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T+A MP 3100 HV

Drawing on other models in the German company's range for its design and features, is this SACD/CD/network client/DAC the most complete media player solution yet?

Review: **Andrew Everard** Lab: **Paul Miller**

The expansion of digital technology in audio has brought modular design increasingly to the fore. Not only is it possible for a manufacturer to build, say, a network music player by taking a standard 'off the shelf' module and adding its own analogue circuitry around it – as some have done – but it also opens the possibility for those companies developing their own technologies to amortise their costs by using the same basic building blocks in models at a range of prices.

FOR THE COMPLETIST

On a superficial level, that may make T+A's £12,690 MP 3100 HV SACD/network player/DAC look like something of a grab-bag, taking the earlier MP 3000 HV [*HFN* Oct '12] and the PDP 3000 HV [*HFN* Mar '15], and bolting on network capability and some other up-to-the-minute features. However, there's rather more than that going on here, and indeed this may be the most complete network/disc player solution on the market – as perhaps one might hope, given the price.

In fact, much has changed, and not just the new SACD/CD mechanism, designed for less mechanical noise with a more rigid construction, and a new SACD decoder for a true DSD signal path. The streaming section is also new, with increased processing power and compatibility with streaming services including Tidal, Qobuz and Deezer – subject of course to subscriptions, and with Roon compatibility coming soon via a free firmware upgrade.

It's all handled on a separate plug-in module, so major hardware upgrades can be carried out simply in the future. Lothar Wiemann, head of R&D at T+A, explains that just about the only section carried over unchanged is the analogue output, along with its power supply.

RIGHT: Inside shot shows T+A's new CD/SACD drive with main PCB adjacent. The latter hosts the PSU regulation alongside T+A's 'True 1-Bit DSD converter' and quadruple PCM DACs, all previously seen in the PDP 3000 HV player

But while this unit may seem a triumph of packaging (well, sort of, given that it's hardly compact) by including not just a top-quality SACD/CD player and DAC complete with a range of digital inputs including asynchronous USB, but also network music compatibility, there's no hint of corners being cut in the cause of convenience. Like other T+A models in the HV range, this one requires two mains cables, there being totally separated power supplies for the digital and analogue sections.

Also, while it lacks the two discrete sets of analogue outputs found on the PDP 3000 HV, it still has completely separate digital chains within. One handles LPCM files up to 384kHz/32-bit, using a double-differential quadruple DAC system that actually upsamples – to 352.8kHz in the case of 44.1kHz CD-quality data – before conversion, and with the choice of four

filter positions executed in the upsampling DSP [see PM's boxout, facing page]. Meanwhile everything single-bit, including SACD discs and DSD up to DSD512 is in the hands of T+A's own 'True 1-Bit Converter'.

DAB/FM TUNER PROVISION

As mentioned, in the PDP 3000 HV each of these chains has its own set of RCA phono and balanced XLR outputs, requiring separate connections to the amplification (although they can be commoned to the DSD outputs in that unit's menus). Here there's just a conventional single-ended/balanced choice. However, the MP 3100 HV isn't done with the doubling-up – and indeed tripling-up – for as well as USB 2.0 'host' sockets on both front and rear panels for music playback from memory devices, it has no fewer than four antenna connections on the rear panel.



Two of these serve your Wi-Fi network and Bluetooth connectivity, both of which are pretty standard on devices of this kind, but a third rubber stub aerial connects the MP 3100 HV to the FD 100 remote handset, a radio frequency device (so not needing line of sight to the unit) supplied with its own charger [see pic, p35].

That's unusual enough, given that the player can also be driven using the company's excellent TA Control 2 app, running on a tablet or smartphone, over a network connection. But even more striking is the presence of a separate radio antenna connection, to feed the MP 3100 HV's internal DAB/FM radio tuner. That's a welcome addition, given that so many network music devices seem to assume the user is either going to settle for low-bit radio broadcasts or invest in a separate radio tuner – now getting increasingly scarce. Suffice it to say at this juncture that both analogue and digital radio sections are more than respectable – they're not going to challenge the abilities

of the player when spinning discs or handling higher resolution files, but they're good enough to be seen as thoughtful additions, rather than just frills.

