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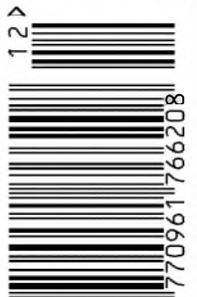
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David Tutt.



This month is relay month. They're everywhere – upon us like fleas. I don't know what has brought this about, perhaps just happenstance, perhaps the flow of the river. OK, it's a peculiar thing to obsess about, but it does start to make you go clickety-click after a while – sort of plays on the brain.

Why now? They've been around for ages. Quad's new Artera preamplifier has them aplenty, performing all sorts of tricks in conjunction with a micro-processor. I was taken aback at just how far

you can go with this approach – turns out a long way, Quad show us. The Artera is an unusual proposition, purist analogue and very slick – greatly helped by liberal use of relays. You can find out more about this unusual preamplifier on p11 and all the many tricks it has up its metaphorical sleeve.

Relays went clickety-click in PrimaLuna's EVO 300 valve integrated amplifier too that I am reviewing right now but will appear in our next issue. No surprise here, since we used them in World Audio Design valve amplifiers back in the 1990s, because when it comes to high voltages and high fidelity, relays are a go-to. They don't expire like transistors. So yet again there was plenty of clicking to be heard from this product as inputs were selected. It's the best way to do it and good to see this approach now being used by PrimaLuna too. You'll have to see our January 2020 issue for this review.

Whilst I faced the fleas, Jon Myles tackled the robot – Devialet's Phantom Reactor loudspeaker that you can find on p74. It has the appearance of a new world robotic device and uses automation too, in a powered loudspeaker that I suspect will appeal to all those who want high fidelity without the intrusion. Devialet have given this little power house academically correct tonal accuracy, almost certainly through internal electronic trickery such as equalisation. Impressive it was too, we all found at Hi-Fi World towers.

I know it is a strange way to see the issue of high fidelity but I am an engineer and relays – horrible old fashioned things – have pushed their way in, in new-fashioned form. So welcome to the fleas that have quietly entered hi-fi to bring us near perfect sound with near-perfect reliability. We identify them in this and future issues!

Noel Keywood
Editor



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news

CHORA-S LINE

Its headphones may have stolen the limelight of late, but Focal is first and foremost a 'speaker manufacturer. Proving that beyond all reasonable doubt is the unveiling of Chora, a three-strong range of bass-reflex models that Focal describes as "a new standard in affordable loudspeaker design and performance". The £599 Chora 806 is a reasonably-compact (590x590x530mm) 2-way standmount model (the stands made specifically for this model cost £199), while the Chora 816 (£1,099) and Chora 826 (£1,299) are respectively 2.5 and 3-way floorstanders.



Replacements for the Chorus line, they are brought to life in Focal's specialist French manufacturing facilities and feature "unique technology and design". The cones of the Chora 165mm bass (and, for the larger models, midrange) drivers are made of an all-new and home-grown 'slatefiber' material, which is said to hide impressive performance behind stylish, slate-effect looks. Among the claimed benefits are perfectly balanced and rich mids with minimal colouration, plenty of dynamics and a remarkable soundstage. Responsible for the high-end, meanwhile, are proprietary Focal 25mm 'TNF' aluminium/magnesium inverted-dome tweeters capable of "perfectly-rendered treble." Power-handling figures are 120W, 200W and 250W – although no provision for bi-wiring has been made. Three finishes: black, light wood and dark wood.



Contact: *Focal*, www.focal.com

WHAT'S THE BEEF?

Heralded by its maker McIntosh as "combining the finest valve and solid-state design principles" the MA352 is a beefier variant of the existing MA252 hybrid integrated amp. "Proudly all-analogue", the preamplifier section of the £8,495 MA352 is built around 12AX7 and 12AT7 double-triodes. It feeds a direct-coupled solid-state power amplifier described as twice as powerful as the MA252's, being capable of delivering 200W per channel into 8 Ohm speakers via gold-plated binding posts. Naturally, iconic McIntosh blue-backlit power meters are fitted, as are an MM phono stage and five line inputs (two balanced). There are five-band tone controls and High Drive headphone amplifier. Protection is by McIntosh's Power Guard and Sentry Monitor circuitry.

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



TOP TEN

Rega has just launched the visually-striking Planar 10 – yours for a mere £3599, without cartridge. Rega assures us that "like its sibling the Planar 8, the Planar 10 was inspired by the top-end (£30k) Naiad...developed and engineered to encapsulate the essence of the ultimate Rega turntable, but at a more affordable price".

This belt-driven (natch...) deck boasts innovations in the design of its completely new low-mass central hub-bearing assembly, sub-platter, motor and drive belt. These, according to Rega, have "led to even greater accuracy in turntable speed, thereby directly-improving performance".

For the first time on a Rega production turntable a ceramic top-brace delivers ultimate rigidity and accuracy, whilst creating the perfect platform between tonearm and central bearing. The Planar 10's "latest-generation 24 Volt synchronous, low-vibration" motor is controlled by an external power-supply with 33rpm and 45rpm speed options, and styling that complements other recent Rega gear. The deck is fitted with the new RB3000 tonearm, which has an "improved, low mass, precision bias-housing". For £4499, you can have a Planar 10 'ready to play' with the recommended cartridge – Rega's own moving-coil Apheta 3.

Contact: *Rega*, +44 (0)1702 333071 www.rega.co.uk



KEEP IT CLEAN!

The resurgence of interest in vinyl has brought us a slew of affordable record cleaning machines engineered for home use. Responsible for two of the latter is Pro-Ject, the value-minded Austrian firm that insists vinyl never went away. These 'wet-suction type' cleaners are the VC-S and VC-S MK II, which have proved to be popular additions to the Pro-Ject line.

Those with smaller record-collections or limited in terms of space or budget, will appreciate the compact and affordable £299 VC-E. This features a screw-on clamp, lined with a rubber pad to protect the record-label from cleaning fluid (Pro-Ject's own eco-friendly, non-alcoholic concentrate), and a robust metal arm described as easy to use, mechanically-stable and designed to focus all suction power directly onto the record surface.

Replacing the established VC-S MK II, meanwhile, is the £300 VC-S2 ALU – billed by Pro-Ject as its premium record cleaner. There's more to the VC-S2 ALU than a facelift – it boasts a string of new features including a class-leading vacuum-motor to clean records, residue-free, in as few as one or two rotations. Pro-Ject told us that "the very best results are achieved with one rotation forwards, followed by one backwards".

Contact: Henley Audio (UK distributor), +44 (0)1235 511166 www.henleydesigns.co.uk, www.prcject-audio.com



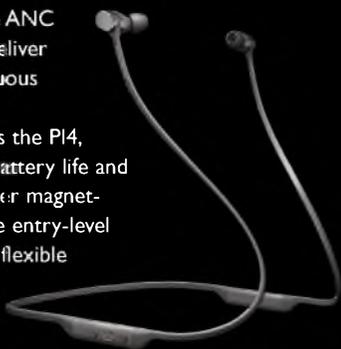
EAR ME OUT

B&W's latest additions to 2019's slew of headphones are allegedly designed from the ground up, with the same exacting acoustic standards as B&W's legendary speakers. There are four wireless models – two in-ears (the 'sporty' £170 PI3 and 'convenient' £270 PI4), an on-ear (the 'best of all worlds' £270 PX5) and an over-ear (the 'top-of-the-line' £350 PX7).

All are built around drivers that have been custom-designed for each headphone wearing style. They feature fast USB-C charging, the ultra low-power Qualcomm QCC5100 Bluetooth/aptX chipset for robust, low-latency, high-resolution wireless audio with 24-bit/48kHz streaming quality and 'Active Noise Cancellation' (ANC) technology that runs at 16 times the sampling rate, to ensure...no degradation to the audio quality.

Specific to the PX7 are over-ear cups for noise-cancellation and an immersive soundstage, up to 30 hours of playback from a single charge and – this is cool! – earcup proximity sensor that pauses playback when you take them off, resuming playback when you replace them. The PX5 incorporates six microphones for adaptive ANC and voice calls, and can deliver up to 25 hours of continuous playback.

Also featuring ANC is the PI4, which boasts a 10 hour battery life and earpieces that clip together magnetically when not in use; the entry-level PI3 features a tangle-free flexible silicone neckband and 'exclusive dual-hybrid' drivers, but lacks ANC. Further details: www.bowers-wilkins.com



PAINTING THE AMAZON BLU

BluOS™

Lenbrook International's BluOS

multi-room wireless-streaming platform is claimed to be one of the first to support the new Amazon Music HD and Ultra HD hi-res music platforms. These promise to be cheaper than established alternatives, Amazon Prime subscribers paying as little as £12.99 per month. The service claims to have 50 million songs in the 16-bit/44.1kHz (CD-quality) form that Amazon confusingly-sell as High Definition. Millions of songs are however available in what you and I would call high definition – 24-bit/192kHz – rechristened Ultra High Definition by Amazon's marketeers.

Made up of an operating system and a control application for desktop computers and various smart platforms, BluOS already integrates with established streaming music services like Tidal, Spotify, and Deezer.

Collections stored on NAS drives can also be played, and listening to Internet radio is possible via TuneIn. BluOS features support for FLAC, WAV, MQA and other high-res formats and codecs, enabling virtually unlimited access to music of all genres. BluOS Enabled products are available from NAD, Bluesound and DALI – all Lenbrook brands...

Further information: nadelectronics.com/bluos/

BLACK PHANTOM

French manufacturer Devialet has unveiled a new version of its Phantom Reactor ultra-compact all-in-one powered loudspeaker – now in matte black.

The company says the new finish has been the result of a year's worth of design to create an aqueous solution with a soft touch and smooth finish capable of handling intense power and pressure.

It means customers can now choose the standard white version or the new black finish – giving a greater choice to suit individual rooms.

The Reactor can be used in solo or stereo mode via the free Devialet app and supports Airplay®, Bluetooth, Spotify Connect, UPnP as well as analogue or optical jack connection.

The Phantom REACTOR in Matte Black will retail from £990 and is available in the UK at Selfridges, Harrods, John Lewis as well as through Devialet's own stores.

See our review of the Reactor on page

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BOTH ENDS OF THE CHAIN...

Audio Technica announces its latest ATH-CK3TW (£99) wireless headset of in-ear design. Features include 5.8mm drivers for a powerful and precise audio performance, silicone eartips, six hour battery life, control buttons, mobile app, Bluetooth 5, Clear Voice Capture mic for phone calls, extensive codec support (aptX, SBC and AAC) and a black colour scheme.



Upscale is the £149 ATH-CK55TW (£149). Available in red and black, this latest addition boasts superior 10mm drivers with dual-layer diaphragms and expands battery life to 15 hours of continuous playback. The latter can be boosted further to 45 hours.

Also announced by the Japanese firm is the direct-driven AT-LP5x, billed as "the perfect introductory turntable for demanding listeners". Features of the deck include three quartz-locked speeds (33,45,78rpm), external power supply, J-shaped tonearm, bundled AT-VM95E MM cartridge (pre-mounted on an AT-HS6 headshell) and an in-built MM/MC phono stage with line output and USB ADC. The latter is only 16bit; still, what did you expect for a mere £349?

Contact: *Audio Technica*, +44 (0)132 771441. eu.audio-technica.com



M&J CALLS IT A DAY

It's always depressing to report on the demise of a concern that had potential, but following "unprecedented consumer-confidence challenges", British hi-fi brand Mitchell&Johnson ceased operations in late September. The decision didn't come lightly, the 2012-established firm not long having expensively switched manufacture of products from the Far East to the UK. It did so at a time of "unprecedented decline in consumer confidence and spending, due to ongoing Brexit uncertainty" they say and was unable to reach sufficient global distribution fast enough to recoup its considerable investment in UK production.

www.mitchellandjohnson.com



PERFECT TIMING?

The t|AQWO SACD transport from French outfit Métronome will also play CD and the PCM layers of SACDs. Reflecting modern trends, the 19,900 Euro transport is touchscreen-controlled. Other features are full range connectivity – AES/EBU, S/PDIF, TOSlink and HDMI-I2S outputs – and a D&M mechanism.

The t|AQWO is intended to be partnered with the c|AQWO. This high-end (19,200 Euro) DAC has an I2S connection; you can, however, also feed digital material into the c|AQWO via its AES/EBU, S/PDIF and TOSlink inputs. USB is also provided for computer-audio playback.

Core to the conversion process are a pair of Japanese high-end AKM AK4497 converter chips, one per channel. The touchscreen-controlled c|AQWO supports DSD as well as PCM, and has both balanced XLR and unbalanced phono outputs. The t|AQWO and c|AQWO are available in silver and black finishes.

Contact: *Métronome*, +33 (0) 5 34 26 11 33. www.metronome.audio



SEVEN-UP

Arcam release three AV receivers, three power amplifiers and an AV processor.

The AVR10 (£2,299) boasts no fewer than 12 channels of Class-AB power amplification, full Dirac calibration, the "latest Dolby Atmos" codec, DTS:X 7.1.4, IMAX Enhanced, Bluetooth connectivity, seven 4K HDMI2.0b inputs, GoogleCast streaming, free Arcam apps and audiophile level DACs. The £2,999 AVR20 adds four channels of Class-AB amplification, DTS:X 9.1.6 decoding and Dirac Live room-correction. At top is the £4,999 AVR30, with its 16 channels of Class G amplification.

The latter technology is also employed by two of the new balanced-input power amps – the PA240 (£1,999, 2x380W or 1x790W) and PA720 (£2,499, 7x140W).

Contact: *Arcam*, +44 (0)1223 203200. www.arcam.co.uk





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Simply First

Quad's Artera PRE is a simple preamplifier dedicated to analogue purity. Noel Keywood listens.



So simple I had problems understanding it! But it isn't. Quad's new Artera PRE preamplifier is a complex analogue design, made apparently simple because there's no digital. No digital inputs, no app to control it, so no iPhone or iPad needed. Instead Artera PRE is a purist design that zeroes in on analogue perfection, with remote control. Price £999.

Quad's literature understandably shows Artera PRE linked to their Artera power amplifier, but it will drive any power amplifier, through ordinary phono leads (unbalanced) or XLR (balanced) cables. There's a phono stage that accepts both moving coil (MM) or moving coil (MC) cartridges for vinyl enthusiasts, plus a 1/4in (6.35mm) headphone output jack lurking beneath the front

panel. You don't get a Bluetooth digital input for play from a 'phone or tablet, nor Bluetooth output to Bluetooth equipped headphones – absolutely no digital here!

Artera PRE is built to a standard that is impressive. It weighs 7.8kg, signalling there's a lot inside. And much of it lies in the linear power supply with its heavy toroidal power transformer. So no universal switch-mode supply, instead a traditional power system factory set to cope with 100V up to 230V according to country of use. Stand-by draws less than 0.5 Watts, so press the remote's Off button and it won't affect your power bill or contribute to global warming (!). For hi-fi buffs the significance is better sound quality, no interference and better long term reliability – switch-modes being a break-down waiting to happen.

Artera PRE has three RCA phono socketed (unbalanced) line inputs, plus one pair of XLR socketed (balanced) inputs, for best quality. There's also a single Phono input for turntables, with earth terminal.

Outputs are RCA phono socketed (unbalanced) outputs labelled PRE, plus XLR (balanced) outputs, both with variable volume. An AUX output provides fixed output level unaffected by the volume control.

And that's it! Where preamps are these days festooned with inputs, Artera PRE keeps it sweet and simple. The idea is that for highest quality you choose the external source of your desire, which these days will most likely have an ESS Sabre32 series DAC chip inside, or a Chord Electronics DAC – both of which out-run most else.

The rock-solid machined 17mm thick side panels that look like heat sinks – but stay cold – are complemented by a 10mm thick front panel, both surrounding sheet steel casework. Width is 320mm, height 105mm and depth 320mm; taking into account protruding rear plugs it needs a 14in (356mm) deep shelf, but a 19in rack has plenty of rear space. It comes with a heavy glass top cover to keep dust out.

Two small front buttons control power and select input. Volume and a host of other settings, including gain, balance and tilt of each input are pre-set on the remote control only. Hence the clean looking front panel, but it lacks manual over-rides – especially for volume. The remote is vital, so best not lost down the back of the settee.

Awkward issues were the need to always have the remote with me to change volume, something I find irritating when changing LPs, because volume must go down then up at the system and using a remote for this rather than a manual volume control is a hassle.

The Artera PRE's complexity arises in a relatively unusual arrangement where a wide range of conditions can be pre-set for each input. Each input is programmable and for this I had to go to the Prog button on the remote and get to work, reason being there is a lot that can be set.

A headliner is re-introduction of Quad's tilt control, first seen 1982 on the Quad 34 preamplifier. This gently alters overall spectrum balance: you tilt one way or the other, in steps, for a warmer sound or a less warm one. Tilt is a simple and elegant replacement for bass and treble controls, suiting a system that is pretty well balanced in the first place and just needs some tiddling. Here, you make one simple adjustment. Backing up Tilt is Bass Boost that measurement showed quite strongly increases bass. Quad say it adds bass to small loudspeakers. An EQ Off option makes quick A-B comparison possible.

Then there is a strongly influential pre-set gain control that provides a large amount of boost or cut, so all sources can be matched



At top left, just behind the front panel, is a circular toroidal mains transformer of the linear power supply. Banks of small white, sealed long life relays switch the analogue signals. At bottom is the rear panel with inputs.

in to give equal volume level when selected; jumps in volume – up or down – can be dialled out.

Channel balance can also be set – most useful with LP for pickup cartridges where imbalance is not uncommon, but also for loudspeakers. If the loudspeakers are out, however, compensation will have to be applied at each input.

All of which means there is in truth digital inside, in the form of a microprocessor that makes these adjustments, with factory reset option and firmware version (a dealer only update). The analogue circuitry is controlled by small-signal relays that you can hear clicking away and the volume control is an analogue switched resistor network – the best solution available. So Artera PRE isn't quite as simple as it seems. It even has input signal sensing to know which input is active, the front panel display showing whether it sees a signal or does not at any input selected. If it doesn't then – er – perhaps the source needs to be switched on – or given a thump. Just don't do this to the turntable!

The ability to pre-set gain on each input especially affects the Phono stage. It can be tweaked to suit any cartridge, including super-expensive low output moving coils; measurement showed there's so much gain no MC cartridge is

unsuitable. Also, there is almost no noise. Input impedance is 100 Ohms, fixed. I saw straight away on unpacking the Artera PRE that its mains input lacks an earth, making it fully floating – and that would be to ensure an unbreakable hum loop could not exist because such high gain can be troublesome where earthing isn't optimised. The Artera PRE does not produce hum and if hum appears from outside components it can be eradicated by removing an earth connection.

All moving magnet cartridges (MMs) can be accommodated too, input impedance is standard at 47k Ohms, but there are no capacitance options.

SOUND QUALITY

I connected Artera PRE to the fixed XLR inputs of our Creek Evolution 100A amplifier, acting as a power amplifier. It was connected to our Martin Logan ESL-X hybrid electrostatic loudspeakers through Chord Company Signature XL Reference cables. Sources were Chord Electronics M-Scaler and Dave DAC to send in clean CD, an Oppo BDP-205D acting as CD transport. I span LP with our Timestep Evo modified Technics SL-1210 Mk2 Direct Drive turntable, with SME309 arm and Ortofon Cadenza Bronze MC cartridge.

Spinning uncompressed CDs it soon became apparent that Artera PRE was conveying the ability of M-Scaler and Dave with easy ability. In essence it has a wonderfully easy going analogue quality with tremendous stage depth, but it is not warm, so much as crystal clear. With Jan Akerman's Am I losing You, long echo trails from guitar were obvious, making for a deliciously atmospheric sound, Akerman's vocals centre stage having gravelly presence. It was an enveloping and gripping sound.

With hi-res from Dave, from a Mac BookPro running Audirvana Plus, Diana Krall's Narrow Daylight in both 24/96 PCM and DSD format was again crystal clear yet easy on the ear, the sound stage open and spacious due partly to strong sense of depth. Plucked acoustic bass had plenty of power too.

Classical music fared just as well, the Minnesota Orchestra playing Rimsky-Korsakov's The Snow Maiden: Dance of the Tumblers (24/96), laid out clearly in front of me, good light playing on strings and horns to make them clear and detailed.

Spinning LP the Artera PRE was again tonally neutral but at the same time its crystal clarity removed warmth from Mark Knopfler's True

Love Will Never Fade, on Kill to Get Crimson (180gm) and I felt it more easy going than revealing. The same with Hugh Masekela and Uptownship, from his Hope LP (Analogue Productions 180gm). Masekela's trumpet was there in all its fluid glory from this man, and the busy side work flooded through, but there was some small sense of opacity. The LP stage is very good – if not definitive.

Applying Tilt did nicely change tonal balance in gentle fashion, the first of three low frequency boost settings adding gentle warmth for example, whilst the first treble boost setting brought forward detail without making treble sound sharp.



The rear panel carries a mains isolating switch, but switch on/off is by remote control, made possible by a secondary standby power supply. Big XLR input and output sockets (balanced) supplement conventional RCA phono socket inputs and outputs (unbalanced).

CONCLUSION

Artera PRE is a deceptively simple preamplifier – inside it is both audiophile and complex in what it can do, having microprocessor control and purist relay switching to give an all-analogue preamplifier capable of coping with whatever is plugged in. Absence of digital input or Bluetooth may be a no-no to some, but both can be fed in from outside sources if need be. Sound quality was exquisite: pure analogue smoothness and depth, the phono stage being supremely quiet if a tad laid back. Overall though, a lovely all-analogue preamplifier in pure Quad tradition.

MEASURED PERFORMANCE

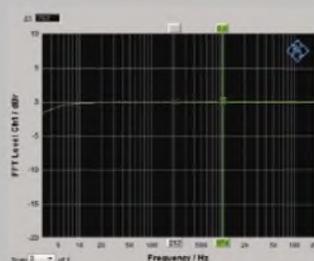
Frequency response measured flat (-1dB) from 5Hz to 100kHz via the preamplifier, through all inputs and unaffected by volume control setting. Output overload was low at 3V from the phono socket PRE line outputs, and 6V from the XLR outputs, but this is still enough for all power amps (2V max) with distortion very low at 0.007% at 1V in/2.4V out.

Gain (0dB pre-set) measured x2.4 (7.6dB) via the phono socket Aux line inputs to phono socket PRE line outputs, and for (balanced) XLR in to out. From RCA phono socket Aux line input to XLR output it was x2 (6dB). These are common values, but can be varied substantially by +/-8dB on each input.

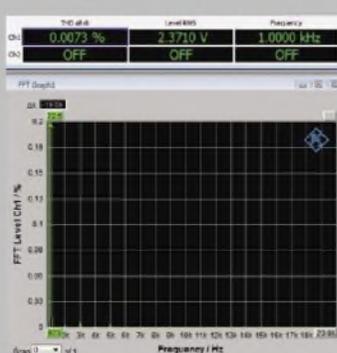
The ability to pre-set gain especially affects the Phono input. Default (0dB) gain with MC selected was very high at x4000 (72dB) overall (64dB for phono stage alone) but rose to x9400 (79dB) with +8dB extra gain dialled in – more than enough for even the lowest output MC cartridges. With MM default gain measured x450 (53dB), or a high 45dB for phono stage alone (40dB is common), again adjustable by +/-8dB.

Input noise with MC was exceptionally low at 0.065µV: hiss will be inaudible even with low output moving coil cartridges. It was low for MM too.

FREQUENCY RESPONSE



DISTORTION



Input overload for MC and MM was satisfactory at 7mV and 64mV respectively. Frequency response (RIAA equalisation accuracy) measured flat from 12Hz-20kHz (-1dB) via MM and MC; there is no warp filter but gain rolls down below 12Hz to provide -7dB attenuation at 5Hz to lessen the effect of LP warps.

