

Bowers & Wilkins



**AVAILABLE AT
DIGITAL CINEMA**

Custom Theatre

CT SW12

Installation and


Setup Manual



English

Installation and Setup Manual

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12.  Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

17. The mains plug of the power supply cord shall remain readily operable.
18. Do not expose batteries to excessive heat such as sunshine, fire or the like.



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

19. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorised substitutions may result in fire, electric shock or other hazards.
20. Check that there are no cables under the carpet that may be damaged by the spike feet. Do not walk the product on the spike feet as this may cause them to become detached from the cabinet and cause damage. Take care not to impale yourself with the spike feet.
21. For continued protection against fire hazard, use fuses only of the correct type and rating. Mains fuses are located inside the appliance as well as on its back panel. Replacement of the internal fuse should be entrusted to an authorised operative. User-replaceable fuse types are shown in the specification.
22. Isolation of the appliance from the power supply is by means of removal of the power cord from the rear of the appliance or removal of the power cord from the wall power outlet. Either the wall outlet or the rear of the appliance must remain freely accessible at all times while the apparatus is in use.
23. This product should be operated only from the type of power source indicated by the marking adjacent to the power cord entry. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.
24. Do not overload wall outlets, extension cords or integral convenience receptacles, as this can result in a risk of fire or electric shock.
25. Magnetic fields – The product creates a stray static magnetic field. Do not place any object that may be damaged by this magnetic field

(eg cathode ray tube televisions or computer monitors, audio and video tapes and swipe cards) within 0.5m (2 feet) of the appliance. The appliance may cause distortion of cathode ray tube images beyond this distance. LCD and Plasma screens are not affected.

26. Mounting – Do not place this product on an unstable stand, tripod, bracket or table. The product may fall causing serious injury and serious damage. Any mounting of the product should follow the manufacturer's instructions.

Do not expose the device to rain, use it near water or in damp or wet conditions, or place containers on it containing liquids which might spill into any openings.

When setting up the device, make sure that the AC outlet you are using is easily accessible. If some trouble or malfunction occurs, immediately turn off the power switch and disconnect the plug from the outlet. Even when the power switch is turned off, electricity is still flowing to the product at the minimum level. When you are not using the device for a long time, make sure to unplug the power cord from the wall AC outlet.

Introduction

Dear customer,

Thank you for choosing Bowers & Wilkins. Please read this manual fully before unpacking and installing the product. It will help you to optimise its performance. Bowers & Wilkins maintains a network of dedicated distributors in over 60 countries who will be able to help you should you have any problems your dealer cannot resolve.

Environmental Information



All Bowers & Wilkins products are designed to comply with international directives on the Restriction of Hazardous Substances (RoHS) in electrical and electronic equipment and the disposal of Waste Electrical and Electronic Equipment (WEEE). These symbols indicate compliance and that the products must be appropriately recycled or processed in accordance with these directives. Consult your local waste disposal authority for guidance.

This manual covers the CT SW10, CT SW12 and CT SW15 subwoofers and their matching SA1000 automated rack mount power amplifier.

Carton Contents

Check subwoofer carton for:

- 1 Accessory pack containing:
 - 4 x M6 spike feet
 - 4 x M6 rubber feet
 - 4 x Lock nuts (10mm across flats)
 - 1 x Two-pole Neutrik Speakon plug

Check amplifier carton for:

- 1 x Mains Cable
- 1 x Four-pole Neutrik Speakon plug
- 2 x Rack Mount Brackets
- 6 x Short Philips screws and washers

- 4 x Rubber hole plugs
- 2 x Handles
- 4 x Long Philips screws and washers

The CT SW10, 12 and 15, and the SA1000 dual subwoofer amplifier are designed both for Home Theatre installations and to augment the bass performance of 'full range' speakers in 2-channel audio systems. All audio installations require some thought in installation if they are to reach their full performance potential and this manual will guide you through the process.

The subwoofer amplifier requires connection to the mains power supply so it is important that you familiarise yourself with the safety instructions and heed all the warnings. Keep this manual in a safe place for future reference.