Mind you, even that wouldn't convince me to stick to Wi-Fi networking for streaming music. Given a decent signal strength from the router, the MP 3100 HV will just about do 96kHz/24-bit wirelessly, but I'd rather not risk it. For rock-solid

network connectivity, I'd stick to the cabled Ethernet connection. Another slight digital connection point is that, unlike most USB DACs, which will play everything from a Mac without additional drivers, but require a driver for Windows, the MP 3100 HV comes up with a twist. Yes, it will work driverless with Macs connected to the USB Type B socket, and accept sampling rates of up to 384kHz, but will only handle DSD up to 128/5.6MHz. To go into the upper reaches of the DSD capability, you need a Windows computer and T+A's proprietary driver software. That done you can play 384kHz and also

'This generous sound, free from sonic nasties, is entirely addictive'

FOUR FLAVOURS

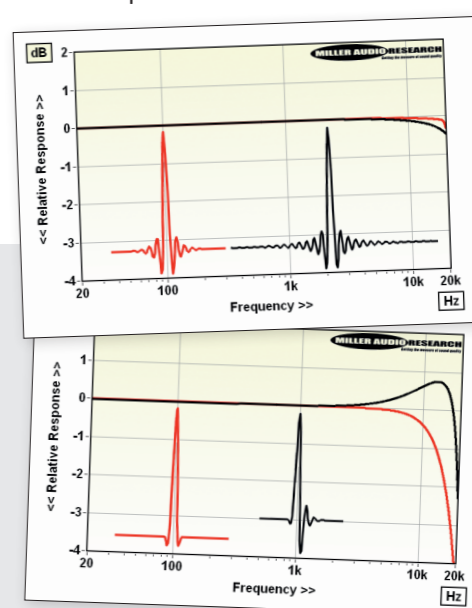
A hybrid of the original MP 3000 HV [*HFN* Oct '12] and more recent PDP 3000 HV [*HFN* Mar '15] with its SACD drive and custom 1-bit DAC, the MP 3100 HV continues to offer four switchable digital filters that operate on all LPCM (not DSD) media up to 96kHz. Digital inputs at 192kHz have a fixed -7.4dB/90kHz response, regardless of filter setting (with the 'wide' 120kHz bandwidth set). 'FIR Long' and 'FIR Short' are traditional linear-phase Finite Impulse Response types while the other two are minimum-phase filters based on Bezier polynomials. 'FIR Long' has obvious pre/post ringing but has low phase distortion and excellent rejection of aliasing images (>100dB with 48kHz media). 'FIR Short' suffers less pre/post-ringing but has very limited rejection of out-of-band images. The mixed 'Bezier/IIR' interpolation filter has some post-ringing but almost no pre-ringing but neither does it suppress ultrasonic images. Low (44.1/48kHz) sample rate data is left with a +0.75dB/12kHz treble peak and increased phase distortion. The pure Bezier filter offers almost perfect time domain behaviour – no ringing – but a rolled-off treble response of -4.6dB/20kHz with 44.1/48kHz media. PM

ABOVE: The massive 'HV' alloy fascia is now familiar to all audiophiles, hosting a rotary source selector and menu/media nav control. Huge VFD includes touch-sensitive controls

DSD512, though of course you'll need dedicated player software such as J River Media Center or foobar2000, which will allow these formats to be passed 'full-fat', rather than being downsampled.

