

M a t r i x H T M

User Manual

Gebruiksaanwijzing

Follow unpacking instructions in this manual carefully and also check carton's contents against parts list.

No complaints will be accepted by B&W or its distributors if any accessory is missing without the complete packing.

In het hoofdstuk 'Uitpakken' van deze gebruiksaanwijzing staan instructies: volg deze nauwkeurig op.

Kontroleer ook of de inhoud van de doos overeenkomt met de ingesloten onderdelenlijst.

Als de originele, complete verpakking en/of accessoires ontbreken, kunnen B&W en de importeur een klacht niet in behandeling nemen.

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Introduction

Home Theatre applications have recently gained a significant proportion of the loudspeaker market. The appreciation and enjoyment of the medium is enhanced with the use of top quality audio components. For many years, the various models in the B&W Matrix 800 Series have enjoyed an enviable reputation in the audio world for delivering sound of the highest quality. The Matrix HTM® is based on the acclaimed Matrix 805 and, with its low profile, is designed not only as a centre channel speaker to bring the 800 Series standard of sound quality to Home Theatre, but it may also be used in left and right front or surround positions in home theatre applications. Furthermore, in a normal stereo audio installation its low profile makes it ideal for use as a nearfield studio monitor.

In addition, the Matrix HTM incorporates Zero Magnetic Field (ZMF) drivers with shielded magnet systems enabling it to be placed in close proximity to television screens without picture distortion.

The system features a low profile cabinet that will sit unobtrusively on the television, with drivers arranged vertically to give a similar sound field to the other models in the range. This ensures that when the Matrix HTM is used as a centre channel speaker with other 800 Series systems left and right of the screen, the sound image does not change character as it pans from one side to the other.

The aim of this manual is to increase your knowledge of the speakers and, in so doing, give you greater enjoyment from their use. Please take time to read it fully before installing the speakers. We strongly recommend that you spend time experimenting with your installation. It will pay dividends later and maximise your listening pleasure.

Within the manual's limited scope it is possible to give only the briefest insight into the technology embodied in the system. However, much of the work of B&W's research and development establishment, the source of this technology, is covered in detail in other B&W literature. Please ask your dealer.

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Unpacking

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

DO NOT ATTEMPT TO LIFT THE PRODUCT BY THE TWEETER HOUSING.

We suggest that, after unpacking your loudspeakers, you retain the packing in case it is necessary to transport them at a later date.

Each carton contains:

- One Matrix 805 loudspeaker with grille.
- One copy of this user manual.
- One calibration certificate.
- An accessory pack containing 8 self-adhesive rubber feet.

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Positioning

It has been said that a cheap loudspeaker correctly placed can produce better sound than a badly positioned expensive one. Whilst this is something of an exaggeration, it is still true that changing the position of the speaker will have a greater influence on the sound than any other variable under your control.

HOME THEATRE CENTRE CHANNEL APPLICATION

In this application, the loudspeaker location is dictated by the position of the screen, which may give little room for manoeuvre. The ideal position for a centre channel speaker is in line with the centre of the screen. However, unless a projector television is being used with an acoustically transparent screen, this position will be impractical.

With conventional or wide screen televisions, the speaker will be positioned either immediately above or below the screen, with the front of the speaker approximately in line with the screen. The choice of above or below screen positioning will depend on the height of the screen relative to the audience. Choose the position that brings the speaker closest to ear height. A degree of angling in the vertical plane will be beneficial if the speaker cannot be positioned close to ear height.

If you use a very large screen, you may notice that sounds move vertically as they pan across the screen due to the difference in height between the centre channel speaker and those to left and right of the screen. The use of two centre channel speakers, one above and one below the screen will restore the sound image to the centre of the screen - in much the same way that a normal pair of stereo speakers creates a centre stage sound image (see figure 1).

When mounting the Matrix HTM below a television, allow approximately 100mm (4in) between the top of the tweeter housing and the underside of the television support in order to maintain the free-field environment of the tweeter.

