NEWTON SERIES™

P1000 and P500 Subwoofers

User Manual

CAMBRIDGE SOUNDWORKS®

The lightning flash with arrowhead, 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 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 this product

WARNING

DO NOT OPEN

TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SUBWOOFER’S COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

AVISIQUE

POUR EVITER TOUT RISQUE DE CHOC ELECTRIQUE, NE PAS DEMONTER LE COUVERCLE DU HAUT PARLEUR. AUCUN ENTRETIEN DES PIECES INTERIEURES N’EST REQUIS.TOUT SERVICE D’ENTRETIEN NE DOIT ETRE EFFECTUE QUE PAR DU PERSONNEL D’ENTRETIEN QUALIFIE.

READ AND HEED IMPORTANT SAFETY WARNING ON BACK OF SUBWOOFER ENCLOSURE

CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, INSERT FULLY.

ATTENTION:

POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU’AU FOND.

IMPORTANT NOTICE:

THE SERIAL NUMBER FOR THE SUBWOOFER IS LOCATED ON THE SUBWOOFER’S CONTROL PANEL. PLEASE WRITE THIS NUMBER DOWN AND KEEP IT IN A SECURE AREA. THIS IS FOR YOUR SECURITY.

IMPORTANT SAFETY INSTRUCTIONS

READ INSTRUCTIONS – All safety and operating instructions should be read before the subwoofer is operated.

RETAIN INSTRUCTIONS – The safety and operating instructions should be retained for future reference.

HEED WARNINGS – All warnings on the subwoofer and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS – All operating and use instructions should be followed.

CLEANING – Unplug the subwoofer or control module from the wall outlet or other power source before cleaning. Use a damp cloth for cleaning.

ATTACHMENTS – Do not use any adapters or attachments not recommended by Cambridge SoundWorks as they may cause hazards.

WATER AND MOISTURE – Do not use the subwoofer or control module near water-for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool or other similar areas.

ACCESSORIES – Do not place the subwoofer on an unstable cart, stand, tripod, bracket, or table. The subwoofer may fall, causing serious injury to a child or adult and serious damage to the product.

VENTILATION – Slots, openings and metal fins in the cabinet are provided for ventilation, to ensure reliable operation of the subwoofer and to prevent it from overheating. These areas must not be blocked or covered such as by placing the product on a bed, sofa, very deep pile rug, or other similar surface. The subwoofer should not be placed in a built-in installation such as a bookcase or rack.

HEAT – The subwoofer should be situated away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat.

POWER SOURCES – The subwoofer or control module should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your dealer or local power company.

POLARIZATION – The subwoofer is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

POWER-CORD PROTECTION – The AC power cords should be routed so that they are not likely to be walked on. No object should bring weight to bear on to the AC power cords.

LIGHTNING – For added protection for the subwoofer or control module during a lightning storm, or when it is left unattended and unused for long periods of time, unplug them from the wall outlet. This will prevent damage to the subwoofer or control module due to lightning and power-line surges.

OVERLOADING – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

OBJECT AND LIQUID ENTRY – Never use probes of any kind to reach into the subwoofer or control module as they may touch dangerous voltage points or short parts that could result in a fire or electric shock. Never spill liquid of any kind on the subwoofer, control module or control module power supply.

SERVICING – Do not attempt to service the subwoofer or control module yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

DAMAGE REQUIRING SERVICE – Unplug the subwoofer or control module from the wall outlet or other power source and refer servicing to qualified service personnel under the following conditions:

a) When the power-cord or plug is damaged.

b) If liquid has been spilled, or objects have fallen into the subwoofer or control module.

c) If the subwoofer or control module has been exposed to rain or water.

d) If the subwoofer or control module does not operate normally by following the operating instructions; or exhibits a distinct change in performance.

e) If the subwoofer or control module has been dropped or damaged in any way.

REPLACEMENT PARTS – When replacement parts are required, be sure the service technician uses replacement parts specified by Cambridge SoundWorks or have the same characteristics as the original part. Substandard substitutions may result in fire, electric shock, or other hazards.

SAFETY CHECK - Upon completion of any service or repairs to the subwoofer or control module, ask the service technician to perform safety checks to determine that the subwoofer or control module is in proper operating condition.

CONTENTS

1. Powered subwoofer enclosure

2. Control module

3. AC power cable

4. Module to sub interface cable

5. Remote control

6. Speaker wire connector plug

7. Control module power supply adapter

INSPECTING FOR DAMAGE

Examine each part carefully for shipping damage. If there is any, do not install or use the system. Return the subwoofer to the store or merchant where you made the purchase or call Cambridge SoundWorks at 1-800 FOR-HIFI (1-800-367-4434) for assistance.

