

hi-fi news

& Record Review

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GOING ACTIVE

System building with
Kudos and Exposure

Audio Research

REF160S tube power amp

PS Audio

New Stellar Phono preamp

MSB Technology

The Discrete 'modular' DAC

Gold Note

Mediterraneo deck
from Tuscany



Classical
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Jack Nitzsche

Abyss

AB-1266 Phi TC
Flagship planar
magnetic
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UK £5.25 US \$13.00 Aus \$13.50



Floorstanding two-way loudspeaker/active crossover/pre & power amps
Made by: Kudos Audio, County Durham & Exposure Electronics, Lancing, UK
Supplied by: Kudos Audio & Exposure Electronics
Telephone: 0845 458 6698 & 01273 423877
Web: www.kudosaudio.com & www.exposurehifi.com
Prices: £13,000 (loudspeaker); £2540 (VXN crossover); £11,100 (amplifiers)

AUDIO
FILE

ACTIVE LOUDSPEAKER



Kudos Audio Titan 707/Exposure VXN

Active or passive? Exposure's new outboard crossover allows you to experience both with the Kudos Titan 707
Review: **Andrew Everard** Lab: **Keith Howard**

As divisive audio issues go, few get the battle lines drawn more steadfastly than the matter of passive versus active loudspeakers. It's not so long ago that we were hearing about tiny monitor speakers with onboard amplification said to be good enough to have dyed-in-the-wool enthusiasts abandoning five-figure systems of conventional amps and speakers. Forget valves vs. solid state, or analogue vs. digital: when it comes to the topic of active speakers, tempers seem to flare among the keyboard warriors.

Of course, any active speaker system requires three components. These are the speaker itself, the external electronic crossover to split the frequency range to suit the speaker's drivers, and sufficient amplification to allocate a separate amp – or at least a separate channel – to each driver. Few companies have the wherewithal to do all that, though many have tried in the past, from Linn and Naim with their stacks of boxes to drive their own speakers to Meridian's big digital speakers with all the electronics onboard.

BOXING MATCH

Exposure has taken a different approach for its foray into active drive, partnering here with speaker manufacturer Kudos with a VXN-series crossover box inserted to the needs of the speakers, and tuned between preamp and power amps. Kudos is a good choice, as its Titan speakers – including the £13,000 707 – and Cardea Super 10A and 20A models offer the ability

RIGHT: The Titan 707 employs a pair of 220mm SEAS/Kudos coated paper bass/mid drivers in isobaric configuration and each with a large aluminium phase plug. The tweeter is a 29mm SEAS/Kudos 'Crescendo K3' fabric dome

to bypass their internal passive crossovers by the removal of jumpers on the rear panel [see p41]. So it's easy to switch them from passive to active-ready status.

ALWAYS ANALOGUE

Options to take advantage of this are already offered in the form of the Linn Exakt, Devialet Expert and Naim SNAXO active crossovers, but as Exposure's Chief Designer Tony Brady explains [see sidebar, p39], unlike the Devialet and Linn DSP-based solutions, the £2540 VXN active crossover is a simple, all-analogue device out of the 'old school'. It's designed to mimic – albeit at line-level – the existing passive crossover in the Kudos speakers, rather than tune, improve or otherwise iron-out any wrinkles in the drivers' performance.

Indeed, the idea behind the VXN crossover, which is entirely dual mono, with separate boards for each channel [see picture p39], and is powered by its own offboard PSU in a matching half-width enclosure, again with separate feeds for each channel, is to provide a one-stop solution that's usable across the Kudos range. That's why it comes in a choice of two- or three-way versions, at £1545 and £1795 respectively, with the power supply at £995. The buyer merely needs to specify the speaker with which it's to be used at the time of order, while internal dip-switches allow the output levels for treble and midrange (where applicable) to be adjusted.

The VXN crossover can, Exposure says, be adapted to other brands and models of speaker, and of course used with other manufacturers' electronics. Its ideal partners are the £2000 5010 preamplifier and a quartet of the matching 5010 mono power amps [HFN Nov '18], which sell for £4550 a pair. The 5010 amps are typically



no-nonsense – they come in plain black boxes and deliver 200W apiece while the preamp keeps it simple with no more than a volume control and input selector.