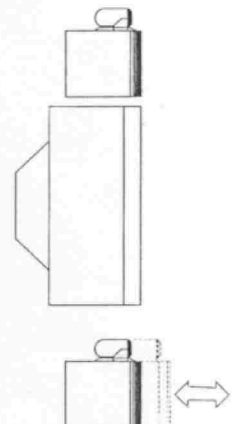
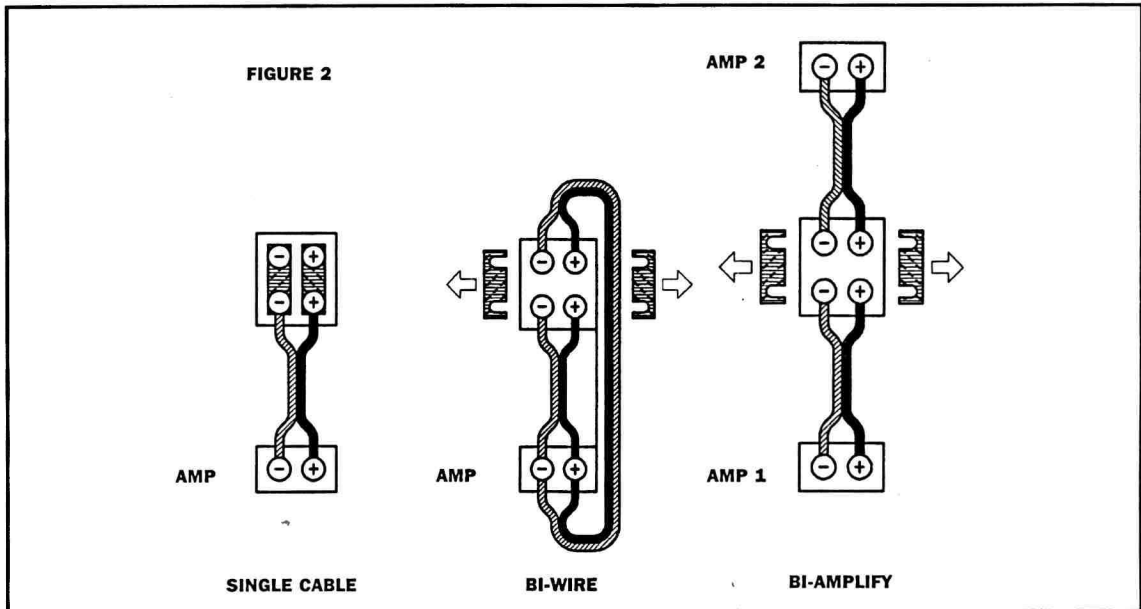


Figure 1

The choice of which of the four walls to place your front speakers near will largely be dictated by the design of the room and the placement of other furniture, but the option of the longer as opposed to the shorter wall is well worth trying.

A final word about symmetry. For the best balance of stereo presentation, the boundary conditions relative to the left and right front speakers should be as acoustically similar as possible.



ALL CONNECTIONS SHOULD BE MADE WITH THE EQUIPMENT SWITCHED OFF.

Use twin cable that has a suitably low impedance and preferably with one of the conductors marked for polarity indication. The exact type of cable used will depend on the length of run and whether bi-wiring or bi-amplification is used (also see specification).

Your speakers are provided with two sets of terminals, which are connected on delivery by gold-plated high-purity copper links. Removal of these links allows the system to be bi-wired (separate cables from a common power amplifier fed to each pair of terminals) or bi-amplified (each pair of terminals fed from a separate power amplifier). Follow the wiring diagrams in figure 2. Ideally, for bi-amplification, the same type of amplifier should be used throughout. If different types are used, the gains must be very closely matched in order to preserve the intended system balance. If one of the amplifiers inverts the electrical signal, the connections to the drive units from that amplifier should be reversed from that shown in the figure. Failure to observe correct connection may result in a loss of bass, loss of energy in the crossover region, strange phase effects which prevent proper image formation or a combination of these.

For the discerning listener, bi-wiring is recommended as a minimum requirement. Greater clarity and definition may be achieved by totally separating the signals to the two drive units. It also allows a more optimum choice of cable. The best cable for high frequencies may not be the best at low frequencies. Ask your dealer for advice on the best available cable for your needs.

DUAL SPEAKER CONNECTION

If using two centre channel speakers as described above, there are two possible methods of connection parallel and series (see figure 3). For optimum amplifier control, parallel connection is preferred. However, the load impedance presented to the amplifier is halved to 4Ω nominal and twice the current will be drawn for a given voltage output. This is balanced by the fact that the two speakers will be 6dB louder than a single one for the same amplifier voltage and will therefore require a lower volume setting. If your amplifier is not specified to be used with a 4W load or if you are not sure about its current capabilities, use series connection. The load impedance will be 16W nominal and half the current will be drawn compared to a single speaker for a given voltage. However, the loudness will be the same as for a single speaker.