SPECIFICATIONS

P1000:

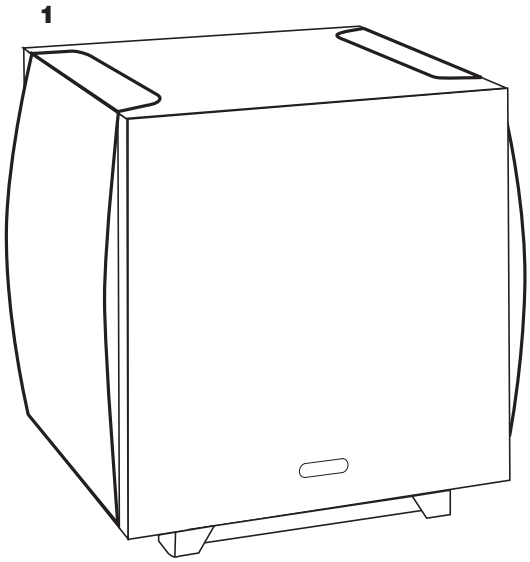
Dimensions: 15 1/2"H x 15 1/4"W x 14"D

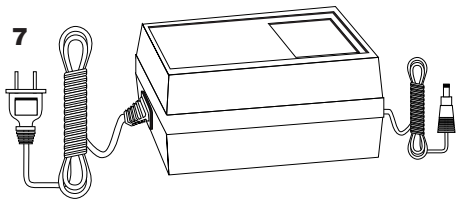
Weight: 45 pounds

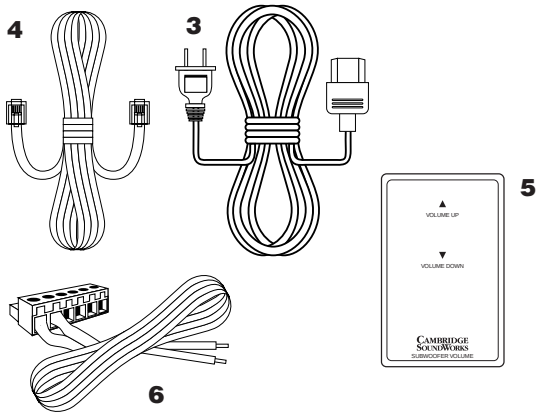
P500:

Dimensions: 13 1/2"H x 13 3/4"W x 12"D

Weight: 35 pounds







OPERATING CONTROLS

1. low-pass:

Even though a subwoofer only produces “bass notes”, the upper end of its range should be tailored to blend well with your main speakers. The subwoofer should not produce any bass your main speakers can produce. The low-pass control sets this limit. The lowest setting (50 Hz) should be used with large main speakers. Its middle settings should be used with small floorstanding speakers or large bookshelf speakers. Its highest setting should be used with small speakers (see table on page 14).

2. On/Standby/Limit Indicator:

This indicator glows **amber** when the subwoofer is in Standby. The subwoofer uses very little power in this mode. It turns on rapidly whenever the main system is used. This indicator glows **green** while the subwoofer is On and operating. This indicator blinks **red** whenever the subwoofer reaches its full output (1000 watts for the P1000, 500 watts for the P500).

3. phase:

The phase control compensates for placement differences between the main speakers, the subwoofer and your listening position. Adjusting this control affects the relatively narrow range of notes where the main speakers and the subwoofer “overlap”. Adjust it for maximum output in this narrow range (not for “best sound”). The affect this control has can be subtle. It’s easiest to adjust when percussion is playing a repetitive pattern.

4. volume:

This control sets the overall output level of the subwoofer. Adjust it with the remote control for the best overall blend with your main speakers, after you have set the other controls.

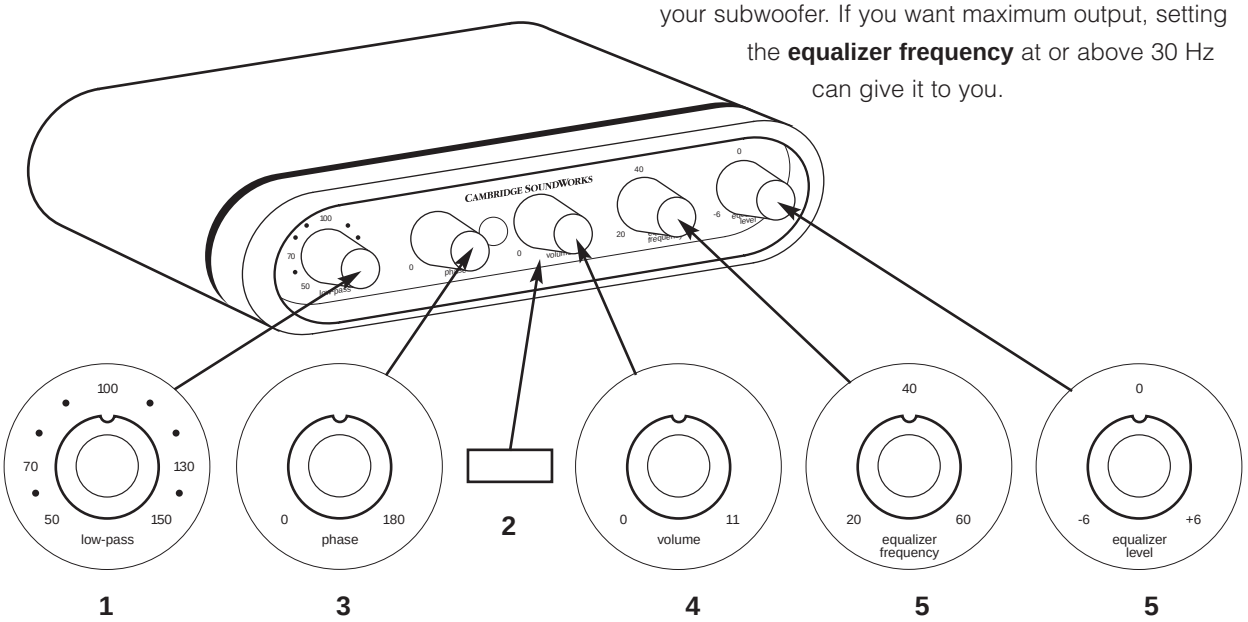
5. equalizer level and equalizer frequency:

Your listening room’s shape and construction (and where you listen within it) have an unpredictable affect on deep bass. These two controls adjust deep bass.

equalizer frequency adjusts how deep into the bass the subwoofer will respond. The 20 Hz setting indicates the subwoofer is flat down to that frequency. **equalizer level** adjusts the output centered around the equalizer frequency setting.

These controls let you discover the strong and deep sonic events in your favorite program material, part of the fun of having a great powered subwoofer.

The lower you set the equalizer frequency and the higher you set the equalizer level, the more amplifier power you devote to producing the deepest bass.
This, in turn, can limit the maximum overall output of your subwoofer. If you want maximum output, setting the **equalizer frequency** at or above 30 Hz can give it to you.



CONTROL MODULE INPUTS AND OUTPUTS

6. Sub In:

Connect the SUB OUT jack from a receiver, integrated amplifier, preamplifier, or surround decoder to this jack. Use an audio signal cable with single RCA plugs on each end.

7. Preamp Level Inputs:

Normally, the Right (R) and Left (L) signal outputs from a preamp will connect to the to RIGHT IN and LEFT IN. The CENTER IN would only be used when three equal-level signals need to be combined.

8. Speaker Level Inputs:

Connect the Right and Left speaker outputs of a *stereo receiver/amplifier* to the plug that inserts here. Connect the Right, Center and Left speaker outputs of a *Dolby Surround receiver* in WIDE mode to the plug.

9. Right And Left High Pass Out:

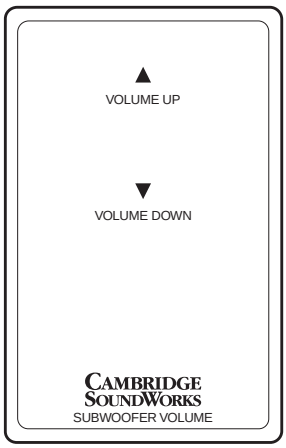
Use these jacks if you have separate components (preamplifier and power amplifier) and you want to prevent the low frequency program material from reaching your main speakers. Connect these signal jacks to the Right (R) and Left (L) signal input jacks of the power amplifier. Use a stereo audio signal cable with two RCA plugs on each end.

10. Main Outputs:

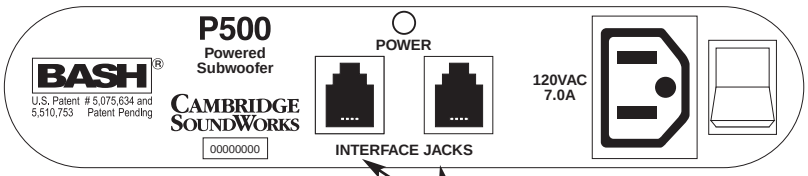
Connect one of these two jacks to the subwoofer enclosure using the supplied Interface Cable. Use the other jack only when you to connect a second Newton Series subwoofer enclosure.

The Remote Control

The Remote Control adjusts the motorized volume control. Because the output level of deep bass in a room can vary substantially from one place to another, it's best to adjust the subwoofer's output from your listening position.

