

**B&W**  
LOUDSPEAKERS

USER

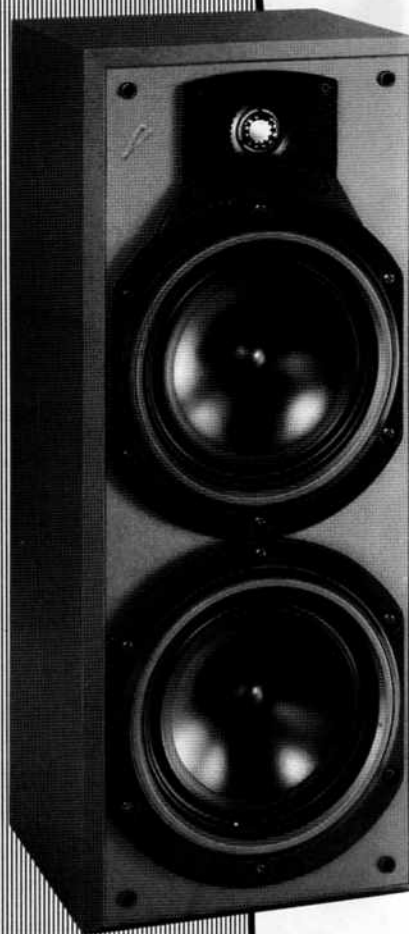


MANUAL

**DM310**



**DM320**



## INTRODUCTION



Models DM310 and 320 follow in the successful tradition of B&W's 100 and 500 Series loudspeakers, incorporating features normally found in much more expensive systems to improve performance in terms of lower coloration, higher power handling and greater dynamics.

The aim of this manual is to increase your knowledge of the speakers and, in doing so, give you greater enjoyment from their use. Because any high quality loudspeaker is dependent both on the signals fed to it and the environment (i.e. the listening room) in which it is used, we have devoted sections to each of these subjects.

B&W loudspeakers are distributed to more than 50 countries worldwide and we maintain an international network of carefully chosen distributors who aim to give you, the customer, the widest possible service. If at any time you should have any problem which your dealer cannot resolve, our distributors will be more than willing to assist you.

## UNPACKING, INSTALLATION, ELECTRICAL CONNECTION AND AFTERCARE

### UNPACKING

We suggest that, after unpacking your loudspeakers, you should retain the packaging against the possibility of wishing to transport them at a later date.

The carton contains:

- (a) Two B&W DM310/320 loudspeakers.
- (b) This user manual.

### INSTALLATION

DM310/320 are designed to be used on rigid open stands and your dealer will be able to advise you on the most suitable types. Perfectly satisfactory results can also be obtained by shelf mounting. The height of the loudspeakers should be set so that the listeners' ears are at or near the same height as the reference axis (see specifications). Should this not be the case then the different time delays between the low- and high-frequency units can cause a response dip in the crossover region. If domestic constraints dictate that the systems cannot be placed at the correct height, refer to the section on electrical connections below.

### ELECTRICAL CONNECTION

All connections should be made with the amplifier switched off.

Your system is provided with separate terminals for the low-frequency and high-frequency units, allowing it to be bi-wired (separate cables from a common power amplifier output to each pair of terminals) or bi-amplified (each unit fed from a separate power amplifier). Links between the two pairs of terminals have been fitted should either of these options not be used. To remove the links loosen the upper terminal caps and remove the lower terminal caps. The terminals will accept either bare wires or 4mm ( $\frac{3}{16}$ in) plugs on 19mm ( $\frac{3}{4}$ in) centres. The wire from the positive terminal of the power amplifier should be connected to the red capped terminal, marked with a '+'. It is important to observe the correct polarity when connecting a stereo pair of loudspeakers. Wrong connections to one channel can result in a loss of bass and an inability to focus a correct stereo image. Reversal of the polarity to one loudspeaker will restore the situation.

If it is absolutely necessary to listen vertically well away from the reference axis, output around the crossover frequency will suffer cancellation as the delay between the low- and high-frequency units approaches half a wavelength. The effect is maximised at angles between  $20^{\circ}$ – $30^{\circ}$  in either direction, but may be corrected by reversing the polarity of the connections to both high-frequency units only. This is only possible when the speakers are bi-wired or bi-amplified.

