



SILVER SL/BH

CLOSEFIELD MONITORING SYSTEM

Silver Productions' compact monitor utilizes a minimal signal path, and seeks to offer true phase coherence.

DOMINIC HAWKEN takes a listen to this distinctive two-way design, with optional sub-bass units.

Despite major technological advances in most other facets of the recording industry, monitoring systems have remained fundamentally unchanged for a number of years. The general consensus of opinion is to have large, full-range loudspeakers at the back of the studio — often with an actively equalized frequency curve to suit the listening position — coupled with a set of smaller monitors positioned closer to the engineer to simulate a standard consumer hi-fi. The smaller loudspeakers have an added bonus in that many unwanted 'room' effects are eliminated — the direct sound reaches the engineer well before any reflections occur from the walls and ceiling. These room effects will often colour even the most accurate of main monitoring systems, as any equalization can only be effective for a single listening position, with a given number of people in the room.

The advent of digital recording, coupled with an amazing increase in the quality of home playback systems, has forced a reappraisal of the humble studio monitor. A number of different manufacturers have risen to the challenge and

produced a wide variety of loudspeaker systems, all designed to give an accurate picture of any given soundscape. Many are nearfield systems — taking advantage of the lack of room effects to improve the sound quality — but these designs have their own problems, particularly phase coherency.

As soon as more than a single driver is used as a sound source, the audio will suffer from time domain and phasing problems, with the sound from each driver arriving at the listener at slightly different times. A single full-range driver would appear to be the ideal solution, but so far, it has proved impossible to manufacture one with anything

TRANSDUCERS

- HF Driver: 25mm, very low mass coated fabric dome, ferrofluid cooled, high energy Neodymium magnet, glass reinforced, moulded fibre chassis; connected via 2,400Hz, 12dB/oct, passive high-pass network, forming an acoustic 24dB/oct Linkwitz-Riley (LR-4) filter.
- MF Driver: 115mm, controlled break-up polypropylene cone with phase plug, magnesium injected, moulded chassis; 2,400Hz, 12dB/oct, passive low-pass network, forming an acoustic 24dB/oct LR-4 filter. No high-pass filter is used for increased cone damping at the lower end (there are no capacitors in series with the driver and amplifier).
- LF Driver: 250mm, paper coned (doped), rubber surround, injection moulded magnesium chassis that acts on a quasi 2nd order band-pass filter together with the low-pass type box.
- Diffraction Booster: 115mm, same specifications as the MF driver; added passive low-pass network to cancel the effect of small front panel by modifying low frequencies starting from around 400Hz and below. 4pi to 2pi change-over slope.

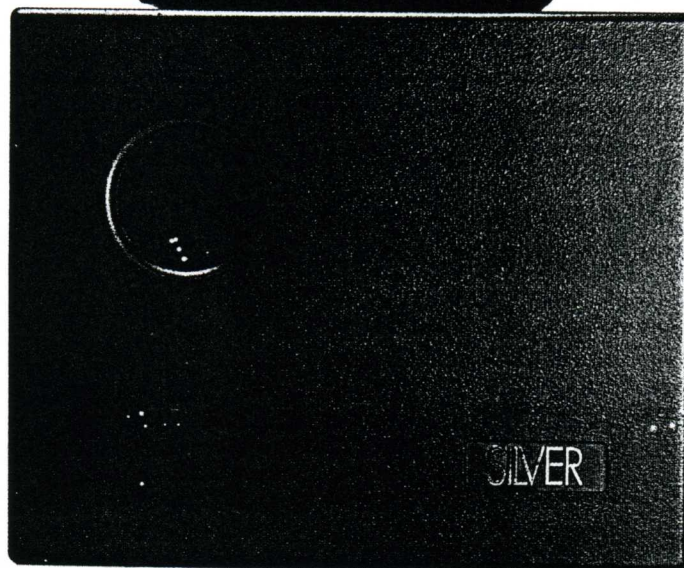
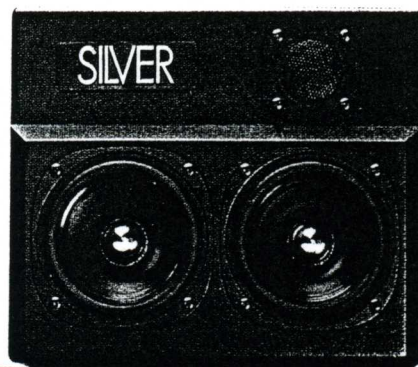
SILVER 5L/BH

approaching the quality and efficiency required for adequate operation, so most manufacturers opt for a two or three driver system.

