

hi-fi+



Stream On!

HRT Streamer and Streamer+ USB digital to analogue converters

by Alan Sircom

It's not often you get to play the international espionage game. The HRT products gave us the chance to do just that. The first HRT Streamer converters were released as very much a hush-hush launch at this year's Consumer Electronics Show. Most of the review samples of this stealth-launch product were destined for US analysts and buyers. One or two were literally smuggled out of the country, including the one tested here. The bigger Streamer+ converter arrived through more normal lines.

Let's dispense with the obvious jokes first; HRT stands for High-Resolution Technologies, not the other thing. So, there's no point getting emotional about the name. But, what's the story and why all the cloak-and-dagger stuff? The line (currently just the Streamer and Streamer+, with more to follow) is the product of a meeting of minds; Kevin Halverson of Muse Electronics and Mike Hobson from Classic Records. Both having recognised that a significant proportion of music today is streamed and PC-based, Kevin Halverson started looking for a decent cheap USB-only DAC to investigate the potential of the format from a quality perspective. And kept looking, because the quality simply wasn't there. So, he designed (from first principles) a USB converter that delivered the goods. And then did it again. The potential was huge, so he and Mike Hobson joined

forces on the venture to realise on that great potential.

The basic Streamer is intended to sell by the lorry-load. It's a hi-fi product, yes, but one intended for multiple retail outlets, or perhaps bundled with music client software deals. There's talk of a warehouse full of Streamers ready to roll. By way of contrast, the Streamer+ is the distinctly audiophile product and will be sold



through more conventional hi-fi outlet lines. Not exactly hand-built, the Streamer+ is more expensive, with a better-measured performance and that takes a lot more components on the board.

This is a high volume project developed by people best known for low volume concepts. That invites an obvious question; whether the business model can 'scale' accordingly. It would be a crying shame for the HRT duo to end up as a warehouse full of unfulfilled promise. As we went to press, the Streamer was still awaiting lines of distribution in the UK and the Streamer+ is to be distributed by Audiofreaks.

Given the Streamer should be bundled with every MacBook and the Streamer+ should be in every hi-fi retailer in the land by now, the scale issue remains a potential concern.

There's a degree of secrecy to these products so far, with chip designations gently filed off all bar a Burr Brown PCM1794 in the Streamer+. Not that it really matters, because the many of the names used in USB converters have little resonance in hi-fi industry – we might as well be reciting a list of resistor values. The Streamer and Streamer+ share the same separate USB controller board, which both syncs and powers the DAC. After that, things are very different.

Both products make extensive use of surface mount devices.

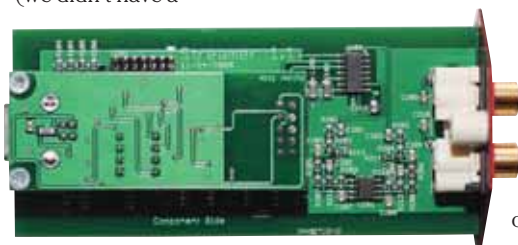
You won't find a soldered wire anywhere on the HRT products. Components are mounted to the boards, the USB controller and the pair of gold-plated phono sockets are then mounted to the same boards, and the two boards are plugged together and fixed in the case. This isn't 'untouched by human hands', but the process is not entirely labour-intensive either, which helps keep prices competitive. All the more remarkable then that in 2009 this product is built in the USA. Such is the sea-change in production that it was almost a shoe-in that a high-volume technology-driven product like this would be Chinese built these days.

At the time of writing, both fit on a simple trapezoid block; same extrusion, just longer in the Streamer+. Four ►

▶ grub screws clamp the end-plates to the extrusion, and the main PCB rests in a groove. This extruded case might change to a clamshell design, but this shouldn't change the performance on a fundamental level.

One thing that does need to change is the quality of the powder coating. The dull-red Streamer and the dark grey Streamer+ look classy in their matt coating, but the coating does rub off easily. Hopefully, this will improve.