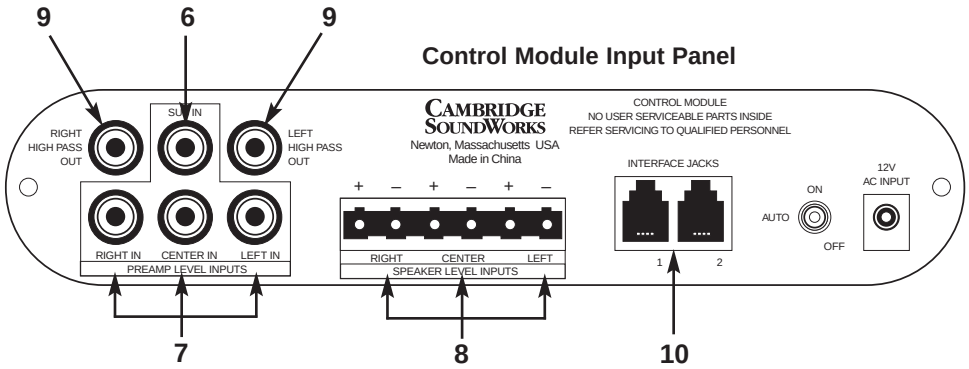


Subwoofer Enclosure Input Panel



Connect the Interface Cable from the Control Module to one of these two jacks.

Control Module Input Panel



PLACEMENT

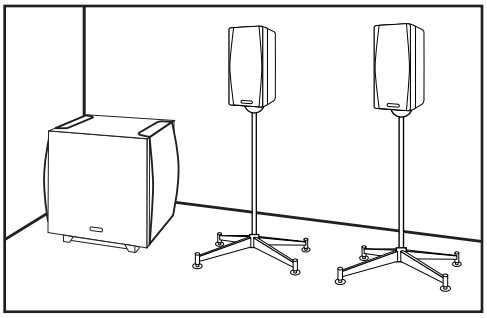
The subwoofer enclosure should be placed on the floor. Its location in the room affects its output. The output increases the closer the subwoofer is placed to the intersection of walls and floors (see diagrams).

Some Advantages Of Corner Placement: Placing a subwoofer in or near the corner of a room increases its maximum output. Corner placement also provides the most consistent output from deep bass to upper bass. Since corner placement "forces" more of the bass energy toward the center of the room, you can operate the subwoofer at a lower overall gain setting than if it was in the middle of a wall. This reduces the amount of bass someone in a nearby room will hear.

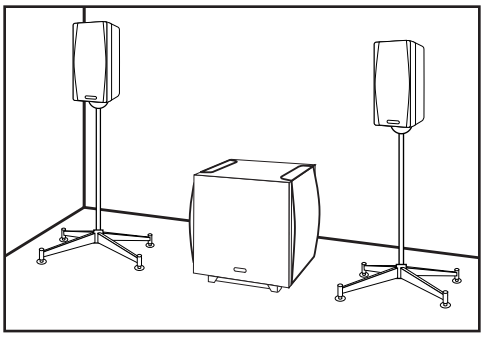
Other locations: Any position in a room can be used, but a position away from the intersection of two room surfaces will both reduce the maxiumn output of the subwoofer and make the output from deep bass to upper bass less even.

For most places in a room, the orientation of the subwoofer is not critical. If you place the subwoofer directly in a corner, you may find that "diagonal" placement (the grille panels forming a 45 degree angle with both side walls) reduces wall-shaking.

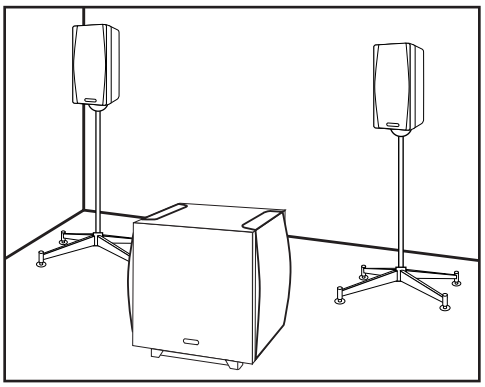
We realize many "real world" factors affect where you choose to place a subwoofer and corner placment may not be practical. The highly flexible controls on the Control Module allow you to effectively compensate for uneven output due to placement.



Maxium Bass Output



Moderate Bass Output



Least Bass Output

Ventilation: Because the subwoofer enclosure panel requires adequate ventilation, do not place it inside a wall unit or any piece of furniture. Also, don't place it near heat sources or against furniture, draperies or other material that will block the free flow of air around the from underneath the subwoofer.

INSTALLING CARPET SPIKES

Improving Stability With Carpet Spikes

The powered subwoofer has four soft feet for level, stable orientation on any flat surface and tightly woven carpets. Installing and adjusting the four carpet spikes can level the speaker and improve its stability on thick carpeting. The spikes penetrate a carpet and carpet pad and transfer the weight of the speaker directly to the floor surface.

Note: These carpet spikes will leave four small but distinct puncture holes in wooden floors and could damage other surfaces, especially if the subwoofer is dragged after they are installed. Do not use these spikes if you are concerned about the appearance of the floor beneath the carpet.

Carpet spike installation consists of installing, adjusting, and locking the spikes. Determine the final position of the subwoofer before installing the carpet spikes, since repositioning a subwoofer is very difficult once the spikes are installed.