Design

With the development of the 5L/BH combination, Silver Productions have attempted to solve the phasing problems by keeping the acoustic centres of all of the drivers as close together as possible. According to their engineers, if the centres can be kept within 10cm, then the monitor will be time and phase coherent in the nearfield (within about 50cm). Relatively small mid/bass drivers have been used to achieve this, coupled with a single neodymium-based tweeter, utilizing the latest in magnetic technology to increase its potency to five times the strength of a normal magnet of the same size! An extra mid/bass driver has been added to the monitors, the 'diffraction booster', to increase the bass response in line with the rest of the spectrum, and the manufacturers quote a frequency response down to 50Hz (in room) — far greater than many of its competitors can achieve. Without the diffraction booster, the bass response of the unit would drop heavily below 500Hz, falling to around a quarter of its nominal level by 70Hz. One way of resolving this problem would be to add extra equalization to reduce the top end response down to a level in keeping with the quieter bottom end, but in practice, this would mean drastically limiting the overall efficiency of the monitor, as well as introducing a great number of superfluous components into the signal chain. Another low/mid-range driver has therefore been fitted, together with a single low-pass filter to pick up where the other drivers finish, and boost the bass back up to an accurate level, whilst still maintaining phase coherency at the listening position.

For those cases where the bass response is still too low for adequate monitoring — perhaps when no main monitoring is in use and the Silver loudspeakers provide the only sound source — Silver also manufacture a pair of passive BH Bass



Augmentors, available as an optional system add-on. Housed in separate boxes to minimize vibration, the addition of these units extend the bass response down to a trouser-flapping 30Hz, with the added convenience that the extra speakers can be mounted away from the main monitors, as long as they remain within two metres.

Build quality is extremely good, and the speakers feel reassuringly solid and heavy. The units come with screw-in spikes to anchor them in place, and I would recommend using separate speaker stands, rather than the somewhat flimsy mounting points provided on some mixing desks, to maintain a consistent frequency response across the audio spectrum.

SPECIFICATION

Sensitivity:	87dB at 1m at 2.83V (1W at 8 Ohms)
Power Handling:	150 Watts nominal music power 250 Watts short-term maximum power (350 Watts with BH added using a single amp) 80 Watts long-term maximum power (100 Watts with BH added using a single amp)
Listening Window:	60 (+/- 30) degrees horizontal 30 (+/- 15) degrees vertical (tweeter axis at ear level)
Silver 5L (Satellite):	Heavy damped, non-vibrating MDF box; low leakage closed cavity loading for drivers; two plane front panel for time aligning the drivers. 260 x 175 x 210mm (WDH)
Silver BH (Bass Augmentor):	Heavily damped MDF box; twin cavity design for efficient band-pass loading of the driver, critically calculated port design for nearly non-existent turbulence induced parasitic output. 410 x 330 x 330mm (WDH)

In Use

A comprehensive manual, including a brief history of monitoring design and development, is supplied and a large amount of detail is devoted to positioning the monitors correctly for optimum performance. The entire system (bass augmentors included) can be driven from a single stereo amplifier, although provision is also made to drive the two systems separately.

When set up correctly, the clarity and depth of soundfield was extremely good with an excellent frequency response, and an overall sound that was not fatiguing even after a long session. The precision of the sound produced by the system is such that fine tuning reverbs and placing difficult sources within the mix is made easier — smaller effects and nuances that would otherwise go unnoticed become much more obvious and can be dealt with accordingly. I found that corners and rear walls had a marked effect on the quality of the sound (as is mentioned in the manual), with the system performing more accurately when placed towards the centre of the room.

The bass response of the main speakers alone actually is adequate for most applications, and perfectly reasonable when used in conjunction with a larger pair of monitors for reference, but if the system is to be used reliably

as the only source of monitoring, then the bass augmentors are necessary, in my view. With the addition of these units, bass response becomes more solid and tight, and less overall level is needed to provide an accurate picture of the sound.

Conclusion

Judging the quality and performance of any monitoring system, aside from any physical attributes, is largely based on personal preferences and tastes, and there can be no better way of assessing the product than to go and take a listen for yourself. The M Corporation, who kindly supplied the review units, offer a free hire system to clients wishing to test out new products in the comfort of their own studio, and this would seem an ideal way to put the system through its paces. I was very impressed with the 5L/BH combination and would recommend a trial to any studios currently looking to improve their monitoring system, especially those geared towards mixing audio for release on CD or for broadcast. □

INFORMATION

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