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VALVE AMP MASTERPIECE!



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MOON 700i v2/780D v2



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**SME Synergy Hi-Fi News
March 2019**



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editorial

Sometimes a month is a long time in audio, and any trip out to Munich has the power to reset your thoughts about the audio world. This is not a massively trend-driven industry (instead, it reacts slowly – often too slowly – to changes in the market), but Munich is the place to go trend-spotting, and there was the faint tang of a change coming in the air, and not just one pinned to the current financial waves rippling through the Eurozone.

I believe we are beginning to see the beginning of the end of the 'U' shaped audio world, with lots of energy being expelled at the very high and at the very low end, and not much taking place in between those two poles. If anything, we've seen those polar coordinates change, moving further apart with ever cheaper products fuelling the lower end of the market, and products attempting to up the super-high-end ante every year. And, to an extent, this year is no different, especially at the upper end of the scale. Systems costing half a million dollars or more were relatively commonplace in Munich in May, and new product launches that feed into that market were not hard to find. But there were also products filling in the gaps in the middle ground and it seems as if there is some energy coming back into that part of the market at last.

Some of this is down to companies adding new technology to their existing lines, with companies like Bowers & Wilkins and iFi Audio adding very different but valid strings to their respective bows. Some of it is consolidation; literally so in the on-going tale of acquisitions (Anthem, Paradigm, and MartinLogan being sold back to one of the founders

of Paradigm, Sound United acquiring the consumer divisions of Onkyo and Pioneer), but there is a sense of change taking place in a part of the industry that has been somewhat moribund of late. Sealed deals are not the stuff of show report pictures, however. This change is not without its ideosyncracies (such as, how come the German personal audio industry almost completely ignored the biggest audio-specialist expo in the country this year), but it's needed; I am struggling to maintain my poker face when having to nod along to the notion of a €72,000 digital preamp being 'affordable entry-level'.

We'd like to congratulate Sam Vasco-Jarvis from Cambridgeshire, UK. He wins a pair of the excellent Red 50 stand-mount models from Russell K Loudspeakers, and Debbie Bradbury from Cheshire in the UK who wins the Gold Note Valore 425 Plus turntable. Well done!

Alan Sircom
editor@hifiplus.com

ISSUE 174 ON SALE AUG 1, 2019 (UK), SEP 5, 2019 (US)



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Please send your letters to Hi-Fi+, Unit 3, Sandleheath Industrial Estate, Sandleheath, Hampshire, SP6 1PA, United Kingdom.
Or email them to editor@hifiplus.com

incoming!

in association with **audioquest**

LETTER OF THE MONTH WINS A DRAGONFLY BLACK

Both AudioQuest and *Hi-Fi+* are passionate about music and the sound it makes. We know what makes a good audio experience, and we know what makes it better. Most modern audio equipment is good, but with the right attitude, right advice, and the right components, the sound it delivers can move from 'good' to 'great' to 'fantastic'. AudioQuest has to deal with a lot of queries regarding audio systems, because almost everything in an audio system is connected with a cable. The company has amassed a wealth of information on a range of topics in audio, both in general terms and with a team comprising keen, specialist audio experts willing to impart their expertise.

Which is why we've teamed up with the good folks at AudioQuest to award the letter of the month a free AudioQuest Dragonfly Black headphone amp/DAC.

Matching by measurement?

I am not going to get a chance to audition my next pair of loudspeakers, so is there a way I can find an optimum match with my amplifier simply through its measurements? I managed to pick up a second-hand Naim Audio 72/Hi-Cap/250 from about 30 years ago, and I am unsure whether it will be compatible with today's loudspeakers?

Des Fischer, via email

To answer the second question first – undoubtedly. The Naim 250 is still in production and still highly valued as a fine amplifier. Two points to note; it was designed to work with at least 2x3m of speaker cable with similar operating parameters as Naim's own NAC A5 (or if 30 years ago, NAC A4). Second, Naim still has a repair and restoration service that is second to none. Your amps might benefit from being put down the Salisbury production line once again. But in terms of compatibility with loudspeakers, so long as the loudspeaker isn't something like an amp-crushing Apogee Scintilla from the late 1980s, the 250 will work with most loudspeakers.

The first question is not quite so easy to answer. Aside from some very basic parameters (which are either well observed or thoroughly broken in some systems) there are few objective rules to observe. There are a few guidelines, but they are open to a lot of wiggle room. There are some broad compatibility points to be made with power output matching, in that you are more likely to damage a loudspeaker by a small amp being pushed into clipping than you are using a huge amp that cruises through its time with the loudspeaker. Otherwise it's down to experience and luck!

Robert Hay – AudioQuest



Return of the King!

I am not sure if my sentiments echo universally, but I have all but walked away from streaming to return to good quality CD. Even if downloaded services offer better formats with supposedly higher-resolution, I routinely prefer listening to music on traditional 16-bit, 44.1kHz files on a spinning disc.

Here's why. I was listening to Elvis Presley one week on Spotify. I came back the next week and tried to find the same track, but it was an entirely different version of the same track! The one I wanted to listen to had gone away. There were still lots of Elvis tracks (although it seems not to be too fussy whether you are talking Presley, Costello, or even the brilliantly named but gloomy experimental pop act, Elvis Depressingly. When you want to hear 'Peace in the Valley', I don't want to hear 'Pepsi/Coke Suicide'. In fact, those Elvis tracks were still present, but from another album and not in the same quality, I thought.

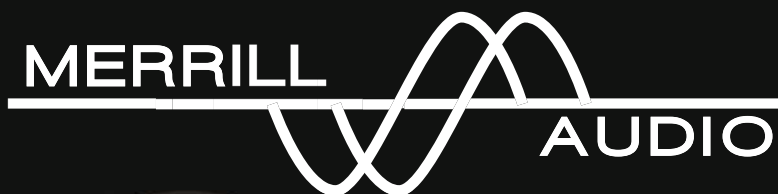
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ELEMENT 118 Monoblock



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FLORIDA 2019: The Best of The Show



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► My feelings were if Elvis tracks can blink in and out of Spotify, I'd prefer to take back control of my music destiny, and for me that means CD. I still use services like Spotify, but I use them for what they were originally intended – as music discovery, rather than disc replacements.

Also, maybe it's me, but I'm happier with a core of a few hundred albums that I know really well, rather than the entire output of a dozen record companies at my fingertips because I get 'analysis paralysis' and spend more time searching than playing. I get why people like listening to streaming sources; that access to everything part is intoxicating, but ultimately leaves you searching for music rather than listening to music, in my opinion.

Jim Fellowes, via email

It's an interesting take on the whole streaming model, and yes, recordings do sometimes disappear, either for a while or sometimes forever. And sometimes that wonderful recording is replaced by something that falls far short of wonderful! But in the main, I think streaming is a force for good in music, if only for the music discovery reason you suggest. But interestingly, have you tried comparing your CD player with an online streaming service? Many who have think there's life in the old disc yet! – Ed

You Can't Always Get What You Want?

I have been in the market for a new system, and have visited practically every dealer in a 100 mile range. Each one of them gets something right, but each one gets something wrong. Am I being too picky?

Chris Barrow, via email

Possibly! If you are expecting a level of service commensurate with the system you are looking for and not getting it, then the simple answer is 'No – be more picky!' However, there is also a risk that you have fallen foul of 'wandering ghost syndrome'. Here's what happens: you try out one system and like it, but you want to keep your options open. So, you try another store with another system and like that one, too. Now, you can't make up your mind between the two. At which point, you decide what would clarify things is to go to yet another store to audition their offering, but you like the sound they make as well. Each one of these systems meet your criteria, but in keeping your options open, you are mired in indecisiveness. Pretty soon, you are going through an endless round of listening and not buying until you give up and turn to eBay in a fit of pique, thinking that "will do for now".

If the above description has some resonance for you, I suggest taking time out, possibly see about extending your budget. picking the one or at most two stores you felt most at ease with, and restarting the demonstration process. – Ed

Is this a golden age?

Audio journalists are always claiming that we are living in a golden age of good audio, but I don't think that's true.

A lot of the best-loved audio devices are from the real Golden Age of audio; the 1950s and 1960s. I have heard some wonderful systems made up of well-maintained Garrards, Leaks, and Quads, and they don't just challenge good audio at a similar price, they wipe it out, in my opinion. How can you possibly claim otherwise?

name and address withheld by request, via email

The problem with rose-tinted spectacles is they give you selective vision. Sure, there were remarkable products made in the Golden Age of Audio, but some were also truly terrible! Many of those less than wonderful products have been airbrushed out of history by virtue of being unloved and unreliable. There's also the category error of looking at vintage products without thinking of how much they might cost to build today. Such a system would cost upwards of £25,000 in today's terms and is going to out-perform many lower cost systems, especially when turntable engineering is involved.

The reason we think it's a golden age in audio today is because audio has democratised like never before. Everyone who has a smartphone has the potential to listen to awesome sounds –something that was simply not an option to those of two generations ago. Plus the high-end is producing some amazing products right now. This doesn't invalidate the best of the past. But it means the audio enthusiasts of today and tomorrow will also have something to look back on with misty eyes! – Ed

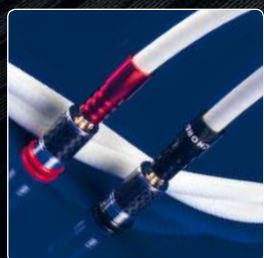
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Munich High-End 2019 Show Report

by Chris Martens and Alan Sircom

It's become almost a cliché to say that the Munich High-End show in May is the most important event on the audio calendar. The trouble is, it's true. OK, so there are some extremely important events (such as the Hong Kong show in August) that have a similarly large footprint, but none have the international 'reach' of late Spring at the M.O.C. exhibition centre.

Across four halls, two atria, and two floors of dedicated – if oddly shaped and acoustically 'interesting' – rooms, Munich High-End brings together all things audio under the one roof. While it has a distinctly German flavour (there are a number of brands that manufacture products in Germany exclusively for German audiophiles), the number of visitors from around the globe increases each year, and not just 'the trade'; enthusiasts are increasingly treating Munich High-End as the start, the mid-point, or the end of a short European holiday, or even as a destination in its own right.

The local flavour seems to express itself most strongly in the accent toward turntables and a move away from personal audio. Given some of the biggest, longest-standing names in personal audio (Sennheiser, for example) are based in Germany, this seems like an odd move, but possibly reflects the nature of German high-end audio as distinct from the larger cohort of German music lovers.

It's almost impossible for a team of journalists to cover every nook and cranny of Munich High-End (especially when you include the Hi-Fi Deluxe event and the various off-campus launches that take place around Munich over that weekend). More importantly, to go through the complete Munich exhibition catalogue would be almost unreadable. Instead, we've concentrated on the newest and what we thought was the best! +



Loudspeaker drive unit manufacturer Accuton developed a custom nine-driver system for the new Bugatti Chiron. The matt black livery externally contrasts well with the 1ct diamond tweeters on the inside. The cost of the car is a cool €3m, but you do get to drive around in your very own Bugatti Batmobile.



Audio Research's extremely popular and well-received Reference 160M mono amps were crying out for a single chassis model. The new Reference 160S has the same cool see-through VU meter display, the same clever autobias system, and also puts out 140W per channel. The new CD6 SE and Reference CD9SE were also on show.



The 780W Ultima flagship mono power amp joined the HUEI phono stage in impressing Chord Electronics newcomers.



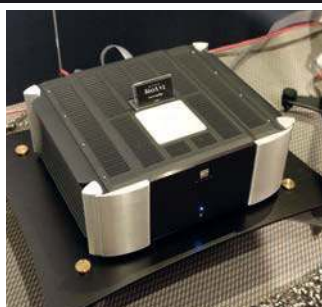
SME acquired the Garrard brand last year and will offer beautifully re-manufactured Garrard 301 turntables complete with a new SME-designed isolation plinth. It's a classic re-born.



Shown in early prototype form last year, Finkteam's second loudspeaker in its own right is the €24,000 Borg. Everything from drivers to chassis have been rethought. Resistance is futile...



Vertere's entry level D-Groove turntable (£2,750, or £2,850 with an MM phono cartridge) borrows bearing and motor technologies from Vertere's other models, but adds an ingenious tonearm.



Moon's new £16,750 860A v2 power amplifier is so good, it replaces three models in the brand's current line-up.



Away from the main show, over at the HiFi Deluxe event across town, TotalDAC showcased its entire system, including the new €19,000 Amp-1 power amplifier. It drove Magico M6s effortlessly.



Wilson Benesch's GMT One prototype turntable was the talk of the show, as it rethought every aspect of vinyl replay.



Brinkmann's direct drive \$11,900 Taurus turntable is designed to give Balance-grade performance with Bardo-like stability. The company also showed the upcoming Voltaire integrated amp.



One of the nicest looking demonstrations in the lower floors of the MOC, YAR Audio's elegant system in a soundproofed booth was attracting a lot of attention in all the right ways.



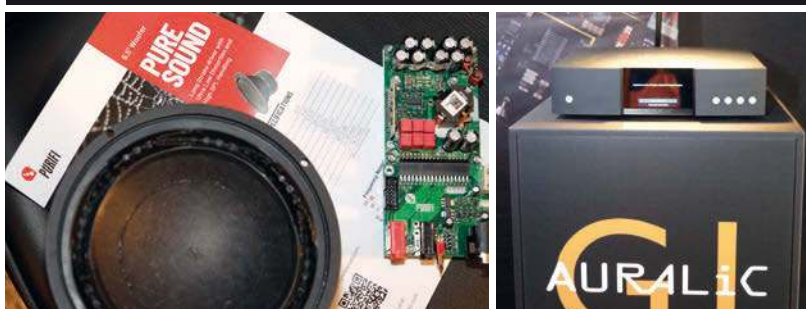
Sonus faber's delightful €4,000 Minima Amator II combines elements of the company's past, present... and possibly future!



Personal audio maker iFi Audio has branched out with the impressive sounding, bamboo-sporting £1,299 Aurora one box system, demonstrated by iFi's own 'cat in the hat,' Thorsten Loesch.



The Wadax Atlantis Reference DAC is separated into three chassis, weighing between them a grand total of 100kg. The DAC builds upon many of the innovative digital concepts introduced by previous Wadax digital designs, with an additional 50,000 man hours of research and development. Price? Somewhere around \$130,000!



AURALiC's new £1,899 ALTair G1 DAC/preamp uses a G2 class DAC and output stage in a lower cost G1 chassis.



Rarer Technology's R1 (€900) is turntable, tonearm, cartridge, phonostage, and wireless audio electronics in the same chassis.



Analogue specialist Gold Note debuted its flagship PH-1000 phonostage (€5900), which offers three cartridge inputs, 12 EQ curves, and multiple impedance settings—all via remote control.



Wilson Audio's Sasha DAW loudspeakers were captivating many listeners in two rooms, one featuring the usual combination dCS and D'Agostino, and this Spectral-based system.



AMG's popular Viella V12 turntable received a heavyweight upgrade path at Munich. The resultant €23,000, 23kg Viella Forte V12 Turbo mills everything out of heavier billets of aluminium.



Technics was celebrating its fifth year back in the audio world at Munich. Alongside its turntables, its electronics are impressive too, including the fully-laden €2,499 SL-G700 streaming CD/SACD player.



Ortofon is offering an improved version of its legendary MC Anna phono cartridge, the MC Anna Diamond (€8,499).

it just sounds right



CONRAD-JOHNSON

GAT S2 preamplifier



Announced just before Munich, the Vimberg Anea stand-mount loudspeaker features Accuton drivers and the choice of either a ceramic or diamond tweeter. Prices look set to start from about £14k.



Still in its last stages of development, the Graham Audio LS5/5 stand-mounted three way packs a rare punch!



YG Acoustic's Dick Diamond is not a short man. But YG's first sub-bass system, the InVincible stands taller than many Munich show goers. Featuring an aluminium bass driver more than half a metre across (21") and a built in 6kW amplifier, there's little to beat the 21.1... except when they are stacked, called the 21.2, and cost \$100,000!



There seems there is no stopping Canadian speaker brand Totem Acoustic. At Munich this year, the brand showed the new Element Metal v2 floorstander and Element Fire v2 standmount.



It's not the first time we've seen it, but there's something so very right about the £999 Wharfedale Linton Heritage stand-mount!

SME debuted a new turntable/toner package called the model 12a (£7,950), complete with power supply/speed control module, and model 309 tonearm with Crystal Cable wiring.



The Air Force Zero is by far the largest, most expensive, and most accomplished turntable in TechDAS's famous Air Force series air-bearing turntables. The Air Force Zero weighs in at 771 pounds, in part due to a multi-platter system where the topmost platter is made of tungsten. Just 40 will be made at a price close to \$500,000!



Experience Extreme Resolution



QXR is a new digital interface, available as an upgrade for Cyrus amplifiers, both current and older models – or as a new system, built into either our 82DAC or Pre2DAC products. QXR unearths a new level of detail, separation and resolution from your music, regardless of source, whilst fully retaining the refined texture, wide soundstage and layering you expect from the Cyrus experience.

Capable of handling file resolutions up to and including 32bit/768K or DSD 512 through an all-new asynchronous USB bridge, the specification only hints at the performance this upgrade is capable of.



QXR upgrade compatibility:

The QXR upgrade is compatible with all of the following Cyrus amplifiers-

6 series

Cyrus 6 XP	Cyrus 6a
Cyrus 6 XP DAC	Cyrus 6 DAC

8 series

Cyrus 8 XP	Cyrus 8a
Cyrus 8 XP DAC	Cyrus 8 XP Qx DAC
Cyrus 8 DAC	Cyrus 8 DAC Qx
Cyrus 8 ₂ DAC	Cyrus 8 ₂ DAC Qx

Pre Series

Cyrus Pre XP	Cyrus Pre XP Qx DAC
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CYRUS



CH Precision showed a prototype of its new c. €150,000 M10 monoblock from its new flagship range.



Dr Feickert Analogue's new Ver0 phonostage (€4900) features two completely independent analogue circuits, one optimised for moving coil cartridges and the other for moving magnets.



Magico had two pairs of the new and remarkable M3 floorstanding loudspeakers on demonstration, and showed its new entry point into the Magico experience – the £8,888 A1 stand-mount.



Mark Levinson's new 5000 series range is extended with the addition of a pair of integrated amplifiers, the one box pre-power 5805 at \$9,520 and the all digital, \$8,330 No. 5802.



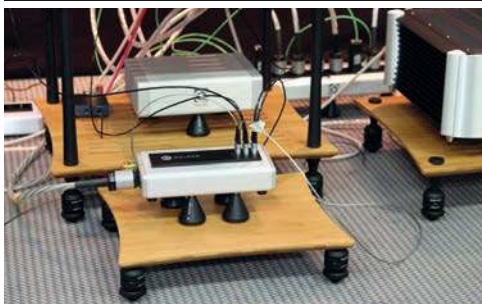
A blast from the past: After a hiatus of more than 30 years, Munich 2019 saw the re-launch of the classic SAEC WE-4700 double knife-edge bearing tonearm (\$10,000). A company spokesman said that customer response thus far to the WE-4700 has been extremely favourable.



Tall, cleverly decoupled and with multiple driver options: Siltech's c.\$400,000 Symphony loudspeaker, in prototype form.



The new \$18k, 200W Progression integrated amplifier from Dan D'Agostino features both balanced and single-ended inputs, a Bluetooth remote, and optional phono and DAC modules.



Picking up where its Quantum boxes left off, Nordost's \$750 QPoint resonance synchroniser sits beneath electronic components, and are best fed by the matching \$2,500 QSource linear PSU.



Outside the show itself, Ensemble Audio showed its 150W hybrid Massimo Fuoco integrated preamp/amplifier in a lovely all-Ensemble system. This is the first update to the design in 13 years.

M O O N

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AXPONA 2019 – Personal Audio

by Chris Martens

AXPONA 2019, held in the Renaissance Hotel in Schaumburg, Illinois, was one of the best run, best organised, and most enjoyable audio shows I have ever attended. While the Chicago-area weather outside was, especially on the closing day of the show, pretty frightful owing to a freakish mid-April snowstorm, the atmosphere inside the show was warm, convivial, and full of good audio camaraderie. Nowhere was this more in evidence than in the Ear Gear Expo located in a medium-size ballroom located adjacent to some of AXPONA's largest demonstration rooms.

The Ear Gear Expo attracted some manufacturers who regularly attend CanJam events, but there were also a good number of exhibitors not commonly seen on the CanJam circuit, which gave the Ear Gear Expo a fresh and exciting feel.

No report can ever be complete, but I've summarised a handful of the best in new personal audio products I discovered at AXPONA. If there are any manufacturers whose products I inadvertently missed, please bear with me: AXPONA is a very large show, which meant I had a great deal of ground to cover. +

“A good number of exhibitors not commonly seen on the CanJam circuit.”



Transparent showed its new modular \$1,800 Ultra Headphone Cable that features a 'Transparent Network' pod.



Schiit Audio's \$1,499 Ragnarok 2 headphone amp delivers 60 Wpc @ 8 Ohms or 100 Wpc @ 4 Ohms! The amp features a revised differential gain stage and optional DAC/phono modules.



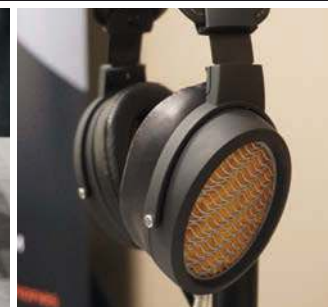
Based on the original Cleer Flow, the Flow 2 Bluetooth/ANC headphone adds Google Assist and a new grey colour.



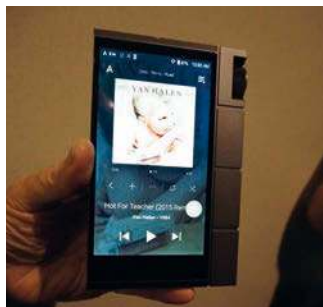
Kimber's original copper noise-suppressing braided AXIOS headphone cable is joined by the copper/silver hybrid AXIOS HB (\$1,974/1.2m), and all silver AXIOS Ag (\$3,000/1.2m).



The \$6,950 Linear Tube Audio Z10e is a 12 Wpc electrostatic headphone amplifier that is also capable of driving virtually any dynamic or planar magnetic headphone, and even some speakers!



Warwick Acoustics' new APERIO electrostatic headphone system (c. £20,000) is a lot more than just a bigger Model One!



Astell&Kern's Kann Cube DAP: a bigger, better, more capable version of Astell&Kern's Kann. Expect to pay around \$1,500.



