GZ ULTRA A-2 – new reference amplifier from Ground Zero

Superlative two-channel amplifier

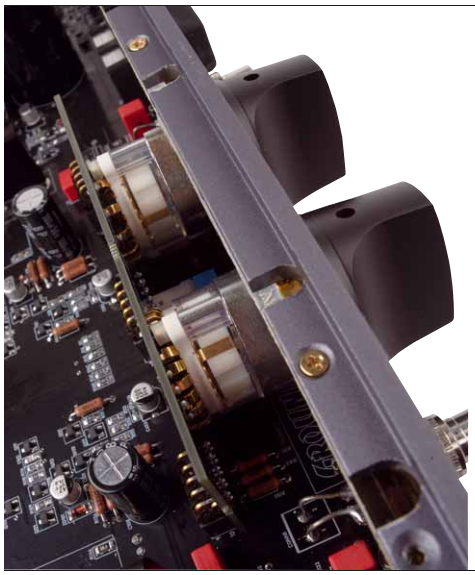
With the ULTRA A-2, Ground Zero wants to break all records. Developed with immense effort, this amplifier should not be less than the best of all times. We are curious.

The ULTRA A-2's interior can be illuminated by LEDs, making interesting installation themes possible

Ground Zero presented a completely new and surprising over-the-top high-end series for 2022 called Reference Ultra. Located above the previous Reference there are currently two loudspeakers and an amplifier called ULTRA. The loudspeakers are a 6.5" midbass driver and a tweeter, which emit a noble two-way system. However, this is about the amplifier GZ ULTRA A-2. And it has the talent. At a price of just under 6,000 euros, you'll get two amplifier channels in a huge and massive cast housing weighing over 8 kilograms, which completely stands out from the previously known Ground Zero design. The ULTRA A-2 is delivered in a noble wooden case from good old Germany and with an individual test and measurement certificate from England. The amplifier is then also Made in England, by one of the world's most renowned amplifier developers in the industry. The highlight is the water cooling - ultra cool in the literal sense! Of course, the amp also works without water cooling, but if you want, you can look around for the appropriate parts in computer shops. Thanks to standardized connections and 12 volt technology, that's no problem at all. And water cooling is always useful, the coolant with its high heat capacity helps to keep the temperature of the heat sink and thus the parts connected to it constant – in turn, the amplifier thanks with performance.

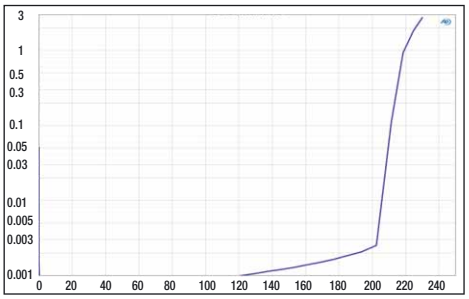
Construction

It certainly doesn't have to be mentioned that the ULTRA A-2 is extremely valuable and elaborately made. Real high-end and everything at its finest - just the way it should be. The consistent double-mono structure known from Ground Zero is not surprising. The layout of the large circuit board is completely mirror-symmetrical except for the switches in the signal input that are common to both channels. Channel separation (in a single housing) probably doesn't get any better. In general, there are indications on every corner that the entire amplifier is made solely for the sound, regardless of the costs. Great attention is paid to even the smallest details in order to really get the last little bit out of it. Of course, there are components of the finest quality. Even the rail capacitors are custom made for Ground Zero by the Cologne-based specialist Mundorf. Furthermore, only the best Toshiba transistors are used for the power supply. OTAs with high-impedance current output have proven to be the best solution in terms of sound as ope-

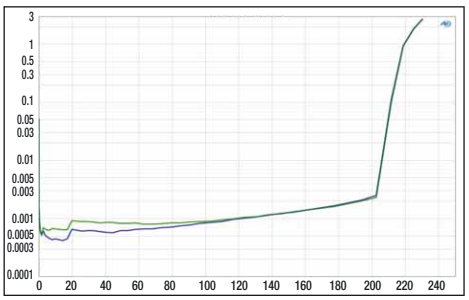


Each channel has it's own 50A fuse and a shielded transformer. Rail capacitors are custom made by Mundorf

