

# Bricasti M3

With trickle-down tech from the flagship M1, a custom DSD DAC plus network and headphone amp options, Bricasti's M3 looks like the new go-to star of the range  
 Review: **Christopher Breunig** Lab: **Paul Miller**

**W**ith its upgraded M1 Dual Mono DAC now in 'Classic' form and selling in the UK at £9499, Bricasti has also announced a more affordable alternative, but still offering 'an incredible array of performance'. The basic M3 USB DAC is offered at £5399, but this increases to £6999 when fitted with its DNLA/UPnP-compatible network streaming card and new headphone amplifier option. The latter includes both 4-pin balanced XLR and 6.35mm single-ended jack outputs, and is available as a return-to-factory retro-fit option as the front fascia requires some reworking [see boxout, p59].

The new M3 features two separate D/A channels using the classic Analog Devices AD1955 DACs for LPCM and a proprietary bitstream DAC solution to handle DSD inputs. The circuitry is fully balanced throughout – including the volume control – and there are independent linear power supplies for both the analogue and digital cores of the product. The elegant, almost soft lines of the M3's alloy casework disguise what is a very purposefully built unit that, at 355x64x286mm (whd) and weighing 4.5kg, is rather bigger than our pictures might suggest.

## PRO HERITAGE

Its casework is all CNC-machined from solid aluminium, black anodised and with laser etched legends. The M3 presents a flat front and rear face, unlike the sculpted form of the flagship M1 and its gold-plated limited edition variant [HFN Oct '16], and looks all the better for that. It sits on four 60mm-diameter non-adjustable feet with rubber inserts. The twin ventilating top-plates might, however, have been more domestic-friendly in black, rather than silver grey and are inset with a dozen countersunk fixing screws.

**RIGHT:** Two linear power supplies are fitted, one for the network, USB and digital processing circuitry [right] and one for the AD1955 DAC-based analogue output [top left] and retro-fitted headphone preamp [near left]

The overall aesthetic reflects Bricasti's very first product, the M7 Stereo Reverb processor designed for use in recording studios. The company was begun back in 2004 in a converted mill in Shirley, Massachusetts, by two former Lexicon employees, Brian Zolner and DSP software designer Casey Dowdell. A critical listener, Zolner's touchstone was the acoustics of Symphony Hall Boston, and its itinerary of fine-tuning and component choice is still determined at Bricasti by listening tests. The company also cooperates with AeVee Labs, New Haven, for its hardware engineering. Its M1 DAC appeared in 2011 [HFN Jun '11] and a well-received 200W/8ohm fully balanced monoblock followed in 2015. Bricasti's domestic lineup also includes 125W and 150W stereo amplifiers.

'The beasts in the opener always make me jump'

Back to the M3, and that large silver-white rotary is not only a gain control but is also used in conjunction with some of the fascia buttons. 'Input' is revealed as five choices on the display; 'Status' includes digital filter selection, display dimming, DSD conversion mode and phase inversion;

'Level' offers 1dB steps over a -99dB to +6dB range plus mute; 'Reference' remembers your preferred listening level with a long press. If you set the M3 to '0dB' then it defaults to bypass mode for direct output into a partnering

preamp. An optional line-of-sight remote handset matches the M3's styling (£529) and duplicates all key functions, including volume [see p61].

While the original M1 had no USB-B input, although this was added later, the M3's USB and network inputs support up





to 384kHz/24-bit LPCM (a downloadable driver is needed for PCs), DSD64 and 128. Additional inputs include AES/EBU, coaxial and Toslink optical S/PDIF. Both single-ended (RCA) and balanced (XLR) analogue outputs are fitted. Finally, while the M1 has no fewer than 15 digital filter options these are condensed to a choice between linear and minimum phase fast roll-off types in the M3. It also has a custom single-bit converter so that DSD inputs are not converted to LPCM.

### FULL COLOURS

With the M3 connected via USB to my MacBook Pro running Audirvana 3.5, my initial listening proved very enjoyable via the headphone output using my trusty Beyer Dynamic T1 [HFN Aug '13] cans, before moving onto my main DNM PA3 power amp and Quad ESL-57 system. Santtu-Matias Rouvali has reached Vol 2 in his Sibelius Symphony cycle with the Gothenburg SO [Alpha ALPHA574;

48kHz/24-bit] and this is an eminently straightforward account. With the linear phase filter engaged, my first impression was of a smooth presentation where all the subsidiary detail could be heard, though overall it was somewhat bland.

Changing to the minimum phase alternative brought an obvious improvement – the soundstage shifted slightly but the rather sweet sound and fine production by Jens Braun was, from a tonal perspective, so much more involving. The same effect was also shown with the remarkable young Italian pianist Filippo Gorini playing late Beethoven sonatas [Alpha 591; 192kHz/24-bit], recorded in the Beethoven Haus Bonn.