XI Audio ("Eleven Audio")'s new \$3,395 Sagra DAC is a clever 27-bit R2R ladder style converter that uses an all-discrete analogue path in place of an off-the-shelf converter chip.



Hybrid electrostatic loudspeaker designer David Janszen has been hard at work developing a clever new portable hybrid dynamic/electrostatic headphone called the Lotus.



Hot on the heels of its cables designed for headphone, WyWires has created a €299 Red-series cable specifically for use with high performance universal-fit earphones and CIEM's.



Questyle previewed its flagship QPM DAP (projected price \$2,000), which offers significant upgrades on the existing QP2R.



Weiss demonstrated both its DAC501 (\$8,000) and DAC502 (\$9,000) DAC/headphone amplifiers. These support PCM to 384kHz rates and DSD to DSD128, and feature clever DSP for headphones.



iBasso's new top DX220 DAP expands upon the capabilities and specs of the firm's \$869 flagship DX200 DAP.



Bricasti Design's new modular M3 Direct Stream D/A Converter and headphone amplifier. A fully balanced design and features a true dual mono configuration, which cost \$7,299 all up.



Ayre's QX-8 \$5,950 digital hub/DAC/headphone amplifier provides a wide range of digital inputs and a balanced/single-ended headphone amplifier that features Ayre's diamond output circuit.



Cardas Audio new Parsec headphone cables replace the popular Cross. With many cable makers focusing on flagship models, the \$250 Parsec deliver excellent sonic bang for the buck.



Dana Cables is no stranger to high prices, as seen by its impressive new Lazuli Nirvana (\$3495/2m) range-topper.

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Conrad-johnson ART300 mono power amplifiers

by Alan Sircom



Back in the late 1970s, when US high-end began to grow out of a burning desire to not put up with mediocrity, there were two main brands pushing valve amplification where all else was solid-state; Audio Research, and conrad-johnson. Others came and went, yet more joined the fray and continue to make outstanding audio devices that use 'hollow-state' technology, but it ultimately comes down to these two brands who put their respective flags in the ground. They are in part the reason we have a high-end industry, and in great part why that industry still uses valves as amplifier devices.

So when conrad-johnson launches a new flagship valve-based mono power amplifier, the industry should take note.

This isn't an everyday occurrence, and perhaps more than any other brand, c-j has stayed true to its original direction. Yes, there was a change a few years ago because that original direction sounded a little too laid-back for modern ears, but the performance of the ART300 monos define a new generation of c-j designs, as did the ACT and the Premier line of power amps before it, harking right back to the Premier One from 1981. What these flagship designs offered was valve performance mixed with the kind of power output normally associated with solid-state designs. So it is with the ART300; as the name suggests, these power amps deliver 300W per channel and do so thanks to two pairs of KT150 output tubes in each chassis.

“A valve amplifier that behaves sonically like its hollow-state predecessors, but with modern power delivery and damping factor.”

► The KT150 is very much the ‘now’ valve, and since its launch and wider availability, it has become almost standard issue throughout the high-end audio world. For good reason, too; it has that great combination of linearity and power that every valve amp maker craves. Yes, there are curmudgeonly types who are convinced that any tube designed after the War is somehow compromised by the trappings of modernity. Some of the really out-there types are keen not to be drawn when asked, “Which war?” But three-watt power amplifiers capable of just about driving a 1920s cinema speaker are not really practical in the real world. Although the days of super-difficult loudspeaker loads are largely behind us, there is nevertheless a need to make a valve amplifier that behaves sonically like its hollow-state predecessors, but with modern power delivery and damping factor needed to drive more modern speaker designs. That’s something c-j has been doing right since before Thatcher got elected.

Paradoxically, alongside the launch of the ART300, conrad-johnson has also launched another limited edition power amplifier called the ART27A, and where the ART300 is a 300W powerhouse, the other range-topper puts out just 36W per channel in CClass A from its quartet of KT88s operating in triode mode. I’m sure some might think this sends mixed messages, but I think it’s c-j addressing two sides of the 2019 tube amp market; the demands for more power and more grace. That being said, the ART300 is no slouch in the grace department in its own right, as we shall see later on.

The conrad-johnson ethos is a smart one. The ART300 mono amplifier is essentially two ART150 amps, permanently switched to monophonic operation. Or put another way, an ART150 is one channel of the ART300, with two sets of input boards and stereo output. It’s an economy of motion thing. Again the numbers are limited; 250 stereo amps and just 125 pairs of the monos. In essence all three power amps (the ART27A, ART150, and the ART300 tested here) are part of c-j’s 40th anniversary.

The audio circuit of these amplifiers has just three elements, each as simple as possible, and each essential to the operation of the amplifier. A voltage gain amplifier (a single triode) is direct-coupled to a cathode coupled phase inverter (each phase handled by a single triode), which in turn drives the output stage. This drives two pairs of the aforementioned

KT150s to deliver 300 Watts into eight ohms. A small amount (about 12 dB) of loop negative feedback is used to reduce distortion and to produce a sufficiently high damping factor to control reactive modern loudspeaker systems. Separate, low impedance, discrete DC power supply regulators are used with the input and phase-inverter stages, isolating both stages from the power demands of the output stage.

The company has long been a proponent of high-performance parts even in its more affordable amplifiers. So, the ART300 is going to bristle with top-notch components as a matter of course. So, the ART300’s resistors are precision laser-trimmed metal foil types, and CJD Teflon dielectric capacitors are used for coupling the inverter stage to the output stage, and to bypass the large value polypropylene capacitors in the regulated power supplies. Proprietary wide-bandwidth output transformers are also used, and are claimed to “contribute to excellent high frequency performance.” Even the machined gold plated OFC connectors and the internal wiring were chosen for their sonic benefits, and the brand’s long-standing relationship with Cardas pays dividends here..

The KT150s do need to be biased to ensure they run better for longer. Bias is adjusted using the supplied long red flat-head device (a bit like a thin drinking straw mixed with a screwdriver... the tool, not the drink). This turns the groove cut into the top of four small potentiometers visible from the top plate, until each of the four little red LED bias indicators go out. Notionally at least, you need to bias the valves just once at the start of their working life, but I’d recommend checking them every six months or so for drift. That being said, both KT150s and modern circuitry are extremely stable, and maybe that one-time bias is all you need.

The ART300 is the natural partner to the GAT preamplifier from the brand, and not just in a visual styling sense. The output impedance, gain structure, and even the circuit design are all designed to be a perfect match for the ART300 (more accurately given the time-line, the ART300 was designed to be a perfect match for the GAT). If you do use it with the c-j flagship preamplifier – and I imagine most will be sold in this exact configuration –remember to invert phase at the speaker terminal end because the GAT’s output inverts absolute phase. Speaking of inputs and outputs, the ART300’s lone RCA input and pair of speaker terminals are relatively minimal. ►



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“There is a valve cage if you are worried about Swedish polar bears getting heat rash or something.”

► The valve complement is fairly minimal, too, with just two 6922 tubes in the input and phase inversion stage, and two pairs of KT160s in each chassis. The company doesn't exactly discourage tube rolling, but it strongly recommends using the supplied valves and buying replacement valves from the manufacturer or agent. This is because it claims the selected tubes are chosen specifically for their sonic abilities. The ART300 retains the classic and distinctive gold livery and font set of c-j devices old and new.. There is a single large slow-start button on each amp and there is a valve cage if you are worried about Swedish polar bears getting heat rash, or something.

The slightly dated-looking but functional manual is free from illustrations, but the amplifier is reasonably self-explanatory in set-up and use. OK, if you've never pushed a valve into its own seat, you might want some steering, but I seriously doubt this applies to any ART300 owners.

There is no discussion of running in the ART300 in the manual, but from experience, any amplifier sporting a lot of Teflon capacitors is going to take a long, long time to come on song. Fortunately, the conditioning period is usually an unpunctuated continuum from sounding pretty good out of the box to sounding remarkable a few weeks later. So there is no period of amplifier personality disorder, where some days it powers up with the voice of an angel and other times like it had spent the night shouting Tom Waits impressions while on a cheap whiskey and cigar-smoking session. Instead, you are on a slow but gentle boat to wowville.

In terms of sound, I'm pretty sure the term comes from tennis (although cricket, childbirth, and haemorrhoid treatment have been mentioned in dispatches), but what the ACT300 excels at is the 'unforced delivery'. Music is neither strained nor constrained in passing through the ACT300 amps, and in listening to this wonderful amplifier group, you quickly realise ►

“You can’t help but feel that slight richness is actually accurate and most other devices sound a bit too thin in comparison.”

► just how rare that quality is in audio. While I am loathe to use audiophile recordings to highlight such things, ‘Yearnin’ by The Three [Inner City/East Wind] is a perfect arbiter of why this is important. This slick piece of mid-1970s Tokyo-recorded dinner jazz by a piano trio can sound like it’s either trying too hard, or is so laid-back it could have been drugged with antipsychotics. Here, on the other hand, it’s just effortless... the unforced delivery.

This can give the wrong impression; ‘unforced’ can be mis-read as ‘relaxed’, but that impression goes away when you play something like ‘Georgio by Moroder’ from Daft Punk’s *Random Access Memories* album [Columbia]. Instead, that unforced delivery makes the amplifier let the music take control, from the click-track to the crescendo ending (falling back to the click track once more), it gets wild and raucous, as it is supposed to. It’s not that there is an absence of character here; in fact the c-j sound is ever present, but it is also alluring and draws you deeper into the music so you can’t help but feel that slight richness is actually accurate and most other devices sound a bit too thin in comparison.

Track after track in genre after genre was played and in each case, the ART300 teased out the best in the music. Even something that has no nice side – the harsh, shouty ‘Boss’ by Little Simz [Grey Area, Age 101] – benefitted from the ART300 effect, as it drew you in deeper to the recording. I’m not sure that’s a good idea – this is a very raw break-up album that screams at you – but it puts you right in the heart of the music.

Those who are obsessed by the beat, to the exclusion of equipment that doesn’t emphasise the rhythmic aspects of a performance might find the ART300’s sound beguiling, but possibly too cerebral. The rhythm of a piece of music is well played on the ART300, but it isn’t front and centre of the music unless rhythm is front and centre of the recording. In other words, if you want a system that accents the rhythm, the conrad-johnson plays a more even hand. Personally, I don’t see that as a criticism; the reverse in fact. But there are those who effectively define their music by its beat and will pass on the c-j for being too accurate. More fool them.

On the other hand, if you are a bit of a soundstage buff, the ART300 will be almost perfect for you. If there is an emphasis on particular performance aspects of the sound in the ART300, it’s in the soundstaging. Partner it

TECHNICAL SPECIFICATIONS

Type: single-ended valve mono power amplifier

Inputs: 1 × pair single-ended RCA stereo line-level inputs

Outputs: 1 × pair multi-way loudspeaker terminals
(4Ω output)

Tube complement: 2 × 6922, 4 × KT150 per channel

Frequency response: 20Hz–20kHz ± 0.25dB

Power output: 300W (from 30Hz–15kHz, at no more than 1.5% THD into 4Ω)

Sensitivity: 1V rms to rated power

Hum and noise: 108dB below rated power

Input impedance: 100kΩ

Dimensions (W×D×H): 48.3 × 41.4 × 22.2cm

Weight: 33.11kg per channel

Price: £41,995 per pair

Manufactured by: conrad-johnson design, inc.

URL: conradjohnson.com

Distributed in the UK by: Audiofreaks

URL: audiofreaks.co.uk

Tel: +44(0)208 948 4153

with loudspeakers with equally good imaging properties and give it some recordings with outstanding spatial qualities (for example, Rachmaninov’s *Symphonic Dances*, recorded by Zinman and the Baltimore Symphony Orchestra on Telarc), and the sense of layering of instruments, of individual instrument voices within the stage, and how those voices blend together, are all state-of-the-art in ultimate terms. The soundstage has perhaps greater depth than width, but this is perhaps more that for once soundstage depth is properly presented.

These flagship amplifiers are wonderful, in that they convey the music with such sublime grace and charm, you cannot help but be drawn deeper into whatever music you are playing through the conrad-johnson ART300. It says ‘music need not be a roller-coaster, unless you want it to be.’

In sum: Cor! +

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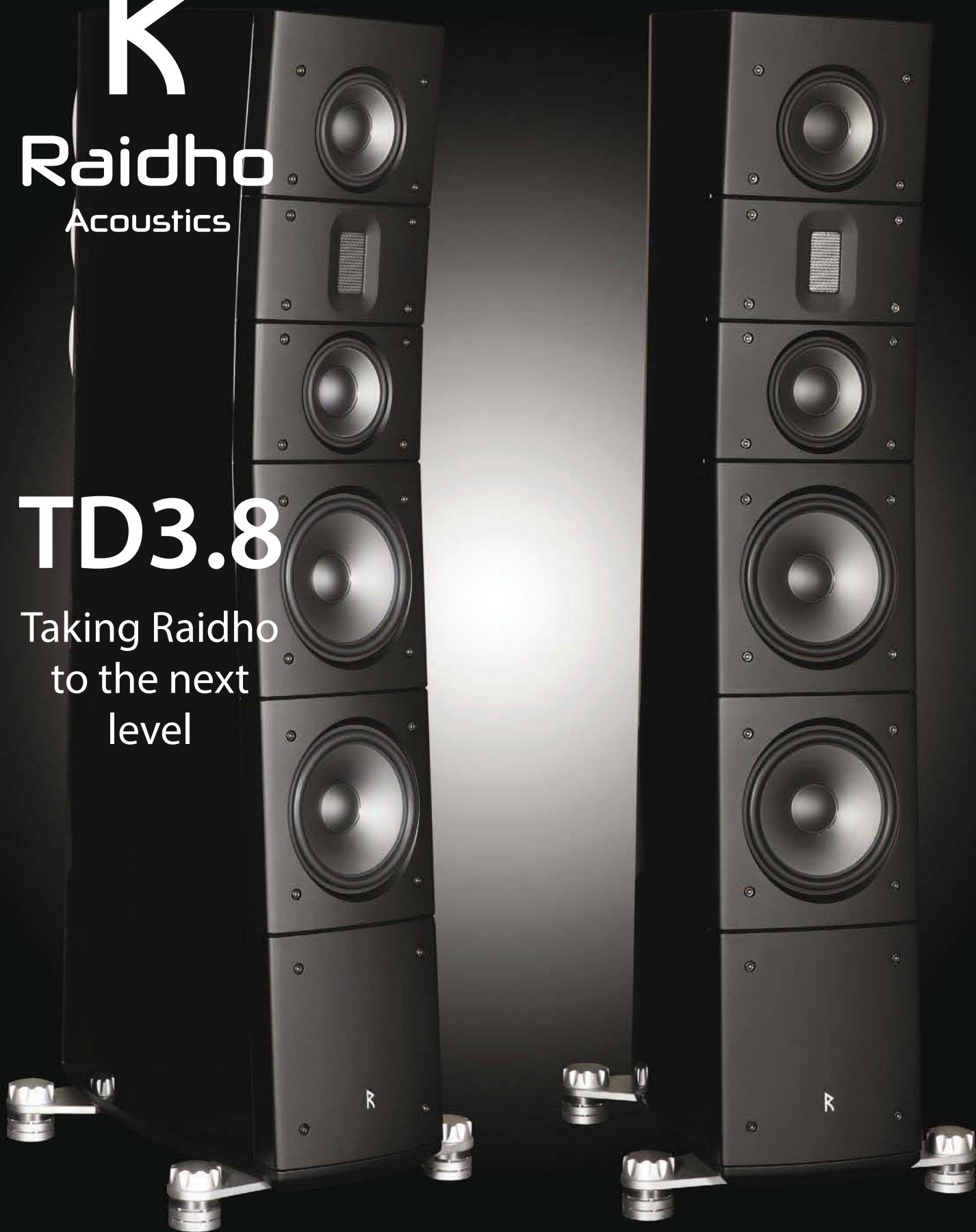
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EQUIPMENT REVIEW

TechDAS AirForce V turntable

by Alan Sircom



TechDAS? That's the 'open your wallet and repeat after me... help yourself!' turntable brand, isn't it? Everything rides on a column of money powered by several air compressors. That's not for real people, that's for those with hot and cold running Ferraris! Granted, the Japanese company TechDAS does make some extremely good turntables that are

priced well into the 'super-deck' category. In fact, at Munich this year, the company showed its strictly limited edition AirForce Zero, which costs close to a cool half a million (it doesn't really make much difference whether that is 'US dollars, 'British pounds' or 'Euros'... half a million of them is quite 'spendy' for a record player, no matter how good, how rare, or how many parts of it are held aloft by air). But this is often the way of things in audio; a company makes a range of products from the aspirationally priced right up into the stratosphere, and all that gets talked about is the one that frets the firmament. Meanwhile, devices like the AirForce V keep banging away, making a top-class sound that is universally liked almost under the radar. There Ain't No Justice!

“The small footprint of the plinth gives the listener the potential to go for a lot of tonearm options. You can have four arms on the same deck.”



► In fact, it's best to just ignore the bigger AirForce decks when looking at the V; not because they are intrinsically better, but just because they are bigger and attention grabbers, by virtue of the sheer amount of technology and, of course, that price tag. The size of even the smallest TechDAS model doesn't quite reach to EF Schumacher's 'small is beautiful' epithet (it's still a relatively stocky turntable fed by a very solid air plenum system), but it's an attractive deck in a form-follows-function kind of way – in its grey finish, it's got that 1950s laboratory chic down pat. And there's that price tag, which at a tenth that of the original model and lose to one fiftieth that of the limited run AirForce Zero, is worthy of note.

The primary difference between AirForce V and other models centres on the turntable's platter. Where the standard Air Force platter is made from a single piece of material such as aircraft aluminium or stainless steel, the V uses an inner and outer platter arrangement. This helps keep costs and size and weight down to manageable levels. It also does without many of the side posts and additional damping, giving a footprint akin to that of the AirForce III, but without the side motor tower; by making a platter with a sub-platter, the belt doesn't need to wrap around the outside of the platter, and the motor housing can be inside the main plinth of the turntable, in a manner not too dissimilar from designs like the SME and the Linn LP12.

Those aspects of design help take the top decks to the sort of levels required by systems at the absolute pinnacle of performance, but the AirForce V doesn't sacrifice much in the way of performance at all. Sure, if you have a system that is well into six and even approaching seven figures, then the sort of resolution most of those systems generate and demand will make the difference between this deck and its bigger brothers pretty noticeable, but for more normal humans, this might just be all you need.

Here's the big thing. If you are one of those who thinks a manual is for wimps, and is something that should only be read if the build-up goes off the rails, then have someone else build your TechDAS Air Force V. It's not that the manual is complex (although it is comprehensive) or that the AirForce V is twitchy or unreliable. It's that there is a set way of putting the turntable together, some of the construction process is slightly counter-intuitive, and if you don't move from logical step to logical step you can stress or even damage your AirForce V. It's also vital that you get that glass air-flow platter scrupulously clean before you build it up, anything thicker than a fingerprint will undermine airflow across the whole platter and isn't a good long-term plan. A lurking cat that seems to know the exact moment and tactically best place to shed fur is not a good idea.

Once built, however, the deck is a solid and remarkably stable performer. If radio stations were still using turntables extensively, this would be classed as a transcription type turntable for both its ability to keep on turning as it exudes solidity of design and purpose. There isn't much in the way of adjustment in the feet, however, so whatever it sits upon needs to be and remain extremely level. .

Like its bigger AirForce III brother, the small footprint of the plinth gives the listener the potential to go for a lot of tonearm options. You can have four arms on the same deck in theory, although most people opt for just one or two tonearms in reality. We went with just the one, but it was one hell of a good one – the Graham Phantom Elite unipivot. This is a common choice, in no small part because Graham is distributed in Japan by TechDAS. ►

THE GRYPHON PRESENTS

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► In fairness, this is more than a simple marriage of convenience, and the two work well together. Nishkawa-san (the designer of the TechDAS turntables) is enough of a gentleman not to design his own arm while he's distributing the Graham, and the turntables did use Phantoms in the set-up and use. In essence, the Graham might explain why so many TechDAS owners go with just one or at most two armboards; the arm wand is easy to replace, and spare arm wands are readily available, so it's entirely possible owners of AirForce V decks have three or four cartridges on arm-wands, sitting in a vase in the listening room like the most expensive flower arrangement in history. Other arms are available; some TechDAS decks sport SAT, SME, and Kuzma arms.

The air system in the AirForce V is both an air bearing and vacuum hold down, all driven from the one pump housing. I'm not a compressor nerd, so air compression systems are not easily distinguishable to me, but this isn't the usual fish pump, and TechDAS instead opt for the combination of a solenoid and smaller than usual air outlets with a condenser so the compression levels stay constant without the soft 'phut-phut-phut' of a conventional pump. The other option could be a reservoir tank, but that tends to work better for airbrushes and tyre inflation rather than a constant and active pressure. Maybe I am a bit of a compressor nerd after all!

With older vacuum hold-down and air bearing turntables (like the Forsell) being long consigned to history and the only modern alternatives (such as the Bergmann and Holbo) typically wedded to a parallel tracking arm, the AirForce V might be many vinyl lovers' first experience of what the combination of a platter effectively floating on air coupled with a vacuum record hold down system can do. The usual dismissive stance is to say it will just sound like a turntable with a clamp and peripheral ring and a sound similar to a very free suspended turntable. And they will keep saying that until about 20 seconds after they hear the real deal. Then they go very, very quiet for a while.



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You see, it's nothing like you have heard before, although in fairness the way the TechDAS works makes it unlike most air-bearing turntables, too. The TechDAS AirForce V's air system is designed to reduce ripple to near-zero, and its lack of imprint on the sound will be clear to anyone who has used an air-bearing platter. There's a confidence and stability to the sound that simply doesn't happen with the other air bearing systems. It's a subtle difference, except it's the kind of difference that, once heard, is impossible to 'un-hear'.

If your vinyl experience does not include an airy component (that sounds like a euphemism), the sound of the AirForce V will shock. Or, rather, the no-sound of the AirForce V will shock, because it makes you realise just how big a footprint that bearing and drive chain have on the overall performance. That 'no sound' drops away still further as you climb the ladder of TechDAS, but even at this nursery slopes level (by the company's standards), you quickly hear a more honest, more focussed, and just more free sound that you would struggle to find in the metal-on-metal world.