It is good practice to keep the connecting leads between the power amplifier and the loudspeakers as short as possible. Use heavy gauge wire to keep the DC resistance to a minimum, preferably below  $0.2\Omega$  (out and back). Excessive inductance in the cable can lead to a lowering of extreme high frequencies, whilst excessive capacitance can cause instability in certain power amplifiers. Your dealer will advise you on the most suitable cable for your needs.

### AFTERCARE

The cabinet should be treated as any normal piece of furniture. If you use an aerosol cleaner, spray onto a cloth and keep it away from the front of the loudspeaker, especially the grille cloth and drive units.

If you need to clean the grille, first remove the frame by grasping the outer edges near the corners and gently pulling away from the cabinet. The material may then be brushed with a normal clothes brush or similar. Please avoid touching the drive units, especially the high-frequency unit, as damage could result.

## THE LISTENING ROOM AND POSITIONING YOUR SPEAKERS

### CHOICE OF LISTENING ROOM

Few people are fortunate enough to have a choice of listening rooms, but for those to whom this is possible (or anyone choosing a new home) the following may be helpful guidelines:

- (a) Any room with different dimensions for ceiling height, length and width will sound more even in response than rooms where all the dimensions are similar.
- (b) Solid walls are preferable and will show better reproduction of low-frequency transients than some modern constructions where the inner walls are of plasterboard and slightly flexible.
- (c) Other than in houses with solid or concrete floor structures, a ground floor room is preferable to an upper floor.

### CHANGING LISTENING ROOM ACOUSTICS

Quite small changes in the furnishing of a room can change its acoustic properties quite significantly. If you already have pictures on the wall, remove these experimentally and at once you will notice a considerable change in the sound from your loudspeakers! We are not suggesting that you should leave the room bare of pictures — quite the reverse, because pictures break up the otherwise plain wall surfaces and generally give fewer discrete high frequency resonances or flutter echoes.

Curtains are another element which can change the sound of your listening room in the mid/upper frequencies. Heavier curtains give more sound absorption of these frequencies and a softer, less reverberant quality to the upper octaves. Conversely if your room sounds too dead, thinner curtains will give more life or sparkle in these frequency regions. So far as sound in the low frequencies is concerned, this is largely controlled by the dimensions and construction of the room. However, large items of furniture do change room behaviour at low frequencies, and their placement may be worth experimenting with.

### PLACEMENT OF YOUR LOUDSPEAKERS

The spacing between your loudspeakers will depend on the size of your listening room and the distance of your seating from the loudspeakers. As a general rule they should not be closer than 1.5m (5ft) and the space between them should not exceed the distance of your seating for listening. Placement of the two loudspeakers and the listener on the points of an equilateral triangle is not a bad rule to follow.

The position of the loudspeakers in relation to the walls of the listening room can have a noticeable effect on reproduction — especially at low frequencies. Generally, bass will increase relative to the middle and high frequencies as the loudspeakers are moved nearer the walls. It is well worth experimenting until you have the most acceptable sound.

The choice as to which of the four walls to place your loudspeakers near will largely depend on your arrangement of furniture. But again, the option of the longer, as opposed to the shorter wall is well worth trying.

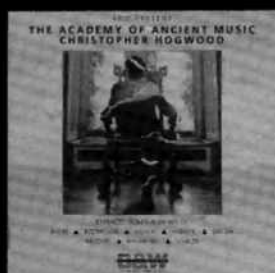
## THE POWER AMPLIFIER

The recommended limits of the power output of the driving amplifier are given in the specification. However, in giving these limits it should be stated that the amplifier output requirement is almost impossible for the loudspeaker manufacturer to specify. It will depend entirely on the type of music reproduced, size of the listening room and sound level required. It is always better to have an amplifier with a high power output used sensibly, as it allows the proper reproduction of transients; whereas if the power output is too low, clipping can occur during high peak level transients. Apart from causing audible distortion, clipping results in a relative increase in the power fed to the high-frequency unit, with the possibility of thermal damage.