The Artera PRE measured well in all areas. It has massive gain if +8dB is selected and the Phono stage is very quiet. NK

AUX

Frequency response	5Hz-100kHz
Separation	89dB
Noise	-106dB
Distortion (1V in)	0.007%
Gain (pre-set 0dB)	
phono in/out (unbal)	x2.4 (8dB)
Phono in/XLR out	x2 (6dB)
XLR in/out	x2.5 (8dB)

PHONO (MM, MC)

Frequency response	12Hz-20kHz
Separation	68dB
Noise (input noise)	0.065µV
Distortion	0.012%
Gain	53dB / 72dB
Overload	64mV / 7mV

QUAD ARTERA PRE £999



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"In Audio Technica's new OC9X series moving coil cartridges you can get an OC9X EB with bonded (on a rondel) elliptical stylus and aluminium cantilever for just £280. Above it lies the EN (£300) with nude elliptical stylus on aluminium cantilever that, because it lacks

a rondel, tracks high frequencies better but is less resistant to dust and fluff on the LP surface. Then come the trio I am reviewing here, comprising the OC9X ML (£480) with MicroLinear stylus on a boron rod cantilever that, it appears, replaces the outgoing OC9 III. It has a red body.

Above the ML comes the OC9X SH (£570) with Shibata profile stylus and brown body. This profile was developed long ago (1970s) for CD-4, a system providing surround-sound from LP. The stylus had to read a sub-carrier at 30kHz with sidebands to 45kHz – quite a feat. It

required multiple grinds to achieve the right shape, using a mechanical grinding process.

Nowadays laser forming has come onto the scene, enabling new tip profiles to be created that were impossible with mechanical grinding processes. Enter the premium OC9X SL (£660) with Special Line contact stylus on boron rod cantilever; the SL has a black body.

All deliver a fast, tight sound with dry bass, tremendous midrange clarity and a sense of image focus difficult to better elsewhere".

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QUESTIONS

[1] The OC9X ML cantilever is a –

- [a] wooden rod
- [b] plastic rod
- [c] boron rod
- [d] broom rod

[2] The ML stylus is –

- [a] MicroLinear
- [b] MiniatureLateral
- [c] Molybdenum
- [d] MazakLight

[3] The ML stylus body colour is –

- [a] blue
- [b] brown
- [c] black
- [d] red

[4] The OC9X cartridges have –

- [a] wimpy sound
- [b] warm wound
- [c] wobbly sound
- [d] fast tight sound

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Cambridge has the Edge

Cambridge Edge NQ pre-amp and Edge W power amp, reviewed by Martin Pipe.

Back in 1968, Cambridge Audio made its public debut with the innovative P40 integrated amplifier. When it opened for business the firm was based in Cambridge and made products locally. It's now part of the Audio Partnership that includes Richer Sounds, and is headquartered in the shadow of London's Shard.

Cambridge's research and

development labs are responsible for some pretty cutting-edge tech but most Cambridge gear is made in China nowadays.

Until recently Cambridge has catered for the budget and midrange sectors of the market with equipment that performs well and represents excellent value for money. Now Cambridge is chasing those with deeper pockets. To celebrate its 50th birthday, it announced the 'Edge'

range of high-end gear.

First of these was the 100 Watt per channel £4,500 Edge A integrated, complete with DAC. Its front panel is dominated by a single knob that selects sources and changes inputs. This is also a key component of the user interface that drives the NQ streamer/preamp I am reviewing here.

The NQ comes with copious amounts of expensive-looking

packaging to protect a heavy £3,499 piece of high-tech hi-fi. The NQ's main dial changes volume, while an inner section selects source. And what a selection of sources we have! The onboard DAC – ESS Sabre32 based – will cater for two optical digital sources, one coaxial digital source, Class 2 USB (for computer audio, complete with hi-res and DSD-over-PCM support), aptX HD Bluetooth and, for those who want better TV sound, an HDMI port that supports the Audio Return Channel (ARC) – important! There are three analogue inputs, two unbalanced (phono) and one balanced (XLR). These are line-level, no provision for LP is built in. A nice touch is that the NQ will remember the last source – or indeed piece of streamed music – you were listening to, the next time it's turned on.

The final part of the Edge NQ proposition is a comprehensive hi-res capable streamer. As well as Spotify, Chromecast and Airplay, it will access Internet radio and music held on networked storage or storage devices plugged into rear-panel USB ports. To configure these goodies and find music the reasonably-friendly Android/iOS Edge app is essential. Based, Cambridge explains, on its "award-winning StreamMagic module (Black Marlin), designed in-house in the UK", the Edge NQ features a "new, faster chipset and support for both 24bit/192kHz and DSD128 files. What it doesn't feature - still! - is built-in Wi-Fi, for listeners whose network connectivity is wireless-only. If you can't use the NQ's Ethernet port for streaming you'll have to use the supplied USB dongle. I'm sure Cambridge will say that integrated wireless networking compromises sound quality, but the practical advantage of an external module is that it can be upgraded to support newer protocols and different radio bands.

The NQ's volume dial is motorised and thus remotely-controllable, whether by the likeable but rather basic metal-clad handset supplied by Cambridge or the Edge app - yet it's claimed to be solid-state in the marketing blurb. It feels and looks like a potentiometer, right down to the physical end stops. The knob works in conjunction with a large colour TFT screen, which shows not only operational information like the selected input on a segmented circle but also album cover art, should that be available. Also on the



The Edge NQ is neat, as you'd expect from an operation of Cambridge's stature and resources. Visible are the Cambridge-developed "Black Marlin" streaming module and a linear power supply that's fed from a large toroidal transformer. No cheap switch-mode here.



The Edge W power amp employs Cambridge's proprietary 'Class XA' technology, claimed to deliver "the sound quality of a Class A amp, while retaining the efficiency of a Class AB amp".

"Opposing symmetry twin toroidal transformers" are claimed to "cancel out electromagnetic interference, whilst offering outstanding power and maintaining consistent tonality" (one is above the other).



The Edge NQ preamp accepts five digital sources (plus the on-board streamer and Bluetooth) and three analogue inputs, one balanced (XLR).

The NQ's volume control can be disabled via the app, which will be useful if you plan to use it as a source with existing gear.

front panel are a standby button and headphone socket.

A standby button is all you'll find on the front panel of the £2,499 Edge W power amp, the second and also ostentatiously packaged half of the combo featured here. It's designed to sit on top of – and be switched by – the NQ through a 3.5mm cable – and the result looks damned good. Instead of the NQ's smooth sides you'll find heatsinks that cool the output devices. The W connects to the NQ by unbalanced or balanced connectors, its amplified output being connected to 'speakers via decent terminals. A switch flips between the balanced and unbalanced inputs, and there are also 'loopthrough' outputs for extra amplification.

The Edge W employs

Cambridge's proprietary 'Class XA' analogue technology, which is claimed to deliver "the sound quality of a Class A amp, while retaining the efficiency of a Class AB amp". Class XA works, we are told, by "shifting the crossover point of a traditional Class AB design, to a position where the audio distortion is not audible to the human ear". Direct-coupling (no capacitors in the signal path) is a feature of both W and XA.

SOUND QUALITY

This potent duo, inter-connected by balanced XLR cables, fed my revealing Quadral Aurum Wotan VIII 'speakers with ribbon tweeters; the headphone amp was paired with Focal Utopias. Sources included Internet radio stations, digital TV, a Windows PC and a wide selection of music held on a Synology NAS and – for Bluetooth purposes – a Google smartphone. I also assessed the analogue line input with an earlier Cambridge product (the CXN v2 streamer, feeding a Chord Qutest) and a Rega Planar 3 turntable with RB300 tonearm, Bias MM cart and Pro-ject SI Ultra phono stage.

Initial impressions were of a tonally-balanced presentation sounding clean, open and musically-detailed. That wasn't however from Bluetooth via the Edge NQ preamp; my phone, which works happily with other Bluetooth devices refused to connect to it. But in other regards, this combo is worthy of praise.

I pulled a CD FLAC rip of Tapes and Money, by Totally Enormous Extinct Dinosaurs, off the NAS and was immediately taken aback – not only by speed of access, but by the punchy and rhythmic delivery of what I heard. The analogue synth textures, electronic percussion and bassline weight all fell within this

system's grasp.

Another test piece, a 24-bit recording of Britten's War Requiem (LSO/Nosedá/Eltham College Choir/London Symphony Chorus) proved to be a gripping and immersive experience. The recording's dynamic swings were



The handset switches between sources and changes volume. The app is essential, even for day-to-day use. The row of four buttons at bottom are programmable – press and hold one, to store the currently-selected source and its volume level for future one-touch retrieval.



The Edge NQ features Bluetooth and Wi-fi, as well as Ethernet. Wi-fi requires a 'dongle' – supplied in the package – that fits into one of the USB sockets.

USB mass storage devices (music files) can also be plugged in and played.

handled with no signs of strain whatsoever, and yet the micro detailing and ability to position performers within the space were also convincing. For this reason, live recordings like Radio 3 concerts were also immersive. I should point out that finding and selecting stations with the Edge app is quick and easy, but maybe a future Cambridge update should remove the StreamMagic references that are initially seen on the front-panel.

On the subject of updates, I hope that future ones will also give the Edge NQ ability to cope with MQA content. DSD material (up to DSD256) is however already supported. Well, in theory; a 2L



The Edge W power amplifier can be driven from unbalanced or balanced inputs, a switch determining which. Loop through outputs allow further amplification to be attached. The chunky speaker terminals will accept bare wire or banana plugs. A 'trigger in' allows the W to be automatically powered up or down by the NQ preamp. There's also a switchable auto power-down mode that will place the W in standby after 20 minutes of inactivity – handy if you'll be using it with other gear.

DSD256 download of acoustic jazz played by the Hoff Ensemble was skipped. Basic DSD64s were however fine, and familiar favourites like the solo violin of Emily Palen's Glass – a Blue Coast Records straight-to-DSD recording - shone in terms of the sheer subtlety resolved, including bow scrapes and a sense of the acoustic in which the performance took place (San Francisco's Grace Cathedral). In other words, the realism was uncanny. DSD performance was so good that most users won't need to use the DoP-compliant USB playback functionality, although those using their PCs to compose and record music will benefit.

TV sound was transformed by the NQ/W combo, but its limitations compared to uncompressed music sources were laid bare. It's nevertheless far more satisfying to listen to, say – Later... with Jools Holland – through equipment like this than the dire sound from a flat-panel TV.

Much of the musicality unleashed by the Edge NQ preamp was also evident with headphone listening. The dedicated amplification built in proved more than up to the job of driving my Utopias. It made the most of the CXN/Chord combo, and I could make out tiny subtleties in presentation relative to the streamer built into the XA.

Vinyl playback via the Rega/Pro-ject combo left nothing to be desired. Lower frequencies, such as the familiar bass guitar of Queen's Another One Bites The Dust and the bass harmonica that you'll hear in Simon and Garfunkel's The Boxer were satisfyingly meaty, but with fine definition. Instrumental

detail and clarity also fared well, the percussion behind George Benson's guitar in Masquerade for example.

A believable soundstage, meanwhile, helped to draw me into a performance of Vivaldi's Concerto in C for Bassoon and Strings (English Chamber Orchestra/Smith/Ledger).

CONCLUSION

It's difficult to find fault with the Edge NQ and W combination that look good - and sure sound good! In the development of these products, the firm has reputedly spent a lot of time not only in the lab but the listening room too – and it shows. Great quality all round.

MEASURED PERFORMANCE

The Cambridge Edge W power amplifier delivered 130 Watts into 8 Ohms and 220 Watts into 4 Ohms, enough power to go very loud in any circumstance. Output impedance measured a very low 0.08 Ohms, giving a high damping factor of 101. Distortion levels were very low in the midband (1kHz) at 0.002% and also at high frequencies (10kHz), measuring just 0.01% into 4 Ohms at 1 Watt, as our

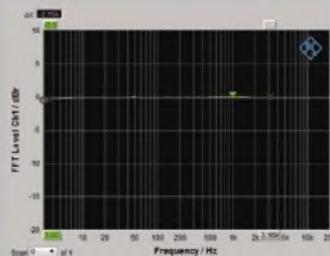
analysis shows. The RCA phono socket line input needs 1.2V for full output and XLR 2.4V.

The Edge NQ preamplifier has x2.75 (9dB) gain from its A1 line input to line output, and x5.5 (15dB) to its XLR output – common gain values for a preamp. The A3 XLR input has x3 (10dB) gain to XLR out, but just x 1.5 (3.5dB) to line out – low. The Edge NQ will usually be connected via XLR to the Edge W power amp, so this is an unlikely drawback. There is no phono stage.

The internal DAC had a very high 122dB EIAJ Dynamic Range, due to low noise, and distortion of just 0.017% (at -60dB, 24bit). With CD distortion measured 0.22% as usual, determined by 16bit quantisation noise. Frequency response with 192kHz sample rate PCM rolled down slowly above 43kHz (-1dB) to the upper theoretical limit of 96kHz. An excellent digital result, maintained through the USB input measurement showed.

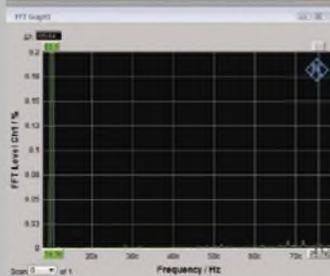
An impressive set of results all round as expected from Cambridge. **NK**

FREQUENCY RESPONSE



DISTORTION

THD @ 0	0.0125 %	2.0335 V	10.000 kHz
Dist	OFF	OFF	OFF



Power (8 Ohms)	130 Watts
Frequency response (-1dB)	2Hz-100kHz
Separation	88dB
Noise (IEC A wtd)	-121dB
Distortion (10kHz, 1W, 4Ω)	0.01%
Sensitivity	1.2V
Damping factor	139

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FOR

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- decent spread of connectivity and features

AGAINST

- app essential to drive DSD256 and Bluetooth niggles
- no phono stage

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Potent Piegas

Swiss manufacturer Piega has debuted its first set of active wireless loudspeakers replete with ribbon tweeters. Jon Myles listens in.

Piega of Switzerland are making a concerted effort to re-enter the UK market. I first heard – and was mightily impressed with – their Classic 3.0 standmount (see Hi-Fi World review April 2017). Then came the £5100 Piega Premium 7.1 floorstander which brought a bigger soundstage, plus more power and detail to the equation.

The one thing they had in common was the use of immaculately machined aluminium cabinets and ribbon tweeters – true Swiss engineering.

Ribbon tweeters may very much be in vogue now, but Piega has been using them since 1986. They design and manufacture this unit in-house and are rightly proud of the fact.

Where the Piega 501 Premium Wireless loudspeaker I am reviewing here differs from other models is it contains an 180 Watt amplifier, Bluetooth connectivity and the option of adding a Piega Connect box



to give analogue inputs and outputs, as well as coaxial and optical digital inputs. There's a standmount model and a larger floorstander as well.

The 501s are tall but slim, measuring 101cm x 16cm x 21cm (H/W/D). Outrigger feet provide stability. Prise off the grille and underneath there's a ribbon tweeter paired with two 120mm MDS drivers for the bass and midrange, as well as a front-firing port to augment the lower registers.

The cabinet is constructed from aluminium and curves towards the back in a C-shape to minimise standing waves. Priced at £3980 a



Bluetooth pairing as well as volume control are available from the top of the Control box.



The slim aluminium C-shaped cabinet is anchored for stability by four sturdy out-rigger feet.

pair they come at the lower end of Piega's range. A disappointment is the Connect box is separate, adding £499 to the cost. It creates its own Mesh network, so stands apart from your home wi-fi network – useful if you have lots of other wireless devices operating at the same time

Strangely missing is an app for smartphone or tablet to control the various functions; the loudspeakers prioritise Bluetooth above all else. So if you have a digital input into the Control box and hit Bluetooth on your computer, tablet or smartphone they will instantly take over. It seems a strange way of operating but that's the road Piega has gone down. It will be interesting to see if they refine this in future.

Such criticisms aside, there is no doubt that the 501s are impressively built with a luxurious look and a narrow profile that will sit easily in any room.

To aid placement a toggle switch on the back tailors the sound via DSP for free standing, wall and corner positioning. Another toggle switch allows the user to assign each loudspeaker as either left or right channel or even put them into mono mode if required.

As to the positioning options, the effects are subtle but noticeable and worth experimenting with. Room dynamics, individual taste and your own ears will decide what suits you best.

Overall then these wireless loudspeakers are a fully featured package with svelte appearance and an air of quality. There's nothing to fault in terms of materials and construction.



Toggle switches on the rear enable users to tailor the sound for the speaker position, or to be assigned to right or left channel, or mono mode. There is also an optional analogue input, via 3.5mm jack.

SOUND QUALITY

Siting the Piegas in our large listening room, with the toggle switch set to free standing, it was soon evident that these speakers work best firing straight down the room

The ribbon tweeter is not dominant like those on others can be. Instead it integrates well with the mid-range/bass drivers, producing a balanced, smooth sound.

Playing a variety of tracks via



The (optional) Control box enables analogue and digital inputs, fixed or variable volume control as well as a choice of wireless frequencies.

Bluetooth from an iPhone X there was a CD-like quality to the sound. New Order's 'Touched By The Hand Of God' came across with excellent detail – air and space around the instruments was exceptional and Bernard Sumner's vocals floated into the room in a natural way. I would have liked a little more strength in the lower bass registers – I'm a bit of a bass head on this sort of track. However, those who value accuracy without boosting of bass or treble will instantly take to these wireless 501s.

Next I plugged an Astell&Kern AK120 high-resolution digital audio player into the Connect box via an optical cable and played through the entire 'Murder Ballads' collection by Nick Cave And The Bad Seeds in 24bit/96kHz resolution (the box will actually handle up to 192kHz).



Piega's ribbon tweeters are designed and hand-built in-house for best integration with the two mid/bass drivers sitting below – something the company has majored on since its inception.

Again reproduction was smooth and balanced with no part of the sonic spectrum over dominant. Kylie Minogue's vocals on 'Where The Wild Roses Grow' were breathlessly beautiful, making full use of the ribbon tweeter to produce a shimmering, deliciously delicate ambience. It was one that stood in stark contrast to Nick Cave's growling, evil vocals that give this track such visceral power.

The Piegas pulled this off as they are basically accurate in all respects. They are not the sonically flashiest loudspeakers you will come across, nor the most exciting at first listening. But they do everything else

so well they are the sort of wireless loudspeakers you could live with for years and never get tired of.

CONCLUSION

Piega has built a solid reputation for producing quality loudspeakers with sturdy aluminium cabinets. Its latest foray into the wireless world does nothing to dent that. A few minor niggles aside, these are loudspeakers that will appeal to those who enjoy their music replayed without any sense of bass or treble lift, suiting small to medium rooms where they will counteract room boom and sound coolly accurate, with delicious ribbon treble.

MEASURED PERFORMANCE

Frequency response of the Premium 501 measured flat from 35Hz to 16kHz our third-octave analysis of pink noise shows. Phase matching of the ribbon tweeter was good in the vertical plane and its dispersion wide too, in common with ribbons.

Output from the tweeter, from 2.5kHz upward, is smooth and peak free – the benefit of a ribbon – and Piega have kept output in check so the loudspeaker sounds neutral rather than bright.

They have stayed with this philosophy further down the scale where the Premium 501 stays fairly close to the 0dB datum. In consequence, low frequency output has not been raised to add body to the sound so again the Premium 501 retains accuracy. It reaches to a low 35Hz aided by the small port (red trace) before cutting off sharply, so is able to reproduce deep bass. However this is a loudspeaker for small-ish rooms, small bass units being unable to generate a lot of acoustic power so it is unlikely to sound bass heavy in any sense.

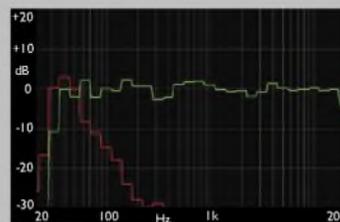
For rooms that boom, as small rooms can do with near-wall placement of a loudspeaker, a rear switch attenuates bass output below 150Hz

when set to the Wall position, our yellow trace shows. There is also a Corner position that introduces heavy bass cut, but corner placement is far from ideal for any hi-fi loudspeaker.

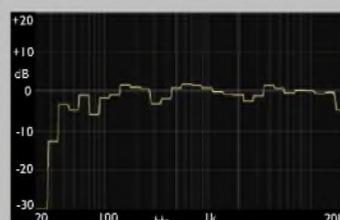
In all the Premium 501 is a well engineered and fundamentally accurate loudspeaker for small-ish rooms (below 16ft long) that offers ribbon treble quality plus deep bass. NK

FREQUENCY RESPONSE

*Green - driver output
Red - port output*



WALL RESPONSE



PIEGA PREMIUM WIRELESS 501 £3908



EXCELLENT - extremely capable

VERDICT

A fully-featured wireless floorstanding loudspeaker that is superbly constructed and has a natural, even sonic balance.

FOR

- wireless connectivity
- aluminium cabinet
- ribbon tweeter
- smooth sounding

AGAINST

- Connect box adds an extra £499 to the cost
- no dedicated app

Piega
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Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of KEF Q150 bookshelf speaker

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

LETTER OF THE MONTH PRIZE



KEF Q150 BOOKSHELF SPEAKER

<https://uk.kef.com/products/q150-bookshelf-speaker>

(subject to availability - Satin Black / Satin White)

For more advice see Letters from earlier issues at www.hi-fiworld.co.uk/letters

A PAIR KEF Q150 LOUDSPEAKERS are on their way to RICHARD PEDDIE, Letter of the Month winner in our November 2019 issue.

Letter of the Month

UPGRADE DILEMMA!

I am thinking of upgrading some of my hi-fi and initially thought about changing my speakers, which are Rega RX5s. However, I am finding it hard to find something that will match the power of my current amplifier, which is rated at 200 Watts, peaking at 280 Watts into 8 Ohms (so I believe) – and preferably floor standers.

My amplifier is an early 1980s Armstrong 700 series pre & power amp, which was given to me by my dad when he upgraded his set up. This is a very good and powerful amplifier, of which I believe only 40 were ever made, before the Armstrong Company folded. So it appears to have some rarity as well as sentimental value, but it is getting on in age and 'speaker matching with a budget of around £2000 is proving more difficult than I imagined!

At the moment I play mostly vinyl and my turntable is a (recently) much upgraded Linn Sondek, fitted with an Audio Technica OC9ML (MC) cartridge, which does sound very good.

I have a Naim CD51, which, although very good, can sound quite dry and at times a little edgy, compared to vinyl. The Armstrong amp was made just before the CD revolution, so no



Creek Evolution 50A – a powerful yet smooth analogue amplifier available with Sequel optional MM/MC phono board. There is a more powerful Evolution 100A but modern loudspeakers like the Wharfedale Linton don't need it.

dedicated CD input.

At the moment, I'm not into streaming music, or Bluetooth connectivity, so I don't think I need to upgrade my amp for that reason.

So, here's my dilemma. Do I change the amplifier to something less powerful, which will give me a wider speaker option if I decide to replace my speakers later, or stick with an essentially very good amplifier with all the sentiments attached, and continue researching my speaker options?

If I go for the amplifier option, I

would also have to budget for a phono stage with MC, as most amplifiers these days do not appear to have that option built in!

If I go for the speaker option and find something with matching power handling, would this improve the overall quality of my existing set up, or would the CD still have issues because of amp compatibility?

Any thoughts and advice would be much appreciated!

**Patrick Wright,
Stafford.**

Hi Patrick. As good as Armstrong amps were in their time, a lot has changed. Modern electronic components have improved greatly, including transistors. Today's amplifiers don't have crossover distortion, so smoother treble. Better capacitors in particular give a clearer sound. I advise you pension off the Armstrong, but keep it as an heirloom.

Although it is rated as delivering 200 Watts, it's doubtful that you use that power. In most homes around 60 Watts is more than enough to go very loud, using modern sensitive loudspeakers. Power as a criterion is best ignored.

Stay with a reliable and well trusted British brand – Quad, Cambridge, Creek, Naim come to mind, for good future service, should you need it. Your problem is inclusion of an MC phono stage; most amplifiers come with MM only.