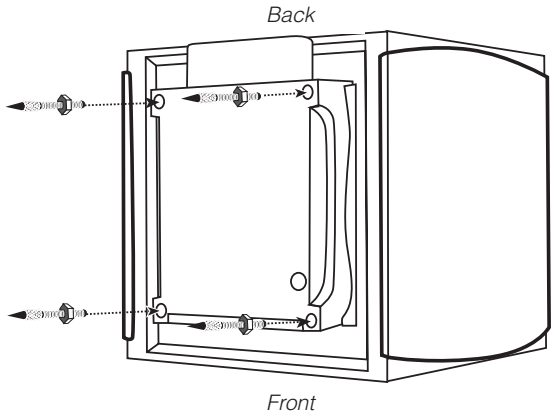
1) Screw one locknut about half-way down the shank of each carpet spike.

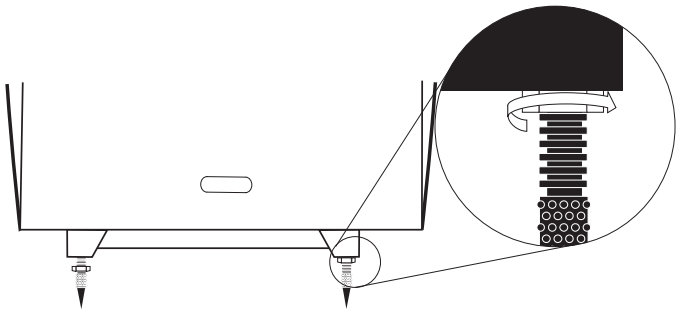
2) Prepare a soft surface on the floor in front of the subwoofer's final position. Carefully upend the subwoofer so that its front panel (the one with the logo) rests on the soft surface.

3) Screw each carpet spike into one of the four threaded fittings. Leave a small gap between the locknut and the fitting.

4) Replace the subwoofer at its proper listening position. Adjust the spikes by lifting the subwoofer on the appropriate side and rotating the spikes until the speaker is level and stable.

5) Hand tighten each locknut (or use a wrench) against the base to secure the carpet spike, taking care not to rotate the spike.





CONNECTIONS

After you have positioned the subwoofer enclosure, to connect the Control Module to your audio components.

About your audio components: You can connect the Control Module to a *receiver*, an *integrated amplifier,* a *preamplifier/power amplifier combination* or other audio component with line level or speaker level outputs. For brevity, this guide will usually refer only to a "receiver," but the instructions will also apply to any audio component.

You can connect the Control Module to a receiver's line level output (one or two RCA jacks) or its speaker level outputs, but not both. Always disconnect the AC power to the Control Module and the subwoofer enclosure before making or changing any connections.

Line Level Connections

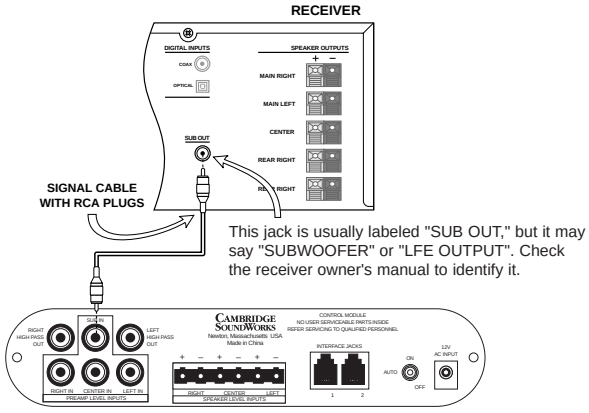
For most line level connections, you need a signal cable with an RCA plug at both ends. Connect the Control Module in the following ways:

Dolby Digital receiver: Connect a mono signal cable from the RCA jack output labeled **SUB OUT** (or possibly labeled LFE or just SUB) on the receiver to the **SUB IN** input on the Control Module.

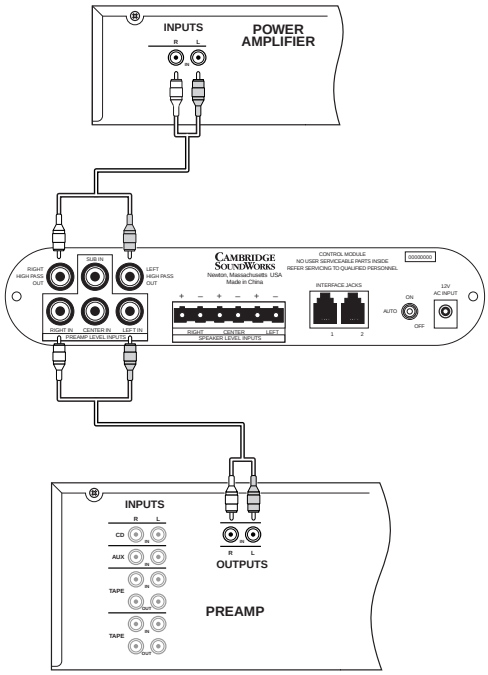
Dolby Surround receiver (with or without Pro Logic): Connect a signal cable from the **SUB OUT** RCA jack (also labeled **LINE OUT**, **AUDIO OUT**, or just **SUB**) to the **SUB IN** input on the Control Module.