## LISTENING AND RECORD SUGGESTIONS

Your DM310/320 system will take you a giant step nearer to listening to the music rather than to the loudspeakers. You will hear much more of the desirable ambience and detail in good recordings; unfortunately the faults in poor recordings will also be revealed.

B&W have produced three special compact disc recordings that will enable you to enjoy a full appreciation of your new system. They are available from your dealer.



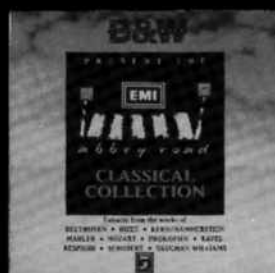
**BW001**

The Academy of Ancient Music:  
Christopher Hogwood



**BW002**

Live at the Montreux Jazz Festival



**BW003**

The EMI Abbey Road Classical Collection



**DM310**

**DESCRIPTION** Shelf or stand mounting two-way, fourth-order, ported bass reflex digital monitor system with bi-wiring/bi-amplification facility

**DRIVE UNITS** One 200mm (8in) bass/midrange with rigid die-cast chassis, reinforced polypropylene diaphragm and 31mm (1.2in) high-temperature voice coil. One 26mm (1in) high-frequency with metal dome, high-temperature voice coil, magnetic fluid cooling and controlled diffraction mounting plate

**FREQUENCY RANGE** -6dB at 53Hz and 30kHz

**FREQUENCY RESPONSE** 70Hz to 20kHz  $\pm 2$ dB on reference axis

**REFERENCE AXIS** Horizontal: 150mm (6in) from top of cabinet

**DISPERSION** Within  $\pm 2$ dB of response on reference axis  
20Hz to 15kHz  
Horizontal: over 40° arc  
Vertical: over 10° arc

**SENSITIVITY** 90dB (2.83V, 1m)

**IMPEDANCE** Nominal 8 $\Omega$   
(not falling below 4 $\Omega$ )

**CROSSOVER FREQUENCY** 2.5kHz

**INTERNAL VOLUME** 17.6 litres (0.62cu.ft)

**POWER HANDLING** Suitable for amplifiers with 10W to 100W output, continuous into 8 $\Omega$  on undistorted speech and music programme

**DIMENSIONS** Height: 477mm (18.8in)  
Width: 262mm (10.3in)  
Depth: 220mm (8.7in)

**WEIGHT** 7.2kg (15.8lb)

**DM320**

**DESCRIPTION** Shelf or stand mounting three-way, third-order, closed box digital monitor system with bi-wiring/bi-amplification facility

**DRIVE UNITS** Two 200mm (8in) bass/midrange with rigid die-cast chassis, reinforced polypropylene diaphragm and 31mm (1.2in) high-temperature voice coil on Kapton former. One 26mm (1in) high-frequency with metal dome, high-temperature voice coil, magnetic fluid cooling and controlled diffraction mounting plate

**FREQUENCY RANGE** -6dB at 45Hz and 30kHz

**FREQUENCY RESPONSE** 60Hz to 20kHz  $\pm 2$ dB on reference axis

**REFERENCE AXIS** Horizontal: 150mm (6in) from top of cabinet

**DISPERSION** Within  $\pm 2$ dB of response on reference axis  
20Hz to 15kHz  
Horizontal: over 40° arc  
Vertical: over 10° arc

**SENSITIVITY** 91dB (2.83V, 1m)

**IMPEDANCE** Nominal 8 $\Omega$   
(not falling below 4 $\Omega$ )

**CROSSOVER FREQUENCIES** 400Hz and 2.5kHz

**INTERNAL VOLUME** 33.4 litres (1.18cu.ft)

**POWER HANDLING** Suitable for amplifiers with 10W to 150W output, continuous into 8 $\Omega$  on undistorted speech and music programme

**DIMENSIONS** Height: 656mm (25.8in)  
Width: 262mm (10.3in)  
Depth: 280mm (11.0in)

**WEIGHT** 12.3kg (27lb)



B&W Loudspeakers Ltd reserve the right to amend details of their specifications in line with technical developments.  
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