I remember the Armstrongs as fulsome and powerful. Creek's Evolution 50A is, with optional Sequel 2 internal MM/MC phono stage, right on target – get a listen if you can. Naim's Supernait 3 is an arch successor; it is powerful yet easy going (not at all dry) but with MM only phono stage and possibly not within your budget. You can get an external MC input transformer from Icon Audio or Ortofon to feed an MM input but they don't come cheap, around £500.

Replace your floor standing Rega RX5s (very polite sound) with the Wharfedale Linton 85th Anniversary loudspeakers reviewed in this issue perhaps. This will be a complete reversal of character that could even shock you. But entirely in-idiom with the sound of your Armstrong – powerful. I suspect the Lintons will appeal. They don't need high power to go ground shakingly loud and will suit any amplifier.

I hope this helps. Go to a dealer if you can for a demonstration. And keep your lovely Armstrong in occasional use for nostalgic reasons, as well as giving its electrolytics a little re-forming workout. **NK**

AUDIOLAB 6000N STREAMER

Having reached the end of your review of the Audiolab 6000N streamer (October 2019, pp75-77) my reaction can probably be summed up in one word: disbelief.

"...if performance is phone dependent...then the system has



Audiolab 6000N Play streamer. Relies on DTS Play-Fi to pass hi-res files from streaming services through an ESS DAC – one of the best going. But there are problems.

problems". Indeed it does. Audiolab might "still feel this is an issue..." but appear happy enough about off-loading these problems to the consumer in exchange for a budget £449. Sorry Audiolab, Phone-Fi isn't somewhere my wallet's going, however budget the budget.

In the same issue Martin Pipe regrets Densen's decision to make the remote control for its B-150 amplifier a £200 optional extra. I see his point, but I'd rather pay for a properly purposed device than use some cheap skate app. I realize the Audiolab 6000N would be blown out of its budget category, but it doesn't seem to have a properly purposed app either – well, not yet.

"Time to ditch the iPhone and get a Samsung perhaps". No, time to ditch the Audiolab, Noel. Don't encourage Phone-Fi, put the money towards the Naim NDX 2 on page 34 – or almost anything else.

Thank you for an always entertaining magazine, issue after issue. Best wishes

Graham Gough

Hi Graham. It is a bit of a strange issue, isn't it. Lots of discussion about this, with Audiolab who say it does work, but with a Samsung 'phone. An industry insider who faces wi-fi issues suggests it is a limitation in the iPhone's audio transmission protocol (Airplay), which Samsung will not of course be using in their phones, possibly explaining differences. But everyone is tight lipped about this; very little information exists. I suspect because others are using variants of Airplay transmission technology that Apple could claim are an infringement of their patents.

The latest Samsung has wi-fi 6 too, although current wi-fi 5 that I used – and just about everyone else

is at present using – has more than enough speed to cope with high-res (24/192) audio. So this is a red herring I believe.

Since DTS Play-Fi will in future be offering an alternative transmission path that avoids the 'phone, Audiolab tell me, looks like this problem has already arisen. I get the feeling Play-Fi was never purposed for high resolution audio and DTS are pedalling hard to make it be so. Especially now that Amazon have announced a high-res audio streaming service that makes 24/192 available.

One reason I am not dismissive about the 6000N is that it will just about play 24/96 hi-res and when it does the sonic results are superb. It will play CD without problem, and iOS (iPhone) audio files that are 24/48 maximum. Again with superb quality. Since it also makes available on-line streaming services, passing them through an ESS Sabre32 series DAC – one of the best – and gave a better measured result than just about every other streamer we have encountered to date, there is an upside to consider.

For me the 6000N is a real head-scratcher, one I have spent hours testing repeatedly, with two spectrum analysers, three computers and two wi-fi 5 routers to be absolutely certain about what was going on. It will work satisfactorily in the common experience, bringing ESS digital sound quality to CD from Tidal, for example – at very low cost. Difficult to be too damning I feel; most people won't ever try to squeeze 24/192 through their phone.

I sent your comments to Audiolab and their reply follows. They say "connecting the 6000N Play to the router via ethernet cable rather than wi-fi will resolve

any issues" but I must say that at all times the 6000N Play under review was connected via ethernet cable, so there seems to be another misunderstanding here. Looks like the discussion will continue! **NK**

"The Audiolab 6000N Play is a genuine hi-res Wi-Fi network streamer; categorising it as 'phone-fi' misrepresents the product entirely. There should be no issue playing hi-res audio up to 24-bit/96kHz over Wi-Fi using the Play-Fi control app, whether your device runs Android or Apple's iOS operating system. Streaming 24-bit/192kHz files over Wi-Fi is dependent on the speed/reliability of the network; connecting the 6000N Play to the router via Ethernet cable rather than Wi-Fi will resolve any issues.

We designed the 6000N Play to deliver excellent sonic value for money, in line with the 6000 Series ethos, by building it around the flexible and well-supported Play-Fi streaming platform and incorporating our class-leading digital/analogue circuitry. Our aim was to make the best-sounding music streamer under £500, and the feedback we're receiving from reviewers, retailers and – most importantly – end-users confirms we have succeeded"

Audiolab

DENTON 85TH ANNIVERSARY

This is just a thank you note to you and Peter Comeau for answering my questions regarding the Wharfedale Denton 85th Anniversary edition loudspeaker. Needless to say I have



Keith Fonseka's AT150 MLX with the Micro Line tip "does wonders with worn out records purchased from charity shops".

Also showing is his all-time favourite Denon DL 110 – not the much vaunted DL103 he says!

purchased a pair in lovely Mahogany – see photo. It looks uncannily like a Klipsch KG2 I auditioned but never purchased as a budding audiophile in the 80s!

It sounds excellent, with well damped bass and a superb mid band. It has a slight peak 2-3kHz (a cone breakup mode?) but otherwise measures very flat in the mid-band according to my ancient Tandy SPL meter. The bass extends smoothly to 40Hz, in my room with an inaudible small bump around 80Hz. I have them about 14cm from the rear wall on 24 inch stands and minimal toe-in. This avoids the dreaded "Allison dip" as the woofer distance from back wall and floor are not similar, something nobody mentions these days but is quite real. It is being driven by a Rotel RA-12 with plenty of grunt.

I have tried your 1 Ohm tweak but undecided on whether it sounds better with or without the tweak. Perhaps it is the 10 Watt wire wound resistor I am using – the inductance of the wire wound resistor is affecting the sound? I do have a non inductive ceramic resistor but the rating is only 5 Watt so not sure if I can use that.

Anyway I listened to the Bohemian Rhapsody Blu-ray and it was simply glorious!

**Best Regards
K. Fonseka**

Post Script

One of the best reasons to buy a turntable with a removable headshell is the ability to hear a different version of the same song within minutes!

Pictured is an AT150 MLX with



Wharfedale Denton 85th Anniversary. "I have purchased a pair in lovely Mahogany" says Keith Fonseka.

the Micro Line tip that does wonders with worn out records purchased from charity shops.

Also showing is my all-time favourite Denon DL 110 (not 103).

Hi Keith. Glad you are enjoying the Dentons. Both rear wall and floor will invert phase and produce a cancellation dip at a half-wavelength frequency. For a 2ft high stand this is 4ft half-wavelength, frequency 141Hz. So best not to place a 2ft high loudspeaker 2ft away from a rear wall or the dips will add, as you note ('Allison dip' is new to me!).

The 1 Ohm treble tweak pulls high frequency level down a bit and can be used on any bi-wirable loudspeaker. Best to use a 1W - 5W carbon film resistor; power is not an issue here unless you are running a disco (to which the Dentons are not suited!). Carbon film is non-inductive and very neutral in sound. The tweak is a subtle one, aimed at softening treble slightly. If your hearing is down a bit in the top end in any case, you may not feel it suits you.

It is great to hear that 1970s muscular sound back again, putting rock into Rock and bringing scale to performances. No wonder hi-fi was popular back then! **NK**

So pleased you are getting good results from the Dentons. You won't need to use Noel's tweak if you listen with the grilles fitted and the 2-3kHz peak should smooth out too.

Best wishes,

Peter Comeau.

NOISE FROM LED LIGHTS

Let us not get alarmist about LED lights (Dr Barton, HFW Nov.19 Letters). I have checked the effect of seven recently fitted LED light bulbs (GE branded ex-Waitrose) 2.5 to 3.5 metres from my component rack. Moving-coil cartridge through standard SME 309 arm wiring, a transformer box to an Arcam rPhono should be the most sensitive source.

Listened on headphones at maximum preamp gain putting lights on-off – no discernible change in a very low, only just audible noise floor.

Via a Quad FM4 tuner there was no change discernible on the inter-channel noise or to any signals.

Via digital, computer through a good quality 5 metre USB cable to a V-Link and two DACs, again no discernible LED induced noise. Also no RF noise going back through unscreened 'speaker cables to the output and feed-back loop of the SET power amplifier.

My system is powered from ordinary house wiring with no special mains filtering. So from this tiny corner of the universe LED light-bulb noise seems not to be a universal problem!

Dr David Land,
Glasgow.

Hi David. That sounds pretty convincing. But all the same David Barton did pick up radio-frequency (RF) noise on a medium wave radio – so there is something out there, emanating into the Victorian ether! And it is contradictory for electronic products to be regulated to not produce spurious RF radiation, whilst mandating light bulbs that do the opposite.

A simple solution would be the use of low voltage d.c. lighting circuits in homes, direct to LED bulbs that would not then need a noisy internal switch-mode. This is a subject that can run I think. **NK**

ORIGIN LIVE ENABLER

I recently saw an article, in the November issue of Hi-Fi World magazine, regarding the Origin Live Cartridge Enabler. As I was thinking of upgrading my Dynavector 20X2 High output moving coil cartridge I thought for the very modest fee of £19.00 I would give it a go first.

Well, the cartridge upgrade is very much on hold as the Origin Live Cartridge Enabler has improved the sound of my hi-fi no end. The bass is so much deeper than before, sound stage is slightly wider. As stated in their advert, its like fitting a more upmarket cartridge.

Fitting the Enabler was simple, the hardest part was realigning and resetting the weight for the arm and cartridge, well worth twenty minutes of your time.

My system is a Technics SL1200 Mk2 fitted with a Michell Techno Arm A. An ADL GT40 Pre amp into a pair of Leak TL12 plus amps, hand-built from scratch. With a variety of Power and Interconnect cables from Kimber, speakers are a pair of Quad S2 stand mounts.

Ashley Garbett

Interesting Ashley. As you say, at £19.00 it is worth a try, and if it works with your arm/cartridge then a great bargain in the high fidelity scheme of things where most upgrades cost a lot more. **NK**

PAST RUMOURS

If you want a really good sounding Rumours, forget about any audiophile re-issues, including the over-rated Hoffmann, and seek out an early US Warner Brothers pressing, cut by Ken Perry (KP in the deadwax) with the cream textured cover.

This has an immediacy, dynamics and energy that re-issues can only dream about. An added bonus is that the early US isn't that hard to find, nor is it expensive.

Regards,

James Read
audio_downunder@yahoo.com

Fascinating! Thanks for the advice James. I was so intrigued I searched my collection for the original, which always sounded good to me – but that was long ago as this classic LP was released in 1977.

To explain, our office newly re-



"The Origin Live Cartridge Enabler has improved the sound of my hi-fi no end" says Ashley Garbett.

mastered version of Fleetwood Mac's Rumours, bought as a review tool since readers will likely know and relate to it, proved unusable. It's the 2012 re-issue cut by Steve Hoffman & Kevin Gray, and sounds thoroughly peculiar – slightly woolly, coloured and closed in – not properties of the original.

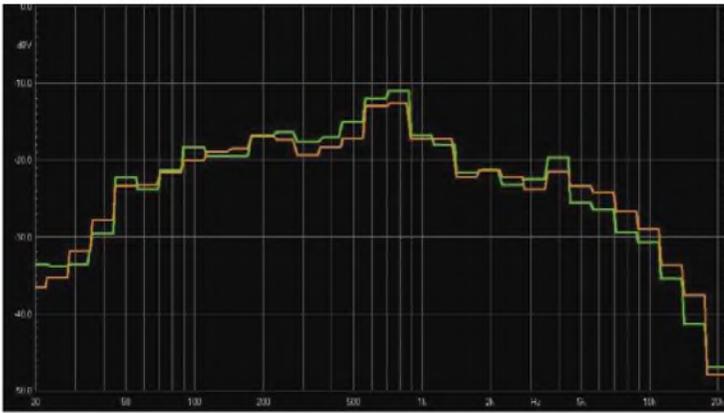
So, what about the original? Does it sound better as you say? Yes, indeed, it does: clearer and less coloured. You are right.

Notes by Steve Hoffman on his forum (Google 'Rumours and Ken Perry') talk about +15dB of treble lift at 10kHz – vast – used by Ken Perry in the original cut, to compensate for problems elsewhere – perhaps tape replay head azimuth error. Steve Hoffman used less EQ because modern studio equipment was more capable, he says.

This alerted me to the likelihood that there could be differences in high frequency EQ between the original 1977 LP and our 2012 re-master so I ran a third-octave analysis of Track 1, Side 1, Second Hand News, and you can see that there are indeed measurable differences. The



The original Fleetwood Mac Rumours LP from 1977 (right), with "cream textured cover". alongside the 2012 re-master. The original has "an immediacy, dynamics and energy that re-issues can only dream about" says James Read.



Our analysis of 'Second Hand News', from the original 1977 Rumours LP (orange), shows it has more high frequency energy than the 2012 re-master (green).

early album (orange) clearly has more energy above 5kHz, by +3dB over a wide range, so it would sound clearer and less muffled.

I get the feeling here the later re-master shies away from the EQ Ken Perry used for the sake of notional correctness – but is subjectively poorly judged. But then don't ask how recording and cutting engineers make subjective judgements; their studio replay monitor loudspeakers are tilted toward big levels rather than accuracy or insight I have found on studio visits. One West London studio cut vinyl and did not even have a replay system to check their work I found. Perplexing.

Steve Hoffman's forum also catalogues enormous variance (go to <https://forums.stevhoffman.tv/threads/fleetwood-mac-rumours-first-pressing.251344/>) with this album, since the band were big in the U.S. and a lot of work went on around them to get their LPs out into a global market. There were so many different EQ master tapes sent and different local cuts made from the transfer master tape that origin is hard to pin down. My original UK disc from 1977 has no dead wax info at all – unlike all others catalogued on the Steve Hoffman forum.

As you note the original is available at reasonable cost – around £50 – but mine does not have KP etched into the inner groove area, only K 56344, the album number. Discogs has no info on Ken Perry either, so he seems to have been lost in the history of this LP.

It seems to me that a high quality digital copy from the master tapes would avoid the many confusing issues of transfer masters and different cuts, as well as vinyl and stamper quality. But our digital copy (24/96) is – subjectively – far from perfect too,

sounding too bright and a tad harsh at the top end – likely derived long ago by an early and inadequate 16bit ADC for perfect CD (hah!). Suggesting a new and better digital copy is needed.

As one of the USA's highest selling albums, with an easily accessible sound but lyrics and sentiments that would raise eyebrows today, I think Rumours deserves a definitive digital copy at least. A well produced LP that sounds plausibly correct would be a bonus.

I'd put my money on Neil Young or Mark Knopfler for this, since they're both known for understanding and being able to achieve great sound quality, even from LP. The problem with Rumours I suspect is that the original recorded sound balance needs changing – an artistic re-interpretation in effect – but re-masters are more about originality and staying true to the master tape. This is the limitation of the Steve Hoffman Kevin Gray re-master: they have done the right thing but it is the wrong thing. **NK**

STREAMING VERSUS CABLES

I was musing as I read the findings of Jon Myles in his review of the Tellurium Q Ultra Black II cable. Given the level of performance improvement he found over the previous model I wondered if streaming was immune to such issues.

Of course, if it does remove the need to spend giga-pennies on digital interconnects: it could be really helpful to those of us oldies who still prefer to spend most of our wonga on amps, speakers, turntables and dacs/streamers rather than cables.

I have recently started streaming BBC radio using a humble Google Chromecast audio device rather than the Freeview tuner in my TV, or via the PC and USB interconnect. I use the optical output from the cheap Google device

into my expensive DAC. The sound is definitely much better than Freeview radio via the same optical cable, or the audio return channel (ARC) on the HDMI link and avoids having to boot up the PC to listen to the radio in high quality.

I can't honestly tell any real difference between the streamed (cast) radio sound and that sent from my PC via the expensive USB cable to the same DAC. Cost comparison – USB cable about £1000 vs Google thingy at less than £30 plus £20 optical cable. Interesting I thoroughly recommend your readers try this simple and cheap solution if they want better radio than Freeview or FM, especially for those troublesome but high quality BBC stations that I cast from the excellent BBC Sounds app on my phone. Simple.

I then wondered whether the router or even the air in my house might impact the streamed sound quality over the wireless Wi-Fi router connection. Haven't thought of a way to test this yet but I suppose it takes me back to my difficulty with digital cables sounding different. Hey – I still spent a grand on a cable just in case. Insurance policy, or just a mug. One day I hope to find out definitively.

Anyway, streaming seems a great way to save some money on cables in my humble experience to date. And streaming the BBC channels via a phone and a cheap streamer seems to work really well (but note I take the digital output and not the analogue one). And thanks to you all for a good read every month!

Best wishes

Cosmo Wisniewski
Woldingham,
Surrey

Just a P.S. In Noel's feature on wi-fi I can only agree about the need to avoid annoying dropouts or buffering and have found my latest model Talktalk router with Android phone – both wirelessly connected via wi-fi to have a totally 100% reliable connection. No dropouts. Fab...



Google Chromecast. "I thoroughly recommend your readers try this simple and cheap solution" says Cosmo Wisniewski.



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Martin Pipe is energised by the P6/A23+ a sophisticated two-box amp from Parasound.

Saintly Sounds?

Between the 1950s and the 1980s, US firms were responsible for well-built and powerful amplification that teemed with features.

In this respect, their output was closer to that emanating from Japan – heavily influenced by US practice – than the 'less-is-more' school gripping this side of the Atlantic. One thinks of McIntosh, Fisher, H.H. Scott, Marantz, Dynaco, Harman-Kardon, SAE, Adcom and SUMO.

The company whose gear is featured here, Parasound, reflects this approach. Headquartered in San Francisco it may be, but Parasound's gear is built in Taiwan. Some of the famous 'can-do' American spirit

nevertheless lives in this Parasound matching combination that consists of the Halo-branded £1900 P6 preamp and £1700 A23+ power amp. In the classic tradition of Stateside kit, the P6 is well-connected and packed with features galore. Hinting at what's on offer is the fascia, which is slimline but very busy.

Traditionalists will appreciate the P6's integral phono stage, which makes provision for both MM and MC cartridges. A 3-way toggle switch selects between MM (standard 47k Ohm load) or two MC modes – one (100 Ohm) for the low-impedance majority, the other for high output MC cartridges that need a higher load than 100 Ohm, here 47k Ohm.

The onboard hi-res DAC boasts USB connectivity for PC audio, as well as standard S/PDIF digital inputs, two optical, one coaxial. Based around a ESS ES9018K2M Sabre32 DAC chip, it will – via the Savitech USB 2.0 implementation – accept PCM up to 384/32. Native DSD playback (all the way to DSD256) is another possibility, courtesy of the delights of DoP (DSD over USB). Somewhere between the two lurk no fewer than five line-level phono-socket inputs, one shared with balanced XLR inputs.

Core to the P6's volume control is an analogue attenuator built around a microprocessor-controlled Burr-Brown resistor-ladder (its

predecessor, the P5, had a motorised potentiometer). Changing volume – the level of which is confirmed on a wonderfully old-fashioned two-digit green LED – involves a front-panel knob that's internally-coupled to a rotary-encoder, or the archaic-looking remote's Down and Up buttons.

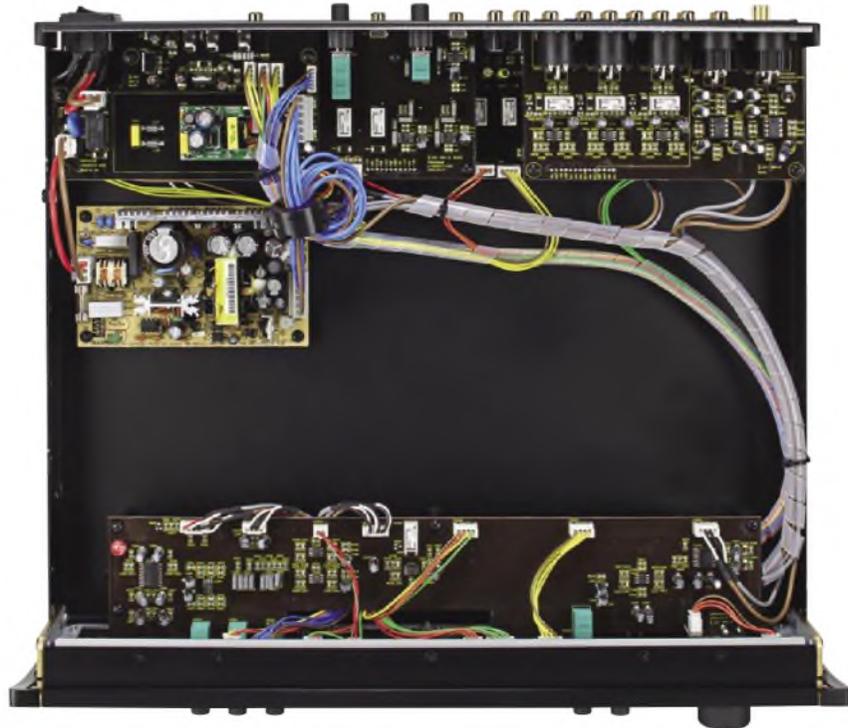
No compensation for differing source levels is offered, but you can set favourite or last-used volume. The aforementioned handset can also be used to mute the P6, change source, adjust the LED brightness or invoke the bass and treble controls. These bypassable tonal tweakers, bane of the purist, are tiny knobs that live on the front-panel alongside another control that adjusts the level of a subwoofer, should your system include one. Tonal adjustments cannot be made via the remote.

Other diminutive knobs cycle through the sources (indicated with blue LEDs), and adjust the stereo balance (another operation that can only be achieved via the front-panel). There's no tape loop but you get an analogue 'rec' output containing the currently-selected source pre-volume.

There's no Bluetooth connectivity. But there is a 3.5mm Aux input jack, with fixed 12dB 'boost'; Parasound seem aware of the puny output stages built into smartphones. Rather more useful is the headphone socket; indulge in personal listening, and the power amp can be turned off altogether; plugging in headphones automatically-mutes the line outputs.

The P6's most important outputs are of greater sophistication than that found on most audiophile-grade amplifiers. They are versatile and practical, but far from minimalist. Separate stereo pairs are provided for main speakers and subwoofer (active). Each has a defeatable crossover with cut-off frequency adjustment. No wonder that Parasound describes the P6 as a '2.1' preamp! Subs are associated with home-cinema – more widespread in the US than the UK. These outputs are available in unbalanced (phono) and balanced (XLR) form.