Subwoofer Installation and Positioning

The CT SW Series subwoofers are intended to be installed either within existing or custom designed home theatre system cabinetry close to, or on, the floor.

If the subwoofer is to be installed within cabinetry it is important to ensure that the cabinetry is capable of carrying the weight and that it is structurally reliable. Significant vibration of the cabinetry panels may seriously affect the subjective performance of the audio system. Screw-in rubber feet are supplied for attachment to the underside of the subwoofer in order both to protect the cabinet finish and to reduce vibration.

If the subwoofer is to be installed free-standing on the floor, it is important to ensure it stands firmly using the spike feet supplied whenever possible. The spike feet are designed to pierce carpet and rest on the floor surface. Initially, screw the lock nuts onto the spikes enough to leave the nuts floating just above the carpet when the spikes are resting on the floor beneath. Screw the spikes fully into the threaded inserts in the base of the cabinet. If the cabinet rocks when placed on the floor, unscrew the spike that does not touch the floor until the cabinet rests firmly without rocking. Finally, lock the nuts against the cabinet. It may be more convenient to fit and adjust the spike feet after speaker positioning has been optimised.

The ear poorly perceives the source location of low frequency sound so the position of subwoofers in the listening room is generally less critical compared to full-range speakers. That said however, best results are usually obtained if the subwoofer is placed between the left and right speakers or in the vicinity of one of them. If two subwoofers are used it is best to put one near the left and one near the right speaker. Placing a subwoofer behind the listening position, even in multi-channel surround sound installations, generally results in inferior imaging but may be an acceptable compromise if domestic considerations dictate.

As with all speakers, the proximity of room boundaries affects the sound of a subwoofer. Bass volume increases as more surfaces come into close

proximity with the speaker. Unlike full-range speakers, however, the overall system balance can be corrected by adjusting the volume level of the subwoofer. The more boost gained from the room, the lower the volume can be set and the less hard the subwoofer has to work; but there is a down side. Subwoofers positioned near corners often generate more low-frequency room resonances, making the bass more uneven with frequency. There is no substitute for experiment as all rooms behave differently, so the subwoofer should be tried in a variety of positions before a final decision is made. A piece of music with a bass line ascending or descending the musical scale is useful for assessing the smoothness of the bass response. Listen for exaggerated or quiet notes.

Using multiple subwoofers in a single installation can improve performance in the following ways:

- Maintains stereo separation to the lowest frequencies.
- Smooth out the effects of low frequency room resonances.
- Enable a higher maximum sound output.

In the case of two subwoofers used in a 2-channel audio system, stereo separation will only be improved if each channel has its own subwoofer located close to the appropriate satellite speaker.

Stray Magnetic Fields

The subwoofer drive units create stray magnetic fields that extend beyond the boundaries of the cabinet. We recommend you keep magnetically sensitive articles (CRT television and computer screens, computer discs, audio and video tapes, swipe cards and the like) at least 0.5m (20 in) from the speaker. LCD and plasma screens are not affected by magnetic fields.

Grilles

The CT SW Series subwoofers are fitted with magnetically attached fabric grilles which may be removed if desired. Take care not to damage the drive units when removing or replacing the grilles.

Subwoofer Amplifier Installation

The SA1000 subwoofer amplifier is intended to be installed in standard 19 inch equipment racks. It is supplied with rack-mount ears but rack mount bolts and nuts are not supplied. Ensure that, once mounted in the rack, the amplifier is well ventilated and that its ventilation apertures are not obstructed.

Rack Mounting the SA1000

The SA1000 is supplied with two rack mounting brackets for installation in standard equipment racks. To install these brackets:

Install the rack mount bracket, inserting three of the small Philips head machine screws through the bracket and the threaded holes in the side of the amplifier.

Repeat for the bracket on the other side of the amplifier.

SA1000 Rack Handles

The rack mount brackets are supplied with handles, which can be installed or removed. The handles are installed with two of the long Philips head machine screws inserted through the rack mount bracket and into the threaded holes in the handles. If you do not use the handles, use the rubber hole plugs supplied with the bracket hardware to fill the exposed holes.

