

NAD M33

Ever at the cutting edge of both analogue and digital Class D amplification, NAD's new M33 is the first to utilise Purifi's groundbreaking modules. All this and streaming too...

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

Launched last year, NAD's M10 all-in-one streaming system [*HFN* Jun '19] was remarkable in two ways. One was that this compact 'just add speakers' package was actually part of the brand's elite Masters Series, more usually populated by high-end DACs and amplifiers, while the other was that this little system, selling for around £2000, was exceptionally good, receiving a glowing review in *HFN* before going on to win a 2019-20 EISA award as Best Smart Amplifier.

The EISA citation described it as 'a true master of modern music playback' so, yes, NAD may have been rather late to the network systems party, but when it finally arrived, it made quite an entrance.

Now, with the launch of the £3999 M33 there are two network systems – or, in NADspeak, 'BluOS Streaming DAC Amplifiers' – in the range. The M33 takes the M10 concept and scales it up into a full-size hi-fi component, complete with network and Bluetooth/Apple AirPlay 2 connectivity, and a new amplification section delivering 'a minimum of 200W per channel', against the 100W of the M10.

EVOLUTION TO REVOLUTION

The Class D Eigentakt amp module [see PM's boxout, p51] hails from the Danish Purifi brand, founded by Bruno Putzeys (Philips/Hypex), Lars Risbo (TacT/TI), and Peter Lyngdorf (Hi-Fi Klubben, DALI and Steinway Lyngdorf). It's an evolution of technology that has been used in past NAD designs, and the M33 is more than capable of exceeding its rated power output [see PM's Lab Report, p53].

The M33 looks very similar to the company's M32 [*HFN* Jul '18] – in that all the M-Series models have very similar styling – but with the addition of the M10's Gorilla Glass-covered 7in touchscreen display. And given that the M32 integrated

amp was pitched at around £3500, and the M50.2 streaming player (with no amplification) at £3799, the £3999 tag on the M33 could be something of a bargain, provided the performance is up to snuff.

But before we get to that, let's take a look at what the new NAD M33 offers within its full-width, 13.3cm-tall frame. It's a lot, despite this imposing-looking unit weighing a rather modest 9.7kg. For a start, it's worth noting that the combination of aluminium and gloss finishes gives the unit a real feeling of solidity, as is usual with NAD Masters products, while the 'magnetic iso-point' feet help keep vibrations out. Moreover, with its conventional remote handset and Android or iOS BluOS app operation, you're unlikely to be touching that glass front panel too much and leaving fingerprints.

Network access allows the M33 to be integrated into multiroom audio systems, Windows or macOS desktop apps, and a whole range of third-party smarthome

solutions, including Apple, Control4, Crestron, Lutron and more. As if all that wasn't enough, it can also be 'taken over' by Amazon Alexa and Google Assistant devices or, via AirPlay 2, Siri.

FEATURE PACKED

A wide array of digital input options is available. Naturally, the M33 can stream content from network sources – using Wi-Fi or wired Ethernet connectivity – at up to 192kHz/24-bit, as well as accessing online streaming services including Amazon Music HD, Deezer, Qobuz, Spotify and Tidal (with MQA decoding for Tidal Masters streams), along with TuneIn Internet radio. It also has a USB input for playback from storage devices, an HDMI input for TV sound and an array of conventional digital inputs: two S/PDIF coaxial, two optical and an AES/EBU socket. Finally on the digital front, the M33 is also Roon-ready, although our early sample showed up as available, but 'uncertified'.



