

LS5/9

BBC LICENSED MONITOR LOUDSPEAKERS

OWNERS MANUAL



Thank you for purchasing this loudspeaker system from Graham Audio.

These loudspeakers have been carefully crafted using the finest materials according to strict BBC specifications and will provide many years of listening enjoyment.

For the best results, please spend a few minutes reading these instructions before setting up your new loudspeakers.



LS5/9 Overview

The LS5/9 is a high quality monitor loudspeaker originally developed by the BBC for studio use. The Graham Audio LS5/9 has been developed using modern components and production techniques to provide a result that is an extremely close match to the original BBC R&D prototype.

Drive units

The 200mm bass/midrange drive unit is the result of collaboration between Graham Audio and Volt and matches the original BBC LS2/14 as closely as possible in behaviour while avoiding the longevity problems of the original unit. The 34mm tweeter is the latest version of the unit originally used by the BBC. Each example is measured and graded accordingly. Like the originals, it is fitted with a protective metal grille.

Enclosure

The cabinet is built using high quality 9mm birch plywood panels, which are lap-jointed and damped using oil-free pads. Air damping is facilitated by 30mm slabs of high density Rockwool, retained with cloth. For maximum serviceability, the baffle is readily removable for access to the drive units and crossover. All fixings are stainless steel for maximum corrosion resistance. The cloth grille is retained with concealed rare-earth magnets. The whole cabinet, including the baffle, is covered using hand-matched sheets of real wood veneer.

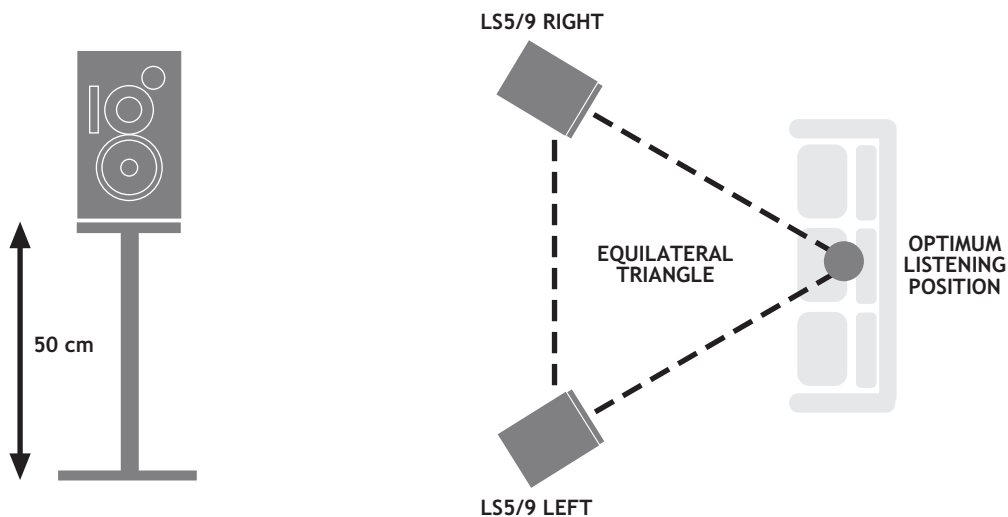
Crossover

The result of extensive development, the crossover is responsible for dividing the audio spectrum between the two drive units, and for equalising the response to match the original BBC R&D specification. High quality parts are used, including premium grade polypropylene capacitors. A tapped auto-transformer provides the bulk of the level equalisation between the woofer and the tweeter. Fine-tuning is provided and each assembled loudspeaker is measured and adjusted individually before the final check and despatch.

Positioning your loudspeakers

The LS5/9 design is intended to be mounted on stands that bring the tweeter to ear level. Typically, in most domestic settings, this will require a stand that is approximately 40 to 50 centimetres high; in a professional environment, taller stands are typically required. The stands should be rigid and non-resonant. Test metal stands with hollow upright sections by rapping them with a knuckle, and consider filling them with dry sand or similar to eliminate any ringing.