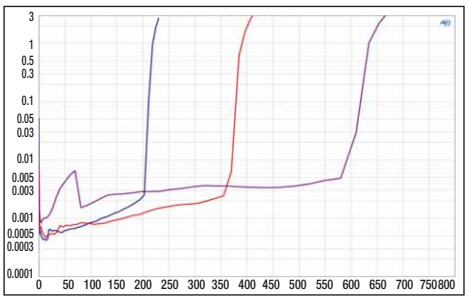
No pots: two switches from Swiss company Elma control gain and bias levels



First measurement in standard display: no curve? Yes, but below 0.001 %



Comparison of bias low (green) and bias high: With low to medium power, the high position produces even less distortion than the low position

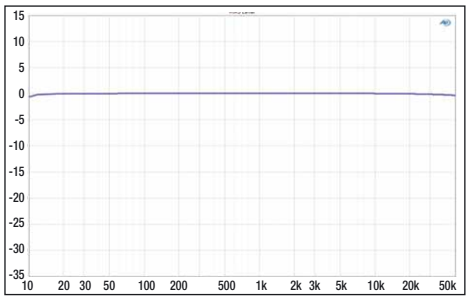


After scaling the vertical axis starting at 0.0001%, you can see that the ULTRA A-2 produces an order of magnitude less distortion than usual

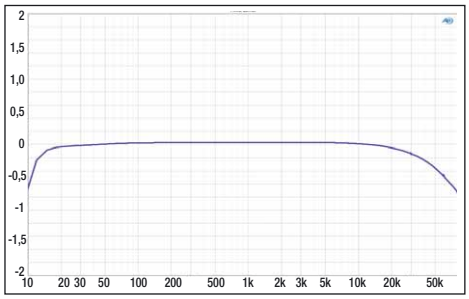
First class wire terminals and RCA sockets and four status LEDs are nice, but mainly the two switches catch the eye

Eight Sanken transistors per channel are located under the PCB

rational amplifiers. Class A drivers are used at the back and Sanken transistors with temperature control for maximum linearity are installed in the final amplification. Ground Zero has come up with something very special with the two large controls on the front panel. These are responsible for bias and gain, with the gain control is used to adjust the input sensitivity to the source – of course with every power amplifier. We know the bias regulator from the Ground Zero Reference series, it enables the bias current to be regulated and thus the operating point of the amplifier circuit to be set. This is far from self-evident and is usually set by the developer. This decides which area of the characteristic of the circuit is used, this is where the „amplifier classes" A or AB and others come from. Because the characteristic curve is not linear, this working range is not irrelevant, here you can decide whether high linearity or performance is also set. The highlight of the two controllers of the ULTRA A-2 is that they are not pots, but switches. The avoidance of potentiometers shows once again how uncompromising Ground Zero is with the ULTRA A-2. Basically, a potentiometer is an adjustable resistor in which a sliding contact is moved over a resistance path. This is not a real high-end, as it is difficult to control, subject to errors and wear and tear. Instead of potentiometers, the ULTRA A-2 has what are probably the most complex and expensive individual components on the amplifier, namely rotary switches from the Swiss manufacturer Elma, a two-way switch for the bias (low or high) and a four-way switch for the sensitivity (1, 2, 4, 8 Volt). The switches snap into place with a rich „click" of the large gold contacts, and thus switch resistors or voltage dividers. These tens of individual resistors are extremely tightly toleranced for the highest precision and have much lower voltage and temperature coefficients, resulting in extreme signal fidelity.



The GZ ULTRA A-2 draws a line from 10 Hz to 80 kHz. Simple recipe: no filters, no pots, no deviation



After spreading the Y-axis, a minimal drop of 0.7 dB can be seen at the edges. The A-2 works very broadband and linear

Measurements and sound

During the laboratory run, it quickly becomes apparent that all the effort put into the ULTRA A-2 is not a PR gimmick, but is reflected in the fact that this Ground Zero simply works sensationally well. Would you like an example? In the first distortion measurement against power according to our standards, an almost empty diagram on the screen of our measuring computer first caused astonishment and then incredulous looks. The reason for the „blank" graph was that the ULTRA A-2 produced so little distortion that the line was an order of magnitude below the usual range. Only when we added a zero after the decimal point (from 0.001% to 0.0001% THD+N) did the complete measurement curve appear. The frequency response measurement is very similar: a completely straight line and overall boring because the ULTRA A-2 has no crossovers or filters. Only after spreading the representation does it become apparent that the curve drops by a tiny 0.7 dB at 10 Hz and at 80 kHz – wow! The bias switch has an effect at low power levels, in the high position there is minimally less distortion, so we measured 0.0005% THD+N at 5 watts, which decreases again towards 10 watts. We determine a signal-to-noise ratio of 115 dB (1kHz, 5W @ 4ohm, A-wgt.). These are dream values, but they do not mean that the