FULL AND INVOLVING

Two things while listening immediately spring to mind. The first is that this device is pretty much source-agnostic, in that a CD played in the drive sounds identical to the same music streamed in 44.1kHz/16-bit over the network, played from a computer via USB or even from a thumb drive in one of the USB Type A slots; and an SACD sounds identical to rips at DSD64 played from computer or USB stick. ↻



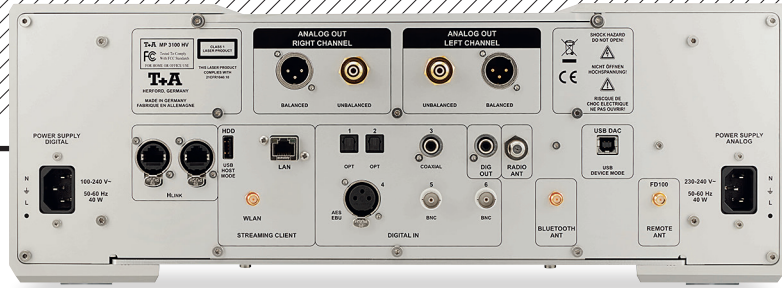
ABOVE: Time and frequency responses of FIR Short and Long filters [top, red/black] versus Bezier and Bezier+IIR filters [bottom, red/black]

LAB REPORT

T+A MP 3100 HV

Comparisons with the earlier MP 3000 HV [*HFN* Oct '12] are instructive because, while SACD playback and the bespoke 1-bit DAC for DSD are key upgrades, the core performance of the MP 3100 HV remains unchanged. Tested in 'wide' mode with the 120kHz cut-off frequency, the response of all input sample rates – except 192kHz – is determined by your choice of digital filter [see boxout, p33]. With CD or 48kHz digital inputs this varies from -0.3dB/20kHz (FIR Short) to -4.6dB/20kHz (Bezier) while 192kHz/24-bit inputs via S/PDIF, USB or network are fixed at -7.4dB/90kHz regardless of filter. The response with SACD and DSD64 inputs extends from -0.6dB/20kHz to -2.3dB/40kHz, -8.6dB/80kHz and -14.2dB/100kHz although distortion at HF is necessarily dominated by ultrasonic requantisation noise (0.033%, 20kHz/0dBfs). With 24-bit files up to 192kHz, and SACD, correlated jitter varies from just 10-30psec and noise-like jitter is close to zero – an impressive result [see Graph 2, below].

Distortion is low at 0.00095% at the player's peak 4.6V (balanced) output falling to 0.0004% from -10dBfs to -30dBfs [red trace, Graph 1] and about 10dB higher via 16-bit CD [black trace] below -15dBfs. Interestingly, as with the MP 3000 HV, our sample of the MP 3100 HV showed a uniformly higher (analogue) THD via the right channel. There's also an increase in odd-order THD at higher frequencies (0.0004% at 1kHz to 0.014% with 24-bit data and 0.017% with 16-bit CD data at 20kHz/-30dBfs) as illustrated by the blue trace in Graph 1. Nevertheless the MP 3100 HV remains technically robust with its a wide 113-114dB A-wtd S/N ratio, excellent ± 0.05 dB low-level resolution (100dB range with 24-bit inputs), 0.01dB channel balance and 130dB stereo separation. **PM**



ABOVE: Balanced (XLR) and single-ended (RCA) analogue outs are joined by S/PDIF inputs (RCA, two on BNC and two Toslink), AES/EBU (on XLR), USB 2.0 and wired and wireless Ethernet digital connections. The RF remote connects via an aerial as does Bluetooth. Note two IEC mains inlets for separate 'digital' and 'analogue' circuit PSUs

The other point to be made is that the MP 3100 HV has very much the T+A house sound – big, rich, wonderfully full and involving, yet just a shade sweet and perhaps lacking that last suggestion of air and ambience in the highest treble. But as I said of the PA 3100 HV integrated [*HFN* May '17], this makes T+A products supremely easy to enjoy, and for those of us who like to get swept away by the music this generous sound, free from any sonic nasties, is entirely addictive.

And the effect is by no means overt, for this isn't a player that ever sounds soft or over-lush, and the chosen balance will only really be apparent when it is compared side by side with more 'obvious'-sounding hardware. Stacked up beside my usual Naim NDS, for example, it was evident that this had a bit more bite to it, but the warmer, weightier T+A sound was equally as enjoyable.