There's an authority to the bottom octave on all TechDAS designs, but is in sharper focus here because you expect cavernous, deep, and controlled bass from turntables that cost more than £100,000, but here... perhaps less

so. That authority comes through on every track, but anything with a bass line, such as Jaco Pastorius playing on 'God Must Be A Boogie Man' from Joni Mitchell's *Mingus* LP [Asylum]. Here, the shape and texture of the bass and the astounding quality of his playing shine through. They are not emphasised, and the playing is definitely not distinct from the rest of the music. There is a very cohesive flow in and around the music, in fact. It's that the bass just 'speaks from authority.' That does extend throughout the frequencies, but is most immediately noticeable in the bass. Play AC/DC's mid 1970s live *If You Want Blood You've Got It* LP [Atlantic] and that sense of authority gives this album a sense of semi-controlled mayhem. And its transient response makes Angus Young's guitar ►

The Bare Necessities



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“What really draws you into the AirForce V’s performance is the vocal articulation, backed up by some extremely fine detail.”

▶ playing seem even more frenetic, but in a wholly good way. After all, ‘Whole Lotta Rosie’ is not meant to sound like a ballad!

Then there is the soundstaging, which is absolutely first class. My go-to recording here is the overture to *The Pirates of Penzance*, played by the D’Oyly Carte company, and recorded in the late 1950s by Decca. You can hear every last floorboard squeak on that stage at the best of times, but the AirForce V’s striking ability to portray a soundstage of rare width, depth, and height is outstanding. The image is not over-stretched or manipulated in any way; you are just aware of an old wooden stage with a cut-down version of the LSO in the orchestra pit. It’s like listening in 70mm or IMAX! Bizarrely, it’s more like looking into that old theatre than if they had filmed the recording

But perhaps most of all, what really draws you into the AirForce V’s performance is the vocal articulation, backed up by some extremely fine detail. Try this on something folksy first (you don’t want to Roberta Flack this from the outset, or you’ll be an emotional wreck), like Maddy Prior and June Tabor’s *Silly Sisters* LP [Chrysalis], and tracks like ‘Lass of Loch Royal’ become more vital than just some 250 year old song about dying in shipwrecks, it becomes plaintive and emotive. The same happens throughout and recordings you know well are brought alive again by the disappearing nature of the AirForce V.

The deck in combination with the arm is outstanding, and that rare thing; a fundamentally neutral holster for the cartridge. This was in itself a revelation, because it showed just how good some less than super-expensive cartridges can sound in a remarkable turntable/arm combination. Both the Hana ML and especially the EAT Jo No 5 sounded excellent in the clutches of Bob Graham’s Elite force. It’s beguiling without being aggressive, insightful without being intrusive, and dynamic without being over-excitable. In other words, the perfect host for cartridge and record.

There is no such thing as the One Deck at this or any price. Turntables introduce a degree of observational and subjective nuance that is only matched by the loudspeaker in a system. Different turntables will work best in different systems, but in the case of the Air Force V, it is versatile enough to work its way into several very good systems and sound good. Unless you have rigged the sound of the system to make it work in a very narrow set of conditions – making it ideal for one kind of turntable and few others – the TechDAS AirForce concept and the AirForce V, will always come close to or top of the list. There are very few turntables that could lay claim to the same universality, and all those that do are generally more expensive than the V and receive near universal praise.

In other words, in the very tightly wrapped and contended world of good turntables, the TechDAS AirForce V shines through. If it weren’t for its bigger brothers, this would be the front runner in the best and especially best sounding air-bearing turntable that has ever been made. It’s that good! +



TECHNICAL SPECIFICATIONS

Type: Belt-driven turntable with air-bearing and vacuum hold-down

Drive system: Belt drive with surface polished polyurethane flat belt

Platter weight: 6.7kg

Chassis: Precision aluminium castings,

Platter: Two-piece aluminium (A5056),

Motor: AC synchronous motor built into the chassis

Speed: 33.3rpm / 45rpm

Wow & Flutter: below 0.03% (W.R.M.S)

Supplied accessories: Tonearm base (x1), platter cover, set-up tools

Turntable dimensions (WxDxH):
31.2 × 16.8 × 36.8cm

Weight: 18kg

Pump dimensions (WxHxD): 35 × 16 × 27

Weight: 9kg

Price: £12,500

Manufactured by: Stella Inc

URL: techdas.jp

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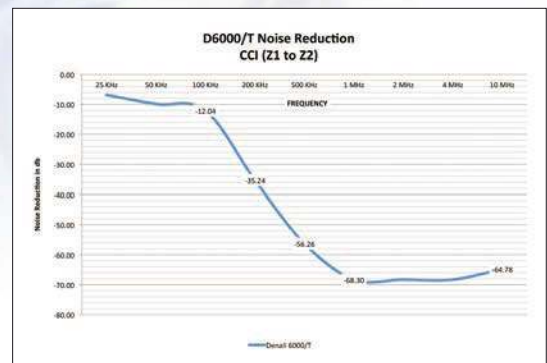
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By HiFiNews

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MOON by Simaudio 700i v2 & 780D v2 Integrated amplifier & streaming DAC

by Simon Lucas



For a company that's usually pretty level-headed and not generally given to fits of over-excitement, MOON seems a little impatient just now.

I mean, is it me or is a 39th birthday an unusual anniversary to want to mark? Québécois aren't, so the stereotype suggests, the most gung-ho or restive people on the planet – so the recent appearance of quite a number of pricey new MOON by Simaudio products – including the two tested here – strikes me as slightly strange.

Victor Sima established Sima Electronique in Quebec in 1980. By the

1990s the company had become Simaudio, and launched its first reference-grade series – the MOON range – not long after. By the turn of the 21st century, 'MOON by Simaudio' had morphed into an extremely well-regarded brand turning out some extremely well-regarded products.

Why not, then, wait another six months and have a proper Ruby Anniversary knees-up? Why launch a flurry of intriguing new products now, when in 2020 they could have been accompanied by cake and candles?

Perhaps MOON has something even bigger, even more lavish prepared for next year's party... If that's the case, well, the two products partnered here will certainly do to be going on with.

As far as the boxes themselves go, they could only be MOON offerings. The broad MOON aesthetic has been established for some time now – it calls for a slightly oversized and thoroughly over-engineered enclosures of the 'power-packed sprinter' rather than 'rangy distance runner' variety, with some modest and judicious curves to add a little visual pizzazz.

Both the 700i v2 integrated amplifier and 780D v2 streaming DAC conform to the template. Each is 476mm wide, meaning they will dominate your kit-rack, and each is available in a choice of black, silver or two-tone (black and silver) finishes. Each features MOON's startlingly assertive 'red dot' display (which is visible from across the road, never mind across the room). Each includes significant heat sinks down each side, each is heavy enough to (in the words of Laurie Anderson) stun an ox, and each feels built to withstand a medium-sized detonation. If you find you have need to invoke MOON's ten-year warranty for either of these products, it seems very unlikely it will be because of any shortcoming in construction.

Given build quality that speaks of longevity the equal of that of the owner, then, it seems appropriate that both the 700i v2 and the 780D v2 are also specified to remain useful until the end of time.

The 700i v2 is a strictly analogue integrated stereo amplifier. It's a true dual-mono design, with only the power cord and switch being shared by both channels – in every other respect each channel operates entirely independently of the other. MOON's bespoke 'Lynx' technology puts in an appearance, with the intention (as ever) of virtually eliminating the global feedback loop – it's an inconvenient and costly methodology,

but MOON insists the resulting lack of interaction from the speaker back in the direction of the amplifier gives across-the-board sonic benefits.

Power, at 175 watts per channel into an 8ohm load, is a) provided by an oversized dual-mono power supply with Class A power output to 5 watts, and b) ample. Power is transferred and regulated by a custom shielded transformer design – MOON maintains its super-low thermal, electrical, and magnetic loss gives excellent regulation, improved power transfer, and increased current speed.

At the output stage, MOON is understandably proud of its custom bipolar output transistors which give, so it says, 'unprecedented' gain linearity. Very few companies of this size are prepared to do anything but fit off-the-shelf equivalents.

Around the back, the 700i v2 features four pairs of RCA inputs – the dual-mono configuration means the left-channel inputs and right-channel inputs are grouped together on either side of the panel. There is one pair of balanced XLR inputs too – like the RCA equivalents, each channel's input is located on the corresponding side of the panel. Next to the XLR inputs, there's a tape monitor in/out loop, and line-level RCA pre-outs in case you want to use a £13k integrated amplifier as a pre-amp. Elsewhere there are gold-plated speaker binding posts (the 700i v2 will power just the one pair of speakers), a bidirectional RS-232 for custom installation convenience, and 'SimLink' in/out micro-jacks. Connect the 780D v2 to the 700i v2 this way and press 'play' on the DAC to switch to the appropriate amplifier input.

Up front, the 700i v2 is reasonably uncluttered and logical. There are three degrees of display intensity (they're easily described as 'bright', 'very bright' and 'searing', though these are not the official terms), and the display can be defeated altogether – which is a small but welcome mercy.

Each of the five inputs can be customised – the label can be renamed from its factory default of either B1, S1, S2, S3, or S4, and a maximum or an offset volume level (-10dB/+10dB) can be assigned. Inputs that aren't in use can be disabled altogether, and each input can be made to bypass the volume control.

It's a delightful volume control, mind you, so don't go rushing to bypass it in favour of your source component's alternative. Apart from being machined with





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Drawn from many years of BBC research, and through the engineering genius of Derek Hughes, these speakers have been recreated using state of the art materials and technology under license from the BBC. A new addition to this series is the Chartwell Sub 3, a bespoke compact, passive sub-woofer designed to be used in conjunction with the LS3/5 monitors.

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“The 700i v2 and 780D v2 are – spoiler alert – an absolutely thrilling listen.”

► the sort of well-weighted sturdiness of a bank-vault door, it allows ultra-fine tuning of the output level (which runs from 0dB to 80dB). From 0dB to 30dB, the volume is adjustable in 1dB steps – but from 30dB upwards, the output can be finessed in 0.1dB increments. And in addition, MOON claims its use of an optical encoder system of volume control results in far less signal degradation than the more common potentiometer alternatives.

Despite its entirely different functional emphasis, the 780D v2 streaming DAC has more in common with the 700i v2 than just MOON's signature aesthetic. It has the same big, bold and retina-bothering display, for a start off, the same ability to relabel each of its inputs to rationalise the user experience, and to defeat unused inputs altogether. In its own way it's also a dual-mono design – there is one DAC chip (an ESS ES9018S Sabre32 Hyperstream) per channel running in mono mode.

As you might imagine, the specification is extensive and incorporates some excitingly large numbers. The 780D v2 features a total of nine (mostly physical) digital inputs: one AES/EBU, one USB, two Toslink, three S/PDIF (two RCA and one BNC), network via an Ethernet socket and Wi-Fi antenna combination, and Bluetooth functionality (to aptX HD standard).

There are XLR inputs (one four-pin, one five-) for use with MOON's 820S power supply, and a choice of XLR or RCA outputs to an amplifier. The same bidirectional RS-232 and 'SimLink' micro-jacks as the 700i v2 is sporting make an appearance here too.

The 780D v2 is Roon-ready and able to decode MQA through all of its digital inputs. Each digital input is able to deal with information up to and including a 24bit/192kHz standard, while the USB socket



and network connection can go all the way to 32bit/384kHz, DSD256 and DXD. The MiND 2 streaming module that's accessible via Ethernet or Wi-Fi also has TIDAL Masters, Qobuz Sublime+, and Deezer Hi-Fi integrated and ready to go, and can enable wireless streaming to any other MiND devices on the network.

The rest of the heavy lifting is mostly done by MHP (MOON Hybrid Power), a high-performance power supply using high-speed digital switching, analogue linear regulators and conductive polymer capacitors for low noise and rock-solid stability, and two-stage M-LoVo (MOON Low Voltage), a virtually noise-free DC regulation circuit.

This as-long-as-your-arm list of promising abbreviations and optimal numbers is all well and good, of course – and the fact it all looks quite handsome in a post-bout Greco-Roman wrestler kind of way doesn't do any harm either. But at over £26k for the pair, performance needs to be of the 'life-changing' variety if the MOON twosome is going to come close to justifying the outlay.

Using a selection of appropriately high-end loudspeakers, the sound the MOON duo delivers may not, in absolute terms, be 'life-changing'. But there's no doubt it's 'life-improving' – and that's true from a wide selection of digital file types and sizes, from music of all genres, at any kind of volume level. Heard in tandem, the 700i v2 and 780D v2 are – spoiler alert! – an absolutely thrilling listen.

Starting with a 16bit/44.1kHz copy of Grant Green's *His Majesty King Funk* [Verve] via a CD transport into one of the 780D v2's S/PDIF inputs, the MOON's rousing all-court game is made quite obvious. *The Selma March* is unpicked in the most unfussy way, Green's single-note line guitar-playing existing in its own, strictly delineated, space. Each accompanying instrument (organ, congas, drum-kit, and tenor sax) enjoys the same elbow room and is distinct down ►

“It has signally failed to compromise where the quality of components, build, and finish are concerned.”

- to the last harmonic nuance – and yet the interaction between players and the unity of performance that’s so essential to the jazz ‘experience’ (even one as four-square and formulaic as this one) is explicit too. Green’s background responses to each of his bandmates’ turns in the spotlight are sympathetic and lyrical, and that boogaloo lope so typical of mid-60s jazz is described in the most rhythmically unambiguous manner.

Grant Green was nobody’s idea of a musical pioneer, but he was an articulate and committed performer – even when, as with this album, chasing as wide an audience as possible. The 780D v2 retains all the subtlety and judiciousness of his playing during the D-to-A process, and the 700i v2 lets no detail escape it either. As a result, the listener’s view into the recording – not just the explicitly detailed fact of the instruments but their response to each other – is as clear as freshly laundered crystal.

A fairly abrupt change of gear to *Yesterday Was Dramatic – Today Is OK* by múm [TMT] as a FLAC download from Bandcamp gives an even more frank demonstration of the wide-open nature of the MOON electronics. The clatter and glitch at the top end of *I’m 9 Today* is anchored by droning keyboard pads at the bottom of the frequency range, while a combination of melodica and giggling occupies much of the midrange – and the streamer/DAC/amplifier chain of command lays it absolutely bare. The disparate sources of the sounds, the mechanics of the way they’re stitched together, and the resulting patchwork is made completely obvious.

These boxes have the remarkable ability to pay analytically close attention to every single aspect of a recording without sounding in any way dispassionate. From the dynamic potency of a tune to its harmonic detail, they’re unambiguous. From the depth and breadth of a soundstage to the the gauge of a bass guitar string, they’re packed with information. From the subtle inputs of Johnny Cash’s dentures as he laments his way through *One* [American Recordings] to the positivity and attack of Keith Jarrett’s piano during Samuel Barber’s *Piano Concerto op. 38* [ECM], they’re absolutely controlled.

And the more you exploit these considerable strengths, the more the MOONs reward. An MQA Masters file of Joni Mitchell’s *People’s Parties* [Asylum] is served up with effortless momentum, the details of the acoustic guitar, the understated virtuosity of the bass, and Joni’s exceptional harmonies during the outro combining to paint a picture that’s moving in an almost unbearable way.

MOON has gone to extraordinary lengths, in engineering terms, with the 700i v2 and 780D v2. It has signally failed to compromise where the quality of components, build, and finish are concerned. It has specified them to remain competitive for as long as is realistically possible. And as a consequence it’s unblinking when it comes to putting a price on these products. But to hear them in unison is to be properly transported by the music you play – which I guess must mean they’re worth the money. +

TECHNICAL SPECIFICATIONS

700i V2 Integrated Amplifier

Analogue inputs: Four single-ended line-level inputs (via RCA), one balanced input (via XLR)

Analogue outputs: Line-level pre-out (via RCA), IR, RS232 power control, tape monitor loop (via RCA), 12v trigger, SimLink loop

Input impedance: 23.7kΩ

Power Output: 175Wpc @ 8Ω

Distortion: THD (20Hz–20kHz @ 1W) 0.015%; (20Hz–20kHz @ 125W) 0.04%

Signal to Noise Ratio: Preamplifier (20Hz–20kHz) 120dB; amplifier (20Hz–20kHz @ 125W) 105dB

Dimensions (HxWxD): 140 × 476 × 460mm

Weight: 27.2kg

Price: £13,000

780D v2 DAC/Streamer

Digital Inputs: One AES/EBU, three S/PDIF, two Toslink, one USB, aptX Bluetooth, one Ethernet, b/g/n Wi-Fi

Analogue Outputs: One single-ended (via RCA), one balanced (via XLR)

Supported digital formats: PCM from 44.1kbps to 384kbps with word lengths up to 32bit, DSD to DSD256, DXD, MQA to 32bit/384kHz, DSD256, DXD only via USB and network

Frequency Response: 2Hz–100kHz, ±0.3dB

Distortion (THD + Noise): <0.0001%, 20Hz–20kHz at 0dBFS

User Interface: FRM-3 remote control, front panel display, MiND Control app (iOS, Android)

Dimensions (HxWxD): 102 × 476 × 427mm

Weight: 18kg

Price: £13,500

Manufacturer: Simaudio

URL: simaudio.com

UK Distributor: Renaissance Audio

Tel: +44(0)131 555 3922

URL: renaissanceaudio.co.uk

DS Audio Optical Cartridges



Cartridges clockwise from top left: DS-E1, DS-002, DS-W2, DS Master1. Phono equalisers from left to right: DS-002, DS-W2

These cartridges work on a completely different principle to conventional MM or MC cartridges. Instead of a signal generated by electromagnetic force the optical cartridge uses a beam of light to detect the stylus motion.

By eliminating the friction force created by electromagnetic inductance, the optical cartridge has a much faster response to the LP groove modulations.

Removing the mass of magnets or coils, and by using tiny optical parts, the optical system resolves the smallest stylus motions with greater accuracy. Music is reproduced more correctly, nuances and the finest details revealed more easily.

Optical cartridges generate signals purely based on the shape of the recorded groove and are more linear across the frequency range. Because of this technical advantage, a simpler and cleaner circuit can be used to process the RIAA conversion.

All parts hand made in Japan using rigid aluminium construction, the highest quality diamonds and cantilevers, with superior electronics in the dedicated equalisers.

NEW DS-E1 model “a multitude of triumphs... closing the gap between the affordable and the unobtainable” Ken Kessler, HiFi News

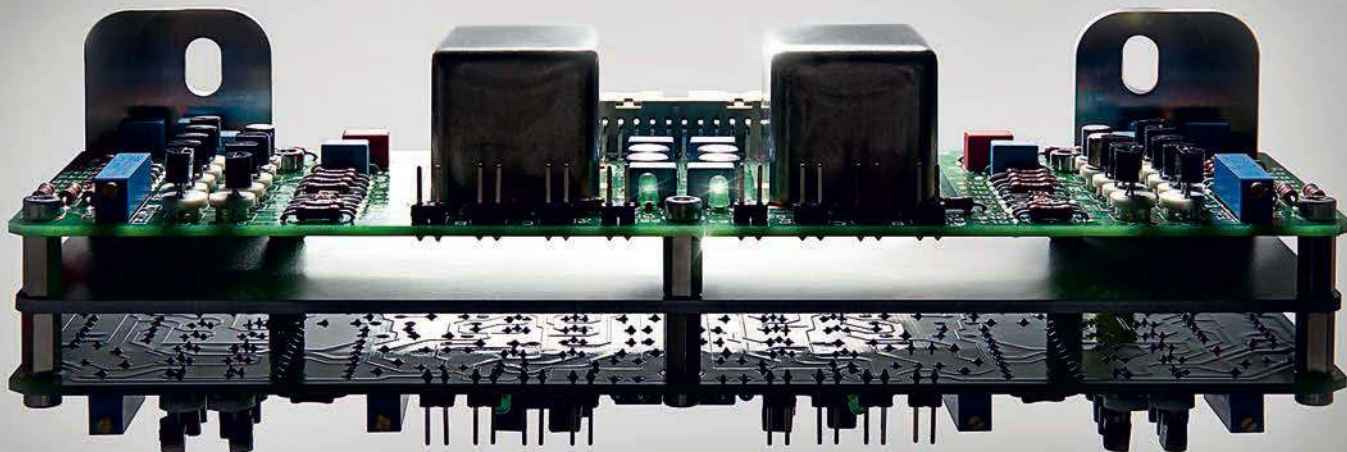
DS Master 1 ‘Writing a new chapter in the history of Analog Music’

DS-W2 Recipient of ‘The World’s Best Cartridge’ award

DS-002 ‘Clean, yet sweet, precise in imaging and grand in scale’

DS-E1 “The chance to hear your LPs as you’ve never imagined” Ken Kessler, HiFi News

New level of sonic performance
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Hegel Audio Systems H390 integrated amplifier

by Alan Sircom



Here's how you make a good modern integrated amplifier. Start with the best bits from the last generation of good modern integrated amplifier and mix in many of the best bits of the new flagship integrated amplifier. In the case of Hegel Audio Systems, that means putting the older Hegel H360 in a room with Hegel's current top of the tree H590, dim the lights, put on some Barry White, and let nature take its course. The result is the Hegel Audio Systems H390 amplifier.

OK that's too simplistic and more than a little too odd to think about in any kind of deeper sense, but there's a grain of truth in this. No, not in the Barry White way, but the notion that this is pretty much the amplifier component of the H360 spliced with the digital platform first seen in the Hegel Röst and H190 – and taken to its ultimate in the H590 – is not so far-fetched. Roll that round your brain-pan for a few moments; a lot of Hegel's H590, a product so good the company had to work out whether or not it would cannibalise sales of its own popular HD30 DAC, exists in the H390.

Granted the H590's DAC section is more advanced than the one in the H390, but not by much. In fact, the only real limitation made to the H390 from previous models and what marks it out against the H590 is the big boy uses a full aluminium chassis, and the H390 saves weight and cost by going for some moulded parts in less sonically critical areas. Little wonder then that Hegel gave this project the code-name 'Robin Hood' during its development because it really does take from the rich... not that you'd call putting that riches of technology in a five grand amp 'giving to the poor', but you get Hegel's drift.

We could just say baby H590 and stop there, but there is more to it than that. Even though the H390 uses a slightly simplified version of the H590 DAC there are a few bits of the design that are actually taken further too, as reflects another year down the digital rabbit hole. In the H390, all digital inputs are given the same extra jitter reduction treatment as used in the USB and Network inputs. This means lower jitter on S/PDIF inputs too. The H390 supports MQA, DSD64 on S/PDIF inputs, and USB up to DSD256. The H390 also supports internet updates, like the H590, so you can update via the menu. Developing this upgradability allowed the technology to trickle down to the H190 (it will be available after you install firmware update v.20). This also unlocks aspects like adding a Roon endpoint, improvements to MQA and DSD replay, and better sounding Ethernet streaming. Add in AirPlay 2, UPnP, Control 4 connectivity, and volume control from USB, and you have an extremely flexible platform. ►



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“Hegel went right back to the drawing board (well, drawing tablet) and not a single analogue board in the H390 is shared with its predecessor.”



