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AUGUST 2019

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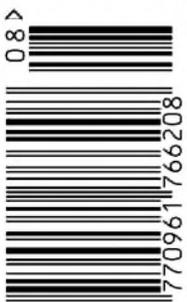
- COPLAND CTA408 VALVE AMPLIFIER
- TITAN NEMESIS LOUDSPEAKER CABLES **EXCLUSIVE!**
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David Tutt.



**V**alve amplifiers are a modern mystery. Things from days gone by, yet still with us today in ever more imposing form. Not cheap either: there's so much in them that is specialised, heavy and costly to make. Robots need not apply. Hi-Fi World attracts valve amplifier manufacturers (!) because we understand the issues, what manufacturers are trying to achieve. Explaining why – serendipitously! – we featured the extraordinary McIntosh MC2175 power amplifier last month (July 2019 issue) and now have another thermionic charger this month:

Icon Audio's Stereo 40 MkIV valve amplifier. Not as much power as a big Mac but not the price either. I hope you enjoy reading about this lovely amplifier in its glowing glory on p10 of this issue.

Focal of France have pride in their technological ingenuity and its uniqueness. Their inverted beryllium dome tweeter, for example, is something they have clung to when all others were using either fabric domes or ribbon tweeters. Continual development of this tweeter and its careful alignment with their own design bass/midrange unit with sandwiched flax driver have come together to produce a fine large bookshelf loudspeaker in the new Kanta No 1. Clean, accurate and powerful, this loudspeaker impressed us all. Read more about it in our review on p62.

At times it got warm just like a valve amplifier. But it is not. iBasso's DX220 digital portable audio player may be the heavyweight of its class, like a valve amplifier, but it is also a technological heavyweight, with massive processing power that brings you just about every modern marvel: Bluetooth, music streaming from the 'net – even Google's Chrome web browser. This is a player fit to drive a hi-fi system. Read about it on p21.

Our letters never cease to amaze and inform. Find them on p34. Watch out for sharp snippets like a warning about the up-coming Volumio music server software that appeared at this year's Hi-End Show, Munich, Germany. Could this freeware music server rise to the prominence of freeware music editor Audacity, displacing all paid-for rivals?

The world of high quality music reproduction moves on relentlessly. At one end are things that get warm and glow – Icon Audio's Stereo 40 MkIV – and at the other things that get warm but don't quite glow – iBasso's DX220. In between lies software! What contrast – I hope you enjoy it all.

**Noel Keywood**  
**Editor**



## hi-fi world

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## verdicts

	<b>OUTSTANDING</b>	amongst the best
	<b>EXCELLENT</b>	extremely capable
	<b>GOOD</b>	worth auditioning
	<b>MEDIOCRE</b>	unremarkable
	<b>POOR</b>	flawed
	<b>VALUE</b>	keenly priced

## ELECTRONIC MAGAZINE

Go to our website [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) to buy an electronic version of this magazine, individual issues, back issues or a subscription.

## testing (see [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) for full explanations of all our tests)

To ensure the upmost accuracy in our product reviews, *Hi-Fi World* has extremely comprehensive in-house test facilities, and our test equipment - from big names like Rohde & Schwarz and Hewlett Packard - is amongst the most advanced in the world.

Loudspeakers are measured using a calibrated Bruel & Kjaer microphone feeding a Clio-based computer

analyser, using pulsed and gated sinewaves, in a large room to eliminate the room's influence. Pickup arm vibration is measured with a Bruel & Kjaer accelerometer.

No other UK hi-fi magazine has in-house testing, and none has access to such advanced tests across all types of equipment. That's why you can depend on *Hi-Fi World* reviews.



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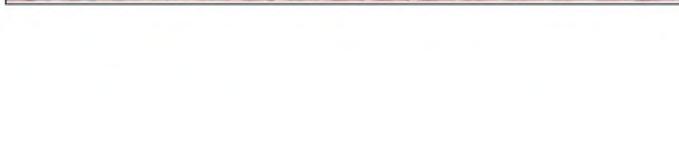
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“By any measure MKIV represents a significant upgrade on the MKIII” Paul Miller Hi Fi News



**Hi Fi News said:** “Icon Audio’s Latest Stereo 40 can take on both tube and solid-state amps at this price. It offers more power and control that you might expect from the former, plus a natural charm that one doesn’t always associate with the latter. A real improvement on its predecessor, the Stereo 40 MK IV combines great sound with the bonus Triode and Ultralinear modes” David Price and Paul Miller.

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# news

## WHARFEDALE GO RETRO!

The first hi-fi system of many a reader in the 1970s featured something like a Goldring turntable, Pioneer receiver and a pair of Wharfedale loudspeakers like their Dentons or Lintons. Now the Lintons - originally produced between the mid-1960s and the late 1970s - have been "resurrected...to deliver retro style and timeless musicality" Wharfedale say. They're made in China rather than Yorkshire, but still designed by Brit engineers. The new model has wood veneer and proportions similar to the classic Lintons, but in most respects this new £1000 three-way is very different to the old timers. It makes use of its wide baffle by incorporating a Kevlar-coned 200mm bass driver with a rigid, die-cast chassis, a similarly-Kevlar'd 135mm midrange driver and a 25mm fabric-dome tweeter with high-flux ferrite magnet. The bass of the stand-mounted Linton is claimed to be "deep and well-defined", and complemented by a "clear and open midrange, free-breathing dynamics and an expansive scale that brings music to life". Sounds good.

See *Wharfedale* at [www.wharfedale.co.uk](http://www.wharfedale.co.uk) for more.



## ORTOFON HIT THE ROAD

Stop by one of the UK's premier hi-fi retailers with a passion for vinyl on a certain date and there's a chance you will find someone presiding over a "journey through the Ortofon range...starting with the 2M Red (£95) and climaxing with the latest flagship MC Anna Diamond (£7,250)". Welcome to Ortofon's six-date 'Cartridge Experience Tour', running through July to September.

The dealers visited will be Nintronics in Welwyn Garden City (July 13th), Midland Audio X-Change in Belbroughton (Aug 16th), Oxford Audio Consultants in Oxford (August 31st), Home Media Limited in Kent (September 4th), Wilkinson's Hi-Fi in Nelson (Sept 14th) and Fanthorpes HiFi in Hull (Sept 21st).

You may also get to hear three new models - the £70 upgraded Super OM5E, the £3750 MC A Mono (a high-end pure mono cartridge) and the £925 ST-70, a step-up transformer with two configuration settings that's claimed to be an ideal partner for the Cadenza moving coil cartridges.

Contact importer *Henley Audio* at (01235) 511166, or [www.henleyaudio.co.uk](http://www.henleyaudio.co.uk)



## MCPROOFED!

Many of the distinctive glass-fronted amplifiers and receivers made by McIntosh forty or more years ago remain in use today. An amplifier is an amplifier and as long as there are speakers to drive and sources to plug in all should be well. But hi-fi is being brought, kicking and screaming, into the IT world where gear becomes obsolete virtually the day you buy it; a 40-year-old computer is a museum piece of little practical value.

McIntosh realises this and made the decision to 'future-proof' its new £5,495 C49 preamp with an upgradable DAC module. This allows the C49 to, in the words of the New York manufacturer, "move with the times so that your 'digital' preamp is never left behind". For now the C49, claimed to be 'plug and play' compatible with analogue turntables, is fitted with the six-input 32-bit PCM and DSD256-ready DAI module (the remainder of the 13 inputs are analogue). As "new technologies and formats emerge", they'll be supported by replacement modules.

The C49 is described as "a very attractive audio investment well into the future", with its tone controls, two outputs, MC/MM phono stage and onboard headphone amplifier.

Contact: *Jordan Acoustics* (McIntosh UK distributor), [www.jordanacoustics.co.uk](http://www.jordanacoustics.co.uk)



## JBL'S SHRINKING SPEAKERS

Harman Pro has just announced the £130 JBL One Series 104 reference monitors. Compact in size, these active speakers are described as a "crossover product – equally at home in a music production suite and the discerning music-lover's desktop".

The JBL One Series 104 'speakers are built around newly-engineered 4.5in. coaxial drivers said to be capable of "crystal-clear highs" and deep bass that doesn't need a subwoofer. This new driver draws on the same research that led to the "revolutionary" waveguide found in other JBL models, such as the M2 and 3/7-Series. Audio is fed into the Series 104s via 3.5mm (unbalanced, stereo) or 6.3mm (balanced, separate left and right connections) jacks and thence to "clean" 60W Class D amplification. The latter, according to Harman, can drive these JBL mini speakers to high levels "without the distortion found in other monitors of their class".

Other features include a front-panel volume control and headphone jack. Harman's goal was to "give content creators the ability to hear all the details...while mixing and editing"; naturally, such properties are also useful for music playback in the home.

More details: [www.jblpro.com/one-series](http://www.jblpro.com/one-series)



## CRIMP CAPER

Dealers and custom installers can now make 'factory-quality' Chord Company speaker cables to their customers' exact specification, courtesy of a nifty piece of kit. The 'ChordOhmic Hex Gun' crimping tool will, along with the necessary training, be provided to the appropriate 'selected' resellers. It's described by the company as "a precision instrument capable of delivering consistent terminations...to factory standards... every time". The end result is a custom cable, neatly finished with the recently launched £120 ChordOhmic banana plugs - and Chord Company 'trousers', where specified. ChordOhmic plugs, the fruit of a 10-year project, are reckoned by Chord to give "a far superior long-term connection over our previous soldered connectors". Existing cables can be crimped with the new connectors, thereby providing an upgrade path. This service, as well as the prospect of customers jumping Chord's production queue for new cables, will be a boon to dealers operating in a difficult retail environment.

Contact: Chord Company, 01980 625700. [www.chord.co.uk](http://www.chord.co.uk)

## PMC GOES GLOBAL...AGAIN

PMC – famous for its studio monitors – announced that it will be reviving its international Global Battle remix talent-contest. Entries will be judged by Grammy Award-winning DJ and producer Afrojack, record label Wall Recordings and artist management company LDH Europe. The first such event attracted entries from thousands of remixers and producers around the world. Among the five winners were Dutch producer Buzz Low and Japan's SLAY – both of which have signed contracts with LDH.

All of this year's winners will receive mentorship from Afrojack, the chance to get their remix issued by Wall and a management contract with LDH. The overall winner will receive a pair of PMC result6 nearfield monitors of the type used by Afrojack in his studio.

"Whoever wins the competition this year", PMC's creative director Keith Tonge told us, "can rest assured that the high-resolution, razor-sharp imaging, extended bass and consistent tonal balance" of the £2,400 result6 speakers.

Entrants must download and remix 'Switch', a track by Afrojack, Jewelz & Sparks, and submit it for consideration before September 12th this year.

Visit [www.afrojack.com/globalremixbattle](http://www.afrojack.com/globalremixbattle) or [www.pmc-speakers.com](http://www.pmc-speakers.com)



## ARE YOU MANLEY ENOUGH?

Elite Audio have just told us that they'll be bringing equipment from West Coast US firm Manley Laboratories to the UK. Billed as the "leading builders of vacuum-tube hi-fi equipment and pro studio gear", Manley produced its first products over 30 years ago...in London." Now, they're designed and made exclusively in the US. The firm's pro gear is, Elite claims, used in many of the world's top recording studios... if you listen to any piece of recorded music, it will have Manley in it somewhere!". The tubed hi-fi gear, which is finished in a very distinctive blue colour, consists of integrateds, preamps, power amps and headphone amps with equally-distinctive names like 'Skipjack', 'Jumbo Shrimp', 'Stingray' and 'Snapper'. Particularly worthy of note is the Neo-Classic Monoblock, which can apparently deliver no less than 500W of vacuum-tube power. Demo stock is winging its way across the Atlantic to Elite HQ, and will be "available for home-trials and reviews very soon". The gear will be featured in the distributor's unboxing and infamous 'Lifting the Lid' videos.

Contact: Elite Audio, 01334 570666/020 3397 1119. [www.eliteaudiouk.com](http://www.eliteaudiouk.com)



## ITALIAN JOB

Audio Analogue celebrated twenty years of operation back in 2016, with its elegant Airtech-designed 'Anniversary' range. But to this series of products have just been added the Bellini preamplifier (£4999) and matching Donizetti power amplifier (£8999) – both of which were also born in the Airtech labs. The remote-controllable Bellini boasts line-level unbalanced RCA connectivity (three inputs, two outputs), balanced XLRs (two inputs, two outputs), relay source-switching, dual-mono construction and a digital volume-control circuit that's free of op-amps. Described as a "high power stereo power amp", the 41.2kg Donizetti will drive each of your speakers with 250W (8 ohms) of power and is claimed "to perfectly drive any loudspeaker". Powered by a pair of 1200VA toroidal transformers, the Bellini is – like the preamp – of dual-mono construction. The gain stages of both Bellini and Donizetti employ a technique, known as SeGeSTA (Single Gain Stage Transconductance Amplifier), to make them "even quieter while keeping the structure completely balanced... and without global feedback".

Contact: Decent Audio (UK distributor), 05602 054669. [www.audioanalogue.com](http://www.audioanalogue.com)



## MELODY MAKER

New from Marantz is the £449 M-CR412, otherwise known as the 'Melody'. A cut-down (no streaming) version of the existing Melody X model, it's a compact system that provides CD playback, USB audio, FM/DAB+ radio, Bluetooth and 60W per channel (6 ohms, 0.1% THD) of stereo power in a distinctively-Marantz package standing a mere 11cm high. Interestingly, the amplifier can also be configured to provide two independent stereo outputs rated at 30W per channel, so that two pairs of 'speakers in different rooms can be driven at different volume levels.

Tone controls are fitted, as are a front-panel 3.5mm headphone socket and a clock with timer. The Melody's USB playback mode is versatile, catering for FLAC/WAV/ALAC (up to 24-bit/192kHz) and DSD (2.8/5.6MHz) as well as lossy codecs like MP3 and WMA. Rounding off the package are a line-level analogue input and two optical digital ports.

The Melody is available in glossy black, or the 'classic' Marantz silver/gold finish.

Contact: Marantz, 02890 279830. [www.marantz.co.uk](http://www.marantz.co.uk)



## UP IN SMOKE

The New York Times recently ran an excellent piece exposing the ramifications of the almost-forgotten 2008 Universal Music Group vault inferno, in which priceless master tapes and other materials were lost forever. The number of 'assets destroyed' was officially '118,230', according to a confidential UMG memo. The music they contained were the work of iconic artists that spanned eras and genres – among them Louis Armstrong, R.E.M., Joni Mitchell, the Four Tops, Ray Charles, Tupac Shakur, Chuck Berry, Ornette Coleman, B.B. King, Quincy Jones, the Carpenters, Elton John, Bill Haley, Gladys Knight, the Andrews Sisters, Eric Clapton, Buddy Holly, Duke Ellington, Iggy Pop and Aretha Franklin.

Such music can no longer be given the remastering treatment; what you'll hear from now on will be derived from the best transfers that were made until that point – and digital technology has improved considerably in eleven years. No wonder the newspaper described the Hollywood fire "as the biggest disaster in the history of the music business".

By what means did so much precious music, the fruit of so many artists working for so many different labels, come to be concentrated in a single building?

Closer to home, music-industry jobs at one of UMG's biggest rivals are likely to be going up in smoke. Sony is proposing to shut down its CD and Blu-ray distribution facility in Enfield, the target of an arson attack during the 2011 riots. The SACD plant, which opened in the 1980s, is seen as the latest victim of the transition in music 'consumption' from physical media to streaming.

More information: [nyti.ms/2F3ZpZq](http://nyti.ms/2F3ZpZq), [www.sonydad.com/](http://www.sonydad.com/)

# Classic 40

Icon Audio's Stereo 40 MkIV valve amplifier is their latest re-model of a classic valve amplifier. Noel Keywood listens.



Valve amplifiers for audio were an open subject back in their day, both Mullard and GEC publishing books of circuits – Mullard's *Circuits For Audio Amplifiers* (1959) being available today as a reprint (Amazon). Icon Audio refer to it in their notes on the new Stereo 40 MkIV amplifier I am reviewing here, making the point that this amplifier is a tried and

tested classic.

But that was long ago historically – and technologically. Build a classic circuit today and modern technology intrudes: it only makes sense in terms of cost, safety, convenience and reliability. All of which sets the stage for the new MkIV. Oh! – I forgot to mention fashion: there's a headphone socket.

As you might guess the Stereo 40 MkIV delivers nominally 40 Watts.

Push it hard and 50 Watts appear or flick a front panel lever switch to Triode mode and you're down to 30 Watts. All this is exactly as expected from KT88 Kinkless Tetrodes run in push-pull, using modern valves working with fixed bias, confusingly meaning you have to adjust it. Fixed bias gives more power than auto-bias (that you don't have to adjust).

Ours came with Genelex Gold Lion KT88s (around £40 each), made

in Russia by the New Sensor Corp. who are based in New Jersey, USA. The claim here is that this KT88 perfectly reproduces the structure and strengths of GEC's original, released in 1957 and universally admired for its sound, as well as durability. You can see the KT88s in a linear row of four at back, just in front of the big, black transformers. Alternatively it will accept Mullard EL34s.

I hope all that gets into perspective what Icon Audio's Stereo 40 MkIV is about at a basic level. Power output is plenty high enough to go extremely loud, and its output valves are classics that are durable yet inexpensive – important because after 3000hrs use they need replacing; with 10 hours a week use that means 5 years life.

Physically, the new Stereo 40 MkIV isn't outsized, measuring 390mm (15.4in) wide, 410mm (16.2in) deep and 230mm (9.1in) high. As amplifiers go, not so big. But at 22kgs it's a two-person lift – seriously heavy. Caused by the massive mains and output transformers it uses for quality reasons. A strong shelf or hi-fi rack is needed – and a rack needs around 254mm / 10in between shelves to allow heat to escape. Nearly all racks are 19in (480mms) wide so it will fit easily here – but it has to since side access to the mains switch is needed.

Modern technology means the Stereo 40 MkIV comes with remote control of volume. Inside there's an Alps Blue motorised volume control: you can turn it manually or use the heavy but small metal remote supplied. The power supply is solid-state, reducing weight, size and cost, and improving power output.

Where this amplifier differs from most is the amount of tweakability you get. The front panel has a small lever switch marked Ultralinear/Triode. Ultralinear is standard mode that gives highest power and best measured performance; Triode lowers power by a small amount to 30 Watts maximum but gives a slightly clearer and easier sound. Differences aren't great but it's possible to arrange Triode working without much kerfuffle so Icon make it available. Commonly, users settle on Triode mode I'm told, as I have with our Icon Audio Stereo 30SE in-house reference valve amplifier.

A bit more challenging is a small three-position lever switch on

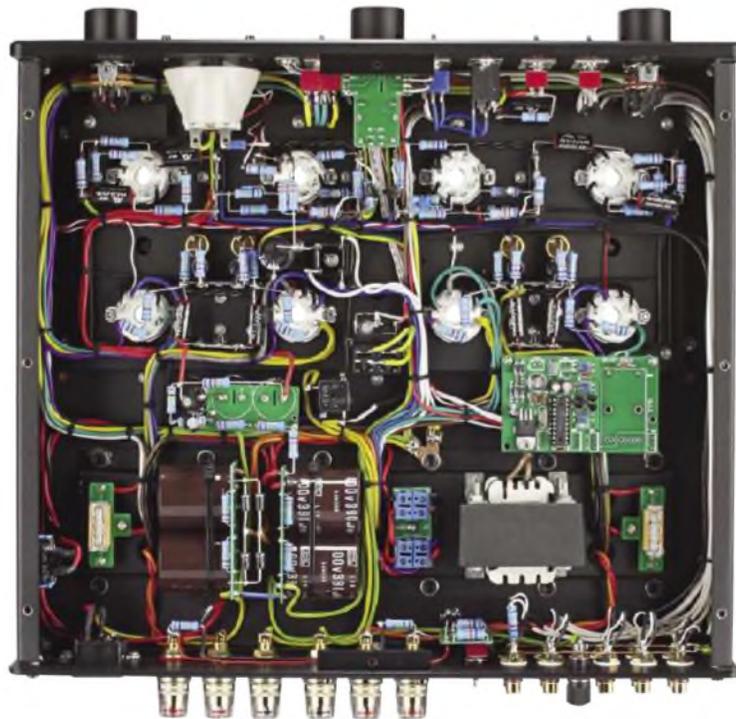
the rear panel labelled Sensitivity. This alters feedback, substantially affecting how the amplifier works – and its sound. The choices are Low sensitivity (L) which means high feedback (14dB), High sensitivity (H) which means low feedback (5dB) and a central zero position that eliminates feedback completely – radical.

High feedback (L) gives performance like a transistor amplifier, Low feedback (H) like a classic valve amplifier and zero feedback is there for those that may prefer the sound – as some do. I think the best compromise is H (low feedback) but the other settings have appeal. With this amplifier you get to choose, whereas with most others you get what you're given.

Feedback alters gain, distortion,

position bias-adjust rotary switch. Four positions show bias level at each output valve on the meter, for monitoring and adjustment purposes. The fifth Off position shows output level to the loudspeakers, warning of potential overload if volume is wound too high. Once bias has been set, by turning the small top-panel potentiometers with a screwdriver, it should not need re-adjustment for many months.

To the right of this switch lies the old-style panel meter that lights up deep yellow at power on. It looks sturdy and industrial, something from an old power station perhaps – and of course it grabs attention. What modern amplifier enjoys such glitz? It makes them look drab. To its right lies the Ultralinear/Triode lever switch and in the middle sits the



**A hard-wired internal assembly, with neat wiring looms. There are also printed circuit boards for remote control etc, two fuses (bottom left and right), plus a big choke (bottom right) to clean the power rail. It is a specialised and expensive component.**

frequency response and output impedance (damping factor) so when you use this switch a lot alters – and in a big way, which is why it is rarely seen. However, I chose to fit a feedback-off switch to our World Audio Design 300B amplifier in 1993 just to show what it offers sonically (a big, open spacious sound) and still use it at home today.

A busy front panel says much about this amplifier. At left is a five-

volume control, moved by a motor when the remote is used. Then comes a loudspeaker/headphone selector switch with accompanying headphone socket.

To the right of the headphone socket is a stand-by switch that is only seen in valve amps: it turns off HT to prolong valve life, whilst leaving the heaters up and running. And to its right is a Tape/Source switch for those running classic

# Simplicity at its best.

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AUDIO SYSTEMS



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- Audiophile phono stage in a compact chassis
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**At left the input bias adjust selector for V1-V4 output valves, bias adjusted to put the needle into the black sector on the meter scale. Then a Triode / Ultralinear lever switch, volume control (centre) headphone socket, Standby switch, Tape switch and rotary input selector at far right.**

three-head recorders.

Finally, at far right is a four-position rotary input selector for the four line inputs at rear purposed to match CD players and most modern sources. Low output sources like low-gain external phono stages match, since setting high sensitivity (H) on the rear panel switch makes the Stereo 40 MkIV more sensitive than most transistor amplifiers.

The rear panel carries solid gold plated phono sockets for the inputs and tape output. Loudspeaker terminals, 8 Ohm and 4 Ohm, are also gold plated and sturdy, accepting bare wire, 4mm banana plugs or spades. Nestling between these ins and outs lies the small Sensitivity switch. Power comes in from the mains via the usual IEC socket, the

on/off rocker switch being mounted on the left panel side panel near the rear of the chassis, so space is needed at left to reach it. This makes turning on and off awkward in the lower shelves of a rack. Best to leave some space all around the amplifier – especially above – to allow air to circulate because its heaters consume 76 Watts in total.

Although the Stereo 40 MkIV uses a classic Ultralinear output stage, the rest of the circuit differs from past convention. Two low-mu 6SN7 double-triodes offer front end gain on each channel through cascode operation, whilst another two provide phase splitting (for push-pull). Icon say the use of four identical high quality triodes eases fault-finding and replacement issues,

important for those living in remote areas – Northern Australia mining, Borneo logging etc. – where we found the market for valve amps was peculiarly strong.

**SOUND QUALITY**

With Ultralinear/Triode options and three feedback settings there are potentially six amplifiers to review here! It can get very confusing very quickly. But with our Martin Logan ESL-X hybrid electrostatic loudspeakers, connected with Chord Company Signature cables to the 4 Ohm tap and an Oppo BDP-205D Universal player to play CD, plus hi-resolution digital from an Astell&Kern AK120 player, basic differences were obvious enough to distill out.

An Isotek Evo3 Mosaic Genesis



**The rear carries heavy duty, gold plated phono socket inputs (left) and equally solid, gold plated loud-speaker terminals for 4 Ohm or 8 Ohm loudspeakers. Above are large in-house designed and built output transformers at left and right, with mains transformer at centre.**



## METICULOUS, ABSOLUTE FOCUS

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A record's spiral groove is around 420m per side and over this distance, the needle will dance savagely, vibrating at up to 20,000x a second, capturing millions of transients at a micron level. Remaining rock-solid where it matters is Huei, an advanced phono preamp that never loses focus. Microprocessor-controlled and distilled from 30 years of UK amplifier manufacturing, Huei brings the legendary Chord Electronics' precision to vinyl playback.

[CHORDELECTRONICS.CO.UK](http://CHORDELECTRONICS.CO.UK)



# Huei



Chord Electronics Ltd.

regenerated mains power supply fed the electrostatic supplies and Oppo player, the Icon being connected to its high current filtered, un-regenerated output.

The Stereo 40 MkIV was both vividly dynamic and spacious in its sound, Icon Audio getting very clean bass from their output transformers. The sound was less easy, soft or warm – as classic valve amplifiers are imagined to be – more vivid and punchy. The combination of valve amplifier and electrostatic panel always was made in heaven, giving a sense of life and scale transistor amplifiers don't match. But I'll cover the sonic options first.

With Antonio Forcione's Tears of Joy (CD) there was softness and warmth in the sound with feedback Off (sensitivity 0). Wooden blocks lacked transient edge and guitar strings were mild rather than lacerative. However, with no feedback images seemingly jump out, having a dynamic about them that's almost puzzling – but that's because zero feedback is never encountered in hi-fi amplifiers. It's worth hearing.

Switching Sensitivity to H (low feedback) pulled the images back, both restraining and controlling them, but it also brought a solid edge to the blocks and some laceration to guitar strings; they seemingly moved from being fibrous to metallic.

Switching Sensitivity to L (high feedback) pulled the images back further, slightly flattening perspectives – but even set like this the Stereo 40 MkIV was more dynamically engaging than a commercial transistor amplifier. But since the latter use at least 30dB feedback – double that of the Icon – it's hardly surprising.

A bit more baffling and hard to explain is Triode mode. This unravelled musical strands, drawing Skin out of the fray when singing Hedonism (CD) for example. Triode just sounded better sorted and a tad less confused, also lifting Marianne Thorsen clear from the backing Trondheim Soloists (hi-res 24/96) when playing a Mozart violin concerto. But the massed violins of the soloists equally gained in dynamic presence. Although not better in measured terms Triode mode is subjectively best. And Thorsen's violin and playing were sublime, shimmering out into the room with a sunlit textural density that makes all else sound lifeless and bleached.