Preamplifier/power amplifier: Connect a stereo signal cable with RCA plugs at each end from the **LEFT** and **RIGHT** preamp outputs to the **RIGHT IN** and **LEFT IN** inputs on the Control Module. Connect another stereo signal cable from the **RIGHT HIGH-PASS OUT** and **LEFT HIGH-PASS OUT** outputs of the Control Module to the **LEFT** and **RIGHT** inputs on your stereo power amplifier (or the **FRONT LEFT** and **FRONT RIGHT** inputs of a multi-channel power amplifier.)

Once your line-level connection is made between the receiver and Control Module, skip to "Connect the Subwoofer Enclosure," page 11.



Dolby Digital and Dolby Surround receiver Line level connector



Preamplifier/Power amplifier level connectors

Speaker Level Connection

If your receiver does not have a line-level audio signal output or if you wish to bypass this output, you need to connect the speaker level inputs of the Control Module to your receiver's speaker outputs.

We provide a Speaker Wire Connector with two short lengths of speaker wire already connected to it. (If wires are not long enough to reach from the Control Module to your power amplifier, you need to attach longer speaker wires. How to do this is described in "Attaching longer speaker wires" at the bottom of this page.)

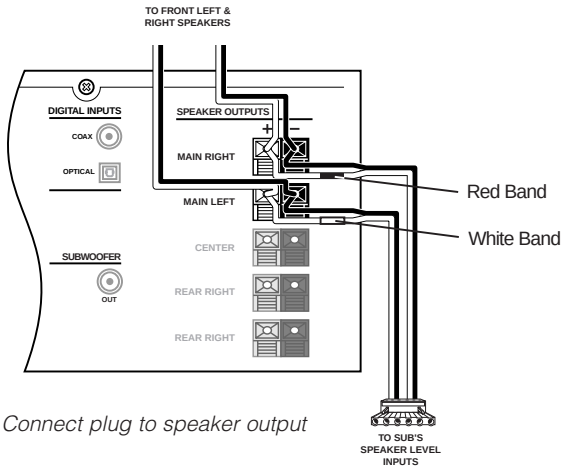
The speaker wire marked with a red band is Right postive. The unmarked wire next to it is Right negative. The Left Positive speaker wire is marked with a white band. The unmarked speaker wire next to it is Left negative.

Connect the speaker wires to your receiver's Left and Right speaker outputs (Front Left and Front Right speaker outputs of a multi-channel receiver). You will have to "parallel connect" theses wires with the main speaker wires (see diagram). Positive speaker output terminals will usually be colored red and have a "+" symbol. Negative speaker output terminals will usually be colored black and have a "–" symbol.

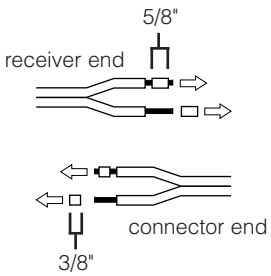
Finally, insert the Speaker Wire Connector plug into the

Attaching longer speaker wires: First, prepare two suitable lengths of speaker wire. You can use light-weight (18-22 gauge) speaker wire because this wire will not carry any significant electric current. Also, wire larger than 18 gauge will be somewhat harder to connect in tandem with another speaker wire.

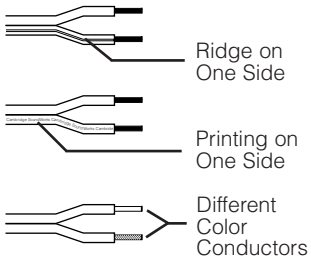
Strip off 5/8" of insulation from one end of each speaker wire. Strip of 3/8" of insulation from the other end. This end connects to the Speaker Wire Connector Plug.



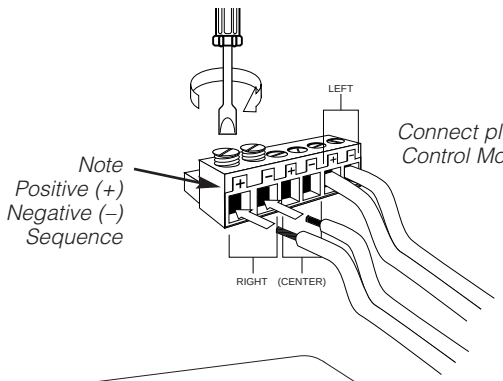
Connect plug to speaker output



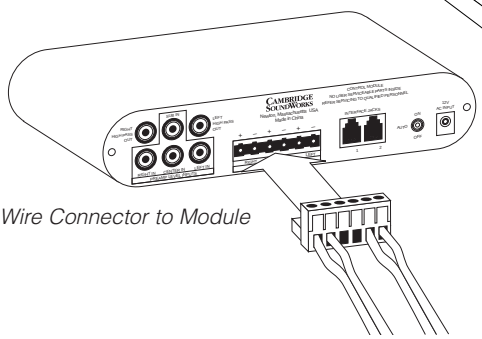
Prepare Wire



Identify Wire Marking



Connect plug to Control Module



Wire Connector to Module

jack in the Control Module.