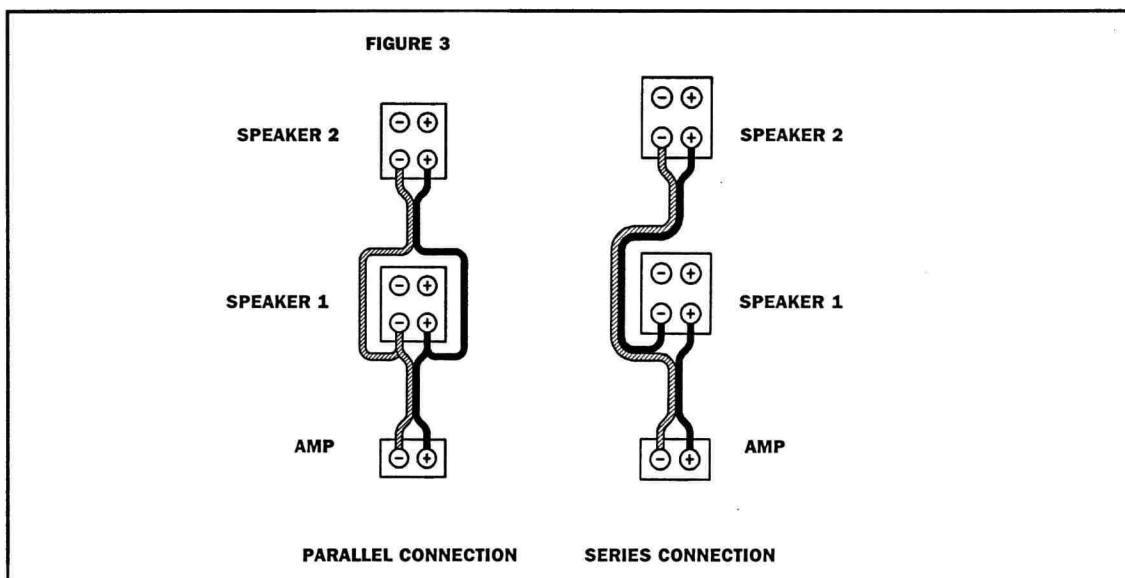
BALANCING THE HOME THEATRE SYSTEM

After connection and final siting of all speakers, the system must be balanced. Dolby Pro Logic® decoders have an internally generated noise signal for this purpose. Adjust the levels to all three front speakers as detailed in your decoder user manual to ensure the sound level is the same from each speaker (but see comments above regarding small screens).

CHOICE OF LISTENING ROOM

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

- (a) Any room with different dimensions for ceiling height, length and width will sound more even in response than one where all the dimensions are similar.
- (b) Solid walls are preferable and will give better reproduction of low-frequency transients than those of drywall (studding and plasterboard) construction.
- (c) Other than in houses with all solid or concrete floor structures, a ground floor room is preferable to one on an upper floor.



CHANGING ROOM ACOUSTICS

Quite small changes in the furnishing of a room can alter its acoustic properties fairly significantly. Pictures and shelving break up otherwise plain wall surfaces and generally give fewer discrete high-frequency resonances or flutter echoes.

Heavy curtains and other soft furnishings generally, afford more sound absorption at mid and high frequencies and a softer, less reverberant quality to the upper octaves. Conversely, if your room sounds too dead, thinner curtains will give more life and sparkle at these frequencies.

Sound at low frequencies 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.

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Ancillary equipment

THE POWER AMPLIFIER

The recommended limits of output for the power amplifier are given in the specifications. However, in giving these limits it should also be stated that the amplifier power requirement is an almost impossible figure for the loudspeaker manufacturer to specify. It will depend entirely on the type of programme being reproduced and the required sound level. It is always better to have an amplifier with high power output as this allows the proper reproduction of transients. If the amplifier output capability 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.

OTHER ELECTRONIC COMPONENTS

It is our experience that each item in the reproduction chain (including the Interconnect cable) is a variable and the final listening chain is a combination of these variables which should be auditioned and balanced as a system before making a final choice.

It is perhaps worth making a special point about the playing of CDs on video laser disc players. It is our experience, at the time of writing, that those players currently available do not give results as good as the best dedicated CD players. If you are serious about audio quality in a combination audio visual installation you should consider having a separate CD.

CABLES

The subject of cables between the power amplifier and the loudspeakers is dealt with above. There remains the question of low-level interconnecting cables between the various pieces of equipment.

Audible differences exist between cables and a number of excellent ones are available. We suggest that you choose one of the better cables after studying published reports and considering the advice of your dealer.

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Aftercare

The cabinet should be treated as any normal piece of furniture. If you use an aerosol cleaner, spray onto a cloth not onto the speaker. In particular, avoid the cleaner coming into contact with the drive units or the grille cloth. If you need to clean the grille, first remove the frame by grasping the outer edges near the corners and gently pull away from the cabinet. The cloth may then be brushed with a normal clothes brush. Please avoid touching the drive units, especially the delicate tweeter, as damage may result.

HOME THEATRE LEFT AND RIGHT FRONT APPLICATION

Positioning for this application will determine the overall size of the sound stage and the impression of perspective. It is important to relate the sound stage to the size of the screen. Failure to do this will reduce the degree of realism.

For large screens (typically those used with projection televisions), the speakers should be placed at ear height to the left and right of the screen. The spacing from the screen will depend on the distance between the screen and the listeners. An included angle of about 60° is a good guide. It may be beneficial (depending on the characteristics of the room) to angle the speakers towards the listeners in order to maintain the same spectral balance as the centre speaker.