In the end I settled for Triode mode and H sensitivity – and with

this the Stereo 40 MkIV thundered through tracks like Safri Duo's Samb Adagio, the opening bell strike ringing around our room, followed by a swelling synth and then a bass synth line that was far and away more violent than you'd hear from a transistor amplifier. The combination of big, modern power supply, whistle clean KT88s and Icon's massive output transformers come together here to deliver bass few amplifiers can match. Interestingly, switching to L Sensitivity (high feedback) pulls bass back a little, but this is interaction between amplifier electrical damping and loudspeaker acoustic damping, so no mystery.

Arcadi Volodos playing – sublimely – Schubert piano concertos (CD) was vivacious, dynamically strong yet controlled and with a lovely light across the sound stage – bright but honeyed. This Icon puts power into piano – the

body was given scale – whilst each key had solid presence as Volodos carefully worked his way through this lovely piece. Valve amplifiers always deliver a big sound – dynamically and spacially – but the Stereo 40 MkIV has impact, precision and timing beyond most with music such as this.

**CONCLUSION**

Although a "tried and tested classic" in design essence, in real life the Stereo 40 MkIV is a different beast subjectively. What you get here is a modern, fast and punchy sound that simply overwhelms most else. With very strong bass, a huge sound stage and thunderous dynamics the Icon is a long way from valve amps of yore. It's a great blend of old and new, finding the best in both. Add in the almost unique ability to dial in feedback and select Triode mode and you've got an amplifier and a sound that's hard to beat at any price.

**MEASURED PERFORMANCE**

In Ultralinear mode distortion at quoted 40 Watts measured 0.26%. Using a 1% limit 55 Watts was delivered.

In Triode mode output measured 25 Watts using the same 0.26% distortion limit as Ultra-linear, but 34 Watts at 1% distortion, validating Icon Audio's figures.

Distortion levels (1kHz) were low all round, just 0.006% at 1 Watt and 0.15% just below (-1dB) full power, at maximum feedback (L). With low and zero feedback around 0.04%, and 0.3% just below full power. At high frequencies (10kHz) 0.05% was typical

– a low value.

Bass distortion (40Hz) was also low at 0.06% (1 Watt) and 0.13% just below full power (L), deteriorating little to 0.2% and 0.3% at H and 0.3% and 0.8% at zero feedback – all low values for a valve amplifier.

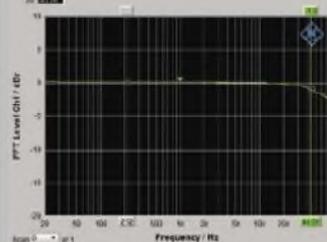
High feedback (L) gave very wide bandwidth of 2Hz-44kHz (-1dB). Low feedback (H) 7Hz-31kHz, usefully eliminating low bass to avoid possible core saturation from LP at high volume, whilst zero feedback (open loop) was a usable 20Hz-12kHz.

Damping factor measured 16 (L), 6 (H) and 2 (0) so there's choice to be had here too. Low sensitivity (max feedback) offers tightest bass, but lower feedback can give bigger bass with acoustically over damped loudspeakers.

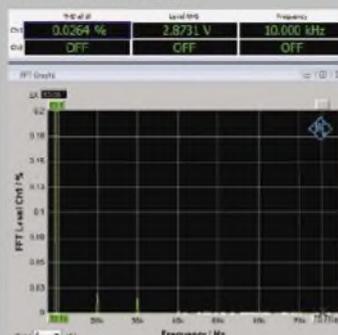
Noise levels were minimal: there was little hiss and hum was below 1mV.

The Stereo 40 MkIV measures well in high (L sensitivity) and low (H sensitivity) feedback modes, being acceptable even with no feedback (open loop). NK

**FREQUENCY RESPONSE (L)**



**DISTORTION (L)**



<b>Power (UL / Triode)</b>	<b>40 / 25W</b>
<b>Frequency response (-1dB)</b>	
<b>L sensitivity</b>	<b>2Hz-44kHz</b>
<b>H sensitivity</b>	<b>10Hz-31kHz</b>
<b>no feedback</b>	<b>20Hz-12kHz</b>
<b>Distortion (10kHz, 1W, L)</b>	<b>0.02%</b>
<b>Separation (1kHz)</b>	<b>86dB</b>
<b>Noise (IEC A)</b>	<b>-90dB</b>
<b>Sensitivity (0-L)</b>	<b>100-800mV</b>
<b>Damping factor (L sensitivity)</b>	<b>16</b>

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STEREO 40 MKIV  
£2199.95**



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**VALUE - keenly priced.**

**VERDICT**

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**FOR**

- powerful bass
- open and vivid
- remote control

**AGAINST**

- size and weight
- heat

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# Titan Time!

**Belfast-based Titan Audio have produced a winner with their new Nemesis loudspeaker cables, finds Jon Myles.**

**T**itan Audio may be a relatively new company but they have already built up a loyal following amongst hi-fi devotees. Rightly proud of their hi-tech approach to the business of producing cables

they have teamed up with experts from Queen's University in Belfast to gain insights into the interaction between the various elements that go into their products.

What's more, everything is hand-built at their headquarters in the

same city – with exacting attention to detail.

That level of dedication shone through in the Styx mains block I reviewed last year in Hi-Fi World (February 2018 issue). Not only was it superbly constructed, it also



Further reduction in EMI interference is provided by the use of two aluminium/carbon fibre cylinders at each end of the individual cable pairs – a device Titan says gives a cleaner, crisper sound.

Similar thought has gone into the connectors.

Titan believe any cable's weakest point is where it is exposed to the elements.

Airborne interference here can be a problem akin to the EMI and RFI that afflicts cables so Titan's engineers developed the quaintly named "Flubber" – a compound used to seal all connections in plugs and splitters. It's a nano liquid used to seal crevasses before having the oxygen removed, forming a solid connection able to suppress interference.

Finally, the cables are cryo treated: frozen down to a temperature below 196 degrees Centigrade before being slowly brought back to room temperature – a process aimed at creating a simpler path in the conductor's molecular crystals to allow a smooth musical flow.

Its all highly complex. But despite that, lifting the cables out of

managed to bring a better, more detailed sound to everything I used it with. An affordable price of £150 made Styx something of a bargain.

Now comes a slightly more ambitious project from Titan in the form of their flagship Nemesis loudspeaker cable.

Admittedly, at £3000 for a 2 metre pair Nemesis comes in at a price – if one significantly below what some other companies charge for their premium 'speaker cables.

In typical Titan fashion, effort has

"They have an open, fluid nature with actually very little characteristic of their own"

gone into the design, materials and geometry of these leads.

First off the Nemesis uses high-purity single crystal silver for its conductors. These are contained within a thick black sheath that is then braided to aid reduction of RFI & EMI interference – an ever growing problem with the increasing number of electronic devices – wi-fi and Bluetooth – transmitting in our homes.

the box I found them to be flexible – pliable enough to route around tight spaces, whilst exuding a feeling of solidity.

But the proof of the pudding with any loudspeaker is actually how it sounds and that's what I needed to discover.

### SOUND QUALITY

Some people have an aversion to silver cables, no matter how well

engineered, finding they can sound a little harsh and bright.

Thankfully the Nemesis pairing displayed none of that sound. Instead they had an open, fluid nature with very little character of their own.

What they do well is let music flow with an organic fluidity that brings out the natural timbre and atmosphere of instruments.

Hooked up to Copland's CTA408 valve integrated amplifier and driving Focal's excellent Kanta No1 standmount loudspeakers – both reviewed elsewhere this issue – I was impressed at just how well the combination worked. The Copland and Kantas are both sophisticated and the Titans complemented them well.

With the big, bouncy bass of 'Hacienda Classics' the low end was firm and propulsive, without overpowering the electronic melody lines flowing above. I could hear every instrument – and also little embellishments I had previously missed. Compared to some stock cables I'd been using everything seemed to breath easier, possessing a flowing naturalness.

Voices – especially – came over well. They were pushed clearly into the room, revealing human intonation. Hence Joni Mitchell's 'Big Yellow Taxi' gave me the impression she was standing slap bang in front of me as though in the room. The small inflexions within her delivery were superbly rendered – no hint of anything masked or brushed over.

The same qualities made themselves known on all my test tracks, making me listen long past the review period and pulling out some long forgotten recordings to enjoy them again.

Indeed the Titan Nemesis cables put in my mind some much more expensive cables I've heard – and in many cases bettered them I felt.

Yes, £3000 for a two metre pair of loudspeaker cables will make some people balk – but take a listen and I'll wager you'll be seduced. Add in their standard of construction and a lifetime guarantee – and these are truly exception performers.

### CONCLUSION

Titan have produced something special with the Nemesis. They have the power to let you hear your music as it should be – with a beguiling sound that demands to be heard.

**TITAN NEMESIS  
£3000 FOR 2  
METRES**



**OUTSTANDING - amongst  
the best.**

#### VERDICT

An excellent cable that lets music flow effortlessly.

#### FOR

- effortless presentation
- detail
- build quality
- organic sound
- lifetime guarantee

#### AGAINST

- not the cheapest

Titan Audio  
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# Vena II

Music in the blood



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Direct Stream Digital



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USB, optical & coaxial digital inputs



RCA analogue inputs



MM phono stage



Dedicated headphone amp



Quad's versatile Vena II integrated amplifier has pure musicality coursing through its veins. Its smart, compact design packs in a wealth of technology, including a hi-res DAC with USB and Bluetooth connectivity, a range of analogue inputs and a phono stage for vinyl fans. Available in traditional Lancaster Grey or a range of premium wood-wrapped finishes, the Vena II delivers a sonic performance brimming with engaging musical energy and finely honed finesse.



# Power Player

Noel Keywood goes out and about with a sturdy and advanced portable digital player from iBasso, the DX220.



**T**he new DX220 portable digital audio player (DAP) from iBasso is a heavyweight in many senses of the word. Weighing in at a solid 240gms on our scales and built in a solid CNC machined case it's pocketable but demands a strong pocket, being heavier than an iPhone's 190gms. Inside it has two top quality ESS 9028Pro reference digital converters (DACs), one per channel, iBasso saying it's "able to compete with any Hi-End DAC". And that's why the price is £799. This is a large hi-end player that borders on being a hi-fi component.

As you might expect the DX220 is a massively capable player, using an Android 8.1 operating system to manage all its many functions that go far beyond simple music replay. There's wi-fi for music streaming, Google Chrome web browser, music and games apps (Chinese!), Spotify, calculator and clock. The full-size high resolution 1080P screen has plenty more space for other apps if you so wish. But on to the music side of things.

To play music there's a Mango player app., responsible for putting up the various play screens, menus and cover artworks. The menu arrangement wasn't the simplest I have come across, with two track listings styled differently, and multiple screen choices with no fewer than three swipe down screens available whilst playing a track, one being the alternatively styled track list. Tracks could also be skipped by swiping sideways



**The large volume control at right has high resolution. To its left sit track skip and pause/play buttons.**

or alternatively a Settings menu could be coaxed out with a sideways swipe. Trying to select the three swipe downs was always difficult I found. Even difficult-to-impossible was return from Play mode to initial track listing, since the small icon for this at top right of the screen was unresponsive.

Start up time was a reasonable 27 seconds. There's a claimed 8 hours playing time from the 4400mAh



**The digital filter interface even gives a time domain graphic.**

internal battery re-chargeable battery (not removable) but I got around 6 hours with constant play but screen off. It can be run from an external 'phone charger (not supplied) with a USB lead (supplied) and as is common the lead can also be used to load music files to 64GB of internal memory. However, USB defaults to charge mode and must be manually set for file transfer.

Also, once loaded the files don't appear immediately, and must be manually scanned via a Scanner sub-menu in Advanced music play settings – awkward. Most players nowadays do all this automatically.

There's an SD card slot that can address cards up to 2TB – vast capacity. However, DSD files are huge, often 100s of MB, and the DX220 can play up to DSD512 (quad DSD), so DSD lovers may have need – but I have yet to see music above DSD128. I had no trouble getting DSD onto the player from both a Mac and a PC, although the high data rate of the USB C terminated cable forced connection direct to my Mac, to avoid a USB 2.0 hub. Android interfaces with Windows 10 better,

not needing the Android loader used by Mac. The player handles most file types, being able to process up to 32/384kHz PCM which includes WAV and FLAC of course, plus Apple file types – and DSD with both file headers. It will also handle MQA files from Tidal Masters.

Importantly for use as a multi-purpose hi-fi player there is an S/PDIF digital output in electrical and optical

form, an analogue Line output – surprisingly with variable volume – and two headphone outputs: 3.5mm stereo 3pole jack and 2.5mm stereo 4pole jack (balanced) – both at the bottom of the player. The top face carries USB C socket and the digital S/PDIF output. The player can be used as a headphone amplifier for a computer or as an external USB connected DAC to send computer audio to the hi-fi from the Line output. And there is two-way Bluetooth wireless linking to send music to the hi-fi or receive music from a transmitting source like Cambridge Audio's Alva turntable (see July 2019 issue).

There are three maximum output levels and no less than seven

digital filters but they have little affect measurement and listening showed. For more on all this see Measured Performance.

**SOUND QUALITY**

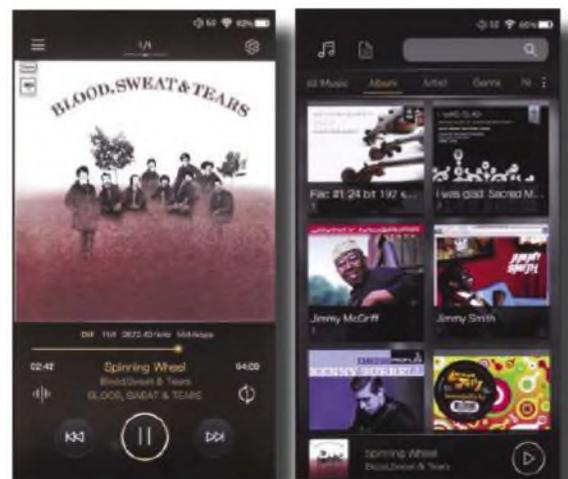
The iBasso had ESS sound in spades. With the Minnesota Orchestra playing Rimsky-Korsakov's Dance of the Tumblers, from Snow Maiden (24/96), there was both power and orchestral majesty. Horns were rich and fruity centre stage, the string sections stretching out broadly behind them, with strong presence at left and right. The DX220 had the



**An analogue Line output to feed the hi-fi sits at left. Phone is a standard 3.5mm stereo jack and BAL is a 2.5mm balanced output, for balanced 'phones.**

feeling of easy but expansive strength here – it lazed along with slick ability, creamy smooth, lusciously revealing and muscular.

Similar presentation with Diana Krall's Narrow Daylight (24/96) where she sang in an atmospheric space, piano having body and strength. ESS DACs have the ability to tease out subtle inner detail and I could



**The DX220's large high resolution screen displays cover artwork in rich detail, graphics being delivered by the Mango software player.**



**The microSD card slot can address up to 2TB, so there's plenty of storage capacity – needed for DSD.**

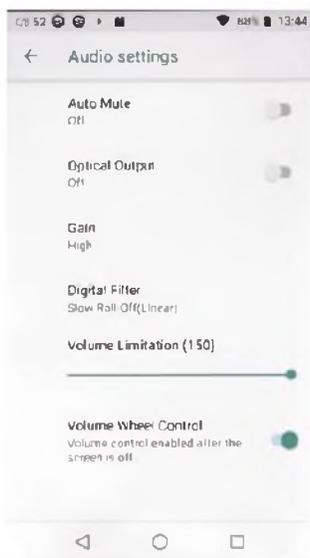


One of the player's advanced audio facilities, a parametric equaliser.

hear this in her fine vocal inflections. They are also creamy smooth and this quality was conveyed whatever filter was selected, the filters making little difference although I alighted on 2 as slightly the best composed

Playing my scuzzy Rock demo, The Eagles Somebody (CD) from Journey Out of Eden, a track that is heavily compressed to sound loud, the DX220 handled it well, getting the pace and power, minimising the harshness. The swirling Hammond organ had menace and the bass line rolled along unperturbed behind: pure Rock thunder.

With DSD the DX220 again showed its stage strength with Santana's Black Magic Woman (DSD64) where rim shots and



One of the Audio settings sub-screens.



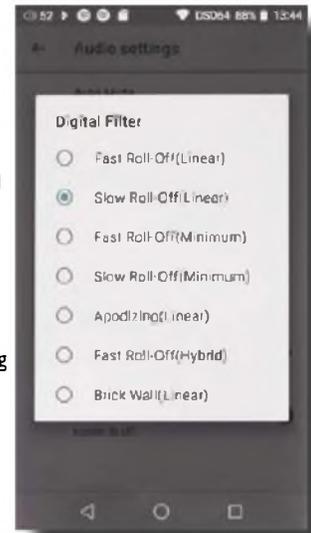
The top face carries a digital S/PDIF output for connection to an external hi-fi DAC or digital amplifier, plus a USB C socket for computer connection.

cow bell at stage-right and hand drums at stage-left had a nice sense of independent power as Santana cruised smoothly centre stage, classic feedback guitar cutting out of the mix. A player like this more shows the quality (or lack of) of old recordings, no matter how well they are transcribed into modern digital format. The crisp sound of Blood Sweat and Tears Spinning Wheel (DSD64) – again with more cow bell! – showed how well this player could differentiate between recordings.

**CONCLUSION**

The DX220 is an ambitious player, able to stream music from the 'net, send and receive via Bluetooth, handle all file types and much else. With a top quality ESS DAC in each channel it delivers a powerful and expansive sound. All this comes at a price however. It's user interface

is at iPhone level and even when in the Mango player the swipe options are challenging – and moving from internal memory to card difficult. It also runs warm after a few hours of play since there's so much inside consuming power. A fine player in sound quality terms and one for those wanting to play/stream music at the highest quality, but it demands involvement.



Seven filters – but they little affected sound from CD or hi-res.

**MEASURED PERFORMANCE**

Frequency response (192kHz sample rate) measured flat from 5Hz to 91kHz with the Fast filters and just slightly less with the Slow filters; there was little difference between them. With CD (44.1kHz sample rate) there was also little change in the amplitude response whatever filter was selected.

Output (High Gain) measured 3V from the 3.5mm unbalanced headphone jack and 6V from the 2.5mm balanced headphone jack – enough to go very loud with all headphones. The Line output delivered 2.9V maximum; this is not a fixed level output, the volume control alters level.

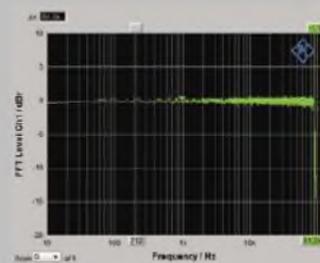
Distortion at peak level (0dB F.S.) measured 0.001% and at -60dB a low 0.01%, with EIAJ Dynamic Range a very high 123dB via the unbalanced balanced and Line outputs.

The DX220 measured very well in all areas. **NK**

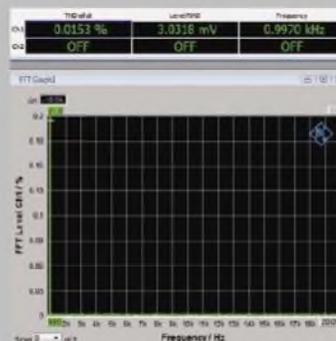
Frequency response (-1dB) 5Hz-91kHz  
Distortion (-60dB) 0.01%

Dynamic range 123dB  
Output (unbalanced/bal) 3V / 6V

**FREQUENCY RESPONSE**



**DISTORTION**



**iBASSO DX220**  
**£799**



**OUTSTANDING - amongst the best.**

**VERDICT**

Fine sounding player with massive ability, if with complex swipe-screen laden user interface.

**FOR**

- powerful sound
- Bluetooth
- streaming with MDA

**AGAINST**

- large and heavy
- can get hot
- awkward interface

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"Pre4 is a preamplifier with gain of x5 from its phono socket inputs to phono socket (unbalanced) outputs, or x10 from phono socket inputs to XLR socket (balanced) outputs. Although the internal ECC82 valve gain stage, one per channel, is a conventional unbalanced design, balanced output is provided by line-

drive output transformers. The point of this is to attain a low impedance but high gain from one double-triode amplifying valve, avoiding the use of a cathode follower or silicon chip for line drive – the usual solution. Isolated secondary windings also avoid hum loops.

What impressed me about Pre4 was its fabulous build and finish, as well as remote control of volume and input switching. A front panel machined from a 4mm thick aluminium billet, custom machined control knobs chrome plated, and a high quality motorised Alps volume control give it a lovely feel – firm as a rock – and appearance. The WD logo and text are actually etched in, likely

by a computer controlled milling machine. Few manufacturers go this far.

Turn the input selector switch and its silky solid action promotes small clicking sounds from sealed small-signal relays deep within. They have low contact resistance and last forever (rated at millions of operations). The switch isn't a switch in fact, it's a rotary encoder and the relays allow input selection by remote control. It's a solution we used in WAD preamps after disassembling mechanical switches with silver contacts, only to find the soft silver plating had been pushed aside after a very short time".

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### QUESTIONS

[1] What valve is used?

- [a] KT88
- [b] ECC83
- [c] 300B
- [d] ECC82

[2] Balanced output is provided by –

- [a] transformers
- [b] transistors
- [c] diodes
- [d] trained monkeys

[3] The front panel is –

- [a] gold plated plastic
- [b] aluminium
- [c] zinc alloy casting
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**MAY 2019 WINNER: iFi DSD DAC  
Mr. David Spridgeow of Nottingham**

# Danish Tasty

Danish manufacturer Copland has served up a treat with its new CTA408 integrated valve amplifier. Jon Myles explains all.

**C**opland is not one of those manufacturers that releases new products at a breakneck pace. Instead it prefers to refine its designs over a period of time

– releasing new products once every few years or so.

So any new amplifier from the specialist Danish firm is something of an event – and why we were so keen to get our hands on its new Copland

CTA408 valve-based integrated amplifier.

It forms part of a small range that also includes a cheaper integrated amplifier, pre/power combination and a DAC – each one



utilising valves in some way.

Integrated amplifiers have the advantage of taking up less shelf space compared to a pre and power amp combination. In the case of the CTA408, though, that advantage is negated by its sheer size. It's a hefty unit measuring 220mm x 435mm x 460mm (H/W/D) and weighing some 25kg thanks in no small part to the in-house designed output transformers.

You'll need plenty of space around it for ventilation as the valves inside the case generate a fair bit of heat even after just a short period of use. Copland itself recommends a minimum of 50cm at the sides and 40cm above.

The circuit utilises four KT150 output tubes allied to two 12BH7s and a pair of 6072A/12AY7s for the driver stage. The valves come separately boxed so you have to undo the casing (affixed by 16 Allen bolts) and slot them into place. The less technically minded need not worry as the supplied instructions are admirably clear and everything is well-labelled.

That's in keeping with the overall quality of the unit. With the lid off the neatness of the internal wiring is impressive while once put back together the casework is sturdy and nicely-finished.

The fascia features two large rotary controls – one for source

selection and one for volume – flanking a central circular display which utilises blue dots (LEDs) to indicate which input is being used.

At the back are four line-level RCA analogue inputs and a tape loop for those who still value these things. There are no balanced inputs – but there is a J-Fet-based MM/MC phono stage. You switch between the two using a small slider switch and the MC offers 50, 100 and 470 Ohm loading options. That's not as comprehensive as some standalone phono stages but should be enough to cover most MC cartridges. There's a choice of either 4 or 8 Ohm loudspeaker outputs and the package is completed by a dedicated Class A





*The Copland is built on a neatly arranged modern circuit board (blue). At top left is a large toroidal mains transformer and to its right Copland's large output transformers. Four KT150 power output valves are below. At bottom right is an Alps Blue motorised – for remote control – volume control.*

headphone amplifier with its 6.33mm (1/4 in) jack situated on the right-hand side.

All inputs plus the volume and on/off can be accessed by the supplied remote control which is pleasingly solid with large buttons and easy to navigate.

The KT150 valves give a claimed power output of 75 Watts per channel (see Measured Performance f

which is well within their operating range. Copland says this has been done deliberately to extend the life of the tubes which it puts at least 4000 hours.

Switch-on sees the CTA408 go through a stepped power-up sequence which delays sound output for around 50 seconds while the valves stabilise. This is indicated by a flashing red dot on the display which turns solid when the process is complete. I've no idea why Copland chose red for this feature as it looks rather glaring and out-of-place compared to the cool blue that makes up the rest of the circular display. Still, that's a minor criticism. What counts is how the Copland performs...

### SOUND QUALITY

I connected the CTA408 to a pair of Focal's Kanta No1 standmounts (see review in this issue) via the 4 Ohm 'speaker outputs with music being supplied by an Oppo UDP-205 universal disc player via CD and an Astell&Kern digital audio player for high-resolution material.

From the off it's evident that the Copland has a well organised and insightful presentation with an even-handed approach to relaying music. With John Mayall's 'Blues For The Lost Days' the CTA408 doesn't emphasise leading edge of guitars like some amplifiers can on 'Dead City' but there's a wonderful organic sound which flows effortlessly from the 'speakers.

Everything was of a piece – drums, guitar, bass all in their own space. And, boy, did the harmonica soar through the Beryllium tweeters of the Focals when it came in. As did Clifford Solomon's tenor saxophone solo on 'Stone Cold Deal'. This was the sound of a band locked into a groove and the Copland let me know it with infectious enthusiasm.

Turning to Steve Hewitt's 'Bigger Than Words' CD there was a gentle,

crisply-defined acoustic guitar with drums taut and impactful! As the music gathered pace on 'Pieces' the Copland displayed a good sense of tempo, never seeming fazed or behind the pace as tempo stepped up.

The intricate guitar picking on 'Move On' sparkled – every string could be heard. Again not a beat was missed as the track changed pace. It's an easy-going sound yet lacked nothing in the detail stakes.

Admittedly the Copland doesn't have the outright slam or hard-charging nature of my resident Naim Supernait 2 on tracks like Deep Purple's 'Black Night' – nor would I expect it to. However it trades that for a more mellifluous, fluid nature that was never less than entertaining. This contributed to good rhythmic drive – something not all valve amplifiers can muster.

I could have asked for a bit



*The KT150 valves in situ.*



*The Class A headphone amplifier circuit has its socket situated on the right-hand side of the chassis.*



more bass depth on The Chemical Brothers' 'Block Rockin' Beats' (24/96) where a Creek Evolution 100A transistor integrated brought out more in the lower registers. However, I never thought I was being short-changed in this department and could happily sit

back and soak up

**Four KT150 power output valves are used to deliver 75 Watts per channel. They are a modern design with long life.**

the music. That said those whose listening majors on dance, dub or bass-heavy tracks may want to look elsewhere. Those with a wider music palette, however, will appreciate the Copland's other qualities.

Turning the volume up on Creedence Clearwater Revival's 'Bad Moon Rising' there was no sign of strain, the Copland managing to go loud without threatening to break-up. It actually sounds more powerful than those 75 Watts would suggest – as evidenced by Leipzig Gewandhaus Orchestra's rendition of Beethoven's 'Ninth Symphony'. Here was the sound of an orchestra in full flight, crescendoes bursting into the room from the Focals with suitable grandeur. Stereo imaging was a stand-out feature; sonic images extended far beyond the edges of the 'speaker cabinets with good height and depth so the full scale of the piece became enjoyably evident. There was no hardness to the sound and a good degree of air and space around the individual instruments.