Subwoofer Amplifier EQ Switch Settings

The SA1000 subwoofer amplifier is fitted with a switch on the back to provide additional fine tuning for the amplifier for the specific CT subwoofer it will be driving. Simply put the switch at the position indicating the CT subwoofer you are using. (Figure 5)

Subwoofer Amplifier Connections

The SA1000 subwoofer amplifier is fitted with a variety of connection sockets on its rear panel:

1 x Mains input socket: Connect mains power using the appropriate cable for your territory.

1 x Neutrik Speakon Output Socket: A four-pole Speakon enabling connection of one or two (identical) subwoofers. Speakon sockets provide a more secure and reliable connection than bare-wire or 4mm sockets.

4 x Binding Posts Outputs: Two pairs of binding posts provide alternative bare-wire or 4mm socket connection for one or two (identical) subwoofers.

2 x RCA Phono Inputs: Input sockets for connection to an AV processor or preamplifier subwoofer or stereo output.

1 x XLR Input: Alternative balanced input socket for connection to an AV processor or preamplifier subwoofer output.

2 x RCA Phono Outputs: Output sockets for connection to the input of a second subwoofer amplifier.

1 x XLR Output: Alternative balanced output socket for connection to the input of a second subwoofer amplifier.

2 x 3.5mm Jack Trigger Inputs: 12V trigger inputs to enable automated control of amplifier standby and movie/music function selection.

Connecting the subwoofer amplifier to the subwoofer, including the use of Speakon plugs, is covered in the Connecting Sections below.

Subwoofer Amplifier Controls

The SA1000 subwoofer amplifier front panel carries the following controls.

Volume: Sets the overall volume of the subwoofer.

Filter: Sets the low-pass cut-off frequency of the subwoofer filter.

Low-pass In/Out: Engages or defeats the subwoofer filter.

Phase: Reverses the subwoofer output phase.

Bass Extension: Provides three bass extension options.

Movie/Music EQ: Provides equalisation options for music or movie programme material.

On/Auto/Standby: Provides switch-on and standby options.

Status Indicator: Illuminates to indicate the amplifier is switched on.

Fault Indicator: Illuminates to indicate a fault condition.

Connecting the Subwoofer

All connections should be made with the equipment switched off.

The CT SW10, 12 and 15 have a pair binding post connection terminals and one Neutrik Speakon connection socket on their rear panels. The binding post terminals provide quick and easy connection of stripped wires while Speakon sockets provide a more secure and reliable connection method.

If the binding post terminals are to be used, connect the positive cable to the red terminal and the negative cable to the black terminal. Incorrect connection can result in poor imaging and loss of bass. Figure 1 illustrates use of the binding post terminals.

If the Speakon option is to be used, disassemble the Speakon plug as shown in Figure 2. Connect the positive cable to the terminal marked +1 and the negative cable to the terminal marked -1. Incorrect connection can result in poor imaging and loss of bass. Once the plug is reassembled it can be inserted into the socket and locked by twisting clockwise.

Ask your dealer for advice when selecting speaker cable. Keep its total impedance below the maximum recommended in the speaker specification and use a low inductance cable.

Connecting the Subwoofer Amplifier

All connections should be made with the equipment switched off.

The SA1000 amplifier has two pairs of binding post connection terminals and one four-pole Neutrik Speakon connection socket on its rear panel. The binding post terminals provide quick and easy connection of stripped wires while Speakon sockets provide a more secure and reliable connection method. Two identical subwoofers can be connected to the amplifier through use of either the two pairs of binding posts or the supplied four-pole Speakon plug.

If the binding post terminals are to be used, connect the positive cable or cables to the red terminals and the negative cable or cables to the black terminals. Incorrect connection can result in poor imaging and loss of bass. Figure 3 illustrates the use of the binding post terminals to connect one or two subwoofers.