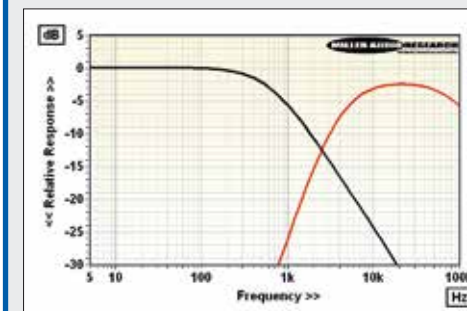
But one question arises when using this all-Exposure set-up with the VXN: why,



when the preamp offers balanced XLR outputs to match similar input sockets on the power amps, is the crossover a single-ended design with RCA phono outputs only? Given that the operation of an active system is likely to involve long interconnect

GOING ACTIVE

Kudos's crossover specification requires a –6dB point at 3.6kHz (12dB/octave slope) and a –3dB low-pass at 750Hz (6dB/octave) to correctly emulate the performance of the passive 707. In practice, the VXN [pic. with PSU, below] hits the –6dB/3.6kHz point on the nail [red trace, inset Graph] although the 2nd-order roll-off bites below 2kHz. The low pass –3dB point is closer to 620Hz than 750Hz [black trace] – slightly earlier than specified. The gain of the low-pass section is –0.3dB, and the high-pass –2.75dB, the 2.45dB difference reflected in the relative amplitude of the low (black)/high (red) responses. Distortion is ~0.002% across the linear portion of each passband with an A-wtd S/N of 93-97dB and a moderate 40-160ohm output impedance. PM



runs somewhere – either preamp to crossover, or crossover to power amps – it would seem sensible to carry balanced connections throughout.

The speakers, meanwhile, from Co Durham-based Kudos Audio, are the middle model in the three-strong Titan floorstander lineup. Standing 105cm tall in a choice of four wood veneers or satin white, they're a two-way design using drive units developed by Kudos in conjunction with specialists SEAS. The SEAS/Kudos Crescendo K3 tweeter uses a 29mm fabric dome, and has been customised for use in the Titan loudspeakers, while the mid/bass units have a 22cm double-coated paper cone driven via a 39mm voice coil with copper shorting ring and aluminium phase plug.

Yes, that's 'units', for although the 707 seems only to have a single low-frequency driver in fact it's an isobaric (equal pressure) design, with a second driver coupled behind inside the cabinet. This vents through a fixed boundary bass reflex port at the bottom of the speaker, which sits on a plinth complete with high-quality – and very fine-looking – spiked feet.

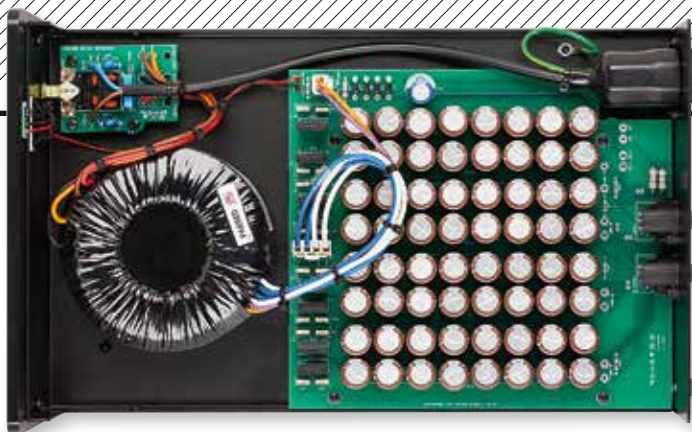
Faced with an alarming battery of equipment to cover in a single review a decision was taken to simplify things as far

as possible, auditioning the speakers first in passive mode and then switching to active.

MAGNIFICENT SEVEN

Set up in editor PM's listening room, the front-end was the familiar Melco music library/dCS Vivaldi One combination [HFN Feb '18], here used purely as a line source into the Exposure 5010 preamp. In total we had no fewer than seven (Exposure) boxes between source and speakers, comprising the preamp, crossover and power supply, and four monoblocks. Only two of the power amps were used for the initial passive listening session, with the





LEFT: Exposure's VXN power supply includes 64x 1000µF reservoir capacitors in a low-ESR configuration with two bridge rectifiers feeding two separate 30V DC outs for the VXN crossover

other two powered up but idling ready for their use in active mode.