RIGHT: Substantial switchmode power supplies occupy the front of the amplifier [top], with network/Bluetooth, digital input and analogue (ADC) processing [lower left] and two of Purifi's Eigentakt Class D amplifiers [lower right]



ABOVE: Volume aside, the large touchscreen dominates matters here – even the on/standby switch is hidden on the top surface above the display. But most operation will be hands-off

There are also analogue inputs, converted to digital at user-selectable sampling rates of up to 192kHz/24-bit. These extend to a MM/MC phono input, said to 'rival specialised outboard units', a further line input and one set of balanced inputs. Meanwhile, in addition to the two sets of loudspeaker outputs, enabling bi-wiring and two-zone operation, the M33 also sports a set of preouts, either usable full-range into an external power amplifier, or configured as low-pass filtered subwoofer outs. As for the front panel headphone output, this is powered by its own amplifier module, while the two-way implementation in the Qualcomm aptX HD Bluetooth module allows music to be played wirelessly to suitable headphones.

It's also possible to go into the menus and rename inputs, hide those not used,

and so on. It's all a matter of a little time spent in set-up reaping rewards in day-to-day use, when a touch of the little window above the main display panel will wake up the M33 set up exactly as you want it.

See? It's all very comprehensive – but we're not done yet. The M33 also has built-in Dirac room correction [see *HFN* Jul '20], and comes with a microphone to measure your room, plus five memory profiles to account for different listening positions or conditions – NAD suggests with curtains open or closed – and Dirac Bass Management for those two subwoofer outputs. There are also conventional tone controls in the menu system, if you need them, and the speaker outputs can be switched into bridged

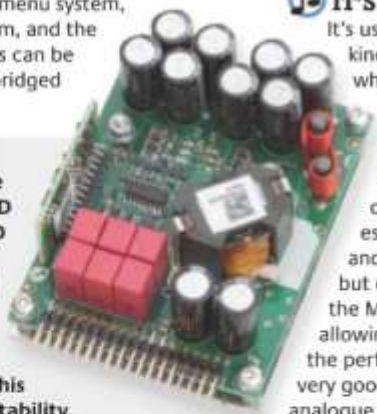
'At this stage I was well into "having a ball" territory'

ULTIMATE CLASS D?

There's a clear evolution in technology and performance from Hypex's original and innovative 'self oscillating' UcD through to Ncore and now to the Purifi Eigentakt Class D module used in the M33 [pictured]. The original UcD circuit married an input comparator, a power stage and LC filter with feedback looped back between output and input 'undoing' enough of the LC filter's phase shift to ensure stable operation. Loop gain was a respectable 30dB, but designer Bruno Putzeys has said this was as far as he could go and still guarantee the amp's stability.

The later Ncore modules combined a UcD amp with a filter that simulated its response – the difference between the two outputs being the distortion of the power stage alone. This error signal drove the corrective feedback with a limiter now added to the correction to prevent over-reaction when the Ncore amplifier clipped. So Ncore broke the link between stability and loop gain, offering over 50dB of feedback and with the same load-invariant frequency response that distinguished UcD from run-of-the-mill Class D amps.

The Eigentakt circuit superficially resembles Ncore's but now includes a low-pass filter added at the input, all encompassed within the Eigentakt's 'global' feedback regime. Loop gain is extended yet again but the control circuit is now so complex that component values had to be derived by modelling software and not tweaked by hand. The result? A full 75dB of feedback, unconditional stability, a vanishingly low 0.006ohm output impedance (M33) and flatter, more extended response. And the nCore's 70kHz notch [*HFN* May '20] has disappeared... PM



mode, allowing the M33 to deliver a more than healthy 640W.

Finally, I promise (!), the M33 is effectively futureproofed by the inclusion of NAD's 'Modular Design Construction' architecture, in the form of two blanking plates at the lefthand end of the rear panel [p53]. Removing one of these will allow an MDC expansion card to be slotted into place, expanding the functionality of the product – for example some of the company's other models can be upgraded with streaming cards or enhanced DACs.

IT'S A BLAST!

It's usual, with products of this kind, that the first thing to do when unboxing and connecting them up for review is to run a check for any software/firmware updates. Our early sample initially displayed some occasionally erratic behaviour, especially in the volume control and input selection departments, but one firmware update later and the M33 was much better behaved, allowing concentration to switch to the performance on offer. Which is a very good thing, as whether playing analogue or digital sources, streaming from a network store or accessing an online service, this 'BluOS Streaming DAC Amplifier' is nothing short of exceptional.