DEFINITION AND SPEED

Of the four filter positions on offer for PCM content I found the two Bezier-interpolator-based settings gave more impact to the sound than the short and long FIR filters, with the 'Bezier/IIIR' setting perhaps emphasising the MP 3100 HV's natural warmth and smoothness a little *too* much. Mostly I settled on the 'Bezier' setting, which delivered the most realistic-sounding instruments, free-breathing dynamics and better punch.

The great scale the T+A player can summon up is heard to good effect with the LSO Live recording of Brahms's *German Requiem* [LSO0748; 96kHz/24-bit download], when the segue between the hushed voices and great swathes of sound in 'Denn alles Fleisch es ist wie Gras' benefits from the effortless dynamic ability here. Despite the

warmth of the MP 3100 HV, there's excellent atmosphere and presence from this exemplary live production, with both fine insight into the musical forces and a real sense of drama and performance.

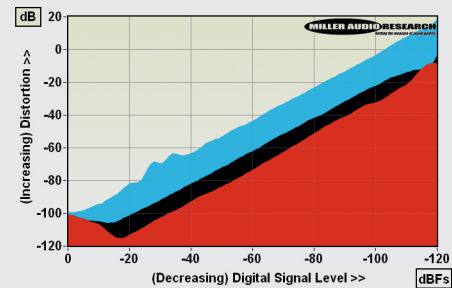
Playing the Oslo String Quartet's vibrant set of Beethoven and Schubert works [2L-135] in everything from CD quality up through hi-res PCM to 352.8kHz/24-bit FLAC and DSD256, both from the SACD/CD release and from computer-stored files, shows not only the versatility of this player but also the definition and speed it can muster. The drive and attack of the performers is thrillingly presented, and the sheer focus on offer totally attention-grabbing.

That's as true with Ry Cooder's voice and guitar on *Paradise And Lunch*, in DSD64 from MFSL UDSDAC 2159, where the MP 3100 HV's warm, generous bass and clarity allow a sound that's as spacious as it is intimate, suiting the variety of styles here perfectly, and makes the closing duet on 'Ditty Wah Ditty' both immediate and rather spine-tingling. Rich but never slow, and displaying huge amounts of detail without shouting about the fact, this is a player as mature and confident as it is generously equipped. **Ⓛ**

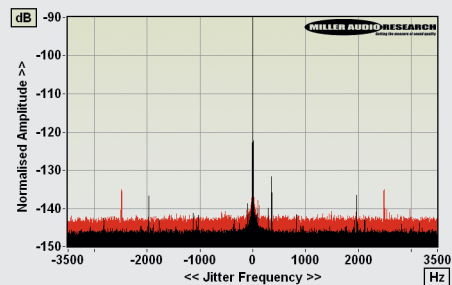
HI-FI NEWS VERDICT

Yes, there's some tailoring of the sound here, and one that may not satisfy explicit detail freaks, but its rich presentation simply makes the MP 3100 HV easier to enjoy. With its comprehensive specification, remarkable audio engineering and exceptional build and design, this unashamedly expensive all-in-one player could well be the ideal way to combine the worlds of physical and 'virtual' music media.

Sound Quality: 86%



ABOVE: Distortion versus 48kHz/24-bit digital signal level over a 120dB dynamic range. S/PDIF and network (1kHz, red), CD (1kHz, black); 20kHz, blue)



ABOVE: High resolution 48kHz/24-bit jitter spectra, LPCM (network/USB, black) and SACD (red)

HI-FI NEWS SPECIFICATIONS

Maximum output level (balanced)	4.62Vrms at 44-50ohm
A-wtd S/N ratio (S/PDIF / CD / SACD)	113.8dB / 114.5dB / 114.6dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.00095% / 0.00040%
Dist. & Noise (20kHz, 0dBfs/-30dBfs)	0.00080% / 0.014%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0dB to -0.4dB/-0.6dB/-7.4dB
Digital jitter (S/PDIF / CD / SACD)	12psec / 116psec / 14psec
Res. @ -100dB (S/PDIF / CD / SACD)	± 0.05 dB / ± 0.2 dB / ± 0.1 dB
Power consumption	16W (analogue) / 13W (digital)
Dimensions (WHD) / Weight	460x170x460mm / 26kg

