

Richard Stevenson runs out of speakers with a 32-channel processor

Living the AV high-life

I love it when a brand claims its product is the 'new reference'. A statement from the marketing department that is, generally, rarely true. Yet when that claim comes from Trinnov Audio, one has to sit up and take note. The French company has been at the forefront of commercial room correction and 3D sound reproduction since 2003, with technology now installed in production studios and cinemas worldwide. In fact Trinnov stands for 3D innovation... see what they did there?

1. As well as this zapper, the Trinnov supports smart device/PC control

2. The front display uses an OLED screen



For customers that simply must have the very best home cinema experience, Trinnov launched its Altitude32 AV processor last year. This brings all of the company's golden audio technology eggs into one very expensive, very desirable and very well-built domestic basket. What Trinnov and the Altitude32 doesn't do is fiddle, fettle or upscale your video, while onboard HDMI (offering the standard eight inputs and two outputs) is simply switching. Then again, it's assumed that buyers at this price (the Altitude32 sells for around £27,000 when fully loaded with 3D format support) will have a top-flight source and display combi that isn't going to need any help to deliver the visual goods.

Clearly, the Altitude32 is no ordinary home cinema processor. The headline trick is its ability to handle 32 discrete channels. Yes, that is 32 outputs on the rear, 16 via balanced XLR and 16 more balanced outputs on a D-Sub 25 port. It comes with huge processing power to process and map any Dolby Atmos, DTS:X or Auro-3D native feed onto your speaker config. Unlike AVRs and traditional AV processors that used chip-based DSP engines, the Altitude32 runs purely in software, the hardware being an Intel i7 quad-core chip, 64-bit floating point processor and a custom Linux-based operating system.

That architecture brings several advantages to the home cinema game. Fundamentally, as it is software-based, it is fully upgradeable over time. So if Dolby, DTS, Auro or even Disney bring out a radical new audio format, the Altitude32 is perhaps a software upgrade away from being able to process it. Speaking as a man who has purchased five flagship AV processors over the last 20 years, with a cost totalling more than the



AV INFO

PRODUCT:
High-end object-based audio processor

POSITION:
Trinnov Audio's top-flight hardware – 8-, 12-, 24-channel versions available

PEERS:
Datasat RS20i

HOME CINEMA
Choice
REFERENCE STATUS

REVIEWS

Altitude32, that sort of longevity actually begins to make a lot of sense.

And the architecture has also allowed Trinnov to move away from channel-based processing into purely object-based soundfield heroics. To some extent it doesn't particularly matter where you place your 'up to' 32 loudspeakers in the room. The Altitude32 measures, maps and optimises the room and speakers, and delivers a discrete output to each channel, fully tailored to the user's environment.

Handily, this works to eliminate the question as to whether you set your speaker positioning up in a traditional Dolby/DTS or Auro-3D configuration. The switchover between, say, Dolby Atmos and Auro-3D is done in Trinnov's software in the time it takes to press a touchscreen button. You also get a fairly basic remote control, presumably in case your tablet or PC running the appealing interface is out of arm's reach.

To underline the flexibility of the Altitude32, I'm told one recent install on a super yacht has three screens in the same room, each on different walls. Using the boat's GPS, the system fires up the screen with the least reflections from sun through the windows, and maps the orientation of the sound onto the room's speakers accordingly. Object of desire? Oh, I think so.

Rocking Anthem

For this review, the headline 32 channels brought with it some potential challenges. Namely installing 32 amplifiers, 32 speakers and enough speaker cable to get to Trinnov's Paris head office and back again. This would certainly be the effort if I had owned an Altitude32, not so practical for a temporary audition. So, aided by some additional Paradigm speakers and a hefty stack of Anthem Statement M1 and P5 power amps from Trinnov's UK distributor Anthem AV Solutions, a 9.4.6 system was established, the latter split between overheads and side speakers.

Walking into the cinema room wearing my best lounge trousers and kicking back for a movie was unusual in that



3. Trinnov's XLR connected setup microphone uses four separate mics

3

I didn't have to set anything up. Anthem AVS handled installation, and this is probably how most owners of the Altitude32 will first experience it, as this is professional install territory and Trinnov's mad-looking 3D microphone is an extra £550 – hard to justify for a one-use bit of kit. The Altitude32 itself is relatively innocuous looking, as befits a processor for a more discreet top-end installation, but look closely and the milled aluminium fascia and full OLED display are properly lush.

So, that microphone. Long before the Altitude32 became a reality, Trinnov developed a 3D gizmo that employs four separate mic capsules. As a soundwave passes through this array of microphones it measures not only the frequency characteristics but the direction and distance, using vector-based maths on the delay with which the sound hits each mic. This allows the Altitude32 to differentiate between direct sound, early reflections and subsequent reverberation, and process each individually.