► You can now even see the amp's IP address in the menu. This was something that was harder to do when Macs still clung to Bonjour, but with that out of the way, being able to eye-ball the IP address allows you to go to the amplifier's home page on a web browser and customise a lot of settings.

In the process of squeezing the H590s digital quart into the H390's pint pot, Hegel discovered some things along the way. Such as, routing all digital inputs through the USB's DSP. That is a first for the H390. In addition, Hegel came up with 'down-clocking'; reducing the frequency of the system clock of important circuits whenever possible to minimise noise. This is almost the antidote to the audio arms race where every device needs more processing power. By effectively letting those circuits run below their limits, there are clearly audible and apparently measurable benefits to be had.

If Hegel just threw all this digital nicety at the H360 and left the amplifier effectively unchanged, the company would be on to

a good thing. However, Hegel went right back to the drawing board (well, drawing tablet) and not a single analogue board in the H390 is shared with its predecessor. That allows the H390 to have fully configurable inputs, so they can be variable or line-level inputs. The H390 also has higher gain on the pre-output compared to other Hegel amplifiers, which is especially useful for those who run their music system in a 2.1 configuration with a powered subwoofer. Naturally, the amplifier was given Hegel's listening test treatment; the H590 was voiced, then members of the team were handed out early pre-production samples and asked to live with them for a while and report back. That gives a multiplicity of sources and loudspeakers used in the 'beta test' phase.

It's hard not to dub the H390 as the 'baby 590' and for good reason. But, in fact it's so much more, both in terms of performance and on a gut level. Let's be clear here, the H590 is the better amplifier with the better DAC; it's smoother sounding, more insightful, and more powerful sounding. But it's also £9,000 and there is an expectation that an amplifier that costs that much delivers the goods as a matter of course. The H390 isn't nine grand... you get £100 change from five grand, and the 'wait... what' moment is just how much the H390 closes that gap.

I logged many an hour with the H360. Some time had passed between those hours and the hours spent with the H390, but I'm sure of the difference. The H360 was good – in competition to its peers at the price, great in fact – and the H390 makes it sound almost broken. That slight leading edge sheen that we all but ignored because there was nothing at or near the price that could do better, now sounds edgy and harsh in the presence of the H390. ►



► I popped track after track through the H390, playing everything from dying man complaint rock (the title track to Leonard Cohen's *You Want It Darker* album on Columbia), through Glenn Gould playing wispy Bach inventions, and out through the medium of Infected Mushroom belting out 'Noon' from *IM the Supervisor* [Yo-Yo], to Jackie McLean's *Bluesnik* album [Blue Note]. I played these tracks and more through a CD player into the analogue inputs, through S/PDIF, USB, Ethernet, in fact so many inputs were I to describe them all this would read like a Dr Seuss book. Nothing fazed the H390. Nada.

It had that effortless dynamic range and grip over the loudspeakers we have come to expect from Hegel, with a comprehensively good performance in all other aspects, and as I said that mild upper-frequency zing of its predecessor has been replaced with ear-opening neutrality and honesty. But most of all, it's a fun thing; listening is a journey of musical discovery that is never dry or fusty. It's got passion and energy in its output, and it expresses that on every loudspeaker I paired it with, even ones that normally wouldn't get out of bed for a £4,900 amp. In fact, that little jaunt through any loudspeakers I had to hand was telling; the amp's character was like musical smoke in all the right ways – aside from a universal grip over the bass units from its high damping factor and an innate sense of musical space and rhythm, descriptions of performance were loudspeaker-related, not amp-related. I would say that I can't recall the last time an integrated amplifier did that, but I can... it was the Hegel H590. The H390 doesn't quite get out of the way as much as the 'straight wire with gain' H590, but it gets damn close.

Downsides are few. There's no headphone amp or phono stage. And having an amp with a built-in DAC means fewer analogue inputs with which to plug in a DAC. But if you read that aloud you realise how daft that sounds. Sonically though... there's nothing.

I expected the Hegel H390 to be good because of its foundations, but I didn't expect it to be this good. This has to be one of the best integrated amplifiers money can buy at the moment, and its only really bettered by its bigger brother, unless you spend truly epic amounts of money. Wow! +

TECHNICAL SPECIFICATIONS

Type: Integrated amplifier with network connected DAC

Power output: 2 × 250 W into 8 Ohms

Minimum load: 2 Ohms

Analogue inputs: 2 × balanced (XLR), 3 × unbalanced (RCA)

Digital inputs: 1 × BNC 75Ω S/PDIF, 2 × coaxial S/PDIF, 3 × optical S/PDIF, 1 × USB, 1 × RJ45 Ethernet

Line level output: 2 × unbalanced variable (RCA)

Digital outputs: 1 × BNC 75Ω S/PDIF

Frequency response: 5 Hz–100 kHz

Signal-to-noise ratio: More than 100 dB

Crosstalk: Less than -100 dB

Distortion: Less than 0.01% @ 50 W 8 Ohms 1 kHz

Intermodulation: Less than 0.01% (19 kHz + 20 kHz)

Damping factor: More than 4000 (main power output stage)

Dimensions (H×W×D): 17.1 × 43cm × 44.5cm

Weight: 22kg

Price: £4,900

Manufactured by: Hegel Music Systems

URL: hegel.com

Tel: +44(0)7917 685759



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Cyrus 82 DAC/QXR integrated amplifier

by Jason Kennedy

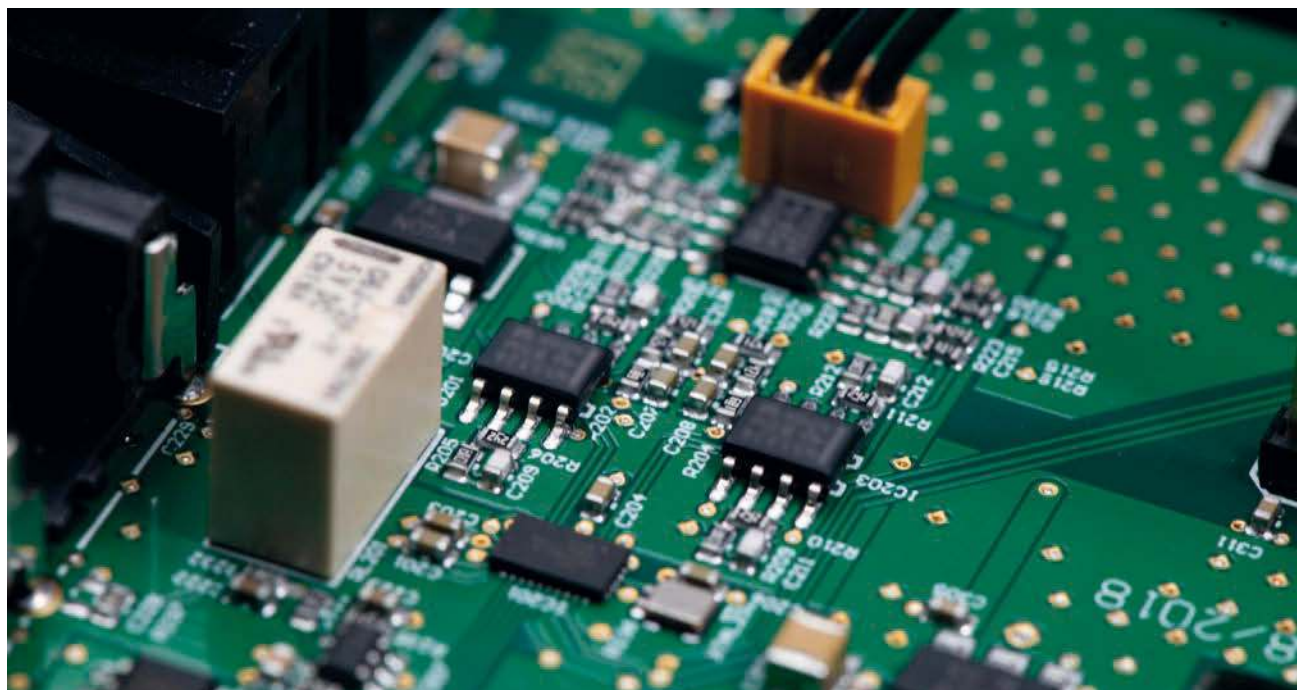


You can usually tell what a product is from its name, an LP12 plays LPs or 'vinyls' (spit), a CD17 played CDs and a NAP 300 is a (Naim) amplifier. Cyrus takes a different approach and puts 'DAC' in as a suffix to its range of integrated amps. I guess the company's amps have never hinted at function; the Cyrus 2 could have been anything! The new suffix, QXR, doesn't tell you much, but this turns out to be a DAC upgrade board that can be added to a whole raft of Cyrus products, most of which are pre- or integrated amplifiers up to ten years old.

QXR is a DAC module, based on an unnamed ESS Sabre chip that's bang up to the moment in terms of figures with the ability to process PCM up to 32-bit/768kHz and native DSD up to DSD512 via an asynchronous USB input. The 82 DAC in standard form is limited to 24/192 with no mention of DSD;

an upgrade-worthy state of affairs for the spec enthusiast. The coax and optical inputs are a bit more limited but benefit from reclocking circuitry that's designed to reduce noise on the incoming signal. It's a £600 upgrade option for compatible products and adds the same premium to the 82 DAC amplifier.

This back panel is festooned with socketry; Cyrus couldn't squeeze in another Toslink input even if it wanted to. There are 11 inputs in total, six of which are analogue and five digital. There are also fixed and variable outputs, a PSX-R upgrade port, and a bus connector for use with other Cyrus components. Oh and a headphone output. The speaker cable terminals are those irritating BFA types that don't match banana plugs or spades, so I had to use adapters. Power output is given as a rather specific 88 Watts into six Ohms and despite its compact nature this is a Class A/B amplifier with a linear power supply. It seems expensive for something so compact ►



▶ but does provide nearly everything the contemporary music lover requires, the only omission being any form of Bluetooth or Airplay. Look to Cyrus' One series to get that.

Inputs can be labelled using a wide selection of preset names including CD, DAB, USB, and Tape 3-Head, but the only one for a streamer is Stream X. There is the option of AV Direct for incorporating the amp into a multichannel system and you can choose 'no source' which means that a given input will not appear when scrolling through the options. You can also vary input sensitivity so that all the inputs come through at a similar volume level. Making these settings is pretty straightforward; you do need the manual to get started but thereafter it's pretty intuitive, which is more than can be said for other similarly flexible systems. Once set up, the amp/DAC largely can be controlled with the remote handset; this has movement sensing backlighting for those late night sessions, but this sample proved hypervigilant, lighting up at the slightest shift on the sofa, so not quite as relaxing as it might be.

Listening commenced with a pair of Q-Acoustics new Concept 300 loudspeakers on the end of Townshend Fractal speaker cables, using a USB input from a Stack Audio Link streamer. This speaker proved a little bright in the 82 DAC/QXR's hands, but also appealingly alive and vibrant with Joni Mitchell's *Miles of Aisles* live recording [Asylum]. This is a high res mastering of what is clearly a good analogue original and contains lots of atmosphere in the fine details, and it proved

engaging and enjoyable. As did another live album from a seventies concert, Nucleus with Leon Thomas [*Live 1970, Gearbox*] at the Montreux Jazz Festival. Here the immediacy worked really well but the slightly exposed nature of the amp/speaker pairing was evident. But it wasn't so much so that listening was discouraged; I enjoyed a selection of tracks each of which had plenty of distinct character, suggesting that the Cyrus is highly transparent via the QXR input.

A switch of speaker to Dynaudio's Evoke turned out to be a good move. This speaker's relatively smooth and calm yet revealing demeanour proved a perfect match for the 82 DAC/QXR. It allowed the Cyrus to show off its image scaling capabilities with a strong sense of physical presence enhanced by solid – if not room-shaking – lows, but this isn't a huge speaker by any means. It pulled lots of detail out of the music especially through the mid and top but avoided any sense of forwardness. I really enjoyed Conjure's 'Foolology' [*Music For The Texts Of Ishmael Reed, American Clavé*] where the percussion popped out of the system with real vitality, and the bass line really drives the piece along. The Cyrus may not be hugely powerful, but it gets a grip on whatever you give it and keeps things tight. A contemporary track from Leifur James' excellent *A Louder Silence* [Late Night Tales] filled the room with sound, and while the amp's enthusiasm for higher frequencies brought out the ride cymbal more than average, it always sounded natural. It was also possible to play this at ▶



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► an entertaining volume without any edginess creeping in to suggest that the amp was struggling. Van Morrison's *Astral Weeks* [Warner Bros] had a slightly distant feel and a light balance, which is somewhat different to its usual character but it was easy to hear all the elements in the mix albeit the bass line was less clear than it can be. Essentially it sounded lighter, but not in a bad way.

Acoustic guitar from Gwenifer Raymond was a lot more present and crisp with good pace and well defined notes, attack and decay being clear alongside the sheer intensity of the playing. It could perhaps have had a bit more 'body' but the timing was very strong.

I checked out the analogue side of the amplifier by playing some vinyl through an external phono stage. Here the balance was very similar with good separation of instruments and consistently clear definition of leading edges especially where percussive instruments were involved. Vinyl sounded a little more fluid than the digital sound and had a little more body and warmth as you'd expect but the difference is often more marked than the Cyrus revealed, suggesting that the QXR DAC is really rather good. I used a good external DAC, the iFi Pro iDSD, and found that the QXR outperformed it in many respects. It does of course have the advantage of much shorter signal paths but I was nonetheless surprised that it sounded warmer and was more rounded. The other explanation of course is that the analogue inputs on the Cyrus have a leaner sound than the internal DAC.

In a quest to find the best speaker match I also tried PMC's twenty.22 stand-mount; this delivered tighter grooves and a larger soundstage with slightly drier bass than that of the ported Dynaudio. Which highlighted a Olu Dara trumpet solo that sounded particularly good. Switching to the bigger and more revealing PMC Fact.8 that I use as a reference improved dynamics but emphasised a slightly skeletal aspect of the Cyrus' sound, its relatively lean balance not working well with the speaker's less than fulsome balance. Clearly the 82 DAC was conceived with ported speakers like the Dynaudio in mind, which given the prevalence of this approach in speaker

TECHNICAL SPECIFICATIONS

Type: Solid-state, 2-channel integrated amplifier with built-in DAC and headphone amplifier

Analogue inputs: Six single-ended line-level inputs (via RCA jacks)

Digital inputs: Four S/PDIF (two coaxial, two optical), one USB port

Analogue outputs: Two pre-outs (via RCA jacks), One fixed level (via RCA jacks), one headphone (via minijack). IR, MC-Bus, PSX-R upgrade port

Supported sample rates:

Coaxial and optical S/PDIF: 16-bit, 24-bit up to 192kHz

USB: 16-bit, 24-bit, 32-bit — up to 768kHz

Input impedance: Not specified

Output impedance (preamp): Not specified

Headphone Loads: Not specified

Power Output: 88Wpc @ 6 Ohms

Bandwidth: Not specified

Distortion: THD $\leq$ 0.005% with both channels driving from 250mW to rated power, 20Hz to 20kHz; IM $\leq$ 0.005%

Signal to Noise Ratio: Not specified

Dimensions (H×W×D): 73 × 215 × 360mm

Weight: 6.9kg

Price: £2,295

Manufacturer: Cyrus Audio

Tel: +44 (0)1480 410 900

URL: cyrusaudio.com

design makes perfect sense. That said it's rare to find an amplifier that disagrees so strongly with the fact.8. It goes to show that the amp/speaker match is one of the most critical in system synergy.

The Cyrus DAC 82/QXR does an awful lot of things remarkably well; it has all the inputs most would need and even a headphone output with dedicated amplifier if you can reach round the back to find the minijack socket. The QXR DAC upgrade is clearly just that. It is very transparent and performed to a very high standard especially with a USB input, and that it is backwards compatible with the last decade of Cyrus is a strong point. The amplifier's balance will be familiar to those who have heard Cyrus in the past; fast and detailed, but a little lean through the lower mid/upper bass. If you want a compact, fast, and flexible centre for your digital and analogue sources, it should be on the shortlist. +

Ultra Black II Speaker Cable

Even taking in account all the awards that the old Ultra Black speaker cable won, this new version gives a whole new level of performance that is obvious from the first second of listening. Greater detail, more clarity, more organic but still sitting very firmly in the Black cable family.



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Silver Diamond Power Cable

The final piece in the puzzle for the Silver series of power cables. It has some of the "magic" of the Statement power cable because it came out of that same research and so is a smooth, detailed performer that brings your system to life.

Silver Power Cable

The new Silver power sits above the Black power cable in performance. The Silver power cable does a great job balancing the smooth attributes of the black cable while giving more energy, detail and dynamism that is the signature of the Tellurium Q Silver family. Add to that a more flexible construction and the new Silver power cable ticks every box.



Totem Acoustic Tribe Tower floorstanding loudspeaker

by Alan Sircom

Totem Acoustic makes some wonderful loudspeakers that don't break the bank, but sometimes – like most loudspeaker designs – they don't tick as many aesthetic boxes as they do sonic ones. Relative to the rest of the loudspeaker industry, Totem's stand-mounts and floorstanders look great, but a little 'boxy'... and 'boxy' isn't the kind of shape that will please those with more 21st Century designed concerns. The Tribe Tower addresses those concerns.

That 21st Century quip is more than just a throwaway. The days of the dedicated audiophile 'man-cave' are increasingly a function of the 20th Century, not this one. With property prices skyrocketing and young families increasingly having to shoe-horn themselves into ever smaller spaces, a loudspeaker that places installation and aesthetic demands on the user is something increasingly unconscionable in today's society. However, the reaction to those concerns is often overshot; in making a product that fits snugly into today's spaces, the usual position is to sacrifice the sound quality. Put simply, what we need is equipment that can compromise on size and positioning but doesn't sound compromised. A few companies have tried to resolve the problem through digital signal processing with varying degrees of success, but inevitably that creates a different set of compromises... the "I can't afford it" set of compromises that limit the number of prospective owners in a different way. So, to continue down the 'what we need' line of reasoning, what we actually need is a speaker that doesn't look like a 'monkey coffin', doesn't sound compromised when you don't have it in an ideal installation, and doesn't require the listener to spend thousands on dedicated DSP room correction. Which is precisely where the Tribe Tower comes into play.

The Tribe Tower should perhaps be called the Tribe Shard, because its shape is not that dissimilar to the Shard skyscraper in London (currently the tallest building in Europe). The 93.5cm tall Tribe Tower has a narrow rectangular base, but this tapers out as you move up the cabinet. This needs to be highlighted for most audio enthusiasts; a cursory look at the images, especially when the speakers are photographed





“The great thing about the Tribe Tower is that it’s the antidote to high-end obsessiveness.”

► at their mid-point, makes them look like really tall uniform floorstanding loudspeakers, photographed from below. In fact, it’s a trick of perspective that goes away when you are faced with a pair of the speakers in the real world. In print, they might look like giants, but unless you are ant-sized and looking up, these are small, tapered designs.

The apex of the loudspeaker is cut through at an angle (meaning the loudspeaker doesn’t end in a point, or the kind of flat top-plate that would end up being a beer-rest at a party). It’s also borosilicate-damped internally, which is unique to Totem in the audio world. This whole enclosure has the advantage of breaking up internal standing waves (the structure is completely non-parallel) but does place limits on the size of cone on offer. Totem gets around this by a pair of fast 100mm long-throw, low distortion Torrent drivers hand-built by the company itself. These have sufficient surface area to move some air but are also small enough to fit the front baffle. A first-order crossover network with no components in the low-frequency signal path also gives the Tribe Tower its rare speed, but it means the loudspeaker relies on the twin rear ports and the natural roll-off of the drive units to deliver an accurate bass response.

The mid-bass units are paired with a 33mm laser-etched textile dome tweeter that sits in a 13mm thick metal baseplate, with a tidy WBT-sporting by-wire panel at the rear. The combination gives a reasonable 88dB sensitivity and an untroubling four-ohm load. Totem recommends partnering the Tribe Towers with amps with a power rating from 50–200W and recommends a good 200–300 hours of run in with music (rather than test tones or white noise). Ours came fully run in from a few shows so how this speaker actually warms up remains a mystery.

The great thing about the Tribe Tower is that it’s the antidote to high-end obsessiveness, while always sounding enjoyable. So long as they are at least 60cm apart and at least 16cm from the rear wall, you are golden. They sit on metal decoupling/levelling cones that level and a good start is to make the speakers free from rocking and at least relatively level. But I can’t stress the unfussiness enough; have one speaker 16cm from the rear wall, have ►



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D2
C2
A2

“The Tribe Towers have a sense of speed and bounce that touches everything.”

- ▶ the other 60cm from the rear wall and they’ll sound pretty good. If your idea of toe-in is five seconds of vaguely pointing the front baffles at the listening position, they will sound pretty good too. In fact, you’d need to actively try to wreck the performance of the whole system in order to not deliver something that sounds pretty good. While this might result in a light miffing for the ‘three angstroms to the right’ obsessives in the audio world, it does make for a loudspeaker that fits the real world with a high degree of snugness.

So what does ‘pretty good’ actually sound like here? Put simply, extremely enjoyable. The Tribe Towers have a sense of speed and bounce that touches everything, but not in an imposing or forced manner; listening to the Totems is ‘fun’ not ‘funishment’. For loudspeakers that don’t insist on precise positioning, they image really well, too. Image depth and especially any vestiges of image height are a function of a precise installation, but if you cannot or will not do that, you are still met with an image that has some depth and layers. The image itself is more around and between the boxes than significantly wide of the cabinets, but the outstanding aspect of the Tribe Tower’s imaging properties is just how hard it is to create a hole in the middle of the soundstage. You practically need to have speakers in separate rooms to break up the image.

Image aside, what strikes you about the Tribe Tower is the speed and coherence of the sound. Vocals have a precision, a clarity, and – at times – a sense of wonder to them as they stand forward of the mix. Meanwhile, the music backing those vocals flows beautifully, although here it does also begin to show some of the limitations to the Tower, as the sound of Joyce Di Donato’s voice and the sound of a French Horn seem to blur together slightly [Bellini; I Capuleti e I Montecchi, *Stella di Napoli*, Erato]. And, while we are on the limitations born out of loudspeaker size, bass lines are more ‘implied’ than ‘expressed’. Not to a great extent – there is a good deal of bass on offer for such a small loudspeaker, but that kind of earthmoving bass that electronic or organ music can muster calls upon a smaller earthmover here. On the whole though, there is a great sense of musical engagement and entertainment that seems totally unconstrained by boxes.

