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Hybrid integrated is a riot of musical colour



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UK £5.50 Aus \$13.99



Integrated tube/hybrid amplifier. Rated at 150W/8ohm
Made by: Balanced Audio Technology Inc., Wilmington DE, USA
Supplied by: Karma-AV Ltd, York
Telephone: 01423 358846
Web: www.balanced.com; www.karma-av.co.uk
Price: £11,995

AUDIO
FILE



INTEGRATED AMPLIFIER

BAT VK-3500

Promising 'extraordinary power with exquisite tube finesse' BAT's new VK-3500 integrated marries the brand's REX 3 triode preamp with a robust solid-state output
Review: **Mark Craven** Lab: **Paul Miller**

Please indulge me while I discuss the design of BAT's (Balanced Audio Technology) VK-3500 amplifier. Beauty is in the eye of the beholder, and all that, but I'd be surprised to find anyone who didn't admire the styling of this hybrid integrated. Even without the 'BAT' logo conjuring images of Gotham City's caped crusader, it has a purposeful, high-quality look and feel. There's an argument that the appearance of a hi-fi product is unimportant, but at this price you expect some attention to detail and craftsmanship – and that's what you get. Of the silver and black finish options, the latter is the obvious choice if you really want to emphasise the *Dark Knight* vibe...

But on to the amplifier itself. Arriving this year as part of a wave of products celebrating BAT's 25th anniversary [see boxout, p63], the £11,995 VK-3500 replaces the outgoing VK-3000SE (launched in 2014) and is once again the only hybrid model in the Wilmington, Delaware company's stable. The claimed 150W/8ohm power output [see PM's Lab Report, p65] matches BAT's solid-state VK-255SE power amp, and comfortably exceeds the specification of its all-tube power amps and integrations.

SUM OF ITS PARTS

Read through BAT's literature and you get a sense that the VK-3500 isn't just a hybrid design, but something of a Frankenstein's monster, comprising tried-and-trusted technologies, including the 'zero global feedback' appellation, from its wider range. Even the etched styling is borrowed from the marque's flagship REX 3 components.

BAT has called upon the 'Unistage' topology of its flagship REX hardware – a single-gain/single-stage 6H30 triode circuit – and married it here with a 'wide

bandwidth' complementary bipolar output stage derived from its reference VK-6200 power amp. Also previously featured in the company's products are the Mundorf silver/gold oil capacitors used in the preamp circuit that are claimed to offer better damping of 'ringing artefacts'.

For the VK-3500's asking price, you might expect an integrated amplifier with a lengthy feature list and connections roster. Yet BAT isn't a brand with an interest in all-in-one hi-fi convenience or networked audio, and the VK-3500 is a strictly analogue design. Therefore, the back view [p65] is uncluttered. Located between its sets of gold-plated speaker binding posts are two balanced XLR inputs and three single-ended RCA inputs, joined by a balanced preamp output for direct or second zone use, plus an RCA tape loop.

The only concession made to further decluttering a hi-fi rack is the inclusion

of an MM/MC phono stage (designed by company co-founder Victor Khomenko) to the VK-3500's third 'line' input. Note that this is fitted as standard, but was originally proposed as an optional extra – as such, the input (No5) isn't in any way labelled. And if you wish to switch the phono module between its high (58dB) and low (44dB) gain settings it's a lid-off job.

NO SHORTCUTS

I did find BAT's 'simplicity without compromise' strategy coming up slightly short when it came to the in-depth setting-up of the VK-3500. Specifically, the adjustment of some feature parameters relies on using the amp's volume control and text-based front-panel display to scroll through options and make choices. Basic tweaks can be time-consuming, and one option – renaming inputs – is hampered by the display's four-character limit.



RIGHT: A single PSU transformer [top, centre] feeds a 'dual-mono' layout including an electro-harmonix 6H30P double-triode preamp [centre] and rugged output stage with four pairs of ON Semiconductor transistors [left/right heatsinks]. Phono PCB sits edge-on near the rear of the case



There are useful features, however, particularly the option to adjust the relative volume of individual inputs and apply maximum or fixed gain settings. There are also balance, mono/stereo operation and phase inversion controls. The blue display, which is certainly easy to read, if not particularly informative, can also be dimmed if so desired.

The VK-3500's machined aluminium remote [p65] is less handsome than the amplifier itself, and its IR 'window' is quite narrow, so make sure you're aiming it properly. Most of its controls are replicated by small buttons on the amp's front fascia, with the exception of 'fade', which provides a gradual – and pleasing – level up/down alternative to mute.

The amp's 23kg weight is perfectly manageable, but the 483mm width of its jutting face plate might possibly require reconfiguration of your kit shelf, especially if you abide by BAT's recommendation of

maintaining six inches of clearance. The amp has internal heatsinks, visible through the chassis sides [see inside shot, p62], and these do a good job of keeping it cool.