In terms of other add-ons, Trinnov has just launched a power amp to match the mighty Altitude32 processor,

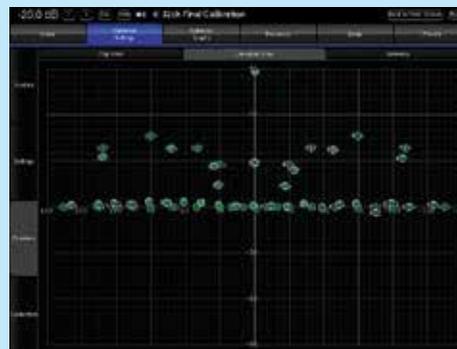
Not an ordinary EQ system

Using the 3D mic and a laptop, the Trinnov software gives you the sort of feedback, control and customisation that you're unlikely to ever find on an integrated AVR. Moreover, as this is all in software updates, new features and paid-for formats can easily be added



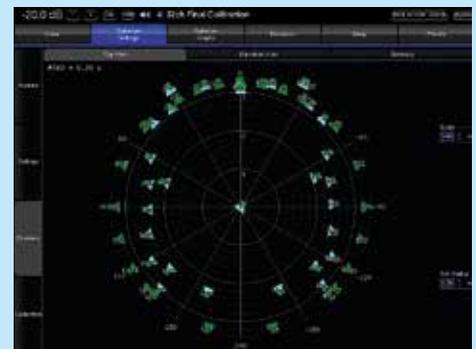
Custom mapping

While much hardware uses stock images to show the approximate positions of speakers, when the Trinnov measures your room it creates a custom 3D map



Vertical insanity

Trinnov's intelligent system EQs each speaker and applies its 3D optimisation to create an immersive soundfield with scalable vertical height.



Radial soundfield

In the final calibration of this 32-channel setup, the Trinnov has created a perfect radial soundfield from speakers set out in a rectangular pattern around the room



4

both in design and audio quality. The Amplitude8 is an eight-channel fully-balanced powerhouse delivering 8 x 225W into 8 ohms using Hypex Ncore Class D amplification technology. The casework matches the Altitude32's beefy aluminium front panel in black or silver. At just shy of £11,000 a piece, the Amplitude8 is gorgeously high-end throughout, although if you want the full 32-channel experience you will, of course, need four of them. Ouch.

Despite my desire to simply laud it over the remote like a super yacht owner, myself and Tom Garrett, Anthem AVS's technical sales manager, went through a full setup using Trinnov's software running on a laptop... and it baked my noodle. The sheer depth, complexity and level of customisation that is possible would take a week-long course and plenty of hands-on experience to learn properly.

The actual room measurement method is not unfamiliar though, using the Trinnov microphone at each seat and a few points around the room for good measure. There is no limit to how many measurements you can take and the software allows you to bias by percentage which seats you want to get the very best 3D sound experience. If there is just you, you can set it 100 per cent centred on that seat; if you have a cinema room usually full of guests you can optimise for sound across all listening positions.

All this data is then crunched by the Altitude32 to provide a smooth frequency, clean up impulse response, adjust group delay, improve phase accuracy, and so on, for every speaker. It then decodes the native incoming signal and maps it onto your array.

You then have the option to do, well, pretty much anything in the way of customisation. Want to apply a

blow-you-off-the-sofa EQ curve for action movies? No problem. Night mode with limited dynamic range? Sure. Perhaps 32-channel stereo with the subwoofer set on 'stun' for some serious AC/DC? Why not?

Wick it up

It would have been rude to not kick-off without a full Dolby Atmos action sequence, and *John Wick* was first into my Oppo Blu-ray player almost by default. Ten minutes later, waxing lyrical about the power, the dynamic range, the scale and unbelievably immersive acoustics would have been too easy. Yes, they were all absolutely first-class, yet what really takes your breath away with the Altitude32 is the clarity and definition of seemingly every single facet of the soundstage.

In the nightclub shootout scene around the swimming pool (seriously, who has a swimming pool in a nightclub?), the venue's ambience is fabulously well portrayed, punctuated by percussive gunshots echoing through the scene and reverberating around the listening room. The processor, with that 19-channel system, is stunningly realistic in acoustically recreating the sequence. Moreover, fearsomely loud effects never swamp the rest of the soundfield, allowing everything from breaking glass to running footsteps to shine through the action with superb presentation. The complete lack of clouding or blurring of details gives the sound an intense flavour, perfectly backing up the onscreen hi-def action.

A run-through of classic movie scenes and set-pieces ensued, from the deli counter's worth of cheese of *Jupiter Ascending* to the sonic chaos of pretty much all of *Mad Max: Fury Road*. Again, while the scale and presence are spectacular, it is the resolution of detail that really

mesmerises. Each effect, no matter how large or small, is given its own leading role with nothing playing a bit-part or lost in the background.

