



THE NEW **Form** OF LISTENING

Traditional audio values and modern lifestyles find themselves blended perfectly in Avantgarde Acoustic's ingenious Zero 1 Pro horn loudspeaker. With it, STEREO tests the most important high-end innovation we've seen in a long time

The term 'sensation' is no exaggeration when it comes to the Zero 1 from horn specialists Avantgarde Acoustic. They have actually earned this acclaim. Available in black or white, this exciting active loudspeaker has seen this accolade documented multiple times, including winning the prestigious 'Red Dot Award' for design. Its special character is the result of a mixture of technical sobriety and a very innovative, modern look. With it, a message has been delivered. This is a speaker for a new era in high-end audio!

A radical high-tech concept

In point of fact, the Zero1 differs markedly from usual loudspeaker designs. It isn't in the use of customized amplifiers for each of the drivers. There are a quite a few examples of this. But even industry experts are astounded when they learn that except for the two power cords, there isn't the usual array of cables. This is because the innovative Avantgarde Acoustic design implemented in the Zero 1 accesses desired music wirelessly via Apple TV, or Apple Express. There is just a single fiber optic cable from the 'air-play' receiver to the concealed connection box—hardly even worth mentioning.

The Zero 1 normally receives signals in digital, which isn't the case with most active loudspeakers. Additionally, it doesn't work when you try to connect both speakers. An RF link is wired into the left speaker to its right counterpart,

which transmits right channel information to that speaker. This happens automatically when you turn on one of the two remotes; and during our tests there were no errors or failures in the RF link as a result of supposed vulnerabilities to external influences. Not even with broadband high bit rate files in formats up to 24-bit / 192 kHz. Hat's off! Those who still prefer a cable connection, or who just don't like having RF around, can always drag a LAN line between the two speakers.

The Zero 1 can, through the use of an optional A/D converter board, be set up to operate in a balanced analog mode-via XLR sockets in the narrow input panel. Three-pole XLR connections are also provided for the digital mode. All in all, a lot of possibilities. For full wireless operation, you can even use a Bluetooth adaptor in the analog mode, as long as this—and so much has already been said about it—doesn't undermine the quality of the speaker. We, as you can understand, only used a selection of high quality, high resolution sources for our test.

Its massive amount of technology notwithstanding, unpacking these 110 cm tall sound sculptures turned out to be pleasantly straightforward. If necessary, you can do it alone, because except for tilting the speaker slightly backward and attaching a metal bracket to its stand, there is



◀ Two remotes are included; the plastic unit is more practical because it allows direct input selection

nothing to do. Just connect to any digital source, and start listening.

A white light near the manufacturer's logo on the bottom edge of the front indicates operating status. When the Zero 1 is in standby, this light pulsates slowly, like a MacBook, between light and dark. After 'wake up' the system is ready to go in no time. Perhaps in deference to the purist, Avantgarde Acoustic has refrained from displaying input and volume—the idea probably being as little visible technology as possible.

You can change the inputs at this time; but the initial volume is automatically reduced to a low level, which makes sense. In coming to terms with the Zero 1's extreme limits, we observed that these speakers, which are only about 20 centimeters deep, can make a chamber orchestra as quiet as a whisper in a room environment, but at the same time reproduce a big band close to the original volume.

PLENTY OF CHOICES FOR INPUT CONNECTION

An electronic module, bolted to the rear side of the Zero 1 and normally concealed by a plate, contains the aggregate technology and provides a number of inputs for digital sources. Since it would be easy to get lost, here is a list of your options:

- From a computer, without further signal conversion, you will use the USB port (1).
- Since most digital devices output their signal coaxially, the connection panel features two coax inputs (2). They are complemented by a Toslink optical input (3) and an XLR socket (4) for balanced transmissions.
- The Zero 1 receives analog audio signals via a pair of XLR inputs (5). The optional internal A/D module which converts analog to 24-bit / 88.2 kHz digital, costs an additional €680*.
- The connection of a LAN cable (6) involves the only combination of both speakers instead of the RF link.
- The small dip switch (7) allows adjustment of bass levels by ± 4 dB in one dB steps.



AC phase on the test unit

*All prices listed are German retail prices incl. VAT valid at the time of evaluation.

From restrained politeness to the power of a sound reinforcement system, the Zero 1 demonstrates its exceedingly wide boundaries.

The reason, the Zero 1 remains so effortless and delineated at even obscene levels, is a function of several things. One is the fantastic sensitivity of the mid and high frequency horn systems molded into the

baffle-'loaded' by conventional drivers. Avantgarde Acoustic reports 104 dB, or even 110 dB sound pressure levels for the tweeter and midrange (1Watt at 1 meter). Admittedly looking a little puny at first, the 50 Watt amps, working in pure Class A to one Watt, soon came to be seen in a very different light (see box). Frequencies under 250 Hz are handled by a 30 cm (12

in) bass driver driven by a 400W class D amplifier, which ultimately sets the maximum level.