With smaller screens, there is the danger of a mismatch between the apparent visible and audible image sizes. Generally, the speakers will be further from the edges of the screen than in the large screen case to maintain a reasonable left-right differential, but it may be worthwhile to slightly lower the signal level to the left and right speakers relative to the centre speaker to reduce the sense of scale and focus the sound more towards the screen.

HOME THEATRE SURROUND APPLICATION

It is often thought that the role of surround speakers is far less critical than the other speakers in a home theatre installation to the extent that one can get away with using an inferior quality product. However, it should be remembered that many sounds pan from front to rear and vice versa and a sudden change in sound character caused by different loudspeaker characteristics can detract from the standard of performance obtainable from a properly matched system.

The position of the speakers will depend somewhat on the position of the listeners relative to the rear and side walls of the room. Generally they will be placed behind, above and to the left and right of the listeners. They should not point directly at the listeners and the angle should be experimented with to give a acceptably diffuse sound. The best results are obtained when you are aware of the surround speakers without being quite sure where they are placed. The more spread out the listeners are, the more difficult it is to maintain this effect for all of them and you may find that a turn of the head drastically alters your perception of the surround sound field. When choosing between side and rear wall mounting, choose the walls furthest from the listeners so that the percentage difference in the various distances between listeners and speakers is minimised.

Although a standard Dolby Pro Logic® set-up does not strictly require it, the dipolar characteristic of Home THX® surround speakers may be used to advantage to create a more satisfactory surround sound field than is obtainable from conventional forward facing loudspeakers, especially for a larger audience. You are therefore strongly advised to consider the B&W SCMB Home THX® surround speakers, which feature drive units with similar characteristics to the Matrix HTM, thus combining to give a homogeneous sound field. The positioning of dipolar speakers is different from that for conventional speakers and is described in the SCMB user manual, as well as in the consumer leaflet covering the B&W Home THX system.

AUDIO ONLY APPLICATION

The speakers should be positioned at or ear height to maintain the correct time alignment between the two drive units. The response is close to that on the reference axis over a vertical arc of approximately 10°. As a general guide, the spacing between them should not exceed the distance to the listeners. Wider spacing may lead to the incorrect formation of the central part of the stereo image. Placement of the listener and the speakers at the points of an equilateral triangle is not a bad rule to follow.

The low profile of these systems makes them particularly suitable for use as nearfield monitors in a recording environment. However, the distance from the speakers to the listeners should not be less than 1m (3ft) in order to maintain proper drive integration. It should be remembered that the stereo image, whilst accurate in all other respects, can appear smaller in scale the closer the speakers are to the listeners. For normal listening, a distance of 1.8 (6ft) or greater will give a more natural scale.

COMBINATION HOME THEATRE / STEREO AUDIO APPLICATION

Where the installation is used for both normal stereo listening and for home theatre, you should optimise in favour of the stereo audio case. The audio system must stand on its own merits, whereas the visual stimulus of home theatre will largely overcome slightly less than ideal speaker positioning.

ALL APPLICATIONS

To avoid damage to the surface on which the loudspeaker stands and the underside of the loudspeaker cabinet, fit the self-adhesive feet supplied. They also serve to provide a degree of mechanical decoupling which reduces vibrations being transmitted from the loudspeaker to its support. Attach the feet by removing the peel-off backing and applying them to the underside corners of the cabinet, approximately 1cm (3/8in) from each edge. Should you wish to stand the speaker on an uneven surface, it is suggested that only three feet are used, with two at the front corners and one centred at the rear.

The loudspeakers should be supported by rigid stands or shelves at the correct height. Although centre channel speakers can be placed directly on top of a television console, there is the possibility of coloration being caused by vibrations from the speaker exciting the often rather flimsy construction of the television cabinet. A similar situation exists for the nearfield monitor application where speakers are often placed on top of the recording desk. A dedicated support is to be preferred, but where this is not possible a special mat or feet that can provide some degree of vibration isolation may prove beneficial.

The position of the speakers in relation to the walls of the room can have a noticeable effect on reproduction - especially at low frequencies. Generally, bass will increase relative to the mid and high frequencies as the speakers are moved nearer to the walls.

Placement hard against a wall, or worse still in the corner, may give rise to too much bass, with a boomy quality. In general, spacing from the walls of between 0.5m (2ft) and 1.5m (5ft) is recommended, but it is well worth experimenting until you have the most acceptable sound. It is usually worth endeavouring to make the spacing between the two nearest walls uneven. As an example, the ratio of 0.5m (2ft) to 1.5m (5ft) for the two walls can give excellent results.

We have been discussing the proximity of the loudspeakers to the walls in the context of the lower frequencies, but it is also worth mentioning that stereo information in a front to back plane will also improve if the rear wall is at least 0.5m (2ft) from the back of the loudspeaker.