Turning to vinyl using Cambridge Audio's Direct Drive turntable with a moving coil cartridge the phonostage – which has active RIAA equalisation – came over as smooth and pleasantly refined with low noise and hiss levels. There isn't the last vestige of detail that some standalone phonostages can extract but in terms of the Copland's overall price and other features it's well up to the task.

In fact the more I listened to the Copland the more I enjoyed its various attributes. In sonic terms it doesn't grab you with one standout feature but instead does what



**Inputs include four-line level RCAs, a tape loop plus an MM/MC phonostage. Both 4 Ohm and 8 Ohm loudspeaker outputs are provided.**

good amplifiers should by relaying whatever you play in an organic, uncluttered way that lets you just sit back and relax.

### CONCLUSION

The Copland CTA408 is an excellent integrated valve amplifier that will

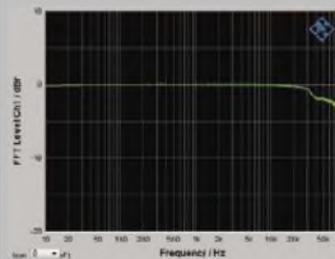
delight many a listener. It has a natural fluidity that works with all genres of music and a lack of transistor edge which means you can listen to it for hours on end without strain. If you want a neutral valve amplifier that doesn't impose itself this is one worth auditioning.

### MEASURED PERFORMANCE

Power output of the Copland CTA408 measured 80 Watts into 8 Ohms, and also into 4 Ohms from the 4 Ohm tap – good coupling efficiency in the output transformer.

Distortion across the frequency band at 1 Watt output measured very low at 0.04% but distortion rose progressively so at -1dB below full output levels were high at around 0.6%. Bass distortion was low at 0.04% (1W) and 0.6% (full output) so the Copland will deliver cleaner bass than is common from many valve amplifiers.

#### FREQUENCY RESPONSE



#### DISTORTION



Output impedance measured 1 Ohm, giving a damping factor of 8. It's on the low side but subjective impact depends upon acoustical damping in the loudspeaker as well, the Copland suiting well damped loudspeakers like near-wall over-damped designs.

Frequency response measured flat from 3Hz to 33kHz from the line (Aux) inputs.

Equalisation of the MM and MC phono inputs was accurate giving consistent response between the two inputs, frequency response measuring flat from 12Hz to 20kHz, with -6dB attenuation at 5Hz to slightly suppress warp signals. Sensitivity of MM and MC was on the high side at 4mV and 0.35mV respectively and overload ceilings very high 250mV and 25mV also. Noise was very low at -84dB MM and -73dB MC. Both MM and MC stage gave great results and are purposed for quality MM and MC cartridges.

The Copland CTA408 measured very well in all areas. It has been carefully designed to be consistent in behaviour across all inputs including MM and MC phono cartridges. NK

Power	78W
Frequency response (-1dB)	3Hz-33kHz
Distortion (10kHz, 1W)	0.04%
Separation (1kHz)	87dB
Noise (IEC A)	-103dB
Sensitivity	220mV
Damping factor	8

**COPLAND CTA408**  
£6398



**OUTSTANDING - amongst the best.**

#### VERDICT

A beguiling, natural sound that is not short on detail makes the Copland an entertaining performer.

#### FOR

- organic sound
- detail
- fluid dynamics
- build quality

#### AGAINST

- not the deepest bass
- size

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Hi-Fi World Verdict, July 2019

**OUTSTANDING** - amongst the best

**Conclusion:** As appearance suggests, this McIntosh combination offers brutal ability. But the power-station output transformers of the MC2152 are quite apart from all else. Whilst you get the power of solid-state, the sound staging, vivid dynamics and timbral resolution is that of valves – or tubes should I say. Add in Times Square levels of illumination and the C70/MC2152 are truly amazing – a visual and audible display like no other.

**Verdict:** Massive power and punch. Overwhelms most else and has facilities and lights to match.



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Answers by: **NK** - Noel Keywood; **JM** - Jon Myles; **PR** - Paul Rigby; **MP** - Martin Pipe.

## LETTER OF THE MONTH PRIZE



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**A KEF EGG WIRELESS DIGITAL MUSIC SYSTEM is on its way to DAVID KEENAN, Letter of the Month winner in our July 2019 issue.**

## Letter of the Month

### VALVES & VINYL

After a recent major purchase I just had to share my experience. I have a small dedicated listening room measuring 11 by 8 feet. My system consists of a Linn LP12 turntable of a decent spec. owned from 1980. Upgraded over the decades it now includes a Sole s/chassis and The Mober DC motor and controller (poor man's Radical). I abandoned Linn upgrades due to their outrageous pricing model. Tonearm is the Audio Origami Pu7 with the wonderful Ortofon Cadenza Bronze moving coil cartridge.

Phono stage was a Trichord Diablo with amplification provided by the Icon Audio Stereo 40 Mk III. Speakers are the Acoustic Energy Radianc 2.

The system was very much a case of swings and roundabouts often sounding superb yet at other times missing that spark and failing to involve me.

I put the blame on my speakers and decided a smaller room friendly model would solve the issue. However smaller speakers generally require more than the 40 Watts the Icon puts out. From eBay I picked up a very nice Roksan Caspian Mk2 integrated amp. Its 85 Watts would give me the speaker flexibility the Icon couldn't.



**Icon Audio PS3 MkII valve phono stage. "I've had it for a couple of weeks now and it has really blown me away" says Steve Chapman.**

I hooked it up switched it on – and on first listen was very pleased. Bass was tight, deep and punchy with plenty of detail and nice wide sound stage. However, further listening revealed fatigue and a brightness I didn't like. Time to sort the speakers out I thought.

I read the favourable review in your magazine of the Spondor A1. It sounded exactly what I was looking for. I follow

Paul Rigby's online blog and exchanged emails with him regarding the Spondors. But to my surprise Paul pointed to the Trichord Diablo as a bottle neck in my system and suggested the Icon Audio PS3 phono stage. This was the same advice I received from Noel some years ago from a letter I had written to the magazine. At the time the PS3 was a bit pricey for me and I went for the

Diablo instead. After giving it some thought I pulled the trigger on the PS3. The Diablo was taken in part exchange, softening the blow somewhat.

I've had it for a couple of weeks now and it has really blown me away. It's a superb piece of kit. I used it with the Roksan amp to start with and felt

worth considering? I have a budget between £2000 to £2500. Would the Icon Audio Stereo 30se or perhaps the new MkIV Stereo 40 be an upgrade or just different to the Stereo 40 MkIII? Any advice would be welcome.

Regards  
**Steve Chapman**



**The Audio Research VS175 is a fast sounding 75 Watt valve amplifier with dynamics and grip.**

it was a good match. Gone was the brightness and fatigue I noticed with the Diablo. Here was a nice wide sound stage, detail aplenty and tight deep bass.

Was it worth trying it with my Icon Audio Stereo 40 MkIII? I decided to give it a go. A quick read through the Stereo 40's notes revealed that it could be used as a power amp with the PS3 as a preamp. Once all was hooked up I lowered the stylus onto Stevie Ray Vaughn's *In Step* and sat back. I was greeted by a huge, wide and deep sound stage with powerful rich sound. Suddenly the Roksan sounded flat and two dimensional. To my ears there was no comparison. Any doubts I harboured regarding valves had been swept away. The Roksan Caspian is not a bad amp at all and its bass is tighter and punchier than the Stereo 40, but that's all it has to offer in my system.

Many albums later I continue to be delighted with my whole system. The Acoustic Energy speakers are staying; they clearly revealed the differences between each combination I tried. The Roksan will be going back on eBay very soon.

I'm now wondering if a move up the valve food chain what would be

Hi Steve. Icon Audio's PS3 uses valves and input transformers for MC, for inaudible hiss and massive dynamic range. Few transistor phono stages can match the low noise, galvanic isolation and immunity to overload of a transformer. The price of the PS3 reflects this; such transformers are specialist items and don't come cheap – unlike silicon

chips. The cost difference is a few £s for a chip and £40 for a transformer if bought in quantity. You are hearing the huge difference between what chips offer and what valves with transformers offer. For LP I choose to use a PS3, although the better chip stages from Creek, Pro-ject and Cambridge Audio sound good all the same and are great value.

Your Icon Audio MkIII amplifier is not easily improved upon. An interesting and arresting alternative is the Audio Research VS160 and VS175; Audio Research amps are very fast and dynamic, if less romantic than your Icon. But they are way above your price target unless you buy second hand.

You might like to try a bit of 'tube rolling' – swapping valves. Icon Audio now have their own LT150D plug-in triodes that we use in their Stereo 30se – but they reduce power.

Should you buy the Stereo 30se we use? Perhaps not – sounds like you need a bit of power. A single-ended amplifier is ultimately smooth – by definition – being free of crossover distortion. I wouldn't say it offers a revelatory improvement over what you have. The Stereo 30se is very practical – just two output valves and no bias adjustment. Ours has proven to be a stable workhorse with flawless sound into Martin Logan ESL-X electrostatic loudspeakers, which are as revealing as it gets. For more punch Icon Audio's MB90 90 Watt mono block power amplifiers may be the answer, but at £4200 new are again a bit above your budget. **NK**



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**Acoustic Energy Radiance 2 loudspeakers "clearly revealed the differences between each combination I tried" says Steve Chapman.**

reasonably damped?) or that the box was adding extra colour to the bass due to inadequate box damping?

You used to include loudspeaker distortion and spectral decay measurements which I enjoyed. Sadly now these are not published. I understand the space limitations so perhaps you can put it on your website?  
Best Regards

**K. Fonseca**

PS Sadly, these days you seem to be the only magazine covering and measuring reasonably priced gear.

Hi Keith. The speakers were measured with grilles on and off, but the result published was off, the grilles making little difference. As you say there will be diffraction from traditional raised beadings around the edge of the cabinet but it affects

### ADVENT 201 CASSETTE DECK

I just finished reading your Olde Worlde review of the above deck. Although I remember the Advent and aspired to a Nakamichi (I eventually bought a ZX9), my first experience of a hi-fi quality cassette deck was with the excellent Sony TC-177SD. This was one of the first affordable 3-head cassette decks and superseded the TC-160SD and TC-161SD. If memory serves, the 177 was introduced in 1974 and was the last of Sonys top loading decks with the back top plate angled towards the user to make the meters easier to read. Great deck!

Regards

**Chris Moxham**

Hi Chris. You have a Nakamichi ZX-9? An all time classic. Hope it is still working fine for you. Mine is in a box, never to be disposed of! Cassette



**Sony's TC-177SD was one of the first affordable three-head cassette decks says Chris Moxham.**

was developed by Sony (and Aiwa) to give extraordinary performance. **NK**

### DENTON 85

I read your review of Wharfedale's Denton 85th Anniversary Edition loudspeaker with interest. Just three questions.

Did you listen and measure with the grills on or off? I think diffraction will be an issue with the inset front with grills off.

Could you please clarify what you mean by "resonant bass"? Do you mean the bass was poorly damped (the impedance curve shows it to be

imaging little, especially from modern projective dome tweeters.

It is possible to acoustically damp bass strongly with a broad tuned port. This is theoretically attractive as it gives more controlled bass behaviour. The Denton harks back to more resonant and obvious bass, having both energy and power. That's how speakers were and this is a traditional re-imagining of the sound. I suspect most listeners will like it. It's possible to control all this with modern loudspeaker design programmes and Wharfedale have

**Advanced loudspeaker measurements demand an anechoic chamber, like this one at the National Physical Laboratory, Teddington, Middlesex (UK).**



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The Beatles  
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4/5

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**Wharfedale Denton 85th Anniversary Edition loudspeaker.**  
**"Please clarify what you mean by resonant bass" asks Keith Fonseca.**

struck a nice balance here I feel.

Distortion and spectral decay measurements are fascinating and informative but they have to be made 'near field' with the measuring microphone within 1mm of the drive unit cone or dome, in a room or the results are contentious. That means a plot for each drive unit and it all becomes too much to publish or for most people to understand. Such engineering analyses are time consuming and difficult to justify, if informative if you know how to interpret them. The only way to get one unarguable and easy to interpret result is to use an anechoic chamber and these are impractically expensive and awkward because of booking times.

A lot of 'reasonably priced gear', especially from long established UK manufacturers like Wharfedale, Quad, Creek Raga, Cambridge Audio, KEF, Acoustic Energy and so many others offers a sound that easily matches high-end esoterica so we are happy to cover reasonably priced gear. Just look at Steve Chapman's system in our first letter this month. **NK**

### QUAD VENA II

Some time ago you provided me with sound advice regarding the Quadral Chromium speakers, a pair of which I bought and am very happy with. I am looking to update my current Naim NAPI 20/NAC22 amplifier combination, purchased originally in 1978 and reconditioned by Naim three years ago, to the Quad Vena II to provide me with

more versatility at a reasonable price and about which I have read good reports.

I am a vinyl enthusiast primarily, using a high output Dynavector 10X5 MC cartridge but also route TV and iPad sound through my Naim via an Arcam

lovely ribbon tweeter of Quadral's Chromium Style 8 loudspeakers (reviewed March 2016 issue). And their sensitivity of 89dB will make the most of the 70 watts or so of power available into 5.3 Ohms from Vena II. Add in Vena's phono stage and S/PDIF and USB digital inputs, processed by an ESS9018 Sabre 32 Series digital-to-analogue convertor (DAC), and you have it all. That would be a very svelte system of highest accuracy and pedigree. **NK**

### VOLUMIO

I have just discovered 'Volumio' music server software and I am downloading the free version for my PC to try it out. I already have several USB DACs and I am looking into low cost audiophile streamer/servers (software and/or hardware) to work with separate DACs in various systems. Why pay for another DAC when you have already bought one?

Volumio claim they are working with Quad, Pro-Ject, Bryston and new start-up 'Stack Audio'. There is an intriguing photo of a control tablet with Quad (Volumio?) software? Volumio also make their own 'Primo' player but this includes a Sabre DAC.

I don't think Hi-Fi World has ever



**"Will Quad's Vena II provide me with more versatility at a reasonable price?" asks John Arnold.**

DAC. The Vena would appear to provide all these facilities.

My concern and question is, would the Vena be compatible with the Quadrals?

Kind regards,  
**John Arnold.**

Hi John. That will be a fine combination, since the smooth sound of the Vena II will be revealed by the

covered the Volumio 'ecosystem'. I would be interested in a thorough technical review.

I use and love my little Auralic Aries Mini (£450) USB streamer/server working into an Audiolab 8300 CD USB DAC (controlled by the DS Lightning app on an iPad) but I don't think this Auralic unit is still available.

I have also made my own USB streamer with a Beelink mini PC for the

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**Volumio music server software. "I am downloading the free version for my PC to try it out" says Mike Tartaglia Kershaw.**

Audiolab M-DAC+ running J River Media Centre software, but other readers may not want to get involved with computers. I prefer not to use a computer if possible.

There are very few pure USB streamers without DACs but manufacturers seem to have realised recently that there is a market for these units, which are really software driven and do not need much hardware except perhaps some form of jitter reduction. Best wishes,

**Mike Tartaglia Kershaw**

Hi Mike. Thanks for bringing up the subject of Volumio that I am sure will alert readers. It's an interesting freeware system that we hope to cover in detail soon. **NK**

### FM RADIO RECEPTION

In the last few years I have noticed that the reception of Radio 4 is occasionally poor on my car radio in some areas. Switching to Radio 2 usually gives a better reception. Is this because of different powers at the transmitter, or the way the broadcast is processed (compression)?

Being a sceptic, I was wondering if the BBC are making the reception of FM worse, in an attempt to make us all switch to the crystal-clear sound of 'gargling marbles' on DAB radios.

My 2000 guide gives the power output of Sutton Coldfield as 250,000 ERD kW whereas an on-line search gave it as now 200kW. I am as electronically literate as a myopic dyslexic. I would very much appreciate it if you could look into this and give an

expert's comment.

Many thanks for an interesting read.

**Ray Spink  
Nottingham**

### THE BBC SAY –

"The four BBC Network Radio transmissions from Sutton Coldfield are transmitted with the same Effective Radiated Power. The ERP is a function of the transmitter power and the gain of the transmission antenna. As the gain of the antenna varies slightly with frequency, the in-use transmitter powers varies between stations to maintain a consistent set of ERPs. Our service provider routinely monitors each transmitter to ensure the transmitted signal remains within specification.

Nottingham is fully served by Sutton Coldfield for FM radio. Trees, hills and buildings can block and reflect the signal, leading to noise and distortion. As the correspondent suggests, music on Radio 2 is more likely than speech on Radio 4 to mask these effects.

There has been a recent trend towards car manufacturers installing shorter or hidden radio aerials, which can be detrimental to the quality of reception in all but the strongest of signal areas. The car aerials themselves maybe sensitive to the



**Quadral Chromium Style 8 loudspeakers. Will Quad's Vena II suit them, asks John Arnold?**



**The Sutton Coldfield transmitter, serving radio to the Nottingham area. "Radio 4 is occasionally poor on my car radio in some areas" complains Ray Spink.**

different frequencies used and distort the reception.

Regarding the gargling marbles of DAB – Nottingham has extremely good DAB coverage. So if your listener is having issues with DAB reception, then it would at least be worth checking out our reception advice tools to see if there is a straightforward solution. Link here: [https://www.bbc.co.uk/reception/digitalradio/reception\\_problems](https://www.bbc.co.uk/reception/digitalradio/reception_problems)".

Hi Ray. That's a succinct and informed answer from the Beeb – bless 'em. Since transmitter power for Radio 2 and 4 are the same, only frequency is the variable. So as they say, you are likely suffering a frequency dependent issue such as car aerial tuning (length). In other words – try another aerial! I hope that helps.

On DAB, transmitter powers are too low for universal coverage; areas of NW London where I live are shielded from the Alexandra Palace transmitter just miles away, the only way to get decent results to avoid gargling being a loft or outdoor aerial. **NK**

### OLD – BUT GOLD?

*I love the fact that vinyl is physically better than digital but have not considered buying new releases nor re-releases of classic vinyl albums as the cost is still too great for a return to my shelves. I have no room for more of the stuff and can't even get to my turntable at present as the repairs I undertake for enthusiasts are piled up in front of it!*

*Many of my customers insist that far from being hi-fi, vinyl is best heard on horrible Dansette or equivalent record players, which is their choice of course, but having paid renovation costs bringing these things up to £250 a piece I have to ask are they hearing*

*something I can't? Original crystal or ceramic cartridges are very rare and cost the same as a modern MM and are not guaranteed to last more than the time it takes to install them. The modern low profile equivalent made by Sanyo is rather too delicate for a bruiser of a turntable from the likes of Collaro, BSR or Garrard from the 1950's or 60's although I do fit them and wonder how long they will last. At less than £4.50 a time they are throw away!*

*Valves are a strange subject. The EL84 has undergone several minor changes in its lifetime so what you might purchase as an original 40 year old Mullard valve is not the same beast in its modern equivalent with the same name. Its biasing being different, such that many amps using them either sound horrid or will over drive the valve to destruction. Most EL84 amps do not have adjustable biasing so you are stuck with whatever the manufacturer*

*and designer thought was best with the valves available at the time. So you need to understand what you buy and what amp you are using them in. I use some valves when repairing hi-fi and other manufacturers in guitar amps. The advantage of being an engineer I get to fix these component part issues in the surrounding circuit as I work. I know Leak stereo 20s work with the GT EL84 in cryo or standard form giving a clean and open sound very different from the warm and woolly old Mullard (I have a full set of original Mullards) and yet it still has a great sound and still sounds like valves.*

*The humble ECC83 has so many subtle flavours that you can pick from the 60 or so different versions from quality makers and get something different every time. Likewise, batch issues can also change things. Avoiding certain makes is something that is necessary and e-Bay is not the place to buy either unless you need something very rare in singles, think pre-1950 rarities. There are good suppliers out there who are specialists and know their products. I find it odd that a supposedly ultra low noise microphone preamp will use ECC83 valves when the obvious valve, even though considerably rarer, is the EF86 as used in lots of old valued hi-fi preamps. Properly built this is so much better sounding.*

*I don't think there is a general reduction of quality of valves except perhaps in the OEM market. There are millions still made and many of them end up badged for the guitar amp market where 3-6 ECC83 or 12AX7 valves in an amp isn't unusual. Even when new they can suffer from internal*



**"Leak Stereo 20 amplifiers work with the GT EL84 in cryo or standard form giving a clean and open sound very different from the warm and woolly old Mullards" says Dave Tutt.**

shorts, poor gain, high noise, open circuit heaters, poor vacuum, open circuit grid or cathode connections. As such they can be a very mixed bag. Given that these valves could be printed with the amp manufacturers name and be termed "special quality" tells you much about the way they are sold.

These OEM valves also end up on the web on the bargain web sites – and to be honest cannot be trusted. An ECC83 and an 82 and an 81 are all pretty much the same except for their gain characteristic so you could be buying any one of them with the wrong label. Valves from known suppliers do tend to be better and there is of course considerable choice.

Output pairs or quads must be matched. If not you risk not only damage to the rest of the amp but also a very unknown standard of sound. The output stage is in most cases a balanced stage so if you unbalance it with a new and an old valve you will end up with an unbalanced sound.

Sorry I have sort of gotten carried away here!

Best wishes

**Dave Tutt**

**Tutt Technology**

**2 Maunders Close**

**Chatham**

**Kent ME5 0AU**

**www.tutt-technology.co.uk**

Hi Dave. Thanks for getting carried away! It brings a smile to my face, having encountered most of these issues you mention with valves, some of them being distressing in their basic crudity. What I am alluding to, and you are talking about, is third-world production quality from ageing factories in Eastern Europe and China. Russia is little better. Or should I say "was".

Whilst I have horror stories to tell, quality is improving all round. The recent KT150 power valve is a great example of this. After the crude mechanical tune ups (bigger anode area) of the wonderful KT88 that were the KT90 and KT120 – clankers in my view – we now have the KT150. Here, the New Sensor Corporation has excelled; I wish them all the luck (good sales!) they deserve.

As you note, it is difficult to explain audio quality to studio people: "treading on eggshells" comes to mind. End users are demanding of quality and the music business must learn how to deliver and not sneer at the idea. **NK**



**Tannoy DC10A loudspeakers, in Marc Van der Veken's system number two! They have "Tannoy dynamics, imaging and precision" he says.**

### TANNOY TODAY

It is so nice to find a magazine that admires Tannoy. Out of experience, I know what can be achieved with Tannoy. I would like to present both my systems, built around Tannoy.

Sources are : EMT 930 (Denon 103), OEM turntable with Jelco 750D and EMT/VdH, Cocktail Audio X40, Oppo BD-105 and Marantz CD10/McIntosh D-100 DAC and a Sonos Connect/D-100. Screen is Samsung 46"

Digital connections to Lyngdorf DFA-1 and analog connections to McIntosh C-2300, as such, all these sources are compatible with both systems.

System 1: C2300 (acts as phono stage), DFA 1 (digital preamp/room perfect, digital X-over), filtered at 160 Hz (LiRi 4th order) to drive two MC7100 for the woofers (2x2 Lyngdorf W-210) in a sort of vertical bi-amping, i.e. each woofer has one MC7100 channel available. Two Tannoy Mini Autographs are driven by McIntosh MC-275 upwards of 160 Hz. In this system every single part works within its "comfort zone". Due to the efficiency of the woofers (ca 100 dB/W) the output to the MC7100 is set at -1.5dB reference to the MC275/Mini Autograph combi. Result is enormous

power to the LF where eight (in total) 10" woofers do the job. The Mini's, not having to deliver LF are nothing short of amazing.

System 2: C2300 going through Lyngdorf TDAI-2170 (configured as room perfect processor only) and Dynaco ST-120 (Tubes 4HiFi/Bob Latino) (KT120 or KT88 or 6550) into Tannoy DC10A topped by Elac 4Pi plus 2 ribbon tweeters.

Cables are Deskadel Silver for the phonos, Supra XLR and VdH. Besides room perfect, the room itself is also acoustically treated. System 1 can easily deliver live concerts at 105 dB (peak) without any stress.

Which do I prefer? Both have the Tannoy dynamics, imaging and precision... It is just very much fun to be able to choose depending on my own "mood".

**Marc Van der Veken**  
**Akkerdonckstraat 15 2150**  
**Borsbeek**

Hi Marc. Yes, Tannoy loudspeakers were always a great experience. Now the company has been bought by Behringer the chief designer Dr Paul Mills and others have started Fyne Audio so the legend lives on. **NK**



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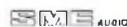
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# Build Quality

**World Designs Pre3CF is a beautifully engineered preamplifier offered as a kit. If you want to build quality, this is it says Noel Keywood.**

**A**fter the lovely remote controlled Pre4 preamplifier I reviewed in our May 2019 issue the question arose: what about the less expensive Pre3, recently released in budget CF form? Lacking remote control and balanced outputs it costs less and is a great way to have the satisfaction of a product you have built yourself and can tweak or repair to last a lifetime, or you can buy it built. Not a disposable product then, but one moulded to standards of a different time when disposability wasn't an option.

A product with mechanical solidity as well as a great standard of finish is a lost art – but not here. The front alloy fascia is machined and

finished from a 3mm thick aluminium billet and the knobs are also solid and heavy machined metal, fine chrome plated for a lustrous shine. That Pre3CF has a standard of build and finish not seen in commercial product is hopefully apparent in our pics. Dimension are a width of 135mm, depth 314mm and height 82mm, with weight of 1.3kg.

So here it is as a kit you can build yourself, price £360, or you can buy in built form for a £180 surcharge. It requires an external power PSU3 supply, price £299 with a build charge of £90. Total cost in built form is £929. World Design also offer an XL version with gold plated valve base, upgraded audio cabling and higher grade audiophile Vishay /

Soniqs capacitors, price £430.

Pre3CF has no gain, being a zero-gain buffer preamplifier. It acts as a high quality source selector and volume control, able to drive a long line to a power amplifier. There are five line level inputs, through sturdy gold plated phono sockets. Selection is made by the rotary control at right that actuates gold-plated sealed small-signal relays to avoid the use of a simple mechanical switch that will oxidise and degrade sound quality as it does so. It's a high quality solution that ensures long life, such relays being rated at millions of operations.

At left is the volume control, a high quality, audiophile-standard Alps Blue potentiometer. With big body, long track and smooth bearings



this little unit has an unchallenged reputation – and long life. The large, machined, chrome-plated control knob offers a lovely feel. This being a kit you get to see and solder up the unit.

Measurement showed a gain of  $\times 0.9$ , meaning Pre3CF will accept digital sources, most of which give 2V maximum output, sending it to power amplifiers that commonly need 1V maximum input. The only time this will be inadequate is with low output external sources like some phono stages.

The main difference between Pre3 and Pre3CF I am reviewing here is absence of output transformers – expensive items. Where Pre3 can be configured to give balanced output through phono sockets, Pre3CF offers only

"a sleekly smooth sound that was atmospheric yet beguiling in its purity and clarity"

unbalanced output through phono sockets. You don't get the quality and isolation that transformers provide, but nor their cost.

Pre3 uses a single E88CC



*A relatively simple internal circuit board with the single Tesla E88CC double-triode at centre. The rotary input selector (bottom left) is mechanical but it operates sealed gold-plated long-life audio grade relays on the input board at rear, keeping signal lines short and avoiding degradation as switch contacts wear and oxidise.*

current diode can optionally be used in the cathode follower to give better results than a standard resistor. It's optional because such diodes are FETs and not everyone wants one of those in a purist valve amplifier! The external supply ensures there is no hum.