Phase stability thanks to DSP

All signal processing is accomplished via DSP. Avantgarde Acoustic utilizes the extensive potential afforded by the active approach to optimize natural reproduction. This processing applies to frequency response which is as a result very level and uniform from the lowest lows to the very highest frequencies. Phase is also addressed. The latter describes the temporal sequence in which different frequencies reach the ear. Ideally, all sounds should arrive at the same time, which is the only way to achieve perfect dimensionality and holistic homogeneity.

In multi-way loudspeakers such as the Zero 1, this is difficult to achieve, particularly since the drivers are located at different depths behind the baffle. To address this, the Zero 1's **FPGAs** (field-programmable gate arrays) are programmed specifically to compensate for these timing errors, taking into account the forward positioning of the tweeter in relation to the midrange driver, and creating a time coherent waveform.

For the most demanding situations, there is the 'Pro' version, which hits you up for an additional €1,900* over the basic version; but which has special software, and phase linearity guaranteed down to 10 Hertz. We have tested it; and the company recommends it to high-end enthusiasts. In normal use, the performance of the Zero 1 below 200 Hz is tolerable, but due to the reduced processor performance there is less signal delay, which is an important parameter for home theater use.

How well it works in the frequency domain is shown by our laboratory measurements (see diagram). At the same time the driver's behavior can be trimmed via digital technology to address the steep edges at the ends of their transmission range—something that would be impossible using conventional methods. Bass can be dramatically extended this way, without the woofer cone fluttering uncontrollably or the speaker bottoming out at subsonic frequencies. These issues are filtered narrowband. A dip switch allows the precision adjustment of the lower frequencies by a scale of plus or minus 4 dB to deal with room acoustics.

"Our Zero 1 can be placed easily, and

"WE'RE BRINGING THE HI-FI FASCINATION BACK!"

STEREO: The Zero 1 differs in design and technology from your other horn speakers. Why?

Fromme: Because with it, we want to address a new clientele who might find our other models too imposing, visually too striking, or simply just too conventional. And this customer is perhaps not even a high-end enthusiast.

But who, if I might ask, other than an audio enthusiast would start off with these €10,000* speakers?

Anyone who wants to hear really good music, but is uncomfortable with the usual terms and conditions of the process. You really don't need to be a car fanatic to purchase a Mercedes. And although the Zero 1 is a high-tech product, it is often perceived quite differently, namely through its visual presentation or, alternatively, its sonic performance. When people then learn that it's compatible with a variety of widely used modern media technologies, most are really fired up.

Audiophiles and high-end enthusiasts often have reservations about digital signal processing and chips.

What do you say to them?

That we're surrounded today by processors which make everyday life easier and improve so many things—from our TV pictures to driving a car. Why shouldn't you take advantage of these technical opportunities to optimize sound? Especially if a similar improvement or precision isn't achievable through conventional means. Today this technology is simply state-of-the-art. And consider this—earlier audio was perceived by everyone as being at the leading edge of the day's technology, which was in large part the basis its fascination and the hobbyist interest. Meanwhile, computers, smartphones, digital cameras, and flat panel TVs have displaced audio in this regard. Products like the Zero 1 bring some of it back, because its sound and appearance convey the sense of a new era which can be experienced even if you aren't interested in the overall technology.



HOLGER FROMME
Avantgarde Acoustic

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positioning is not all that critical”, thus promised Holger Fromme, Avantgarde Acoustic CEO, during delivery. The main reason is that a horn speaker makes no special demands on its environment. But as with other top tier speakers, we found the Zero 1’s overall sound and imaging, as well as its tonality and sharpness varied considerably with each fraction of a centimeter as we moved it around the listening room.

The power supply also requires attention. The standard power cables supplied with the Zero 1 are really only good for a function test. We replaced them with 2.5 meter long Mudra Akustik cables, which clearly sounded more audiophile and relaxed. You should also check to make sure the AC mains phasing is correct. Otherwise voices take on an ‘electronic’ tone, and in the case of Maria Phils’ forceful and colorful ‘Malvina’ (STEREO test CD VI), the looming synthesizer swath was barely resolved by the speakers.

While this was our experience in this instance, the Zero 1 was impressively well-defined when everything was right. Beat Kaestli’s stunningly lifelike ‘Day In Day Out’ from the same disc extended beyond the speakers laterally. And that’s how it should be. A little care in the set-up and attention to the power supply will be richly rewarded by improved performance.