To ensure the P6 can be integrated into home-cinema systems, there's a 'bypass' facility. This consists of a set of inputs, potentially connected to the front-channel and sub outputs of an AV processor. When the P6 is in



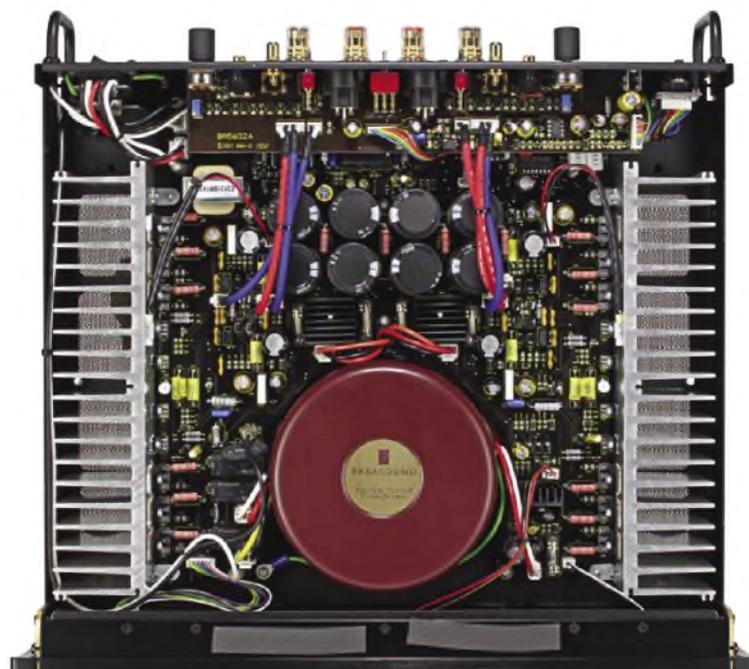
The interior of the P6 is not as busy as that of the A23+, but the layouts are similarly-neat. Note the use of miniature relays to switch between input signals, and a computer-type switched-mode power supply. This isn't in a screened compartment, but noise wasn't a problem.

standby, any signals present there would be switched directly to the main and sub outputs, enabling the amp and sub to make their contribution to the reproduction of multichannel soundtracks.

Which brings me neatly to the A23+ – very much a muscle amp in the great American tradition. Weighing in at over 12kg, this update of an existing model (the A23) is capable of delivering 160 Watts per channel into 8 Ohm loads

with distortion levels of under 0.1% claimed.

Thanks to a bridging mode the A23+ can also operate as a high-powered (500 Watt) mono amp. Designed by John Curl, it features JFET input stage, MOSFET drivers and 12 'beta-matched 15 Amp bipolar output transistors' operating in 'high-bias Class A/AB' mode. The A23+ can be fed via balanced or unbalanced inputs – cur P6 was connected via the former. Rear-



Lots going on inside the A23+ – no wonder it tips the scales at 12.2kg! On either side are heatsinks, each containing six of the "beta-matched 15 Amp bipolar output transistors". Hence a hefty linear power supply built around an enormous toroidal transformer located behind the front panel.

X1

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Not much you can't connect to the P6 preamp. In addition to an MM / MC phono stage (left) are six analogue line inputs, one on the front panel, another with a balanced XLR 'double' at top left here. Beside are balanced XLR outputs for the A23+ power amplifier. Digital inputs are at bottom right – two opticals, one co-axial (all S/PDIF) and a USB for computers.

panel level controls might be handy if you're using another pre-amp, or driving the A23+ directly from a source. A 12V trigger input switches the A23+ into or out of standby; this was found to be of good practical benefit with the P6, which has a compatible 12v output.

SOUND QUALITY

I tried the P6/A23+ with a number of different speakers – Quadral Aurum Wotan VIIIs, Acoustic Energy AE109s and the Esprit Titus Ezs from Triangle. Focal Utopia and Oppo PM3 headphones were also used. The tone controls were left disengaged for most listening, although they proved handy on occasions, when playing overly-bright or bass-light material.

For analogue playback, I relied on a Linn LPI2 with Basik Plus arm and Ortofon 540 MM cartridge, and a Technics SL1210 Mk3 fitted with an Audio-Technica AT440MLb. Digital listening, meanwhile, involved a Mac Pro, a Cambridge CXN v2 and a library of losslessly-compressed music, both hi-res and CD-quality. You'll need drivers for some versions of Windows (7, 8 and Vista), but with Macs it's a 'plug and play' affair.

I used the Vox player, which can handle DSD as well as PCM material. This brings me to a practical niggle – the P6's busy front panel cannot confirm the technical parameters of an incoming digital source. DSD playback via the Mac and Vox gave me no reason to complain, though. All of the micro-detailing and subtle nuances of Keith Greeninger and Dayan Kai's Looking For A Home (Blue Coast DSD64), a stripped-back guitar and vocals number, were

audible through my speakers. The Quadral's revealing ribbon tweeters were of benefit here, to appreciate such resolution.

Hi-res PCM also fared well, especially when it comes to more complex and punchier material. I was particularly happy with Mogwai's Remurdered (Rave Tapes, 24/96) which here sounded dynamic and evenly-paced; its bass synth was well-defined, satisfying and unbounded. The track's guitar had a slightly sharper edge than I'm used to, but this seemed appropriate for

the music. With the dynamic swings of Britten's War Requiem (Noseda/LSO performance, 24/48), the Parasound coped amply. I did note however that some of the more intricate musical detail was masked during busy passages. Indeed, I found that the combo was happier with 'forward' rock and dance music than the finer points of complex symphonic works; I found that guts, impact and excitement come at the

"full-bodied, never short of drive and capable of a natural soundstage"

expense of finesse.

Armand van Helden's Drum 'n' Bass Mix of C.J.Bolland's Sugar is Sweeter pulsed with enthusiasm, the track's essential percussion and bottom-end not being restrained to any notable degree. Similarly the bassline of A Tower Struck Down, from Steve Hackett's first solo album Voyage of the Acolyte, was given plenty of body; its sequenced analogue synth, meanwhile, bubbled along nicely with an organic tonality.

Steve Reich's Music for 18 Musicians (Ensemble Signal/Brad



The A23+ power amplifier has balanced (XLR) and unbalanced (phono) inputs, and there are loopthrough outputs too. Input levels can be tweaked and it can be bridged into a super-powerful mono amp. A 12V trigger allows the A23+ to be switched in and out of standby by the P6. There's also a feature that will awake the A23+ as soon as audio is applied.

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Lubman, Harmonia Mundi, 16-bit FLAC) and Fela Kuti's Coffin for Head of State (16-bit FLAC) also worked well here, thanks to the decent grasp of rhythm that makes dance music so pleasurable to experience via these Parasounds. The P6/A23+ more-than-competent handling of the latter track's bass-guitar, keyboard and brass parts were also noteworthy. Vocals – lead and backing alike – were balanced and free of harshness. This never changed even at high listening levels, thanks I suspect to the sheer muscle at the A23+'s disposal.

And vinyl? With the MM cartridges at my disposal the P6 phono stage gave a good account of itself. It lacks transparency when compared with off-board units, but it's audibly superior to what I've found in many an integrated amp. 12in. dance singles like Unlimited Touch's 'Searching to Find The One' and Information Society's What's On Your Mind (Pure Energy), spun on the Technics, boogied along nicely in terms of rhythm and bass; the latter plunged satisfyingly-deep and yet there was an absence of woofer cone-flap; Parasound have incorporated subsonic filtering with a sensible roll-off characteristic.

LPs with deeper elements, for example the synths of Synergy's Electronic Realizations for Rock Orchestra, or the bass harmonica of Simon and Garfunkel's The Boxer, were bestowed with the depth they need. Not that other areas of reproduction are compromised; treble was clean and crisp, while stereo imaging and dynamics rarely failed to convince. Reproduction of classical LPs, like my 1958 EMI stereo recording of Dvorak's New World Symphony (Berlin Philharmonic/Kempe) left

nothing to the imagination in terms of orchestral positioning; also appreciated was the range of tonal colour that could be accommodated.

The attention that Parasound has paid to the P6's headphone amp also shows; it's full-bodied, never short of drive and capable of a natural soundstage, although it veers towards stridency at higher listening levels. But a 1/4in jack next time please, guys!

CONCLUSION

The Parasound Halo P6/A23+ combo covers just about everything

bar Bluetooth and tape recording, and has been designed to slot into a home cinema system. It's easy to use, has some useful features and boasts sonic strengths that complement genres like rock, electronic and dance music. The DAC section and phono stage of the P6 are both worthwhile, suggesting that Parasound has given equal consideration to both analogue and digital sources. I also appreciated the A23+, a true 'muscle-amp' that will drive practically any loudspeaker without any signs of struggle.

MEASURED PERFORMANCE

The Parasound A23+ delivered 200 Watts into 8 Ohms and 324 Watts into 4 Ohms – huge power and enough to go very loud in any circumstance, such as a very large room (with loudspeakers able to handle such power). Output impedance measured a very low 0.06 Ohms, giving a very high damping factor of 139.

Distortion levels were low in the midband (1kHz), measuring 0.03% but at high frequencies (10kHz) the rise was large, reaching a high 0.5% into 4 Ohms at 1 Watt, as our analysis shows. This is classic crossover distortion with extended odd-order harmonics that's rare nowadays; it will coarsen treble.

The P6 preamplifier offers x2 gain from XLR balanced input to output, but x3 gain from its RCA phono socket input unbalanced input to output – an unusual difference. Overload from both outputs was 9V where XLRs usually give double

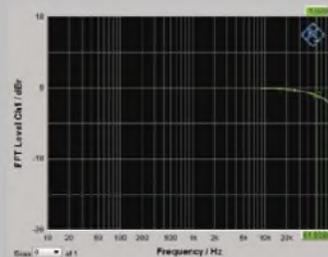
(18V). Frequency response was wide at 1Hz to 100kHz (-1dB) and noise low at -112dB.

The phono stage had an MM gain of x365 (1kHz) input to phono socket output that, taking into account x3 in the preamplifier gives an MM gain of x128 – a tad higher than the x100 value common. MC gain measured x1600 so x533 taking into account x3 in the preamplifier – low gain for MC where double (x1000) is expected. Unsuitable for very low output MC cartridges, as is the input noise level of 0.3µV where 0.1µV is possible, but satisfactory for many all the same – including Ortofonos and Audio Technicas. Frequency response was flat (i.e. RIAA equalisation accurate), gain rolling down below 20Hz to -7dB at 5Hz to lessen loudspeaker cone flap from record warps.

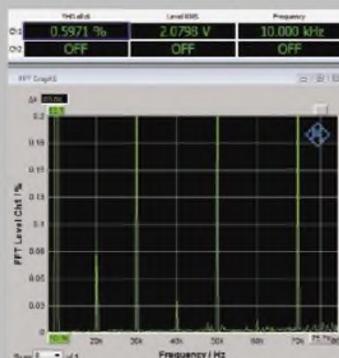
The S/PDIF digital inputs measured 114dB EIAJ Dynamic Range and USB 1dB less due to a little extra noise. Both had a frequency response that extended to the 96kHz theoretical limit with a slow roll off above 53kHz (-1dB). Distortion at -60dB (24bit) measured 0.09% where 0.02% is possible nowadays. CD measured 0.22% as usual, due to 16bit quantisation noise, so the P6 gives usefully better performance from hi-res than CD.

The power amplifier exhibits strong crossover distortion and is yesterday here – rivals manage far better. The preamplifier is broad in ability and competent in all areas, if not up with the best in the digital section. **NK**

FREQUENCY RESPONSE



DISTORTION



Power (8 Ohms)	200 Watts
Frequency response (-1dB)	1Hz-52kHz
Separation	88dB
Noise (IEC A wtd)	-112dB
Distortion (10kHz, 1W, 4Ω)	0.5%
Sensitivity	1.4V
Damping factor	139



The handset is simple and clean in layout. As well as adjusting, muting or memorising volume, you can select inputs and engage or disengage the tone controls. A nice touch is the backlighting.

PARASOUND HALO A23+ POWER AMP £1699.95

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EXCELLENT – extremely capable.

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VERDICT

A feature-packed combo that shows its great American lineage. Guts and excitement, but at the expense of subtlety.

FOR

- bold and energetic
- good phono stage
- plenty of connectivity

AGAINST

- no tape loop or Bluetooth
- can lack finesse at times
- 3.5mm headphone socket

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REVIEW

Linton Legacy

Wharfedale go large with their Linton 85th Anniversary loudspeaker. Noel Keywood digs out his flares.



Past values brought up to date – that's the new Linton 85th Anniversary Edition loudspeaker, price £999.95 per pair. Think a big sound with powerful bass, a sound that will rock you. No messing around here: the cabinets are wide and deep, in true old style. Sound comes first, the narrow front of modern loudspeakers to make them visually less obvious doesn't figure. And you even get storage for LPs underneath – for an authentic 1970s look.

The new Linton is sort-of big. It doesn't stand high, measuring 437mm vertically, where modern floorstanders come in typically at 1000mm. But go to lift it and you'll know what I mean. Weighing 18.4kgs it's heavy and solid. The equally sturdy stands, an optional extra priced at £279.95 per pair, lift it to top out at 1010mm. Combined price – you get a reduction – is £1099.95.

With a width of 300mm and a depth of 330mm the Lintons stand out rather than fade back. Back in the 1960s-70s hi-fi was the third most important domestic purchase after house and car, Philips marketing department once said. Loudspeakers were meant to be seen. And of course they were meant to harmonise (an old term that predates 'iconic') with furniture of the time – think wood.

Capitalising on this, the new Lintons are wonderfully finished in hand matched walnut or mahogany wood veneer that has a deep and lustrous finish. As our pics show they are veneered at rear, but not on the front baffle, being purposed for use with grilles on. Paradoxically,



Wharfedale's 135mm woven Kevlar mid-range unit gives clear, well projected vocals. Just as old 1970s Wharfedale (and Leak) loudspeakers were configured to do the same.

our measurements show the grille is acoustically transparent and makes little difference to the sound balance, unlike the Denton 85th Anniversary Edition; Wharfedale seem to be in two minds about all this.

But no big deal, since grille-on was how it was done in the past, for reasons you will understand if you look at the old Wharfedale Linton XP3 with grille off – using the modern fangled internet. Not a pretty sight, even if that white Leak midrange unit, designed by Alex Garner (Leak/Wharfedale, then Tannoy) was a wondrous device even by modern standards, with damped layer plastic cone and wave breaks.

Which neatly brings me to the drive units! The new Linton has three of them – again in good 1970s style. The idea always was to have one driver – the midrange unit – optimised for critical vocals. Here it is a 135mm woven Kevlar cone, for low colouration, working from 630Hz to 2.4kHz Wharfedale say. Above is a 25mm (1in) textile dome tweeter and below a 200mm Kevlar cone bass unit – identical bass/mid cone materials being important for subjective coherence. The bass unit is reflex loaded by two rear ports.

Quite a lot has changed in the period between old and new Linton. Bass drivers have become more powerful, using stronger magnets, and computer aided design can now optimise unit to cabinet in the blink of an eye. Whatever you want you can get, design wise. And what Wharfedale wanted here was a well damped system able to play a bass tune right down to the lowest notes, in obvious fashion,

but without overly exciting a medium sized room, in order to avoid room-boom. So although these speakers have quite obvious bass power they are not bass heavy, nor loose – as old designed-by-hand systems could be before Thiele-Small parameters were introduced by KEF for the emerging computer.

What you get here is a volumetrically large cabinet that's able to go low, fitted



Go large! The Linton in its full 1970s glory on Wharfedale's dedicated stand, also strong and functional. Below there is space for LPs. Single gold plated terminals don't accommodate modern fangled ideas like bi-wiring.

with modern computer optimised drive units for a specifically tailored response. In more general terms, the new Linton's are meant for medium sized rooms, meaning in the 16ft-20ft region. However, our listening room is far larger (6550cu ft) and they still had the power to fill it.

Another way the new Lintons differ from the past is their almost ruler-flat, accurate frequency response, free from the peaks and dips that gave olden-days loudspeakers much of their character. The new Linton's give it straight, as I think you have to do nowadays. There's less obvious bite in a short showroom demo – where maximum bite seems to count – but easier and assured long term listening over the years. Through fundamental accuracy you

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Developer	audio web publishing ltd
Category	Entertainment
Updated	7 Dec, 2014
Version	1.0
Size	9 MB
Rating	Rated 4+
Family Sharing	Yes
Compatibility	Requires iOS 5.0 or later. Compatible with iPhone, iPad, and iPod touch.
Languages	English

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can properly judge the qualities of a recording – as the BBC always demanded in their studio monitors. This is a value worth retaining and good to see the Lintons achieve this, grille on or off.

Rounding things off comes the tweeter which is – natch! – not a metal dome. It is a standard 1in (25mm) textile dome that covers high frequencies smoothly – without sharpness or ringiness.

SOUND QUALITY

I connected the Lintons to our Creek Evolution 100A amplifier through Chord Company Signature XL Reference cables. Sources were CD and hi-res from a MacBook Pro feeding the DAC section of our Oppo BDP205D player, with its still excellent ESS DAC and linear power supply.

In keeping with historical purpose I also used LP. This brought into play our Timestep Evo modified Technics SL-1210 Mk2 turntable with SME309 arm, Ortofon Cadenza Bronze MC cartridge and Icon Audio PS3 Mk2 valve phono stage.

For maximum authenticity – and pure sound – I also wheeled out our ever-lovely Icon Audio Stereo 30SE single-ended valve amplifier.

All of which put a lovely 1970s glow on proceedings – I just had to not remember the strikes, riots, rubbish piled high in London's streets, etc, etc!

Back to nicer things and the feeling of force these 'speakers deliver. Playing high dynamic range CDs and Hans Theessink's 'Mississippi' the Linton's put a good forceful edge onto guitar strings, had plenty of stage depth and sounded full bodied in good 'ol fashion. This made for generously large sound that all but jumped out to surround me. There's no magic here: a large box with a strong bass unit gives such a sound but I did also get to hear the down side – some boxiness. Kick drum on Hugh Masekela's Stimela was a little box bound, even though his vocals floated out freely and his trumpet came over as fruitily sonorous. Again think big bodied, generous in sound staging (more depth than width), fast and detailed – the modern bit.

The Linton's have strong and tuneful bass – no doubt about that. They also went loud quickly and easily, even with our Icon Audio Stereo 30SE. This was another 1970s attribute: if you want to play at high

volume they're clean and easy with it – so I found myself turning volume right up to get immersed, rather than intimidated. It was fun; they're a very easy loudspeaker to enjoy.

Spinning 45rpm re-mastered vinyl and an old, old song (1969), Lodi, from Creedence Clearwater Revival, the Lintons drew my attention to Stu Cook's bass line, where he uses bass as lead, like Noel Redding. Never noticed this before but the Lintons teased it out nicely with their strong bass and good bass damping, making for an informative delivery.

With more modern vinyl and Mark Knopfler's True Love Will Never Fade the Lintons moved to sounding tubby. This is a fulsome recording and one that suits most loudspeakers, making them sound smooth and rich, but with the Lintons it didn't work so well.

Marianne Thorsen playing Mozart violin concertos (2L Norway, 180gm) had the Troncheim Soloists behind her in a big space, their instruments full bodied.



The one inch (25mm) textile dome tweeter gives natural high treble without the zing of metal dome tweeters.

The stage had good depth, if not expanding outward too far. There was plenty of detail in her violin and it was free from rasp.

CONCLUSION

The Linton 85th Anniversary Edition loudspeakers are big – 1970s style – brought up to date. Full bodied, powerful and eager to go loud. They are also revealing and accurate.

There is some boxiness from the big cabinets but that is what comes with the territory. If you want to go loud and have your socks blown off – just try these!

MEASURED PERFORMANCE

Frequency response of the Linton 85th Anniversary, measured using third-octave analysis of pink noise, shows basically level output from 35Hz to 16kHz within +/-3dB limits, grille on or off, the grille making little difference. Phase matching between drivers was good and dispersion wide so they differ little on and off axis. Flat frequency response and lack of a mid-range dip at crossover will give the Linton 85 a modern sound balance, one that provides strong midband detail.

The design is slightly over-damped for use close to a rear wall, output rolling down slightly below 200Hz. This ameliorates room-boom, by the use of strong acoustic damping, imposed by two rear ports that add to give a large throat area. Our impedance curve identifies port frequency as 38Hz and the red trace of port acoustic output in our frequency response analysis correlates. The Linton has good output down to a low 30Hz before cutting off sharply – 30Hz being perceived as low, weighty bass.

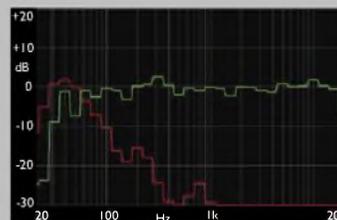
Sensitivity was good at 87dB, from one nominal Watt (2.8V) of input, enough to go very loud with 60 Watts or so. Impedance measured 6 Ohms

with pink noise so a 40 Watt solid-state amplifier will give 60 Watts here. Since the d.c.r measured 4 Ohms valve amplifiers should be used with the 4 Ohm tap.

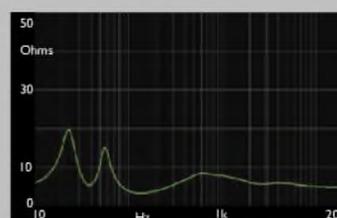
The Linton 85th Anniversary Edition has a modern, accurate sound balance; not soft or warm. But it goes very low, has strong bass control and needs little power to go very loud. **NK**

FREQUENCY RESPONSE

*Green - driver output
Red - port output*



IMPEDANCE



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OUTSTANDING - amongst the best.

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VERDICT

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FOR

- powerful bass
- rich wood veneer
- strong stands
- accuracy

AGAINST

- slightly boxy
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Getting an earful

Martin Pipe tries the Klipsch T5 in-ear Bluetooth buds.

Klipsch is perhaps most famous for its imposing Klipschorn, a corner-optimised folded-horn speaker that has been manufactured in one form or another since 1946. Somewhat smaller and

more affordable are their T5 True Wireless £175 in-ear stereophones that support Bluetooth 5.0 and the latest Qualcomm aptX 'HD Audio' spec.

Truly self-contained, each 5.5g 'in-ear monitor' as Klipsch would have it, incorporates a battery

capable of wringing 8 hours of playback from a single charge. They are supplied with an impeccable stainless-steel storage container that resembles a fattened Zippo lighter. It's more than a storage container though: inside there's a battery – chargeable via USB-C





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The T5 earpads are removable for replacement, but the earpiece batteries are sealed in. The charging contacts of carry-case and earpieces can be seen here.

– that tops up the earpieces, tiny gold-plated contacts making the connections. LEDs indicate battery status

This bolsters battery life by a further 24 hours and of course charging from this portable battery can take place anywhere.

Klipsch's clever design has another practical advantage. If Bluetooth is engaged on the device you've paired them with – earpieces are paired separately – the act of removing them from the case will automatically kick off the connection process. You're then good to go! But you must pack the case (and, for longer trips, suitable USB-C charging hardware) before you travel, as it's the only means of charging the T5s.

None of this is worth a bean if similar attention hasn't been paid to audio performance and wearability. The T5s incorporate specially-designed dynamic drivers that are claimed by Klipsch to combine "high output and full bass extension". A free 'Klipsch Connect' app can be used to tailor the sound to your tastes. Phone calls should also sound good, thanks to four microphones that work in conjunction with a noise-cancelling technology called 'Clear Voice Chat'.

And wearability? The T5s feature uniquely-contoured tips, made from soft silicone, that are designed for a snug but comfortable fit within the

ear. The design is said to reduce fatigue, while ensuring an effective seal for noise-isolation and better bass response.

PERFORMANCE

I paired the T5s – both of them – with my Google Pixel 3a Android smartphone, which confirmed that a "HD Audio: Qualcomm aptX audio" connection had been made.

The T5's controls at the end of each earpiece were awkward to use I found. These large, Klipsch-logged oval buttons are used to initiate pairing, engage your phone's 'voice assistant', pause playback or sequence through tracks (the latter worked fine with third-party apps, including VLC), but it's easy to activate them accidentally when you push the 'phones back into your ears – and the T5s have a tendency to work their way loose. Lack of cables means there's nothing to impede their fall, and you could wind up scrabbling around the floor to retrieve one or both of them. Not much fun in a dark environment, as I found from personal experience...

You can use the app to mix outside sounds from the mikes with the music being played – a safety function that is the opposite, I suppose, of the noise-cancellation function. To activate ambient mixing, the app is necessary but at the time of writing I couldn't find it in Google's Play Store. This meant I was also denied Klipsch's sonic tweakery. It's just as well that the default balance is, on the whole, more than acceptable.