To insure you connect the wires properly (positive to positive, negative to negative), note which of each speaker wire's two conductors is "marked". This marking may be a ridge in the insulation, different colored conductors or printing on only one side. Use the marked side of the speaker wire to connect the positive speaker terminals. Use the other wire for the negative terminals.

Using a small flat bladed screwdriver, loosen the four set screws inside the Speaker Wire Connector plug. Pull out the short speaker wires.

Following the markings on the Speaker Wire Connector diagram (for Right positive, Right negative and so on), insert the correct wires into the plug's openings.

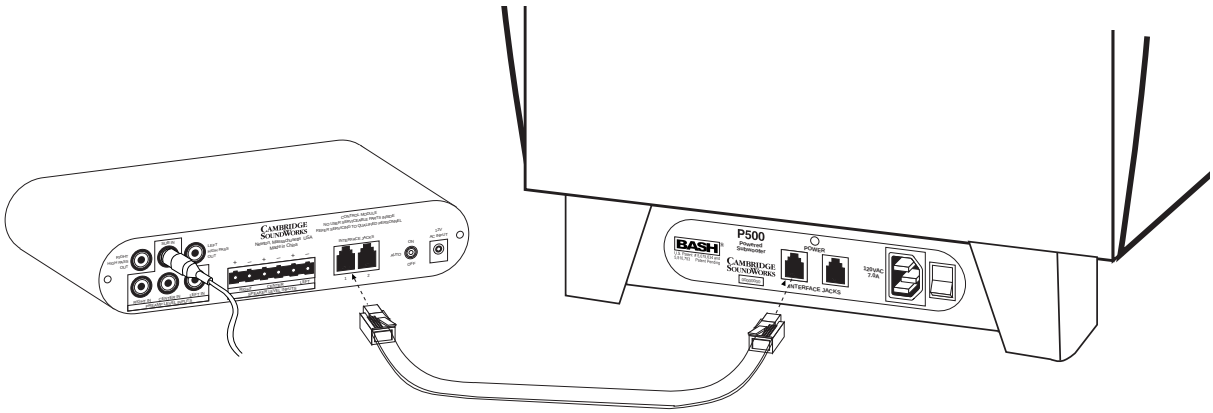
Tighten each set screw to hold the wires in place.

Connect to the Subwoofer Enclosure: Once the input connections are made to the Control Module, connect the Interface Cable from the Control Module to the Subwoofer Enclosure.

The interface Cable has plugs that look and connect like telephone connector plugs. The plugs are the same at both ends.

Making sure both the Control Module and subwoofer enclosure are disconnected from any AC power source.

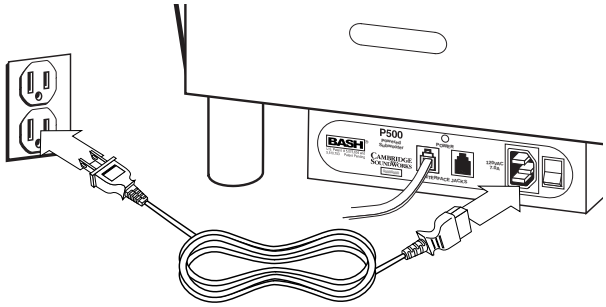
Note: The second Interface Cable jack on the subwoofer enclosure allows you to connect a Newton Series second subwoofer enclosure with a sub to sub



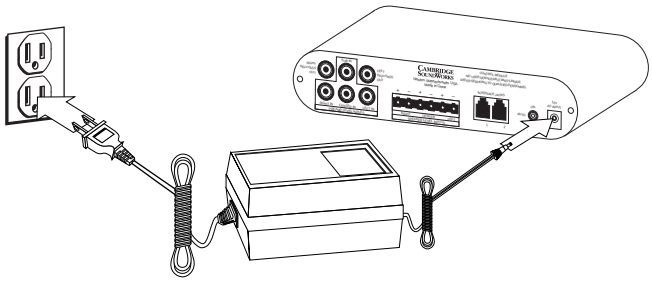
interface cable.

Power Connections

First, insert the AC plug of the Control Module's power supply adapter into an AC outlet. Then insert the adapter's output plug into the Control Module's 12V AC input jack. Turn the Control Module's power switch to **AUTO**.