Initial impressions when running the system in passive mode were good, with the set-up delivering rather persuasive soundstage focus with Claire Martin's 'tangofied' take on the 'The Man Who Sold The World', from her *Time & Place* album [Linn AKD 423; 192kHz/24-bit]. True, Martin's voice sounded a little brash, and the piano perhaps rather too jangly, but the accompanying cellos and percussion were well delineated and had good attack and drive.

This same 'fine, if not outstanding' impression carried through to ELP's 'Still... You Turn Me On' from *Brain Salad Surgery* [Sanctuary/Universal 5308195; DSD64], which saw the Exposure/Kudos system doing all the hi-fi stuff well enough, but lacking a bit of the rasp of those synths. Winding up passive listening with the exquisite jazz of the Espen Eriksen Trio [*Never Ending January*; Rune Grammophon RCD 2173], it was noticeable that the drums had a slightly ponderous 'playing on plastic barrels' quality to them, and as tracks built there was a hint of a battle going on between

the musicians, making instrumental lines somewhat hard to follow, and the listening experience a bit laborious.

ON THE MONEY

These characteristics were even more pronounced with the recording of Nick Bicât's *Under The Eye Of Heaven* [Virgin Classics LCCOD 1] by the London

Chamber Orchestra.

The combination of synthesised percussion and a 1989 digital recording means that while the bass is fast, tight and reasonably extended, driving the music, the top-end – and in particular

that percussion – can sound pretty savage. This in turn gives the whole recording a brash, abrasive edge, which was not soothed when using the Exposure/Kudos system in passive form.

Switching over to active working, the benefits should have been obvious – better drive for each unit, no intermodulation between the drivers and the small matter of having an extra couple of power amps in harness, each of the four now handling a specific frequency band. And you know what? All those gains were up there on the

'All the hoped-for gains were up there on the soundstage'



ABOVE & LEFT: Dual mono crossover boards are configured for two- or three-way operation. DIP switches [red] set the input level matching, not crossover points. Umbilicals carry DC power to two sockets

TONY BRADY

Tony Brady, Exposure's Chief Designer for over 20 years, has a penchant for active loudspeakers. 'I've been using a custom active system for decades, currently comprising seven separate boxes, including a phono stage', he says. So when Kudos came calling, Tony was ready for the challenge.

'Kudos already had solutions from Linn and Devialet, but these were DSP-based, so they were looking for a more traditional "analogue" approach by way of choice for the enthusiast. Kudos supplied us with the basic acoustic parameters for its range and we developed the electrical crossovers from here.'

In practice, the VXN is designed to emulate the existing passive crossover rather than provide any secondary correction for phase shifts or smaller peaks and dips in amplitude response. 'The VXN is based on my own crossovers that I designed for my Linn Isobarik speakers – it's a solution that's been going strong for 23 years!', says Tony. 'The final design here has more in common with the 5010 preamp while the PSU is also intended to power our new VXN phono stage [not yet released].'

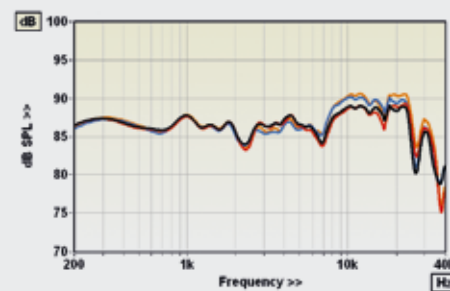
'The VXN crossover is adaptable across the entire Kudos Titan range, with plug-in boards to accommodate everything from the two-way 505 to the three-way 808. For future-proofing, the slopes may be adjusted up to 18dB/octave at the factory to suit the loudspeaker in question. But this is early days and we are certainly looking to work with other loudspeaker manufacturers.'



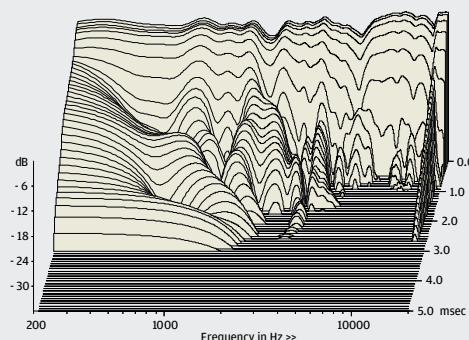
KUDOS AUDIO TITAN 707

Active loudspeakers don't come much simpler than the Titan 707, in significant part because it provides for operation in either active or passive mode. Indeed, its 'two-pack' active option with Exposure electronics evinces a notably conservative design approach. In passive mode, the 707 is specified as having a sensitivity of 89dB and nominal impedance of 6ohm. Our measured pink noise and music sensitivities of 86.9dB and 86.6dB SPL at 1m for 2.83V input indicate that 87dB is more realistic, and although the passive 707 isn't a notably difficult speaker to drive, the 3.8ohm minimum impedance we recorded means it is better thought of as a 4ohm design. Low-frequency impedance phase angles are well controlled, so the minimum EPDR is 2.1ohm/402Hz – better than the 1.7ohm we typically measure – but dips to 2.4ohm/94Hz and 2.5ohm/36Hz complicate the issue.