Yes, it can sound a tad flat at very low volume levels, but as soon as you get up to comfortable settings the sound opens up and begins to involve the listener. And that is as true when using the analogue inputs, the ADC set to its maximum 192kHz, as it is with digital ins or network streaming.

The phono stage is extremely good, as I discovered when I cranked up my Rega turntable to play my 'bought on the day of release' copy of Elvis Costello's *Armed Forces* [Radar RAD14], and instantly heard



ABOVE: Modular Design Construction (MDC) modules will add extra options but the M33 is already equipped with four S/PDIF (two coax/two optical), one AES/EBU, wired/wireless network, USB and HDMI digital ins alongside MM/MC phono, two line ins (inc. balanced on XLR), pre and sub outs plus bridgeable 4mm speaker outputs

the off-kilter 'Accidents Will Happen' played with all its bite, and 'Oliver's Army' blasted out with real solidity and attack. Instant 1979 nostalgia!

Like other recent NAD amps using variations on Class D technology, this all-in-one has two essential components to its sound. It's always crisp and clean, extracting bags of detail from whatever you choose to play and delivering superb dynamics, and it also seems unburstably powerful, allowing you to play it as loud as you like, and into just about any speakers, without any sign of hardening or edginess setting in.

TOTAL CONTROL

I used it with great success into loudspeakers as diverse as the little Focal Chora 860 and Neat's Iota Xplorer [HFN Jul '18], and in each case there was a sense of fine control as the amplifier made the most of the speakers' capabilities. Indeed, as PM notes in his lab report [opposite], instead of hitting the end stops abruptly it just softens a bit when you really push it hard.

That ability to 'go loud' and stay in total control is heard with The Orchestra Of The Americas recording of Falla's *The Three-Cornered Hat* and *Nights In The Gardens Of Spain* [Linn CKD 625, 192kHz/24-bit], with its explosive opening, thundering percussion and blaring brass giving way to what is sultry, intricate orchestration.

The M33 handles the dynamics and the detail equally well,

LEFT: NAD's HTRM 2 full system remote gives direct access to volume, mute and input selection while also allowing the M33's comprehensive config. menu to be navigated at a distance

letting the music flow, especially in the swirling 'Danza de la Molinera'. This whole set is bold, expressive and dramatic, and the M33 laps it up, bringing out the warm glow of the playing as well as the scale of the orchestral forces under conductor Carlos Miguel Prieto, and as striking with the flow of the strings as it is with the punch of the rhythms.

Play an album such as Yo-Yo Ma, Chris Thile and Edgar Meyer's delicious *Bach Trios* set [Nonesuch 7599 793920], and the M33 delivers a beautifully focused view of this arrangement for double-bass, cello and mandolin, with the two 'big fiddles' having a sonorous yet tightly defined sound, above which Thile's contributions have a wonderfully tight snap.

And when you change pace entirely to bassist Brian Bromberg's 2010 album *Bromberg Plays Hendrix* [Artistry ART 7030], the M33's combination of slam, with drummer Vinnie Colaiuta, and insight into Bromberg's multi-layered basses is magnificent. At this stage, well into 'having a ball' territory, I loaded up Liam Gallagher's *MTV Unplugged* set [Warner 0190295279363] for more nostalgia, enjoying the way the M33 revealed the layers of instrumentation, all the way through a glorious singalong 'Champagne Supernova' packed with detail, atmosphere and ambience. ☺

HI-FI NEWS VERDICT

All the system you could ever want? The M33 has a strong claim to that description, with its wide-ranging flexibility, ease of use and the acclaimed NAD sound, along with the usual 'drive whatever you want' ability. It's as impressive with analogue sources as when doing its streaming thing, and future upgradability courtesy of those MDC slots on the rear furthers confidence in this amp as a long-term buy.

