

# Going by the book

Martin Pipe tries out a distinctive and versatile – if rather expensive – DAC/headphone amplifier from Lindemann.

**T**he base level Musicbook DSD 10 that I review here is a headphone amplifier with DAC, Bluetooth and asynchronous USB (with DSD-over-PCM, or 'DoP').

The name derives from the compact book-like dimensions of the unit. It has a meticulously machined aluminium case with a large amber OLED display and distinctive top-mounted multifunctional 'edgwheel'. There are two optical digital inputs, two coaxial digital inputs, an asynchronous Class 2 USB port and a Bluetooth aerial in addition to an IEC mains inlet (no external power-supply clutter here!).

Phono socketed analogue outputs are fitted (unbalanced), balanced XLRs and a (front-mounted) 6.3mm headphone socket. The icing on the cake is a pair of analogue inputs, that allows the Musicbook to be used as the link between sources, and active speakers or amplification that follow. They are line-level, though, meaning that vinyl-lovers will need a phono stage. The Musicbook 10 (and, for that matter, its brethren) don't convert an incoming analogue source into digital. Everything's kept analogue – relays route the desired

source to the output buffer amplifiers via a MUSES 72320 chip – described by Norbert Lindemann as "the finest analogue volume control on the market".

Volume can be controlled (in 100 steps) and inputs selected via the edgwheel. Simply rotating it changes volume; if the wheel is pressed downwards while doing so, it allows you to cycle through sources. You can also carry out such operations from the remote, an elegant device that – unusually – is powered by an internal lithium-ion battery. It can be charged from your computer via the supplied USB cable. It can be used to configure other functions like renaming inputs, changing display brightness, adjusting stereo balance and output/headphone voltage range, 'fixing' the line output (i.e. the volume control is only active for headphones), 'skipping' unused inputs, Bluetooth pairing, selecting digital-filter characteristics and engaging a mode that re-samples PCM from one of the digital inputs to DSD128 or 256. The latter is enabled by default, reinforcing Lindemann's faith in DSD.

The manual covers several models, giving the impression that an app (Android or iOS) will allow all Musicbooks to be controlled from smart devices. But this is only true of the 20 and 25 models – device control is available over a network connection, but not Bluetooth. In other words you'll need that remote to configure the Musicbook 10 DSD; Bluetooth is used purely for audio (note, in passing, that apt-X is supported).

Norbert Lindemann told me: "Any input signal can be converted into DSD128/256 (depending on the sample rate), with a new sample rate converter from AKM (the AK4137). It offers 32-bit performance, and 180dB of dynamic range. The signal is then simply filtered in the DACs, to get an analogue signal – no further processing is applied".

"To perform digital-to-analogue conversion, we use (AKM) AK4490s in dual-differential mono mode".

## SOUND QUALITY

For the listening tests, the Musicbook DSD 10 fed an Arcam A49 integrated amplifier and Quadral Aurum Wotan VIII speakers. Sources included a



Windows 7 PC and Cambridge CXN streamer, both of which could draw on losslessly-compressed (FLAC) CD rips and hi-res (PCM and DSD) content stored both locally and on a NAS. Windows users need to download a driver from the Lindemann website. To get the best from PC playback and enjoy the benefits of DoP, you then need to set up your player software – in my case, Foobar 2000 – by installing and configuring the appropriate plugins. Audio is then passed ‘natively’ over the USB link to the DAC. The Musicbook 10’s front-panel display is very helpful here, as it informs you about the incoming signal. If you’re playing a DSD file, and ‘PCM ...’ is displayed, then you know that further work is required.

I first tried routing the CXN streamer’s analogue phono outputs through the Musicbook and compared the resulting audio with a direct connection to the Arcam. There was no perceptible difference and so clearly Lindemann have got things right.

Headphone listening – plugging in a pair mutes the line outputs – also fared well, my Oppo PM3s being amply-driven with a full-bodied, smooth and detailed presentation with natural stereo separation. And at high listening levels, ‘grittiness’ is kept at bay; not even bass-heavy tracks like Pye Corner Audio’s Sleep Games could throw it. Indeed, the output is so effective that the lack of an ability to work with balanced ‘phones is not necessarily a limitation.

Bluetooth (compressed via apt-x) performed beyond expectations. The Krautrock instrumental textures and insistent motorik rhythm of Neu!’s E-Musik – a FLAC CD rip stored on my Samsung smartphone – emerged largely intact. But there’s a slight coarseness and veiling that disappear when the same track is introduced via more conventional means.

Which brings me to uncompressed digital sources – starting with a 24/96 HDTracks download of Rimsky-Korsakov’s Snow Maiden (Minnesota Orchestra/Eiji Oue). Its Dance of the Tumblers was portrayed with vitality and exuberance – a joy to listen to, the Musicbook DSD 10 taking the piece’s dynamic swings within its stride.