CUTTING THE MUSTARD

I immediately felt in safe hands with the VK-3500, thanks to a power output that was so obviously up to scratch that

*Its sound mixes
crisp, sparky
treble and fast,
precise bass'*

I quickly stopped even thinking about it. Paired with my regular B&W 705 S2 standmounts, there was an effortless feeling to how it cajoled them along, making them sound large, exciting and sprightly. Paradigm's

triple-woofer Founder 100F floorstanders [HFN Jul '21] ostensibly presented more of a challenge, but again this amplifier didn't seem bothered, driving the loudspeakers without so much of a hint of strain.

Overall, the VK-3500's sound mixes crisp, sparky treble and fast, precise bass with a deliciously dynamic delivery

ABOVE: Precision-cut alloy fascia and chassis is available in black or silver, the faceplate hosting a large volume rotary and discreet buttons for input selection, phase, mono and mute

and confident, detailed soundstaging. It gives a mostly transparent view of recordings without descending into clinical indifference while treble is typically more wholegrain mustard than buttery smooth. I was guilty of expecting a little more softness to its presentation – having recently experienced exactly that with Copland's easy-on-the-ear CSA150 hybrid integrated amplifier [HFN Jun '21] – but instead found myself captivated by its energetic and revealing nature. It's an attention-grabbing performance.

'It Never Rains', the closing track on Dire Straits' *Love Over Gold* [CD, Vertigo 800 088-2], begins with a major key keyboard melody, gentle percussion and floating guitar licks, but ends with an extended instrumental section where Pick Withers' drumming gains intensity, Knopfler lets his bluesy guitar notes fly and a phase effect threatens to render it a sonic soup. BAT's VK-3500 artfully handled both sides of the coin, approaching the introduction with a light touch but matching the drive and dynamics later on beat for beat, while keeping the various elements distinct.

DROP KICK

Queen's 'Death On Two Legs' from *A Night At The Opera* [EMI CDP 7 46207 2] – which has an everything-but-the-kitchen-sink production befitting an album reported at the time to be the most expensive ever recorded – left me grinning. Each note of the piano intro sounded cleanly struck, and then, as if snapping its fingers, the VK-3500 launched into the guitar riff, bringing bite and edge to Brian May's tone. Musical flourishes sparkled left and right while the drums sounded weighty and intense. ➔

THE BATMEN

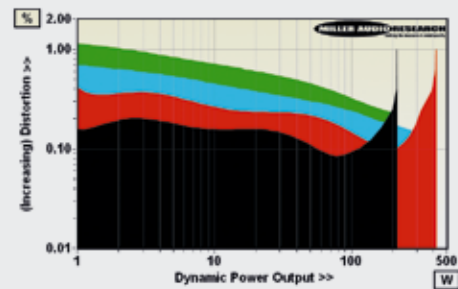
Balanced Audio Technology first appeared at the 1995 CES. Founded by Victor Khomenko and Steve Bednarski (who met working at Hewlett Packard, and are now BAT's chief engineer and general manager respectively), its debut design was the fully balanced VK-60 power amplifier. It has maintained its devotion to balanced architecture ever since, across a range that has expanded to include integrated amplifiers, preamps, a phono stage and an outboard DAC.

Last year the company celebrated its 25th anniversary with the release of third-generation models of its flagship REX hardware, including the REX 3 DAC [HFN May '20]. Its plan was to launch the VK-3500 (as well as updates on its 80 and 90 series components) at the same time, but this was halted due to the coronavirus pandemic. Explains Steve Bednarski: 'The pandemic delayed the launch of this second wave... Something as simple as working face to face with our mechanical and industrial designers became difficult during the past year. Everyone stayed safe, and the new models are now here'. Buyers are therefore assured that the VK-3500 shares the 25th Anniversary Design circuitry brought to the REX flagships – just a year later than intended.

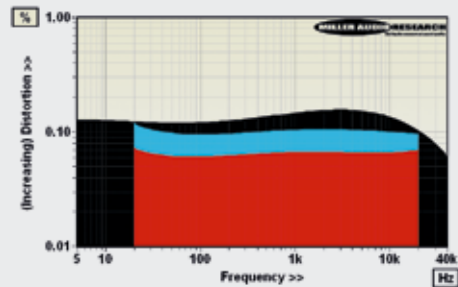
BAT VK-3500

So-called hybrid amplifiers – combining a triode tube line/preamp stage with a bipolar/FET power amp stage – can either combine the ‘colour’ of tubes with the grunt of a solid-state output, or... not. Copland’s CSA150 [HFN Jun ’21] and PS Audio’s BHK Signature [HFN Jul ’16] showed us that the inclusion of a high voltage tube line stage needn’t translate into higher distortion at the output, and Musical Fidelity’s use of Trivistor tubes in various products typically delivered vanishingly low THD. BAT’s VK-3500 is rather different because its technical ‘fingerprint’ is a true amalgam of low-feedback tube/transistor thinking. Power output is generous at 2x170W/8ohm and 2x275W/4ohm, increasing to 220W, 425W, 390W and 215W into 8, 4, 2 and 1ohm loads under dynamic conditions, but distortion is higher at lower power (0.18%/1W to 0.08%/100W) and into lower impedances [see Graph 1, below]. This same decreasing distortion profile remains consistent right across the audioband [see Graph 2, below] and it’s this feature that, subjectively, may prove a boon.

