

# How to get ahead...

## The Lehmann Linear USB headphone amp

by Alan Sircom



The Sennheiser HD800 is a wonderful and demanding beast. When we tested it in Germany, the headphone amp used was the Lehmann Black Cube Linear. With a total output power of 200mW into a 300 ohm load, a claimed THD of less than 0.001% at 6mW/300ohms, a signal to noise ratio of more than 95dB at 0dB gain plus a very flat frequency response from 10Hz up to 35kHz, the Lehmann Linear is a perfect match for the new flagship headphones. If it's good enough for Sennheiser...

We got the Linear USB version in for testing. As the name suggests, this adds USB connection and a Burr-Brown DAC. It auto-detects signals (defaulting to the analogue input) but it cannot power a USB device.

On the underside of both the Linear and Linear USB are three DIP switches that allow you to select the output gain for more or less efficient headphones (the options are 0dB, 10dB and 20dB). The impedance remains constant at 47kOhms, with a five ohm output impedance for headphones, and a 60 ohm for line out. We left the DIP switches 'as is', although the relatively sensitive HD800 meant the 27mm ALPS volume pot behind the milled aluminium knob was most commonly at the first third of its travel. The rest of the

deceptively-heavy Linear USB box – it weighs a little over 1.5kg - is taken up with a beefy (given the slim and small size) transformer and a very well engineered Class A output stage, that dissipates just five watts. The built-in power supply means there's no need for an external PSU box and the headphone amp is fed by a standard IEC three-pin mains lead.

There's the obligatory blue LED, of course, next to the two 6.35mm headphone sockets and a volume control. The rear panel is tiny, with just two sets of gold-plated phono sockets, a USB connection and a power supply block. So tiny in fact, the connection instructions for the Linear USB are printed on the baseplate. That's it; no remote, no balanced connections (although XLR features in the pro version).

In terms of sound quality, it's the perfect partner for the Sennheiser HD800. It's rugged, can drive to very high levels without distortion or complaint, it's tonally neutral, dynamic, fast and very, very detailed. Take away the HD800 and replace them with more humble cans (Sony MDR-7506, Grado SR-60 mk II) and the same detailed and accurate presentation follows across. As does the ability to go really loud without complaint – in short, the Lehmann s the perfect headphone partner.

There are better headphone systems, but they cost a lot more. We're talking Grace Design's m902 Reference D/A headphone

amplifier. The Grace has even more openness, expansiveness and clarity. However, it also has relatively low gain and you need to get close to the end of the dial to hear at anything approaching real-world listening levels. And that means we're happy to proclaim the Lehmann Linear USB as the perfect HD800 partner, for those who don't want to spend almost twice as much on the headphone amp as they did on the headphones. ➕

### TECHNICAL SPECIFICATIONS

**Lehmann Black Cube Linear USB**  
Type Headphone Amplifier/USB DAC  
Maximum gain . . . 0dB, 10dB, 20dB  
(switchable underneath the unit)  
Input impedance . . . . . 47 KOhms  
Output power. . . 200mW/300 Ohms  
400mW/60 Ohms  
Output impedance . . . . line out 60  
. . . . . Ohms  
. . . . . phones out 5 Ohms  
Channel separation. . . >70dB/10kHz  
Dimensions (WxHxD). . . . .  
110x44x280mm  
Weight . . . . . app. 1.5 kg  
Front panel colours . silver or black  
anodized aluminium  
Price (Linear). . . . . £650  
Linear USB . . . . . £900

### Manufacturer

Lehmann Audio  
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