The PSU 3 power supply uses solid-state rectification with Schottky diodes – there are no valves – fed from a toroidal mains transformer. To suppress both noise and hum a frame

(6922) low noise double triode valve configured in what is known as Cathode Follower arrangement – hence CF – in order to drive a long cable to a power amplifier. A constant





**The single Tesla E88CC double-triode valve sits in conventional PCB base. Those wanting a bit more glitz can order a base with gold plated pins, at extra cost.**

construction choke is used. Chokes offer greater suppression of noise than solid-state regulator chips but are far more expensive.

**SOUND QUALITY**

I connected the World Designs Pre3CF to our Creek Evolution 100A amplifier through its direct (no volume control) unbalanced Line 4 phono socket inputs. The Creek was connected to our Martin Logan ESL-X via Chord Company Signature Reference cables, the system being run from an Isotek Evo3 Mosaic



**The small rear panel carries five line level inputs plus a tape out. There are two line outputs. All run through solid gold plated sockets.**

Genesis regenerated mains supply. Source was an Audiolab M-DAC+ fed CD from an Oppo BDP-205D acting as a transport. An Astell&Kern AK I20 portable digital player was connected via S/PDIF and a MacBook Pro via USB, running an

earth loop currents. Playing DSD through the Pre3CF showed how its smoothness and easy dynamics suited the Haydn Concerto for Horn by Jasper De Waal (DSD64) where horn took rich and well textured presence

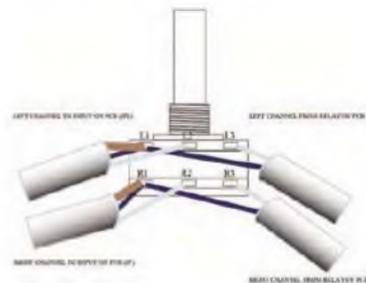
WDPre3 Kit Assembly Instructions

**WIRING THE INPUTS AND VOLUME CONTROL**

**Fig. 14** Take 275mm Blue twin core screened cable, cut back the outer insulation AND the screen braid to approx 25mm and insulate to avoid fraying. Solder the White/Clear inner core to the potentiometer terminal L3 and the Blue inner core to the terminal L1.  
Repeat for the Right channel, soldering the White/Clear inner core to terminal R3 and the Blue inner core to terminal R1.  
Take 200mm Blue twin core screened cable and cut back the outer insulation to approx 25mm. Cut back the Blue inner core insulation to 25mm, unplat the braid, twist these wires together, and insulate. Solder these wires to the potentiometer terminal L2, and the white/Clear inner core to the potentiometer terminal L2.  
Repeat for the Right channel, this time using approx 75mm cable. Fit the potentiometer to the front panel using the washer and nut provided. If necessary, scrape some paint away from inside the chassis to make sure that the potentiometer is grounded.



**Fig. 14** POTENTIOMETER WIRING



**CAN YOU BUILD A KIT?**

Here's an instruction page from the World Designs Pre3 (not CF) showing an Alps Blue potentiometer (volume control) and its wiring, with both picture and diagram. Other examples are on the World Designs website. If you can solder well and have a small understanding of electrical circuits, plus a few inexpensive tools, then likely you can build a kit.

Audirvana Plus player able to send all digital files, including DSD. Both the Oppo and AK I20 were connected optically as isolated sources, the former with QED Quartz glass-fibre optical cable. The MacBook Pro was run from battery power, also to be an isolated floating source free from

centre stage, dancing strings a silky accompaniment laid out in space behind. With John Coltrane's Easy to Remember (24/96) his tenor saxophone was velvet smooth at left, piano having body and a gentle but full bodied character, each note subtly but fully delineated, the final



Inside PSU3 power supply is a toroidal mains transformer (right) with a smoothing choke just above it in our shot. Chokes better eliminate noise across the audio band than solid-state regulators – known to be noisy.

drum roll jumping out strongly.

With faster Rock like Tom Petty's Refugee (24/96) Pre3CF showed it could deliver with assured sense of pace from clean resolution of Petty's vocals backed by Hammond B3 organ and soaring guitar work, underpinned by a solid sounding drum kit free of blur or smear.

Same with Safri Duo's Samb Alegreo where the insistent opening synth drum beat pounded through with pulsive power and the sense of subterranean depth valves can give, whilst percussion struck in from left and right on the wide sound stage. The expensive sound staging of Pre3CF was obvious in this track, giving it a sense of powerful majesty that applied equally to all Rock I played.

**CONCLUSION**

The World Designs Pre3 CF preamplifier was easy and simple to use. It offers a sleekly smooth sound that was atmospheric yet beguiling in its purity and clarity, being less stark and seemingly more natural than solid-state preamps. What you get from valves is a sense of spaciousness, fine stereo imaging

on a wide sound stage. Couple this with superb build quality and Pre3CF is nothing other than a fine preamplifier. As a kit it is a great way to build a simple but pure preamplifier, with valve amplification. Or at reasonable extra cost you can get a built version.



The PSU3 rear panel has outputs for both the Pre3CF and the company's valve phono stage, Phono3. This is a linear supply, not a cheap switch-mode.

**MEASURED PERFORMANCE**

World Designs Pre3CF uses a Tesla E88CC (6922) double triode valve as a buffer and line driver, giving x0.9 gain, meaning output is slightly lower than input. A CD player with 2V out will give 1.8V out from Pre3, but this is enough to drive most power amplifiers that need 1V, Pre3 acting as a volume control with switchable inputs. With an output of over 20V it will not overload whatever is fed in.

Distortion measured a very low 0.006% at 1V in (895mV out) as our analysis shows. At higher inputs distortion rises, to 0.25% at 2V for example but with low order harmonics.

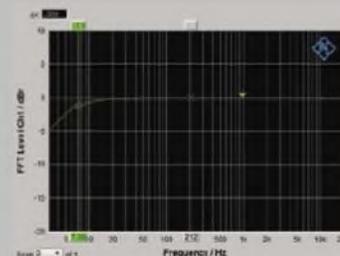
Frequency response measured flat from 7Hz to 100kHz at all positions of the volume control so there is no limitation with hi-res digital (24/192kHz) reaching 96kHz.

Noise was very low at -115dB at all volume control positions, with no hum components whatsoever.

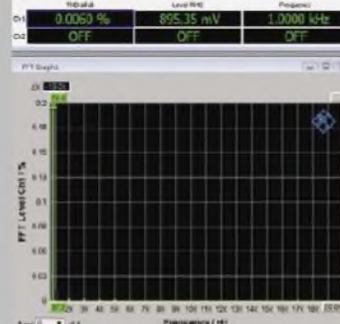
WAD Pre3 measured well in all parameters. It acts as a neutral zero gain valve buffer preamplifier able to support all inputs, including hi-res digital. NK

Frequency response	7Hz-100kHz
Separation	69dB
Noise	-115dB
Distortion (1V)	0.006%
Gain	x0.9
Overload	20V

**FREQUENCY RESPONSE**



**DISTORTION**



Our supply lead was 1 metre long but most DIY'ers will be able to tailor length to suit their system, minimising lead-clutter.

**WD PRE3CF £929 (BUILT)**



**OUTSTANDING - amongst the best.**

**VALUE - keenly priced.**

**VERDICT**

A simple yet elegant valve preamplifier with fabulous build quality and glorious sound. Kit or built.

**FOR**

- good build instructions
- sound quality
- build and finish
- available built

**AGAINST**

- needs skill to build
- no remote control

World Designs  
+44 (0)7972 055492  
www.world-designs.co.uk



# WORLD STANDARDS

Your guide to the best products we've heard that are currently on sale in the UK...

## TURNTABLES

**AVID INGENIUM** £800  
Great bass response and upper midrange detail allied to clarity makes this a must-hear at its price-point.



**CLEARAUDIO INNOVATION** £6400  
Expensive, but offers great results from a finely honed and beautifully finished belt drive turntable, with servo control from the platter to keep a grip on tempo like few others. Can be fitted with a Clearaudio tangential arm, or any conventional design. Awesome.



**INSPIRE MONARCH** £4,350  
A rebuilt from the ground up Technics Direct Drive, having blistering pace and dynamics allied with smoothness, sophistication and purity of tone. A true reference.



**LINN LP12SE** £3,600  
The UK's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel sub-chassis and Radical DC motor add precision and grip to one of the world's most musical disc spinners. Expensive though.

**MICHELL GYRO DEC** £1700  
Wonderful styling coupled with great build and finish make this turntable a delight for friends and family. It has an attractive clear acrylic dust cover, and you can mount just about any arm. A current design standard.



**PRO-JECT ESSENTIAL DIGITAL** £300  
A budget turntable that turns in a great analogue performance, but also has a hi-res digital output. Send 24/96 across your lounge via optical cable to a DAC and get great audio quality. Or record LP to your laptop.



**REGA RP3** £550  
The first of the super-quality Regas, little compromised by price and featuring Rega's outstanding RB303 tonearm, suitable for MM and MC cartridges. A standard at the price point

**TIMESTEP EVO** £2100  
The famous Technics SL-1210 MkII Direct Drive but with improved plinth, isolation, main bearing and power supply, plus an SME arm (add £1500). DD convenience, rock steady pitch and fab sound at a great price. Our in-house reference.



## TONEARMS

**ORIGIN LIVE ENCOUNTER MK3C** £1,745  
Origin Live combines carbon fibre and ebony to marvellous effect in its new 12-inch arm. Creamy and rich in presentation, the Encounter delves deep into the mix for a satisfying listen.

**HADCOCK GH-242 EXPORT** £810  
Consummately musical, lyrical sounding tonearm, but needs the right turntable.

**ORIGIN LIVE ONYX** £450  
Easy, smooth, creamy nature that reminds you why you're listening to vinyl in the first place. Essential audition at the price.



**REGA RB303** £300  
A one piece tapered casting makes this arm's structure almost unrivalled. Great dynamics and superb imaging, for MM and MC. Reference quality for peanuts.

**SME 312S** £1,600  
Twelve inch magnesium alloy tapered arm tube plus SME V bearings. An insightful yet smooth and relaxed sound. Superlative build completes the package. Our Editor's steed.



**SME 309** £1500  
A one-piece tapered 9in arm finished like a camera and slick to use. Superlative SME quality and sound at affordable price.

**SME V** £3000  
Offers rapid fire timing and a sense of precision, plus rock solid dynamics. Top dollar for deep pockets

## CARTRIDGES

**AUDIO TECHNICA AT-OC9 MLIII MC** £420  
A fine sounding MC with strong bass and super fine treble from a great stylus – yet inexpensive.



**AUDIO TECHNICA AT-F3/III MC** £150  
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

**BENZ MICRO ACE SL MC** £595  
Smooth, lucid and full-bodied, award-winning, hand-made cartridge from Switzerland.

**BENZ MICRO WOOD SL MC E945**  
Highly finessed Swiss moving coil that plays music with rife/obvious precision.

**DENON DL-103** £180  
A popular and much loved budget MC with big bass, smooth treble and deep sound stage. Fantastic value



**LYRA TITAN I MC** £3,500  
Breathtaking speed and dynamics from LP, helped by diamond coated, boron rod cantilever.



**ORTOFON 2M MONO SE MM** £80  
A mono cartridge purposed for The Beatles in Mono microgroove LPs. Fitted with a top quality Shibata tip. Fab for the four.



**ORTOFON 2M BLACK MM** £400  
As good as it gets from MM. Fabulous detail and insight from a Shibata stylus, good bass and excellent tracking.

**ORTOFON CADENZA BRONZE MC** £1,400  
A mid-price MC with a slightly livelier presentation than the super smooth Cadenza Black. High-end sound at midband price – great value.



**ORTOFON CADENZA BLACK MC** £1,800  
Ultra smooth and dimensional moving coil with bass and punch aplenty. Lovely stylus.

**ORTOFON A95 MC** £3,750  
Fast and extremely detailed, this is an MC cartridge that sets standards.

**REGA CARBON MM** £35  
Budget price for a competent cartridge with a fairly unflappable nature. Ideal for beginners.



**GOLDRING 1012GX MM** £250  
A glorious sounding cartridge with solid bass and strong dynamic punch, plus excellent treble from its Fritz Geiger stylus. Fun and affordable.



**SHURE M97XE** £80  
Big warm sound, but great tracking and bullet proof stylus protection from damped guard. A survivor

**VAN DEN HUL DDT-II SPECIAL MC** £995  
Long-established cartridge from Holland with an open and dynamic sound

**PHONO PREAMPS**

**CAMBRIDGE AUDIO 651P** £200  
Clean, concise sound from MM and MC cartridges at a very low price. A real bargain.

**ICON AUDIO PS3 MKII** £2,500  
All valve MM phono stage with MC transformer option, graced by big, spacious and relaxed sound.



**LUXMAN EQ-500 PHONOSTAGE** £4,495  
A fully-equipped phonostage from Japanese manufacturer Luxman that offers comprehensive cartridge matching allied to superb sound.



**LEEMA ACOUSTICS ELEMENTS ULTRA** £1,199  
Smooth and detailed sound with the ability to accommodate most modern cartridges. Exceptional value for money.



**PRO-JECT TUBE BOX DS** £425  
Compact MM and MC phonostage with valve output circuit and a big sound.



**QUAD QC24P** £995  
MM and MC, oodles of gain, a volume control – and valves! Looks superb and sounds even better: smooth, atmospheric and big bass.

**TIMESTEP T-01MC** £995  
New, minimalist phonostage that sonically punches well above its weight.

**PREAMPLIFIERS**

**ICON AUDIO LA-4 MKIII** £1,400  
Uses early 6SN7 triodes for liquid sound. Has plenty of gain and a remote control into the bargain.



**MF AUDIO CLASSIC SILVER** £4,500  
One of the best preamplifiers we've heard at any price, this transformer-coupled marvel does very little wrong. It's powerful, clean and open, yet delicate. Its sound is unmatched at or near the price.

**MING DA MD7-SE** £1,520  
A valve preamplifier with an open, effortless sound and a big soundstage. It has plenty of gain so will accept any source and drive any power amp. A real beauty.



**INTEGRATED AMPLIFIERS**

**ARIAND PRO845SE** £1,499  
Pure single-ended valve magic. Low-powered but immediately gorgeous, easy-going yet fearfully dynamic at the same time.



**AUDIO RESEARCH VS160** £3,500  
Power house sound with enormous pace and punch from traditional U.S. muscle master Audio Research. Breathtaking, but expensive.



**CAMBRIDGE AUDIO AZUR 651A** £350  
Dual-mono construction and meaty toroidal power supply combine to produce a solid and sharp sound with sonics far beyond its price point.

**CREEK EVOLUTION 100A** £1,500  
Superb build and smooth confident sound make this powerful amplifier a benchmark.



**CYRUS 8DAC** £1,400  
Trademark shoebox-sized Cyrus integrated now offering 88Watts per channel, plus DAC. Svelte delivery from a dainty case that fits in anywhere – and isn't Class D!

**EXPOSURE 1010** £495  
Entry-level integrated from Exposure has excellent upper mid-performance with an almost valve-like sound.



**ICON AUDIO STEREO 60 MKIII** £2,800  
Excellent tube integrated with plenty of power and an expansive soundstage, plus KT150 tube option and bias meter for easy adjustment.



**NAIM NAIT 5Si** £925  
Naim's fabled entry-level integrated amplifier is updated to si status. Demos Naim's superbly muscular sound at entry level.

**SUGDEN A21SE** £2,480  
Class A amp with fantastic sound quality producing hard, sculpted images, deep detail and tight bass. Just don't expect disco-like sound levels!



## POWER AMPLIFIERS

**AUDIO RESEARCH VS175** £7,498  
Powerful, fast valve sound that makes everything else look weak at times. Needs careful matching but well worth the effort.

**AUDIO RESEARCH VS115** £5,000  
Oodles of power with enormous punch. Rafael Todes said it provided "shock and awe" while retaining incredible smoothness and texture.

**ICON AUDIO MB845 MKII** £7,600  
With 120W from big 845 valves right down to low frequencies, this power amplifier has massive dynamics and bass swing, yet is easy on the ear.



**ICON AUDIO MB81PP** £15,000  
Big Russian transmitter valves deliver 200W from these massive monoblock amplifiers. Frightening in every sense.

**MCINTOSH MC-152** £4,995  
Stunningly insightful sound with enormous bass punch from a uniquely designed transistor amp. Amazing audio, a league up, if expensive.



**QUAD ELITE QMP MONOBLOCKS** £2400 PR  
The proverbial iron fist in a velvet glove. Plenty of power but delivered with an assured and confident nature. Smooth on top and easy on the ear but can rock out when needed.

**QUAD II-EIGHTY MONOBLOCKS** £6,000 PR  
Powerful and expansive sound from modern design monoblocks that also look lovely. Superb – used by us as a reference.



## LOUDSPEAKER FLOORSTANDER

**B&W 803 D3** £12,500  
B&W's updated statement floorstanders deliver depth and definition with breathtaking speed and authority, aided by a diamond coated tweeter. Expensive – but enormously impressive.

**CASTLE AVON V** £1,600  
A big floorstander at a modest price that suits the average room. Refined ribbon treble and deep bass give it a great delivery.



**EMINENT TECHNOLOGY LFT-8B** £2,500  
Excellent U.S. planar magnetic loudspeaker at bargain price. Utterly superb – a must hear.

**EPOS K2** £1,000  
A fun sound that is tidy all round and very engaging, with solid bass. Music as you hope it to be.

**FOCAL ARIA 926** £1,400  
Simple, clean, neutral sound – easy going but well engineered and affordable.

**MARTIN LOGAN SUMMIT X** £16,698  
Matches Martin Logan's XStat electrostatic panel to a powerful subwoofer to provide extended, powerful bass. Dramatic sonic purity. Awesome – all but unmatched.



**MARTIN LOGAN ELECTROMOTION** £2,500  
Martin Logan's budget baby XStat hybrid electrostatic. Fits into any lounge to give electrostatic levels of clarity and imaging.



**QUADRAL CHROMIUM STYLE 8** £1,700  
A supremely smooth yet open sounding loudspeaker. Clean and detailed treble from a fine ribbon tweeter. Accurate yet informative and enjoyable. Pure class.

**QUADRAL ORKAN VIII AKTIVS** £6,200  
Active loudspeaker with tight, powerful bass, perfect accuracy and detailed treble from a ribbon tweeter.



**Q ACOUSTICS 2050i** £480  
A large floorstander at a budget price. Offers high sensitivity and big sound and has very few flaws for the price.

**SPENDOR SP100 R2** £6,495  
Retro looks but a sound that's hard to match. Spendor's 12" bass unit provides massive low-end grunt with a room-filling sound.



**SPENDOR A3** £1,300  
Fine little floorstander with a smooth, natural midband and even tonal balance. Ideal for smaller rooms.

**TANNOY DEFINITION DC10 Ti** £6,000  
Enormous power with great projection. Glorious subsonics too. Need little power to go very loud and have superb finish into the bargain.



**TANNOY KENSINGTON** £9,950  
Big but not overpowering, punchy modern sound from classic cabinetry. Need little power to go very loud and suit a traditional home, or castle.



## LOUDSPEAKERS STANDMOUNT

**ACOUSTIC ENERGY NEO 1 V2** £225  
Civilised sounding speaker with fast and tuneful bass.

**ACOUSTIC ENERGY AE1 CLASSIC** £845  
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



**ELAC BS243** £1,000  
More transparent and spacious than they've a right to be at this price, these refined mid-price standmounters represent top value.



**EMINENT TECHNOLOGY LFT-16A** £1,200  
U.S. planar magnetic bookshelf loudspeaker with unrivalled mid-band and treble. Hear it before all else.

**WHARFEDALE DIAMOND 220** £200  
Builds on the success of previous Diamond ranges with better bass, more detail and a greater sense of scale.



**KEF LS50** £800  
Supremely musical mini-monitors which sound much bigger than they look.



**MARTIN LOGAN MOTION 35** £1,300  
Folded Air-Motion tweeter gives a taste of Martin Logan's electrostatic sound in a standmount. Different from the standard mini-monitor and all the better for it.



**PMC TWENTY.21** £1,575  
Transmission line loaded standmount with a big box sound from a compact cabinet. Punches well above its weight.



**Q ACOUSTICS 2020i** £165  
Great little bargain-priced stand-mounts with a friendly, fun yet surprisingly refined sound. Hard to better for a pair of starter loudspeakers.

**WHARFEDALE DENTON** £500  
A beguiling mixture of retro looks with modern, high-technology drive units. The Denton has an easy-going, big-hearted sound with a touch of trad warmth that should appeal to many.



## HEADPHONE AMPLIFIERS

**CREEK OBH11** £150  
Designed specifically for low to medium impedance (30 Ohm – 300 Ohm) headphones the little Creek has a marvelously well-judged sound.

**CHORD MOJO** £399  
Class leading portable DAC and headphone amp with ability beyond all else. Big, open spacious sound.



**EPIPHANY EHP-02** £99  
PP3 battery-powered portable gives great sound quality at an almost giveaway price. Happy with the output from an iPod or CD player, the little epiphany is a true bargain.



**ICON AUDIO HP8 MKII** £650  
The HP8 MKII valve-based headphone amplifier brings the spacious sound of valves to headphones. And it matches 'em all.



**FIDELITY AUDIO HPA 100** £350  
Great little headphone amplifier with a lively yet refined and open sound.

**MUSIC FIRST PHONE BOX** £276  
Brings a big stage, plenty of detail and rich, deep colours to the sonic spectrum.



**OPPO HA-2** £250  
Remarkable performance and sound from ESS Sabre32 DAC in a slim portable package.



## CD PLAYERS

**AUDIOLAB 8200CDO** £949  
Inspired CD player and DAC with price-performance ratio like no other. Capable of matching designs costing much more.



**CANOR CD2+** £3,100  
Musically coherent and tuneful valve-driven CD player from Slovakia. Lovely liquid sound.



**CAMBRIDGE AUDIO AZUR 651C** £410  
Snappy modern presentation from this budget CD player. Cracking audiophile entry point for any digital fan.

**CHORD RED REFERENCE MKIII** £16,000  
A unique and massive engineering exercise that could well be the best CD player available. Chord's Pulse Array DAC technology produces a musical experience like few others. A true reference player.



**ESOTERIC K-03** £9,495  
Superb high-end silver disc spinner that is beyond criticism. Devoid of its own character but has a flawless presentation.



**EXPOSURE 101** £395  
Detailed player with fine sense of timing should be an automatic entry on any demo list at this price.

**ELECTROCOMPANIET EMP-1/S** £4,650

Epic in scale, lavish in tone and exuberant in its musicality - this is a memorable SACD spinner. Quirky in operation and modest in finish, though.



**OPPO BDP-105D** £1200

Universal player and DAC that makes CD and Blu-ray (+DVD) sound deep, spacious and full bodied. Reference quality that's affordable.



**REGA APOLLO-R** £550

Rega comes up with a fine CD player again. Tremendous detail and an easy, unforced sound at all times. Few bells and whistles but made up for by its superb sonic ability.



**ROKSAN KANDY K2** £900

A charmingly musical performer at the price - this is a surprisingly sophisticated CD player for the money.



**TUNERS**

**CAMBRIDGE AUDIO AZUR 651T** £299

Value-packed AM/FM/DAB and DAB+ ready tuner. Precise and detailed with excellent resolution of spoken word.



**CREEK DESTINY 2** £550

Creek's tuner expertise shines through in the Destiny 2. This AM/FM receiver is wonderfully three-dimensional and smooth.



**MAGNUM DYNALAB MD-90T** £1,900

Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.



**DACS**

**AUDIOLAB M-DAC** £600

Excellent sound from ESS Sabre32 DAC and impressive flexibility with a unique range of filter options make this a stand-out product. Low price is the icing on the cake.



**AUDIOLAB Q-DAC** £250

Stripped-down version of Audiolab's M-DAC loses some features but retains much of the sound, making it a veritable bargain.



**ANTELOPE ZODIAC GOLD/VOLTIKUS** £3,095

DAC/preamp/power supply combination majors on detail but has a remarkable un-digital sound. One of the best at its price.



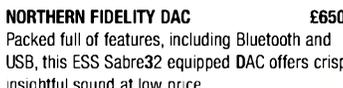
**CHORD 2QUTE HD** £990

Superb build quality and exceptional sound from this compact unit. Boasts the ability to handle DSD direct via USB and has an exceptional soundstage. One of the best DACs you can buy.



**DCS DEBUSSY** £8,000

DCS's bespoke 'Ring DAC' circuit gives a beautifully-fluid, almost analogue sound that encourages long listening sessions. Not cheap but worth every penny.



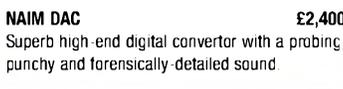
**NORTHERN FIDELITY DAC** £650

Packed full of features, including Bluetooth and USB, this ESS Sabre32 equipped DAC offers crisp, insightful sound at low price.



**METRUM OCTAVE** £729

Unique two-box digital-to-analogue convertor with great sound at a great price. Cuts upper treble though.



**NAIM DAC** £2,400

Superb high-end digital convertor with a probing, punchy and forensically-detailed sound.



**TEAC UD-501** £699

Feature-packed DAC with benefit of DSD playback. Superb sound means little to touch it at the price.



**RESONESSENCE INVICTA MIRUS** £4,499

One of the most highly spec'd DACs available, with a smooth yet enthralling presentation. Few approach it.



**NETWORK PLAYERS**

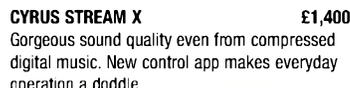
**CHORD DSX100** £7,500

Chord's proprietary DAC circuit shines in their top-of-the-range streamer. Hear-through clarity with a sound rich in detail, dynamics and soundstage.



**CAMBRIDGE AUDIO NP30** £399

Budget offering from Cambridge offers a great introduction to network streaming.



**CYRUS STREAM X** £1,400

Gorgeous sound quality even from compressed digital music. New control app makes everyday operation a doddle.



**CONVERT TECHNOLOGIES PLATO** £2999.00

A network player with amplifier that does it all, including turn LP to hi-resolution digital, and add cover artwork from the 'net.



**NAIM NDX** £2,995

Clean, incisive and very detailed sound with Naim's traditional pace and timing make this one of the best network music players around.

**NAIM ND5XS** £2,175

Great sound quality with traditional Naim heft. A wonderful DAC with full 24/192 handling. Only the display could be better.

**NAIM NAC-N172 XS** £1,650

A pre-amp/DAC/streamer package provides a taught, rock-solid presentation with a tonally rich midband and a superior sense of rhythm.



**PRO-JECT STREAM BOX RS** £1,095

Unusual valve-based streamer/preamp with variety of inputs and a lovely liquid sound. Not the most detailed but compensates with sheer musical verve.

**QUAD PLATINUM DMP** £2,500

Combined CD/network player has all the usual Quad elements but with added zest and detail that brings life to everything you care to play.



**DIGITAL SOURCES**

**ASTELL&KERN AK100 MKII** £569

Portable high-definition digital player with superb sound quality. Punchy and fast.



**FiiO X3** £150

Fabulous value player with nice easy sound and full range of abilities. Small and light. For newbies.

**LOTOO PAW GOLD** £1,500

Reference quality sound; it's like carrying your hi-fi in your pocket. Equivalently large too, but stunning headphone quality.