They are both super-simple to use. All you need is a large USB connector to wire either to your PC or Mac (we didn't have a



Linux box to test, unfortunately) and a pair of phono plugs to hook whichever DAC to an amp. That's it, the computer's USB controller will auto-recognise the converter (assuming your operating system is new enough to speak USB; if you are running Windows 95, you need to upgrade). If you are using Mac OS, remember you need to select the external output device in System Preferences (as you do to any USB-based DAC solution). The choice of application (iTunes, Windows Media Player, Rhapsody, Napster or anything else) has absolutely no impact on the HRT.

If they look similar (from the outside at least) and behave similarly, the specification of the two Streamers is subtly different. Essentially, the Streamer+ has a lower noise floor, better signal-to-noise ratio, lower distortion and a more accurate frequency response at 20Hz than the basic model. These are not

small differences either; an 18dB improvement in S/N is significant and audible.

Both products are designed for CD-grade solutions, in that they deal with 20Hz-20kHz frequencies with a 16-bit resolution. This is fine for ripped CDs and most downloads, but won't do much to highlight the benefit of high-resolution 'master' tracks with 192kHz sampling and 24-bit precision. This is wholly forgivable in the Streamer,

but there are high-res ready DACs at the price of the Streamer+. But we think that most audiophiles will go for real-world performance over on-paper 'improvements'.

The natural place to start listening is with the base model Streamer. And it's worth placing it among its peers (other USB converters) and – perhaps even more significantly – against the headphone mini-jack output of a PC or Mac. In both cases, the Streamer makes an awful lot of sense. It's completely seamless, with a whisper-quiet background that will shock you, highlighting how noisy your on-board system really is. Sounds are easily delineated from one another and sit in an expansive plum-pudding of a soundstage, which – given the intended source material and prospective amplifiers and speakers the Streamer is likely to end up with – gives an impressive sense of stereo.

Then there's the tonal range of the Streamer, which is accurate, but not so extended into the higher frequencies, giving the files a slightly rich presentation. This is actually an advantage, because it is really made

for standard-quality MP3 files and streamed Internet radio sources of varying degrees of quality. Yes, a lossless or bit-for-bit file will benefit too, but the Streamer has a levelling effect that brings those less than impressive file formats up to snuff, at the expense perhaps of the best performance from top-class files. But the better files are where the Streamer+ comes on song.

The improved performance of the Streamer+ is a double-edged sword. It significantly upgrades high-quality downloads and ripped CDs in bit-for-bit or lossless compression. However, anything at 128kbps or lower (AAC or MP3) sounds pretty damn awful, especially when played through a decent system. If your collection comprises compressed modern pop taken straight off the standard iTunes server, stick with the standard Streamer and abandon any dreams of real hi-fi. Sorry about that... but on the other hand, this might be a significant benefit – we found a download of 'The Boy Does Nothing' by Alesha Dixon in an iTunes client (it's a wife thing... honest) and not surprisingly the 125kbps track sounded utterly unlistenable. Chalk that one up as a bonus.

Those bit-for-bit rips or high-quality downloads are wonderfully sonorous and – perhaps most importantly – entertaining to listen to. It's good enough to spot when you are dropping back to lossless and recognise the difference between iTunes and Foobar2000. No, it will not challenge a good dedicated four-figure audiophile DAC, and the Benchmark tested on page 38 of this issue quietly knocks the Streamer+ into a cocked hat when it comes to soundstage depth or width, or sheer detail, but the Streamer+ is the Benchmark's superior in dynamic range, at least in terms of subtle shading and microdynamics, drawing out the inner rise and fall of individual musicians within the recording.