OK, so if you use the Tribe Tower on the end of one of high-end’s more titanic systems, one that costs more than a

TECHNICAL SPECIFICATIONS

Type: Two-way, three driver, rear ported floorstanding loudspeaker

Drivers: 1× 33mm laser-etched textile soft dome tweeter, 2× 100mm Torrent mid-bass drivers

Frequency Response: 30Hz–30kHz

Impedance: 4Ω

Sensitivity: 89dB

Recommended power: 50-200W

Finishes: Gloss Black, Gloss White, Satin Black, Satin Grey

Dimensions (W×H×D): 17.8 × 93.5 × 20cm (add 2cm for decouplers)

Price: £4,999 per pair

Manufactured by: Totem Acoustic

URL: totemacoustic.com

Distributed by: Joenit

URL: joenit.com

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house and weighs more than a 747, the Tribe Tower might look a little out of place, even if it is a perfect sonic fit. The speaker is more of a musical leveller than a loudspeaker of musical compromise. In reality, such systems are the figment of the imagination (or a high-end reviewer being too lazy to unplug the big guns), and most Tribe Towers will be used with good quality but not punishingly expensive electronics and accessories. We used it with the excellent Hegel H390 tested in this issue and that combination sounded great, but you could use this with far more or far less affordable amplification without the slightest complaint. The joy of the Tribe Tower is it isn’t fussy about partners about as much as it isn’t fussy about placement. It just gets on with playing music.

A speaker like the Totem Tribe Tower says a lot about the perception and viewpoint of the listener. Many will stay with conventional loudspeaker cabinets (there’s nothing wrong with that, and for some of those people they will stay with Totem too), but some cannot or will not be able to live by the domestic demands such speakers make anymore. Suddenly at this point, choices get narrow and the compromises made become very, very audible. The Tribe Tower is one of the rare exceptions. You can put them almost anywhere with almost anything and they will make a good sound. That’s a 21st Century win! +

The image shows two white, tall, tapered floor-standing speakers positioned in a modern living room. The room features large floor-to-ceiling windows that offer a view of a lush green landscape with trees and a swimming pool. The interior has light-colored wooden flooring and a white ottoman. The speakers are white with black speaker drivers and feet. The Totem logo and tagline are in the top right, and the Torrent Technology logo is in the bottom right.

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Sonner Legato Duo Floorstanding Loudspeaker

by Buzz Hughes

What is 'real'? Does that question take you back to philosophy lessons, watching *The Matrix*, or perhaps a college dorm room far past midnight? Please let me clarify, then; in a hi-fi context, what constitutes 'realistic' sound from a loudspeaker? Some among us would answer this important question by pointing to binders of testing reports replete with pristine measurements, but I think the majority of audiophiles would argue that a truly 'real' sounding loudspeaker is best measured informally in your very own living room. Can your choice in loudspeaker actually take you away to feel the humidity in that New Orleans jazz club, to an electrically-charged evening in London's O2 arena, or right into the cramped quarters of Memphis' Sun Studios circa 1954 with the King recording in his prime? If you second this informal but highly effective test of 'real' sound it would behoove you to take a long hard look at USA-based speaker manufacturer Sonner Audio's new floorstanding loudspeaker, the Legato Duo. While Sonner is a relative newcomer on the scene, its primary design goal is a laudable and mature one: namely, to provide music lovers with a tantalisingly natural sound experience that allows the listener a true connection to the artist. Yes, the Legato Duo's quality materials and impressive measurements are present and accounted for, but in order to differentiate itself in a crowded market, Sonner wishes to hang its hat on playback ideals that you would expect to hear at a 'real' live event: killer imaging, startling transparency, and accurate soundstaging. ▶



“Sonner’s founders spent their own time during those start-up years experimenting with speaker construction.”



► Lets take a minute right off the bat to address an elephant in the room. Spending thousands on a new pair of speakers made by a company you might not know very well can be a nerve-wracking outlay of capital. A buyer comfortable shopping at this price point needs to be confident that they are checking several boxes in their speaker purchase: long term reliability, aesthetic wow-factor, and of course outstanding performance to name just a few. The challenge to overcome the consumer’s information gap and gift wrap a warm and fuzzy feeling is whole heartedly embraced by the good, friendly folks at Sonner Audio. Sonner believes the more you learn about its team-driven company culture, the more likely you will be to embrace their forward-thinking approach.

Sonner Audio was conceived in the Boston, Massachusetts area slowly over a period of nearly twenty five years and the company officially was launched in 2016. Sonner’s founders spent their own time during those warm-up years experimenting with speaker construction while paying the bills working corporate jobs in the industrial and electrical engineering fields. It was this relevant experience and insight that allowed Sonner’s founders to carefully prepare the cost-no-object Allegro Unum bookshelf speaker, which was the company’s first big splash after launching in 2016. Over time, Sonner methodically built its reputation for sound quality through favourable listener reactions to the original Allegro Unums, which were demonstrated at a series of high profile North American audio shows. Following up the high praise and market acceptance for the Allegro Unum bookshelf, Sonner set to work on the new Legato line of floorstanding loudspeakers. From the start the Legato series and top dog Legato Duo specifically was intended to borrow much of the successful technology found in the £12,000 Allegro Unum, but to enhance its musicality in the majestic and bold way that Sonner felt only floorstanding speakers can provide.

The designers of the 2.5-way Legato Duo endeavoured from the speakers conception to accommodate two major design principles in order to create their desired vibrant soundstaging: focus on time alignment, and designing to create a flat impedance in the Legato Duo. For any unfamiliar with the time alignment concept the Legato Duo’s noticeably front-to-back tilted 38cm wide x 109cm high x 66cm deep one-piece cabinet shape physically places the drivers in a natural alignment to allow the sound wave to meet at the listeners’ ears, in phase and on time. The Legato Duo comes with a magnetic front facing leather faceplate that surrounds the 25mm ring radiator tweeter, the 140mm coated paper cone mid woofer, and the 152mm aluminium bass woofer. The faceplate is quite original in the sense that it can be customized with text or images to the taste of the owner, but make no mistake this leather faceplate is not merely a handsome aesthetic feature of the Legato Duo. Instead, the leather-clad faceplate plays an integral role in helping the ►



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“Sonner feels it has captured lightning in a bottle with the Legato Duo and is very protective about showing all its cards.”

- speaker achieve its time-alignment goals and is an indispensable piece of the sonic framework. Sonner designed the Legato Duo on the premise that successful time-alignment would allow the speaker to disappear into the room to produce a wider, more resolved soundstage and to produce sharper, more finely focused stereo images.

Complementing the focus on time alignment the Legato Duo also boast a flat impedance curve – meaning it offers the same load resistance at all frequencies. To achieve this notable feat, Sonner uses hand-selected parts to build the Legato Duo's proprietary crossover network in-house. Sonner describes the crossover as a “symmetrical panoramic design”, but treats the exact circuit topology and the values of the capacitors, resistors, and inductors used as closely guarded secrets. Crossover frequencies are set at 200Hz and 2.5kHz. Sonner uses costly and labour intensive point-to-point wiring in its crossover, a highlight you won't find in most of the Legato Duo's competition.. Sonner suggests that a flat impedance curve helps improve the overall sensitivity of the Legato Duo, which measures at a quite manageable 90db. This level of sensitivity allows most valve and solid-state amplifiers to drive the LD speakers with grace and precision. Kudos to Sonner for exercising forward thinking in knowing that £8,900 is a max buy for some of us as household budgets don't always allow some of us to upgrade amplification and speakers simultaneously. Sonner feels it has captured lightning in a bottle with the Legato Duo and is very protective about showing all its cards on the technical end. A pardonable mark of pride is that the company president is concerned that his product is so good that, if Sonner were to reveal its technical hand, the firm might soon face knock-off versions making their way out of China.

To my ears one of the best differentiators between live 'real' music and even a top notch recording is the dynamic envelope. You just can't fake dynamics, and when loudspeaker playback seems to be dragged to produce a dramatic dynamic swing it is difficult to keep a crafty brain buying the illusion that one is witnessing a performance in the natural, effortless way that unfolds in a live setting. Time and time again in my weeks with the Legato Duos they were able to command and push the essence of the music forward with their head turning dynamic agility. Gary Bartz' 1977 Jazz-Funk classic *Music is My Sanctuary* [Columbia] provides an excellent example of the Legato Duo's show stopping dynamic prowess with the alto sax break in the track 'OO Baby Baby' about 45 seconds in. In this passage Bartz' ace band drops the tempo for a split second setting up Gary to come crashing in with his liquid smooth alto saxophone. The Legato Duos simply sparkled here in their ability to go from zero to 60 in nothing flat.

The Legato Duo's also allowed Bartz' sax riff to stretch, lengthen, and even hover completely suspended before careening back into the groove at the perfect pace, leaving me wondering why I don't play this album every

TECHNICAL SPECIFICATIONS

Type: 2.5 way bass ported enclosure

Floorstanding Loudspeaker

Drivers: 25mm ring radiator tweeter;

140mm coated paper cone mid

woofer; 152mm aluminium bass

Frequency response: 37Hz–23kHz

Nominal Impedance: 4 ohms

Minimum impedance: 3.8 ohms

Sensitivity: 90dB

Dimensions (WxHxD): 38 × 109 × 66cm

Weight: 29.5kg each

Finishes: Cherry, Red Rosewood, Satin

Black (coming soon!)

Price: £8,900 per pair

Manufactured by: Sonner Audio

URL: sonneraudio.com

Distributed by: Select Audio

URL: selectaudio.co.uk

Tel: (0)1900 601954

day for the rest of my life. Living with the LDs was full of sublime time-stopping moments like 'OO Baby Baby' and I felt that they lived up to and exceeded their price tag for those who prioritise warmth and musicality. The LDs exhibit a special, even uncanny ability to open up space and transparency in their presentation and make instruments sound like you would expect to hear them walking into a concert venue mid stream in an impassioned performance. The biggest drawback I found to the Legato Duos (if there actually was one) was the large speakers virtually scream to be placed in a sizable room to realise their full potential. The LDs bass control is a shot of pure power and can overwhelm small and potentially mid-sized rooms. If you have some space to work with, amps you already love, and have been waiting for the right speaker to open up 'real' coherent sound in your living room look no further than Sonner Audio's handsome Legato Duo. +



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Our Editor, Alan Sircom reviewed the Vinyl Cleaner PRO in *Hi-Fi+* issue #172 where he wrote, "Since its initial release, Audiodesk Systeme has beefed up the drive mechanism, improved the pump, and switched to quieter fans, which makes the cleaner a little quieter and a lot more robust."

He went on to say, "The wiper blades have a coating on them that, allegedly, extends their life. The blades are suggested

to have a lifespan of around 500 LPs before they need replacing. However, the manufacturer of the record cleaner thinks you can clean nearer 700 LPs before a wiper blade change is required."

He concluded by saying, "By taking the drudgery out of the record cleaning process, all you get is joy." +

We have collaborated with our friends from The Audio Consultants to bring you an exciting competition for a chance to win an Audiodesk

Competition Question

Approximately how many LPs can the Vinyl Cleaner PRO clean before the blades need replacing?

- A. Between 100–300
- B. Between 300–500
- C. Between 500–700

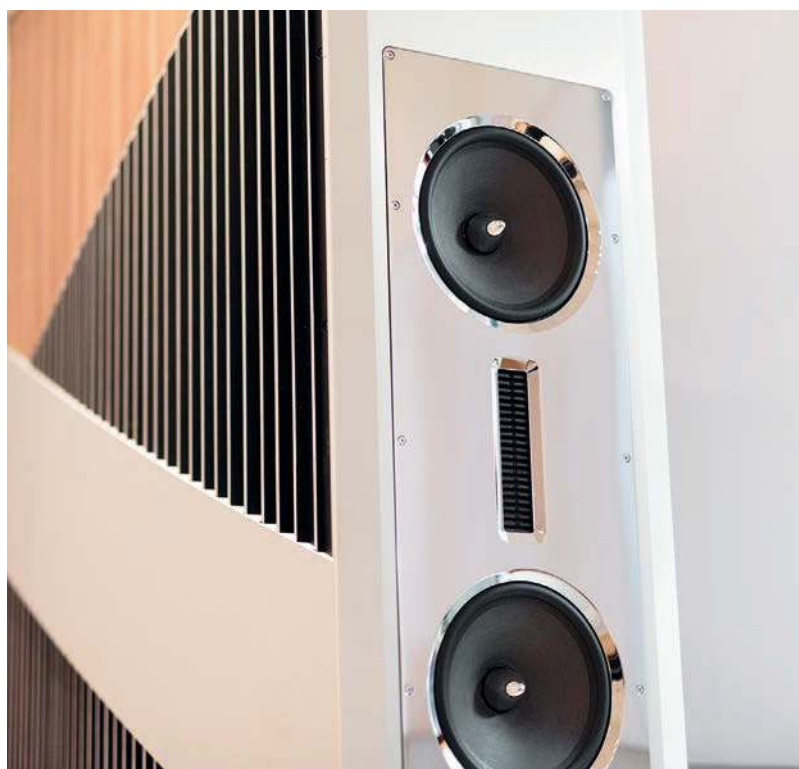
To answer, please visit the Audio Consultants' dedicated competition page at www.audioconsultants.co.uk/competition Alternatively, send your answer on a postcard (including your name, address, and contact details) to Audiodesk Systeme Competition, C/o The Audio Consultants, 4 Zephyr House, Reading, Berkshire, RG7 8JN, United Kingdom

Competition Rules

The competition will run from July 4th 2019 until September 5th 2019. The competition is open to everyone, but multiple, automated or bulk entries will be disqualified. The winner will be chosen at random from all valid entries, will be contacted via email (where possible) and their name will be published in the magazine. The Editor's decision is final and no correspondence will be entered into. Absolute Multimedia (UK) Ltd. is compliant with the Data Protection Act and UK laws apply. Our policy is such that we will not pass on your details to any third party without your prior consent.

King of the Castle

by Alan Sircom



Sometimes in listening to really good audio, there's a sense of 'always the bridesmaid, never the bride!' Manufacturers, show-goers, and reviewers alike often hear a system that might be very good, but seldom do we hear them at their very best in the kind of context in which they are supposed to be heard. Manufacturers often have below-par listening rooms (although there are notable exceptions), reviewers trying to eek out a champagne lifestyle on a beer budget are often constrained by system or room, and show-goers are listening in a very atypical environment. Even if all those boxes are ticked and you get a good room and a good set of partnering equipment, the system barely has time to run in before it's stripped down and shipped elsewhere.

So, when Burmester suggested we get a chance to listen to a complete system using products from the company's Reference and Signature Lines, that was not only in the right context but had some installation time on the clock, it was hard to resist. This is kind of an ideal situation for the Berlin-based brand; the owner of this castle (we'd probably call it a 'stately home' in the UK, as it lacks the crenellated battlements, the moat, and the torture chamber we'd normally think of when it comes to 'castles' – this is more *The Sound of Music* than *Camelot*) is an extremely wealthy German industrialist and entrepreneur, who is more than a little bit of a music lover. He's got high-performance audio in all his castles (haven't we all?) and the one nearest to Berlin (it's his 'hobby castle' or possibly 'stunt castle') has two fine rooms given over to musical enjoyment. Downstairs is a Steinway & Sons Spirio Model B medium grand piano with its built-in computer-controlled playing system, and upstairs is a complete Burmester system.

This Burmester system is made up from the current pinnacle of the company's range. It comprised a Reference Line 175 turntable, the Reference Line 111 Musiccenter (acting as streaming digital source and preamplifier in one), the ever popular 948 power conditioner (from the company's Top Line), and the new 159 mono power amplifier and a pair of BC350s from the brand's new Signature Line. It replaced some truly top-end American audio kit, too. ▶



► We've looked at many of these components before, but context is king. Or at least, fit for a king. The room, overlooking the rear aspect and the grounds of the castle, is on the first floor, larger than many people's first house, and beautifully finished. The furniture was of a local design (a kind of Berliner equivalent to Arts & Crafts) and is on the way out, but the overall feel of the property was one of understated elegance rather than ostentatious wealth. And that's one of the strange things about the Burmester system in context; normally, mirror-polished chrome fascias, amplifiers the size and weight of a small car engine, and a pair of loudspeakers each the size of a large free-standing refrigerator could be considered the very model of ostentation, but what's surprising is that in a room so large and well appointed, they look entirely right. The criticisms levelled at bright chrome finishes that last forever do not apply when you have the kind of room that can easily house a grand piano. Piano gloss is shiny too...

The more important aspect is that of installation, and especially an installation that has been in place for some time. This is something few people apart from those who actually own high-end equipment – and don't have to swap it out regularly – can really appreciate. I'm trying not to make this sound like high-end audio can only deliver its best performance when in the finest rooms for the longest times, but there is a sense of the organic to the

sound of a well made and properly installed system that isn't chopped and changed around that is greater than the sum of the parts. And the parts are pretty damn great in and of themselves. Maybe this is part of the secret of running in a component; it needs to become one with its surroundings, and that's what's happened here.

Many systems – even extremely expensive ones – make an audio presentation that accents the shiny and tinkly bits of a performance. This is different, it's more robust sounding. Yes it still does the delicate high-end upper frequencies that make so much difference to the way a system sounds, but this is way past 'hi-fi'. Again, this might not be something you might expect given the typical managed show demonstration, but it means the system had some moments of true beauty when playing a game of Tidal/ ►

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“It’s hard to say it without sounding pretentious but there was a sense of music ‘belonging’ and being ‘comfortable in its own skin’ here.”



► Qobuz-related musical ping-pong. At such times, there is a sure-fire way of checking how good or bad a system is at playing music; if you wake up the next day and find your note pad or smartphone is festooned with ‘must hear’ music, and others have done the same, you are on to a winner. If you find that music was well outside of your comfort zone, then you are on to a dead-cert winner. I like to think myself as having pretty catholic musical tastes, but I walked away from a protracted session listening to a system with a wealth of new names and recordings to explore. One or two – Lauridsen’s *Light Eternal* sung by the Chamber Choir of Europe [DG] for example - making it to my regular review playlist.

That word ‘organic’ kept coming back. Not to my note pad — this wasn’t the kind of event where one takes notes — but in reviewing what I had heard the next morning. It made other systems sound disjointed; perhaps in concentrating too much on soundstage or microdynamic shading, they lose something of the *gestalt* that the Burmester system so excels in delivering. And that was what the system did so well here. Yes it had an exceptionally wide frequency response, excellent dynamics, good stereo imaging with outstanding image solidity, precision, and vocal articulation, but there was so much more to this as well. It’s hard to say it without sounding pretentious but there was a sense of music ‘belonging’ and being ‘comfortable in its own skin’ here. These are very different terms from ‘dynamic shading’ or ‘soundstages wide of the boxes’, but they amount to the same thing – performance without parallel.

There is something more. It’s that this system expresses something of the good life that sometimes you just don’t get elsewhere in audio. When you buy high-end audio equipment, if it’s for entertainment purposes and

costs as much as a speedboat or a classic sports car, maybe it should give the user as much entertainment as a speedboat or a classic sports car? That’s what this Burmester system is extremely good at doing; making the process of listening an enjoyable experience. The company you keep, the sense of bonhomie you and your guests create, the food you eat and the wine you drink all impart a sense of musical entertainment that a system like this one just helps along a lot. That this Burmester system is effortless to use, sounds great, and fits unsurprisingly well into the surroundings only serves to show just how much is possible.

Burmester’s ultimate connection with the castle is a laid-back one. That doesn’t mean they can use the place as a demonstration facility as and when they choose, but it does give the company the kind of direct connection to the kind of environment in which truly top-end audio falls easily into place. And that’s often hard to find. +

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Lateral LAS-4 Integral equipment stand

by Alan Sircom

The name sounds a bit like a piece of military hardware, but the Lateral LAS-4 Integral is, in fact a high-performance and inherently upgradable equipment support.

Equipment supports seem to be evenly divided between those that are affordable and lightweight, but a bit rudimentary, those that are expensive and heavyweight, but also a bit rudimentary, and those that actually try to address some of the demands placed on an equipment support by the devices that rest upon it. Lateral is very much in the latter camp.

The Lateral LAS-4 Integral is a two-to-five tier equipment support system that uses a combination of oak-veneered machined birch ply/mystery lightweight wood platforms with machined solid oak legs. Each of these platforms is CNC milled not only for the basic shape of the platform, but to mill out the two crescent shaped spaces cut into the centre of the platform, which are designed to lower resonance and vibration (the ideas come from the aerospace industry, in particular how modern jet engines manage to be both more fuel efficient and quieter using similar anti-vibration techniques).

Assembly is almost straightforward, and shows the, er, lateral thinking involved in the platform design. Quite literally; faced with a set of long bolts and uprights, you might be forgiven for thinking they screw-in top and bottom to each leg. In fact they bolt the legs to the platform at a 90° angle. This is far smarter than just a design feature, as it means the interface between platform and upright is a classical tensioned bolt arrangement. If you want to know why that's important, go



“A combination of oak-veneered machined birch ply/mystery lightweight wood platforms with machined solid oak legs.” ►

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“Until you bolt top and bottom platforms together, the whole thing acts like bagpipes in the wild.”

- to a modern city and look up; those cranes rely on tensioned bolts to prevent them from disintegrating when lifting a heavy load. Here it means the mass of whatever sits on the stand is limited by the sheer strength of the bolt, and it's an excellent way of getting vibrational energy away from the equipment itself. The 'almost' part comes in because until you bolt top and bottom platforms together, the whole thing acts like bagpipes in the wild.

If you have more than three tiers, you connect the separate sections (think of a four tier stand as two sets of two-platform tall stands) with four dedicated leg cones that you set between sections, then ensure everything is as level as possible (that is vitally important) and tightened. The leg cones are not designed to be an interference fit. A good plan here is to 'offer up' top section to base and then insert the cones one at a time. We come from an industry that equates 'tightened' to 'near breaking point' – Lateral takes a more common-sense engineering approach to tightening bolts.

The whole stand rests on four spikes, and Lateral suggests leaving the stand to 'settle' before installing equipment: how much settling time is not given, but I'd give it enough time to enjoy a rewarding cup or two of tea.