Nothing has proved more recent fun than the Shchedrin *Carmen Suite*, adapted from Bizet's original. It's with the late Mariss Jansons, recorded live with the Bavarian RSO [HFN May '20, p95; 48kHz/24-bit download]. After the sinister atmosphere of the opening tolling bells,

**ABOVE:** Now with a UPnP network option, the M3's inputs and features are navigated by a sequence of six buttons and a rotary encoder [also the volume control, centre]

with track 2 the M3 recreated all the zest of the playing and full colour of the orchestration, with the rhythms sounding taut and the soundstage (albeit close-mic'd) explicitly set out.

Researching my Classical Companion piece about Jansons [HFN Feb '20] I was struck by how well those early Chandos Tchaikovsky Symphony recordings with the Oslo PO still sounded, although they are only 44.1kHz/16-bit resolution. Listening to No 1, 'Winter Dreams', you wouldn't say it was in any way an 'audiophile' choice – some of the *fortes* are a bit strained – but the M3 carried you along as Jansons urged his players dramatically forward.

### POINTS OF VIEW

Sticking with the USB input I switched to my main system and played the Shchedrin again. Now the pinpointing of instruments was even more apparent while the timbre of percussion instruments, such as the wood blocks, was resolved to even greater effect. What's more, the qualities of PCM playback were more fully revealed, as was the overall potential of the M3 – good though its inbuilt headphone stage was.

Switching to Input 2 (S/PDIF) and the sound – perhaps unsurprisingly – gained even more in the sense of instruments, such as the castanets, starting and stopping while the soundstage became more specific, and less 'in your face'.

HFN's DAC reviews have consistently shown a preference for S/PDIF over USB. For Bizet in a purer form a new Linn ☺

### HEADPHONE RETROFIT

Our sample of the M3 was not only fitted with the optional network card but also the very new headphone preamp. At the time of writing, no technical specification for this amplifier had been posted aside from the fact that it is (necessarily) a fully balanced solution configured to drive both 4-pin XLR and single-ended 6.35mm outputs. In practice, Bricasti's headphone output registers 8.8V at '+1' volume and 7.85V at '0', clipping at the '+2' setting. Adjusted for a 600ohm load this represents an output of 100mW while the amplifier retains sufficient current to support 845mW/25ohm at >1% THD, the latter impedance representative of the 'average' load measured across our comprehensive headphone reviews [p62]. Distortion is very low indeed and typically <0.0005% through bass and midrange and <0.002%/20kHz at 10mW/25ohm.

The frequency response of the preamp is determined by that of the DAC stage [see Lab Report, p61] but its impressively low 315-650mohm source impedance means the M3 will manage the varying load of low impedance 'phones without exaggerating any existing peaks and dips in their acoustic response(s). Channel separation is ~95dB across the 20Hz-20kHz range.

Noise, too, is very low and the ultimate A-wtd S/N ratio very wide at 116dB – the M3 will drive the most sensitive of headphones without obvious background hum. PM



## NETWORK-ATTACHED DAC



**ABOVE:** All digital inputs are supported here including wired Ethernet (as a DNLA compatible network player the M3 handles up to 384kHz PCM and DSD128 as DoP), USB-B (also 384kHz PCM and DSD128 as DoP), optical/coax S/PDIF and AES/EBU (XLR)

192kHz/24-bit download has the Scottish CO under François Leleux playing the *Carmen Suite No 1* [CRD624] which is enjoyable. But the album also has Gounod's *Petite Symphonie* scored for winds only. The M3 conveyed very well the alertness of the playing and the intimacy that this group suggests.

For a speech test – and animals snarling and roaring at London Zoo! – what better than the 1960 Decca recording of Saint-Saens's *Carnival Of The Animals* with the LSO and comic actress Hermione Gingold? The beasts in the opener always make me jump and the narrative is a full-blooded, arch treat (of a Marmite kind). Gingold is set extreme stage left [CD rip from Decca 483 056] and the cynical texts registered with enormous presence here.

### WOW FACTOR

You couldn't have a greater contrast than Magdalena Kožená singing the 'Pie Jesu' from Duruflé's *Requiem* in the wonderful Linn recording with Robin Ticciati [CKD623; 96kHz/24-bit]. The sheer dignity of her interpretation with a presence that you feel you could almost reach out to and touch, the clarity of her enunciation, and the sensitivity of the accompaniment again made me say 'Wow!' as the track ended.

Using an AudioQuest carbonfibre cable, I next connected the M3 to my CD player and, with the tracks I so often use for headphone reviewing – Patrick Stewart narrating Prokofiev's *Peter and the Wolf* [Erato 4509-97418-2], 'Blue Rondo À La Turk' from

**LEFT:** Optional all-alloy M3 remote offers control over input, balance, display and volume



Dave Brubeck's *Time Out* [Columbia Legacy CH 65122], and the MJQ in *No Sun In Venice* [Atlantic 1284-2] – there was a significant step up in sound quality. There were more nuances in both speech and the orchestral reproduction in the Prokofiev, and the two jazz examples were more open and 'three-dimensional', with metal percussion having a more realistic timbre.

