

Meitner Audio MA3

If there's one man synonymous with the 'custom DAC' it's Ed Meitner, who has crafted his own digital tech for 30 years. His latest outboard DAC is a chip off the digital block
Review: Nick Tate Lab: Paul Miller

Twenty years or so ago, standalone DACs were fast becoming an endangered species. The breed had a brief moment in the sun in the early '90s, with almost all CD player brands fitting digital outputs, but until the advent of USB audio, the add-on digital box was on the wane. Now, with the rise of digital streaming, network-attached DACs are the gift that keeps on giving, for hi-fi brands and buyers alike.

Streaming DACs have become digital sources in themselves, able to play music collections kept remotely on network attached storage – and that's before you count legacy CD and DVD playback, plus computer connectivity via USB. Just as we have an elite breed of 'superdeck' turntables in the wake of the vinyl revival, so too do we have 'superDACs' including the £9750 Meitner MA3 featured here.

ONE FOR ALL

This is a deceptively sophisticated high-end source that claims – by virtue of its company's founder's provenance – serious audiophile kudos. Yet it's no niche product, designed for a few tweaky purists. Its 'lossless' volume control makes it a digital preamplifier, and there's streaming functionality and a choice of front panel, remote control or app operability.

As well as PCM with support for MQA, it caters for DSD128 and DXD conversion over USB and network streaming. And the latter enables connection to high-resolution streaming services such as Tidal and Qobuz, plus support for popular music services like Spotify, Deezer and vTuner, provided you've signed up. The MA3 is also Roon Ready. In addition to the multiple digital inputs and connectors, there are both balanced and single-ended analogue outputs via XLRs and RCAs, respectively.

RIGHT: Powered by a compact switchmode PSU [right], the MA3 includes a Nexel network solution [green PCB], XMOS USB [bottom left], Xilinx FPGA running custom Meitner code [top blue PCB], clock and discrete Meitner 1-bit DACs under screening cans [centre left]

Bespoke is the operative word here, defining where the MA3 stands out from the crowd. It sports brand founder and CEO Ed Meitner's fully discrete single-bit MDAC2 converters, driven via custom upsampling/digital filter code running on the MDAT2 DSP [see PM's boxout, p51]. Ed Meitner headed up the engineering team for the MA3 project – an evolution of Meitner's proven technologies now benefiting from enhanced processing power – working alongside Mariusz Pawlicki who was in charge of the adaptive MDAT2 filter code.

It's worth noting the MA3 is a long way from being the company's top product, sitting between the MA-1 V2 and the EMM Labs DAC2X V2. Apparently it took two years to fully develop – remember, there are no 'flavour of the month' DAC solutions from TI, ESS or AKM, etc, in here but bespoke DAC and digital filtering code executed via an FPGA, à la dCS, Chord Electronics, MSB and other progressives.

Meanwhile, a Nexel chip was bought-in for network music playing duties, though, as you might expect, its implementation has been carefully fettled to suit. Ed Meitner says that the company's own MFAST2 asynchronous 'jitter avoidance' technology, and custom-built MCLK2 clock, play an important role in getting the best out of the streaming platform as well as the discrete DAC elements themselves. Furthermore, a custom-designed switching power supply was chosen in order to further reduce noise across all digital sources [see inside picture, below].

WELL CONNECTED

In day-to-day use, the MA3 isn't especially different to any of a number of streaming DACs from dCS, Auralic, et al, although rather than having its own app, it uses the generic mConnect Control. This is nice enough to work with, being fast and stable in use and a cinch to hook up to



the Meitner DAC. Indeed, it barely took seconds to add my Qobuz account to it, although many will simply use Roon.

Operationally, the unit's large volume control, allied to an excellent, informative and crisp display made it a pleasure to handle – although I am less convinced about the touch controls for the source switching which add little to the user experience. In this respect, the similarly-priced dCS Bartok [HFN May '19] is arguably more enjoyable to operate, and certainly appears more robust in build. While the MA3's casing and fascia appear somewhat less exotic than the technology inside, the package is at least partially redeemed by the lovely aluminium-cased remote control handset [pictured, p53].

LET IT FLOW

But, of course, sound is where it really counts, and here the MA3 is undoubtedly

a top-tier performer. It displays Meitner's characteristically enjoyable presentation, which means a spacious soundstage, natural tone and a terrier-like grip of rhythms and dynamics. This digital source never sounds processed or contrived, but rather lets the music flow just as it should.

Guitars are
supple yet
super-crisp
and grippy

It makes listening fun, without ever appearing fussy, stylised or contrived. Indeed, one might even say that it possesses that most rare of attributes in a DAC – charm.