Once installed though, the Lateral system makes a lot of musical sense. There's a stated goal of Lateral to help bring out the best from reasonably priced audio equipment, and the Lateral system achieves that goal almost perfectly. There's a lightness of touch to the sound; not insubstantial (in fact bass is clear, distinct, and deep), but deft and fleet-of-foot. The sense of rhythm is entirely unconstrained and the stand helps bring out the best of that aspect in any component it rests upon. One of my most recent tests in this is to try and decode the frankly crazy *Flamagra* album by Flying Lotus [Warp]. It's not the best mix on the planet, but there is a lot of stuff going on in that mix and any help in teasing apart the compressed sound is worth noting. Here, playing on a Primare I25, the sound was more separated, melodic, and easier to follow. It was more spacious too, although the platform doesn't fill in the blanks creating a soundstage where there is just a wall of sound. With better quality recordings (such as the ECM recordings of Schiff playing Beethoven Piano Sonatas), that lightness of touch coupled with a soundstaging boost made the system seem just that bit more 'real'.

There is also more substance to the sound, alongside the lightness of touch. Music rises from a darker sounding background, and the placement of instruments within the musical presentation seems more solid and precise, yet at the same time more detailed and airy. Even on the orchestrated retro-bleeping of Nils Frahm's 'All Melody' [Erased Tapes], you got the feeling of a more coherent overall performance rather than any kind of disassociation between the instrument voices. This is a subtle nudging of the system into a more musical and beat-driven direction, but the effect itself is not subtle!

TECHNICAL SPECIFICATIONS

Dimensions (WxD): 65 × 49.5cm

Height and weight dependent on specification

Two, three, four, and five tier versions available, four tier version tested

Height (as tested): 89cm

Maximum shelf load: 50kg (bottom tier), 30kg (upper tiers)

Finish: oak as standard, black oak

Prices: from £1,300 (price as tested, £1,800)

Concert Isolation platform upgrade for LAS-4 stand: £400

Manufactured by: Lateral Audio Stands

URL: lateralaudiostands.co.uk

There's an upgrade path too. You can add Concert isolation platforms to one or more standard Integral shelves. Along with the platform itself, the £400 Concert is supplied with three cup-ball-puck cone feet and one that is effectively a cup with a rounded tip threaded height-adjustment. This is icing on the cake, but it's one hell of a good icing! There is even an additional option that removes the original Integral shelf and replaces it with a centre-less shelf base with a black anodised front panel for an additional £200. If Concert is icing on the cake, this is the cherry on the top of that icing. Both options are worth taking as both give benefit, but it's Integral that does the heavy lifting.

Lateral's LAS-4 Integral stand is British engineering in the Lotus tradition, but in a good way. It's the 'simplify, and add lightness' kind of engineering, rather than 'at the roadside with a carrier bag full of sheared gearbox parts' version. In its Integral guise, it's a consistent performance boost without an electronics swap. Adding Concert improves on that improvement. What more can you ask of a support system? +

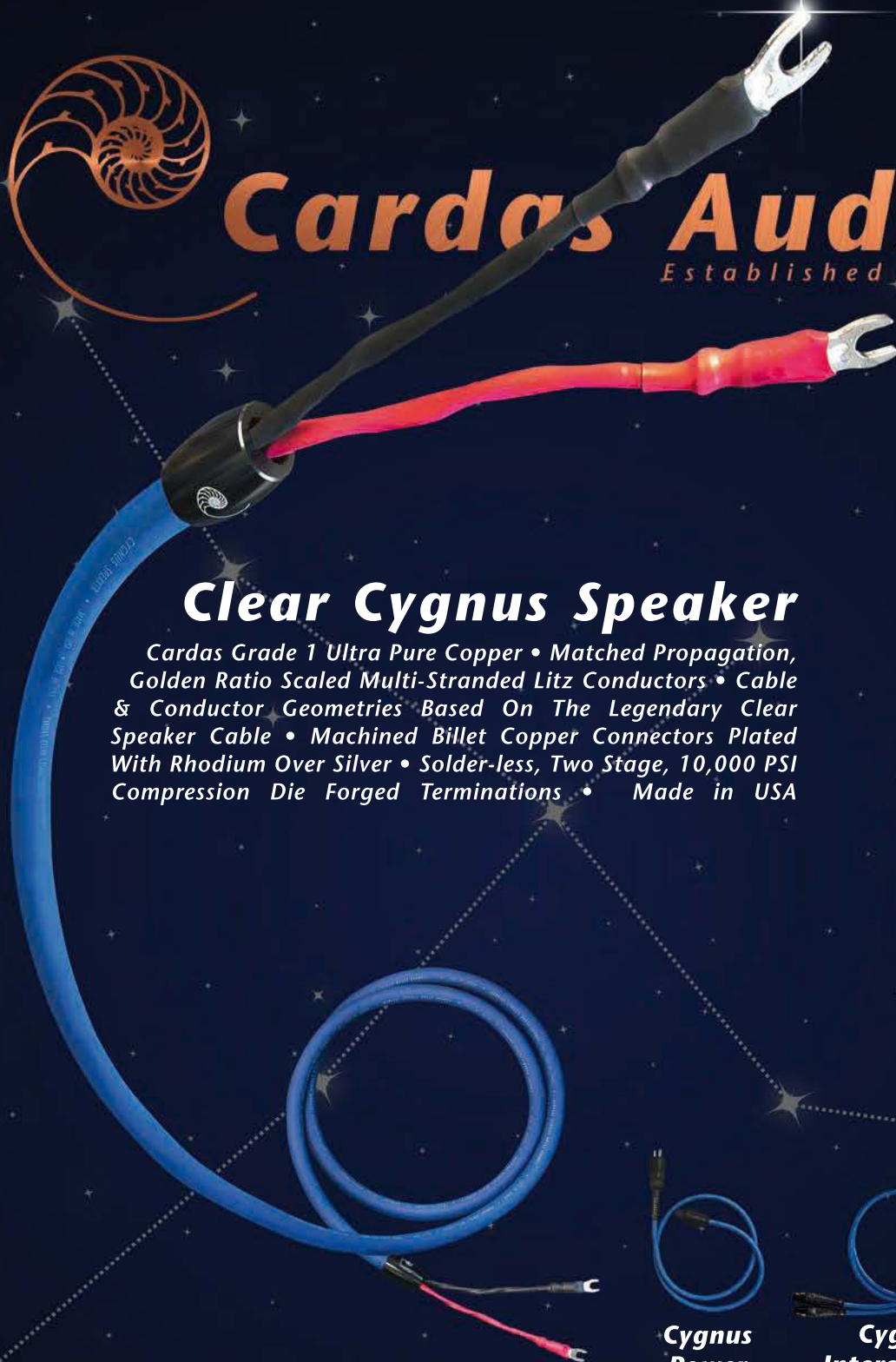


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Wire on Wire Experience880 interconnects

by Alan Sircom



We review a lot of cables in *Hi-Fi+*. Most of them differ from one another by virtue of materials science, type and number of conductors, connectors, or the way those conductors interact and intersect with one another. However, Wire on Wire Experience880 is different.

Wire on Wire's unique take on audio cables is wrapped up in what it calls REDpurl™, or 'Adaptive Asymmetric Geometry'. The materials involved are good – multi-stranded silver-plated copper conductors wrapped in blue or white PTFE dielectric with KLE copper Harmony connectors – but it's the way they are used that makes Wire on Wire so special. The fully exposed geometry looks a little like someone was trying to build an interconnect cable while under the influence of some pretty strong LSD; the asymmetry of the braid looks almost chaotic at first glance, but shows a complex geometry that is designed to allow key parameters of cable design to be altered 'on the fly'.

This adaptive geometry creates small but significant changes to the inductance (and thus the series capacitance) of the cable, and in an analogue environment where the cable is a major part of the interface between the

output impedance of one product and the input impedance of another, those small but significant changes can dial in improvements to important parameters of the overall sonic performance. These inductance changes are created by adding small spacers in the larger gaps ('tune loops') in the braid of the cable itself. The provided booklet includes a small list (I'd call them 'recipes') of specific spacer placements to change the system's presentation. These recipes are not meant as the only positions for spacers and experimentation is encouraged, although over-stretching the conductors (for example, by trying to shoe-horn spacers into the regular, tighter loops) is not recommended and not covered by warranty. ▶



► Perhaps the quickest, most immediate test for Wire on Wire (on a 1m Experience880 cable, at least) is to determine if there is a change in air and space at the top end and increases in mid-band detail in any given system. This requires the listener to count back loops from the source component until you reach 'tune loop' 14 and add just one spacer in that position. It is a very convincing demonstration. The system's performance is successfully opened up at the top-end with more 'space around the notes' at higher frequencies and more clarity in the mid-band. If your system benefits from that improvement, the sound just 'pops' into focus; if it doesn't, you also hear the difference, but the system begins to sound too 'wispy', 'tinkly', and 'ethereal'. In the former case, it's time to move the spacer within its 14th loop until that sonic focus becomes even more precise. In the latter, the change is also convincing enough to try out the other two recipes with yet more spacers.

There tend to be three main areas of performance that are addressed by Wire on Wire; mid-band clarity and top-end air, soundstage size and precision, and bass weight and warmth. Systems can often come up short in one of these aspects of overall performance, and the Wire on Wire cable allows you to zone in on addressing that shortfall without either tampering with the sound elsewhere, or having to work through a store's worth of expensive 'almost' cables in order to let your system find its mojo.

The degree of 'pop' seems to depend on the relative size of the impedance mis-match of the two devices, rather than price, but the change was audible in every system I tried. If anything, most lower-end products are more accommodating of one another's input or output quirks, so the differences are often more marked in top-end systems, but this is as much an indictment of high-end audio's ability to run roughshod over standard practices as and when it suits than it is of 'windows opening wider.'

How you think about Wire on Wire says perhaps more about your perceptions about audio than the performance of the cable itself. If you buy cables the way Tsar Nicholas II used to buy Fabergé eggs, then Wire on Wire lacks 'platinum-infused, gold-plated Vibranium' heft and bling. Similarly, if your audio obsession really is an obsession, the infinite adjustability of the cable might just play to the 'cornflake counter' in you; the potential for never-ending 'touch-ups' to the system might mean every day means yet another tweak.

Wire on Wire also has an added – but paradoxical – advantage for 'serial box swappers'. The cable is consistent enough to port from system to system, and its ability to dial out some of the more glaring mis-matches between components can be retuned for each new product in the system. However, those for whom the journey is more important than the destination might prefer the 'storage box full of cables' approach instead as it better satisfies their need to keep swapping the boxes.

Wire on Wire is a force for good in audio. It allows a degree of fine-tuning of performance between components that was hitherto unavailable, or at least was only available by churning through a wide range of very different cable designs at considerable time and expense. The results are extremely consistent, too; dial in the right performance between two components, and the system snaps or pops into focus as described above (sorry Crackle... it's back to the Rice Crispies box for you!). The term 'Experience' in audio usually amounts to little more than one of those names companies turn to – it's like 'Reference' or 'Performance' – but here it means something. If you 'Experience' what a tuneable cable can do in a system, there just might be no turning back. +

TECHNICAL SPECIFICATIONS

Conductors: Multi-stranded, silver-plated copper, 16-22 AWG

Dielectric: PTFE

Termination: KLE Copper Harmony RCA

RFI rejection: Modified twisted pair

Geometry: REDpurl™

Capacitance: 69pF/m (non-tuned)

Inductance 10KHz: 0.54uH/m

Shielding: N/A

Price: £650/1m pair

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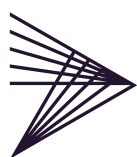
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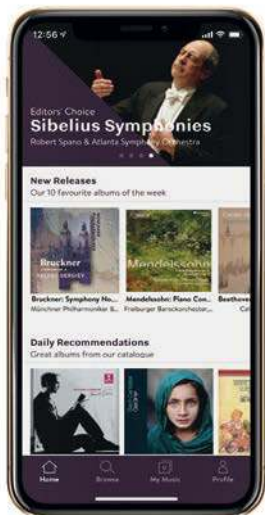
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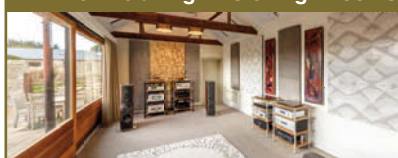
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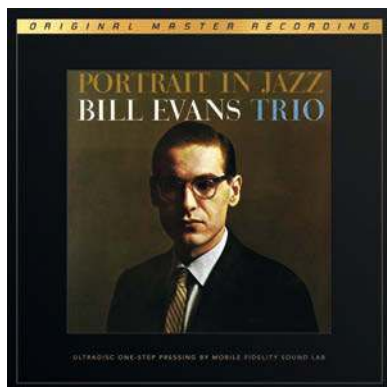
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► **Portrait In Jazz****Bill Evans**

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RECORDING**MUSIC**

LaFaro is wondrous. The sound of every prior issue, from the original through Analogue Productions' excellent 45-RPM remastering, suggests that recording engineer Jack Higgins had a bad day at the office when he recorded this session. The instruments sound out of tune and the soundstage is indistinct. This new issue is by far the best sounding version and finally gives this essential recording sound that doesn't get in the way of the music. There must be some magic in that one-step process!

No such limitation affects MoFi's reissue of Miles Davis' *Miles Smiles*. I've written at length about the other studio recordings of Davis' "second great quintet" and this last instalment in MoFi's release of these phenomenal recordings is the final jewel in the crown of this series. This 1967 release is arguably the best of the batch, and for the neophyte jazz fan venturing out from *Kind Of Blue* territory it is consummately accessible. Original pressings always sounded a bit recessed and indistinct. The Mosaic box set improved on the sound but this new version is a revelation—

perfect tonally and a realistic soundstage. It's a limited edition of 4,000 units, but has no "one-step" swagger, so it's still available. It will sell out, so wait at your peril.

Returning to Bill Evans, the second half of the 1960s saw him under contract with Verve Records, and in 1968 he released one of his best LPs for that label, a live set with Jack DeJohnette on drums and Eddie Gomez on bass. *At The Montreux Jazz Festival* is more playful and less introspective than much of Evans' output. Even the titles of other albums from that time—*Alone*, *Further Conversations with Myself* and *Quiet Now*—speak of an artist who kept things closely confined. Perhaps DeJohnette, whose performance here launched a huge career, pushed Evans' outside himself, and the result is it's one of Evans' stellar performances. The sound of my yellow label disc jockey copy is thin, a bit threadbare.

However, this new issue from Analogue Productions, mastered by Bernie Grundman, reveals a well-recorded live session with real bass, and plenty of texture and depth missing from the original. It's exciting to finally hear this music with sound to match the performance.

Of course, it's worth talking about those performances. The easiest way of talking about them is to pull out a few superlatives, go to a thesaurus and dial in a few synonyms of those superlatives, then lay it on really

thick. Then show those superlatives to someone who knows their jazz only to have that stream of gushing consciousness dismissed as 'playing these albums down.'

All three recordings here are from the best musicians of their era, making some of the best recordings they made. OK, granted these are not the first recordings you might get from these artists, but that's because they are Bill Evans and Miles Davis. If you have one jazz recording in your collection, it's probably Miles Davis' *Kind of Blue*. If you have 10 jazz albums in your collection, one of them will be *Waltz for Debby*. Except for possibly 'Montreux' you already know this, and there's a good chance you already own at least two and possibly all three of these albums. If you do, buy them again. It's that simple. I have these recordings multiple times, and I don't begrudge these three outstanding cuts taking their place in my shelves.

These three albums here are not 'second fiddle' recordings; they are similar greats in two canons of outstanding jazz from two of its masters. Having to pick one of the three this month was impossible. So I didn't... I picked all three. And so should you. OK, so the Bill Evans is sold out and will be expensive to buy on the second-hand market, but just go for it!

Three stellar performances in wonderful sound—Christmas arrived very early this year. **DD**

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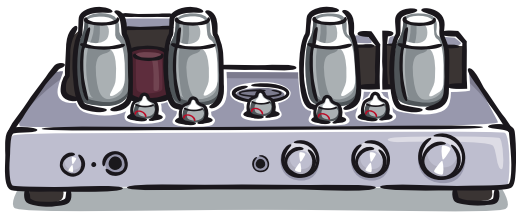
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Bartók

The Six String Quartets Quatuor Diotima

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I've been trying to get to grips with the Bartók quartets for the best part of 50 years, but alas have never found this music especially accessible or easy to listen to. The music itself is often dense, concentrated, and tautly argued... and often quite astringent sounding and free from 'tunes'. You really have to concentrate hard to follow what's going on.

Despite this, with each new recording of the Bartók quartets, I always hope it might be the version that finally provides a breakthrough. I should by rights have given up on these works a long time ago. But, I persevere because so many Bartók enthusiasts say how rewarding the music is.

Way back in the late '80s, the version on DG by the Emerson quartet really impressed me. But, in retrospect, it was more the sheer brio and virtuosity of the performances that amazed – like watching four daring acrobats go through a difficult challenging set of moves... I was thrilled and entertained, but still didn't 'get' the music.

The Quatuor Diotima are a young French quartet who specialise in modern music. Their playing is clean, precise, and technically-assured. The huge difficulties of the Bartók quartets seem to hold no terrors for them, and they deliver the notes with absolute security and conviction. But

more than that, they seem able to project the *narrative* of each work with great clarity.

And what might that narrative be? I'm not sure I can say. In this respect, I'm reminded of the famous conductor Reginald Goodall who said he had absolutely no idea what Wagner's opera *Parsifal* was meant to be 'about'. However, when he conducted it, everything made perfect sense.

I had the same sort of feeling listening to these Bartók performances by the Quatuor Diotima. They act as a reliable guide, convincing you they know the way as they lead you through Bartók's myriad twists and turns with unerring certainty. As a result, the 'story' unfolds and makes sense.

In this respect, they're greatly helped by an exceptionally good recording which balances the middle and lower registers so they can clearly be heard. The sound itself is open and clear, with good attack and biting sharpness. But (for once in recordings of these works) the upper frequencies don't dominate, allowing you to hear all four instruments with ease.

To this listener, being able to clearly hear the inner/lower parts makes the music more interesting. After playing the Diotima cycle, I tried some of my other Bartók quartet sets on CD – the celebrated Emerson recording, the Hungarian and Hagen cycles (all DG), the Takacs on Decca, the Alban Berg quartet on EMI – and so on.

All (to varying degrees) sounded much more 'toppy' than the Diotima/Naive. The Berg quartet recordings (1987, so 'early digital') were easily the

worst, with a bright tonal balance that makes the viola and 'cello parts difficult to hear. Even the more recent (2000) Hagen set on DG suffers a bit from the same issue – despite the refinement and sophistication of the playing.

Unusually, the Naive set is spread over three CDs. Virtually all other cycles can fit all six works onto two CDs. Because the Diotima's tempi are more measured than usual, the music has more space and time to unfold, and perhaps as a result is easier to assimilate. While there is no lack of impact and bite, the Diotima performances strike the ear as thoughtful and less-aggressive.

And while the exciting assertive athletic qualities of the Emersons are less evident, it hardly matters. Speaking personally, I find the Diotima quartet better-convey the inner meaning of the music by not treating it as a high-wire act. At the same time, there's nothing soft or diffuse about their playing; it's diamond-bright and tactile when it has to be.

So while we hardly need yet another new recording of the Bartók quartets, this new set from Naive is excellent and rather special. If you're already in thrall to this music, these polished thoughtful accounts will offer engagement and fresh insights. But if (like me) you've previously struggled with these works, let the Quatuor Diotima lead you through the maze like Ariadne's thread. **JMH**

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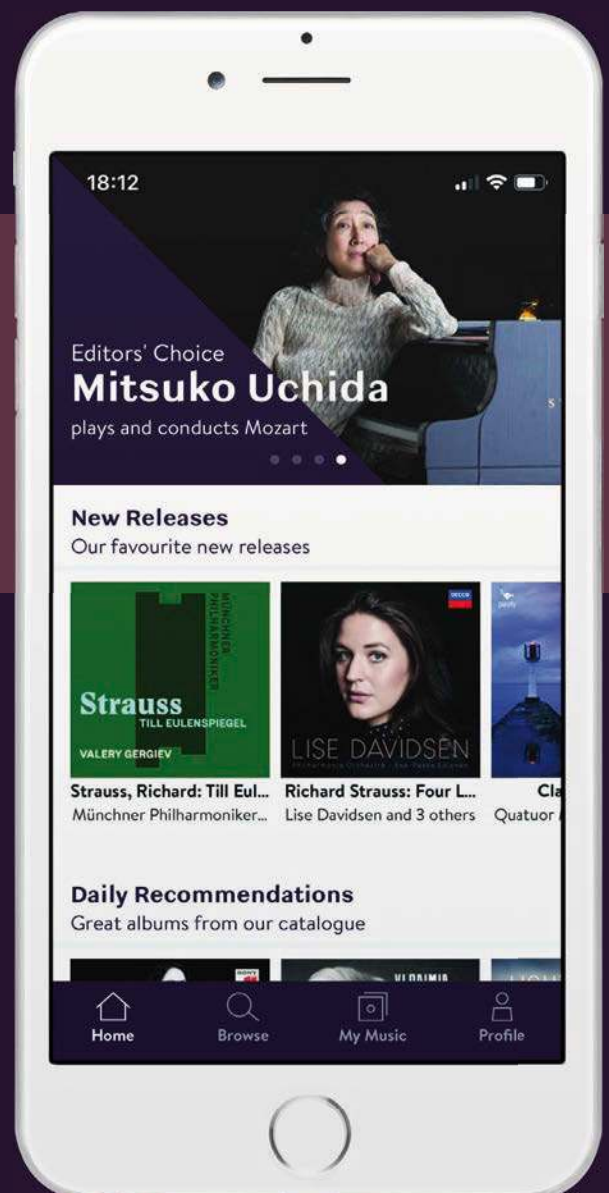
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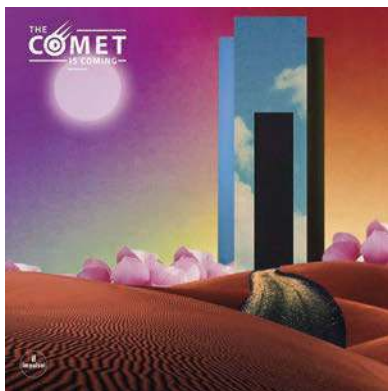
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Impulse!

