

# Aurorasound Heada

This bulky, balanced output headphone amplifier from Japan is proof that the best things don't always come in small packages – or are the most tastefully wrapped  
Review: **Keith Howard** Lab: **Paul Miller**

When I reviewed the Teac HA-501 headphone amplifier [HFN Apr '14] I described it as 'a Japanese product of the old school, with the type of no-nonsense looks that appeal more to male than female eyes', and I contrasted it with the compact, svelte Meridian Prime reviewed two months previously.

Well, the same description applies to the Aurorasound Heada which, with its wooden sleeve, little toggle switches and exposed fasteners securing the three XLR sockets on its fascia, looks even more obviously retro. With the Preda preamp [HFN Nov '14] Aurorasound appeared to have taken a stride towards more modern industrial design, whereas the Heada (like the Vida phono preamp too) has thus far escaped a makeover.

But just as 20th century looks did no harm to the Teac when assessed as a purveyor of aural rather than visual delights, so it is with the Heada. If you are a seeker after out-of-the-ordinary headphone sound quality you'd be unwise to scrub it from your shortlist on the basis of its utilitarian appearance.

## FOR HEADPHONES ONLY

Like the Teac and the recently reviewed Auralic Taurus MkII [HFN Jan '15] the Heada is a pure headphone amplifier, not a DAC/headphone amp hybrid. It has analogue inputs and analogue outputs, and that's it. It doesn't even double as a simple preamp. Yes, there is a pair of phono sockets on the rear labelled 'Through Output' but that is a literal description: the signal on these is that downstream of the input selector switch, with no volume control or output buffering applied. So you can't connect the Heada directly to a power amplifier for speaker replay, it has to be to a preamp or an integrated amplifier – something with a gain control.

**RIGHT:** Internal layout is neat with the PSU board to the right (viewed from front) and four modular amp boards to the left. Volume control is a high-precision conductive plastic type

The Heada provides two inputs on the back panel, selectable by the top of two toggle switches towards the left of the fascia. Input 1 provides for balanced input via 3-pin XLR sockets or unbalanced input via phonos, while input 2 offers unbalanced input only. The Through Output sockets and an IEC mains input socket complete the rear panel connectivity.

Around the front, to the left of the fascia is the volume control with a scale comprising constant-diameter dots but no numbers, which makes precise resetting difficult. Immediately to its right is the input selector toggle switch above a second which selects between low and high gain. Next comes the ¼in jack socket that provides the conventional unbalanced headphone output (the owner's manual warns against plugging a *mono* jack into this), followed by three XLR female sockets which offer balanced connection for headphones that support this option. An

on/off toggle switch has a red LED above which lights when the unit is powered.

The wooden sleeved aluminium case has enough circuitry to fill much of its internal volume. Combining bipolar and J-FET devices, the four amplifier modules are unusual in eschewing low output impedance. Says the designer, Mr Karaki, 'For headphone drive, high damping factor cannot make good sound. I discovered this fact by testing a lot of headphones during [the] Heada circuit design.'

Specified output power, unbalanced, is 1W into 40ohm, equivalent to 6.3Vrms – more than enough to accommodate the transient peaks of high dynamic range music at sensible (or even excessive) replay volumes [see Lab Report, p59]. In balanced mode, as you'd expect, this doubles to 2W. Despite this ample output voltage capability, Aurorasound specifies compatibility with headphones of 16 to 600ohm impedance, suggesting that





current capability may be an issue with impedances below 16ohm, not that they are common. I experienced no issue here, though, as I will describe.

### A MAGICAL COMBINATION

For the listening I drove the Heada exclusively via unbalanced signals from a Chordette QuteHD, fed S/PDIF from a Mac Mini via FireWire connection to a TC Electronic Impact Twin. For most of the listening I used the Sony MDR-MA900 [HFN Oct '12] because, rarely, it has the near-neutral tonal balance and explicit midrange essential for hearing what headphone amplifiers are up to.

The Sony is right at the lower end of Aurorasound's specified impedance range – in fact, with a minimum impedance of 13.9ohm it dips below 16ohm for much of the audible spectrum. But I heard no evidence of the Heada struggling, although it might have at extreme output levels beyond those at which I listened.

In fact the combination of the MDR-MA900 and the Heada was magical, despite the former being limited to using

the latter's unbalanced output. The Heada reminds me of the Teac HA-501 in that its sound has an all too rare combination of natural, uncontrived warmth alloyed with a searching clarity that never leaves you feeling short-changed in resolution or musical engagement.