Presentation steers toward treble rather than bass emphasis; electronic percussion – Herbie Hancock's *Rockit* and Cabaret Voltaire's *Sensoria*, for example – sounded propulsive, crisp and vital. Indeed, the T5s fare very well in terms of clarity. I was impressed with the detailing available on tracks like Brian Eno's *Back in Judy's Jungle* in which instrumental layering is easily definable; in many respects,

they're just as effective as a decent pair of budget wired headphones. Every vocal inflection on every word rapped by Dizze Rascal in *Fix Up Look Sharp* (*Boy In Da Corner*) was intelligible. It helped that the track's big drums aren't given their usual diversionary impact.

Low-frequency performance depends on how well they mate with your ears, explaining the company's attention to detail here. But correct ear placement – those Klipsch logos must be the right way up! – only goes so far. The sequenced bassline of 808 State's *Tokyo Tokyo* had familiar acidic tonality but fell short in terms of depth and slam. Rhythms (like Ujala, also from 808 State's new *Transmission Suite* album) were delivered with engaging snap and verve.

CONCLUSION

Klipsch's T5 in-ear cordless phones may have less bass slam than conventional headphones, but in terms of musicality are clearly superior to, say, in-ears driven by a smartphone's mediocre headphone amplifier.

A solution like is a compromise, given the practical advantages of wireless operation. Not all was perfect: I did experience some glitches – random playback interruptions – but on the whole the T5s did a good job I felt, especially at the price.



The sturdy carry-case does more than protect your earpieces when they're not in use. It doubles as a charger, having a battery of its own. It can charge the T5s in a handbag, glove compartment or briefcase. The carry-case battery can be charged from any USB-C source.

KLIPSCH T5 TRUE WIRELESS £175



EXCELLENT - extremely capable.

VERDICT

On the whole, a well thought-out package that brings decent sound to portable devices.

FOR

- detailed, clear and musical overall
- carrying case/charger
- decent sound during voice calls

AGAINST

- awkward button placement
- limited bass output compared to regular 'phones
- tendency to slide out of ears

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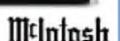
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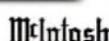


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All in a Jumble

Martin Pipe reports from the October Audiojumble in Kent.

There are two 'red-letter' hi-fi days a year for me – one in February, the other in October. These are the Tonbridge Audiojumbles that have been described, not inaccurately, as "the world's finest hi-fi flea markets". It helps that their Angel Centre venue is very accessible – just off the A21 in Kent, with plenty of free parking and not far from Tonbridge station, should you choose to travel by train. However, the latter could be problematic if you succumb to temptation and end up with more hi-fi bargains than you can carry...

Among said temptations are turntables of every conceivable design, amps (both valve and solid-state), tuners, receivers, reel-to-reel tape recorders, cassette decks, disc players, speakers and accessories galore. You will usually find other goodies including musical instruments, acoustic gramophones, Dansette-type record players, VCRs, ex-broadcast kit, steam-age valved



side of the operation. You'll find music on CD, vinyl and any number of analogue tape formats – compact cassettes, reel-to-reel tapes and 8-track cartridges. I unearthed plenty of 'used media' – Elcasetts (remember those?), Minidiscs, DATs, tape reels and cassettes (among them boxes of very rare ferrichrome C60s). Also

with stylish digital sources and amplification from Northamptonshire manufacturer Veracity.

I noted that stalls were still being populated as the first of the 8.30 'super early-birds' – who pay £20 for the privilege of picking over the wares before anyone else (except maybe other traders) – filed into the halls. However, the majority of visitors opted to come in at 9.30 (paying £12) or 10.30 (£6 entry). I noted a larger-than-usual number of overseas visitors, who were presumably taking advantage of the weak pound and Brexit uncertainty.

Prices vary from cheap-as-chips to exorbitantly-expensive, but that's to be expected at events like this; haggling is always recommended. They tend to drop as time moves on – some items are even given away, as the show begins to wind down in the mid-afternoon. Audiojumble is a friendly and satisfying event, and you're almost guaranteed to find something to your taste.

The next Audiojumble takes place on Sunday 16th February 2020 at the Angel Leisure Centre, Tonbridge, Kent TN9 1SF. www.audiojumble.co.uk Hope to see you there!

**Words: Martin Pipe
Pictures: Martin Pipe and Adrian Caspersz**



'wireless' sets, microphones, car stereo gear, obsolete digital formats like DAT, DCC and Minidisc, ghetto-blasters, personal audio, headphones, mini systems, toys, books and cameras. Most of the electronic and mechanical stuff is working, but some items are in need of attention - or fit for spare parts only. On which subject, you'll also find plenty of electronic components (including boxed valves), test equipment, speaker drive-units and tools.

Then there is the software

spotted were 10.5in reels containing 15ips master recordings.

Most of the stalls hosting this stuff are manned by enthusiasts 'thinning out' their collections – if only to make space for newer acquisitions – and are happy to indulge in a bit of banter. So too are the trade sellers, who make their livings from hi-fi and music. They all manage to fit into two large halls, a corridor and a small room – in which, this time round, Lowther was demonstrating its unique speakers

A trend-setting Aiwa mini system from the late 1970s. Solidly-built, the '22 series' had a 30 Watt p/c amp. Despite a cassette deck that "needed attention" everything else worked impeccably, I was assured - this physically-mint specimen being offered for £200.



The 'Play Bus' from Boss, a company better-known to musicians than hi-fi buffs. A booster that plugs into a player's headphone socket, it featured not only a more potent amplifier and bass/treble tone controls, but a 'sing-along' mike mixer and 'chorus' effect. You could, I guess, use it with smartphones today. This historic artifact would have set you back a tenner.



Who remembers the Brennan JB7? Music from its slot-loading CD transport could be ripped to an internal hard drive of



160GB – sufficient for 2000 CDs in MP3 form. Music was pumped through a 'total 60W RMS' amplifier to matching two-way speakers. The JB7 system originally sold for over £400; this one was being offered for £120.

An Echoplex, used by John Martyn. Inside is a continuous loop of tape wrapped around multiple tape heads. Can you put a price tag on such an iconic piece of hardware? The seller of this one couldn't...



Many of the items here were not collected after estimates for repair were rejected. They were being flogged



off cheaply, and some ended up being given away at the end. At right a Teac open-reel in need of work was quickly snapped up by a trader, for an undisclosed amount...



A Garrard AP76 idler-driven deck built into an orange tinted Perspex plinth. I wonder if the style-conscious 1970s owner of this deck imagined it would end up at a 2019 Audiojumble with a '£120' sticker?

1989-vintage Magneplanar MG-1.4s – shallow oak-framed panels containing a full-range planar driver. Maggies are praised for their openness and transparency. Their downside is inefficiency; potent amplification is a must. But for £200, these well-looked after examples – original US price \$1000 – would have pleased many audiophiles.



During the sixties you could buy albums on 5in. tape reels, recorded in half-track mono at



9.5cm/s. The three examples shown here are a 1962 selection of musical numbers from the Gilbert and Sullivan's comic opera *Pirates of Penzance* (also available as a stereo LP), Stan Kenton's 1961 jazz LP *Climax* and a recording of Beethoven's *Piano Concerto No. 4* as performed by Stephen Bishop and the New Philharmonic Orchestra. They were selling for £4 a piece.

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A Sharp MD-R3, combined 3-disc CD changer and MiniDisc deck, with helpfully-prominent label suggesting that the former can be digitally-dubbed to the latter. The MD-R3 had a mike input for 'MiniDisc karaokists', the full spectrum of MD editing functions and a built-in timer for unattended recording. Several of these were spotted, price being around the £20 mark.



A mono "Sf V 6.6" amplifier, which employs two EL95s in push-pull to deliver five Watts, made by German firm Siemens in the mid-1960s. This was one of a pair requiring attention. £200 was somewhat optimistic, considering that the Sf V 6.6 was actually designed to sit underneath a Siemens 2000 projector – thereby explaining the lack of a top cover.

A Teac A-2340 open-reel with 7in reels and choice of speeds – 9.5 and 19cm/s. This one came with a 'mix-down' panel and manuals, but it needed work. The tape counter was damaged, and the record and playback heads had seen better days. According to the seller, there were electronics issues too. With this in mind, the £100 being demanded seemed fair.



What makes this Sony CCD-V200 low-band 8mm camcorder, circa 1989, so special is that it was the first domestic cam to feature a stereo digital soundtrack. Admittedly primitive by today's standards – 10-bit, companded to 8-bit, with a sampling rate of 32kHz. The CCD-V200 included a decent stereo microphone and manual recording level with metering. This one came as part of a complete 'kit', complete with case, for £40 - a fraction of the original retail price. It needed work, though.



Back in the 1960s and 1970s some entrepreneurs marketed pre-built cabinets to house kit speakers from KEF and Wharfedale. With these the Audiojumble seller was praying that goths might be in attendance. "Offers, please!"



The Technics SP10 direct-drive turntable. According to the seller, a BBC employee acquired it on retirement for the basis of a digital transcription operation. The selection and arrangement of controls reflect its professional heritage. The extra-long tonearm, a homebrew effort, was included for a very reasonable £300.

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Let's Twist Again

Jon Myles is thrilled by Black Rhodium's new Twist Bi-Wire cables.



Bi-wiring suitable loudspeakers (those with four terminals at the rear) is one of those issues that seems to divide hi-fi enthusiasts. Some say it makes a difference others dismiss it as a gimmick to help manufacturers sell more product.

However my view is that if the loudspeaker has that option, why not try it? I've frequently found those metal jumpers that connect the four terminals when single-wired are inferior to the use of dedicated wire jumper leads when it comes to sound quality.

Yes, bi-wiring costs more as extra cable is required, but often the sonic benefits outweigh the costs. Actual empirical evidence is scant on the subject but Q Acoustics has an excellent article on its website (www.qacoustics.co.uk/blog/2016/06/08/bi-wiring-speakers-exploration-benefits).

So to the Twist Bi-Wire Classics from Black Rhodium.

Construction-wise the Black Rhodiums use double-thickness insulation which increases the distance between current carrying conductors, reducing the strength of the magnetic field that each conductor imposes on the other.

Twist Bi-Wire Classic uses two

lengths of twist cable per channel, one for the high frequencies and one for the low frequencies.

The cable is terminated with gold plated Z plugs that Black Rhodium say have been chosen for their highly musical sound.

But, as ever, it's the listener's ears that matter so I decided to try out Black Rhodium's new Twist Bi-Wire Classics with a pair of the company's popular single run Twists on a pair of Wharfedale Denton standmount loudspeakers. Make no mistake, the ordinary Twists is an impressive cable that can stand comparison with cables costing a good deal more but could their bi-wire brethren surpass them with the Wharfedales, fed by a Creek Evolution 100A integrated amplifier?

SOUND QUALITY

After a good listen to the Wharfedale Dentons in single-wired mode I removed the links and substituted the cables with the Black Rhodium bi-wire Twists.

They are directional, with the correct alignments clearly marked on the cables. I'm always dubious about directionality in cables – but if it's

recommended then go for it.

So having swapped around the cables in the correct manner I started off with Miles Davis's classic 'Kind Of Blue'. It didn't take long to hear the difference. Miles Davis' trumpet had a more natural timbre to it with Jimmy Cobb's drums and Paul Chamber's bass being deeper and more realistic.

The bi-wires undoubtedly brought more separation between the instruments but didn't degrade the impression of a band playing live in the studio.

There was also a greater sense of scale. On Holsts 'The Planets' the music sounded bigger and more forceful – but with no lack of delicacy when needed. The overall impression was that I was hearing more of the music than with the single wire option.

If you are sceptical about bi-wiring then I'd recommend taking a listen to these cables. I think you'll be pleasantly surprised and they could make a significant difference to your system.

CONCLUSION

A well-built set of bi-wire cables at a sensible price that bring solid sonic benefits. Worth hearing.

BLACK RHODIUM
£480 FOR 3 METRE
PAIR



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT

Excellent bi-wire cable that will pay dividends with suitable loudspeakers. Recommended.

FOR

- sound quality
- construction
- design
- ease of use

AGAINST

- dearer than a single run of cable

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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 Sodek 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
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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.



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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.



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CARTRIDGES

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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 £945
Highly finished Swiss moving coil that plays music with riflebolt 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 phono stage 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 phono stage 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 phono stage 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 forcefully 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 MKII £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 8200CDQ £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.

ELECTROCOMPANET 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 converter with great sound at a great price. Cuts upper treble, though.

NAIM DAC £2,400

Superb high-end digital converter 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.

LOT00 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 HD700 £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.



WAX

Live in Concert 1987
Esoteric

'Building a Bridge to Your Heart' anyone? With that classic

false count-in. A big, big 1987 hit for this outfit – not so much a super-group as a super duo.

That duo was singer-songwriter, Andrew Gold (a man who had a number of chart hits in the seventies) and ex-10cc man, Graham Gouldman.

It was 1986 that the duo released their debut LP, 'Magnetic Heaven', which featured the single 'Right Between the Eyes'. Then in 1987, 'American English' was released which featured the 'Building a Bridge to Your Heart' single. Finally, in 1989, the duo released 'A Hundred Thousand in Fresh Notes'. After that, Gold moved towards a singer/songwriter collaboration in Bryndle, whilst Gouldman took a liking to the proposed reunion with his 10cc chums.

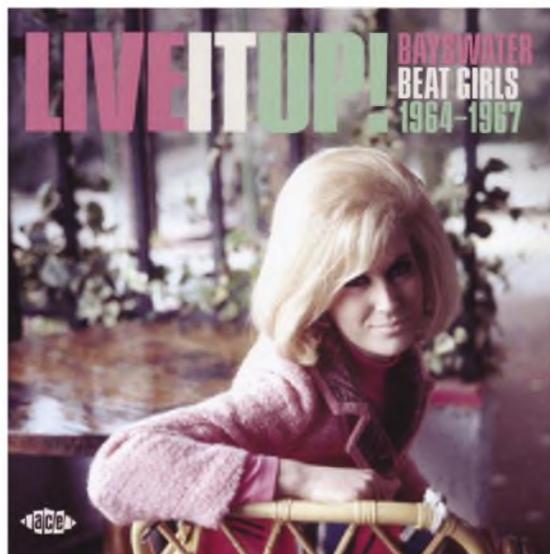
What Esoteric has here

is a three-disc multi-gatefold release of a previously unreleased concert, recorded in Harrogate in November 1987. Two CDs and a DVD of the entire concert.

Also on board was Rick Fenn (lead guitar, vocals), Roger Jackson (keyboards) and Mike Richardson (drums). The set performed that evening featured the hit 'Bridge to Your Heart', alongside classics such as 'Never Let Her Slip Away', 'Thank You for Being a Friend' and 'Lonely Boy' by Andrew Gold, and Graham Gouldman's 'Bus Stop' and 'For Your Love', plus the 10CC track 'Dreadlock Holiday'.

For a live presentation this set sounds rich and mature in the midrange with a wide and spacious soundstage. Bass is strong and powerful too. Yes, there are anomalies here and there as the concert space sometimes plays sonic tricks but this set is situated high up the sound quality ladder. In short? Your ears should have a whale of time with this live set.

AUDIOPHILE CD



LIVE IT UP!

Bayswater Beat Girls 1964-1967
Ace

We're looking at a compilation of British girl singers here – but not any

old British girl singers. This collection of twenty-five tracks is quite targeted. Specifically, it's targeted at Stanhope House in Stanhope Place, Bayswater, London, W2. That was the UK head office for Philips. Not only Philips, but its imprints Fontana and Mercury.

Philips focused its attention on the ladies when Dusty Springfield began to hit the charts on a regular basis. So she was joined by the likes of Sharon Tandy, Madeline Bell, Kiki Dee, The Kaye Sisters and – would you believe it – Diana Dors!

Philips' location was quite useful for the London-based artists. Dusty, for example had a very pleasant twenty minute stroll to the offices. Kiki Dee, who had just left her job behind the counter in the Bradford chemists,

Boots, had a rather more arduous motorway haul with her dad at the wheel.

It's intriguing that Dusty had audiophile pretensions. She knew her voice and knew the sound she was after. For example, while she recorded on Philips, she rarely utilised the in-house studios, describing the sound there as "dead". So she recorded 'I Only Want to Be With You' at the Olympic Studios in Carlton Street.

This compilation offers a sparkling array of tracks including Jenny Wren's 'The Thought of You', Ayshea's 'Eeny Meeny' and Millie's 'My Street'.

The mastering here is controlled, disciplined and restrained. The upper frequencies offer a wealth of detail and interest to the ear but are not allowed to break away. With mono the soundstage remains compact, neat, tidy and well packaged. Bass is slightly restrained but still present.

While I'm on the subject of addresses, this label was situated in 5810 South Normandie in Los Angeles, next to the clubs of South Central Los Angeles and not far from the black neighbourhoods of Compton and Watts. This second compilation in the series features a host of principally blues-oriented music. At least, the music moves off in that direction. So you're talking about Lowell Fulson, Larry Davis, Al King and Arthur K Adams with soul singers added (e.g. Clay Hammond and Vernon Garrett).

The first and last tracks on the CD are from Chuck Walker (I'll Be Standing Up/Peace of Mind). That is "the unknown Chuck Walker" as Kent has it. It's intriguing in this day and age, where information is so prevalent, that such a singer would have fallen down the cracks in such a way. I do know that this particular

single is priced in excess of £100 on Discogs. He's joined on the songs by Bobby McVay...no-one knows anything about him either! Nevertheless, it's nice to know that Kent makes him live on this CD.

It's also intriguing to see a rare Kent gospel track here via BPS Revolution, an all-girl group backed by Sylvester C 'Duke' Henderson. The track is interesting because there's no lead vocal, only harmonies.

The mastering adds to the atmospheric delivery of the music as it provides a sense of depth and imagery. So, on the rare Chuck Walker single I mentioned above, the Hammond organ provides an almost haunting backdrop to the entire track, providing a measurable distance between it and the vocal. This is a compilation, so the mastering varies depending on the source but, in general terms, the results are delightful.



LOS ANGELES SOUL

Kent-Modern's Black Music Legacy 1963-1972
Kent

AUDIOPHILE CD

Goodness, this man had a tough life. Abandoned by his parents when he was no age at all, having to work instead of going to school, losing fingers in a sawmill accident and more.

You could say that his tenure as a performing artist had been less than successful. He himself, in country terms, could be viewed as a cult artist. And country? Yes, he was one of the hell raisers, was Shaver.

It fell to other artists to lift his work to heady commercial heights. That meant Waylon Jennings, Johnny Cash, Bobby Bare, Kris Kristofferson, Tom T. Hall and Elvis himself.

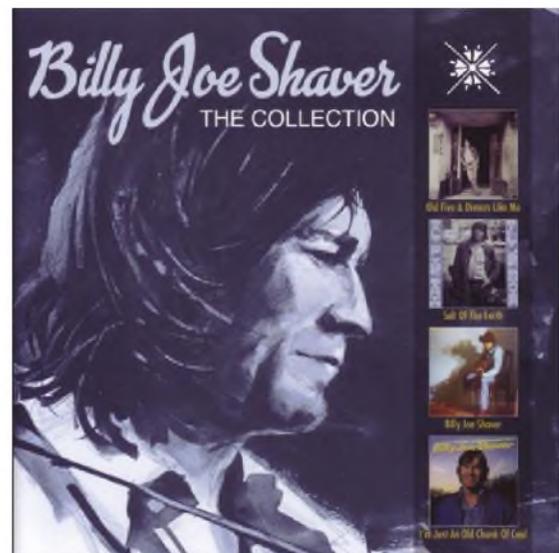
This two CD collection includes 1973's 'Old Five And Dimers Like Me' and the three Columbia albums 'Salt Of The Earth' (1987), 'Billy Joe Shaver' (1982), and 'I'm Just An Old Chunk Of Coal'

(1981). The collection is a niche one.

In terms of labelling, the music has been organised in a slightly disrespectful manner. It's been shovelled onto the two CDs without any sense of what tracks go with what album (there's tiny LP covers on the CD booklet but that's it).

Music veteran Alan Robinson has written the notes for this release and he's done a great job, thankfully. I rarely talk about liner notes in these reviews, partly because most of them are bland and less than revealing, but there's some insight into the mind of Shaver here, his private life and how he operated.

Mastering is bold, confident and strong – with no offensive compression or excessive peak limiting to spoil the enjoyment. The soundstage is a little flat but instrumental separation is admirable, adding space and detail.



BILLY JOE SHAVER

The Collection
Floating World

Bring all your music to life

ALTAIR G1 DIGITAL AUDIO STREAMING DAC

As a premium digital hub for any high performance audio system, the new Altair G1 Digital Audio Streamer operates as a DAC, pre-amplifier and an all-in-one digital source with optional integrated music storage. Built in to the substantial G1 chassis with colour display, and incorporating the new ESS 9038Q2M digital to analogue convertor, Altair G1 delivers high resolution audio from all music formats and incredible value for money.



Built around the idea that true hifi should be accessible to everyone, **AURALIC** today enjoys a worldwide reputation for producing innovative digital and analogue components of the highest quality.

We build devices which further the exploration of digital streaming and discovery of new music. Combining progressive technologies that deliver on the promise of modern digital formats with premium analogue circuitry and hardware rooted in classic designs, **AURALIC** is always creating new ways to bring all your music to life.

For your nearest authorised dealer please visit auralic.com

AURALIC PRESS AWARDS



"I decided I had better ways of spending my future years so gave up"



Noel Keywood

Volume controls are just biologically simple – and all the better for it. Twist a knob clockwise and the sound gets louder, then back again and it gets softer. Who can't understand that!

Trouble is sneaky new ways of going louder and softer have come to challenge us: remote control buttons, then images of them on phones or tablets. Reach for the phone, turn it on and hope no-one tries to call, or run around to find the iPad – before you can adjust volume. Clever in technological terms, not so clever in any other way.

I never thought I'd write about volume controls, but funnily enough, they are fascinating. Or, in my case, frustrating, because I cannot design the volume control I want to design for a pet audio project – more later. Point being that volume controls can get very complicated, far more so than they have any right to be.

You see, the thing is, your actual, original biologically appropriate control – the one we all twist blithely without thinking about it – goes back so far in the history of electronics it ranks alongside the valve as a seminal archaic device. That means back to the 1940s or perhaps earlier for the rotary type we twist today, and still encounter as a specialised audiophile item in the Alps Blue Velvet, for example. If you want to get serious about the history thing, the need to vary resistance goes back to rheostats in the 19th Century and Mr Ohm, who raised the subject in the first place.

The great thing about the manual volume control is it's simple. A slider attached to the shaft runs around a carbon coated track. That's how the Alps control works today, plus many others such as Audio Note, Meggit, Tocos and Noble, all purposed for

high quality audio work. Simple but very effective, they use large tracks for long life and fine resolution.

Having to get up close to your hi-fi to change volume can be a pain, especially when it's just for a few moments to hear someone shouting "turn the volume down". And it was this need that surely brought us the remote control. This is where the modern world started to intrude and things got imperfect.

It was the late 1980s when Philips introduced their now popular RC5 remote control system (the Japanese use an NEC system) and the picture changed. Volume was now adjusted by a silicon chip that could be voltage controlled, introducing noise, distortion and overload.

Then there is the digital volume control. In hi-fi products it is usually – and conveniently – incorporated into the DAC chip so audio manufacturers don't have to worry about volume control. However, volume must now be adjusted by a control signal, meaning by buttons, but a rotary encoder can be used to resurrect the volume control knob. Underlining the fact that control of volume is crucial and that humans find it biologically accessible with something they can physically twist, fast or slow or to a specific point for suitable volume. You don't get this with buttons.

In an analogue system however, like an amplifier, inserting a digital volume control would mean converting analogue to digital with an ADC – and at present these are noisy and distort, so unacceptable. Why consider doing this? To get remote control of volume.

The alternative is brought to us courtesy of Alps, who offer remote control of volume by motorising the good old Alps Blue potentiometer. And it's quite popular with smaller manufacturers, being simple

to implement. Old analogue versus modern digital!