**NAIM HDX** £4,405

Interesting one-box network-enabled hard-disk music system that gives superb sonics together with impressive ease of use.

**NAIM UNITILITE** £1,995

A 50W amplifier with traditional Naim heft, a CD player and vhf/fm radio, plus network input and Bluetooth make this a great all-in-one.



**PORTABLE SPEAKERS**

**BAYAN SOUNDBOOK** £149.99

Superb design and great sound make for one of the best portable Bluetooth speaker/radios on the market. Not the cheapest – but worth every penny.



**IRIVER IBA-50** £69

Big, warm sound with plenty of volume and clean at high levels. Muscular sound compared to many rivals.

**CABLES**

**BLACK RHODIUM TWIST** £71/3M

Twisted to fight off radio frequency, the Black Rhodium speaker cable is easy on the ear with a fine sense of clarity and focus. A remarkable performer at the price.



**MAINS CABLES R US NO.27** £95

Offers a sprightly pace with a precise nature. Fast performance enhance frequencies and beautifully etched detail.



**CHORD SIGNATURE REFERENCE** £900

Majors on timing, detail and openness. Capable of getting the best from most systems and a recommended upgrade.



**TELLURIUM Q BLACK** 280/3M

A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.

**TELLURIUM Q SILVER DIAMOND** £804/M

An open, natural and transparent sound that is difficult to beat, from these great loudspeaker cables.



**HEADPHONES**

**AUDEZE LCD-3** £1,725

A planar magnetic 'phone that offers monitor quality. Strong sound with silky, dark quality that others struggle to match.



**B&W P3** £170

Beautifully presented headphones from the loudspeaker specialists. Feed them a good quality source signal and they reward with excellent sound.

**JAYS V-JAYS** £49

Wonderful little budget over-ear portable 'phones with a clean, clear sound to beat the best of the rest at the price.



**NOBLE K10 INC. FITTING** £1,279

Custom fit in-ear phones with 10 drivers deliver a sound that is out of this world. Personal and perfect.



**OPPO PM-1** £950

Planar magnetic phones with a warm, easy but big bodied sound that draws you in. Need a lot of drive, but deliver superb bass.



**SENNHEISER HD 700** £599

Tremendously fast with a strong, focussed, lower-frequency range and a firm bass punch.



**YAMAHA HPH-MT220** £150

Purposed for indoor monitoring yet light and comfortable enough to be used on the move. Excellent sound quality marred only by a slight warmth to vocals.



10 product of the year and most wanted components in just 2 years by preserving relative phase relationships in a signal.

# Tellurium Q®



Winner of the Queens Award for Enterprise

telluriumq.com +44 (0) 1458 251 997

# Japan speak

Japanese electronics may have taken over the hi-fi industry, but speakers were a tougher nut to crack. Martin Pipe has however found a pair from Pioneer.



**B**ritish speakers were – and still are – designed to meet the requirements of British ears and environments. Of all the different types of hi-fi component, it can be argued that speakers can influence most of all how your music will sound.

As well as the basic design and construction, there are issues of how a speaker reacts to the room (where it's placed, building construction, room size and so on) and the load it places on the amplifier driving it. If a speaker is optimised to be loud in an enormous room – American lounges tend to be much larger than British ones – one cannot expect it to behave the same in a smaller one.

Then there are national preferences. In the 1950s and

1960s, British ears preferred a more 'mellow' presentation because that's what they – courtesy of the valved wireless sets and radiograms – were used to hearing. Some British-made speakers of this time also had a pronounced treble 'dip'.

Listeners of other nations had different tastes, and this affected how their speakers sounded. Japanese speakers tended to be bass-shy, but endowed with a sweet treble – in Japanese cities, turning up the bass in a small apartment would not make you popular with neighbours!

American speakers, in contrast, had a characteristically 'big' sound. Such speakers would on the whole sound boomy in the average British listening room.

In contrast, a UK-made speaker would be regarded as laid-back and

bass light by most American listeners.

Today, hi-fi equipment is designed with global appeal in mind. It must sound detailed, accurate and natural – in keeping, surely, with the universal goals of high-fidelity?

Another factor that discouraged loudspeaker export was size and weight. Before the unstoppable rise of shipping containers the cost of importing the bulky and heavy rectangular lumps that are speakers would have made them commercially-uncompetitive with local product.

Some of the considerations outlined above helped to make the Pioneer CS-88As featured here a rarity in this country. Weighing 25 kilos and standing nearly 70cm tall, these vintage speakers – that date back to the early 1970s – would have



**The crossover is quite a complicated affair, with frequency division networks for bass, midrange, treble and 'supertreble'. There are also rotary switches that 'cut' the mid and treble responses by fixed amounts.**

been expensive to bring to the UK. They sold quite well in Japan and also in the US – despite the disparity in presentational taste. The specimens you see here used to belong to a gentleman who emigrated from California to England so are UK rarities.

The CS-88A, built into an unported infinite-baffle enclosure, is undoubtedly complex in nature. It's a 4-way, 6-speaker design featuring



**Most of the drive units have a fabric surround, which seems to be durable. The tweeters are alas an exception - the foam they use eventually disintegrates (as with other drive units using surrounds fashioned from this material). Eventually, they will end up looking like the pair you see here. These tweeters have a 16 Ohm impedance and replacements are difficult to come by. It's just as well that 're-foaming' kits are available online.**



**With its multicellular horn, this looks a bit like something you'd find in a concert FA system - only on a miniature scale. It is however the CS-88A supersonic tweeter ('supertweeter'), which cuts in at 14kHz or so.**

a 12in. woofer, two 5in. midrange drivers, two 3in. tweeters and a multi-cellular horn supertweeter. All bar the latter shift air with cones made from a paper/wool composite material – 'FB' or 'free-beating' – that was developed specifically for the job by Pioneer. A complex crossover, built onto a printed circuit board, divides the incoming audio. Power handling is said to be 80W, a high figure when judged by the standards of the time – into frequency bands appropriate to the drivers.

Three-position switches accessible from the rear of the speaker, where the push-fit input terminals are also located, allow the midrange and treble response to be tailored. Full response is achieved in the 'increase' position; in the normal

and decrease positions, the midrange and treble are respectively -1.5dB/-3dB and -2dB/-4dB. Interestingly, the mids and tweeters are wired 'in parallel'; to ensure the correct overall impedance, each driver is rated at 16 Ohms, making replacements difficult to obtain. Despite this inner complexity, Pioneer claimed a sensitivity of 97dB/W (JIS C-5531 standard).

Whatever the reproductive and technical virtues of the CS-88A, they are substantially-built and look great. The big boxes are finished in walnut veneer and their distinctive grilles feature – in the words of the Pioneer brochure – "pleated saran cloth and handcrafted latticework". Removing the grilles reveals the full complement of drivers, with their brown FB-logoed cones and complementary walnut-finished baffle board. Removing the grilles undoubtedly

yields the best sound, but I'm sure that many were kept in place for reasons of domestic harmony.

On which subject the sound quality, it has to be said, is an acquired taste – and influenced by the amplification you're using. One would expect the large cabinets and 12in. woofers to deliver an authoritative low-end. Yet the CS-88As are somewhat bass-shy. The midrange is rather prominent, with a 'hollow' colouration that is particularly noticeable with vocals. Despite the supertweeter, treble lacks impact and sparkle. That's with an Audiolab 8000A. I then switched to a late-70s Pioneer SA-9500A. With appropriate use of the tone controls (yes...!), these speakers started to boogie

at higher listening levels. However, regardless of amp I found that imaging is not the CS-88A's best characteristic.

I began to understand why these speakers have their fan base, especially in the US where stories of audiophiles driving for miles to collect pairs they acquired via the Craigslist 'classifieds' website aren't uncommon. But there are problems to be aware of. Most significantly, the two tweeters have a foam surround that disintegrates over time. And, as previously noted, they're difficult

aren't affected. Some users report that renewal of components in the crossovers - notably electrolytic capacitors - can pay dividends in terms of treble cleanliness and midrange clarity. Getting at the crossovers requires removal of the back panel - held in place with screws.

If you have space for these sizeable speakers, you have something that can satisfy if they have been serviced and are used with appropriate amplification - typically 1970s Japanese solid-state models. Rare in the UK, in the US they have been spotted in thrift stores and garage sales - often changing hands for nothing more than beer money. On sites like eBay, prices fluctuate wildly depending on condition. A tatty pair in need of 'refoaming' might attract \$30; I've seen fully-restored examples selling for upwards of \$500. Interestingly, some of these are going back to Japan! Buying a second-hand

pair from the US and having them shipped here, though, isn't really a practical option.



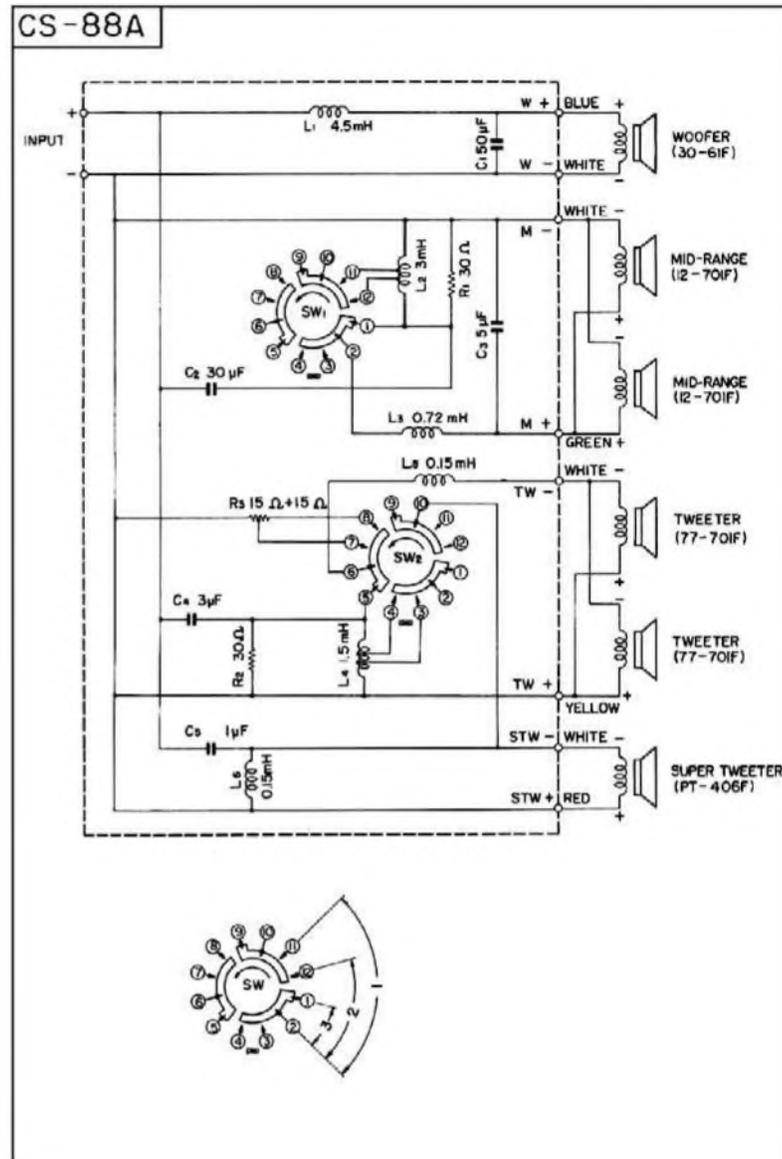
Here are the 'push-fit' speaker terminals and the rotary three-position switches that allow the midrange and treble response to be tailored. Full response is achieved in the 'increase' position; in the normal and decrease positions, the midrange and treble are respectively -1.5dB/-3dB and -2dB/-4dB.



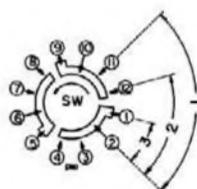
Those stylised letters on the cone of the 12in. woofer - and, come to think of it, most of the CS-88A's drive units - indicate that it's made from a specially-developed composite material known as 'FB' ('free-beating'). This makes them more sought-after by enthusiasts than other Pioneer speakers of the era, which employ standard paper cones. Thanks to Pioneer's "unique" FB process, a combination of "long and short, thick and thin" plant fibres and wool is beaten into a pulp. The result is a paper that is, according to the brochure, "lighter and stronger than any other".

to obtain. CS-88A drivers, usually removed from 'parted-out' speakers, do however crop up on eBay from time to time. The sellers are usually in the US, meaning that postage costs are high (if UK shipping is even an option).

However, some firms trading online sell affordable 'refoaming' kits. If your tweeters show any sign of deterioration, they should be given this treatment as soon as possible. The other coned drivers have cloth surrounds and thankfully these



The crossover is quite involved. Note that both tweeters - and midrange drivers - are wired in parallel. To present the same order of load to the crossover as a single drive unit, each has a 16 Ohm impedance. Drive units of this spec are hard to come by.





THE FALL

Live at the Witch Trials/Dagnet  
Cherry Red/Fall Sound Archive

The Fall Sound Archive has been launched and, to celebrate the fact, the first two albums from the group form the basis of its introduction. Both are available in vinyl but collectors should note the expanded CD box sets too. Available as clamshell editions, both releases feature three CDs in each set.

'Witch Trials' includes the original album plus a combination of singles (Bingo-Master's Break Out!), rehearsals (from a bootleg recording), live tracks (The Electric Circus) and session material (John Peel, 1978). Then there's a live concert from Liverpool's Mr Pickwick's in 1978.

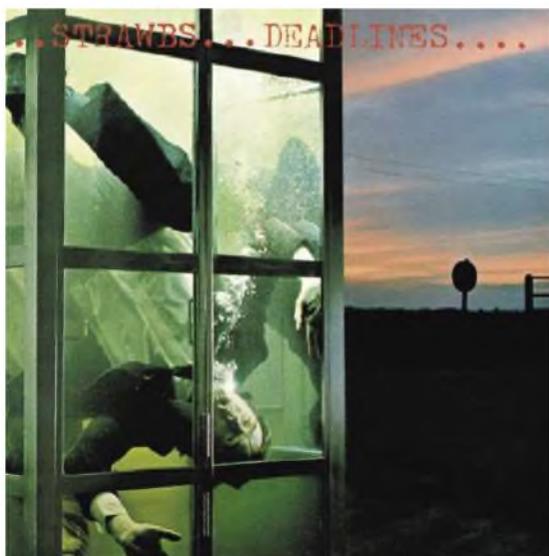
'Dagnet' includes the original album plus the 'Rowche Rumble' single tracks, the 'Fiery Jack' single tracks, alternative takes from the 'Rowche Rumble' single sessions plus two concerts. The first from Retford in 1979 and the second, further afield, from Los Angeles in

the same year.

One note for fans, a limited number of orders made directly via the Cherry Red website will come with exclusive 38mm limited edition collector's enamel pin badges (available while stocks last – so get in quick!)

In terms of mastering? Differences between these versions and the original Step Forward vinyl pressings are there but mostly to do with that change in format, the difference in hardware and the fact that all modern CDs feature even a minor level of compression which does add a small degree of etching to the presentation. The original vinyl cuts were open and spacious with a beautiful dynamic range. The CD versions I feel are about as close as you're going to get to the originals with a standard CD issue. Which is a long-winded way of saying that this new CD reissue is very good indeed!

AUDIOPHILE CD



THE STRAWBS

Deadlines  
Esoteric

The Strawbs were a strange group – which was an immediate attraction to many future fans.

They emerged from a folkie tradition, more bluegrass to be honest, called the Strawberry Hill Boys. Then they tweaked their sound towards folk and their name to The Strawbs, featuring future Fairport Convention legend Sandy Denny for a time. Then she left and the sound was tweaked again – as was much of the line up. This time towards a rocking vibe of a progressive nature, as Rick Wakeman arrived.

Then Wakeman left and the band upped their game somewhat, gaining UK commercial success as they enhanced their rock sound and even had a few hits. You may remember their UK Top 10 hit, 'Part of the Union', for example.

That UK commercial success dropped away.

More ructions and line-up changes occurred during the mid-seventies as the band seemed to do

better in the USA. Further changes lead to the group leaving their label, A&M.

It was at this point, during creative, line-up and management struggles that this album was made for the Arista label.

All of which has nothing to do with the music on this album. Yet I list the above on purpose because that's what music critics often do and have done on the 'net, preparatory to faintly damning this album.

Don't believe it. This is a top quality prog rock album and no mistake. Thoughtful, considered, multi-layered with strong themes and superb rhythmic structures.

This nicely mastered box set features three discs and a mini-poster. The original album plus eleven excellent bonus tracks (i.e. out-takes, demos and alternative mixes), a second CD features BBC Radio One's Sight & Sound In Concert from 1978 and the third disc is a DVD of the same concert.

When your name is Fred Heath and you run a band called the Five Nutters, then you could be forgiven for thinking that your future career might not be too far from the checkout counter at Tesco's. But Fred was the one and only Johnny Kidd, joined by Alan Caddy (guitar), Tony Docherty (rhythm guitar) and Ken McKay (drums). That group evolved into the Pirates. EMI quickly snapped them up.

The band hit the ground running with the excellent Please Don't Touch in 1959 and then toddled along with half-decent covers and so-so originals until Heath created, what he thought would be, a B-side to one of those covers. The latter was 'Yes Sir, That's My Baby' but it was the B-side that would astound. 'Shakin' All Over' would move to the A-side, top the UK charts and amaze everyone in the country

that a song like that – that would become a world-wide hit – could even be written by someone in the UK. To put it another way, everyone was incredulous that 'Shakin' All Over' was not penned by an American.

The UK music industry wasn't quite mature enough to know how to cope with that success and the band floundered rather afterwards.

This CD features thirty-three tracks including the two tracks mentioned above, plus A-sides and B-sides from various singles, previously unreleased studio tracks and a grand total of ten live tracks recorded between 1959-1961.

In mastering terms, the only slight emphasis could be heard at high volumes during guitar crescendos but that wasn't particularly offensive, especially as the original sources would have been compressed to high heaven. Overall, there is an admirable neutrality across the frequency spectrum.



## JOHNNY KIDD & THE PIRATES

Quivers Down the Backbone  
Jasmine

# AUDIOPHILE CD

Lane may best be known for being the bass player, songwriter and occasional vocalist for the Small Faces and the Faces. He later became disillusioned with the music industry, whereupon he bought and settled on a farm. Then he hit the road with a new band, Ronnie Lane's Slim Chance, and would create The Passing Show – a circus tent tour of the country with assorted clowns, acrobats and comedians. He also built his own recording studio – The Lane Mobile Studio.

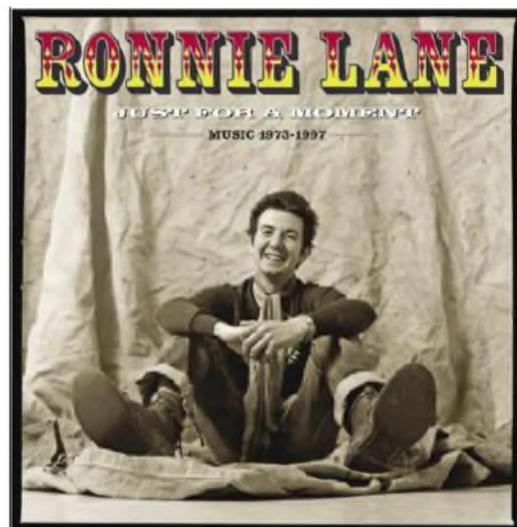
Lane's solo work would explore a wide variety of musical genres including folk, country and R&B.

This new box set collates Lane's solo and collaborative work. Pete Townshend commented on the set: "Here, in these songs, collected with such love and care, he is found again. Probably at the height of his rebellious and chaotic powers, where music had to be immediate and uplifting or else heart-breaking – but

always real".

The set includes four solo albums: 'Anymore For Anymore', 'Ronnie Lane's Slim Chance', 'One For The Road' and 'See Me'. In addition, tracks from 'Mahoney's Last Stand' soundtrack album with Ron Wood and 'Rough Mix' with Pete Townshend. The final disc focuses on Lane's time in the US with previously unreleased live highlights and studio tracks. There's lots more too, including tracks for the BBC and highlights from a Rockpalast concert. That's six discs housed in a hard-back book with outer slipcase. The package also includes a book of lyrics and an A2 fold out poster.

The mastering, sorted by Jon Astley at Close to the Edge, has a touch of compression but nothing too aggressive. Enough to highlight the vocals and individual instruments, producing a wide and open soundstage with an attractive 3D effect that adds depth and layering to the presentation.



## RONNIE LANE

Just For A Moment: Music 1973-1997  
UMC

# Vive Le Focal!

French loudspeaker specialist Focal has hit the mark with its new Kanta No1 standmount, says Jon Myles.

**E**xperimenting with different materials for loudspeaker drive units is nothing new in the hi-fi industry. We've gone from damped paper to aluminium to Kevlar to all sorts of

other good – and sometimes not so good – ingredients.

But Focal came up with something unusual when they decided on flax – more commonly used to make top quality linen for the fashion industry – as the

main constituent in the mid/bass cones for their mid-priced range of 'speakers.

The reasoning was sound (no pun intended) though. For flax is as stiff as carbon-fibre, matches Kevlar for rigidity yet is light with



excellent self-damping properties. It also probably helped that Focal's home country of France is one of the world's largest producers of the material.

And the development chimed with the St Etienne-based manufacturer's history of innovation – Focal being only the second company after Yamaha to use beryllium for its tweeters.

So marry flax drivers with beryllium tweeters and what do you get? The range of loudspeakers known as Kanta. I enthusiastically reviewed the £7000 Kanta No2 floorstander last year (see *Hi-Fi World* issue June 2018) and now we have its little brother in the shape of the standmount Kanta No1.

It's obviously smaller – measuring 422mm x 234mm x 391mm (H/W/D) – but still shares the elegant lines and superb construction of its bigger brother. The main cabinet is a one-piece integrally-moulded wooden enclosure while the baffle is made from High-Density Polymer (HDP) – said to be 70% denser than MDF,

package that looks decidedly more sophisticated than many box and cone standmounts on the market nowadays.

### SOUND QUALITY

Having enjoyed the larger Kanta No2s immensely I was understandably eager to see how their smaller siblings would measure up. Suffice to say they share many of the larger 'speaker's characteristics – which is a good thing.

First, the beryllium tweeter. I've found some implementations of these can sound a bit edgy and harsh – but Focal have got it just right. High frequencies were clean and extended, with ringing tone.

On John Coltrane's 'Live At The Village Vanguard' his saxophone soared with unbridled freedom – the cascade of notes seemingly

"There's an obvious synergy between the flax main driver and beryllium tweeter, the two working seamlessly together across the frequency spectrum"

15% stiffer with 25% more damping. Its also subtly curved to help time align the drivers and extends past the edges of the main cabinet both from left to right and top to bottom.

As to those drivers: the main 6.5" mid/bass unit is composed of high-quality flax fibre enclosed by two thin layers of glass fibre allied to a 27mm inverted dome beryllium tweeter housed in a specially-designed waveguide. It also uses Focal's IAL (Infinite Acoustic Loading) and IHL (Infinite Horn Loading) techniques to absorb rear radiation while saving space within the cabinet.

At the rear is a bass reflex port to aid low-end extension, accompanied by a single pair of 'speaker binding posts.

All in all it's an eye-catching

placed high above the tops of the 'speaker cabinets. The clarity on offer made it easy to hear when Coltrane switched from soprano to tenor saxophone.

Beneath Coltrane's pyrotechnics the rhythm section of Reggie Workman, Jimmy Garrison and Elvin Jones sounded taut, Jones's drums especially having decided punch.

For their size the Focal's extract prodigious bass which not only has fulsome depth but is tuneful and fast – propelling up-tempo tracks along with verve.

The 'speakers come with bungs for the reflex port to tune them for



*The rear of the Focals features a bass reflex port and quality loudspeaker binding posts.*

close to wall placement – however I found they worked best pulled further out into our large room with the port left open.

There was an obvious synergy between the flax main driver and beryllium tweeter, the two working seamlessly together across the frequency spectrum.

Fed James Blake's 'Limit To Your Love' – its keening vocals and sub-sonic bass making it a true test for any loudspeaker – I was immediately reaching the



*The beryllium tweeter sits inside a specially-designed waveguide for extended high frequencies.*

remote to turn the volume up, so clean and engaging was the presentation. Low registers thundered without overhang, Blake's voice hanging in its own space between the loudspeakers; a sense of air and space let the music breathe. I didn't get the full force of the very lowest octaves hammering into my chest. For that you'll need much bigger loudspeakers ideally housing 12" drivers. But the Kantas still came over as big and forceful, capturing all the power and slam of the track.

Another plus point is that the Focals are fairly unfussy about positioning. I started with them pointing straight down the room and then experimented with some toe-in and their general character remained the same. That's a testament to how well the tweeter assembly has been implemented – imbued as it is with a wide dispersion angle, contributing to excellent stereo imaging, music seeming to exist well clear of the loudspeaker cabinets, on a stage with width and depth.



## MEASURED PERFORMANCE

Focal's Kanta No1 places an inverted dome beryllium treble unit above a natural fibre (flax) cone bass/midrange unit that crosses over at a high 5kHz our impedance plot shows. Where in the past Focal lifted treble, nowadays frequency response is almost a straight and horizontal line. Horizontality means accurate tonal balance free from heavy or light bass and, in particular, free from sharp treble and emphasis of digital distortion from CD.

Straightness of line suggests lack of colouration, due to lack of mechanical micro-resonances in the cone material and assembly.

Bass extends smoothly down to 60Hz but is totally flat, with neither emphasis or the slow roll-down of an over-damped design purposed for wall placement. The Kanta No1 will have strong but well controlled bass when used close to a rear wall. It rolls down fast below 40Hz so will not deliver sub-sonics, but this also means it will not suffer heavy cone flap induced by LP warps. The impedance curve shows the port is narrow-tuned to 55Hz suggesting bass will be lively.

Sensitivity was as expected for a 'speaker of the size, measuring 87dB sound pressure level (SPL) from one nominal Watt (2.8V) of input. Amplifiers around 60 Watts will deliver very high volume and powers down to 20 Watts or so will make Kanta No1s go loud. Impedance measured 6.5 Ohms overall with pink noise, but the bass unit is 3.5 Ohms (DCR) so draws LF current.

The Kanta No1 is impressively smooth and accurate. Bass will be firm, powerful and lively in a 16ft room. A very well engineered loudspeaker in every area. **NK**

*The use of woven flax gives the main driver a distinctive look that sets its apart from rival loudspeakers.*

Playing Model 500s groundbreaking techno track 'No UFOs' the various echo effects and electronic ricochets came at me from all angles in an enveloping cascade of sound.

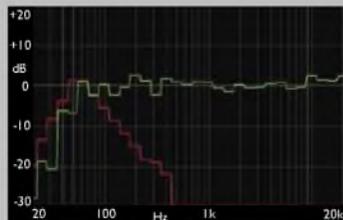
Playing this track I switched between a trio of amplifiers: the Copland CTA408 reviewed this issue, an Icon Audio Class A ST30se valve integrated and a trusty Creek Evolution 100A. All sounded different, the Icon Audio bringing more warmth to the sound and the Creek digging out a little extra in the bass. So whichever amplifier you pair these 'speakers with you'll get to hear its individual characteristics and they'll show you just what you are paying for if you decide to upgrade the electronics.