So listening to it is pure, self-indulgent pleasure, my only concern being that with less honest, less revealing headphones, the balance could tip towards it sounding a little too lush. If that happens it's likely to be a comment on the headphone rather than the Heada, although it should be borne in mind that the Heada's relatively high output impedance may result in undesirable frequency response changes with 'phones that have highly variable impedance.

Once I'd established the general nature of the Heada's sound, I lined up a feast of hi-res tracks via which to enjoy it. I'll run through just three of them specifically: 'Take Five' from Sabina Sciubba and

**ABOVE:** Small toggle switches alongside the volume control select between the two inputs (top) and high or low internal gain. Balanced output is provided on both 4-pin and 3-pin XLRs

Antonio Forcione's *Meet Me In London* [Naim Label 192kHz/24-bit download]; the *Adagio* from Robin Ticciati's acclaimed interpretation of Schumann's Symphony No 2 [Linn Records 192kHz/24-bit download]; and Dire Straits' 'Once Upon A Time In The West', converted to 88.2kHz/24-bit from a rip of the *Communiqué* SACD (Japanese import).

With words to the famous Dave Brubeck melody, 'Take Five' is a showcase for Forcione's guitar work but, above all, the seductive, elastic voice of Sciubba, who could charm birds from the trees. Her laughter before she sings sets the tone – she is enjoying herself here and soon puts a smile on *your* face too.

I really couldn't ask for "Take Five" to have sounded better'

### MUSICAL DELIGHTS

I really couldn't ask for this to sound better: the sense of studio acoustic was convincing, you could clearly hear Sciubba's quiet, staccato breaths emphasising the rhythm after her first 'just take five', and it was obvious that the centre-placed guitar was recorded more drily than that to the right. But above all it was a sheer musical delight.

Ticciati's chamber-like account of the Schumann relies for its un-showy, stealthy charm on precise delineation of the string harmonies in particular, and a clear exposition of this recording's fine sense of acoustic. The Heada delivered both, allowing this triumph of unhurried exposition to weave its calming magic. ➔

### DAMPING FACTOR

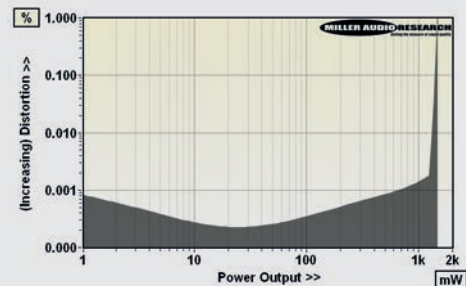
This is the second headphone amp to come our way from Japan that includes deliberate manipulation of damping factor (DF) – the ratio of load resistance to output resistance. In driving loudspeakers it is normal for the amplifier output resistance to be low (DF high) in order to ensure effective electromagnetic damping, particularly of the loudspeaker's fundamental bass resonance. As this damping effect depends on current flow through the voice coil resistance in series with the amp's output resistance, though, it's arguable whether any practical benefit accrues when the latter is reduced below, say, 5% of the former (a damping factor of 20). Why a reduced DF should be of benefit to headphones, as Aurorasound's Mr Karaki suggests, is far from clear. But the audible effect, to judge from the variable DF control on the Teac HA-501, is obvious enough. As the damping factor is reduced, the sound becomes smoother, less 'etched', an effect unlikely to be explained simply by the changes in frequency response.



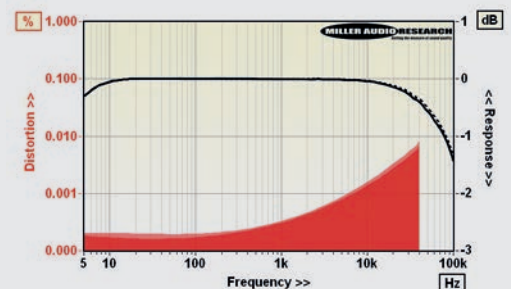
## AURORASOUND HEADA

Despite being based around the same 'Aurora-AMP' discrete bipolar/J-FET op-amp modules we saw in the Preda preamp [HFN Nov '14], the configuration used in Aurorasound's Heada headphone amp exhibits slightly different response/distortion characteristics. In practice, I think the differences are due to the transformer-coupled volume control used in the Preda versus the conductive-plastic type employed here, the upshot being the Heada offers a far flatter LF response (0.0dB/20Hz down to -3dB/1Hz) with a more uniform LF distortion (0.0004%/1kHz down to 0.0002%/5Hz). Neither is there any appreciable change in response or THD under load [see Graph 2, below].