For safety reasons, please ensure that the top surface of the stand is of similar dimensions to the loudspeaker. There are many options for the interface between the bottom of the loudspeaker and the top of the stand; small spikes are often supplied with the stand, but these will damage the veneer. Reusable adhesives such as "Blu-Tack" are often recommended, but these can also damage the finish of the loudspeaker. Small pads made from foam, felt or cork will provide the most protection to the bottom surface of the loudspeakers. Between the bottom of the stands and the floor, spikes are recommended for carpeted floors. These must be carefully adjusted to ensure that the stand is absolutely stable, and they should be periodically re-checked as they can work loose. For other floor finishes, spikes might not be appropriate; your dealer will be able to advise.



As is normal, determining the optimum position for your loudspeakers in your listening room should be the subject of some experimentation. As a starting point, try positioning them such that you and the two loudspeakers should form an equilateral triangle. If possible, try to keep them away from side walls, as reflections from these might affect the stereo image. Remember also that the distance between the loudspeakers and the rear wall will have an effect on the bass level and quality. In a rectangular room, you can typically expect best results from pointing the loudspeakers across the narrow dimension of the room, but every room is different, and there are no firm rules! The loudspeakers should be angled in to face you, but again, this can be varied according to taste.

Nearly every listening room can be improved with acoustic treatment. A thick carpet (or large rug) is recommended, as reflections from hard floors are always detrimental. Large expanses of bare walls can be similarly problematic and reflections from these can be treated with absorbing materials or diffused with irregular surfaces such as bookcases. In the professional environment, acoustic treatment is the norm.

Connecting up your loudspeakers

Please ensure that the cables are long enough to be neatly dropped down behind the stand at all times, avoid 'trip hazards'. Always switch off the amplifier when connecting up the loudspeakers. For best results, we recommend that you use stranded cable with a cross-sectional area of 2.5 mm, the majority of 79-strand cables should meet that specification. Remember that some specialist loudspeaker cables can have unusual electrical characteristics that adversely affect the operation of some amplifier-loudspeaker combinations, so seek advice from your dealer if in any doubt.

There is a single pair of terminals on the rear of the loudspeaker, and these can accept bare wire, spade connectors, or 4mm plugs. The latter is recommended for convenience and connection quality. Take extra care if using bare wire, as many amplifiers can be damaged by a short circuit, even a momentary one.

The terminals are colour-coded red and black, and it is extremely important that the red terminal of your amplifier is connected to the red terminal of the loudspeaker. Likewise for the black terminals. If the bass seems weak, and/or the stereo image is indistinct, check that both loudspeakers are connected to the amplifier with the same polarity.

Listening recommendations

Your Graham Audio loudspeakers are extremely revealing of problems in the preceding audio chain, and should be partnered with high quality equipment. In particular, low powered amplifiers driven into clipping will sound especially poor with any high quality monitor loudspeaker; with the LS5/9, it is recommended to use an amplifier with no less than 50 watts per channel in a small listening room, and those with larger rooms, or professional users, should use at least 100 watts per channel.

The loudspeakers were voiced with the grille in place and it is recommended that the grille be left in place during critical use. The grille can readily be removed if desired; it is retained using rare-earth magnets embedded in the grille frame and elegantly hidden beneath the veneer on the front panel. Behind the grille is a tweeter level adjustment facility, which is designed to account for minor variations in sensitivity of the two drive units. This has been accurately set at the factory, and will not need adjusting during the life of the loudspeaker. In the unlikely event of drive unit failure, the loudspeaker should be returned to Graham Audio for repair and calibration.

Caring for your loudspeakers

The high quality wood veneer should be cleaned regularly with a soft clean cloth. If required, the cloth can be slightly damp. Avoid wax-based furniture polishes and all forms of solvents. Remove the grille before cleaning the cloth with a soft brush. Like any wooden item, the loudspeakers should be placed in a dry environment, away from sources of heat and out of direct sunlight. Avoid touching the diaphragms of the drive units.