The MA3 is distinguished by its superb rhythmic prowess. This DAC sounds fleet-of-foot and involving; it was a joy with the stout '80s American rock of REM's 'Texarkana' [Out Of Time; Warner Bros WPCP-4195]. To be brutally frank, this recording is of middling quality, yet it came alive with this digital converter. This hi-res Qobuz stream acquired a life and

ABOVE: Dimmable display is flanked by a 'lossless' digital volume control and input select button. Network streaming functions are accessed via the generic mConnect Control app

a swagger to it that I normally only hear through top-notch vinyl sources. The sound had a refreshingly natural and carefree nature and there was a sense of all three band members performing along with one another and loving it.

This, in part, comes courtesy of the DAC's lightning-fast transient response – the bass guitar work being rendered in a super crisp and grippy way, yet still supple, fluid and tuneful too. In other words, it sounded unexpectedly natural, and beautifully syncopated with the tight, emphatic percussion work. More than this, the vocal line seemed to function as a rhythmic instrument as well as a melodic one. The phrasing of singer Mike Mills was lovely and dialled-in perfectly with the backing instrumentation – the result was a really rousing rendition.

TAKEN ABACK

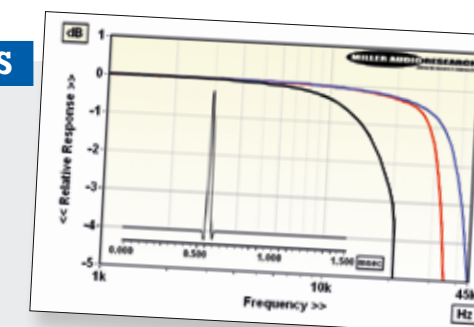
This seems largely down to the MA3's ability to dig deep into any recording it's asked to play without sounding unsympathetically analytical in the process. JB Rose and Maximum Style's 'Wake Up' [Keep The Fire; Associated Records AICT 146] is a crisp-sounding slice of early '00s electronic dance. It's a classy production alright, but not something that normally makes me sit up and listen. But, in this instance, I was quite taken aback by what it was doing to the music, allowing me follow every strand of the mix with absolute ease, enjoying the song's spacious synthesiser glides, and then capturing me with the dramatic high tempo rhythmic backing.

Ordinarily, when listening to this song, I tend to focus on the interplay between the hi-hat cymbals and the rim shots, but such was the clarity of the MA3 that I noticed some extra tom-tom drums set back slightly behind the lead rhythm track. As my listening progressed, subtle revelations

TRANSLATING TRANSIENTS

The MA3's response and time domain behaviour is entirely determined by Meitner's proprietary MDAT2 adaptive digital filter algorithm executed on a Xilinx Spartan DSP. Other brands, Denon included, also employ a degree of signal-dependent adaption in their digital filters, but Meitner was the first with its IDAT D/A processor back in 1992/3. Meitner's approach aims to maintain the integrity of transient signals, specifically avoiding the time-domain artefacts that we see with conventional high-order linear phase filters, for example. Specifically, while incoming data is upsampled to a noise-shaped 16x DSD (45.16MHz) bitstream, transient signals are detected using a 'history' of only a few samples and the filter applied that incurs the absolute minimum pre/post-transient 'echoes'.

The most extreme example [see inset Graph] shows the filter applied in response to a momentary transient – note the variable roll-off of –3.9dB/20kHz (44.1kHz data), –3dB/20kHz (48kHz data, black trace), –3dB/40.5kHz (96kHz data, blue trace) but a reduced –3dB/33kHz (192kHz data, red trace). By contrast, the response of Meitner's MDAT2/MDAC2 DSP and 1-bit DAC to signals judged to be more 'steady state' in nature would, by comparison, be ruler-flat. With constantly changing music signals, the digital filter algorithm adapts and segues between filters to maintain the lowest time domain distortion. PM



NETWORK-ATTACHED DAC



ABOVE: One of every digital 'flavour' is offered here – AES/EBU, coaxial, optical, USB-B for computer connection, USB-A for an external drive/device, and wired Ethernet. Analogue outputs are offered on balanced XLRs and single-ended RCAs

of this sort would become the norm as it excavated low-level detail with forensic precision. Yet this never distracts from the wider enjoyment of the track; rather it adds to the wider listening experience. So despite being pedantic at retrieving tidbits of detail, everything still gelled together harmoniously.

POWER PLAY

The MA3 is great at tracking the dynamics of a recording, too. The vocals on 'Wake Up' sounded expressive and lucid, with the singer's subtle accents beautifully carried. And via the DAC's USB input from my MacBook Pro, some classic rock from Rush really drove this point home. 'Red Barchetta' from the band's *Moving Pictures* [Mercury 800 048-2] can sound quite a dirge via lesser digital sources, but this DAC got its teeth right into the densely layered recording.

It conveyed the power of the multitracked lead guitar work, the explosiveness of the drumming and the pulsating bass guitar with heady abandon, producing a captivating result that was real edge-of-the-seat stuff. All that detail, grip and dynamic articulation was a powerful

cocktail – and such a long way from the bad old days of digital, not long after this album was released in 1981.