Forward frequency responses, measured on the tweeter axis for both passive and active operation, are characterised by a shelved-up treble [see Graph 1]. However, this is more prominent in the active version – so perhaps tweeter gain should be dialled back in the active crossover. Note, though, that active operation lessens the dips at 2.3kHz and 6.9kHz, suggesting improved driver integration. Response errors are ± 2.5 dB and ± 2.9 dB in passive mode, rising to ± 3.2 dB and ± 3.5 dB in active mode (all 200Hz–20kHz). Pair matching over the same frequency range is ± 1.0 dB in both modes. Bass extension is fair at 45Hz (–6dB re. 200Hz), with the CSD waterfall [Graph 2] revealing what are probably bass/mid driver breakup modes in the low treble, these largely undimmed by active operation. KH



ABOVE: The 707's response shows a treble lift above 7kHz – brighter still in active mode [blue/orange traces]



ABOVE: Driver resonances are visible through 3-6kHz and although mild are unchanged in active mode

LEFT: Supported on a spiked 'port optimising plinth' the 707 includes a passive crossover addressed by a single set of 4mm sockets with direct bass/treble inputs above for active operation

gutsy percussion opening the track lost some of its overblown, blurry character, and provided a thrilling impetus behind Eriksen's first piano figures, which is just as it should be.

EXTRA PUNCH

The same was true with Claire Martin and her cellos, with the inner details of the track revealed, and the interweaving tango rhythms slinking behind her piano and voice to winning effect, helped too by the subtlety with which the minimal percussion is woven into the performance. Keith Emerson's synths gained much better texture on the ELP track – and indeed throughout the whole album – while Carl Palmer's drumming took on some extra punch, sounding faster and leaner, and the movement of Greg Lake's fingers on the guitar strings was also brought out more clearly.

I played the album through, and while I wasn't sure whether the odd errant electronic switching glitch from the synths was characterful or distracting, the fact that they were apparent showed how much more information the Exposure/Kudos system was unearthing in its fully active guise. Indeed, the active ensemble manages to combine much better weight with more control and drive, opening up tracks to reveal more nuance and detail while creating a much easier, more accessible musical experience. ☺

HI-FI NEWS VERDICT

Crisper, clearer, faster and more detailed: that sums up the gains on offer when taking this Exposure/Kudos system active, the set-up both gaining control and losing some of the restraint heard in passive mode. Best of all, it goes louder cleaner without urging restraint over volume. So it's a win for the active iteration here – provided you have the space, the shelves and the mains sockets for all those black boxes!

Sound Quality: 86%



soundstage, not only grabbing the Titan 707s and whipping them into shape, but making it immediately apparent where all the money was channelled – straight into creating a more convincing performance. The Bicât recording filled out in the low frequencies, while that savage top-end was better controlled, not smoothed out or glossed over, and thus a more engaging listen.

With the Espen Eriksen track, the extra sizzle on the percussion was not only obvious but much more realistic, while the three instruments were much better presented and easier to follow. They were now playing together rather than fighting for attention, while the sense of 'strike and decay' on both piano and bass was delicious. In particular, the

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – Mean/IEC/Music)	87.6dB / 86.9dB / 86.6dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	3.8ohm @ 144Hz 27.5ohm @ 2.4kHz
Impedance phase: minimum & maximum (20Hz–20kHz)	–34° @ 73Hz 54° @ 1.2kHz
Pair matching/Resp. error (200Hz–20kHz)	± 1.0 dB / ± 2.5 dB/ ± 2.9 dB
LF/HF extension (–6dB ref 200Hz/10kHz)	45Hz / 33.2kHz/34.1kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.3% / 0.1% / 0.8%
Dimensions (HWD) / Weight (each)	1050x298x370mm / 50kg