If the Speakon option is to be used, disassemble the Speakon plug as shown in Figure 2 connect the positive cable to the terminal marked +1 and the

negative cable to the terminal marked -1. Terminals +2 and -2 are to be used when two subwoofers are connected. Incorrect connection can result in poor imaging and loss of bass. Once the plug is reassembled it can be inserted into the socket and locked by twisting clockwise. Figure 4 illustrates the use of the Speakon plug to connect one or two subwoofers.

Connect the signal input to the subwoofer amplifier using either the RCA phono or XLR options. If a mono signal is being used, for example from a subwoofer pre-output, you will need to connect the cable to the left input. A second subwoofer amplifier can be daisy-chained from the first by connecting to either the RCA phono or XLR output sockets.

Subwoofer Amplifier Setup and Control Before Auditioning

Before auditioning your new subwoofer installation and fine-tuning it, double check the connections. Make sure in particular that the phasing is correct. The positive terminals on the subwoofer (marked + and coloured red) should be connected to the positive output terminals on the amplifier and the negative terminals on the subwoofer (marked – and coloured black) connected to the negative output terminals on the amplifier. Incorrect connection can result a confused sound with poor bass.

Switching On and Off

The subwoofer amplifier is best switched on after any other item and switched off first. The On/Auto/Standby and Status Indicator operate as follows:

On: With the switch set to “On”, the subwoofer amplifier will remain fully active and the indicator will glow green.

Auto: With the switch set to “Auto”, the subwoofer amplifier will initially become fully active and the indicator will glow green. After about 5 minutes without an input signal, the subwoofer amplifier will automatically enter “sleep” mode. The indicator will glow red. When an input signal is detected, the subwoofer amplifier will automatically become active and the indicator will glow green. The subwoofer amplifier will return to sleep after about 5 minutes with no input signal.

Audio-visual processors incorporating an “automatic” set up procedure may be “confused” by a subwoofer amplifier with an auto switch-on/sleep function. A potentially damaging fault condition can arise. The subwoofer amplifier is best left switched on and fully active during set up if such a processor is used.

Standby: With the switch set to “Standby” the subwoofer amplifier will become active when it receives an appropriate trigger signal via its 12V Trigger Input. Turning off the 12V signal will return the subwoofer amplifier to sleep. The indicator will glow green when the subwoofer amplifier is active and red when the subwoofer amplifier is in sleep.

Setting The Subwoofer Amplifier Controls

There are 6 controls to consider:

The VOLUME (LINE) control.

The LOW-PASS FREQUENCY control.

The LOW-PASS FILTER switch.

The BASS Extension switch.

The EQUALISATION.

The PHASE switch.

The appropriate settings depend on the equipment used with the subwoofer and the modes of connection. If using more than one subwoofer amplifier, ensure the controls on each one are set the same.

Home Theatre Settings

Set the VOLUME control initially to the 9 o'clock position.

Set the LOW-PASS FILTER switch to OFF.

Set the BASS EXTENSION switch initially to position A.

Set the PHASE switch initially to 0°.

Setting the LOW-PASS FREQ setting is irrelevant as the filter is switched OUT.

Set the EQUALISATION switch to MOVIE.

See the "Fine Tuning" section for more.

The subwoofer and subwoofer amplifier are not a THX® licensed component, but may be used with a THX® controller if desired. If a THX® controller is used, ensure that the subwoofer function is enabled. This incorporates all the filtering and level setting required for the subwoofer in all modes. For level calibration, the internal test noise and channel level controls in the THX® controller should be used. In all cases the levels should be set to obtain 75dB SPL (C-weighted) at the listening position from the controller's internal noise test signal.

With other processors, configure the front and surround speakers to "large" or "small" as appropriate before setting the levels. Use the internal noise test signal and volume controls of the processor to set the levels of all the speakers. Only change the VOLUME control on the subwoofer amplifier if there is not enough range in the processor to achieve the correct levels. Inexpensive sound level meters are readily available from electronics stores and can be used to calibrate the levels. Refer to your processor manual for further details on how to set the levels.

2-channel Audio Settings

Set the VOLUME control initially to the 9 o'clock position.

Set the LOW-PASS FILTER switch to ON.

Set the BASS EXTENSION switch initially to position A.

Set the PHASE switch initially to 180°.