In our Hi-Res Downloads pages [HFN Jan '20] we reviewed Vladimir Jurowski's live recording of Tchaikovsky's *Nutcracker* ballet [Pentatone PTC5186761] at 96kHz/24-bit resolution. But NativeDSD.com has this as DSD tracks, so I compared the Overture and the six *Divertissement* movements. There was an obvious difference, initially perhaps subtle, but repeating the comparison showed how you get an increase in natural presence and a sense of ease about climaxes with DSD.

This was even more striking with the finale of Mahler's *Symphony No 1*, in the Budapest Fischer/Iván Fischer recording [Channel Classics; DSD64], where the sheer impact pinned you back into your seat. Extra money and longer download times of course, but thanks to the M3 I did become something of a convert. ☺

### HI-FI NEWS VERDICT

Whether you stream your music from Roon, have a big CD library and are looking to trial a new transport, or just enjoy connecting a laptop and listening over headphones, the Bricasti M3 is worth saving for. The DSD DAC and headphone amp are welcome additions to the platform, and the engineering and finish are superb. It's built to last, operation is straightforward and the sound quality is exemplary.

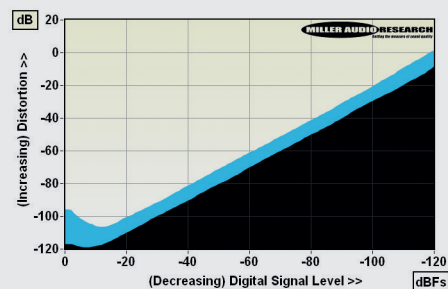
Sound Quality: 88%



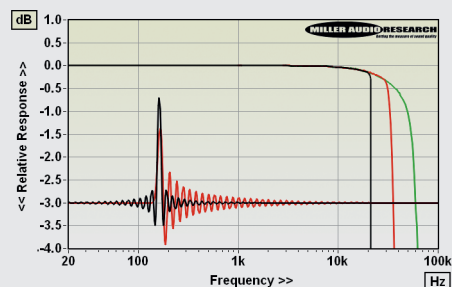
### BRICASTI M3

In the nine years since we tested the original Bricasti M1 [HFN Jun '11] and then the 'Gold Edition' [HFN Oct '16] the design has evidently been 'finessed' to the point where this more affordable M3 version could be derived, complete with custom DSD DAC and headphone amplifier [see boxout, p59]. For LPCM inputs the same Analog Devices AD1955A DACs still define the very low 0.00016% distortion through the midrange at its (fixed) 4.0V peak output, falling to 0.00007% at -10dBfs and 0.00025% at -30dBfs [see Graph 1, below]. As before, there's a slight increase in 3rd harmonic distortion to 0.0017% at 20kHz falling to 0.00035% between -10dBfs and -30dBfs (a function of the analogue stage) while the A-wtd S/N ratio is boosted by a few dB to 114.5dB and low-level resolution also improved to ±0.1dB over a full 100dB dynamic range.

Bricasti's DDS (Direct Digital synthesis) clocking is retained for the M3 but jitter is not as vanishingly low as it was in the M1. Numerically high at 1915psec, the specific jitter sidebands are nevertheless very low rate at ±15Hz, ±25Hz, ±35Hz and ±45Hz, so the subjective impact will be reduced. Bricasti has elected to offer both linear and minimum phase digital filters as part of its integral 8x upsampling regime [Graph 2, below]. It specifically recommends not upsampling data in an upstream media player/server but to deliver the files in native form to the M3. Both filters offer the same 105dB stopband (image) rejection and very similar response curves that reach -0.15dB/20kHz with 48kHz media and rolls steeply away beyond -3dB/36kHz (96kHz files) and -3dB/60kHz (192kHz files). These engineered roll-offs are earlier than typical but are not inherently 'wrong'. PM



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



**ABOVE:** Time (linear phase filter, black; minimum phase filter, red) and magnitude responses at 48kHz (black), 96kFs (red) and 192kFs (green)

### HI-FI NEWS SPECIFICATIONS

Max. output (<1% THD, DAC/Pre)	3.99Vrms at 42ohm
Max. output (<1% THD, headphone)	8.8V/600ohm / 845mW/25ohm
Headphone output impedance	315-650mohm (20Hz-20kHz)
A-wtd S/N (S/PDIF / USB / headph.)	114.5dB / 114.4dB / 116.3dB
Dist. (20Hz-20kHz, DAC/headph.)	0.00016-0.0017%/0.00025-0.0016%
Freq. resp. (20kHz/40kHz/80kHz)	+0.0dB to -0.14dB / -16dB / -24dB
Digital jitter (48kHz/96kHz)	1915psec / 1705psec
Power consumption	27W
Dimensions (WHD) / Weight	356x57x286mm / 4.5kg