The MA3 is not just a basher-out of big techno

LEFT: Meitner's 'milled-from-solid' remote offers control over input selection, volume, mute, absolute polarity and display brightness



tunes and stadium rock, though. The same ingredients that make these aforementioned genres such fun, worked wonders with prim and proper classical programme material. At the risk of being a contrarian, I often find classical music is less enjoyable via digital audio. The clicks and pops may be gone, but all too often so is the natural scale of the music. Again this DAC proved hard to fault, with Beethoven's Piano Concerto No 3 [Linn CKD 336], soloist Artur Pizarro singing like a bird.

This particular recording, by the Scottish Chamber Orchestra, can sound a little closed-in at times – but not here. There was a tangible sense of the concert hall, with more atmosphere than is often heard. The piano, for example, was located so solidly it might as well have been nailed to my listening room wall.

This improved further when using this DAC's balanced outputs, as did the bass which was weightier overall. In a nutshell, the Meitner MA3 excelled in reproducing both the technical aspects of the recording, and – more importantly in my view – the emotion behind the musical performance. ☺

HI-FI NEWS VERDICT

A highly impressive performer, the Meitner MA3 is one of the finest streaming DACs at or near its price. It offers a taste of the best high-end designs in a slightly more affordable, practical and flexible package. I'd have liked a slightly more opulent finish but still it makes a great case for itself – and also the breed as a whole. Most examples are way behind this, but at least they have something to aim for!

Sound Quality: 88%

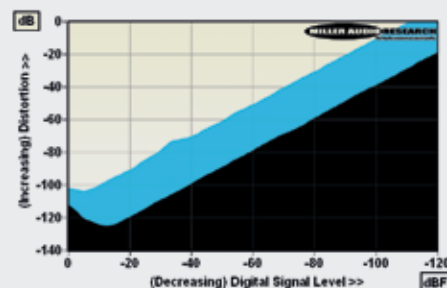


LAB REPORT

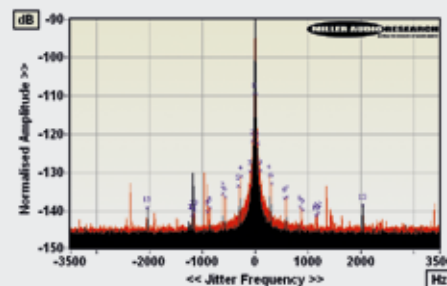
MEITNER MA3

I discuss Meitner's innovative MDAT2 upsampling and 16xDSD MDAC2 DAC technology in our boxout [p51] but while the former determines the frequency response, stopband rejection (106dB at 48kHz) and time domain behaviour [see inset Graph, p51], it's the '16xDSD' DAC that has greatest influence over noise, low-level resolution, high frequency distortion and jitter. Here there's a maximum (balanced) 4.21V output offered from a 145ohm source impedance where distortion is lowest at –10dBfs (1.35V) through the bass/mid at a fabulous ~0.00005%, lifting to 0.0006% at 20kHz. At lower digital levels the ultrasonic requantisation noise from the 16xDSD DAC architecture becomes more significant but, at –30dBfs/20kHz, noise at 100kHz is still a full 90dB lower in level. This is consistent with a DAC processing what might otherwise be described as 'raw DSD128' data [as seen in our HD Music section] but it is sufficient to explain the ~25dB 'step' in THD+N between 1kHz and 20kHz [black vs blue infills, Graph 1. Note shifted 0dB to –140dB Y axis].

The S/N is a wide 113dB (A-wtd, re. 0dBV) and resolution good to ±0.05dB over a 100dB dynamic range and ±0.2dB over a full 110dB dynamic range, suggesting an effective and very fine resolution of some 19-20 bits for the MA3. Both digital and analogue engineering are at play here, the latter also assisting in the super-wide 135dB midrange channel separation, falling to a still-impressive 110dB at 20kHz. The channel balance is good to ±0.01dB, as expected with Meitner's precision digital volume control. Digital jitter is low but not vanishingly so, with a correlated figure of ~110psec at most sample rates joined by an uncorrelated, noise-like jitter seen as a broadening of the J-Test signal [see Graph 2, below]. PM



ABOVE: Distortion vs. USB 24-bit digital signal level over a 120dB range at 1kHz (black) and 20kHz (blue)



ABOVE: High res. jitter spectrum via S/PDIF and USB (black, 48kHz/24-bit; red, 96kHz/24-bit with markers)

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	4.21Vrms / 145ohm
A-wtd S/N ratio	112.8dB
Distortion (1kHz, 0dBfs/–30dBfs)	0.00055% / 0.00014%
Distortion & Noise (20kHz, 0dBfs/–30dBfs)	0.0018% / 0.005%
Freq. resp. (20Hz–20kHz/45kHz)	+0.0 to –3.0dB/–5.3dB
Digital jitter (48kHz / 96kHz)	112psec / 105psec
Resolution (re. –100dBfs / –110dBfs)	±0.05dB / ±0.2dB
Power consumption	24W (1W standby)
Dimensions (WHD) / Weight	435x92x400mm / 7.4kg