



ELEMENT 302 Power amplifier

HDCA™ technology equipped

MCU processor inside

Eam Lab *_elettroacustica Milano*

ELEMENT series

A New frontier of amplifier

Philosophy

Preserving the naturalness of an instrument in its entirety is a challenge that every high-fidelity component must achieve.

During the development of our products, we at Eam Lab never wanted to leave this challenge outside of our point of view.

The series 2 of HA amplifiers was created to allow modern acoustic systems to better express their potential by making use only and exclusively music without alternating in any way the message are initial.

Each component that makes up the series 2 is carefully chosen based on excellent electrical and mechanical characteristics along with the reliability over time that, for us at Eam Lab, is of primary importance.

New materials and new finishes from the chassis have allowed a noticeable improvement of the aesthetic factor, always considering the design a staple of the Eam Lab philosophy.

The mechanical sturdiness is guaranteed by 3mm thick steel panels fixed directly to the heat sinks that make it from the supporting shoulder, greatly reducing vibrations caused and vibrations caused.

They are linear amplifiers, extremely powerful and reliable while maintaining a compact design that allows them to be inserted in any environment.

Power amplifier ELEMENT 302



. For decades the valves have been able to surpass the musical performances of the "transistorized" competition. The truth is that technology modern should be superior to vacuum tubes.

Eam Lab amplifiers are able to combine the advantages of both technologies.

ELEMENT 302

In this power amplifier we have gathered all the experience gained in the electroacoustic field in the course of

twenty years.

Power supply, output stages, preamplifying stages, components and protections are made in this amplifier to provide excellent performance in any environment, condition, load.

600 Watts per channel on 40hm and 1000 on 20hm leave no doubt. ELEMENT 302 interfaces better with the most demanding loudspeakers, providing unlimited power in every situation.

In this model a new philosophy of circuit approach has been adopted, starting from the supply stage up to the output stage. Without compromise, without reservations. Like the microprocessor that controls the entire operation of all parameters

HDCAtm is the newly developed preamplifier stage designed and developed in the laboratories of Eam Lab and literally means High Dynamic Current Amplifier that allows an amplification of the current signal before be subjected to the actual amplification Of the pilot stage, driver and output.



Technology



This stage is completely discrete components, is seen similar to an OpAmp and allows sonic superiority to amplify the current signal. The HDCA circuit has a bandwidth of 1Mhz, a distortion close to 0.00001%, linearity within 0.1db between 1hz and 250.000hz always guaranteeing a perfect interfacing with any source.

It's not all. HDCA is armored in an aluminum container and resined with special heat-coupled polymers. All this translates into an always perfect linear operation with temperatures ranging between -30 and + 150 ° c. to inexperienced eyes it may seem useless a job like that. it is essential to not allow the first stages of amplification of the signal, which are the most delicate and most frequent fluctuations due to external agents (AC, RF, vibrations), to "get dirty" and inevitably dirty the signal to be transmitted to the later stages . Thanks to the similar HDCA stadium no longer exist.

Feeding details

To guarantee an always high and clean output current, enormous transformers are needed. But the more transformers are bigger the more they tend to vibrate. ELEMENT 302 is equipped with 2 toroidal transformers of 1000VA each. We have solved the problem by resining the transformers in a non-magnetic container re-insulating the whole with a 3mm thick aluminum casing that protects sensitive amplification circuits.

Attention to details

The aluminum casing also acts as a heat sink for the rectifying diodes, in this case 2, one per branch, capable of handling forward currents of over 500A each. All this power must obviously be dissipated.

In this case a radiant surface of over 80cm squared optimally dissipates and escapes every kind of problem.

Output current

The current that can be supplied is supplied by Sanken bipolar devices of the latest generation. ELEMENT 302 has 16 for each channel with current peaks that reach 272 Amper. The average can reach 140 constant amperes.

To ensure effective heat dissipation we opted for direct transistor / heatsink mounting without additional plates and the electrical insulation is given by a special military production mica that decreases the W / C° ratio.

Protections

The importance of better protecting electronics and connected loads is of primary importance to us at Eam Lab. For this reason we have developed effective protections that do not alter the musical signal in any way. Specifically for this model, they have also been integrated by a microprocessor which increases its effectiveness and precision of intervention.

IDCL™ (Impedance Detecting & Current Limiting) it is a protection circuit that constantly monitors the output current of the power amplifiers comparing it with the load impedance. the IDCL circuit intervenes in case the output current should increase for various reasons. With this method it is possible to use ELEMENT302 even with impedance loads close to the short circuit without a slight mention of failure.

SVCS™ (Servo Controlled Current State) The imposing power of the amplifier must be treated appropriately and its management is entrusted to this circuit. The currents in play, often very high, are kept under control even when the amplifier is switched on to start working. To prolong the life of transformers and capacitors, the supply voltage is brought to full capacity only after a few seconds and not all at once. It goes from 30% to 100% in about 3 seconds from the ignition. In addition to this useful function the SVCS controls the power supplied by the transformer and limits its functioning only in case of excessive heat dissipation, lowering its efficiency gradually up to 70% of its capacity.