CD-sourced material, like Radiohead’s A Moon Shaped Pool, also fared well. Album-opener Burn The Witch’s strings-driven urgency comes across well, as does Thom Yorke’s

unique contribution and the treated vocal that contributes to the bassline. A lot’s going on here, but there’s little clutter to speak of. The digital filter (PCM sources only) can make a slight difference as regards fast percussive sounds – thankfully, the ribbon tweeters of the Wotans are very revealing. Upsampling PCM to DSD (hi-res PCM is an alternative) can make subtle differences to musical presentation. I found that percussive and treble-heavy instruments disappeared further back into the mix.

Robert Len’s latest contemporary-jazz outing Hope is a DSD 128 recording, the stripped-back performance captured with audiophile sensibilities by 2xHD. And here it sounds phenomenal – I could almost picture Len’s embouchure as he plays his flugelhorn, such is the detailing and cleanliness available. A real sense of space is imparted. I was engrossed in the music; this, surely, is what high-fidelity is about? And with a test ‘favourite’ of mine, an analogue tape-originated Blue Coast DSD64 of Keith Greeninger and Dayan Kai’s guitars-and-vocals ‘Looking For A Home’, I could almost sense the

*Lindemann has provided all of the inputs and outputs you’ll need for practical enjoyment of most music collections – four digital inputs (two of which are optical) that can handle 16 and 24-bit signals, two analogue inputs, Bluetooth (represented by the aerial!) and Class 2 USB. Output is simultaneously available in balanced (XLR) and unbalanced (phono) form. The latter are muted automatically when headphones are plugged into the front-panel socket.*

players in the room – the true-to-life resolution of breathing noises, string chatter and even the brush of clothing against instruments that help to convince. Lindemann’s extensive DSD experience has evidently paid off.

### CONCLUSION

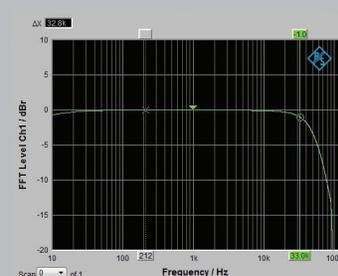
The Musicbook 10 DSD is undoubtedly an excellent and versatile unit, and is one of the better-sounding units I’ve tried as far as DSD is concerned. But while PCM is handled very well in musical terms, in my view some of its rivals can extract a little more of the finer details.



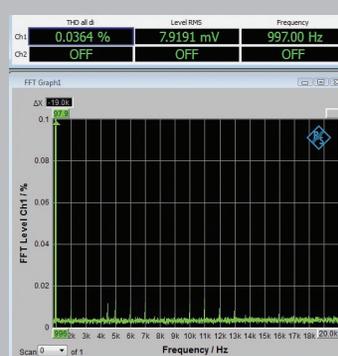
### MEASURED PERFORMANCE

Frequency response of the Lindemann Music Book 10 digital section, with a 192kHz sample rate input, measured flat to 33kHz before a slow roll off to 96kHz, our analysis shows. This will give a well

#### FREQUENCY RESPONSE



#### DISTORTION



damped and smooth sound, likely clean in the time domain.

The balanced and unbalanced output had a good but now unexceptional 117dB, dynamic range.

Distortion measured 0.0047% at full output (0dB) and 0.035% at -60dB with 24bit, and 0.22% with 16bit – good figures. Our distortion analysis shows there are some distortion products, these also limiting dynamic range.

The preamplifier stage has no gain via the phono outputs, acting only as a volume control, but a gain of x2 is available through the XLR outputs, with maximums of 8V and 15V respectively. Bandwidth was wide and noise low.

The Lindemann Music Book 10 measured well although it is around 8dB behind the best (ESS Sabre32) DACs currently on the market in terms of crucial dynamic range. NK

Frequency response	4Hz-33Hz
Separation	101dB
Noise	-116dB
Distortion	0.035%
Dynamic range (24bit, XLR)	117dB
Output (XLR, Phono)	8, 4V

## HI-FI WORLD

**LINDEMANN  
AUDIO  
MUSICBOOK 10  
DSD £3000**



**OUTSTANDING - amongst the best**

#### VERDICT

A worthwhile upgrade of a highly-regarded product, the Musicbook 10 DSD combines a strong performance with distinctive aesthetics

#### FOR

- revealing and musical delivery – especially with DSD
- practical and elegant design
- flexible configuration

#### AGAINST

- remote is essential for configuration
- no upgrade path provided
- stiff competition from lower-priced units

Elite Audio  
www.eliteaudiouk.com  
+44 (0)20 3397 1119