Set the EQUALISATION switch to MUSIC.

Set the LOW-PASS FREQ control to match the -6dB low frequency cut-off frequency of the satellite speakers. Note: Both -3dB and -6dB figures can be found in the specification of each Bowers & Wilkins speaker model. If the satellite speaker manufacturer quotes only a -3dB frequency, the optimum setting for the LOW-PASS FREQ control should be between 0.6 and 0.9 times that figure. The more gradual the low frequency roll-off of the satellite speakers, the lower the frequency should be set.

See the Fine Tuning section for more.

Fine Tuning

Before fine tuning, make sure that all the connections in the installation are correct and secure.

Home Theatre

In home theatre systems, the subwoofer (LFE) signal is a separate channel rather than an extension of the signal to the satellite speakers. The LOW-PASS FILTER is switched off (or set to maximum), because the processor provides all the filtering for any speakers set to "small". However, the position of the PHASE switch must still be assessed. Normally the phase will be set to 0°, but if the subwoofer is positioned at a distance significantly different from the other speakers, or the power amplifier driving the other speakers happens to invert the signal, the 180° position may be preferable. Listen with the switch in both positions and choose the one that gives the fullest sound. If there is little difference, leave the switch at 0°.

Surround sound processors normally have a calibrated noise signal that can be used to set the relative levels of all the speakers, making the task somewhat more straightforward than for 2 channel audio. However, do not be afraid to alter the settings to your personal preference. It is all too easy to get carried away with the capabilities of the subwoofer, especially with some special low-frequency effects. Often a more realistic portrayal, and one more satisfying in the long term, is to be had by setting the subwoofer level lower than the standard calibration level.

2-channel Audio

Set the system up in the preferred position and play some programme with a steady bass content.

The optimum settings of the PHASE switch and the LOW-PASS FREQ control are inter-related and also dependent on the low-frequency cut-off characteristic of the satellite speakers. However, the settings recommended above for the LOW PASS FREQ control and PHASE switch have been chosen to integrate well with most satellite speaker bass alignments.

Using the initial settings, first check the setting of the PHASE switch. Choose the option that gives the fullest sound. Normally the recommended option will be optimum, but may not be in certain circumstances. These may be that the power

amplifiers feeding the satellite speakers invert the signal or that the subwoofer is not placed close to the satellite speakers.

Next, adjust the VOLUME of the subwoofer amplifier relative to the satellite systems to your liking. Use a wide variety of programme material to get an average setting. A setting that sounds impressive on one piece may sound overpowering on another. Listen at a realistic volume level as the perception of musical balance varies with sound level.

Finally, adjust the LOW-PASS FREQ control to give the smoothest transition between the subwoofer and satellite speakers.

All Applications

The BASS EXTENSION switch offers three options of subwoofer bass extension. Position A gives the greatest extension and position C gives the least extension. Position B provides a compromise setting. If the system is to be used at very high volume levels or in a large listening room, restricting the bass extension by selecting either B or C may help ensure that the subwoofer is not asked to exceed its performance limits. In most situations the BASS EXTENSION switch should be left in position A.

The EQUALISATION switch alters the subwoofer bass roll-off alignment appropriate to MOVIE or MUSIC listening. The MOVIE position gives a “drier” alignment, more suited to the demands of action movie low frequency effects. The MUSIC position is suited to a faster more accurate bass line. The 3.5mm Equalisation input on the back panel is designed to receive a 12V signal that will toggle the MOVIE/MUSIC setting at the front panel. Set appropriately, the 12V trigger output of a processor can automate ideal performance of the subwoofer. If the front panel switch is set for MOVIE, the 12V trigger will change it to MUSIC. The reverse is also true. Care must be taken in setup of the processor in order to take advantage of this feature.

If you get problems with uneven bass – certain bass notes are exaggerated more than others – then you probably have a room interface problem and it is worth experimenting with the location of the subwoofer. What may seem like small changes in position – 15cm (6in) or so – can have a profound effect on the sound. The use of multiple subwoofers can smooth the effects of room resonances, as each subwoofer will tend to excite resonances at different frequencies. If you appreciably alter the relative distances from the subwoofer(s) and satellite speakers to the listening position, re-assess the PHASE switch setting. You should also check the volume of the subwoofer (using either the processor output levels or the VOLUME control on the subwoofer amplifier as appropriate), but only after setting the phase correctly.