Distortion is actually 10x lower than Aurorasound's spec. up to a 1W power output although the maximum 1.45W/25ohm is slightly lower than might be anticipated from Aurorasound's rated 1W/40ohm [single-ended – see Graph 1, below]. While this is also lower than the 5-10W/40ohm we've measured from some of its high-end competition [HFN Sep '14 and Jan '15], this and the maximum 13V (high gain mode) voltage output will be sufficient to drive all headphones in the Heada's specified 16-600ohm range. Keith talks about Aurorasound's DF control circuit in our review [see boxout, p57], realised in the Heada by its high (by headphone amp standards) 9.3-9.9ohm source impedance. The value is about 0.8ohm lower in high gain mode but both will represent a ~2.7dB loss into a 25ohm load and invite system response variations with low/variable impedance 'phones. Readers may view a comprehensive QC Suite test report for Aurorasound's Heada headphone preamp by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'download' button. PM



ABOVE: Continuous, single-ended power output versus distortion into 25ohm 'headphone' load



ABOVE: Freq. resp. from 5Hz-100kHz (black) and into 25ohm (dashed) with distortion versus frequency (red, 1V; shaded, 40mW) from 5Hz-40kHz

## HI-FI NEWS SPECIFICATIONS

Maximum output (re. 1% THD into 47kohm)	13.0V
Max. power output (re. 1% THD into 25ohm)	1470mW
Output impedance (20Hz-20kHz)	9.31-9.90ohm
Maximum gain (low/high, balanced input)	+5.64dB / +13.8dB
A-wtd S/N ratio (re. 0dBV)	96.7dB
Frequency response (20Hz-20kHz/25ohm)	+0.0dB to -0.12dB
Distortion (20Hz-20kHz, re. 40mW)	0.00019-0.0031%
Power consumption	12W
Dimensions (WHD) / Weight	260x100x250mm / 3.5kg



ABOVE: Input 1 offers balanced or unbalanced connections while Input 2 is unbalanced only. 'Through Output' bypasses the volume control, so the Heada cannot serve as a preamp with a separate power amp

From my days of owning the LP, I'd always thought that *Communiqué* was the best sounding of the early Dire Straits albums, certainly much better than *Making Movies*, but never felt that I'd really extracted the best from it. With the recent arrival of the DSD-layer-only SACD from Japan I feel I've finally got there: as close to the master tape as I'm ever likely to get.

It's by no means an audiophile recording, of course – there's no deep bass and the cymbal sound is the usual indistinct buzz of the period – but, via the Heada, the lead and rhythm guitars and the voice at last realised the clarity I'd always suspected was buried there.

### THE BALANCED OPTION

But what of unbalanced output versus balanced output? The Heada arrived while I was in the process of converting a second pair of the Sonys so that they can be used either way – quite a major job as it involves rewiring the capsules internally and installing connectors. But as I couldn't finish the task in time for this review I took up the offer from importer Pure Sound to borrow its Sennheiser HD600s, complete with balanced cables.

The ageing Sennheiser, if less than ideally spritely in its SQ, has the advantage of high impedance (nominally 300ohm), which should prevent any significant alteration in frequency response occurring as a result of the Heada's output impedance changing according to whether one or two of its 'damping factor control' stages are in circuit.

Concerned not to do too much plugging and unplugging of the two leads, bearing in mind Sennheiser's warning of old that the two-pin connectors on the HD600 and HD650 were never intended for this type of use, I restricted myself to making the unbalanced/balanced

comparison on just one track – the Sciubba/Forcione 'Take Five'. Indeed, that was all I needed to hear that the balanced connection was better: the guitar sound was crisper, Sciubba's creamy vocals clearer, the whole performance more energetic and engaging.

Still, I hesitate to conclude that the balanced output option is better *per se*, assuming that you have headphones to exploit it. Two reasons: first, my concern about the frequency responses being different in unbalanced and balanced operation, because of changes in source impedance, may well be realised when the Heada is used with lower-impedance 'phones.

Secondly, the cabling in Pure Sound's unbalanced and balanced cables is different, and having owned an HD650 myself for many years, during which I bought one of Russ Andrews' aftermarket cables for it, I know that this in itself can make quite a change in sound quality.

So I reserve judgment as to whether balanced connection is generally an improvement – but there is no question, in the circumstances described, that it made my tail wag. ☺

### HI-FI NEWS VERDICT

Equipment reviewing would be unalloyed pleasure if only every item of equipment gave as much listening pleasure during its tenure. Partnered with a neutrally balanced, transparent headphone the Heada is capable of some of the best, if not the best, sounds I have heard from between capsules. Its alluring warmth is matched to great resolution, making for a musical experience as welcoming as it is informative.

Sound Quality: 88%