But if you want to alter volume on a fully balanced amplifier you then need four of them – and this is a big no-no. At this point volume controls get serious, such as a four-bank rotary switch that switches resistors – large, very expensive and of limited resolution.

The only volume control that solves all problems is the one that defeated me, a switched resistor network. They are now beginning to appear in commercial amplifiers, like Quad's Artera PRE I review this month. The give away is a flurry of clicking noises when volume is adjusted. It comes from myriads of small, sealed, long-life, high speed relays.

These networks add no noise or distortion, do not suffer overload and the whole shebang can be remote controlled. Four banks can be used in a fully balanced stereo amplifier and the inter-channel tracking will be perfect. Trouble is, last time I looked a few years ago, it was necessary to programme up a microprocessor to do this job – easy when you know how. I decided I had better ways of spending my future years and gave up. Others fit balanced inputs and outputs to an unbalanced amplifier to get around this problem, which is cheating.

So altering volume can be as simple or complex as manufacturers want to make it. And some of what we have to suffer is as much about keeping the bill-of-materials down as anything else. Altering volume isn't easy any more.

The old way of doing it is superb, but creeping up is the switched resistor network that's a worthy successor. It too can be controlled by a knob you can twiddle, so our biological relationship with the volume control is not dead yet. ●

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"Yes products will continue to spew forth for a very long time"



Paul Rigby

Sometimes, a band can spawn an entire ecosystem, all of its own. Such bands come around rarely. Partly because the band has to have had a long shelf life. Also – and this is pretty important – the band members really need to have suffered a bit in terms of strife and interpersonal relationships. So I'm not talking about relatively settled outfits such as The Beatles or The Rolling Stones. They may have squabbled – but not much more than that.

One of the examples I have in my head here is the prog rock outfit, Yes. Most people would say that the band was formed, almost out of the blue, in 1968 but its root-level history goes back even further, where core band members were part of other groups. Until... well, until they all landed in one convenient place. A place that is often ignored in Yes band histories.

I remember speaking to the drummer for the sixties psychedelic/prog outfit, Mabel Greer's Toyshop (MGT), Robert Hagger. He described how his short-lived rock group, that existed between 1967-68, became the petri dish for the formation of Yes. From my side of the fence, I'd say that MGT was almost invaded and assimilated.

Later band members would include Chris Squire, Peter Banks, Jon Anderson, Bill Bruford and Tony Kaye. Then they, almost cuckoo-like, transformed and converted MGT into Yes. Somewhere around 1970 it began. The line-up changes.

Later, it would be the arguments, the side projects, the reunions, the splits, more line-up changes, then ex-members forming their own bands, sometimes with other ex-members of Yes, then

ex-members of Yes going into production and on and on.

The fall-out of this is that fans of Yes are faced with a tremendous financial strain. Why? Because if you're the sort of fan who sees themselves as a completist, that is, you buy everything from one particular group and everything associated with that group, then you're in big trouble with a band like Yes.

A Beatles fan thinks he has it tough with the group's entire output and then the solo works from each band member, but with a band like Yes, the strain tells. And it continues to do so, right up to today. There's the band's studio albums, which feature different eras as the line-up altered so often – and there's the solo works. Because the band has had something like fifteen band members – each one a creative force on their own – there is an awful lot of solo creativity to track down.

Then you get Yes-esque projects thrown into the mix appearing such as CIRCA, a band created by two ex-members of Yes, Billy Sherwood and Tony Kaye. Then you get older bands like MGT reissuing old albums and making new albums, members of Yes dragging up their ancient history like Chris Squire's original band, The Syn. And on and on.

I was reminded of this ongoing problem (it's a nice problem for the fan, I know, but it's also a wallet-busting problem, nevertheless) when just one jiffy bag that popped through my letter box revealed The Steve Howe Trio's 'New Frontier' (Esoteric). This is a brand new album from the venerable performer and Yes guitarist (a man so old that his son is on the drums!).

But there's more to this jazz/fusion outing because three of the songs were written by original Yes drummer, Bill Bruford. Drenched in Yes, that's what it is.

More. From the same label I found Mainhorse. A self-titled piece and the one and only album from these heavy rockers. Sometimes seen as a prog outfit, the sound is a bit more Atomic Rooster, to be honest. Quite apart from the style, who's that on keyboards? Why it's Patrick Moraz who is, that's right, ex-Yes!

And a third? Well, why not. The Esoteric label were on a roll when they sent me a CD by a band called Wally. 'Martyrs and Cowboys' is more of an anthology of their Atlantic years around 1974-1975. They mixed prog rock with country. Quite a feat from a bunch of lads from Yorkshire. But who was that in the producer's chair? Rick Wakeman late of – you guessed it – Yes!

They're everywhere and no mistake. It's logical, of course, the more people who come into contact with any band, the greater will be the band's influence on the industry as those band members leave or take a holiday from the core group to venture forth elsewhere.

And now? Well, the picture is even more complicated because those same rumbling emotions alluded to above have cracked with volcanic force: the original band has fractured into two pieces with Jon Anderson performing with Rick Wakeman and Trevor Rabin. An offshoot Vinyl/CD/DVD live album resulted.

Do you think that will be end of it? Not on your nelly! Yes-related products will continue to spew forth for a very long time to come. Yes fans, get saving. ●

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“Who’d have thought Liam Gallagher would have trumped Noel?”



Jon Myles

Whenever a band or song writing partnership go their separate ways I - and am sure many others - speculate which of the members will emerge with most success in the future.

Look at Take That, for example. When Robbie Williams left it seemed one of the most self-destructive moves ever. Yet his former band mates have now been reduced to staging little short of tribute concerts while Williams is a truly international superstar still churning out hit after hit – and looking very happy doing it.

With The Beatles my money was on John Lennon who churned out classic songs such as ‘Instant Karma’, ‘Give Peace A Chance’, ‘Happy Christmas, War Is Over’ and ‘Imagine’ while his erstwhile partner Paul McCartney came up with tosh such as ‘Mull of Kintyre’ and ‘The Frog Chorus’.

Yet, notwithstanding Lennon’s tragic murder, his genius song writing had all but dried up by then while McCartney has gone on to produce some classic songs, even though he relies heavily on some old Beatles classics in his live shows.

As for Simon And Garfunkel – the former brought out ‘Graceland’, the latter, well – er – ‘Bright Eyes’ for the film ‘Watership Down’. I’m sure he’s written more but for the life of me I cannot remember what they were or how they sounded.

Sonny And Cher? Well, we all know about Cher but I defy you to give me a précis of Sonny’s career since they acrimoniously split. And how about U2? If they did ever split up the obvious solo star would be Bono, but The Edge would make a pretty handy session guitarist – after all that’s how Led Zeppelin’s Jimmy Page started out in the music

business in the first place.

Then take The Clash with their Joe Strummer/Mick Jones song writing axis. When Jones left I was convinced he was headed for obscurity while The Clash would go on to only cement their legendary status. Instead Jones formed Big Audio Dynamite and produced two ground breaking albums in the shape of ‘This Is Big Audio Dynamite’ and ‘No. 10 Upping Street’ which fused a series of musical styles to devastating effect and laid the groundwork for much of the cross-genre music we hear today. In fact, it’s fair to say Big Audio Dynamite were way ahead of their time in terms of style and sound.

The Clash, by contrast, recruited some new members, became a bit of a parody of themselves and finally jacked it all in as a bad job.

Then we have New Order. The band’s songs were underpinned by Peter Hook’s thundering bass lines which descended with a thrilling hit-you-in-the-stomach power via good loudspeakers. Yet he left and the band goes on with a not as charismatic bass player but still turning out some decent albums and providing a quite thrilling live experience.

Of course it can work the other way around. A band member leaves and another steps forward to become the star. Peter Gabriel (he of the silly costumes and rather obscure lyrics) left Genesis and Phil Collins stepped forward (or more sat forward as he’s a drummer) to become the feted front man and help them sell millions of records and sell out stadiums across the world.

Which finally brings me to one of the stranger bets on the split band member to make it big – namely the Oasis brothers Liam and Noel Gallagher. Noel is, of course,

widely seen as the creative, song writing lynch pin of the Manchester band – the one destined for success when the band split.

Admittedly, he’s not been short of success recently – and rightly so as he still has an innate ability to write memorable, hummable songs.

But..but..but. It’s Liam Gallagher who has just scored his second No 1 album in a feat that he has – in typical understated fashion quoted as ‘biblical’ – with his album ‘Why Me? Why Not’. It fended off competition from rock group Keane who were widely tipped to come out top in the sales charts.

‘Why Me? Why Not’ has already sold more than 68,000 copies including 17,000 on vinyl. That makes it the fastest-selling vinyl album of 2019 and perhaps gives us another example of the continuing vinyl revival as most of those buyers will be drawn from the younger age group.

Very few people – including myself – would have predicted such an outcome when Oasis split all those years ago. And I suspect Liam is enjoying lording it over his brother Noel over those sales figures. Who’d have thought Liam Gallagher would have trumped Noel?

But last, leave all that for the moment and look forward. Kiss are on their final tour – so who’ll make the best go of going solo from them? Say The Who split – Roger Daltrey or Pete Townshend? The Eagles? The Rolling Stones? Primal Scream? Blondie? (Pretty easy - it’ll be Debbie Harry!).

And then, of course, there’s Chas And Dave. I’d wager it will be Chas – so the chances are we’re going to see Dave become the big international star. Good luck to him too in that venture and I hope Chas takes it well. ●

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"I use Audacity to remove vinyl's 'clicks' and 'pops' "



Martin Pipe

The past few months have seen me having a clear-out. I have unearthed various LPs and singles – old friends, with which re-acquaintance was long overdue. However, time is at a premium – sitting down and engaging with music on vinyl has its definite rewards, but these days a rare pleasure (four hours of daily commuting have something to do with that). Digital playback has many critics, but it's a lot less hassle and, unlike vinyl, you can take it on the move. I'm not the only one to suffer from time-poverty...

The most sensible way of enjoying these records – some of which haven't yet been released in a commercially-available digital format, or if they were the transfer was mediocre – is to digitise them myself. The result can be transferred to the memory card of a personal player or stored on a NAS for playback via networked audio devices like the Cambridge CXN.

Keeping your music on a NAS is useful in another practical regard. It isn't unknown for music fans to store their music libraries on work PCs – a practice that, understandably, employers don't appreciate. However, if you use broadband Internet to access your own NAS, then your boss need have no cause for concern.

Making this possible are applications from NAS manufacturers like Synology. The latter offers a clever web-based service called 'My Connect', which enables you to connect to your NAS from anywhere in the world using any device running a standard browser. You can then engage the NAS 'DS Audio' app (also available for Android or iOS platforms) to play your music. Depending on your

connection and broadband upload speed, even hi-res FLACs play without glitches.

I plug a Furutech/ADL AI USB DAC/headphone amplifier into my PC whenever a spot of musical diversion is required. This battery-powered beauty drives whatever cans happen to be around. That way, I can play at work the same tracks I can enjoy at home.

Obviously, they must be digital files. To bring vinyl into streamable form, digitisation is necessary. You can buy USB turntables or phono stages with inbuilt USB hardware (the aforementioned Furutech makes good hi-res examples, while the ART Phono Plus does a good, albeit CD-resolution job if you're on a tight budget), but I lashed together my own solution.

A Project Phono Box S2 Ultra phono stage feeds analogue line-level signals to a Meridian MPMx 221. Basically the device converts these into 24/96 digital form, which is available on a S/PDIF coaxial output. The final part of the chain is an M-Audio Microtrack 24/96 portable hi-res digital recorder, which will capture from digital sources like the Meridian as well as analogue ones. Recordings are stored as WAV files on FAT32-formatted CompactFlash cards that can be read by my PC. I can't monitor ongoing recordings from digital sources via the Microtrack's headphone socket – although its input meters register a valid source. A simple passive-splitter therefore drives the Meridian and an A.N.T. headphone amplifier simultaneously, for cueing purposes.

Playing records are two turntables, a Linn LP12/Basik Plus/Ortofon 540 for LPs, and a Technics SL1210 Mk3 with Audio Technica AT-440MLb for singles. The Meridian features no level adjustment, so I

set the gain of the phono stage to give me sufficient headroom – even with heavily-modulated 12in. singles. 24-bit recording yields plenty of resolution and dynamic range, ensuring minimal loss even after making volume changes in software – in my case, the ever-versatile Audacity.

I also use Audacity to remove vinyl's 'clicks' and 'pops' by zooming into the waveform to delete the worst offenders manually; they are of very short duration and their removal does not impact music quality to any noticeable degree. Pspatial's excellent 'Stereo Lab' Mac software, featured here a couple of issues ago, can find and eliminate scratches automatically – and with surprising effectiveness.

I don't have a mono cartridge, but I do have mono LPs – among them 1960s issues of the classic Beatles albums Revolver, Rubber Soul and Sergeant Pepper. Purists will scoff but I use Audacity to sum the two captured channels and export the result to a mono FLAC file. There's an improvement in signal-to-noise ratio as some of the audible noise cancels out, and musically the results are acceptable.

Although I capture and edit in 24/96 WAV, I export to 24/48 FLAC. Courtesy of Audacity's frequency-analysis tool, I can confirm that there's nothing useful above 20kHz, making the higher sampling rate wasteful and NAS streaming potentially less reliable. So like the BBC Radio 3 for example, who use 24/48 internally, I keep data rate down and quality up through this choice, because bit depth is more important than sample rate. Halving sample rate from 96kHz to 48kHz also halves data rate and file size and sonically I am happy with it. Now I can access my old LPs and singles once again. ●



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"Renovating these 'speakers was less than £60 of parts"



Dave Tutt

One of those speakers that, in the mid 70's was probably at the forefront of hi-fi, came my way recently. I don't know if you remember the KEF Concerto 'speaker and the kit version that appeared at the same time, but hopefully you will know the sort of thing I am writing about. The B139 bass, B110 midrange and T27 tweeter were popular not only directly from KEF but there were also versions using the same drivers by several other manufacturers.

The ones gracing the workshop this week were one of the kit 'speakers, but the cabinets had been well made from 25mm ply and then covered in Formica. Looking at this combination of materials I would have to say that, living near an ex Royal Navy dock yard (Chatham), this would have been the source of the timber. The open grain ply, likely to have been shuttering or perhaps structural timber, was likely MOD and professionally cut in a machine shop to make expert butt joints.

The surface of this ply was flaking as I cut out an opening for a connection plate – so it wasn't made for furniture use except where it could be covered by a hard wearing smooth mica finish. If you have been on any Navy ship you would know the sort of thing.

These tweeters were unreliable and intermittent and the T27 isn't exactly a nice sound to my ears – and all those years under their belt hadn't helped. With the B110 being set far too high in level in this DIY assembly the sound was not what I would call KEF – let alone hi-fi.

Dropping the mid level at the crossover with a single resistor was enough to tame the sound. By the way, the single resistor solution only works if its value is less than

6 ohms. Anything greater you can make the sound uncontrolled in the mids which results in a harder sound across the driver range. That is mostly due to the lack of damping effect of the amp, even though the driver is connected via a cross over.

If you need more attenuation then either an L-pad control or a potential divider is necessary which puts back the damping.

The T27 tweeter replacements were a pair of very cheap but great sounding MCM 53-1080 soft dome types which are the same chassis diameter as the T27 – but more robust.

The power needed to drive these speakers is rather more than you would expect. Most speakers, as they get larger tend to be louder for a given power input but these are in need around 60 Watts where others of a similar size are happy with half that.

Part of this was down to the old B139 that isn't a particularly powerful – and of course the whole output of the speaker centres around the bass driver, around which you have to adjust the levels of the other drivers.

Modern 8-10 inch drivers for bass are inevitably superior. As an example, the Peerless Tymphony 6.5 inch is much more efficient.

I wonder how the new versions of the B139 driver perform, probably far better – but they are expensive enough to buy ten of the Peerless, so value for money comes into question.

I guess the old B139 in these Concertos is sitting on 40 years of age whilst a modern replacement driver, be it a B139 shape or any other driver, has all those years of development in loudspeakers to show off the advances that have been made.

I added in a few new capacitors

to the crossovers and things were looking up.

Grill cloth had been nailed on with thirty 15mm tacks per cabinet so looked like an afterthought to cover up the drivers.

These kit 'speakers were not mirrored pairs and with either grilles on or off there was little in the way of stereo image depth, although there was some width.

Depth can be a complex issue to fix on old boxes. Little things like driver placement, how they are mounted on the baffle, how recessed, how close to the corners etc and where they are sat in a room and if they are on the floor or on stands all have an effect and were an issue here.

Without making new baffles it was unlikely anything could be done about it. The baffle is a classic KEF kit layout, slightly recessed into the cabinet edges. New and properly fitted grilles were unlikely to make much difference to that aspect of the sound. All the same, I made new grilles from MDF cut as frames with the new grille cloth stretched, stapled and glued in place.

So, the cost of renovating these 'speakers was less than £60 of parts including tweeters, new grilles, resistors, terminals and connection plates – but quite a bit of time and effort.

But do they sound better? Given the age and my reservations about the bass driver, drive them reasonably hard and some quite good sounds come out – but better with classical than full on rock. The bass does go low, as befits the low resonance driver and its porting. The treble is now smoother with less bite but more detail, complementing the mids nicely as the integration is much cleaner. Ultimately good for another 25 years I think. ●

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Nuclear Reactor

French company Devialet has shrunk its Phantom series loudspeakers with the launch of the Reactor. But it's as potent as ever, says Jon Myles.



Most loudspeakers follow the conventional pattern of drive units in a wooden cabinet (either square or slightly curved), usually with a port to enhance bass, or just sometimes a sealed box 'infinite baffle' design with no port.

When French company Devialet launched the revolutionary all-in-one active Phantom 'speaker in 2015 that pattern was discarded. Frankly, it looked like nothing that had gone before and even now nothing that has come since.

Shape-wise it resembled an elongated egg turned on its side. At

the front was a snowflake-shaped grille which isn't there just for decoration (more of which later).

At the sides were two bass drivers covered by round white covers. More interestingly the Phantom could be used as a single mono unit or paired with another to produce a stereo soundstage.

The only drawback was that this arrangement would set you back over £4000 – a not insignificant sum.

Since the launch of the original Phantom there's been a slew of different models – Classic, Silver, Gold and even an Opéra De Paris. But they've all remained the same size, differing mainly in power output.

Now, however, comes the Phantom Reactor – available in two models, the 600 and the 900 on review here. Measuring 16.8cm in height and 21.9cm deep it looks exactly like its larger brethren but is smaller and has less power. That said it still has 900 Watts of power on board – more than enough to fill a medium-sized room with sound and, with two paired together, capable of taking on even larger spaces.

That power comes from Devialet's

Although small the Phantom 900 weighs in at a hefty 4.3kg thanks to a glass fibre-filled polycarbonate interior, aluminium core and the stainless steel white exterior. Despite such build complexity it will fit in the palm of your hand so moving the Reactor around is easy.

At the top of the unit are touch controls for volume, pause and Bluetooth pairing but – as ever nowadays – there's also a dedicated Devialet app for both iOS and Android to make things easier.

At the front – behind that attractively-shaped grille – is a full range driver that handles the mid to high frequencies. The grille is not just an aesthetic adornment – it's been designed to disperse the sound as widely as possible so if just one Reactor is being used you get breadth



The top of the unit includes touch controls for volume, Bluetooth pairing and pause/play.

with the bass superbly controlled horizontally.

That's a credit to just how well-engineered and constructed the cabinet is, plus its weight. And, once you get used to it, there's something quite fascinating about seeing the sides pumping frantically in and out.



proprietary ADH (Analogue Digital Hybrid) technology where a small Class A amplifier is connected to the loudspeaker's output while a parallel Class D stage provides the necessary grunt.

Some reviewers have compared the topology to Quad's current dumping technology, devised by founder Peter Walker, but it's rather more sophisticated than that.

Inside is a DAC capable of handling file sizes of up to 24bit/192kHz while connectivity includes UPnP, Bluetooth, Apple AirPlay, Spotify Connect, plus digital optical and analogue inputs.

of sound.

But it's the bass response that really marks out the Phantom for such a relatively small loudspeaker. Devialet claim a low-end of 18Hz – something not many tracks actually contain (see our Measured Performance for the definitive figures).

Turn the volume up with anything containing low-end clout and their hemispherical side panels vibrate prodigiously. In fact on first use it can seem rather alarming, as though they are going to shake the whole 'speaker apart. But walk over and put your hand on top of the unit and there's no rattle or shake. It feels rock solid

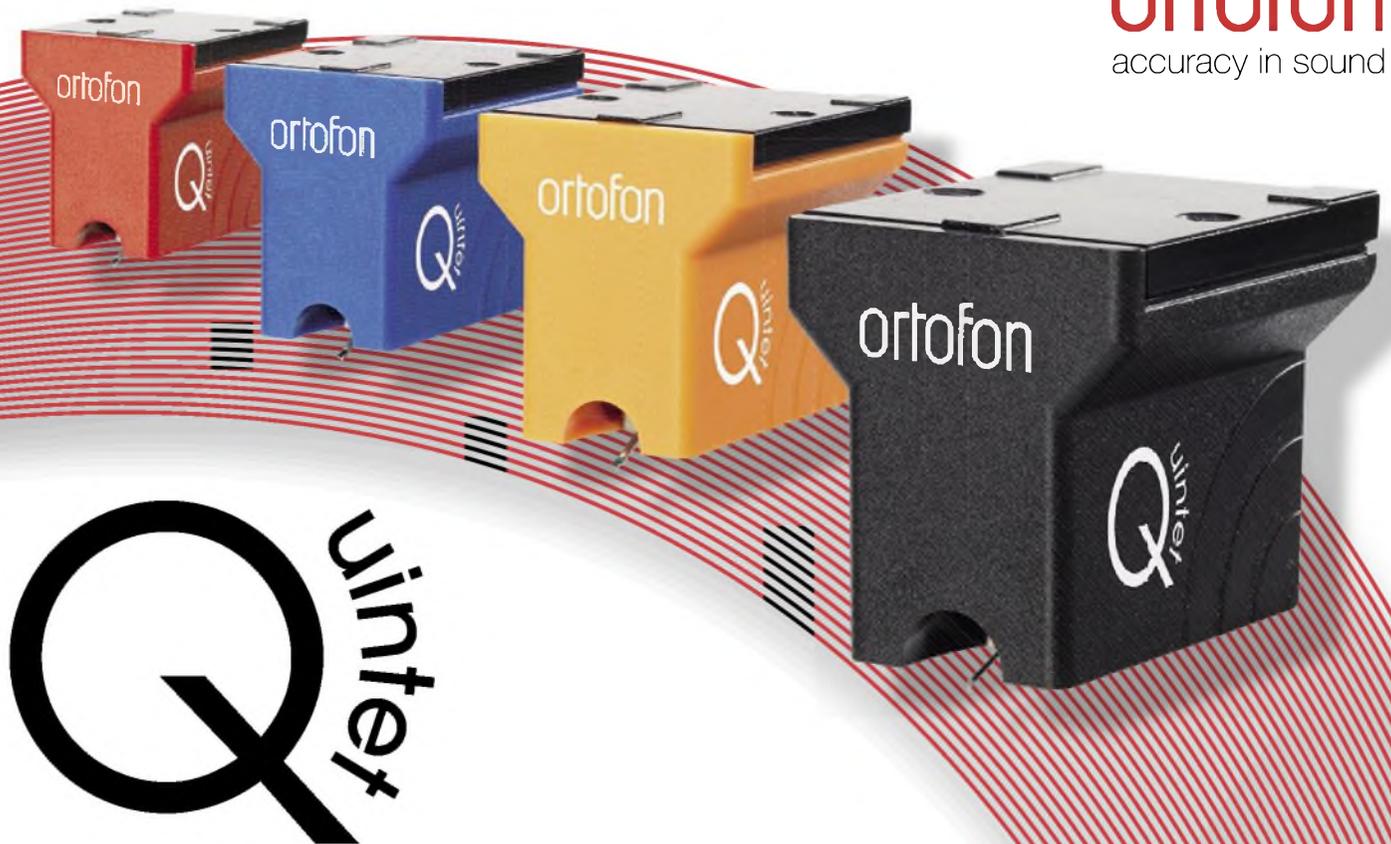
So, space age looks, compact dimensions and some clever technology are all rolled into one with the Devialet Phantom Reactor. But all that counts for nothing unless its sound quality matches those attributes.