The two channels are totally symmetrical on the PCB, thus achieving the highest possible signal fidelity

Unique design, more than 8 kg and optional water cooling – Ground Zero's ULTRA A-2 is more than distinctive

ULTRA A-2 cannot push watt power. On the contrary, thanks to the extremely generous design of its components, it can even drive 1 ohm loads. Despite the bias switch, there is no pure class A operation. Of course, the ULTRA A-2 always goes into AB operation at high power levels, so that the switch position becomes irrelevant at high power output. The idle current shows that there is still a lot of regulation. It is almost impossible (in a reasonable amount of time) to measure the same thing twice. Bias high then sometimes means 2 x 2.8 A at rest – depending on the temperature and regulation. With the ULTRA A-2, it might be worth warming it up a bit – it probably sounds better the longer it runs.

The ULTRA A-2 received no less great recognition in the listening test than in the laboratory test. The sound is so neutral, open, transparent and perfectly balanced that you hardly ever get to hear it. The music comes out of the speakers in it's entity and as a whole is great to great. The staging matches the recording perfectly and opens up quite naturally, everything sounds three-dimensional and the sound experience is outstanding. The large Ground Zero gives natural instruments a sound that has been worked out down to the last detail with rich colors and brilliant overtones. Even the finest musical details can be heard as if that were the most natural thing in the world. With silence it is still and with transients the entries seen to come out of nowhere. Again outstanding, no matter what kind of music you feed the ULTRA A-2 with. Spectacularly produced sound effects or wallowing in a homely live atmosphere, both are possible and delivered in perfection. It seems almost impossible to push the power amplifier to its limits, even with lots of bass at high volume it keeps track and sends most dynamic impulses to the loudspeakers. All in all, this is a performance at the highest level that doesn't have to hide from anything.

Conclusion

Superlative amplifier? Certainly. Anachronism with two analog channels on 50 centimeters? Certainly. The bottom line is that the GZ ULTRA A-2 is an amplifier for music lovers who are just as uncompromising in their demands as the manufacturer is in development. It is certainly one of the best car audio amplifiers ever built – a milestone that will be remembered for a long time.

Elmar Michels

Two connections per side provide optional water cooling

BEST PRODUCT
Absolute Top Class
CAR&HiFi 5/2022

Ground Zero GZ ULTRA A-2

Price	5.995 Euro
Contact	Ground Zero, Egmating
Hotline	08095 873830
Internet	www.ground-zero-audio.com

Rating

Sound	40 %	0,7
Bass	8 %	1,0
Neutrality	8 %	0,5
Transparency	8 %	0,5
Spatial imaging	8 %	0,5
Dynamics	8 %	1,0
Lab	35 %	0,8
Power	20 %	1,0
Damping factor	5 %	0,5
Signal-to-noise ratio	5 %	0,5
Distortion	5 %	0,5
Practice	25 %	1,5
Features	15 %	2,0
Build quality electronics	5 %	0,5
Build quality mechanics	5 %	1,0

Specifications

Channels	2
Power 4 ohms	219
Power 2 ohms	389
Power 1 ohms	632
Bridged Power 4 ohms	778
Bridged Power 2 ohms	1264
Sensitivity max. mV	2200
Sensitivity min. V	7,7
THD+N (<22 kHz) 5 W	0,0005
THD+N (<22 kHz) Half Power	0,0009
Signal-to-noise ratio dB(A)	115
Damping factor 20 Hz	1491
Damping factor 80 Hz	1491
Damping factor 400 Hz	1491
Damping factor 1 kHz	1491
Damping factor 8 kHz	1118
Damping factor 16 kHz	894

Features

Low pass	–
High pass	–
Band pass	–
Bass boost	–
Subsonic filter	–
Phase shift	–
High-level inputs	–
Automatic switchon (Autosense)	–
RCA output	–
Start/stop capable	– (9,4 V)
Dimensions (L x W x H in mm)	500 x 222 x 81
Others	Bias control

Ground Zero GZ ULTRA A-2

Absolute Top Class 1+
CAR&HiFi 5/22
Price/performance: appropriate

„Uncompromising amplifier for the highest demands."