Given its modernity and visual refinement, the Avantgarde Acoustic certainly runs the risk of being seen as a hip fashion product. However, anyone who experiences it properly won’t cling to this misconception very long. In fact, you’ll be amazed at what it can do, but above all, that all this is possible at this price.

This is because the Zero 1, with its multiple capabilities, competes mostly with more expensive designs from the passive side of the market, which then require an additional outlay for power amplifiers and cables, yet still can’t match the technical precision of the Avantgarde Acoustic.

But let’s first be realistic. Because every deduction about sonic phenomena drawn from technical features or theory should really be ignored. Better to see what a perfectly positioned Zero 1 can actually do. In addition to the previously mentioned Apple connection, which has material up to 24-bit / 48 kHz, we also fed these beauties high resolution, high bitrate data from a PC via a USB / SPDIF converter. It turned out that these very smooth speakers

EFFICIENCY: 50 WATTS CAN BE AS LOUD AS 4000

With cars, nobody asks about the volume of the tank. What matters is how much fuel the engine uses. The same holds true with amplifier power. You should actually ask about the speaker’s efficiency. Because in practice a monster amp driving an average sensitivity speaker may not generate the volume level of a weaker amplifier on a high efficiency transducer. A speaker with the usual sensitivity of 86 dB (1W / 1m), for example, would need a

whopping 64 Watts to reach a level of 104 dB, while the Zero 1’s HF drivers would require one Watt. With its full output power of 50 Watts, the Zero 1’s horn would reach an ear scorching level of 123 dB. To achieve this same level with an average loudspeaker, you’d theoretically need 4000 Watts. In practice, the one Watt Class A operating range of the Zero 1’s amplifier for its mid and high frequency drivers is more than sufficient

resolved the differences between the various formats, and easily unraveled the Chesky recordings from the STEREO Listening Test Edition III, ranging in resolution from 320 kilobit MP3 to 24/192 PCM.

So it was with ‘We’ll Be Together Again’ by the Jimmy Cobb Quartet. With increasing bit rates, more and more air appeared between instruments, music seemed rhythmically more vibrant and alive, and delicate shadings were revealed—just as with electronic

KEYWORD

FPGA: Field Programmable Gate Arrays are far-reaching freely programmable devices which are ideally suited for special applications.

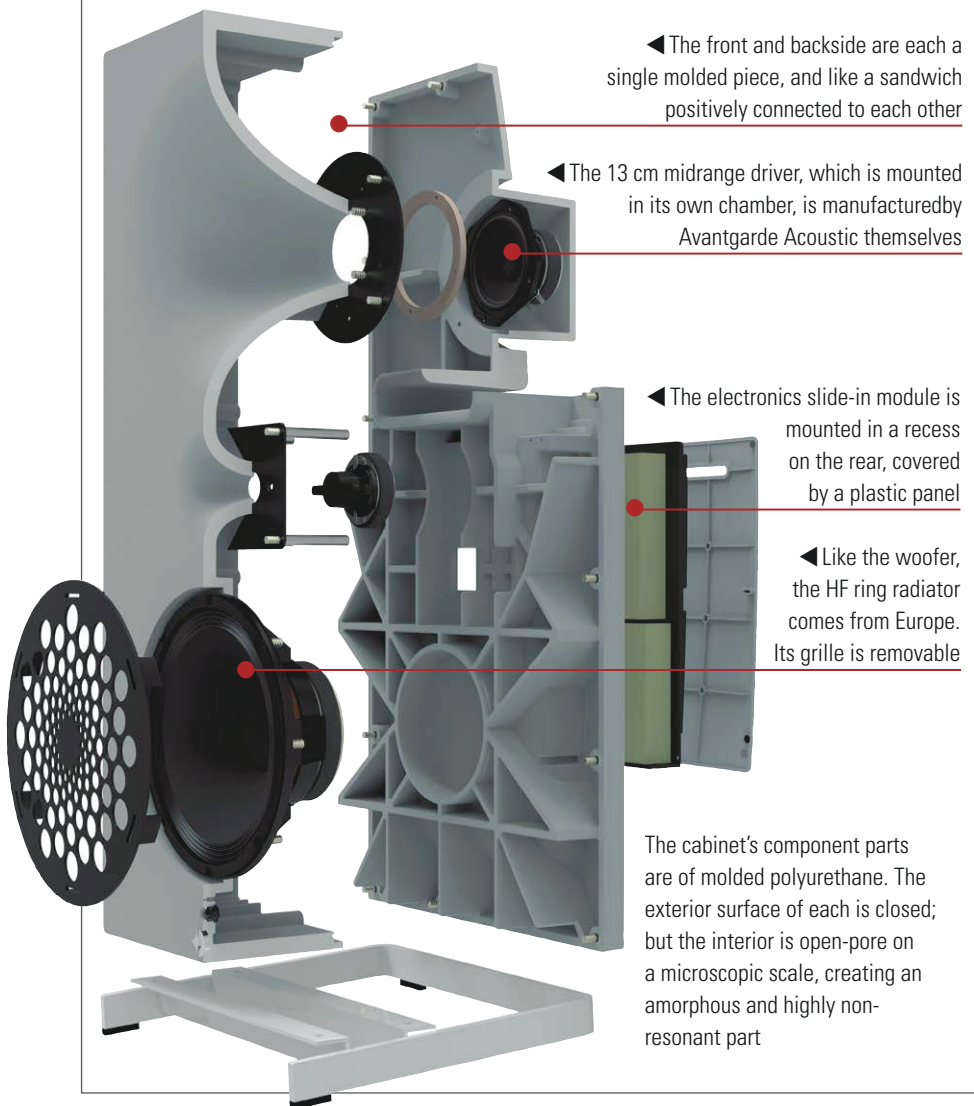
equipment. The kind of energy the Zero 1 can unleash was very convincingly conveyed with powerful pieces like ‘Homeward Bound’ by the Blues Company, a song built on a heavy bass foundation, or Monty Alexander’s crisp ‘Moanin’”, where pulses were produced with a snap. These active speakers offered performance that was both gripping and opulent; they operated with an ease, with nothing wasted, and with a seeming pleasure in event itself.