Perhaps the big thing though is the 'cor!' factor. Forget the individual ▶

► properties of the performance and think globally. You plug your laptop into the Streamer, plug the streamer into your system, play music and the your first comment uttered just a few bars into the recording is 'cor!' It's a very British outburst, and very nearly translates to 'wow!' outside of the boundaries imposed by the Shipping Forecast. It means the immediate reaction is an impressed one; not suprising really, because the Streamer makes a very clear across-the-board improvement.

Waxing philosophically about products is seldom constructive, but worth it in the case of the HRT devices. This is because – especially in the case of the base Streamer – their worth is only slightly connected to their sonic performance. Here are a pair of products, designed and built by those with very high-end credentials, that makes a play for a potentially mainstream audience and does so with little compromise. In this, it joins a very select list of products and manufacturers, such as Wadia with its 170i. This is a sign – and a very welcome sign at that – of the hi-fi industry slowly waking up and smelling the coffee. The Streamer demonstrates to those on the non-audiophile side of things that we haven't just been contemplating our collective navels for the last 25 years and that these things really do make a significant difference to sound quality. To the audiophile hold-out, the same product shows there the whole post-CD audio world is worth investigating and the Streamer (and a laptop or PC) is one of the best ways of surveying this new land without incurring punishing costs or equally punishing sonic degradations.



We suspect that most audiophiles will swiftly make the jump from Streamer to Streamer+ because the improvement in audio quality is so marked, but this gives the option to dip toes in the water.

There's a viral aspect to this, too. One that cuts both ways. We can envisage a couple of father-son scenarios; one where the father buys a Streamer, almost immediately upgrades to the Streamer + and hands the Streamer on to his offspring, the other where Junior receives a Streamer as part of a package and shows it off to his audiophile father, who ends up with a Streamer+ as part of the deal. The viral thing also works on a collage level – many students have a cheap audio system and all have a laptop. The connection is rarely made, and those students often end up listening to their music through laptop speakers or earbuds from their iPod. The Streamer makes the hook-up to an audio system a doddle; hang the thing off the end of a USB port and every time your student plugs in their laptop, it's connected. And the Streamer is cheap enough to be used by students... just. Once that happens, it's only a matter of time before every student in the halls wants one.

Don't underestimate the viral aspect of these Streamers. From personal experience, we found it difficult not to spread the word. Look at it this way; many of us know people who use laptops to serve their music these days. If you have one of these, you will put it in your pocket and take it over to them. They will, in turn, get one and do the same to their friends. And so on until you end up breaking Facebook. So you too can become the Avon Lady of hi-fi. ➤+

TECHNICAL SPECIFICATIONS

Both Products

Type: USB digital to analogue converter
 Data Rate: 48 kS/s
 Bit Depth: 16 bit
 Digital Input: Type B USB socket (USB 1.1)
 Analogue Output: 2prs single-ended RCA/ phono
 Audio Output: 2.25Vrms
 USB to Audio output isolation: > 20M Ohm
 Power Requirements (USB buss): 250 mA

Streamer

Frequency Response (20Hz-20kHz): -0.3 dB / -1.8 dB
 Noise Floor (DC to 30kHz): 174µV RMS
 Noise Floor (A-weighted): 110µV RMS
 S/N Ratio (to 30kHz): 82 dB
 S/N Ratio (A-weighted): 86 dB
 THD+N (1kHz FS): 0.06%
 Dimensions (WxHxD): 53x30x104mm
 Weight: 120g
 Anticipated Price: \$89

Streamer+

Frequency Response (20Hz-20kHz): 0 dB / -1.7 dB
 Noise Floor (DC to 30 kHz): 22µV RMS
 Noise Floor (A-weighted): 10µV RMS
 S/N Ratio (to 30kHz):100 dB
 S/N Ratio (A-weighted): 107 dB
 THD+N (1kHz FS): 0.02%
 Dimensions (WxHxD): 53x30x130mm
 Weight: 150g
 Price: £299

Manufacturer:

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 Net: www.highresolutiontechnologies.com
 Streamer+ Distributed by Audiofreaks Ltd
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