Meanwhile, the 0.22-0.25ohm output impedance is high for a transistor amp and though still lower than might be expected from a tube output stage it will still have some impact on frequency response, depending on your choice of speaker. Into a ‘flat’ 8ohm load the HF response rolls away above 10kHz, reaching -0.25dB/20kHz and -3.6dB/100kHz while achieving -3dB/4Hz in the sub-bass. Overall gain (balanced in) is fairly high at +43dB and the A-wtd S/N slightly below average at 79dB (re. 0dBW), the latter a product of both LF hum and HF white noise. Stereo separation is held to at least 70dB while the fine volume control maintains an impressive 0.08dB channel balance. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max current is 14.7A



ABOVE: Distortion vs. frequency at 1W/8ohm (black, 5Hz-40kHz), 10W (blue, 20Hz-20kHz) and 100W (red)



ABOVE: Alongside the two balanced XLR inputs, one of the three RCA line inputs is given over to the ‘Victor Khomenko-designed MM/MC phono module’. Tape and balanced XLR preamp outs are joined by single sets of 4mm speaker terminals

A particularly notable trait of the VK-3500 is the fun it has with deep bass. Low-end transients come and go like momentary explosions, as exemplified by the one-note bassline progressions in Eminem’s ‘My Name Is’ [The Slim Shady LP; Interscope 490 287-2], or the bouncy kick drums of Regina Spektor’s ‘Fidelity’ [Begin To Hope; Sire 9362-44112-2] – in both instances the listening experience took on a physical dimension. The latter track’s title proved apt here, too, as the amplifier relished Spektor’s lilting, articulate vocal and the plucked string accompaniment, expressing them with remarkable clarity.

PARTY UP

So the VK-3500 sounds detailed and alive, speedy and rhythmic. Does it have a weakness? I can imagine some might prefer more warmth to its presentation, and a softer edge to its upper registers – a weekend filled with high-volume listening to the likes of Aerosmith, The Rolling Stones and AC/DC did throw up the occasional shrill moment. Yet I was never deterred from continuing to enjoy these rock ‘n’ roll dinosaurs, such was the verve and snarl this BAT amplifier brought to the party.

And when I moved on to more tonally nuanced material, cherishing the three-dimensional soundstaging and textured trumpet of Nils Wülker’s ‘Just Here, Just

Now’ [eponymous, Ear Treat Music; 88.2kHz/24-bit], it wasn’t because I was seeking respite from a brash-sounding amplifier.

The more time I spent with the VK-3500, the more strings I found to its bow. When fed some modern, techy electronica (and even with a regular-sized standmount), the impression is that it wouldn’t be out of place doing front-end duty in a nightclub. Paul Oakenfold’s ‘Save The Last Trance For Me’ [A Lively Mind; Perfecto PERCD003] came straight out the gate at full-throttle, a pounding drum track underneath waves of reverberant synths. Yet this slab of euphoria was peppered with surprisingly delicate touches, such as an isolated high-pitch woodblock that echoed serenely right-of-centre.

And with a track where bass is less prominent, the VK-3500 is able to shift gear easily. Through the big Paradigm Founder 100F loudspeakers, the sustained organ notes, soft strings and falsetto vocals of ‘Pause’, by multi-instrumental outfit Emily Barker & The Red Clay Halo [Almanac; Everyone Sang; 88.2kHz/24-bit], were painted in varying subtle shades. The recording was utterly spine-tingling. ☺

HI-FI NEWS VERDICT

BAT’s VK-3500 integrated amp ably serves as a celebration of the company’s 25 years in the ‘balanced audio’ business – offering an imperious blend of lush looks, audiophile engineering and stellar performance across all musical flavours. Not the honey monster some might expect of a big tube/solid state hybrid, but it’s never less than enjoyable. As birthday presents go, this is far better than a pair of socks.

Sound Quality: 85%



LEFT: BAT’s all-alloy VK-R5 remote provides access to input selection, volume, mute and limited display and menu items

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	170W / 275W
Dynamic power (<1% THD, 8/4/2/1ohm)	220W / 425W / 390W / 215W
Output impedance (20Hz–20kHz)	0.215–0.235ohm
Freq. response (20Hz–20kHz/100kHz)	–0.1dB to –0.25dB / –3.6dB
Input sensitivity (for 0dBW/150W)	19mV / 245mV
A-wtd S/N ratio (re. 0dBW/150W)	79.1dB / 100.9dB
Distortion (20Hz-20kHz, 10W)	0.095–0.12%
Power consumption (Idle/Rated o/p)	77W / 570W (40W standby)
Dimensions (WHD) / Weight	483x146x394mm / 23kg