Just in time for this review, Trinnov secured licensing for native DTS:X processing on the Altitude32, so I was able to move from Atmos to its main rival. The *Divergent* sequence from the DTS demo disc showcased the processor's atmosphere-building capabilities. The relatively calm and surreal scene of the water-filled Houdini box, a finger nail tapping inquisitively and the slow, inevitable splintering and cracking of the glass, proved so dramatic I found myself holding my breath. And when the obvious happens – the glass shatters – the dynamic impact thundering out of the tense, inky black silence makes for a heart-skip moment.

Native Auro-3D movies to test the Trinnov's Auro-3D abilities are as rare as hen's teeth, but Sony Pictures' *Pixels* on BD and some additional content rustled up by the Anthem team provided enough to make it worth engaging. And a native Auro-3D 11.1 mix, reconfigured over what was, in this setup, a Dolby Atmos speaker layout, delivered width and height that made a complete mockery of the room's actual dimensions. Directly comparing Auro-3D with the 'flat' versions, the Auro-3D sounded bigger with more warmth and enormous scale, but perhaps with a little less of the incredible intensity in rendering of effects.

Using the iPad interface, I experimented toggling between native DTS:X sound and Auro-Matic upmixing, still using the Altitude's processing to map the result onto the 9.4.6 speaker configuration. Auro-Matic delivered a bigger, more gung-ho sound compared to the native mix, but DTS:X proffered improved clarity and precision. I'd

DOLBY ATMOS: Yes **DTS:X:** Yes **AURO-3D:** Yes (via paid upgrade) **THX:** No **POWER OUTPUT:** N/A (processor only) **HDMI:** 8 x inputs; 2 x outputs (1 x HDCP 2.2) **AV INPUTS:** 4 x digital optical audio; 4 x digital coaxial audio; 2 x AES/EBU **ANALOGUE MULTICHANNEL INPUT:** Yes. 7.1 phono (plus stereo XLR) **MULTICHANNEL OUTPUT:** Yes. 32-channel via XLR output/D-Sub 25 **MULTIROOM:** Yes. Any configuration of the 32 channels **VIDEO UPSCALING:** No **DIMENSIONS:** 442(w) x 445(d) x 165(h)mm **WEIGHT:** 14kg

FEATURES: Discrete 32-channel processing; Trinnov Optimizer room EQ; 24-source pre-amp; Auro-3D/Auro-Matic; IP/Wi-Fi/RS-232 remote control; support for 0 to 32 subwoofers; software-based upgrades for future audio formats; extensive manual sound control including individual channel EQ/delay/gain/polarity; Trinnov 3D remapping; 12V trigger; UPnP/DLNA audio renderer; headphone output

PARTNER WITH



PARADIGM SUB2: Bolster your high-end 3D soundfield with monstrous bass from Paradigm's £9,500 six-driver subwoofer. Claiming 9,000W of peak power and a low reach down to a frightening 7Hz, this is a reference-grade LFE machine.

suggest each will have their own preference; the fact you can seamlessly swap between these two formats (or, say, Atmos/DTS Neural:X), in real time, is testament to the Altitude's formidable processing power and a very useful tool.

Of course, most cinema enthusiasts will have a large collection of standard Dolby Digital or DTS material, including streamed material. So how does the Altitude32 handle remapping channel-based native formats using its object-based audio processing core? I dug up the *Legends of Jazz* Blu-ray, and Marcus Miller's *The Panther*. The performance was, in a word, stunning. The dynamics, clarity and sheer resolution of tiny details, such as Miller's hand hitting the strings, were the best I've heard of any AV processor. Only the Anthem Statement D2V has ever come close in my listening experience, and I couldn't afford that either.

This 19-channel system filled the room with sound with consummate ease, so is the full 32-channel experience just for rooms the size of a commercial cinema?

Not so, says Garrett. 'You can run the Altitude32 with a basic nine-speaker setup if desired, but the more speakers that are installed the more accurately the processor can measure, map and optimise the room and create the most accurate soundfield. Obviously there are physical and financial constraints in running a 32-speaker setup, but the system's accuracy and performance will scale up with more speakers irrespective of actual room size.'

How to sum up the Altitude32? There's probably no more flexible AV processor currently available for home cinema. Its ability to switch fleet-footed between sound formats is remarkable; its sound is precise, authoritative and balanced. Yes, it's expensive, but the best things often are ■

HCC VERDICT



Trinnov Audio Altitude32

→ £27,000 → www.anthemavs.co.uk

WE SAY: Stunning sound and incredible flexibility make Trinnov's AV processor the must-have heart of any flagship home cinema – as long as it is a money-no-object system

4. Via its balanced XLRs and D-Sub port, the processor can deliver up to 32-channel audio