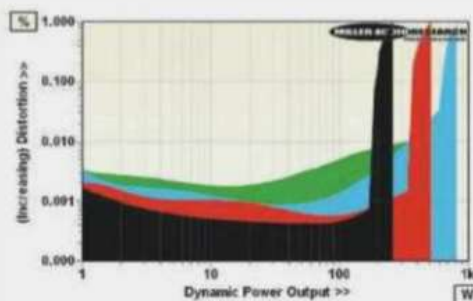
Sound Quality: 86%



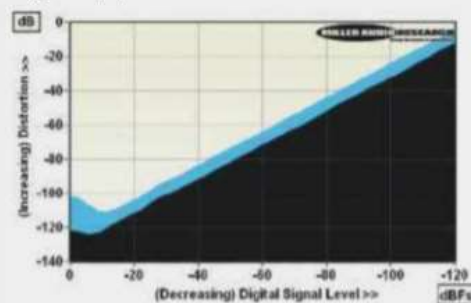
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Tested via its analogue line input, the M33's power output and distortion rather depend on the position of the volume control because the input ADC (sampling at 48kHz/192kHz/24-bit) can clip before the output. At a volume setting between 0dB and -6dB distortion is 0.0005% (very close to NAD's specification) but falls still further to 0.0003% between -6dB and -12dB on the numeric readout (all for the same 1kHz/1W/8ohm output). However, with the volume at -12dB the max. power output is just 2x77W/8ohm because the input clips first, while between -6dB and 0dB it is 2x220W/8ohm and 2x430W/4ohm. True to tradition, and despite being a Class D amp [see boxout, p51], NAD has engineered some useful headroom into the M33 which supports peaks of 261W, 515W and 815W into 8, 4 and 2ohm loads with 502W/1ohm limited by current protection (22.4A). Note how there is no abrupt clipping point but, instead, maximum power is 'feathered' as it approaches 1% THD [Graph 1]. This is the modern-day equivalent of NAD's 'Soft Clipping'.

The digital performance is equally impressive with vanishingly low 0.00004-0.0003% distortion from 20Hz-20kHz [see Graph 2] and jitter suppressed to <10psec across all sample rates. Frequency response(s) via the digital inputs necessarily scale with input sampling rate reaching $\pm 0.02\text{dB}/20\text{kHz}$, $-0.35\text{dB}/45\text{kHz}$ and $-1.3\text{dB}/90\text{kHz}$ with 48kHz, 96kHz and 192kHz media, respectively. These are exceptionally flat and extended responses even though the 83dB stopband rejection suggests the linear phase digital filtering is not overly aggressive. Moreover, low-level linearity is good to within $\pm 0.1\text{dB}$ over a 100dB dynamic range while the A-wtd S/N is a very fine 110dB. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 22.4A



ABOVE: Distortion vs. 48kHz/24-bit digital signal level (1kHz, black; 20kHz, blue). Note expanded 140dB scale

HI-FI NEWS SPECIFICATIONS

Continuous power (<1% THD, 8/4ohm)	220W / 430W
Dynamic power (<1% THD, 8/4/2/1ohm)	261W / 515W / 815W / 502W
Output impedance (20Hz-20kHz)	0.006-0.009ohm (95ohm/pre)
Freq. response (20Hz-20kHz / 90kHz)	-0.01 to -0.19dB / -12.5dB
Digital jitter (48kHz/96kHz, 0dBW)	<5psec / 8psec
A-wtd S/N ratio (re. 0dBW/0dBFS)	94.0dB (Analogue) / 109.6dB (Dig)
Dist. (20Hz-20kHz: 0dBW/-20dBFS)	0.0002-0.003%/0.00004-0.0003%
Power consumption (idle/rated o/p)	32W / 446W (29W standby)
Dimensions (WHD) / Weight	435x133x396mm / 9.7kg