## CONCLUSION

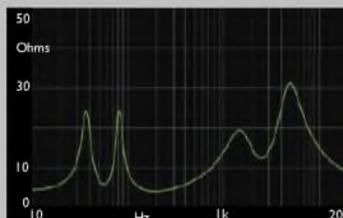
Focal's mix of flax and beryllium drivers is an unqualified success. Open, detailed and big-sounding, this pair of standmounts can go head-to-head with the best. Add in their striking looks and they make a superb package. Worth hearing.

### FREQUENCY RESPONSE

*Green - driver output  
Red - port output*



### IMPEDANCE



## FOCAL KANTA No1

£4499



**OUTSTANDING** - amongst the best

### VERDICT

A beautifully balanced loudspeaker that boasts extended highs, smooth mid-range and solid bass to provide a thrilling sonic experience.

### FOR

- solid bass
- clean, extended treble
- excellently smooth mid-range
- striking looks

### AGAINST

- nothing at the price

Focal  
www.focal.com/uk

# "Behind Rumours lies a history of talent and ability few bands can match"



Noel Keywood

**M**odern digital sound is getting good – even though much of it is poor! It's difficult to know just how good digital can be when a large number of files carry either old catalogue or poorly recorded modern material, knocked up by a music editor on a home computer.

Great to hear The Doors Light my Fire on DSD, but what I'm listening to is an old analogue master tape from 1966 no less. And as good as some of those old analogue recordings were subjectively they had problems too. As hi-fi equipment gets better so past problems become more obvious – a dynamic range of just 64dB being quoted by 3M for their professional open reel studio recorder I talk about later.

Same comment applies to one of my Rock benchmarks that readers are likely to be familiar with, Fleetwood Mac's Rumours LP, recorded in 1976. I have a 24/96 hi-res transcription that sounds pretty good, better than a new re-mastered LP I bought that turned out to be a sonic mess, sounding peculiarly coloured and unusable for review purposes.

With the digital file I get to hear the quality of the original recording – or so I hope. The original recording was laid down onto analogue tape so my 24/96 digital version has been generated by an analogue-to-digital converter (ADC).

A big issue here is that of ADC quality and what I rarely see mentioned is that ADCs are the weak link in the chain. They always have been, generating prodigious amounts of both distortion and noise. My digital version of Rumours is cleaner and clearer than the "re-mastered" LP but it has obvious top-end graunch.

Where is this coming from? Likely from the ADC used in conversion to digital since graunchy

treble is a typical blemish introduced by the digital conversion process.

What does the Rumours album really sound like? Hmm... Will we ever find out? Fleetwood Mac had become famous and went into The Record Plant, Sausalito, California, recording onto a 3M Series 79 24 track recorder – a real monster of a machine with a great reputation, 2in tape likely running at 15ips. Unlikely the distortion appeared here.

It could be that my hi-res file is derived from a CD rip, in which case it is 16bit and not hi-res at all, and also that it was produced long ago for CD, meaning through an early ADC – explaining the edgy top-end.

How could I ever get a decent copy of this famous LP, one that has sold 40 million copies worldwide and is acknowledged as an all-time great? It is also from a band I originally knew as Peter Green's Fleetwood Mac, Mick Fleetwood and John McVie being UK Blues men from a time – early 1960s – when Britain went through a Blues period, now forgotten.

Rumours is a peculiar hybrid derivation from a band of UK blues men and a UK blues woman, Christine McVie, who somehow managed to get themselves to sunny California and into re-invention with US members Stevie Nicks and Lindsey Buckingham. The soft Rock of Rumours is easily digestible but behind it lies a history of talent and ability few bands can match, first in the UK then in the USA.

As an album for review purposes Rumours is perfect, which is why I repeatedly use it. Classic Rock, easy on the ear and very well known, it's a test of any hi-fi system. I guess at a personal level I also associate with the artists, first hearing McVie in Chicken Shack. So I can listen to the music over and over and not feel too weary! I tend to hear into what the

band members are doing – important when reviewing.

Could I ever get to hear the original tapes, the mix-down master perhaps? I would pay for that privilege, at least into the hundreds of pounds. It's a small jewel of Rock history to me. But where are the master tapes and, having many different sounding "re-mastered" versions already, all of which don't sound either alike or right, how could I ever know provenance? The music business doesn't do this sort of thing very well.

The issue of the value of master tapes as a definitive record of music history was explained at length to all those who attended our talk from Guy Haden, Universal Music, who handles The Beatles, at the Bristol Hi-Fi Show this year (February 2019). Without original master tapes we can never journey back past the sins imposed on our senses by poorly produced copies, especially digital ones from the age when digital was perfect!

Rumours is a useful example of what lies behind much of the music currently on offer as 'hi-res'. But I also use audiophile recordings that show hi-res in a better light. Some are demonstrators of hi-res quality that you can download for free, Blue Coast being one source. California again and this time San Francisco, just across the water from leafy Sausalito. They offer a high quality recording in DSD, WAV and FLAC forms so you can both hear what a modern digital recording sounds like and also compare formats. Another source of high quality demos is 2L of Norway.

Like many other high quality recent digital recordings I have and use for review purposes these show that digital is now a lot better than we commonly hear it. So there's better to come from digital: a lot better. ●

# m&rw

FROM MAINS TO MUSIC



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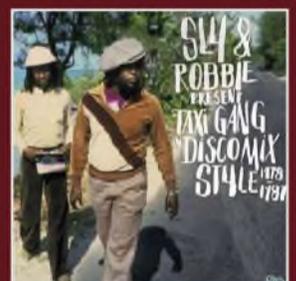
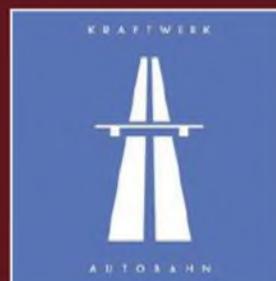
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# "Tommy Steele helped to start a rock tradition in this country"



Paul Rigby

**W**hen Americans refer to the classic rock'n'roll period and they say that they had Elvis Presley, Gene Vincent and the rest – and then we Brits turn around and we say that we had Tommy Steele, Joe Brown and Cliff, there follows a sort of slumping of the shoulders from the Brits. There was no competition, surely! That's the standard rote.

There has, for some time, been an occupation to deride British rock'n'roll. It's almost a sport. It is common to sneer at the people involved and to minimise their role. And I feel it's a bit unfair.

The issue, I feel, wasn't that we didn't have the talent to forge a hard core collective rock'n'roll front – we did. Marty Wilde, for example, was the real thing. The issue was Britain as a country and as a society. A rather restricted, conservative and tentative society. Its music industry was relatively orthodox and inverted. It couldn't handle the raucous nature of rock'n'roll or the people preaching its values. Looking back, Britain truly was a foreign land. A land that only emerged out of war time rationing half way through 1954. Unlike the USA, British people had little disposable income to spend on clothes, cars and the finer things in life.

One member of the public who was there, Bill Stitt from Edinburgh commented, "Times were hard in the 50s, after the war...We had no telly or radio of course, so we spent our nights singing and dancing around without music".

But British society was facing change as Michael Cornell from Cornwall said, "I suppose we were the first teenagers. At 15, earning money was the thing...We biked to dances on Saturday nights,

sometimes having a few too many so had to push them home rather than ride".

And Sheila Ferguson from Maidstone, "My parents did not listen to popular music, being more interested in Mantovani and Rodgers and Hammerstein musicals but my uncle who lived with us had a good collection including Johnny Ray and Bill Haley. When I was 12 or 13 I liked rock'n'roll and collected items by (ahem) Tommy Steele, Eddie Cochrane and Buddy Holly".

At this point, there was a career template that music stars were almost expected to follow. They were expected to have their fling on stage, singing their little socks off and having fun. Then, later they were expected to buckle down to serious work in variety. Music was never seen as an end point because music was not where the money was – real cash could be earned in variety, radio, theatres and later, TV. Which is what happened to Cliff Richard, Marty Wilde himself, Adam Faith and even later stars such as Cilla Black. The mould was broken when The Beatles appeared (but even they were pushed into that framework for a time).

It also happened to Tommy Steele.

But there was a time when this scruffy little 'erbert, with his spiky haircut and wiry frame, boundless energy, who began in the business by forging Hank Williams and Leadbelly music pushed the boundaries. In the UK, Steele was seen as dangerous. It's true. When he was first signed to Decca, before he sung on stage at the Sunderland Empire in 1956, they were horrified that he was about to bring an electric amplifier on stage. Electric? Was the boy mad? Live electric! The theatre managers expected it to blow up and cause

a fire so they arranged to have a fireman actually stand next to it throughout Steele's performance. The fireman was supposed to shout "Fire!" if it caught alight, would you believe. That was the level of musical sophistication in this country at that time.

The young Steele was a mixture of Elvis, Bill Haley and Guy Mitchell but with ten times the energy. He was also as popular, for a time, as all three.

There is a written record from a Dundee concert, when he was mobbed by so many girls he was left unconscious and with an injured shoulder. A severely shaken theatre steward was recorded as saying "I thought I was going to be killed". Such was the fervent nature of the Steele fan club.

To learn more, check out 'Doomsday Rock: The Brits Are Rocking Vol. 1' (Bear Family), a new thirty-four track CD that documents that rock'n'roll window and shows how Steele fused American rock'n'roll with other musical styles to produce his own unique rock flavours.

Frankly, Steele (and his contemporaries) helped to start a rock tradition in this country. It might not have been much when compared to the musical achievements of The Beatles, Clapton, The Stones et al, but beginning anything new, from a standing start, is tough. Making progress from a standing start is tougher still. Yet Steele and his fellow British rockers opened doors, changed the nature of the music industry and its infrastructure in this country, helped to change how UK record labels thought about pop and rock and allowed future British artists to think "Hey, maybe we can do that too". They were pioneers and they all deserve a bit more respect than they currently get. ●

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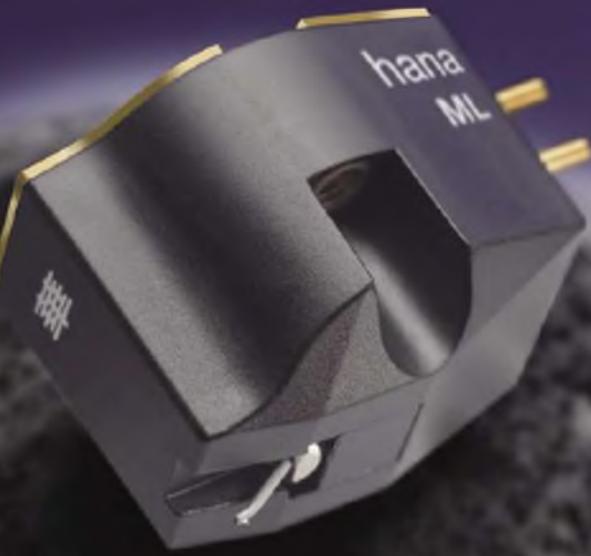


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HI>FI+ ISSUE 172 REVIEW, HANA ML/MH

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# “sports stadiums have been designed for a very different sound than a concert hall”



Jon Myles

**S**pare a thought for the humble live sound engineer. No-one ever goes home from a big concert commenting at just how good it all sounded – crystal clear vocals, sparkling guitars, hammer-hard bass and tinkling keyboards. No, I'm afraid not – no praise.

However, if things go wrong then you'll hear no end of complaints about it on social media sites which are then picked up and repeated by the mainstream media.

Take the opening concerts of the recent Spice Girls reunion tour. Complaints abounded about the muffled sound and fans being unable to hear the band speaking between songs at the opening concert in Dublin's Croke Park. The Spice Girls' management team issued copious apologies and promised things would be better for the second gig in Cardiff. Unfortunately they weren't and there were reports of some of the audience simply walking out.

A similar fate beset mega-selling US band The Strokes at a festival in London – where one concert-goer described the experience as being akin to listening to “underwater karaoke”.

Inevitably it was the sound engineering team who took the flak in both cases. But, despite giant strides forward in perfecting live sound in recent years thanks to increased use of computer modelling for various venues, getting things right is still something of an inexact science.

Various factors can all play a part and they impact on each other to a great degree. Some years ago I worked with a sound engineer who handled concerts for the likes of New Order, Happy Mondays and Public Image Ltd. He would spend hours tinkering with the placement of loudspeakers and microphone levels

at each new auditorium to ensure maximum audibility for the audience.

Then that audience would pour in and the acoustics were dramatically altered by the mass of human bodies (said sound engineer always maintained things would be easy if there wasn't an audience!). It was impossible to know beforehand just how this would affect things.

Move up a notch to the present day stadium gigs undertaken by the likes of The Spice Girls, U2, Bruce Springsteen et al at the likes of Wembley, Croke Park and Old Trafford and it can get very difficult. These are sports stadiums, remember, and as such have been acoustically designed for a very different sound than a dedicated concert hall.

In an auditorium built for amplified sound many of the surfaces are soft so they absorb sound to prevent echoes and reverberations building up.

However sporting stadia are specifically designed to create those reverberations so as to amplify the sound of an exuberant spectacle.

The windows on the executive boxes at Wembley Stadium, for example, are all installed at a precise angle so sound ricochets around to heighten the sense of atmosphere. Great if you are watching Tottenham Hotspur play Barcelona in the Champions League, not so good if you are listening to your favourite band play a concert.

Then there's the sound of the audience itself. In the case of the Spice Girls there were complaints that the band couldn't be heard speaking between songs. But the sound engineer has to cope with the fact that there's also some 80,000 fans all talking at the top of their voices at the same time which can create a heck of a lot of noise. Just turning up the performer's

microphone doesn't cut it.

Other factors include the weather. Large stadiums have their own micro-climate and as night falls that can alter with more cool air descending and subtly altering the direction of the soundwaves. So what sounded great at an afternoon soundcheck in the hot sunshine can be very different during the evening.

There's also the fact that many local councils impose volume limits at events to pacify local residents. It's not unknown for these arbitrary levels to be less than the sound that can be generated by a crowd of 60,000-plus.

And, as shows have got bigger, even the stage set can play a part with loudspeakers having to be placed at non-optimal positions around walkways projecting into the crowd, away from large video screens and lavish lighting equipment or special effects.

Of course, a better understanding of acoustics and powerful computer simulations which can predict how a venue will sound when 'speakers are placed in various locations, as well as tailoring their response profile have all made things a good deal easier for the sound engineers.

As my erstwhile colleague noted “Things have come on in leaps and bounds from when I started out in the business all those years ago. Then I was relying on instinct, now I can model a pretty good live set-up on my laptop weeks in advance”.

But still, things can and occasionally do go wrong as The Spice Girls opening concerts showed. But if you happen to attend a concert where things are far from optimal on the acoustic front don't automatically berate the sound engineers – they're doing their level best and have a host of problems to overcome at each and every event. ●

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# "By now, we should be holidaying in orbit"



Martin Pipe

**A**s I write this, we are rapidly approaching that magical time of year otherwise known as the Proms season – public-service broadcasting at its internationally-respected finest. As far as I'm concerned, those eight weeks of music make up for daytime televisual dross like *Homes Under The Hammer* and *Bargain Hunt*, justifying the licence fee. OK – that's a matter of personal opinion; the BBC must, lest we forget, offer something for everyone!

The Proms is a 'shop window' for the exquisite Radio 3, which champions new music throughout the year and this year will premiere no fewer than 33 specially-commissioned pieces.

It will be interesting to hear how Public Service Broadcasting's compelling mix of music and BFI archive documents the US/Soviet space race in the 2015 concept album *The Race For Space*, on July 25th (Prom 10). How will it fare with a freshly-minted classical sheen – furnished by The Multi-Story Orchestra, under Christopher Stark?

Musical merits notwithstanding, *The Race For Space* was included because 2019 marks the 50th anniversary of the Apollo 11 moon-landing. Making this staggering feat possible were equally staggering amounts of drive, innovation, imagination, taxpayers' money and 'can-do' optimism that seems unfashionable today. By now, we should have colonised the moon, be holidaying in orbit and heading further into space...only one of these shows any signs of becoming reality, and then only if you have pockets as deep as space.

*The Race For Space* is hardly new, Public Service Broadcasting having released its album back

in 2015. Apollo 11's half-century passing has however also been marked by the first UK performance of another space-inspired work – Anna Thorvaldsdottir's *Metacosmos*. It's "a musical metaphor", we are told, "for falling into a black hole". The timing of this 14-minute piece is quite good, considering the recent news that a black hole was photographed for the first time – using computer and imaging technology that, like hires digital music downloads, would have been inconceivable 50 years ago. Hear it on July 22nd, when it shares billing with Stravinsky's *The Rite of Spring* (a Proms favourite) and Britten's *Violin Concerto*.

And those new commissions? One will be the very first music you'll hear at these Proms – Zosha Di Castri's Apollo 11-themed *Long Is The Journey, Short Is The Memory* for orchestra and chorus. Others are peppered around the schedules.

As per usual, there will be – alongside the BBC's own orchestras – a wide range of guest players including the Vienna Philharmonic, Bavarian Radio Symphony Orchestra and (making its debut) Shanghai Symphony Orchestra. Between them, they'll be playing a wide range of music including Dvorak, Korngold, Sibelius, Rachmaninov and Mozart.

Described by the BBC as "one of its most diverse programmes yet", the 2019 Proms will take in numerous musical forms: "from afropop to jazz, hip hop to pizzica, and electronica to meditative listening". You'll even be able to hear Radiohead's Jonny Greenwood curating a *Late Night Prom* (Prom 70, September 11) culminating in the world premiere of his *Horror vacui*. The latter "simulates electronic sound using 68 stringed-instruments played acoustically".

Other anniversaries that will be given the Proms treatment include the bicentenary year of Queen Victoria's arrival, and the passing of 150 years since the birth of Sir Henry Wood – the man whose mission was to "bring the best of classical music to the widest possible audience" through his invention of the Proms.

Woods' tradition of evenings given over to a single composer also feature this year; over the festival are a "Monday evening of Wagner, a Wednesday evening of Bach and a Friday evening of Beethoven".

They'll be on various BBC platforms – Radio 3 and the much-hyped BBC Sounds will carry the lot, but some performances will also be televised by BBC 1, BBC 2, CBeebies and BBC Four.

Sadly, there's little 'tech-garnishing' this year. Selected Proms will be available as binaural streams for headphone listening, and HDTV streams will carry 5.1 surround. But there's no 4.0 (quadraphonic) surround, no virtual-reality 'Taster' projects and – most disappointing of all – no lossless (FLAC) simulcasting.

As to why not, one could do worse than refer to the paper (<https://bit.ly/2wjwsxz>) that BBC R&D – responsible for these 'Concert Sound' trials back in 2017 – submitted to the AES last year. Few, it seems, could tell the difference between FLAC and the admittedly-excellent AAC-LC streams (at 320kbps, half the FLAC requirement) that the BBC has been quietly putting out for four years. Thankfully, Radio 3 – and thus the Proms – can be enjoyed in this form if you are so inclined. All decent hi-fi streamers will support it, meaning that faffing around with computers is no longer necessary. ●

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# "A mass of equipment is scrap no matter what it looks like"



Dave Tutt

**F**unny how sometimes peoples expectations are so high that there is just no explaining to them the issues involved trying to fix things. If you are a regular browser of boot fairs or eBay or Shpock as typical examples, there are no end of things that "just need a fuse" or "there isn't much wrong with it I only used it last weekend".

A typical example is the Dynatron RG 86 radiogram that, with its dated wooden cabinet and anything but Hi-Fi internals, really is a rather hopeless case. Worse still is that its transistors are all Germanium. Now for those that don't know, transistors made with this material haven't been made since the 1960s. True, there are still a few diodes around that were probably made in their billions and are still reasonably stocked if you know where to look. But when you are looking for an entire power amplifier's worth of Germanium transistors they just don't exist.

I have spent many days searching for Dynatron replacements but have drawn a blank – except for those suspect suppliers who occupy the edges of retail across the world and who can ship you anything for a price. They are just as likely to have printed the reference numbers of the components you require on the floor sweepings of a local manufacturer. There might be something inside but it is highly unlikely to be a Germanium transistor.

I understand that Dynatron may have supplied one of these models to the Queen. There is certainly a Royal crest inside the antique. I have had one of these horror stories in my workshop for over a year and I have declared the tuner not worth

the effort, replaced the preamp with a module from eBay with similar control functions, swapped the power amp and the power supply for something that actually works – this time from little kits again from eBay – and replaced the speaker drivers. A magnetic cartridge preamp was installed to suit a cheap MM cartridge unit now fitted to the Garrard SP25 Mk3 turntable. And over three days worth of effort was required to try and repair damage to the turntable arm and to unjam the automatic mechanism that may never work properly anyway.

Much like my other business repairing digital piano's and organs there is a whole mass of equipment that, realistically, is scrap no matter what it looks like. So wasting my time on the Dynatron has proven to be rather ridiculous! It is of course such a shame but technology moves on – sometimes at lightning speed – and things become redundant even though, like many piano's that may have stood in a room for 20 plus years and hardly have been touched, there is no way to repair when parts no longer exist

Talking of the SP25 and all its derivatives that have the C2 headshell carrier, there are loads of them that no longer connect, so the cartridge is invisible to the preamp. Its not easy to deal with! Having tried several methods I have found that there are as many faults as there are ways of correcting them. I have been known to remove the whole connector monster, fit tags to the ends of the arm wires and fix the thing by adding holes in the headshell and screwing directly through. This seems very much more reliable than the bent metal connector! The only way to do this without pulling your hair out is to remove the arm bearings and upend

the arm to get to everything.

Fortunately, this arm had already seen the heavy handed end of the previous owner or three, so the arm was floating around on the platter with no clear method of its original attachment. I had a few spares so at least manual operation could be achieved, but I am sure the customer will want it to be automatic!

I fitted extra sockets for inputs for a CD or 'phone or Walkman so it could at least be a little more up to date – but that missing tuner has got to me a little. I could have fitted another module – but could I find one that was cheap enough? Somehow I doubt it. The original was just a push button preset one, not something worth looking for.

A new pair of 6 inch speakers and some crossovers to feed the elliptical drivers in the fold out side panels used as tweeters were also fitted.

Even though I have had some sound out of it my in-built notion of never recovering my expenses, let alone any sort of payment for the hours I have spent on it, tells me that it should stay here for a while until I feel its just got to go.

Of course the electronics is only half the story. The cabinet was in a pretty poor state and hasn't improved here in the workshop as I have not treated it kindly; I'm afraid the customer will never pay me for repairs to it. Because it is always in the way it has been moved every day. And because it had wood worm and was knocked about to start with, my wood repairs have centred on replacing the veneer where appropriate, rubbing down the mouldings and reshaping the 50 plus years of damage.

Sometimes you just have to let these sort of jobs go or they just send you mad! ●

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# Pretty Poly

A firmware update brings even more features to Chord's clever streaming module, finds Jon Myles.

Chord's Mojo mini-DAC/headphone amplifier has become something of a benchmark product since its launch almost four years ago. It not only improved the sound quality from smartphones and many a portable hi-res digital audio player (DAP) but is so good it has found its way into many a serious home hi-fi set-up.

Then came the add-on Poly module - which added DLNA, Airplay and Bluetooth streaming to the equation as playback via microSD cards.

Since then Chord has released the Gofigure control app for smartphone control of the Poly (both iOS and Android) to make operation easier, but there's been no other major updates since.

Until now, that is. For Chord has just rolled out a firmware upgrade in the form of Poly 2.0 - and it's more than just a few tweaks here and there.

Instead there's a host of improvements that expands functionality and makes this £500 unit even more tempting for Mojo users.

They include improved DLNA, wi-fi and Bluetooth connection to speed up performance, support for Roon as well as Tidal, Qobuz and internet radio. The update is free and installing is relatively simple - a matter of removing the SDcard if fitted, ensuring the poly is first connected to a network and its charger and then following a simple set of instructions (for detailed instructions visit the Chord Electronics website at [www.chordelectronics.co.uk](http://www.chordelectronics.co.uk)).

In all it took me about 40 minutes to update my Poly with no glitches - the unit working perfectly from the completion of the process.

## SOUND QUALITY

To be blunt, the firmware update doesn't alter sound reproduction as that's the job of the Mojo - which is a clean, detailed, crystal-clear DAC with impressive bandwidth.

But what it does do is make control of the Poly seem a lot slicker, tracks loading faster from my NAS drive and playing quicker.

The biggest boost for me is the addition of support for Tidal and Qobuz. Playing a selection of Clash

songs from the former I was again reminded just how good this Chord combination is.

Paul Simonon's bass on 'Guns Of Brixton' was propulsive and gutsy with real depth via my Devialet Expert Pro 220 amplifier. On Japan's 'Ghosts' the Chord combination's hear-through quality made David Sylvian's glacial vocals sound spine-tinglingly effective - hanging in the air with a pristine quality.

The more tracks I played and experimented with, the more Poly's new firmware features impressed me. Poly 2.0 doesn't just upgrade the device it virtually turns it into a new piece of hardware - which at precisely zero cost to the consumer is quite an achievement.

## CONCLUSION

For existing Mojo/Poly users this is a no-brainer of an upgrade and should be installed immediately. For those thinking of investing in the unit the addition of Tidal and Qobuz support plus the other improvements could just be the deciding factor.

### CHORD:

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CHORD POLY: £500



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#### VERDICT

A firmware update that makes Chord's clever Poly streaming module more impressive than ever.

#### FOR

- support for Tidal and Qobuz
- Roon ready
- improved Bluetooth, wi-fi and DLNA
- free

#### AGAINST

- nothing

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# Digital Glow

The warm glow of a valve lights Vincent's DAC-7 digital convertor. Noel Keywood looks and listens.

**N**ot a new idea but difficult to do well. Building a valve output stage into a digital convertor that is. But Vincent of Germany specialise in combining valves (tubes) with transistors with great success; I am a fan of their sound. With DAC-7 they offer an ambitious digital convertor able to handle all modern digital file formats – including DSD – with a valve output stage for atmospheric valve sound. Or, at the push of a button, a transistor (FET) alternative bypasses the valve stage. Price £1,395.00.

DAC-7 can be used with just about any digital source, since it has two optical and two co-axial S/PDIF digital inputs, an AES/EBU XLR socket balanced S/PDIF digital input and – importantly – a USB socket for computer connection. This accepts up to DSD256 (via DOP) Vincent say. Curiously, they also suggest the S/PDIF inputs can handle DSD64, but few S/PDIF sources provide DSD because of its high data rate. Tests showed the optical receivers accept 24/192 PCM however.

Inputs – six of them – can be selected by a front panel button or remote control, the former switching through them in sequence. Bluetooth input is absent, so no possibility of streaming from a mobile 'phone – becoming common elsewhere.

Also on the front panel Vincent fit a full size 6.3mm (1/4in) headphone socket with manual volume control so DAC-7 can be used to listen to computer sound, although size-wise it will dwarf most modern computers. Being 430mm wide and 360mm deep it is more suited to a hi-fi rack, but a weight of 6.5kgms and height of 95mm means shelf mounting isn't impossible. A front panel push button selects between Tube or FET output stage.