SOUND QUALITY

I started out using a single Reactor placed centrally in the Hi-Fi World listening room on a dedicated loudspeaker stand.

King Tubby's 'Dub Fever' – which is not shy of bass – had more low-end power than I've heard from any similarly sized loudspeaker. In fact the Phantom brought out all of the lower

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accuracy in sound

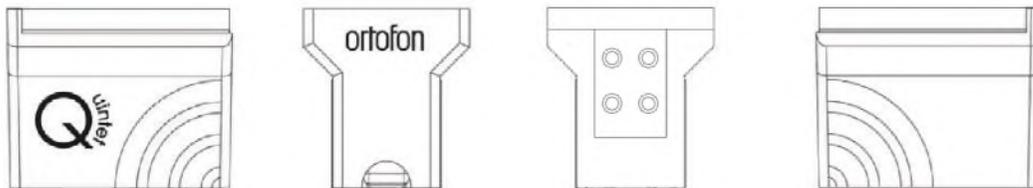


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Quintet cartridge design



Quintet Black S
May 2014



Quintet Blue
December 2014



Quintet Black S
July 2017



Quintet Blue
July 2019



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octaves in a balanced, controlled way. But it wasn't just a thumping bass-fest, more a controlled, nuanced sound. The high-frequency beeps on some tracks also made me sit up as they appeared from seemingly nowhere and then disappeared just as quickly.

Their front driver does a good job of projecting mid and high frequencies into the room. Also, bass was neither slow nor sluggish, always keeping excellent timing without descending into uncontrolled distortion that can rob a track of focus, speed and power. I came to the conclusion I could happily use this 'speaker' in a medium-sized room without any qualms.

That said, good as it sounds with a Reactor on its own there's no true stereo effect on offer. For some that might not be a problem depending how and where they want to use the Reactor, because high quality mono has its own merits. But pairing two Reactors for stereo brought a huge leap in sound quality, as you might expect.

The Devialet app allows you to designate one as the left channel and one as the right. Being wireless no physical connection is needed – simply plug both into a mains power socket.

That done the spread of sound around the room was truly impressive. Yet again bass output belied the size of the loudspeakers – now it seemed two big floorstanders were pumping out music.

The Clash's 'One More Dub' from Sandinista positively romped along with deep bass but also a sense of timing and detail that put some more expensive loudspeakers I've heard to shame.

Better, the Reactors provide a wide soundstage so it didn't seem as though I was listening to a pair of constrained 'speakers, but a band playing live in front of me.

And, for all that bass on offer, the Reactors do not want for delicacy. The gentle tones of Margot Timmins' vocals on 'Blue Moon Revisited (Song For Elvis)' from Cowboy Junkies' Trinity Sessions (24/96) sent shivers down my spine. Her intonation was entrhralling and the reproduction pitch perfect.

At the end of the day these new Devialet Phantom Reactors are capable of handling with aplomb anything you can throw at them. They'll bring the best out of bass-heavy tracks with a power that hits you in the stomach but can also sound sweet and smooth-sounding with lighter material. Buy one and you'll be impressed – get two as a stereo pair and they sound even better.

CONCLUSION

Listen to the Reactors and it's as though you've hidden a dedicated subwoofer somewhere in the room.



The snowflake-shaped grille in front of the midrange/high frequency driver is designed to give each loud-speaker a wide soundstage.

But there's a lot more to them than that. They are clean, clear and crisp and come in such a small form factor they are easy to be placed anywhere in a room.

The unusual looks might deter some people but they shouldn't because the sonics they produce are exceptional. A single unit sounds good – but as a stereo pair they are amongst the best at the price.

MEASURED PERFORMANCE

Frequency response of the Phantom Reactor 900 measured flat from 30Hz to 20kHz our third-octave analysis of pink noise shows, with little variation around the 0dB datum. This is an academically flat and therefore tonally accurate loudspeaker, likely equalised internally to be so. Because it uses a single forward facing mid/treble unit in a spherical cabinet the forward response varies little vertically or horizontally, meaning the Reactor will not change its sound according to listening position, as many larger multi-way loudspeakers can do.

Output from the tweeter rose quite sharply above 10kHz to +5dB at 20kHz on-axis, but this fell back a little off axis, to give the measured result we show at 30 degrees. The Reactor is best pointed straight down a room rather than directly at listeners, some of whom may detect such an effect with treble-strong recordings.

A well supported upper midrange with no crossover dip will deliver plenty of apparent detail; the Reactor will sound quite forthright – not mild or warm. Notionally correct but like all modern loudspeakers with such a response, poor digital recordings will have their faults exposed. This is a revealing loudspeaker, rather than a euphonic one.

Getting bass from a small cabinet is always a major design issue and here

Devialet have achieved an impressive result. There is some loss of output in the 150Hz region that will lessen warmth, but a small lift below 100Hz that will strengthen deep bass, right down to a very low 30Hz where the Reactor is +3dB up – enough to add subjective weight to very deep bass. The only drawback here is that the twin bass units will work very hard if volume is turned up; disco bass levels will be unrealistic and the amplifier may well protection limit if too much is demanded.

Sensitivity was high, a low 100mV being needed for 90dB sound pressure level (loud) at 1m. Any portable device, even a mobile 'phone, can deliver this with ease since they produce 800mV or more.

The Phantom Reactor has been tailored to deliver a very accurate result in terms of sound balance. It is smooth and peak free, plus it goes very low for strong deep bass. **NK**

FREQUENCY RESPONSE



At rear is the wired ethernet connection, power supply socket and a 3.5mm analogue/digital (optical) input jack.

DEVIALET PHANTOM REACTOR 900
£1290 EACH



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT
 Different in design but superb sounding. Articulate bass and a sweet top end add to the appeal.

FOR
 - massive bass
 - smooth mid and treble
 - compact dimensions
 - dedicated app
 - easy set-up

AGAINST
 - need two for stereo

Devialet
 www.devialet.com

Chip off the old (mains) block

Martin Pipe tries the No.79 mains power hub from MCRU.

The use of mains distribution boards – basically, extension leads with multiple sockets – is commonplace. To achieve the best results, it's important to choose a distribution board that's up to the task, one that will plug into the mains socket nearest to your home's consumer unit and meter.

So it was of interest to learn of a relatively-affordable model from MCRU – a firm used to selling expensive boards like the £550 No.1. Funnily enough, their No.79 – that sells for roughly half the amount – looks very similar to their pricier and longer-established unit. This is probably because both share the same basic chassis – an industrial-strength Brennenstuhl 'Premium-Alu-Line' board, hailing from Germany. Our review sample was 4-way, but for more sophisticated installations MCRU also makes use of the 6-way (add £12) and 8-way (add £24) models.

The basic lug-mountable Brennenstuhl board is made of plastic, enclosed in a tough aluminium extrusion "strong enough to withstand being stood on by mistake" claims MCRU – although they don't recommend

trying it!

As standard the board is not up to audiophile standards, so MCRU make changes, using Audio Note 6% silver solder where necessary. The on/off switch and neon light are removed, as they have "been proven to be detrimental to sound quality"; a MCRU badge covers the hole.

The internal bus-bars are plated and MCRU replaces the captive mains cable with something more suitable – 7N cable, featuring DUCC copper, that is imported from Japan. You can buy versions of the No.79 with cable lengths ranging from 1m (£240, 4-way) to 5m (£528, 4-way).

To the other end of the cable MCRU fit a substantial MS328 13 Amp mains plug with plated pins. At both ends, are miniature ferrite rings claimed to be an "effective barrier...to stop RFI" (radio frequency interference) from contaminating your equipment supplies.

MCRU do not modify the unit to accommodate star-earthing as this makes "no difference to sound quality whatsoever". Nor is there surge protection, as this "often robs the system of dynamics...it is one more circuit for the current to pass through".

Despite the continuing existence of the No.1, MCRU is confident that its No.79 will be "the last mains hub you will ever need".

PERFORMANCE

In the blue corner, a bog-standard mains distribution board that came from B&Q. In the red corner, the MCRU No.79. Helping to judge the contest were a Cambridge CXN v2 playing hi-res content, Prism Callia DAC/headphone amp and Focal Utopia headphones.

Changing mains plugs allowed me to compare the two...and I found that using the MCRU product does indeed make a positive difference. Relative to the cheap mass-market board, there was a tad more space and definition to minimalist recordings like the Blue Coast DSD ones I frequently turn to as references – among them Keith Greeninger and Dayan Kai's stunning 'Looking For A Home'. Details like vocal nuances and guitar handling-noises were more evident, as was an appreciation of the venue's acoustics.

Recordings like this are also revealing of any noise in the playback system; subtle



improvements were obvious here too.

With more complex music – for example the 24/48 PCM LSO/Nosedá interpretation of Britten's War Requiem – tonal colours benefitted by a tiny but palpable degree and the soundstage marginally widened. Such improvements extended beyond my expectations.

My equipment was reasonably-portable, enabling me to move it

from one room to another. The focus seemed to blur slightly when the distribution board was plugged into a mains outlet more distant from the fusebox. Furthermore, the blackness of pure silence turned into a very dark grey. However, the deterioration was less obvious with the No.79 – thanks, presumably, to its RFI filtering.

CONCLUSION

Once again, the importance of

the mains supply – and how it is distributed – was revealed. If you're using playback equipment and source material of high resolution the MCRU No.79 can make an audible difference. So too can the mains outlet you plug it into.

The No.79 mains distribution block proved an effective upgrade, I found. It fulfils its objective and is recommended to audiophiles wanting to extract the last milligram of performance from costly systems.

MCRU NO. 79 MAINS POWER EXTENSION HUB £240 (1M, 4- OUTLET VERSION)



EXCELLENT - extremely capable

VALUE - keenly priced

VERDICT

The MCRU No. 79 is an affordable upgrade worth considering.

FOR

- detail, space and dynamics improve
- well-made

AGAINST

- nothing at the price

MCRU,
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vinyl section

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DECEMBER 2019

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THORENS TD1601 TURNTABLE 82

Thorens launch a successor to their TD1601 from long ago. Noel Keywood investigates.

UNISON RESEARCH uPHONO+ PHONOSTAGE 87

An MM/MC phono stage with 24bit digital output. Noel Keywood spins the vinyl to find out about it.

AUDIOPHILE BOOK 93

Salad Daze by Wayne Hussey, reviewed by Paul Rigby.

news



NAZARETH – ONE...MORE...TIME!

Fans of the heavy rock band Nazareth have been having a fine time of late with BMG's album releases on vinyl.

Here's another batch for you: 'Snaz' (1981) a double album that's rare in projecting the raw energy of the group; '2XS' (1982) a superb eighties release; 'Sound Elixir' (1983) the band's last major label release, via MCA – good in parts; 'Cinema' (1986) an oft ignored LP that deserves attention; 'No Jive' (1992) a very strong album that kicked back at the grunge scene of the time and finally 'Move Me' (1995), which offers more energy than creativity.

MIDGE

Midge Ure has a new Soundtrack out and about. 'The Singles 1980-1988' (Chrysalis) is a ten-tracker featuring 'Call of the Wild' and 'If I Was'. Watch out for the 2017 version of 'Fade to Grey'.



MOV

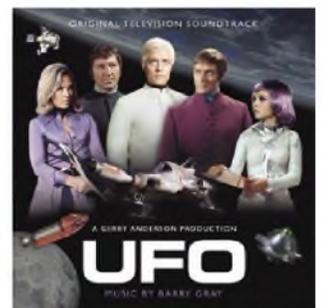
New from Music on Vinyl (www.musiconvinyl.com) comes 'The Best of Spirit' (1973) featuring their better known songs such as 'I Got a Line on You' and '1984'. Not really a hits-type band, this compilation serves as a good introduction to their core album collection.

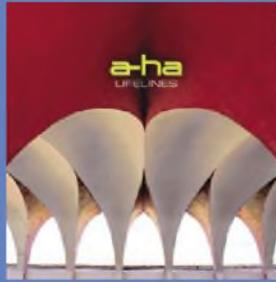
Peter Green's 'White Sky' is a rock-out LP with songs written by brother Mike but Peter's contribution sounds a little uncomfortable.

Finally, Marc Almond's 'Stardom Road' (2007) and arguably his best album. Consisting of covers from the likes of Charles Aznavour, David Bowie and Al Stewart plus a host of guests (Kiki Dee, Sarah Cracknell, etc.) Almond examines the artist, related emotions and excess. And does it very well indeed.

UFO

The mighty Gerry Anderson TV program 'UFO' (Silva Screen; www.silvascreen.com) – one of my favourites as a kid – has emerged as a soundtrack, penned by the legendary Barry Gray. Replete in a gatefold sleeve plus great pics inside, it arrives without shrink wrap but instead an extremely tight fitting band and sticker. On purple vinyl – a popular colour in the TV series, it has to be said.





A-HA

The Norwegian synth-pop trio's LPs are back in circulation. Two recent issues here, appearing on vinyl for the first time.

'Minor Earth Major Sky' (2000) is a course of mature, adult pop, melodies and hooks a-plenty.

'Lifelines' (2002) adds texture and variance in tempo and mood but sticks to the recipe.

SPECIALS

A stone-cold punk/ska self-titled classic LP from 1979 (Chrysalis/Two Tone) of originals and a few classic covers including the eponymous 'A Message to You Rudy'. It was raw, it was immediate, it was



honest, it was a diary of experience. It was socially revealing, it was angry, it captured the fear around them. It still does.



WHITESNAKE

1989's 'Slip of the Tongue' (Rhino) has now been released, celebrating its 30th Anniversary. Remastered, it features a double disc edition including B-side and alternative versions. The band is pictured on the rear so it's a challenge to read the track-listing through all that back-combed hair. A commercial success but still a period piece buried in over-production.

MOBILE FIDELITY

Two classics processed with aplomb by the US-based audiophile company include soft-country outfit, Bread's 'Baby I'm A Want You' (1972), arguably their best album that may surprise you with its harder-edged songs.

Also check out blues rock/psyhedelia outfit, the J. Geils Band's 'The Morning After' (1971). Full of energy, some rare soul covers and sparkling originals.



...AND FINALLY

'Live at the BBC' is an interesting Shadows release on Parlophone. There's twenty-one tracks of BBC sessions from 1965-1973, from the Saturday Club to John Peel.

Chris Rea's new release 'One Fine Day' (Magnet) is an unreleased 1980 LP. Now limited/numbered, some tracks here have been re-recorded.

A new, fine Mod/Ska/Soul anthology, 'Go Mod!' spanning two discs from Charly includes classic outings from Ray Charles ('Hit the Road Jack'), Mel Torme ('Comin' Home Baby') and Robert Parker ('Barefootin').

Subshrine's 'Easy Window' (*Apollon*, www.apollonrecords.no) is Scandinavian electro-pop with an a-ha bent (see above). The inspiration is there. Bright, breezy pop-food.

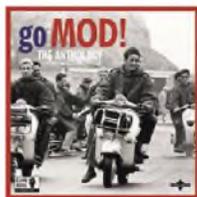
From Leopard Skull (aka multi-instrumentalist Harm Pauwels) comes 'Welcome Home' (*Exag*; exagrecords.com). Taking 60s psychedelia, a spoonful of George Harrison DNA and bits of Manson, this is a journey of an LP.

Ambient from Pétra's 'Aunis' (aka Brian Allen Simon and Chantal Chadwick)? Kinda. There's edge here and more aggression than you might first think. But it's portentous rather than obvious. You also get beautiful looping electronic cycles forming crystals of tone.

Next? Bedouin Soundclash and 'Mass' (*Mr Bongo*; mrbongo.com) which has a – what – late-period Clash sound? Ish? Reggae with rock attitude? An attractive cross-over LP.

Trentmøller's 'Obverse' (*In My Room*; www.trentmoller.com/in-my-room) or Danish composer/producer Anders Trentmøller offers floating, electronic melodies and celestial vocals. Hardly original, a bit 'me too' but pleasant.

Olivia Jean's 'Night Owl' (*Third Man*; www.thirdmanrecords.com) is her second LP and first self-produced album. Spawning a cult-based fifties ethic with modern-day sprinkles. Fun, frolics and fuzz.



Classic Update

Thorens TD160 turntable returns as the new TD1600. Noel Keywood spins vinyl.

Long ago Thorens TD160 belt drive turntable was a must-have – I bought one. Very nice it was too, simple but effective when fitted with an SME arm. Since then, from a time when LP reigned supreme, a lot has happened. Technics jumped in with Direct Drive, LP died and then miraculously arose from the dead. But Thorens live on to bring us a wide range of turntables underpinned by German engineering quality – and here is their latest update on the venerable TD160 – the new TD1600, price £2399, or TD1601 with motorised cue platform, price £2899 reviewed here – both prices being without cartridge.

Like many other belt drives of the time, the much respected TD160 had a suspended sub-chassis that bounced up and down and the new TD1600 has the same. It provides isolation from the outside environment, if not so much to make it immune to floor bounce (I found at the time) so a reasonably firm surface is needed all the same. But Thorens have toughened up the TD1600 all

round to make it an altogether more solid and weighty device – it clocks in at a substantial 7kgs. The plinth is well finished in a glossy Walnut veneer, measuring 450mm wide, 350mm deep and 180mm high with the cover on and closed. With the cover open total height is 450mm, this being the clearance needed for wall shelves and such like, whilst total depth becomes 410mm with lid open because of rear overhang.

Also needing accommodation is an external linear power supply that delivers +/-16V through a cable 910mm (3ft) long, for the internal plinth mounted a.c. motor. Since there is push button selection of 33rpm or 45rpm this motor runs from an internal motor generator board; there was no such thing on the original TD160 which used a single speed mains driven motor, locked to mains frequency, and had a stepped pulley.

Times change; most motors now work from a dedicated supply and control unit, one benefit being speed adjustment, as fitted to the TD1600. There are two small holes on the

plinth's rear to access adjusters, using a small screwdriver.

The power unit needs space of course, but it is reasonably compact, measuring 105mm wide, 270mm deep and 78mm high. Power input is by usual IEC connector and there is a rocker style power switch incorporated in the socket, but no warning light, so presumably it is meant to be left on. Power consumption is quoted as 16W, above the 1W criterion suggested by the EU.

Like the original TD160, the new TD1600 has a heavy sub-platter







At rear the TD1600 has conventional phono-socket (unbalanced) outputs, but also XLR socket (balanced) outputs for fully balanced connection to a phono stage with XLR inputs (rare). There are speed adjusters for 33rpm and 45rpm, and power input from the external linear power supply.

belt driven from the plinth-mounted motor. On top of the sub-platter sits a main platter, topped off by a rubber mat. It's a weighty assembly with plenty of rotational inertia to help iron out speed variations. And indeed measurement showed our sample was adjusted to run at correct speed and suffered very little variation; it was speed stable. The down side was slow start up of many seconds with some rocking of the sub-plinth and a little groaning from the motor

cartridge to mistrack temporarily, giving a nasty quick buzz – and this damages the LP groove walls. Not so good. I hand cued to avoid this but the finger lift is a straight rod, where it needs to be curved upward for greater clearance above the disc surface so a finger can get underneath. The arm lifts automatically in the run-out groove, relying on an optical sensor.

The TP92 arm pillar moved laterally when I removed arm from arm rest; the pillar wasn't secured. I tightened up its locking collar and this helped, but it gave a bad impression and needs to be fixed properly in production.

There is a damping collar half way down the arm to suppress what Thorens say is the 'first bending mode', that of a clamped beam – as with a tuning fork. Measurement showed this damping system was effective.

The acrylic dust cover moves on spring loaded hinges and worked well, having a smooth action. The plinth's three feet are not height adjustable, as they need to be.

The most worrying issue was the arm's inability to apply sufficient tracking force (2gm) to the Audio Technica OC9X SL cartridge fitted. I could get 1.9gms and no more before the rear counterweight fouled the arm bearing yoke. The rear counterweight is too heavy to cope with a normal modern cartridge – and at 7.6gms the OC9X is fairly typical. This was an odd situation to encounter and I see Thorens specification for the TP92 omits arm weight range so it looks like this is a design parameter not yet fixed (it's usually 5gm-12gm).

In production the TD1600 will be offered with an optional Thorens version of the OC9X SL, from Audio Technica's OEM division, a TASI600 which, I presume, will be adjustable



Thorens TP92 arm bearing assembly with magnetic bias adjustment, and here a motorised arm cue platform.

to recommended tracking force. Thorens have to sort all this out and publish the arm's weight range in their TP92 spec since it is of fundamental importance.

There are both phono socket and – a nice touch – balanced XLR outputs to suit a phono stage with XLR inputs such as Aqvox Phono



Essence of TD1600! A beautifully machined sub-platter belt driven from an a.c. motor. The belt is a flat-ground type with Thorens name printed on – nice touch.

– just as it used to be! Belt drives these days are quieter at start up and quicker too, so the TD1600 was a bit yesteryear here.

The problem with floating sub-chassis belt drives always was arm cueing; operate the arm's cue lever and the sub-chassis wobbles around like an agitated jelly. To overcome this problem Thorens have fitted a motor driven cue platform to our 1601 review sample and it sort-of worked well. I found it convenient and easy to use – but. On cue down there was motor whine after needle hit vinyl – a tad disconcerting.

Also, cue up is slow, causing the



At left on the plinth, light touch controls select 33rpm or 45rpm speed. They have green illuminated surrounds.



Finger lift is a straight rod, giving little clearance for a finger above the LP's surface. An upward curve is easier to use.

2Cl. Disappointing were the soldered earth lead ends, where spade terminals are normally fitted.

SOUND QUALITY

I connected the TD1600 to the Unison Research uPhono+ reviewed in this issue, but Audio Technica's OC9X SL is on the lean side so I ended up bringing in our Icon Audio PS3 Mk2 valve preamplifier and Stereo 30SE single-ended valve amplifier to add some weight and warmth, because the OC9X SL deserves a proper hearing. Loudspeakers were our Martin Logan ESL-X hybrid electrostatics.

Spinning Dire Straits Walk of Life from Mobile Fidelity's 45rpm all-analogue re-master of Brother In Arms, the TD1600 was obviously on the pace, having control over timing. Not as pin sharp as a Direct Drive but laconically correct all the same; no wavering or wateriness of tone – a belt drive affliction. As the track faded out and there was silence before Your Latest Trick, the silence was a good one. Groove noise was very low even though Audio Technica's OC9X SL has forensic insight into high frequency info. I got the feeling here and across a wide range of LPs that the Thorens has a sense of silky smoothness; written notes for Eleanor McEvoy's I've Got

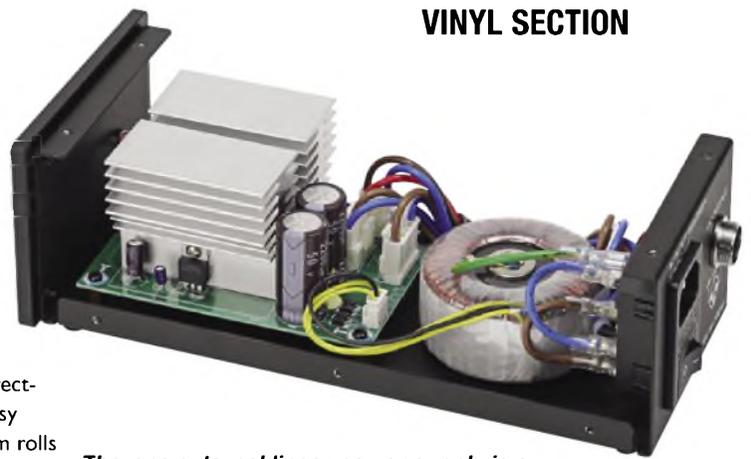
You to See Me Through, from Yola, said the same, and Sing Sing Sing by the Syd Lawrence Orchestra (Big Band Spectacular, Chasing the Dragon, a direct-cut) pounded out with easy

going strength. The long drum rolls were powerful and pacy, but svelte in presentation. This suited Moonlight Serenade that was delivered with a smoky smooth 1940s sound, gentle but engaging.