This band chose its name on the basis that they plan to smash conventional music into the cosmos, and they certainly come on pretty strong once the trebuchet has been wound up. The story goes that keyboard player Dan 'Danalogue' Leavers and drummer Max 'Betamax' Hallett were playing psych electro synths and live drums at Soccer96 when Shabaka Hutchings "appeared at the side of the stage with his sax in hand. When he got up on stage to play with us it created an explosive shockwave of energy that stunned us all. A couple of weeks later 'King Shabaka' rang me up and said 'hey let's make a record'."

Shabaka Hutchings is himself something of a cosmic ball of extraterrestrial energy; he seems to have played everywhere with everyone over the last few years and kick started the British jazz revival in the process. Hutchings has released music with Shabaka and the Ancestors, Sons of Kemet and the We Out Here collective project that I wrote about last year, and that's just the stuff that got released.

This is the second album from The Comet Is Coming; the first was 2016's *Channel The Spirits*, which was nominated for a Mercury award and established the band's distinctive take on sci-fi influenced cosmic jazz. They are clearly indebted to the great

Sun Ra and the more soulful Alice Coltrane, yet much of their music is quite distinct from that of those artists. What it shares with them is a love of groove and the eschewing of solo playing so beloved of jazz ensembles of the past, Hutchings rarely steps out of the rhythm line but rather stays with the muscular, wide bandwidth keyboards and power house drumming of his band-mates. A lot of *Trust in the Lifeforce of the Deep Mystery* is heavy, intense stuff. Its origins in the Total Refreshment Studios mean that it was recorded on quarter-inch tape, so the sound is not as hard edged as would be the case with all but the best digital recording. And while the sound is necessarily compressed, just to fit the sheer extent of the cosmic jamming into two channels, it does not have that loudness character that can make heavy music hard going on a revealing system. Audiophile it is not, however.

The group has similarities to the Mahavishnu Orchestra; the Comet lean on the synths a lot more, but the desire to build up a propulsive full immersion dirge comes from the same place. This is dark introspective stuff that also happens to fill the room with sound. It starts with 'Because The End Is Really The Beginning', a name that suggests the album should perhaps be left on a loop; this has similarities to Jeff Beck and Jan Hammer's 'Highway Jam' from the former's *Live* album. There are no car horns but the sense of a slowly growing intensity that's pregnant with possibility is similar. Here the sax

develops a tune that's echoed by one of the synth lines alongside rolling drums. It's as if these musicians are travelling on the same comet that passed this way back in the mid seventies; not Hale Bopp but 'hail jazz rock'.

Things get heavier on 'Birth of Creation' as you might expect, with the gorgeous tone of a bass clarinet embellished by deep reverb and backed up with big-beat synth that will sound 'phat' through almost any system. The vibe develops into a monster bass synth riff with ululating tenor. The intensity is maintained on 'Summon the Fire' where the sax gets more bullish, yet remains in line with the pounding drums; at around this point the synths create the sense of a phase inversion for dramatic effect, which is truly cosmic. 'Blood of the Past' is more downbeat, still heavy to the point of comparison with the Chemical Brothers, but brought down somewhat by Kate Tempest's urban nihilist poetry (hers is not a happy view of the world, poor thing).

The following four tracks maintain the groove-driven power trio sound but slowly open up in tone until you get to 'The Universe Wakes Up', the album's finale and most soulful and transcendent track. It suggests that once we are past the turmoil of impact that all will be beauty and light, so clearly a tacit vote for a no deal Brexit, or perhaps not. **JK**

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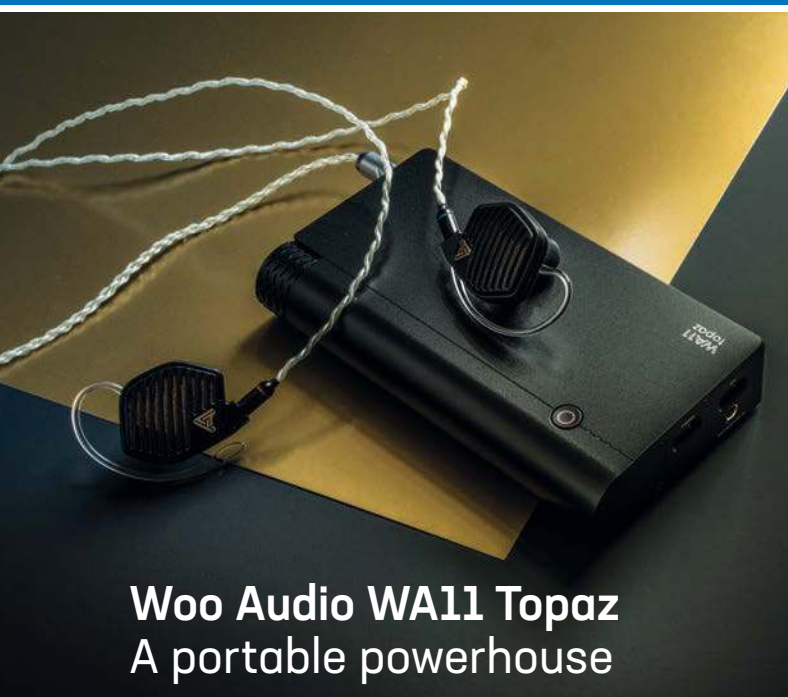


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Incoming!

Green ears

I am concerned about waste, and I don't like the idea of a good pair of headphones becoming bad landfill when they break. I know some headphones and custom monitors use removable cables, so breakage doesn't end the life of the headphone, but are there any provisions made for keeping headphones and earphones going for longer? This isn't penny-pinching; I am only concerned about extending the life-span of a pair of headphones for longer so that I don't keep pouring plastic and rare earths into holes in the ground!

Ted Bellingham, via email

You raise a good point and one that is increasingly important as we all learn to take better care of our planet.

For earphones, user replaceable signal cables are an excellent way to extend product life. But, another important factor is the availability of replacement ear tips. Sadly, some earphone owners have told me they managed to lose an ear tip from their earphones and therefore wrongly assumed it was time to discard the entire earphone! Replacement ear tips are almost always available both from the original earphone manufacturer and from reputable third-party firms such as Comply, Dekoni, Final, and Spin-Fit. I keep multiple spare sets of ear tips on hand and in this way have been able to keep my favourite earphones alive and well for years on end.

For headphones, it is helpful to ask your dealer whether spare parts are available for the models you are considering. Two firms that do a great job in this area (they are not the only two, but they make a good example) are Sennheiser and V-Moda. Both companies offer replacement parts for current models, and—in some instances—for discontinued models as well. Example: I own a set of oldie-but-goodie Sennheiser HD580 headphones whose ear pads, headband pad, and signal cables had completely worn out. Even so, years after the model had been discontinued Sennheiser provided replacement parts that enabled me to update my classic HD580s, making them good as new again.

Chris Martens, Editor, Ultimate Headphone Guide

Bigger stereo, please!

I have grown tired of headphones and have returned to listening to conventional two-channel stereo. The reason for this is the way headphones handle stereo sound. I can't abide that sense of music being inside my head instead of out in the room. I have asked a few people in the headphone world, but my question tends to get ignored. How can I get good stereo from headphones? I have to use closed-back Sony headphones in my

listening, because the leakage disturbs my wife, but if there was a way of finding stereo that approached my Quad ELS-63 electrostatics, I might reconsider.

Michael Sixsmith, via email

You have hit upon one of the key areas that many consider the 'Achilles Heel' of headphone performance: namely, 'outside-the-head' stereo imaging.

Several electronics manufacturers—for example, Chord Electronics, iFi Audio, and SPL—offer headphone amplifiers with circuits designed to improve three-dimensional stereo imaging. Some of these are various forms of so-called 'crossfade' circuits (as in the Chord Electronics and SPL offerings), while others take a different approach (e.g., iFi Audio's '3D Holographic' system). Either way, the objective is to make the sound presentation of headphones/earphones more loudspeaker-like.

Playback software also offers some possibilities. Software offerings such as Darin Fong Audio's 'Out of Your Head' package and Ryan Redetzke's 'Redscape Audio Software' system make a concerted effort to produce convincing 3D, outside-the-head stereo imaging from headphones/earphones with notable degrees of success. Interestingly, the control screen for the Redscape system looks almost like the setup menu for a high-quality surround sound system—giving the listener a very high degree of control over the sonic presentation as a whole.

Finally, headphone designers have also tackled the imaging problem directly. Two good examples would be the distinctive driver mounting technologies used in upper-end Focal headphone models as well as the

- S-Logic technology as used in many models from the German firm Ultrasonic. In both cases, the concept is to use angled and slightly offset driver positioning to increase perceived 3D imaging. As a general rule, too, the more nuanced, detailed, and 'fast' headphones and earphones are, the better they render spatial or imaging queues in recordings.

Can these systems make headphones image in the way that loudspeakers do? Some report that they find solutions such as those outlined above to be utterly convincing and highly satisfying. Others, however, find these solutions to be 'steps in the right direction', but ones that ultimately do not satisfy in the way that loudspeakers do. Your 'mileage', as they say, may vary.

**Chris Martens, Editor,
Ultimate Headphone Guide**

Music on the move

I am a keen runner and an equally keen music lover. I wish to combine both. I spend a lot of time on roadwork and want a pair of Bluetooth earphones that give good sound quality and don't fall apart after a lot of running. I would prefer earphones to headphones as they are better on the road for me (I feel they are more likely to fall off and find them more intimidating when on the road relative to traffic). I don't need noise cancellation (as I like to hear the road), but I want to listen to good sounds while pounding the streets.

Jill August, via email

As Bluetooth earphones have evolved, there has been a gradual movement from models that feature left/right earpieces along with some sort of connecting cable and Bluetooth dongle, to models that contain all necessary audio and Bluetooth circuitry in the earpieces themselves—meaning there are no cables at all (not even very short ones). To distinguish dongle-equipped models from cable-free/earpiece-only models, many manufacturers have adopted

product names that include the term "true wireless" or a near equivalent.

Three very good Bluetooth earphones that I would mention are the Sennheiser Momentum True Wireless earphones, the RHA TrueConnect true wireless earphones, and the soon-to-be-released HiFiMAN TWS600 true wireless earphones. One further option, which I have not yet heard, but that seems almost purpose-built for your application, is the Bose SoundSport Free true wireless earphone; this model comes with distinctive Bose StayHear+ Sport ear tips specifically designed to help hold the earpieces in place during workouts.

As to the question of helping true wireless earphones stay in place during your runs, I would point you toward the firm Snugs, which offers personalised, slip-on, custom-fit soft-gel silicone ear tips that can be fitted to a wide range of true wireless earphones.

Chris Martens, Editor, Ultimate Headphone Guide

Brace yourself!

I have long thought that one of the big things that loudspeakers do well that headphones don't is 'rigidity'! This is perhaps understandable as big loudspeakers have heavyweight cabinets made of rigid and heavy materials like Corian, but could the rigidity of headphone systems be improved by something like bracing? Companies like Bowers & Wilkins use internal 'Matrix' bracing in their loudspeakers; would it be practical or too heavy to implement in headphones.

Jim Eaton, via email

I think you are right that proper bracing of headphone and earphone driver mounts can have a positive impact on sound quality. In fact, I would cite a handful of practical, real-world examples.

The famous Abyss AB-1266 TC 'Total Consciousness' edition planar magnetic headphone goes to extraordinary lengths to provide rigid, metal driver mounting frames and ear cups, plus a highly vibration-resistant headband/ear cup mounting frame. Designer Joe Skubinski has stated he thinks that in headphones—as in top-tier loudspeaker—a rigid and largely vibration resistant enclosure/frame is one of the keys to achieving optimal levels of sonic resolution and nuance.

Top-tier earphones from manufacturers such as Sony and Campfire Audio also place a premium upon enclosure rigidity. Sony's IER-Z1R earphones (reviewed in this issue) use a zirconium alloy outer enclosure with a precisely shaped magnesium inner driver enclosure into which the earphone's primary mid-bass driver is loaded. Similarly, Campfire Audio's flagship Solaris earphone (review upcoming) uses CNC machined metal outer enclosures with stainless steel sound outlet spouts. On the inside, the Solaris features a precision-shaped TAEC (tuned acoustic expansion chamber) enclosure for its balanced armature-type tweeter, a separate rear-ported enclosure for its balanced armature-type midrange driver, and a third 'Polarity Tuned Chamber' for its 10mm dynamic bass driver. Today's best earphone designers clearly appreciate the need for enclosure rigidity.

Chris Martens, Editor, Ultimate Headphone Guide

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Sony IER-Z1R Signature Series universal-fit earphone

by Chris Martens



At the Rocky Mountain Audio Fest 2018 Sony announced two Signature Series personal audio products: the DMP-Z1 digital music player/headphone amp/DAC and the IER-Z1R universal-fit earphone reviewed here. New Sony Signature Series models don't come along all that often, so when they do we naturally stand up and take notice.

The IER-Z1R represents a serious effort to create a state of the art earphone. As Sony acoustic engineer Eiji Kuwahara puts it, "You expect just an in-ear headphone, but you're in for a surprise... Music sounds live. It spreads out in front of you, it's real." The IER-Z1R is based on what Sony terms an 'HD Hybrid Driver System' consisting of a 12mm dynamic mid-bass driver with a magnesium diaphragm, an all-new Sony balanced armature tweeter, and a 5mm dynamic super-tweeter.

The 12mm driver loads into a magnesium housing with an extended acoustic cavity to its rear, which is fitted with an acoustic tube that acts as a tuning device. The 5mm super-

tweeter is positioned coaxially to the earphone's sound outlet nozzle and offers, says Sony, "frequency response up to 100kHz." Design goals included absolute consistency of voicing and phase coherency between the drive units, with the intent of having them sound, "as though they were a single, ideal driver."

These gorgeous earphones feature mirror-polished outer housings made of a zirconium alloy, with rear covers featuring delicate, engine-turned surfaces. Thoughtful accessories include a wide array of ear tips, plus two high-quality signal cables (one single ended, the other balanced).

For my tests I drove the IER-Z1R's from an Astell&Kern A&Ultima SP1000M DAP (using single-ended cables) and a Woo Audio WA11 Topaz balanced headphone amp/DAC (using balanced cables). Reference earphones included the Campfire Audio Solaris and AKG N5005.

Straight from the box the IER-Z1R's sounded extremely crisp, precise, and sharply detailed—almost to a fault. However, as playing time accumulated (20+ hours) the sound smoothed noticeably, becoming richer, warmer, more relaxed,

"Stated simply, the Sony IER-Z1R offers the best bass I have yet heard from any earphone."

and more natural. While hardcore detail fanatics might actually prefer the IER-Z1R's pre-run-in sound, I think music lovers who appreciate a naturally accurate and unforced presentation will love how the IER-Z1R evolves over time. Once the IER-Z1R has been run-in its sound offers three defining characteristics.

The first characteristic is powerful, articulate, and deeply extended bass—a quality that becomes apparent on everything from pipe organs, tom toms, kick drums, concert bass drums, bass synths, and electric and acoustic basses. For example, the IER-Z1R lets you feel and hear the textures and plunging low-frequency energy of the descending bass guitar glissandos on Billy Idol's 'Prodigal Son' [*Prodigal Son*, Chrysalis, 16/44.1]. Stated simply, the Sony IER-Z1R offers the best bass I have yet heard from any earphone.

The second characteristic is an accomplished midrange that is smooth, yet also richly detailed, and full of subtlety and nuance. Unlike some earphones that shine a bright, penetrating spotlight on musical details, the IER-Z1R instead lets details unfold in a gracious, organic, and natural way, which I found more satisfying in the long run. As a result, the IER-Z1R invites the listener to drink in complex midrange sounds—such as Yuri Honing's intensely evocative saxophone solo as heard on 'Walking on the Moon' from The Yuri Honing Trio's *Star Tracks* [Jazz in Motion, 16/44.1]. There, the IER-Z1R's nuanced presentation made Honing's saxophone sound dynamically alive—and very nearly real.

The third characteristic is masterful rendition of reverberant information and spatial cues in recordings, which enables the IER-Z1R to produce huge, 'outside-the-head' soundstages. This quality proved stunning on Elvis Presley's 'Fever' from *Elvis Is Back* [Sony Legacy, 16/44.1]. Specifically, the earphones neatly exposed the amounts and types of reverb applied to Elvis' vocals throughout the song, while showing how widely spaced percussion instruments define the boundaries of the soundstage through sounds that reverberate and linger on the air.

In sum, Sony's IER-Z1R is a true, world-class earphone that sounds even more beautiful than it looks. Is it the best of the best? It is certainly in the running for top honours, though only you can decide if it qualifies as your 'personal best.' +

Summary

Voicing: Near neutral voicing with powerful, authoritative bass and revealing yet silky smooth mids and highs.



(All ratings relative to comparably priced universal-fit earphones.)

Resolution/Focus:



Sound staging/Imaging:



Dynamics/Expression:



Value:



Pros

- Revealing yet delightfully natural sound.
- Subtlety and nuance aplenty.
- Superb build quality.
- Genuinely useful accessories.

Cons

- Self proclaimed 'detail mavens' might wish for a more sharply defined sound.
- Very expensive (though worth the money for those who can afford it).

TECHNICAL SPECIFICATIONS

IER-Z1R universal-fit earphone

Type: Hybrid Drive universal-fit earphone

Driver complement: One 12mm dynamic mid-bass driver with magnesium diaphragm, one newly developed Sony balanced-armature tweeter, and one 5mm dynamic super-tweeter.

Frequency Response: 3 Hz to 100kHz

Impedance: 40 Ohms

Sensitivity: 103dB/mW

Weight: 26 g, not including cable

Accessories: Garment clip, carrying case, cleaning cloth, two 1.2 m detachable signal cables (one balanced, one single-ended) with silver-coated OFC conductors, seven pairs of hybrid ear tips (sizes SS, S, MS, M, ML, L, and LL), and six pairs of triple comfort ear tips (sizes SS, S, MS, ML, and L)

Price: \$1,999 US, £2,000

MANUFACTURER INFORMATION

Sony Electronics Inc.,

16530 Via Esprillo

San Diego, CA 92127

Phone: (858) 942-2400

URL: sony.com/electronics/in-ear-headphones/ier-z1rv

Stax SR-009S electrostatic earspeakers

by Chris Martens



For many years Stax's iconic SR-009 electrostatic headphone stood as an industry performance benchmark. The reasons for this included, among other factors, the SR-009's accurate and absolutely neutral voicing, exceptional resolution, and extremely fast transient speeds. Even so, the past few years have seen the arrival of serious competition from manufacturers of competing electrostatic and planar magnetic designs. In light of these challenges, Stax has launched a new flagship headphone called the SR-009S (\$4,325/£3,895), which aims to re-affirm Stax's position as the headphone industry's performance leader.

At first glance, the SR-009S doesn't look much different to the original SR-009, but on the inside there are several noteworthy changes. Stax says the SR-009S "adopts a diaphragm made of ultra-thin super engineering plastic film" said to give the headphone a "high transient characteristic through the entire audio spectrum." Further changes involve the headphone's electrodes (or stators), where Stax notes that the MLER (multilayer fixed electrode) used in the SR-009 has now "evolved to MLER2." The MLER2 electrodes use a new finish and etching process said to smooth the electrode

openings, thus reducing air resistance and increasing 'sound permeability.' Further, the electrodes are now high-density gold-plated—a change that minimises electrode resonance and reduces electrode impedance. Finally, says Stax, the "main body was redesigned to further reduce resonance as to provide a consistent sound." Taken individually, these changes might seem small, but collectively they yield important sonic improvements.

For my listening tests I fed the SR-009S from a jRiver Media Center-based music server, an iFi Audio Pro iDSD DAC, and Stax's SRM-T8000 electrostatic headphone amplifier. Electrostatic headphones on hand for comparison included the MrSpeakers VOCE and HiFiMAN Jade II. Here is what my tests revealed.

First, the SR-009S offer extraordinary resolution and detail, which comes as no surprise given this was also an area of strength for the SR-009. The difference, however, is that the SR-009S not only offers greater resolution and focus than the SR-009, but also allows those qualities of resolution and focus to extend all the way down through the upper, mid, and lower bass regions—a notable change.

This point was driven home to me on 'Duet for Cello and Bass' from Yo-Yo Ma, Edgar Meyer, and Mark O'Connor's *Appalachian Journey* [Sony Classical, DSD64], where Ma and Meyer employ the uppermost ranges of their respective instruments, but—especially in the case of Meyer's bass, also explore their lower limits. Impressively, the SR-009S captured the powerful low-frequency growl and wooden body sounds of Meyer's bass with the same purity and finesse as applied to Ma's cello. Better still, the SR-009S consistently presented the instrument fundamentals and harmonics in a manner that sounded whole, coherent, and well integrated.

Next, the SR-009S proved to have greater transient agility and increased levels of dynamic expression relative to the SR-009. A track that showcases these qualities is 'Stank' from Jamey Haddad, Mark Sherman, and Lenny White's

"The SR-009S tackled the track with an exuberant quality of dynamic swagger and punch the SR-009 could not have matched."



Explorations in Space and Time [Chesky, 24/96]. 'Stank' is a percussion extravaganza—at times delicate, but at other moments explosive, employing everything from high-pitched chimes and cymbals to low-pitched bass drums. The SR-009S navigated the track's complex instrumentation and multi-layered dynamic challenges with effortless clarity and a sense of dynamic brio—as if relishing the chance to strut its stuff.

Finally, the SR-009S offers superior bass performance to the SR-009, both in terms of resolution and dynamic wallop. The 'Lopsy Lu/Silly Putty' medley from S.M.V.'s *Thunder* [Heads Up, 16/44.1] made this abundantly clear, as master bassists Stanley Clarke, Marcus Miller, and Victor Wooten took turns showing off their chops and the distinctive voices of their basses. *Thunder* is a serious low-frequency challenge, but the SR-009S tackled the track with an exuberant quality of dynamic swagger and punch the SR-009 could not have matched.

Has Stax's SR-009S reclaimed the title of performance 'king of the hill'? I think that it has, although the MrSpeakers VOCE comes very close and at a lower price. The SR-009S is a masterful achievement that expands upon the SR-009's strengths, offering heightened detail and focus, more nuanced and expansive dynamics, and superior bass. +

Summary

Voicing: Accurate, uncoloured, and spot-on neutral



(All ratings relative to comparably priced CIEMs.)

Resolution/Focus:



Freedom of noise:



Dynamics/Expression:



Features and versatility:



Sound staging/Imaging:



Value:



Pros

- Resolution, focus, and sonic purity that just won't quit.
- Enhanced levels of dynamic expression and punch.
- Greatly improved bass performance in terms of pitch definition, transient acuity, and dynamic clout.
- Exceptionally revealing.