Running-in Period

The performance of the speaker will change subtly during the initial listening period. If the speaker has been stored in a cold environment, the damping

compounds and suspension materials of the drive units will take some time to recover their correct mechanical properties. The drive unit suspensions will also loosen up during the first hours of use. The time taken for the speaker to achieve its intended performance will vary depending on previous storage conditions and how it is used. As a guide, allow up to a week for the temperature effects to stabilise and 15 hours of average use for the mechanical parts to attain their intended design characteristics.

However, longer run-in periods (as long as a month) have been reported and there is evidence to suggest that this has little to do with the speaker changing and more to do with the listener getting used to the new sound. This is especially so with highly revealing speakers such as these where there may be a significant increase in the amount of detail compared with what the listener has previously been used to; the sound may at first appear too “up front” and perhaps a little hard. After an extended period of time the sound will seem to mellow, but without losing clarity and detail.

Aftercare

The cabinet surfaces usually only require dusting. If you wish to use an aerosol or other cleaner, remove the grille first by gently pulling it away from the cabinet. Spray aerosols onto the cleaning cloth, not directly onto the product. Test a small area first, as some cleaning products may damage some of the surfaces. Avoid products that are abrasive, or contain acid, alkali or anti-bacterial agents. Do not use cleaning agents on the drive units. The grille fabric may be cleaned with a normal clothes brush whilst the grille is detached from the cabinet.

Do not use the subwoofer as a table. When in use, objects left on top of the subwoofer are liable to rattle. In particular, avoid the risk of liquids being spilled (e.g. from drinks or vases of flowers).

If the system is taken out of use for a long period, disconnect the subwoofer amplifier from the mains supply.

Neutrik® and the names of Neutrik® products referenced herein are either trademarks and/or service marks of Neutrik®.

Warranty

Bowers & Wilkins products are designed and manufactured to the highest quality standards. However, if something does go wrong with the product, B&W Group Ltd. and its national distributors warrant free of charge labour (exclusions may apply) and replacement parts in any country served by an official Bowers & Wilkins distributor.

This warranty complements any national or regional legal obligations of dealers or national distributors and does not affect your statutory rights as a customer. Some regional legal obligations outside

the control of B&W Group Ltd. may reduce the scope or time of the terms outlined below. In particular:

- Special warranty terms apply in the Russian Federation.
- Specific import regulations apply in Brazil.

Please contact the relevant national distributor for details.

Terms and Conditions

This warranty:

- 1 is valid only for products purchased from an authorised Bowers & Wilkins retailer or dealer.
- 2 is valid from the date of purchase for a period of five years for passive loudspeakers and two years for powered loudspeakers, electronics and headphones, except that exclusions apply in certain countries in line with national law. Please consult the Bowers & Wilkins distributor in your country for detailed information.
- 3 is limited to the repair of the equipment. Neither transportation, nor any other costs, nor any risk for removal, transportation and installation of products is covered by this warranty.
- 4 is only valid for the original owner. It is not transferable.
- 5 will not be applicable in cases other than defects in materials and/or workmanship at the time of purchase and will not be applicable:
 - a for deterioration of component parts, the nature of which is to become worn or depleted with use, such as batteries and headphone ear pads.
 - b for damages caused by incorrect installation, connection or packing,
 - c for damages caused by any use other than correct use described in the user manual, negligence, modifications, or use of parts that are not made or authorised by B&W Group Ltd.,
 - d for damages caused by faulty or unsuitable ancillary equipment,
 - e for damages caused by accidents, lightning, water, fire heat, war, public disturbances or any other cause beyond the reasonable control of B&W Group Ltd. and its appointed distributors,
 - f for products whose serial number has been altered, deleted, removed or made illegible,
 - g if repairs or modifications have been executed by an unauthorised person.