Even with harder modern Rock and the Waterboys latest album, London Mick was on the pace and had the propulsion it needs, although this isn't exactly an audiophile review LP! The TD1600 did a good job all the same, getting across the urban lyric in easy but forceful fashion.

CONCLUSION

Thorens TD1600 is well made and finished but with our review sample let down by



Thorens external linear power supply is a dedicated unit, rather than a bought-in cheap switch-mode.

many minor flaws. At the price – and even at lower price – rivals come better honed. Fine sound no doubt – I enjoyed using it – but more attention needs to be paid to details.



The connecting cable, with basic soldered earth leads ends. Spade terminals are better and more common.



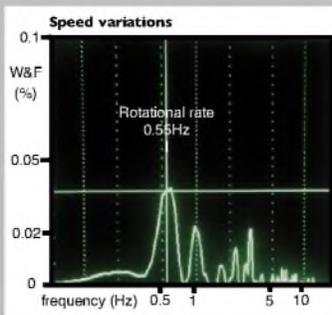
The power supply's rear has a mains rocker-style power switch and +/-16V d.c. outputs.

MEASURED PERFORMANCE

Basic variation in speed was very low, just 3149Hz-3152Hz around a 3150Hz test tone from DIN 45-452 test disc. Such low variation of speed resulted in low Wow & Flutter figures. Our analysis

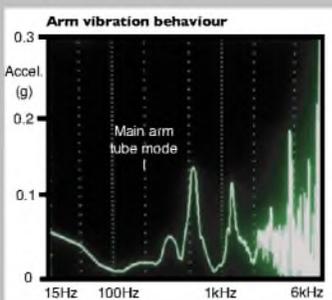
shows this low variation of basic speed (the peak at 0.55Hz/33rpm) with some small amount of flutter. Wow & Flutter, DIN weighted, came in at a low 0.07% – and for comparison to Japanese turntables, 0.04% JIS weighted. The TD1600 was speed stable and will give rock solid delivery of pitch in music, with no wavering and subjective wateriness – the underlying weakness of belt drives.

SPEED VARIATION



The arm lacked a main bending mode around 200Hz, our analysis with a Brüel&Kjaer accelerometer attached to the headshell shows. There was a peak, possibly second-order, at 550Hz but it was small, encompassing little energy. At low frequencies the TP92 is well behaved, but above 1kHz it is lively our analysis reveals.

ARM VIBRATION



The heavy platter, quality main bearing, flat ground belt and stable a.c. motor driven from an external supply contribute to excellent speed stability. The arm is well damped and performs well, if with some high frequency activity. **NK**

Speed error	0%
Wow	0.1%
Flutter	0.05%
Wow & Flutter (DIN wtd)	0.07%

THORENS TD1601 £2899



GOOD - worth auditioning.

VERDICT

Good sound but needs attention to mechanical detail.

FOR

- sound quality
- appearance
- good MC cartridge

AGAINST

- limited cartridge weight range
- cue platform problems
- non-adjustable feet

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Plus Point

The uPhono+ phono stage has a lot of points in its favour thinks Noel Keywood.

If you want to record LP as a digital file there aren't so many options. Furutech and Pro-Ject have some fine 'digital' phono stages able to do this and Unison Research join the fray with their uPhono+ I am reviewing here. It's purposed to act as a high quality moving coil (MC) and moving magnet (MM) preamplifier with optional volume control output, but additionally has digital outputs – price £999.

The uPhono+ is a compact but well built little unit, measuring 216mm (8.5in) wide, 82.5mm (3.25in) high and 246mm (9.69in) deep – easy enough to fit into any system. Unlike so many rivals though, including those mentioned, Unison Research steer an all-analogue path with the uPhono+. No external switch-mode wall-wart power unit here, instead an on-board linear supply with separate analogue

and digital sections for best sound quality. As a result it has direct mains connection through the commonly used 3-pin IEC power connector and inside lies a neat little toroidal mains transformer. Weight is 2.6kgs (5.73lbs), partly due to a 10mm deep solid alloy face plate. Behind this plate is a folded steel chassis comprising base and cover.

The front carries an Alps Blue Velvet volume control, a blue power light and a 1/4in (6.3mm) headphone jack. The volume control affects not only the Variable rear outputs but the headphone jack too. Meaning the uPhono+ can drive a power amplifier direct as well as headphones, making it the basis of a high quality vinyl-only system. Switch on is inconveniently by a small rocker switch at rear but power consumption is 6 Watts maximum so it won't break the bank if left on.

There are both MM and MC phono socket inputs at rear but both cannot be used at the same time. uPhono+ is set to suit one input or the other through banks of small DIP switches underneath, including a small MC/MM master switch that moved alarmingly when altered; it needs securing methinks. Those who have two turntables, one MM and one MC will find input selection a headache. Otherwise, the unit is pre-set to accept MC or MM and left at that.

For MM cartridges the input load is a fixed 47k Ohms as usual, with four capacitance options: 100pf, 200pF, 320pF or 420pF that finely tune frequency response.

For MC cartridges the options are broader. Here there are no fewer than seven load options, printed on the amplifier as: 20, 50, 100, 150, 250, 500 and 1000 Ohms. The 100 Ohm setting is standard, but some



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high output MCs need 500 or 1000 Ohms. The low 20 and 50 settings are for experiment with low output designs, giving a slightly more damped sound – but subjectively I find differences minuscule to ignorable.

More significant are two gain settings, labelled as 58dB and 69dB. The former suits most MCs and gives highest overload margin, the latter suits very high gain low output types.

And finally there are also DIP switches to select a warp filter, labelled 'IEC filter'. Unison Research have tailored this to reduce loudspeaker cone flap with warped LPs, without obvious subjective loss of bass (unlike a true IEC bass filter).

All switch options are duals, for Left and Right channels independently, so two little white sliders must be moved, possible by hand but easiest with a small screwdriver. There are a wealth of options then, to suit most cartridges out there, but set up is a fiddly process.

The rear panel has fixed outputs to suit an integrated amplifier with volume control, plus variable outputs to drive a power amplifier direct. There are no balanced XLR outputs however – useful to drive long lines to an integrated or power amplifier with balanced inputs.

And finally there are S/PDIF digital outputs, optical and electrical,



A neat circuit board populated with tiny surface mount (SMD) components and larger parts too, including an Alps Blue Velvet volume control at centre, connected by shaft to the control knob.

At bottom left lies the circular toroidal mains transformer of the linear power supply.

plus a USB output. Inside lies a Cirrus Logic CS5341 analogue-to-digital converter (ADC) that offers up to 24/96 resolution. USB is delivered by a Bravo SA9137 transceiver. To record digitally you must use a music editor of some sort on the computer: I use Audacity which is free for Mac and PC. It is a bit expert

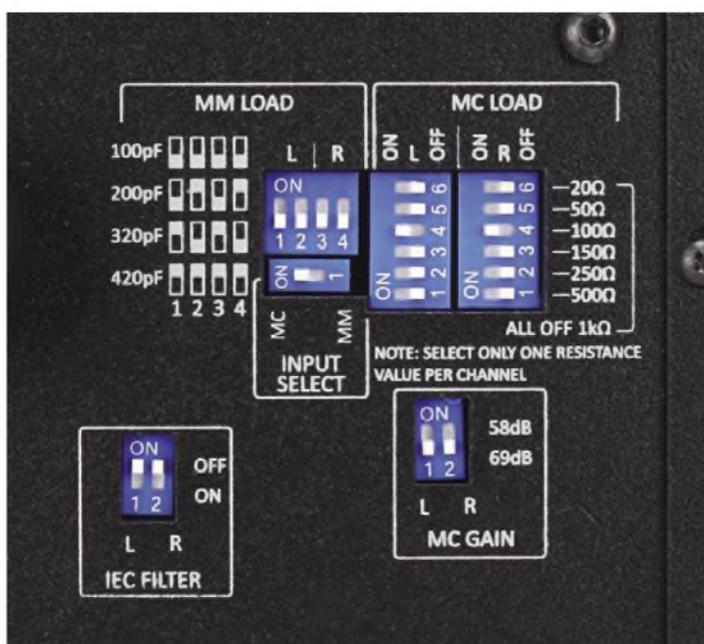
(daunting!) but does a fine job once understood.

SOUND QUALITY

To start with I connected the uPhono+ to our Creek Evolution 100 transistor amplifier and Martin Logan ESL-X hybrid electrostatic loudspeakers, connected by Chord Company Signature XL cables. Up front was our in-house Timestep Evo Technics SL-1210 Mk2 Direct Drive turntable with SME309 arm, fitted with Ortofon A95 MC cartridge.

This combination didn't work too well; the A95 is a bit dry and the uPhono+ quite tight in its sound. Installing our Icon Audio Stereo 30SE valve amplifier helped but was not the answer. Removing the Ortofon A95 and replacing it with the more fulsome and bass-strong Ortofon Cadenza Bronze had the system settle into a natural balance. Point being, the uPhono+ is coolly correct rather than warm or heavy and benefited from the Bronze sound.

With the system in harmony, Hugh Masekela playing Uptownship, from Analogue Productions (180gm), the uPhono+ was precise and clear, with good weight to the bass line. There wasn't the dimensionality possible from more expensive designs but it was still concise and detailed, with plenty of midrange projection,



Banks of small DIP switches on the underside provide a wealth of adjustments for both MM and MC cartridges. Input select MC / MM means one or other can be used through the rear inputs, not both (i.e. two turntables).

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Paul Rigby
(The Audiophile Man)

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The rear panel carries a mains input – no external wall-wart supply here. Note also the rocker-style mains switch beside it. Beneath this switch lie the digital outputs: optical and electrical S/PDIF, plus USB. Big gold plated blanking (shorting) plugs are supplied to quiet the unused input – a nice touch.

making Masekela's trumpet obvious in the mix.

Neil Young's After the Goldrush (analogue remaster, 180gm) had firmly outlined images and a broad sound stage, if one limited in depth perspectives.

The opening bass line in Dire Straits So Far Away (Mobile Fidelity, 180gm analogue remaster, 45rpm) had solidity and a crisp sense of pace. Overall I heard a well ordered sound here that ticked most boxes and this is how the uPhono+ played out over a wide variety of high

quality test LPs. It didn't quite wow me like Charisma Audio's Musiko I reviewed last month but then it offers more – notably digital – and costs less.

Digital recordings on a MacBook Pro were clean and deeper than those from the slightly hazy 16bit convertors found elsewhere, and here the 24bit Cirrus Logic CS5341 proved its worth, just about matching the dynamic range of LP (73dB). The uPhono provides quality recordings – should you want to send vinyl to

digital, perhaps to preserve valuable LPs.

CONCLUSION

Unison Research have packed a lot into the uPhono+. With volume control, headphone output and high resolution 24bit digital outputs it has broad ability. Add in MC and MM cartridge compatibility, plus imperceptible hiss with MC and you have a phono stage that just about does it all, at a good price. Well worth considering; a fine little unit designed with care and understanding.

MEASURED PERFORMANCE

Frequency response of the uPhono+ runs flat from a low 6Hz up to 20kHz our analysis shows, with either MM or MC selected, even at full MC gain of 69dB where some stages run out of low frequency gain. The 'IEC filter' (it isn't) rolls off gain below 40Hz to -12dB at 5Hz to suppress warps, this being a gentler and more appropriate filter than the real IEC curve that drastically and audibly cuts bass.

Gain with MM was a useful x88 (39dB) through the Fixed output, just below the x100 (40dB) value that's commonly used. With a high output swing of 9.2V this set input overload at 105mV, well above the 30mV or so that high output MMs can deliver. Through the Variable output there was a peculiar 1.5V output limit. Since most power amplifiers need only 1V for full output this output ceiling is sufficient. Gain was the same (at full volume) and input overload 100mV (at low volume).

Gain with MC was a normal enough and useful 59dB (58dB quoted) and 68dB at high gain (69dB quoted). Confusing

differences but inconsequential in use. The high gain value is for very low output MC cartridges, overload being 3.6mV in. The 58dB quoted value is best used and has a satisfactory input overload ceiling of 10mV.

Input noise with MC (max gain '69dB') was a low 0.16µV (IEC A wtd), making hiss all but inaudible even at high volume. Not the very quietest but getting close and sufficient for low output MC cartridges.

The headphone output delivers a high 6V maximum (2V is more than enough) but at half volume 1V – very loud through most headphones.

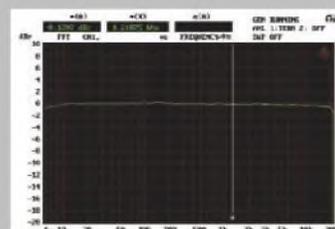
The digital section has full output (0dB FS) set at 7mV in for MM and 0.7mV in for MC (58dB). Budget ADCs are set low to maximise their limited dynamic range; here the 24bit Cirrus Logic ADC overloads on occasional peaks but managed 75dB EIAJ Dynamic Range. Distortion at -60dB was a not wonderful 3.6% but bandwidth wide, reaching 40kHz (-1dB).

The uPhono+ measured well in all areas, impressive considering complexity versus price. **NK**

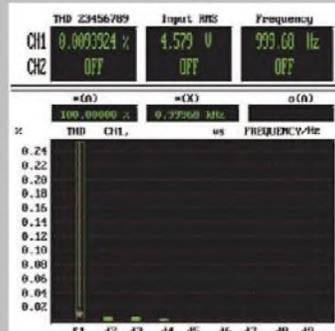
PHONO (MM/MC)

Frequency response (-1dB) 4Hz-20kHz
 Distortion (1kHz, 5mV in) 0.01%
 Separation (1kHz) 69dB
 Noise (IEC A, e.i.n.) 0.15µV / 0.11µV
 Gain (MM, MC) 39dB / 59dB, 68dB
 Overload 9.2V out

FREQUENCY RESPONSE



DISTORTION



UNISON RESEARCH
 uPHONO+ £999



OUTSTANDING - amongst the best.

VALUE - keenly priced

VERDICT

A phono stage with broad ability and clean sound, plus 24bit digital. Worth hearing.

FOR

- broad ability
- tidy sound
- 24bit digital

AGAINST

- DIP switches
- rear power switch
- no XLR out

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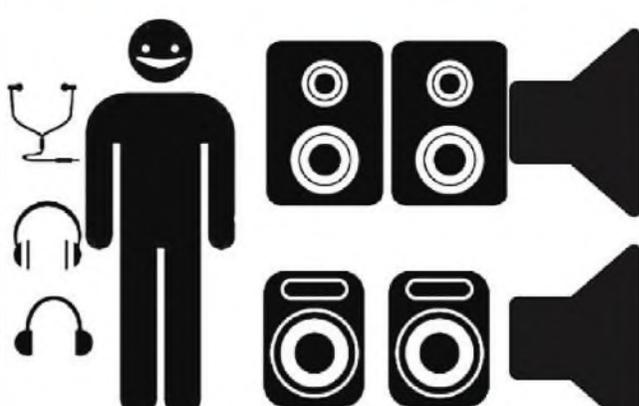
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Salad Daze

Associated with a wide variety of bands such as Dead Or Alive, Sisters of Mercy and The Mission, Paul Rigby reviews Wayne Hussey's autobiography

Author: Wayne Hussey
Publisher: Omnibus
Price: £16.99

Resplendent in *Forwards* from both Gary Numan and Iggy Pop, this new autobiography examines Mr Hussey and does so at a gentle pace and in some considered depth. We don't even get to the Dead Or Alive association until page 176 of this 350 page tome, never mind his arguably more significant musical achievements later on. This is no book of headlines. It's not a gossip rag. Neither is it a 'I said to him and he said to me' type format.

What Hussey does here is, well, take his time. He mooches through this story and smells a few roses. Whether that's expressing his undying love (aged five) for the alien-esque figure of Marina from Gerry Anderson's *Stingray* children's puppet series (a favourite of mine too, I might add), how he was almost presented for adoption, his mothers conversion to the Mormon faith or his penchant for a quick game of bingo.

His first performance was as part of a dance troupe at Colston Hall in Bristol in his last year at junior school. Movement of Free Expression, it was called, offering typical late-sixties fare. "Thank God there's no YouTube clip of that performance" he shivered.

Hussey was reborn – at least in music terms – in 1972 at the

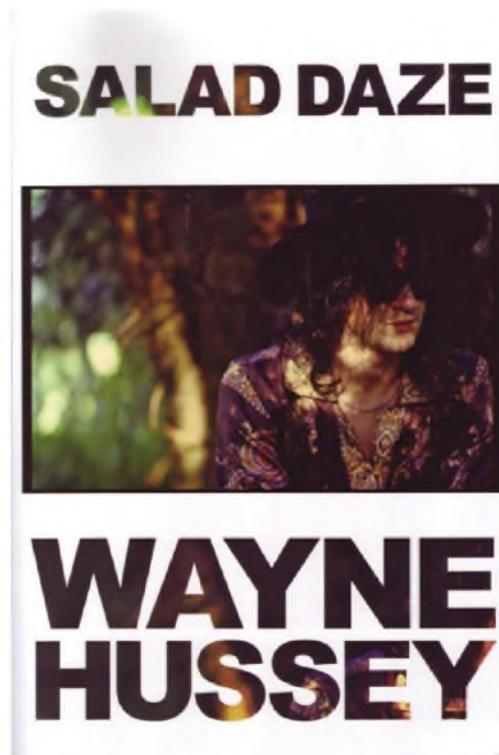
age of thirteen or fourteen when he first saw Marc Bolan on the BBC's 'Top of the Pops' TV show, miming the then No.1 single, Telegram Sam. It was also the time that he managed to obtain his first hi-fi, a blue Dansette.

What comes through Hussey's writing is his gentle humour. I say gentle, he can be hilariously cutting but he sidles up to his humour and never hits you over the head with it. His tales of early bands are cases in point.

And yes, he can drop a name or two just to vary the tone. Whether that's engaging with Radiohead's Thom Yorke, then being blanked by the same, then being engaged by the same again ("he's a funny bugger") or meeting Brad Pitt and Jennifer Aniston backstage one time whereupon Pitt admitted that they bought T-Shirts at an earlier Mission gig. "Aw, right, d'you still have them?" asked Hussey. "Nah, Jen and I used 'em for dusters ages ago" said Pitt.

Joining the Sisters of Mercy seemed to depend more on his skill at consuming drugs as opposed to how he handled a guitar. After he left the Sisters he co-founded The Mission and became the band's lead singer.

As I progressed to the end of this book, I began to realise that Hussey was still in the band, Sisters of Mercy and, what about his time in The Mission then? The



obvious answer is that this book is Part 1. Mission-related stories are to follow, it seems

During this book, Hussey struggled and elbows his way through band politics. His frustrations are there to see. You'll learn a lot about the internal claustrophobia of band life and the relationships, anger, irritations and resentments triggered by the same. The vexations that such a 'family' can spawn, the moods you have to deal with and how to navigate in and around the controlled chaos of it all is quite an education. On a larger level, Hussey also rails against society's demand that we all conform, that we play it safe and that we 'make do'. To be good little drones.

The book itself works well with Spotify, would you believe. Hussey has set up playlists to be run before the commencement of each chapter, so there is an interactive element here. Hussey gently pulls you into his story and produces an engaging book

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JANUARY 2020 AWARDS ISSUE

In our next January 2020 Awards issue you can read about all the best products of 2019. These are the products our reviewers fell in love with! Don't miss a look back at the best of the best.

Last month we hoped to bring you PrimaLuna's EVO 300 integrated amplifier that we said "delivers 42 Watts per channel from EL34 valves in Ultra-linear mode, or 24 Watts in Triode mode – switchable by remote control". It was delayed but has now arrived, been fully tested and reviewed. You will find it too in the January 2020 issue.

Also, we hope to bring you –
Acoustic Energy AE500 speakers
Audio Analogue AA Phono phono stage
PSB Alpha series T20 speakers
Klipsch The Three II tabletop speaker
...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.

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STRAY CATS

STRAY CATS

BMG



"They were imbued and infused with rock'n'roll"

Two hit singles were still in the memories of many music fans before this 1981 album, produced by Dave Edmunds, hit the streets. 'Runaway Boys' and 'Rock This Town' established a vanguard for the re-emergence of the rockabilly genre as a viable commercial force once more. Full of raw energy and hooks, the music delighted many and offered a valuable uptempo and rather jolly choice of mood to the often weighty and sober, great-coat bedecked, indie sounds emanating from indie music at the time.

This updated rock'n'roll revival sound was unique because of its production values while Brian Setzer (guitar, vocals), Lee Rocker (bass) and Slim Jim Phantom (drums) showed that the nature of the band did not lean towards paper-thin song types and frivolous presentation. There was some depth there. Genuine talent, in fact. The band even touched on punk and ska during this album which showed that, although rockabilly formed an important guide and inspiration, the band's musical aspirations were wider in nature while its music established a fresh-faced sheen. The Specials had recently created a similar makeover of the ska genre.

Fun? Absolutely. Thoughtful? Certainly, if you pay attention to some of the zeitgeist songs here (Storm the Embassy). Nevertheless, the band were always raw. Emotional to a tee. They opened up, there was an honesty within the album's performances and you felt grateful for that.

I remember chatting with the drummer, Slim Jim Phantom (SJP), a "typical New York Catholic Irish". A man with a big, supportive family base, packed with cousins, aunts and lots of uncles from a territory that no-one ever left and a community who saw SJP's own drumming interests as a mere fad that would diminish with time, despite the fact that all of SJP's friends played instruments of their own. Many, like himself, took lessons down at the local music shop with a young teacher "I would bring records in and he'd explain it" he told me. "We'd do rudimentary music reading, practice methods and the like. I wish that we'd stayed in touch. He was a hep cat,

right out of New York. He was just out of college but he was cool".

Stray Cats bassist, Lee Rocker and SJP were of the same age and in the same class at school and it took no time at all for SJP to assume the position of concert arranger, organising the music at school dances and the like. "I enjoyed being around the musicians of the time" he said. "I liked being part of a separate pack. It also allowed me to be alone in a crowd. You are also behind the drums. You've got a little bit of a layer there. But you're still right there".

Then Elvis walked into his life. "When I was exposed to the Sun Sessions and saw what he looked like before... I was 17, I wanted a different look, a different vibe. I knew that I couldn't be a jazz/rock fusion rock drummer because other people were so good. It all happened at the same time. Also then I saw Eddie Cochran and his look. I was ready for it".

So SJP left the house one day with long hair, suede shoes and flared pants. He entered the city and "...got my hair cut, got a pair of baggy pants with pointy shoes and a bowling shirt and left my old clothes in the dressing room and came home that way. It was the right time. Roughly, the other two had done the same thing".

I recount this period of SJP's life because I wanted to emphasise something about the Stray Cats: they were not pantomime artists. They didn't dress up for a stage performance. They actually lived that lifestyle. They were imbued and infused with rock'n'roll. To them, it was serious.

Now you can find the album within a new box set. 'Runaway Boys' features the band's first three classic albums on vinyl: 'Stray Cats', 'Gonna Ball' and 'Rant'N'Rave'. This deluxe set also includes an LP of rare tracks as well as a 40-page book of the story of the Stray Cats. Inside you will also find a board game where you can race across South East England, from the Ace Café to have a rumble in Brighton. Heaps of fun! The game even comes with dice and bespoke playing pieces.

Well mastered by BMG, this new edition will surely delight ears all over again. **PR**

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"... the e.One Stream has a great deal to commend it." HiFi News (April 2019)



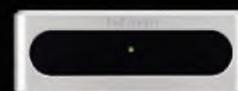
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T H E S O N E T T O R A N G E



Over 30 years ago, Sonus faber revolutionised loudspeaker design.

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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.

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