Security

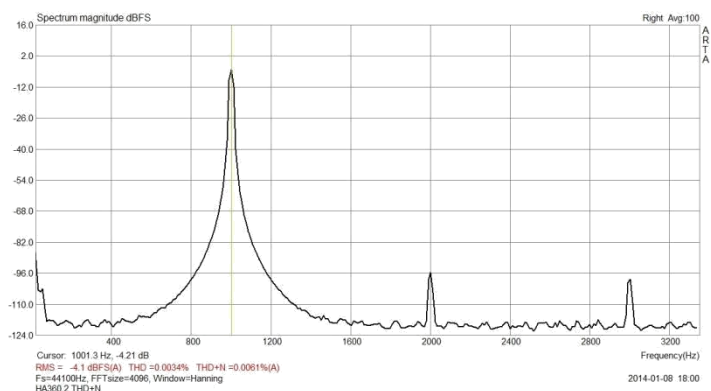


The inputs have balanced XLR and single ended RCA connectors. Selection is made by moving the switch. Corresponding. The amplifier can also be connected in bridge using the external positive terminals. The speaker + becomes the right channel. The negative is connected to the positive of the left channel

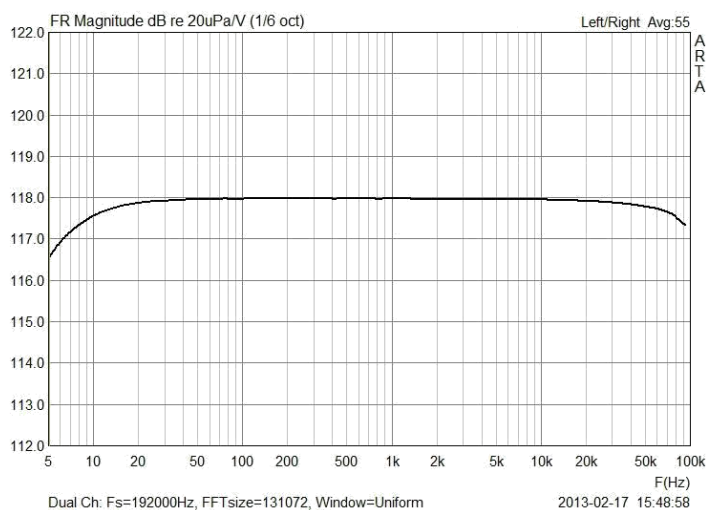
THL™ (Thermal Heat Limiting) The temperature of the final devices is managed by this circuit which always guarantees its correct functioning even in case of excessive thermal stress. The circuit intervenes when the temperature on the dissipators reaches the threshold of 75 ° c. and it makes sure to keep it stable within a tolerance of 10% by acting on micro-variations of the polarization of the final stages. The two LEDs on the front panel indicate the intervention of the THL circuit. this is a condition that occurs after a few hours of operation (in some cases after a few minutes, dependent on the connected load) and the amplifier in this condition can continuously work without the slightest problem for many hours.

ILP™ (Intelligent Lock Power) the ILP protection system encloses 3 different functions in a single circuit. detects any DC currents present on the final devices by blocking the outputs and disconnecting the connected load. in this regard, the task is entrusted to 2 30A relays with over 500,000 contact cycles. ILP is not a simple DC detector but a more complex system of protections able to detect every little variation of the continuous output voltage. even in the case of prolonged clipping, the circuit intervenes. Working in tandem with IDCL these two devices are able to guarantee unrivaled reliability for this amplifier.





THD . infinitely small for an amplifier of these powers is a sign of a well-mixed project in all its components



Frequency response

Extended and very flat it remains in the loss parameters of 0.2 db up to 80Khz. This is an index of precision, detail and speed of response to transients

Finally there is only one test that really counts when you make a decision. Listening! Listening with an amplifier of the ELEMENT series is an experience that few other amps will be able to provide. You will be amazed at the control of the bass and how much each diffuser is able to express itself better thanks to this technology. Do not be afraid of comparisons, try it with others amps and you'll understand why we firmly convinced that our amplifiers are among the best still existing.

For a long time, power has been the center of attention for quality amplifiers, followed by the factors of total harmonic distortion.

However, these isolated observations are not sufficient to explain the characteristics of a sound emitted by an amplifier.

Only a global vision that considers the real load of a

diffuser leads to valid results. An ideal amplifier is

stable regardless of the load seen and must provide constant amplification with zero phase shifts on all frequencies.

This should be done without excessive signal paths or "tricks" that are often used in transistor technology such as excessive negative feedback and high gains or, worse, with the correction of the signal itself. These amplifiers are perfect for measuring benches but then, almost always, they behave when listening to valves worse.

The purpose of Eam Lab is to guarantee a very linear and fast amplification, without alterations, providing high delivery currents that can not be minimally realized with vacuum tubes.

Your Eam Lab Dealers :



Eam Lab

www.eamlab.com

Via L.b. Alberti 28 – 20015
Parabiago (MI) – Italy

Phone +39 0331 1836 780

Datasheet

Power Wrms	300 + 300	8ohm
	600 + 600	4Ohm
	1000 + 1000	2 ohm (impulsive)

Frequency response	5 to 100Khz +/- 0,8db
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Damping factor	>200 @ 250hz 8ohm
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THD	0,005% @ 300Watt 8 ohm
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Input impedance	22Kohm xlr – 22Kohm single ended
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Mains	230 Vac	8,69 A. full power
	115 Vac	17,39 A. full power

Dimension	402 * 420 * 250 mm (P*L*H)
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Weight	41 Kg.
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Chassis	steel stainless 30/10
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Finish	Scratch-resistant black powder paint magnetized
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protection circuitry	THL , ILP , SVCS , IDCL, MCU processor
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Features	HDCA preamplifier stage input
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