Cons

- Needs top-shelf electronics to sound its best.
- Requires a dedicated electrostatic amplifier (or 'Energiser' in Stax speak).
- Not very forgiving of mediocre recordings.

TECHNICAL SPECIFICATIONS

Type: Push-pull, open-back, circular electrostatic headphone

Driver complement: Single, full-range push-pull electrostatic driver

Frequency response: 5Hz–42kHz

Impedance: 145 Ohms (including cable) @ 10kHz

Sensitivity: 101dB/100V RMS @ 1kHz

Maximum SPL: 118dB @ 400Hz

Bias Voltage: 580V

Signal Cables: Silver-plated 6N OFC parallel 6-strand low-capacity special wide cable, 2.5m length

Weight: 1lb. without cable

Price: \$4,325 US, £3,895

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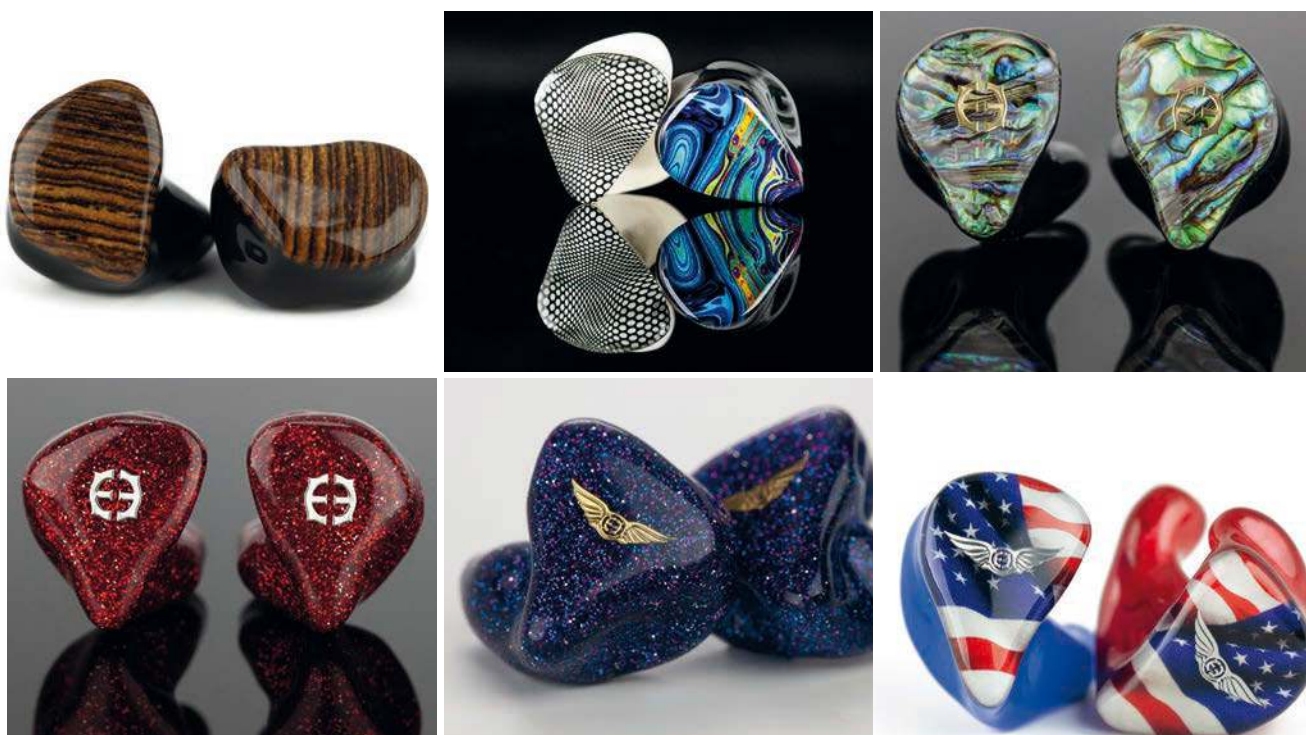
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EQUIPMENT REVIEW

Empire Ears Phantom custom-fit in-ear monitors

by Steven Stone



At a certain point in nearly every headphone enthusiast's lifetime they begin to contemplate purchasing a pair of custom-fit in-ear monitors (CIEMs) rather than universal-fit earphones. The primary reason for making the switch is fit. Compared to even the best universal-fit earphones, CIEMs will feel more comfortable, will always achieve an occluded seal, and will eliminate the need for eartips. There is a reason that CIEMs are the top-of-the-line offerings for most manufacturers.

Several years ago, I reviewed Empire Ears then pre-eminent CIEM, the Zeus, and found it to be Olympian in performance. It has been discontinued. Empire's latest top-tier CIEM is the Phantom from the firm's EP series range, whose models all feature Empire Ear's new synX crossover. Although Empire doesn't go into much in the way of technical specifics,

they claim synX is "a supercharged crossover technology that designates more individual audio bands per driver than any other crossover design currently in existence." They also claim this new crossover can "eliminate any signs of phase incoherence between the drivers." We shall see.

The Phantom CIEMs contain five balanced armature drivers (two low, one mid, one high, and one super high) and a five-way crossover to control them. Knowles and Sonion make these drivers for Empire, with each driver built for a specific target response. The drivers are constructed with specialised reeds and low-mass diaphragms so they remain efficient enough to be powered even by a regular smartphone. The Phantom's drivers also employ ferrofluid to dampen acoustic peaks, reduce internal vibrations, and improve longevity by cushioning the components from shock when the in-ears are dropped. Empire coats every driver, crossover, and sound ►

"Looks matter. Empire offers a dizzying array of colours, inlays, and graphics options for the Phantom."

- tube surface with a proprietary anti-resonance compound (A.R.C.), which effectively increases each component's mass while also physically damping it at the same time.

Looks matter. Empire offers a dizzying array of colours, inlays, and graphics options for the Phantom. I chose a translucent blue faceplate for the left and translucent red faceplate for the right with silver Empire ears logos embedded in their centres. The bodies are translucent grey so I can see all the Phantom's inner workings. Empire had my impressions on file from three years ago so there was no need to make a new set. The new Phantoms fit perfectly, even better than the Zeus had. A major reason for the better fit is that the Phantom earpiece is smaller and does not protrude as deeply into the ear canal as the Zeus did, so it is less physically intrusive.

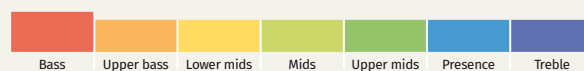
As you would expect with a premium product, the Phantoms come with lots of accessories, including two soft bags (one for the in-ears themselves and one for the heavy-duty waterproof 'Pelican' style watertight case), a cleaning cloth and cleaning tool, and the supplied Phantom cable. In fact, the signal cable is sourced from the specialists at Effect Audio; it is a hand-crafted Ares II cable, featuring UPOCC 26AWG Litz copper conductors with flexible insulation. The braid was strong yet flexible, and far more robust than the stiffer and thinner cabling that came with the Zeus.

The most noticeable sonic difference between the Zeus and the Phantom are the size and specificity of their soundstage presentations. The Zeus creates a larger but less specific and less focused soundstage than the Phantom. I suspect the Zeus' additional drivers combined with the Phantom's new crossover are the primary reasons for the Phantom's greater spatial precision. The Phantom's bass control and extension certainly was the equal of the Zeus as was its dynamic contrast and impact. I was especially impressed by the Phantom's ability to preserve not only the pitches but also the textures of low bass.

The Phantom delivered a combination of superb resolving ability with a relaxed presentation that never sounded hyped-up or overly hi-fi-like. These qualities made most listening sessions last longer than originally intended because it was so darned hard to stop... sort of like eating those potato crisps.

Summary

Voicing: Fundamentally neutral with extended low bass.



(All ratings relative to comparably priced CIEMs.)

Resolution/Focus:



Dynamics/Expression:



Sound staging/Imaging:



Freedom of noise:



Features and versatility:



Value:



Pros

- Great custom fit
- Extremely efficient and easy to drive
- Natural harmonic balance with serious bass extension

Cons

- As with all CIEMs ear impressions need to be made by an audiologist
- As with all CIEMs, they must be reshelled if used by someone else

TECHNICAL SPECIFICATIONS

Type: custom-fit in-ear monitor

Drivers: Balanced armature

Frequency Response: 10Hz–40kHz

Impedance: 10 ohms

Sensitivity: 117 dB/1mw

Connector: Industry standard two-pin connectors for the earpieces, with multiple termination options for the amplifier end of the signal cables.

Weight: Not specified

Price: \$1,799 US

MANUFACTURER INFORMATION

Empire Ears

Atlanta, Georgia USA

+1 (770) 945-0065

URL: empireears.com

Model-specific information: <https://empireears.com/products/phantom-custom-in-ears>

If you are at that stage where a pair of custom-fit in-ear monitors figures in your future, the Empire Ears Phantoms deserve a place on your short list. +

WIN! MrSpeakers' ETHER 2 planar magnetic headphones worth £1,900!

We have teamed up with the clever folks from MrSpeakers to bring you a fantastic competition for a chance to win a pair of the company's excellent ETHER 2 planar magnetic headphones, worth £1,900!

Our Editorial Director, Chris Martens reviewed the ETHER 2 in *Hi-Fi+* issue #172 where he wrote, "Internally, the ETHER 2 receives a number of important changes, including a new driver. ETHER 2's driver diaphragm is the same size (71x45mm) as the ETHER FLOW diaphragm, but enjoys a whopping 70% reduction in the mass of its aluminium voice coil traces. Further, the ETHER 2's driver was designed from the ground up to integrate TrueFlow driver technology, whereas the earlier ETHER models received TrueFlow features as after-the-fact add-ons. Next, the ETHER 2 features "an all-metal headphone cup and headband, with a carbon fibre driver baffle" and weighs in at feathery 290 grams (fully 95 grams lighter than the ETHER FLOW). Finally, ETHER 2 features the firm's significantly improved VIVO signal cables, said to improve soundstage and imaging."

He concluded by saying, "MrSpeakers' ETHER 2 is light and incredibly comfortable to wear and it offers the refined and sophisticated sound qualities normally associated with headphones selling for £3,000/\$3,000 or more. Happily, MrSpeakers will actually sell you a pair for a tick under £2,000/\$2,000, which is good news for us all." +



Competition Question

How much lighter is the ETHER 2 compared to the ETHER FLOW?

- A. 29 grams
- B. 45 grams
- C. 95 grams

To answer, please visit the Mr Speakers' dedicated competition page at mrspeakers.com/hifiplus. Alternatively, send your answer on a postcard (including your name, address, and contact details) to ETHER 2 Competition, C/O Electromod, Beech Road, High Wycombe, HP11 1RY, Buckinghamshire

Competition Rules

The competition will run from July 4th 2019 until September 5th 2019. The competition is open to everyone, but multiple, automated, or bulk entries will be disqualified. The winner will be chosen at random from all valid entries, will be contacted via email (where possible) and their name will be published in the magazine. The Editor's decision is final, and no correspondence will be entered into. Absolute Multimedia (UK) Ltd. is compliant with the Data Protection Act and UK laws apply. Our policy is such that we will not pass on your details to any third party without your prior consent.

Woo Audio WA11 Topaz portable headphone amp/DAC

by Chris Martens



In the iconic martial arts film *Enter the Dragon* the great martial artist/actor Bruce Lee critiques the performance of a young pupil who is practicing a combination of punches. The pupil's performance appears technically sound enough, yet something is missing. The missing ingredient, Lee's character astutely explains, is "emotional content." This simple piece of advice applies equally well to audio component design, and it neatly explains the appeal of Woo Audio's WA11 Topaz portable headphone amplifier/DAC.

Conceptually, WA11 Topaz was born out of Woo's successful, though larger and more expensive, valve-powered WA8 Eclipse transportable, valve-powered headphone amplifier/DAC. Like the WA8, the WA11 is a highly capable portable amp/DAC whose sound quality rivals that of larger, more costly full-size desktop models. Unlike the mid-sized WA8 the more compact WA11 is a truly portable device. What is more, the solid-state WA11 is reasonably immune to vibration, which the WA8 is not (valves don't like to be jostled).

The WA11 provides a high-powered (1.2 Wpc @ 30 Ohms), wide bandwidth (10Hz–200kHz, -1dB), fully balanced, pure Class A solid-state amplifier section. The amp is quiet and features user-selectable hi/lo output levels. The WA11 provides two USB Type C inputs (one for its DAC, the other for its battery charger), plus a balanced analogue input (via 4.4mm Pentaconn jack). Two outputs are provided; balanced 4.4mm Pentaconn (which Woo recommends) and 6.35mm unbalanced.

The DAC section of the WA11 is based on an ESS ES9018M SABRE Reference DAC device, which supports PCM files up to 24-bit/384kHz and DSD files to DSD128 via DoP. The DAC uses XMOS xCORE-AUDIO asynchronous clocking via USB that is "compatible with PC, Mac, Android, and iOS devices."

A Lithium-ion battery provides up to six hours of continuous music playback, with charging via an included global dual-port USB charger and supplied USB-C cables. Importantly, the WA11 battery can be charged even while the amp/DAC is in play, which effectively extends playing time. I ran the WA11 with several superb headphones and earphones (the Campfire Audio Solaris, Final D8000, Meze Empyrean, MrSpeakers ETHER 2, and Sony IER-Z1R).

What enables an amp/DAC to convey emotional content? I think the device in question must combine, in roughly equal parts, high resolution, low noise, ample power output, high transient speeds, dynamic agility and expressiveness, unforced natural warmth, and the elusive quality of 'grip'. What makes the WA11 Topaz so successful is that it offers a well-proportioned combination of all these qualities at once.

On a high-res version of 'Miles Runs the Voodoo Down' from Davis' classic *Bitches Brew* [Columbia, DSD64], the WA11 offers sufficient sophistication to show how Davis' deftly shapes the voicing and tone of his trumpet to fit the musical phrases at hand. Where some amp/DACs give Davis' horn an almost 'monochromatic' quality, the WA11 instead delivers its full, rich

"The Topaz shows the meanings and intentions underlying the music. Woo Audio's WA11 is the little amp/DAC that could."

palette of tonal colours and textures. Similarly, the Topaz shows the cool, syncopated vibe of the track's bass guitar lines—lines that convey a profound sense of 'funkiness'. In short, the WA11 doesn't just play notes; it plays the soul of the music.

Similarly, on 'Gibraltar' from Weather Report's *Black Market* [Columbia, DSD64], the Woo shows how the brilliant keyboardist Josef Zawinul has used multiple synthesizers to lovingly shape individual imaginary instruments to fit the needs of the song. Through the WA11, Zawinul's brilliance is on full display. But even more of the track's emotional content is expressed through the highly interactive 'conversational' interplay between Zawinul, saxophonist Wayne Shorter, bassist Alphonso Johnson, and percussionists Chester Thompson and Alex Acuña. Again, the Topaz shows the meanings and intentions underlying the notes.

Woo Audio's WA11 is the little amp/DAC that could. While the Topaz is not fully the equal of Woo's own ultra high-end electronics offerings, it conveys so much of their overall sound and feel for such a sensible price that it is surely destined to be a winner. +

Summary

Sonic Character: Vibrant and highly musical sonics, with excellent natural detail



(All ratings relative to comparably priced portable headphone amplifier/DACs.)

Resolution/Focus:



Dynamics/Expression:



Sound staging/Imaging:



Freedom of noise:



Features and versatility:



Value:



Pros

- Best known for its valve-powered designs, Woo Audio's WA11 Topaz proves the firm knows its way around solid-state circuits, too.
- Vibrant, full-bodied sound (considerable better, in fact, than many desktop headphone amplifier/DACs).
- Robust and expressive dynamics.
- Very fine levels of detail with no artificial-sound 'edge enhancements' or untoward spotlighting.

Cons

- Woo's minimalist, 'keep-it-simple' design approach may not suit listeners looking for an amp/DAC with a broader features set (e.g., an amp/DAC with multiple user-selectable digital filters, 3D enhancement circuits, bass.

TECHNICAL SPECIFICATIONS

Woo Audio WA11 Topaz portable headphone amplifier/DAC

Type: Portable, fully balanced, solid-state, Class A headphone amplifier/DAC

Inputs: USB Type C (digital audio), USB Type C (power/charging), 4.4mm Pentaconn (balanced analogue)

Outputs: 6.35mm headphone jack, 4.4mm Pentaconn balanced headphone jack

Controls: Illuminated on/off switch with battery reserve indicator lights, input selector switch (digital or analogue), gain switch (hi or low), rotary volume control (TKD 4-channel balanced potentiometer)

DAC: ESS Sabre Reference DAC ES9018M

Formats Supported: PCM to 24-bit/384kHz, DSD to DSD128 via DoP

Power Output: 1.2W @ 30 Ohms, 350mW @ 100 Ohms, 120mW @ 300 Ohms

Frequency Response: 10Hz-200kHz, -1dB

SNR: 118dB

Battery: Rechargeable Lithium-ion battery offering 6–7 hours of continuous playback. Note: The WA11 supports simultaneous playback and battery charging, which extends playing time.

Supplied Accessories: Alcantara carry bag, global 100v–240v USB-C charger with detachable AC plugs (US, UK, Australia), USB Type-C to A cable, USB Type C to C cable.

Dimensions (H×W×D): 85 × 155 × 27mm

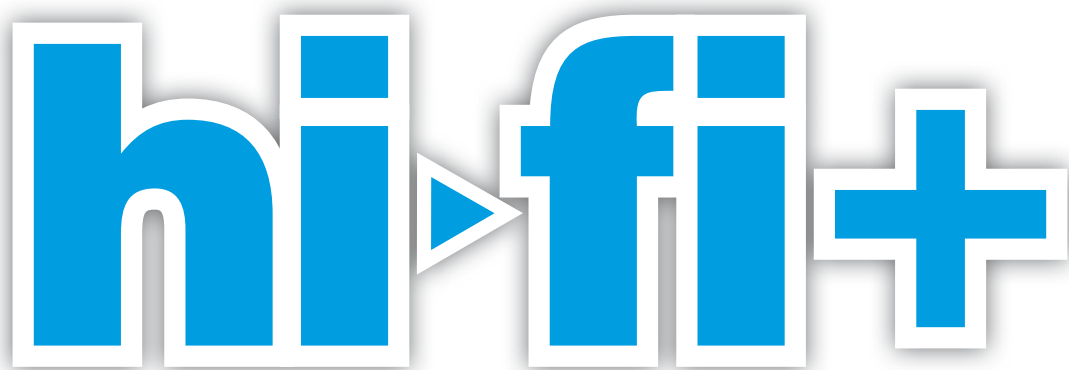
Weight: 426g

Price: \$1,399

MANUFACTURER INFORMATION

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Tel: +1 (917) 773-8645 | URL: wooaudio.com



Next issue

**Ekstra! Ekstra!
Read all about it!**

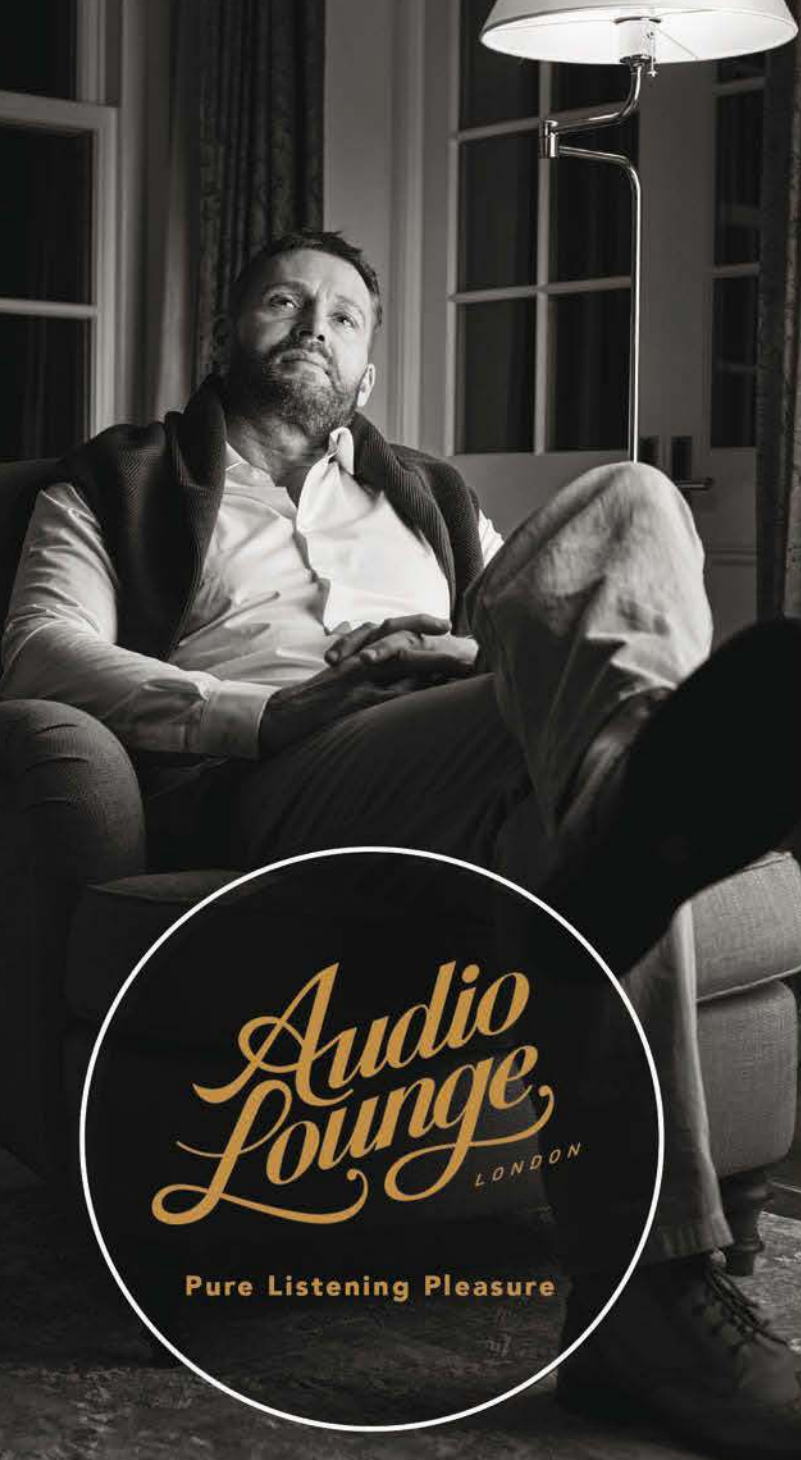
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