◀ The Zero 1’s polyurethane cabinet is also available in matte black; and, as a plus, its rear-side is very attractive. A magnetically attached plate covers the connections and electronic block. Very living room friendly



THE CONSTRUCTION OF THE ZERO1 IN DETAIL



◀ The front and backside are each a single molded piece, and like a sandwich positively connected to each other

◀ The 13 cm midrange driver, which is mounted in its own chamber, is manufactured by Avantgarde Acoustic themselves

◀ The electronics slide-in module is mounted in a recess on the rear, covered by a plastic panel

◀ Like the woofer, the HF ring radiator comes from Europe. Its grille is removable

The cabinet's component parts are of molded polyurethane. The exterior surface of each is closed; but the interior is open-pore on a microscopic scale, creating an amorphous and highly non-resonant part

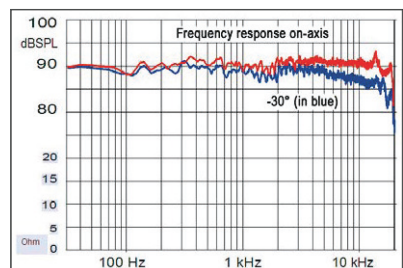


AV. ACOUSTIC ZERO 1 PRO

Approx. price: €11,900*/pr (Basic €9,990*/pr)
 Size: 49x110x20 cm (WxHxD)
 Warranty: 2/5 years (Elect./Drivers)
 Contact: Avantgarde Acoustic
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 Tel.: +49 6254 3061 00
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The Zero 1 opens the gate to high-end audio for modern wireless speakers. It appeals equally to the obsessive audiophile, the design oriented music enthusiast, and techies. In practice it is a blend of stability and reliability. Only one question remains—how can Avantgarde Acoustic do it all for this price?

MEASUREMENT RESULTS



Low frequency extreme (-3 DB) 20 HERTZ

LABORATORY COMMENT

'Until now, I really haven't measured a loudspeaker in the deep bass region' exalted our lab manager. The Zero 1 at first seemed to misbehave. This was due to its signal processing time delay, which confused our meter. We then switched to 'white noise', which has the same level at all frequencies, and shows how linear the transfer process is in this DSP-controlled active loudspeaker.

STEREO - TEST

SOUND QUALITY 100%

PRICE/PERFORMANCE



OUTSTANDING

Darling and Rocker Bride

The ability of these Avantgarde speakers to place singers in front of a backdrop carved out between the speakers, to create a precisely tiered depth relief where the arrangement of musicians is immediately apparent, is totally amazing. There's only a handful of loudspeakers beloved as works of art by the audiophile community for their exceptional phase linearity. The Zero 1 deserves to be among them!

However, its artistry wasn't developed exclusively to be an audiophile's darling, but also a free-spirited roll-your-sleeves-up rocker bride. The Zero 1 represents the manufacturer's profound and brilliant sonic statement, with bass modules as

tall as a man, drivers stacked, and horns attached with openings the size of small children.

Avantgarde Acoustic's claim to fame with the Zero 1 is to have created and perfected a high-class loudspeaker with brains—an unusual speaker solution that on the one hand seamlessly integrates classic high-end virtues with modern forms of listening to music, and whose appearance is also able to appeal to music lovers who would never bring an ordinary looking floor-standing loudspeaker into their room.

And the best part—you don't have to understand its complicated technology to have a lot of fun with the Zero 1.

Matthias Böde

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