- 1 Call the Bowers & Wilkins national distributor in your country of residence: You can find all contact details by clicking on 'Contact Us' at the bottom of this page and selecting the appropriate country.
- 2 Our representative will discuss your concerns. If it is found necessary to return the product for repair, you may be given a Return Merchandise Authorisation. You should not return the product without this authorisation, if given.

To validate your warranty, you will need to produce the original sales invoice or other proof of ownership and date of purchase.

How to claim repairs under warranty

Should you have any concerns regarding the performance of your product, please use the following procedure:

STANDARDS CONFORMITY

NORTH AMERICA



Conforms to ANSI/UL Standard 60065 7th Edition
Certified to CAN/CSA Standard C22.2 No. 60065



Complies with Part 15 of the FCC Rules

Operation is subject to the following conditions:

1. This device does not cause harmful interference and
2. This device must accept any interference received, including interference that may cause undesired operation.

EU DECLARATION OF CONFORMITY

We,

B&W Group Ltd.

whose registered office is situated at

Dale Road, Worthing, West Sussex, BN11 2BH, United Kingdom

declare under our sole responsibility that the products:

SA1000

comply with the EU Electro-Magnetic Compatibility (EMC) Directive 89/336/EEC, in pursuance of which the following standards have been applied:

EN 55020 : 2002	Sound and television broadcast receivers and associated equipment - Immunity characteristics
EN 55013 : 2001	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics
EN 61000-3-2 : 2000	Electro-magnetic compatibility (EMC) — Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16A per phase)
EN 61000-3-3 : 1995	Electro-magnetic compatibility (EMC) — Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current \leq 16A per phase and not subject to conditional connection

and comply with the EU Low Voltage Directive 73/23/EEC and amendment 93/68/EEC, in pursuance of which the following standard has been applied:

EN 60065 : 2002	Audio, video and similar electronic apparatus - Safety requirements
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This declaration attests that the manufacturing process quality control and product documentation accord with the need to assure continued compliance.

The attention of the user is drawn to any special measures regarding the use of this equipment that may be detailed in the owner's manual.

Signed:

A handwritten signature in black ink, appearing to read 'G Edwards'.

G Edwards
Executive Vice President, Operations
B&W Group Ltd.

EU DECLARATION OF CONFORMITY

We,

B&W Group Ltd.

whose registered office is situated at

Dale Road, Worthing, West Sussex, BN11 2BH, United Kingdom

declare under our sole responsibility that the products:

CT SW10, CT SW12, CT SW15

comply with the EU Electro-Magnetic Compatibility (EMC) Directive 89/336/EEC, in pursuance of which the following standards have been applied:

EN 61000-6-1 : 2001
EN 61000-6-3 : 2001
EN 55020 : 2002
EN 55013 : 2001

and comply with the EU General Product Safety 2001/95/EC, in pursuance of which the following standard has been applied:

EN 60065 : 2002

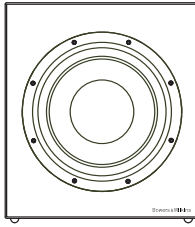
This declaration attests that the manufacturing process quality control and product documentation accord with the need to assure continued compliance.

The attention of the user is drawn to any special measures regarding the use of this equipment that may be detailed in the owner's manual.

Signed:



G Edwards
Executive Vice President, Operations
B&W Group Ltd.



CT SW12

Technical features	Paper/Kevlar® cone bass driver
Description	Closed-box subwoofer system with rack-mount amplifier
Drive unit	ø300mm (12 in) paper/Kevlar® cone long-throw
Frequency range	-6dB at 17Hz and 25/140Hz adjustable (EQ at A)
Frequency response (±3dB)	24Hz - 40/140Hz adjustable (EQ at A)
Bass extension	-6dB at 17Hz (position A) -6dB at 22Hz (position B) -6dB at 26Hz (position C)
Weight	25kg (55.1 lb)
Dimensions	H 465mm (18.3 in) W 396mm (15.6 in) D 260mm (10.3 in) Depth with grille: 290mm (11.4 in)

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