left channel output is present on pins 1+ and 1-, right channel output is present on 2+ and 2-.**

For bridge mode applications, you MUST use 1+ (bridge mode +) and 2+ (bridge mode -) OR use the red binding posts.

- 5) Mains cable connector: plug the mains cable connector here, this socket also contains a mains fuse holder. Replace this fuse only with a 6.3 AT 250V type. Beneath the fuse holder you also find the ground lift switch.
- 6) Right channel input level control: turn the level control to a level that guarantees distortion free music under all circumstances, avoid clipping at the input at all costs !
- 7) APC active led right channel, this is a copy of the front panel APC led.
- 8) Right unbalanced input on cinch connectors: use the top or bottom cinch connector to apply an unbalanced signal on the right channel. These connectors are wired in parallel, this means you can use the second connector as a signal link connector.
- 9) Right balanced input on XLR connector, this connector is wired in parallel to connector '10'. This allows you to link the balanced signal to another amplifier.



- 10) Right balanced input on XLR connector, this connector is wired in parallel to connector '9'. This allows you to link the balanced signal to another amplifier.
- 11) APC right channel on/off switch: **always leave this switched on.**
Warning: turning off the APC circuit will also bypass the amplifier's output stage temperature protection. This is for service purposes only.
- 12) APC power control right channel: turn the APC control to achieve the desired program output power. The indicated power level is in reference to a 4 ohms speaker load. This can also be used for environmental noise limiter purposes. The APC circuitry will reduce the input stage gain to guarantee the preset program power output with musical dynamics.
- 13) Tube/solid sound selector: set this switch to the tube setting for authentic tube like sound, or to solid for normal applications. The differences are very subtle and will only be noticeable on very high quality speaker systems ! Set this one to solid for normal applications.
- 14) APC power control left channel: turn the APC control to achieve the desired program output power. The indicated power level is in reference to a 4 ohms speaker load. This can also be used for environmental noise limiter purposes. The APC circuitry will reduce the input stage gain to guarantee the preset program power output with musical dynamics.
- 15) APC left channel on/off switch: **always leave this switched on.**
Warning: turning off the APC circuit will also bypass the amplifier's output stage temperature protection. This is for service purposes only.
- 16) Left balanced input on XLR connector, this connector is wired in parallel to connector '17'. This allows you to link the balanced signal to another amplifier.
- 17) Left balanced input on XLR connector, this connector is wired in parallel to connector '16'. This allows you to link the balanced signal to another amplifier.
- 18) Left unbalanced input on cinch connectors: use the top or bottom cinch connector to apply an unbalanced signal on the left channel. These connectors are wired in parallel, this means you can use the second connector as a signal link connector.
- 19) APC active led left channel, this is a copy of the front panel APC led.
- 20) Left channel input level control: turn the level control to a level that guarantees distortion free music under all circumstances, avoid clipping at the input at all costs !
- 21) Bridge mode switch: push this switch to convert the amplifier into a mono bridge amplifier. In this case you can apply an input signal to the left channel only ! Leave the right channel connectors open ! Bridge mode input level is controlled by the left channel level controller ('20') only. Connect your speaker to the right channel +(plus) connector and to the left channel +(plus) connector ! Never use the speaker output -(minus) connectors in bridge mode ! The led above the bridge mode switch will indicate that the amplifier is in bridge mode. Minimum bridge mode speaker load is 8 ohms.

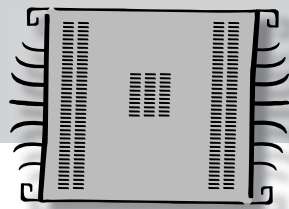


4. Rack mounting and wiring

Champ-One can be mounted in a 19" rack, taking up only 2 rack spaces. 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 advisable 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 !

