



Despite fifteen years of the compact disc, vinyl remains alive as a recording medium. There are quite a few high-fidelity purists that have never accepted this digital medium as an acceptable alternative at least in its 16-bit, 44.1-kHz incarnation. This, they consider, surrenders too much resolution and musically important bandwidth. To these people, the long-play stereo record remains the ultimate in accurate music reproduction. Whether this is correct or not is for readers to judge according to their own experience. For my part, I say that a well-pressed LP played on fine equipment and a CD that has avoided massive re-equalisation, can sound very close to identical. And those of us who grew up with the LP-and nothing but the LP-find ourselves quite able to enjoy the format, able to hear past the unavoidable clicks and pops that vinyl attracts. This loyal contingent has ensured that the market for record-playing equipment has not collapsed to mere cheap turntables designed solely for the playing of legacy records. Instead, although small, the market remains wonderfully virile. The subject of this review is one such item for use solely with vinyl records, but no, it is not a turntable or cartridge. It's a phono preamplifier: the Lehmann Audio Black Cube. Phono preamplifiers are

likely to be a solid, even increasing, market for some time as the trend to home theatre amplifiers-even high-quality units, from reputable manufacturers-to come lacking phono preamplifiers continues.

## The Equipment

The Lehmann Audio Black Cube is not actually a cube in shape, nor is it square, so I am not sure where the name comes from. It is a little, solidly built metal box measuring 108mm by 114mm horizontally, by 48mm vertically. The 108mm measure does not take into account the power cord on one side, or the large knurled knob for ground connection on the other side.

But it is black, albeit with plenty of prominent white writing on the lid, including a hand-printed serial number, lending credence to the printed legend that the Black Cube is 'carefully handcrafted in Cologne/Germany'. This, along with the heavy 1.5mm steel plate used for the box, will give high-end audio owners a feeling of comfortable familiarity. The inputs are a pair of gold-plated RCA sockets centred between a pair of 16mm diameter holes in the chassis, on the same face as the earthing point. A similar arrangement has been adopted for the outputs, other than them being on the power cable face, along with a red LED power indicator. The lid covers the top and two sides of the unit and is secured by four 2mm Allen head screws.

Removing the lid reveals that all four sides of the bottom section of the case are of full height, with all the corners joined for superb rigidity. Within, a printed circuit board covers nearly the entire floor of the Black Cube, with fairly sparsely laid out components. A pair of integrated circuits, one for each of the left and right channels, provide isolation and the first stage of amplification between the inputs and the equalisation stages, while a third stereo integrated circuit provides the

rest of the gain. Each integrated circuit has a pair of additional capacitors for smoothing, with 440 $\mu$ F for each of the input stage ones, and 940 $\mu$ F for the output. Between the two stages are the necessary banks of MKS capacitors for achieving the RIAA equalisation curve required for LPs. Most of the top face of the double-sided printed circuit board is covered by an earthed grid, providing even more signal isolation. For each channel, between the RCA input and its active circuitry, there is a bank of three resistors, a 220pF capacitor and a four-pole DIP switch. The capacitance is fixed, but both the resistance and gain can be adjusted with the DIP switch, with one switch selecting between 40-dB of gain for moving-magnet and high-output moving-coil cartridges, or 61-dB of gain for normal (i.e. low output) moving-coil cartridges.

Lehmann Audio says that sensitivity for a 250-mV output is, respectively, 2.2-mV and 0.21-mV while the maximum input levels are 63-mV and 5.8-mV. The other three dip switches allow the input resistance-but not the capacitance-to be altered, with settings for 47,000Ohms (suitable for moving-magnet cartridges), 470Ohms, 100Ohms and 800Ohms available as standard. However, pairs of hollow legs are provided on each channel for the addition of a custom resistance if required, so cartridge matching will present no difficulties.

Lehmann Audio appears to contemplate even further tweaking, noting: 'If you want, you can unsolder the input connectors to directly solder the system cables onto the PCB.' (No connector is as good as no connector!) This is good advice, assuming that the equipment modifier is competent with a soldering iron. Remember that the output voltages of moving-coil cartridges are a full three orders of magnitude lower than those of CD players, and typically involve impedances in the tens or hundreds of ohms, rather than the tens of thousands, thus being rendered very much more sensitive to good quality cable connections (and cables) than CD

players. Power is derived from a power transformer and rectifier, permanently tethered to the main unit at the end of 1.8-metres of cable. This, in turn, is supplied using a regular three-pin power connector.

Within the power supply the transformer is fairly small, but is fully rectified and regulated with discrete diodes arranged in the common bridge pattern and a substantial 4,400- $\mu$ F of capacitance, producing a  $\pm 15$ -volt supply.

## Performance

All this lovely construction is to little avail unless the real-life performance is good, and I had no doubts on that score, because I found the performance to be superb.

Talking about the more obvious



characteristics, the noise levels are extremely low. Lehmann Audio claims a signal-to-noise ratio of 77-dB (unweighted) for the moving-magnet setting, and 69-dB (unweighted) for the moving magnet. With the latter setting I carefully placed a turntable's tone-arm on its rest and then advanced the amplifier's volume control to a ridiculous level, achieving a gentle, smooth whitish/pinkish noise with a total absence of any mains hum breakthrough. The power supply isolation is simply excellent.

For listening, the distributor provided me with a Project 6 turntable with a Denon DL-304 moving-coil cartridge, and a Rega 3 turntable with a Van Den Hul MM2 moving magnet cartridge.

The use of different cartridges means that I could not compare the MM and MC settings to each other, and, in any case, talking about a phono preamplifier is pointless without referring to the cartridge supplying the signal. So the following qualitative comments should be considered to relate to the cartridges as much as the phono preamplifier. And what quality there was. The near-total absence of electronic noise unmasked detail I had not been aware of before. Try the later Ormandy/Philadelphia Orchestra version of Tchaikovsky's Fifth Symphony on the superb DMS Delos pressing (DMS-3015) and you will be presented with luminous imagery from the minimally microphoned orchestra. I

found the presentation of this LP preferable with the moving-magnet cartridges the violins in particular sounding altogether smoother. The imagining and clarity of expression again came through on the Leonhardt rendition of Bach's Brandenburg Concertos (Pro Arte 2PAX-2001) with, again, the Van Den Hul/MM combination proving superior to the Denon/ MC in balance, particularly on these recordings, neither of which tests the extremes of bass performance.

Both cartridges performed admirably through the Black Cube on the higher levels of bass in Fleetwood Mac's Live (Warner Brothers 2WB 3500), however this is a touch light on the upper

frequencies. All aspects of performance were brought together on Santana's Zebop (CBS SBP 237613), with the sizzling cymbals and eerie chimes standing cleanly above the bass guitar and drums in an excitingly dynamic and tight performance.

The Black Cube hid nothing either cartridge was capable of extracting from the records, with fine channel separation and frequency balance and exceptional freedom from noise.

## Conclusion

The LP not only lives but also thrives, albeit amongst a smaller audience, and the Lehmann Black Cube is an ardent supporter of that vigorous life. A high-quality phono stage for the serious LP enthusiast.

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