The casework is solid and our pictures show a central window with valve surrounded by a warm orange glow. That is the single 6Z4 rectifier used in the power supply. Inside lie two 12AU7s (ECC82) double-triodes that sit between the balanced output of an AKM AK4490 DAC chip and the XLR balanced audio outputs at rear. There are also unbalanced RCA

phono socket outputs but unfortunately no remote control of volume, on the headphone output or the line outputs, so DAC-7 cannot run a power amplifier direct; a preamp is needed. Although you could run a power amplifier from the headphone socket.

Inside Vincent use a screened toroidal mains transformer in a linear power supply with separate digital and analogue sections. Audio-grade components are also used. Power consumption is 35W maximum.

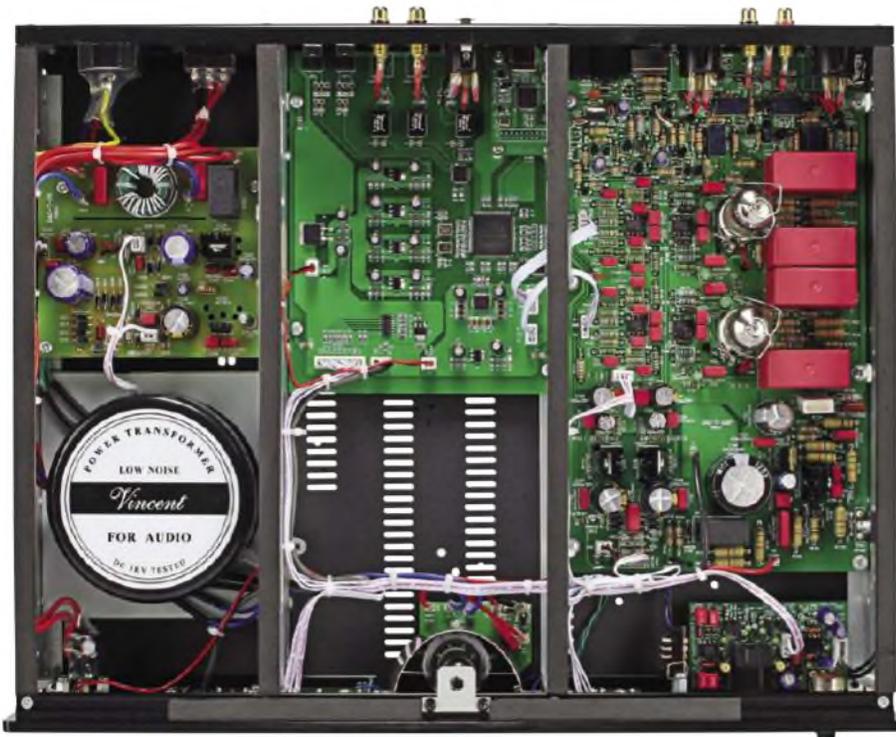
Formats accepted are MP3, AAC, AAC+, ALAC, FLAC, APE, DSD and even MQA and all these played from test files; I had no file play problems.

## SOUND QUALITY

In order to use the balanced outputs I connected DAC-7 to a Music First Audio Passive Magnetic Preamplifier using Chord Company Epic balanced cables, and the pre to our Creek Evolution 100A amplifier via its balanced XLR inputs, which bypass the amp's own volume control, again using Epic cables.

Little technical note: high quality





**At left lies the linear power supply with screened toroidal transformer. At centre sits a digital board with large AKM Ak4490 DAC chip at right. Separate and in a screened section at right is the audio board complete with valves.**

DAC chips deliver a balanced output so this is always the best output to use. To derive an unbalanced signal for RCA phono sockets demands another chip so this output will

never be as good sound quality wise. There's usually only a small loss of dynamic range but in practice some RCA outputs are poor and DAC-7 wasn't too good here either – see



**The bright glow comes from the 6Z4 rectifier valve, not from LEDs! There's a warm up time of many seconds.**



**At left lies the analogue outputs, both RCA phono socket (unbalanced) and XLR (balanced). Near centre are the USB B socket for computer connection, plus an AES/EBU balanced digital input, two electrical S/PDIF inputs via gold plated sockets, and then two optical inputs.**

Measured Performance.

Sources were an Oppo BDP-205D Universal player acting as a CD transport, connected with a QED Quartz glass-fibre optical cable, an Astell&Kern AK I20 portable player also connected optically as a source of hi-res and a MacBook Pro computer connected via USB to deliver it all, including DSD, from an Audirvana Plus player. Loudspeakers were Martin Logan ESL-X hybrid electrostatics connected via Chord Company Signature Reference cables.

Fantastic! I has hit by my favourite sound immediately listening to Rebecca Pidgeon singing Spanish Harlem (24/176.4) from the AK I20 player via optical. She was seductively clear centre stage, the sound had an easy and mellow presence yet there was a sensual feeling of depth and envelopment. Plucked acoustic bass stood out clearly, walking with firm steps.

With Fleetwood Mac's Dreams (24/96), a track I use as a Rock reference, all I heard from a stream of previous tracks from the AK I20 was crystallised: Mick Fleetwood's drumming was stably powerful and bass guitar strode along firmly. I was again confronted by a spacious sound stage on which instruments and performers were clearly separated; Stevie Nicks floated clear of the background chorus. Impressive also was how the DAC-7 managed to get a hold on this track's tonal balance, keeping what can be a wayward top-end under control. AKM's AK4490 Verita DAC chip works well I've found from past experience and it was the case here. Running the chip's balanced output through a balanced valve output stage sorted out treble nicely; there was still some emphasis that comes from the recording, but it was inoffensive.

Another quality apparent



**Two ECC82 output valves working in balanced mode swing 5V out via XLR.**

immediately and consistent with all review tracks was a weighty sound with strong bass; this is no mean sounding player but one with real guts and heft. Drums kits and bass lines were always there in big form, muscular and obvious.

All these strengths translated well into sound with classical works. Tchaikovsky's Waltz of the Flowers (24/96) had the Bruckner Orchestra within a hall in front of me, creamy smooth strings stretched widely across a spacious sound stage. Opening horns had timbral richness, not sounding like the bleached representation that's common. The orchestra also had a fulsome presence, seemingly with physical weight.

It only got better with DSD, although I had to muse on this. ESS and AKM DAC chips so smooth the sound of digital – meaning PCM – that DSD isn't a mile ahead. All the same House of the Rising Sun (DSD128) from Cyndee Peters put up triangles that rang sweetly and a cymbal that was made of brass: extraordinary differentiation of textures. Hand drums had stabbing power, jumping out. It was atmospherically engaging and a spectrum extreme from the harder definition of trad. digital. Switching in FET output did harden things up a little but not much. The AKM chip and linear power supply are sweet

and smooth in themselves, both valves and FETs conveying this quality rather than changing it.

The RCA phono socket outputs (unbalanced) weren't a mile behind the XLR outputs even though measurement shows dynamic range with hi-res little different to CD. There was a slight loss of subtle smoothness and sense of background silence, almost subliminal – only apparent after some time listening.

supply – not a noisy switch-mode – gave great sound quality even via the FET output, but was enhanced by the 12AU7 (ECC82) tubes running balanced on each channel. Where tubes can introduce noise if their dynamic range potential isn't fully utilised, in DAC-7 Vincent overcome this issue, delivering a DAC with fantastic sound quality – smooth, fulsome and with powerful bass. This is a DAC that in spite of being digital (!) you just want to turn up the

"a DAC with fantastic sound quality – smooth, fulsome and with powerful bass"

**CONCLUSION**

Vincent's DAC-7 is a well built and finished digital convertor with balanced valve (tube) output stage, backed up by a switchable FET (field effect transistor) alternative. It's high quality AKM Vertita Series AK4490 DAC chip, fed by a linear power

volume, it is so svelte and engaging. Pity there is no remote control of volume or Bluetooth; instead you get valve sound in supreme quality. With fabulous sound staging it delivers both Classical and Rock with a scale not found elsewhere. Audition if you can.

**MEASURED PERFORMANCE**

Frequency response of the DAC-7 measured flat from 5Hz to 43kHz our analysis shows (192kHz sample rate). Switching from FET to Tube made no difference; balanced and unbalanced outputs were identical too.

Both the Tube and FET could swing 5V out through XLR, tube being more linear here (unbalanced 2.5V). At full output distortion measured 0.01% Tube and 0.07% FET (XLR). At -60dB distortion sank to a low 0.07% with 24bit, from both Tube and FET. As always CD measured 0.22%, due to 16-bit noise.

Distortion was lowest at 44.1kHz sample rate and multiples (88.2, 176.4). At 48kHz and multiples distortion was slightly higher at 0.1% (Tube and FET).

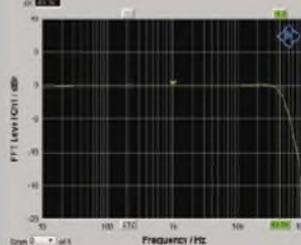
The crucial EIAJ Dynamic Range value (S/PDIF in) measured 108dB from XLR output with both Tube and FET – on the low side. USB gave 112dB. Mediocre figures. The phono socket output was 9dB worse than XLR, giving dynamic range equivalent to CD – unimpressive.

The headphone output with volume control gave a massive 7V output, with a detent to avoid overload from 0dB full scale input. More gain is available.

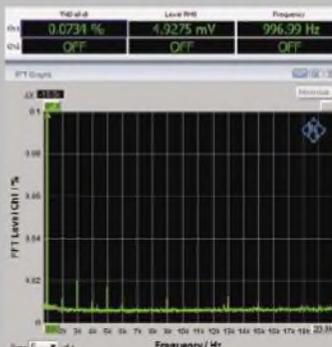
The performance achieved is excellent for valves constrained by transistor voltage levels – and good in general terms if not up with the best. **NK**

Frequency response	5Hz- 43kHz
Distortion ( -60dB)	0.07%
Separation	96dB
Dynamic range	108dB
Noise	-106dB
Output (phono/XLR)	2.5V / 5V
Headphone output	7V

**FREQUENCY RESPONSE**



**DISTORTION**



**VINCENT DAC-7**  
£1,395.00



**OUTSTANDING - amongst the best**

**VALUE - keenly priced**

**VERDICT**  
Mighty sound of great presence from all digital. A step up on most else. Deeply impressive.

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- strong bass  
- headphone output

**AGAINST**  
- no remote volume control  
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# vinyl section

## contents

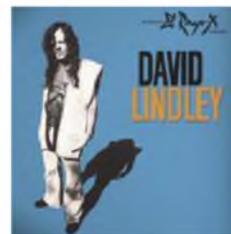
AUGUST 2019

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**LEHMANN DECADE PHONO STAGE 83**  
A super low noise phono stage reviewed by Noel Keywood.

**HOW TO FIT A CARTRIDGE 87**  
It isn't always so simple. Noel Keywood explains.

**MODZINES 93**  
Paul Rigby reviews a book on mod revival fanzines.



# news

## R.E.M.

Originally released in 2003, 'Best of...In Time 1988-2003' (Craft); this 2LP set includes all the expected hits plus two sound track entries: 'All the Right Friends' from 2001's 'Vanilla Sky' and 'The Great Beyond', written for the 1999 Andy Kaufman biopic 'Man on the Moon', plus two previously unreleased tracks, 2003's 'Animal' and 'Bad Day'.

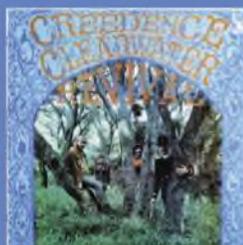


## SPEAKERS CORNER

Audiophile releases from Germany that boast a complete analogue production chain ([www.speakerscornerrecords.com](http://www.speakerscornerrecords.com)). Up first is Milt Jackson's 'Ballads & Blues'. A major vibraphonist, Jackson was best known as part of the Modern Jazz Quartet but also as a leader. This 1957 Atlantic combines hip-swinging, finger-snapping beats with exploratory ballads.

Brother Jack McDuff was a prolific releaser of LPs in the sixties. Know this though. If you like the sound of the Hammond B-3 organ, get this album. 'Tobacco Road' (1967) also offers a soulful brass section. Beautifully funky.

Also look out for Weather Report's brilliant, adventurous 'Live in Tokyo' (1972). The live arena really does bring the group to life while David Lindley's 'El Rayo X' (1981) saw the consummate session player out front for a change, offering rock twisted by a range of genres. Quality stuff.



## CREEDANCE CLEARWATER REVIVAL

Mastered at half speed by Miles Showell at Abbey Road, celebrating the group's 50th anniversary, their self titled debut (1968) and 'Bayou Country' (1969), the band's second album, have now been reissued. The debut was a mix of R&B, blues and even rockabilly. It had nothing to do with the hippie culture and more to do with the Stax label culture and was at its finest because of that.

The second album offered the finest swamp rock. It 'oozed' confidence as the band members tightened up their production and presentation.



## THE ROLLING STONES

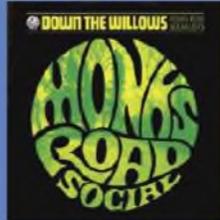
Released by Universal, 'Honk' is a Stones 'Best of' from 1971-2016. This 3LP version includes thirty-six tracks but doesn't have room for the CD version's bonus live disc.

## HOWARD JONES

...or Howie, as the late BBC DJ John Peel sometimes referred to him, has a new album out called 'Transform' (D-tox; [www.howardjones.com](http://www.howardjones.com)). A combination of classic, eighties-era beats, breezy, light pop with thoughtful synth grammar ballads interspersed. A great mix.



## BANDCAMP BEAUTIES



Indie rockers Knuckle's new release 'Life is Hard When You're Soft Inside' ([philophobiamusic.bandcamp.com](http://philophobiamusic.bandcamp.com)) provides wit and grit in equal measure.

'Future Flora' ([blackflower1.bandcamp.com](http://blackflower1.bandcamp.com)) from Black Flower is described as Ethiodubjazz. Modern-day trip hop perhaps? Leaning towards jazz instrumentation but retaining bass grounding. Thoughtful grooves.

'Down The Willows' ([wonderfulsound.bandcamp.com/album/down-the-willows](http://wonderfulsound.bandcamp.com/album/down-the-willows)) from Monks Road Social is a varied 2LP soul-pop outing curated by the Blow Monkeys' Dr Robert, plus guests. Light. Fluffy. Vacuous.

Cykada's self-titled LP ([cykadaband.bandcamp.com](http://cykadaband.bandcamp.com)) offers five long tracks of complex jazz and jazz fusion. Multi-layered rhythms that take ages to unravel.

Abul Mogard's 'And We Are Passing Through Silently' double album ([houndstoothlabel.bandcamp.com](http://houndstoothlabel.bandcamp.com)) remixes and tweaks the works of others in a beautifully sombre-electronica sorta way.



## DEMON

A bunch of vinyl from Demon ([www.demonmusicgroup.co.uk](http://www.demonmusicgroup.co.uk)) includes The Yardbirds' 'Roger the Engineer' (1966) on red, white and blue vinyl. The band's first album of all original songs, it showed Jeff Beck at his imaginative best.

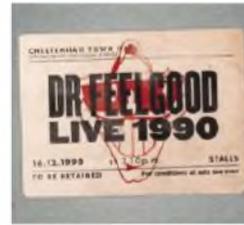
The Barrino Brothers' (i.e. Nathaniel, Perry and Julius + friend) were not the best known soul group from the seventies but 'Livin' High Off the Goodness of Your Love' (Invictus, 1973) is a superb Holland-Dozier-Holland outing. A lost gem.

The League of Gentlemen have two triple-vinyl sets out on Demon: 'Series One' (1999) and 'On the Town with...' (1997) featuring six episodes each on translucent vinyl.



Simple Minds have a couple of releases out too, including 2009's 'Graffiti Soul', a sort of back to basics, return to the eighties LP release that will please fans. This is a 2LP edition featuring 'Searching for the Lost Boys', a covers LP featuring songs from Neil Young, Magazine and more. Look out too for 'Big Music Tour 2015', a live collection on two LPs.

Then there's Dr Feelgood's 'Live 1990' at Cheltenham Town Hall on blue vinyl and Leo Sayer's new album, 'Selfie' limited-edition on pink vinyl.



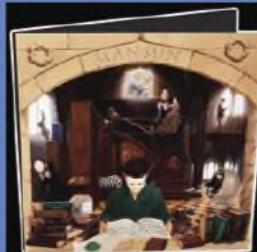
## ...AND FINALLY

Jon Bryant's 'Cult Classic' (Nettwerk; [nettwerk.com](http://nettwerk.com)) joins a long queue of irritating, in vogue, soft, vulnerable, woe-is-me, singer-songwriters. Poke him in the chest and your finger would break a rib.

Via Kscope ([www.kscopemusic.com](http://www.kscopemusic.com)) presents Nosound's Giancarlo Erra and 'Ends'. Instrumentals of a delicate nature, via piano, strings and synths. Music to ponder, to hear when you wander and to allow the mind to roam yonder.

Also from Kscope is Mansun's 'Six', an under-rated, brilliant blend of music. More math rock than prog, it is both layered and complex. Buy a ticket, enjoy the ride.

After the death of former lead singer, Dolores O'Riordan, the rest of The Cranberries released 'In The End' (BMG), the unfinished, now finished album. An emotional outing in which O'Riordan's less than glossy demo vocals add a sense of texture and depth.



All the *style*, with no  
compromise on **sound**



## Debut III S Audiophile

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April 2018



June 2018

# A Decade On

Lehmann's Decade phono stage has history on its side. Noel Keywood enjoys its sound.

Lehmann's Decade phono stage is an interesting design with some history. We reviewed it as the Black Cube back in our June 2007 issue – and not a lot has changed. It was good back then and it still looks good today, although

the vinyl revival means it has strong competition from the likes of Project, Creek and Cambridge Audio. Today's Decade works with both MM and MC cartridges and potentially offers low noise to no noise. Priced at £1500 it has more competition than in 2007.

There are two parts to the Decade, a PVX-II linear power supply (1.56kgs) and the amplifier itself (0.87kgs), separated by a 2 metre long power cable to give some leeway with positioning. Since both units are 110mm wide, 280mm deep and 50mm high they're easy to fit in.





*A neat internal circuit board with full size components (no Surface Mount Devices) and basic 8-pin silicon chips, plus small-signal relays (centre). Conventional but neatly laid out and symmetrical.*

The main amplifier has a single pair of RCA phono socket inputs and outputs so only one turntable can be connected, but the advantage is that swapping from moving magnet (MM) cartridge to moving coil (MC) on a turntable can be accommodated by the flick of a small front panel lever switch: MM or MC. Cartridge

coils.

A third front panel mini lever switch selects a warp filter to suppress loudspeaker cone flap caused by warped LPs – more of which later.

Something like a decade later than the original, Lehmann's Decade is still in contention but it lacks niceties. There's no balanced output, nor a more rare balanced input. And no volume control to allow use with a power amplifier direct: it demands a preamplifier in-between,

Drive turntable with SME309 arm and Ortofon Cadenza Bronze moving coil cartridge. Initially it fed a Creek Evolution 100A amplifier driving Martin Logan ESL-X hybrid electrostatic loudspeakers through Chord Company Signature Reference cables. In this system there was a slight hum I could not eliminate by all the usual methods. I installed a Music First Audio Magnetic Preamplifier (unpowered) and used its ground-lift option to eliminate the problem. Then the Decade was deathly silent



*Miniature slide-switches (blue DIP switches) adjust resistive and capacitive loading to suit MM or MC cartridges.*

loading conditions are set by small DIP switches on the underside, with a range of capacitive loadings for MM that affect frequency response, and two loads for MM – standard 100 Ohms and a high alternative of 1000 Ohms for the few MC cartridges – high output designs – that need this.

In addition to the MM/MC switch Lehmann fit a Low/High gain switch to the front panel where, measurement showed, Low is very low and High unusually high! Although unconventional the settings allow all cartridges to be accommodated without the issue of overload creeping in. This latest version is as quiet as the original, making the Decade suitable for very low output (high quality) moving

"a slickly smooth sound that was easy on the ear"

if only a simple passive one. I hardly dare mention Bluetooth output like Cambridge Audio's Alva turntable to allow LP to be run through headphones connected to a mobile 'phone, and forget a digital output such as that found on Pro-ject turntables and the Furutech ADL Alpha/Stratos. Times move on and the Decade is short of facilities at the price, even a simple headphone socket.

**SOUND QUALITY**

I put the Decade into our review system comprising Timestep Evo tuned Technics SL-1210 Mk2 Direct

at full volume with the Cadenza Bronze – a rare ability. But I was left wondering whether others might experience the same problem; ours is a vanilla set-up that doesn't suffer hum with most phono stages. The Lehmann amplifier has a 100 Ohm ground lift resistor measurement showed, so it shouldn't hum.

Spinning Mobile Fidelity's re-master of Dire Straits Love over Gold LP (45rpm, 180gm) I was met with a slickly smooth sound that was easy on the ear. Although measurement suggested a bright balance what I heard was supremely neutral, bass guitar having a solid



*Gold plated input and output terminals, use with an MM or MC cartridge being selected by a front panel switch. An earth terminal and power input socket also.*



The linear power supply has a compact toroidal mains transformer (left), a bank of four cylindrical smoothing capacitors and heat sink (top right) for the regulator.

presence in easy tonal alignment with all else. Mark Knopfler's vocals were casually present centre stage and I just sat back and enjoyed the music. The warp filter lightened bass slightly but there was still good timing and rendition.

Working through a selection of

LPs it became apparent, especially with 45rpm Dance singles like Alison Goldfrap's Ride a White Horse, that the pounding back beat was a tad mellow I could say. It was all very civilised when a little less civility would have been more appropriate. Yet with top recordings like Hugh

Masekela's Uptownship (Analogue Productions, 180gm) Maselkela's trumpet punched out and hand drums had strong independent presence.

Such a presentation suited Classical wonderfully, Marianne Thorsen's violin sounding natural but well detailed, playing Mozart Violin Concertos, from a DXD384 mastered LP from 2L. The Trondheim Soloists filled a large space behind her, softly lit but atmospheric.



Rear of the power supply, with IEC mains input socket (right) and small rocker power switch (centre), plus two four-pin output sockets.

**CONCLUSION**

As LP pickup cartridges get ever more sophisticated they need a neutral preamplifier like Lehmann's Decade. It offers silence and a svelte sound rather than high drama. A neat and well designed phono stage that avoids the slight hiss of many, but best to get an audition first to ensure it works with the system.

**MEASURED PERFORMANCE**

Frequency response of the Decade – see our analysis – shows slight emphasis of high frequencies, consistent at all gains from MM Low to MC High. Gain rolls off below 20Hz to -7dB at 5Hz, giving a small degree of warp filtering. The warp filter cuts output below 100Hz drastically and will lighten bass subjectively by a very obvious degree; it's possible and common (Creek, Cambridge Audio) to attenuate bass sharply below 40Hz to eliminate subsonic warp signals below 20Hz without affecting sound quality.

Gain with MM was very low at x60 (x100 is target) but switching in High increased this to a high x180 (44dB) whilst maintaining satisfactory input overload headroom of 48mV; high output MMs rarely exceed 30mV on musical peaks.

Similarly, MC gain was low at x630 (x1000 is target) but with High switched in a very high x1900 (66dB) – suitable for all MC cartridges. Overload ceilings were

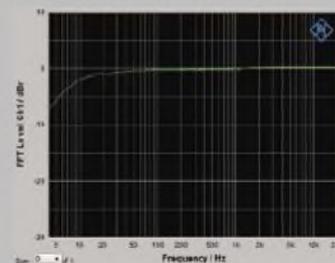
again satisfactory at 13mV for Low and 4.5mV for High (set by an 8.5V output limit).

Noise levels were extremely low, equivalent input noise (A wtd.) with MC measuring just 0.07µV – right down to input transformer values. Such low noise, plus very high gain (MC, High) make the Decade a fine match for top quality very low output MCs; hiss will be inaudible. This is a very quiet phono stage – no hiss and no hum either.

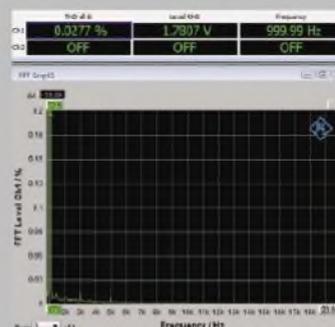
The Decade is very quiet. It suits all MM and MC cartridges. Tonally it may sound light and the warp filter was poor. **NK**

<b>Frequency response</b>	<b>20Hz-20kHz</b>
<b>Separation</b>	<b>68dB</b>
<b>Noise (ein)</b>	<b>0.07µV</b>
<b>Distortion</b>	<b>0.03%</b>
<b>Gain (MM, MC)</b>	<b>x160/ x 1900</b>
<b>Overload (MM, MC)</b>	<b>48mV / 4.5mV</b>

**FREQUENCY RESPONSE**



**DISTORTION**



**LEHMANN DECADE £1500**

EXCELLENT - extremely capable

**VERDICT**  
A smooth sounding phono stage that suits all MM and MC cartridges, with no noise. Lacks facilities though.

**FOR**  
- smooth  
- gently insightful  
- no hiss with MC

**AGAINST**  
- no ground lift to avoid hum  
- separate power supply  
- poor warp filter

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# Fit To Go

Worried about fitting a pickup cartridge? Noel Keywood tells you how to do it.

“I had to get our local shop to install a cartridge, as I do not know how” said Philip Hocking with disarming frankness in a letter to us. It can look daunting, especially if the cartridge is expensive. And if it is a moving coil type then you might be best off asking a dealer to do the job. There are a myriad of small issues, most not daunting, but some terrifying, that I will look at in this simple practical guide on how to fit a pickup cartridge to your turntable.

All cartridges have 1/2in fixing centres (12.7mm) which as you might guess from the Imperial measure, is an old standard used by all. Point being that all cartridges will fit all head shells – no fear here. Body size and weight are also pretty much standardised, since no manufacturer wants to face the complaints of their cartridge not matching an arm. Cartridge weight range is typically 6gms to 10gms, with some solid MCs, like Ortofon's Cadenza series coming in at 10.7gms. Most arms accept 5gms-12gms.

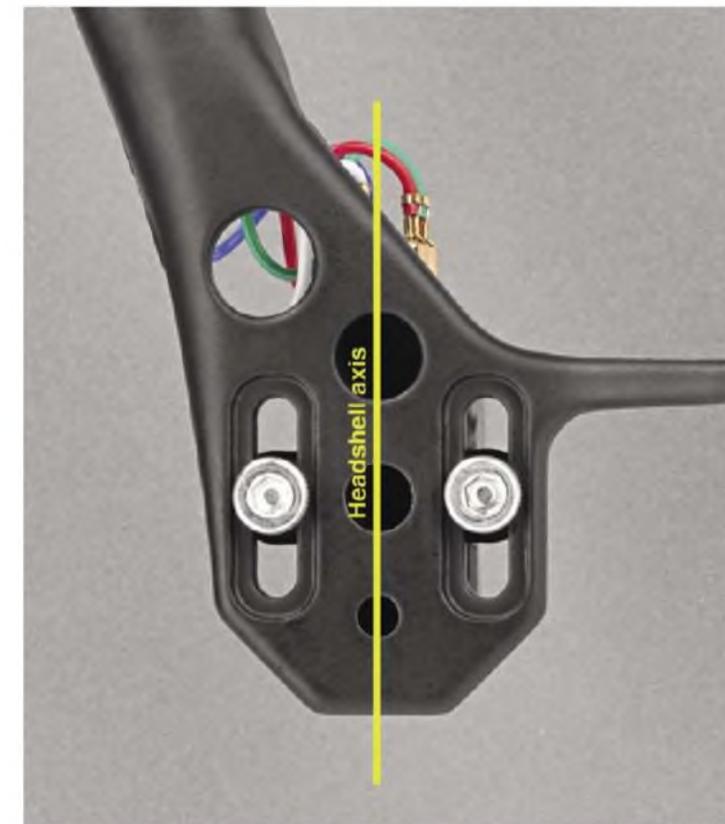
Providing you have a cartridge manufactured in the last 20 years or so, it is very likely to fit your arm.