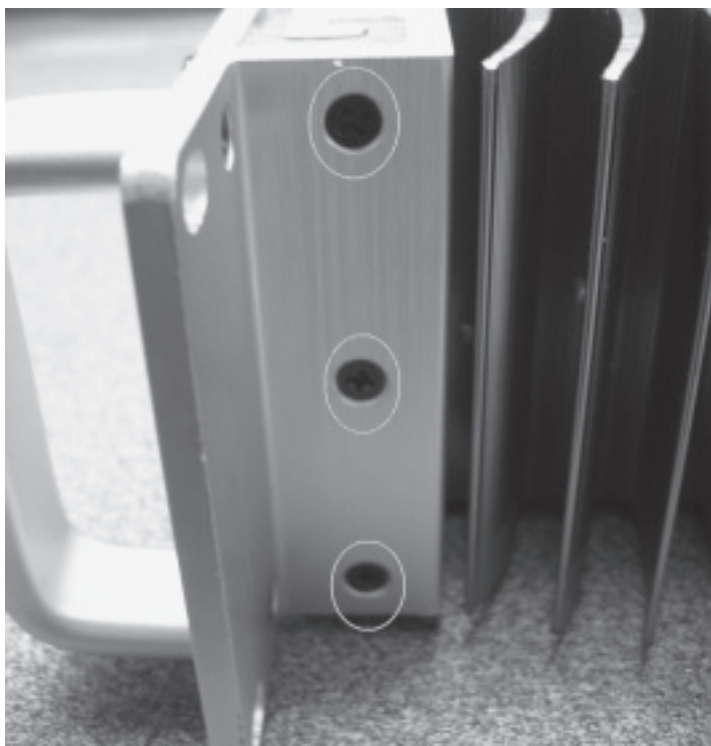
When wiring an audio rack, it is a good installation practice to route all AC wiring along one side of the rack and all audio wiring along the other side to avoid coupling mains cable interference into the audio path. Please use only high quality signal and speaker cables and connectors. Pay special 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. Use a RF isolating transformer whenever there is a cable signal tuner or digital TV tuner in the audio path !

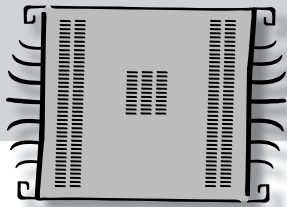


5. Standalone use

It is possible to integrate Champ-One 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 three screws marked in the circles and slide off the handles.





6. Technical specifications

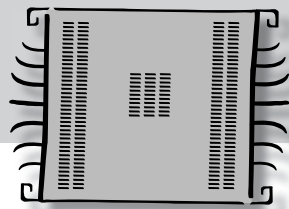
Rated output power, both channels driven:

<i>Dynamic program power, both channels driven</i>	
Bridge-mono operation 8 ohm	1100 W
2 channel mode 8 ohm	400 W / ch
2 channel mode 4 ohm	600 W / ch
2 channel mode 2 ohm	not allowed
Dynamic capacity at 1.7 ohm, both channels driven	1000 W / ch

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	900 W
2 channel mode 8 ohm	300 W / ch
2 channel mode 4 ohm	450 W / ch

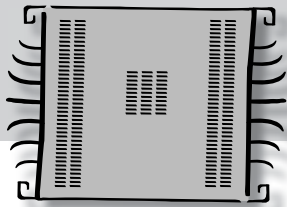


General technical specifications

Input impedance / sensitivity unbalanced (RCA) / 4 ohm	10 Kohm / 1 V 0dBV
Input impedance / sensitivity balanced (XLR) / 4 ohm	20 Kohm / 1 V 0 dBV
Frequency response (0, -0.5 dB)	10 Hz – 50 kHz
THD	< 0.05 %
IMD	< 0.08 %
Noise	>100 DBA
Gain	33 dB (39 dB bridged)
Damping factor "Solid"	>100 at binding posts
Damping factor "Tube"	>10 at binding posts
Dynamics and level control	APC, programmable
Power amp circuit design	High current, high voltage class G-H
Efficiency (dynamic program of 10 dB, 1 V input)	>70 %
Protection circuits	DC, HF, clip, overcurrent, short-circuit
Temperature protection	2 step / channel + transformer 105°C
Cooling	convectional, no fan
Power consumption	18VA idle, 1KVA full program, 1.5KVA peak
Mains power requirements	230VAC, 50Hz

Physical specifications

Net dimensions (cm) (W x H x D)	48.3 X 8.8 X 38
Gross dimensions (cm) (W x H x D)	58.5 x 15.5 x 56.5
Net weight	13 kg
Gross weight	19 kg



ANY SUGGESTION?

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

suggestions@apart-audio.com

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CHAMP ONE is developed by

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BELGIUM**