## SCREWS ARE NUTS

Next issue is the screws you will need and how to deal with them. And here we get to funny / difficult issues. Some cartridges, like Audio Technica's current VM700 series moving magnet types, demand

“I had to get our local shop to install a cartridge, as I do not know how”

a screw of specific length with a nut that will not foul its body. Audio Technica supply lightweight aluminium screws of two lengths, 5mm and 10mm, with nuts, to suit



**When fitting the cartridge must be aligned along the axis of the headshell to minimise distortion from tracking error. Beware of headshells that are not rectangular, like the Rega here. Align on the axis between the slots, that usually corresponds to the outer edge with finger lift. Misalignment can double distortion.**

The different lengths suit head shells of differing thickness, from stamped alloy sheet around 1mm thick to cast alloy 3-5mm thick. I mention all this to illustrate what you may possibly face if perchance you don't have the cartridge manufacturer's supplied screws. The washers go

uses an M2.6 screw whilst Europe uses an M2.5 screw. Audio Technica told me they use M2.6 for example, whilst Ortofon use M2.5; there is a 0.1mm difference between them. Whether one fits the other depends upon machining tolerances, but usually a 2.5mm screw will be a loose fit in a 2.6 nut, and a 2.6 screw will bind in a long threaded M2.5 tapped hole, although it can be forced through a shallow nut.

This difference does not matter whilst screws and nuts are packaged together. However, increasingly cartridges are being fitted with captive nuts / threaded bodies and then the screw must match in diameter – and also length if the hole is blind.

On the 'net you will find plenty

under the screw head to prevent head shell damage.

If you don't have suitable screws then you'll have to buy them – but there are two 'identical' sizes! Japan



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# CADENZA

The Cadenza Series of high-end Moving Coil (MC) cartridges allow you to get the most from your vinyl records. By carefully implementing cobalt-iron pole pieces, using new improved winding processes on the armature, and employing an extruded aluminium housing - amongst other changes - the Cadenza Series is able to out-perform all those that came before it.

The name *Cadenza* comes from the Italian word for cadence, which refers to a soloist during an orchestra performance where they play alone in an elaborate manner. It therefore seemed fitting that such a capable and nuanced cartridge series should use the same name.

Like other modern ranges, the Cadenza Series is structured in Ortofon's preferred colour-tier nomenclature; so there are Red, Blue, Bronze, and Black variants available to suit varying budgets and tastes.



## Red

This MC cartridge and introduction to the series features a Nude Fine Line stylus which delivers open, dynamic sound with a touch of warmth.



## Blue

Featuring much greater dynamics and resolution, the sound is more open and reproduces more accurate details thanks to the Nude FG 70 stylus.



## Bronze

A step up in the range, this cartridge boasts a Replicant 100 stylus to produce stereo imaging capabilities that illuminate the farthest corners of the soundstage.



## Black

Flagship of the range, the Cadenza Black is simply the best and features a Nude Shibata stylus which guarantees amazing tonal neutrality, dynamics and purity of sound.

of M2.5 screws with nuts, such as the Fonotek cartridge mounting kit from Amazon (£7.20), with a selection of stainless steel screws. Other metals are aluminium or, more expensively, brass. I gravitate to brass, but there is no big sonic issue here.

If possible get circular barrel nuts: they are difficult to handle but will not foul a cartridge body.

Also check out Japanese Oyaide gold plated brass screws with barrel nuts, and Nagaoka BN7 aluminium screws, these being Japanese and therefore M2.6.

Analogue Seduction is a good UK source for cartridge screws and leads: go to [www.analogueseduction.net/headshell-leads-cartridge-fitting-essentials](http://www.analogueseduction.net/headshell-leads-cartridge-fitting-essentials), where you can see a wide range of such parts, making available options obvious.



**An SME lead set, with Litz wires and pin connectors that expand to fit tightly.**

Recent cartridges such as Goldring's E series made by Audio Technica come with M2.6 captive nuts, so no nut needed and, being open ended, screw length isn't an issue. Ortofon cartridges such as the Cadenza series have tapped blind M2.5 holes where screw length is an issue: if too long it won't do the job.

## SIGNAL LEADS

As fiddly as screws and nuts are, the miniature signals leads between cartridge pins and arm are even fiddlier. You will only need a set of four small leads if you bend or break one of the small connectors whilst trying to attach it to the cartridge.

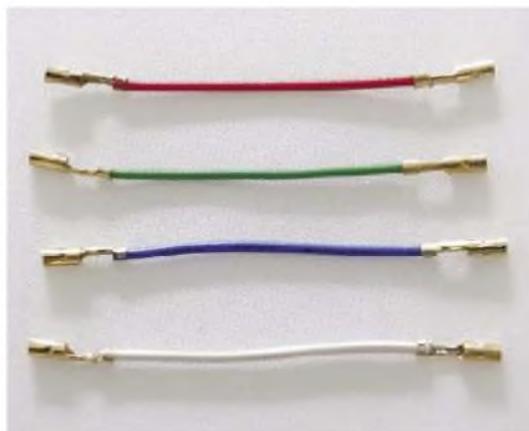
Tools needed are a small jeweller's screwdriver and either snipe-nosed (long nose) pliers – or tweezers at a pinch. The pliers are to push the small connectors of the

leads onto the cartridge pins. It is just possible to do this with your fingers if you are well sighted and dextrous. And here's a snag.

Japanese cartridge signal pins are 1.24mm diameter whilst European pins are 1.22mm diameter (measured using a vernier caliper gauge with Audio Technica and Ortofon cartridges). It's a minuscule difference but enough to make a European connector a tight fit – so tight it won't go on without a concerted push. I find it necessary to open up the simple bent-metal connector beforehand with a jeweller's screwdriver. Otherwise, the tiny and fragile connector can bend and when bent back into shape breaks. Alternatively, the little connector when sized to fit a Japanese pin is slack on a European pin and I try to crimp it with the long nosed pliers – not easy. You may encounter this issue. SME's lead set has connectors that expand to fit, as well as Litz signal wires: you pay more but get more.

## FITTING

Before fitting cartridge, there are a few options to consider. Moving magnet cartridges come with removable stylus assembly. If you remove it then you won't damage it whilst screwing cartridge body to head shell. Fine – except you then have to fit the stylus afterwards and this isn't always so easy. Again, Audio Technicas are a problem because the stylus carrier inserts from below and must be carefully aligned before being pushed upward. I still struggle with this even after much practice. However, the new VM95 series has



**Leads come with the arm, but you can buy sets from £7.79 for the Analogue Studio HS-2 set shown above, to £249 for a set of Furutech La Source leads shown below!**



captive nuts to avoid this.

Most MM stylus assemblies fit from the front and are easier to locate and push home.

The alternative is to leave the



**Tools needed are a pair of fine long-nose pliers and a small jeweller's screwdriver.**

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**Here's an Audio Technica VM740 that needs screws of correct length so as not to foul the (red) stylus carrier. A small diameter nut is also essential, to sit within the limited space available. They come supplied of course, but watch out for dimensions if you want to upgrade.**

stylus assembly in place and rely on the stylus guard to do its job. It generally will unless you drop the cartridge onto the floor from a height, whereupon a hinged guard can be pushed upward and the stylus destroyed. Best to ensure that if you drop the cartridge it won't travel too far. Fit on a large table for example.

Moving coil cartridges are more difficult and dangerous. The stylus assembly is not removable so the guard must be in place. But many guards are flimsy plastic mouldings that pop off easily. I sometimes use low-tack masking tape to hold them in place. Moving coils are best fitted by a dealer if you are not confident

about your skills. Dropping one is terrifying – usually expensive!

Place one screw through the head shell, screw on a nut with a few turns then slip the cartridge in place and tighten up the screw. Whether the cartridge is in a removable head shell or on an arm like a Rega with a fixed head shell, makes no difference. Leave a little slack on the nut so the body can be twisted around and attach the signal leads, which are usually colour coded. You just have to sweat this one! Lots of light and a large magnifying glass help.

Once the leads are in place align the cartridge body and pop in the second screw, then attach nut from below.



**Oyaide SCR-L high performance cartridge screw set with gold plated brass screws and barrel nuts. Price £42.95.**

This all sounds easy but it is the fiddly bit. Often, one of the tiny nuts will make a break for freedom, usually attempting to disappear between the floorboards. So look downward to your floor and make sure that if – when! – a nut makes a break for it, it won't get far. Those little things always bounce to the most inaccessible places.

With both nuts loosely in place align the cartridge to the centre of the elongated fixing holes of the head shell, ready for later final alignment with a tracking gauge.

Once the cartridge is secure in the head shell, install the stylus assembly if you have removed it.

## ALIGNMENT

This guide is about fitting a cartridge rather than its alignment, but here's a snippet on alignment.

With cartridge in basic initial position, balance the arm then set downforce, but not bias force (leave



**An Ortofon OM-10 with open sided lugs – easy to fit.**

it at zero). Then follow instructions for cartridge alignment, usually with a protractor. This will mean sliding the cartridge either forward or backward in the head shell.

Once in the right position it is important that the cartridge body is not twisted (angled) in the head shell before tightening the screws. Use a magnifying glass to check. Even a small twist here will double or triple distortion – a point rarely mentioned.

See our first diagram.

When finally aligned and secured check that tracking force is correct – and if not re-adjust. Then bias force can be set and you are away.

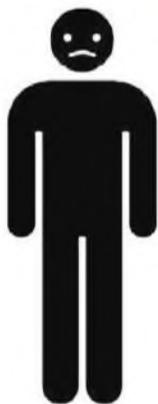
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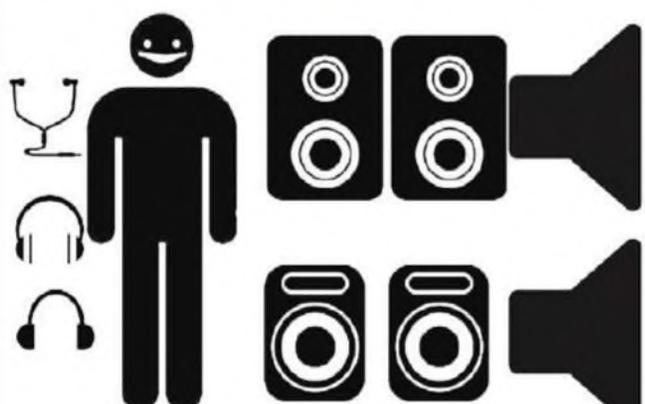
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# Modzines

**Paul Rigby dusts off his parka and revels in a book about fanzines celebrating the mod revival.**

**Fanzine Culture From the Mod Revival**  
**Eddie Piller & Steve Rowland**  
 Omnibus  
 Price: £16.99

It was around fourteen and fifteen and the school yard was full of talk of The Sex Pistols, The Stranglers and “... did you see the singer from Blondie on Top of the Pops last night?”. This would be around 1978, 1979 or so.

But there was one kid: Dave the Mod we called him. He wore a fishtail duffle coat adorned by Mod-style badges. Later, he would turn up at school, proudly riding a scooter festooned with more Mod regalia (he was a bit young, but still). Then there was talk of The Who-inspired film ‘Quadraphenia’. And there was the music too as the Mod revival bands were suddenly everywhere.

There was the Jam of course and classic-era bands were looked at once more from The Who, Kinks and Small Faces. Younger, original bands formed and played too from The Chords, Secret Affair, Back to Zero and Purple Hearts, The Lambrettas and more.

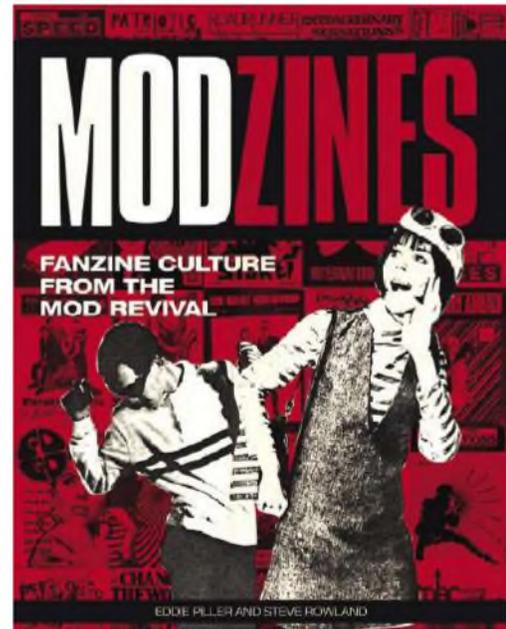
Where there is a scene and where there are bands to talk about and discover then – especially in those days – there were fanzines to support the fans. This is what this book is all about. It’s a celebration featuring original artwork, front covers and spreads, photography and interviews with the key creators. That means fanzine editors, bands, DJs, promoters, journalists and the ‘faces’ who chat about behind the scenes stories, anecdotes and memories about famed

publications – run by girls as well as boys – like ‘Direction Reaction Creation’, ‘Extraordinary Sensations’, ‘Roadrunner’, ‘Maximum Speed’, ‘Sense of Style’, ‘The Way Ahead’, ‘Double Breasted’, ‘Sth Circular’, ‘Patriotic’, ‘Go Go’, ‘In The Crowd’, ‘Right Track’, ‘Beat That’ and more.

Some fanzines only ran for one or two issues but that was often enough to make a statement or to send the creator onto bigger and better things. The book editors estimate a grand total of 1,000 different fanzines were launched to celebrate the Mod revival.

The book I received is a soft back spanning 176 pages, but there is a limited box-set edition of 750 copies that includes a 7” single ‘If I Was You’/‘That’s What I Want’ by Long Tall Shorty (originally issued as a free flexidisc with the Direction Reaction Creation fanzine), a reproduction of issue one of Maximum Speed and a certificate of authenticity which is around and about for £51.99 via acidjazz.bigcartel.com.

Book editor, Piller edited ‘Extraordinary Sensations’ before he was headhunted into the mainstream music business, ending up founding the Acid Jazz record label. His cohort, Steve Rowland is a graphic designer and both take the reader through the scene from 1978-1984, from its beginnings and the so-called First Wave and Second Wave of the scene – but also



fanzines and activities in Europe and the rest of the world. The source was a passion and an energy for the music and the fashion and the attitude, but also a reaction against the mainstream music press who often derided the entire Mod revival scene. The tool was the photocopier.

“The fanzine started off as something for a small group of people who knew each other” said Gloffa Gadding, co-editor of ‘Maximum Speed’. “We began by making 30 or 40 copies. It was essentially something that was stitched together, photocopied and stapled and given away or flogged to people down the pun for less than 10 bob”.

Profusely illustrated, dripping nostalgia and wrapped in a love for the entire fanzine genre, this is a knowledgeable but also inspirational book that presents to the reader the notion that barriers are only created in the mind. You only have to embrace the freedom and doors will be opened. For proof, read the testimony of those who edited, wrote for or were connected in some way to these fanzines. Many of the individuals moved onwards to careers in writing, art and design. Their Mod revival was also a personal revival. **PR**

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LEAK TROUGHLINE and Hi-Fi World valve decoder set up by Tim de Paravicini less than a year ago, one of the finest tuners anywhere! £700. Tel: 07940 507215 or Email: [rtodes@gmail.com](mailto:rtodes@gmail.com)

MARANTZ PM7001 amplifier, boxed, £125. ST7001 DAB/FM tuner, boxed, £95. QED DiscMaster MM phono stage, £40. Beocord 2000 cassette deck, new belts, £50. Yamaha NSC-120 centre speaker, £50. Tel: 01708 457 691

BENZ MICRO Glider SL moving coil cartridge. All original packaging, tools, instructions. Little used in 2nd SME tonearm. Any demo. Tel: Mike 07780 888 686 or Email: [kjm88w@yahoo.co.uk](mailto:kjm88w@yahoo.co.uk)

REGA P3 with power supply, Apollo Mira 3, Maia3, Pure Tuner DRX 701, Monitor Audio RX2, Atacama stands, Sound Organisation stand, Chord cables. Hardly used. Bargain. £1450 ono. Tel: 07813 829 657 (South Derbyshire).

WANTED: VINTAGE Rogers A100 integrated amplifier or Rogers A75 Series 2 amplifier. Working or not but complete. About £50 plus agreed carriage. Tel: Gareth 01938 553 559 (Welshpool)

AVID PULSARE II 2 box phono stage, silver in perfect condition less than 10 months old. Very little use, boxed, manual and all accessories plus a custom made tubulus silver umbilical chord. Selling due to downsizing. £2995.00 ovno. Demonstration on request. Tel: Neil on 07818 848715 or [neilpage37@yahoo.com](mailto:neilpage37@yahoo.com)

NEAT MOTIVE I Loudspeakers. Cherrywood veneer. Excellent speakers, excellent sound. £475. Tel: Evan 07957384795 (London)

CANADIAN GUTWIRE Synchrony 3 metre length speaker cables. Superb - totally new condition. £700. (Synchrony Interconnects available separately). Email: [stephen.adolphus@gmail.com](mailto:stephen.adolphus@gmail.com). Tel: 07787 574784.

EAR 834L line pre-amp by Tim de Paravicini. Excellent condition. £650. Tel: 07505 057 414 or Email: [zylandaroya@yahoo.com](mailto:zylandaroya@yahoo.com)

TANNOY MONITOR GOLD 15" dual concentric loudspeaker chassis. New front suspension, hi-tech capacitors fitted in cross-overs. Sound fantastic. £850. Tel: John 020 8669 4816 (South London)

WANTED: REPLACEMENT remote control Aiwa RC-ZAT-D4. System: XR-MD100. For disabled person London E6 East Ham/Beckton area. Urgent requirement. Could collect? Tel: 020 7476 3247 and ansaphone.

BRYSTON BP20 preamp £10. VertexAq. Leading Edge support platform with couplers £5. Collect at Newcastle Staffs. Tel: 01782 633088.

BEN DUNCAN pure power mains conditioner as sold by the HiFi News Accessory Club, bought from new. 1000VA. As new. Very heavy, hence collect only. £200 ono. Email: [michael.bickley@hotmail.co.uk](mailto:michael.bickley@hotmail.co.uk)

DTB-3313UD Blu-ray player produced by Denon. Google excellent reviews, 2D, 3D Blu-rays, DVD's, DVD-Audio, SACD and CD. Rolls-Royce build £200. Tel: 07734105195 (West Berkshire)

GARRARD 401 chassis, no plinth. In good condition all round and full working order. Prefer buyer to collect or arrange collection, but can post at cost if needed. £500 no offers / no timewasters / no paypal. Tel: 0207 499 8729 (Cambs)

WANTED: TOP quality Hi Fi separates and complete systems, Naim, Linn, Cyrus, PMC, Audio Research etc, fast, friendly response and willing to travel/pay cash. Please call me on 0781 5892458 or Email me at [pogsonp@aol.com](mailto:pogsonp@aol.com)

ANTELOPE AUDIO Gold DAC with Voltikus Power Supply. In excellent condition. One of Hi-Fi World mag World Standards. £1750 + delivery (Tel: 07809712216) (Windsor, Berkshire)

VINTAGE VERY rare Audio Research SP6A valve pre-amp (not hybrid) with added remote volume. £650 ono also Meridian rare black 101b pre, 104 tuner, 105 (2x mono amps each with power supply) so stacked 3 high in pairs £695 ono. Tel: 01704 628968 or 07968769595 (Southport)

TELLURIUM Q Black Mk I I speaker cable. 4.5 metre stereo pair, banana plugs. 7 months old, mint, boxed with receipt. Cost £486. Sale £250. Tel: 01732 490492 (Kent).

TOM EVANS AUDIO Pre / Power amp combo. Original Vibe preamp and Linear A power amplifier. Excellent condition. Tubes in power amp have less than 100hrs on them. Linear A upgraded with Toms binding post upgrade. Selling as combo only asking £5500. Buyer collects or can deliver in 100 mile radius. Tel: Alan 0772 552 5001 (South Wales).

MODDED G/LENCO GL75, solid oak plinth, Jelco SA250 tonearm, Jelco JAC501 cable, Achromat. Asking £475. Grado RS1 headphones £375 (£700), 2 metre pair Tellurium Q Black speaker cables £95. Tel: Tim 01353 665059.

SME M2-9 tonearm, all original packaging, tools, instruction book. Little used as 2nd arm. Mint as new. £795. Tel: Mike 07780 888 686 or Email: [kjm88w@yahoo.co.uk](mailto:kjm88w@yahoo.co.uk)

ELECTROCOMPANIET A.W. 250R dual mono power amplifier. 250wpc. Very good condition. Can demonstrate if requested. £1500. Denon DVD 2900 DVD player. Very good condition. Can demonstrate. £50. Both items are boxed with manuals etc. Tel: 07555 263 931 (Northamptonshire)

MONITOR AUDIO bookshelf speakers Model S2. Unmarked. Light oak cabinets. Boxed Bargain £49. Tel: Tim 01621 856 480 (Maldon, Essex)

QUADRAL CROMIUM Style 8 Speaker Grills, Black. New unused. Will fit black or white cabinets, £60. [johnc2me@aol.com](mailto:johnc2me@aol.com) Tel: 07528826431

# NEXT MONTH

## SEPTEMBER 2019 ISSUE

### NAIM NDX 2

If you want to stream music from the 'net or your own hard drives, Naim's new NDX 2 has it all. Not only can it bring in just about every service out there, from Spotify through to Tidal, it has enormous on-board digital processing, its own screen for artwork display and a Burr-Brown PCM1792A digital-to-analogue converter to turn it all into analogue. Don't miss our review, with advanced measurement, of Naim's NDX 2 streamer in the next issue.

Also, we hope to bring you –

Q ACOUSTICS CONCEPT 300

CAMBRIDGE AUDIO AXC35 CD PLAYER

CAMBRIDGE AUDIO AXA35 INTEGRATED AMPLIFIER

TRIANGLE ESPRIT TITUS EZ LOUDSPEAKERS

AUDIO ANALOGUE PUCCINNI ANNIVERSARY AMPLIFIER

MAGNEPAN .7 LOUDSPEAKERS

MIYAJIMA SABOTEN L CARTRIDGE

CLEAR AUDIO INNOVATION BASIC TURNTABLE

EAT E-GLO PETIT PHONO PRE-AMPLIFIER

...and much more.



This is a selection of what we hope to bring you, not a complete list. We regret that due to a wide range of issues, we cannot guarantee that all products listed above will appear.

**PICK UP THE SEPTEMBER 2019 ISSUE OF HI-FI WORLD ON SALE JULY 31ST 2019, OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: SEE PAGE 24**

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**FREE READER CLASSIFIED ADVERTS COPY DEADLINES**  
 OCTOBER 2019 - 6TH AUGUST  
 NOVEMBER - 3RD SEPTEMBER

# DEPECHE MODE

## MUSIC FOR THE MASSES MUTE

Originally released in 1987, this album was a milestone for the band and a significant release in terms of synth pop. Well, no – strike that. Electronic rock might a better description. With this release, the band's sixth LP, 'Music for the Masses' moved the group away from its light and fluffy synth stylings towards a sort of self-realisation. Towards a sense that the band's music style had, as it were, grown up.

Keyboard player on this album, Alan Wilder noted the change "I think our merit and worth has been completely overlooked. To a certain extent we've never been completely forgiven for our early selves and the way we were starting off. We were very sickly, ultra nice. And in some ways that was the charm but it also got on people's nerves.

Songwriter Martin Gore, perverse in so many ways, would probably disagree though. He told the NME in 1990, "Perhaps we should have described ourselves as a rock group. Maybe if we'd done that people might have taken us a bit more seriously. But we aren't. We are a pop group and proud of it. The only songs I can write are pop songs, no matter how dark and pervy some people might find them".

Nevertheless, sampling had been reduced somewhat while instrumental experiments were on the up with Martin Gore's arrangements exploring new ground in terms of its use of synths, guitar and drums. The future-Techno bass weight within the track Behind the Wheel, combined with several varied keyboard runs, was particularly noticeable on that front. The fact that it didn't feature a chorus, in the classic sense, but a motorik, krautrock persistence showed just how the band were exploring styles and sub-genres. Maybe Gore's time in Berlin was infusing the musical flavours here.

"I simply can't write your conventional pop fare" said Gore. "A pleasant song to me is unfinished, it isn't telling the full story".

And that certainly seems to be the case

on 'I Want You Now', on which Gore rests his songs upon samples from porn movies.

"You [might say that] I'm cynical about love in my songs and perhaps I am but I think that's an interesting angle. Otherwise you become mundane like most chart music. Relationships do have their darker side and I like to write about it. I suppose my songs do seem to advocate immorality but if you listen there's always a sense of guilt".

And that title? It seemed rather hubristic but apparently the band had its tongue firmly in its cheek on that score. Gore noted to the NME at the time of its release that it "...was a joke on the uncommerciality of [the album]. It was anything but music for the masses!".

Keyboardist Andy Fletcher added "The title's ... a bit tongue-in-cheek, really. Everyone is telling us we should make more commercial music, so that's the reason we chose that title".

To celebrate the album, Columbia has released a vinyl box set of all of the 12" singles from the album in a slip case box. 'Music For The Masses: The 12" Singles' includes seven 12" singles, two for each of the first three singles and one for 'Little 15', that range over twenty tracks. You also get a poster.

And while we're here, released at the same time is 'Black Celebration: The 12" Singles' for the previous album released in 1986. That features five 'maxi singles' on vinyl; one for 'Stripped' (five tracks, 25 minutes of music), two for 'A Question of Lust' and two for 'A Question of Time'. The second 12" was actually a cassette-only release in the UK. This box also comes with a poster.

Mastering was very nice indeed (on both of the above mentioned sets). Neutral and balanced in terms of presentation, I was encouraged that I had to pile on the gain of my pre-amp before I heard appreciable volume.

There is very little compression which means that treble was fragile without pinching, and the midrange had no etching or stridency. This low noise approach meant that the bass beats were tight and full of impact, but had enough character to give low frequencies an organic flavour. The soundstage, meanwhile was both wide and spacious. As a result detail abounded throughout, with the often complex arrangements able to give up their riches without any adverse sonic payment, in aural terms. Buy with confidence. **PR**



"I can only write pop songs, no matter how dark and pervy some find them"

# aurender

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Caching Music Server/Streamer  
with 2TB or 4TB Internal Storage

# La Bella Figura

T H E S O N E T T O R A N G E



Over 30 years ago, Sonus faber revolutionised loudspeaker design.

By applying Italian style to the laws of physics, addressing both the visual and the sonic concerns, the company demonstrated that speakers need not come in prosaic, dull boxes. The entire industry owes thanks to this pioneering brand.

Sonus faber's legacy not only remains intact, but embraces the introduction of the Sonetto range. Entirely designed and constructed in Northern Italy in their purpose-built atelier, Sonetto speakers convey the design language of the founder, thus confirming that the sound and the cabinetry match each other for elegance.

Once again, Sonus faber redefines the musical experience.

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