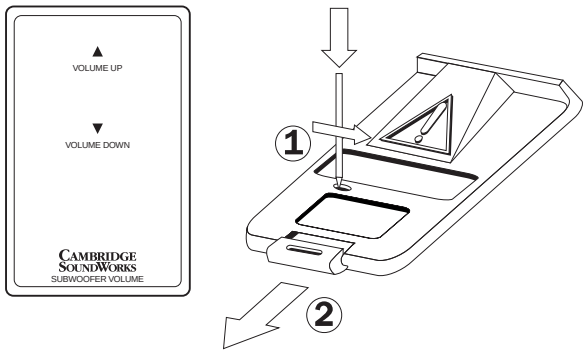
Insert the subwoofer enclosure's power cable into the receptacle on the subwoofer enclosure's input panel. Then insert the AC plug into an AC outlet. Turn the subwoofer enclosure's power switch **ON**.



Remote Control

The remote control adjusts the **VOLUME** setting, an adjustment best made from your listening position.

The battery inside the remote should last for a year or two. When you need to replace it, use a small pointed object (paper clip, pen, toothpick) to release the battery holder (see diagram). The battery type is CR2032 (3V) and is available wherever wrist watch and hearing aid batteries are sold.



Test Your Connections

Once all connections have been made, test your sound system to verify the subwoofer produces bass output. Advance the Bass Level control to the 10 o'clock position. Turn on your receiver and play a CD or movie you know to have significant bass. Listen for subwoofer output as you increase your receiver's volume control up to a moderate volume level. If you don't hear any output from the subwoofer, slowly advance the subwoofer's Bass Level (preferably via the remote control). If you don't get any output,

recheck your connections.

Adjusting For Best Performance

We recommend you adjust the Control Module according to the following sequence:

1. Set the **equalizer** controls.

2. Set the **low pass** control.

3. Set the **volume** control by ear.

4. Set the **phase** control by ear.

5. Reset the **volume** control (if necessary).

6. Adjust the **equalizer frequency** and **equalizer level** controls to your preference.

Adjustment:

1. Start with the **equalizer level** set to 0 (straight up) and the **equalizer frequency** control set to approximately 30 Hz (see diagram at the top of the page).

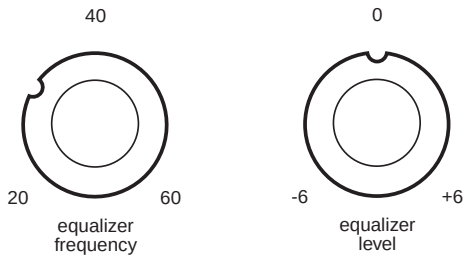
2. Adjust the **low pass** control according to the Low Pass Control Settings Table on the opposite page.

3. Set the subwoofer's **volume** with the supplied remote control. Use some of your favorite program material (video or audio). Adjust the output level until you are happy with the overall bass balance.

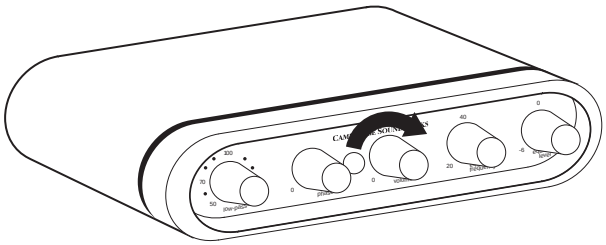
4. Adjust the **phase** control. This control's action will be subtle. Make this adjustment from your listening position. If the control module is not within easy reach, have someone else adjust this control while you listen.

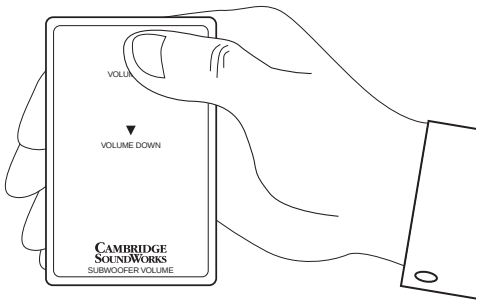
phase control adjustment: Play some program material with constant, regular bass (like a kick drum beat). Rotate the **phase** control back and forth across its full range and listen for an increase in output. The output difference you hear could be anything from negligible to significant. However large the difference, leave this control set where it has the maximum effect.

If you do not hear any difference in the bass output, skip Step 5.

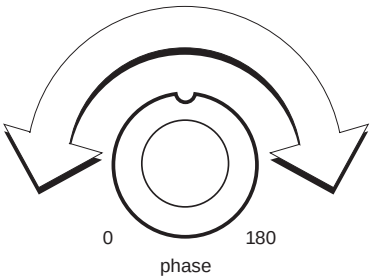


1. Set The Controls





3. Adjust Volume

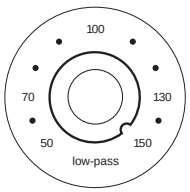


4. Adjust Phase

2. LOW-PASS CONTROL SETTINGS

The low-pass control on the front panel of the Control Module is continuously variable from 50 Hz to 150 Hz. The following recommendations describe setting the control at the five *indicated* positions on the dial (50, 70, 100, 130, and 150 Hz), but intermediate settings are also functional.

Dolby Digital sound systems



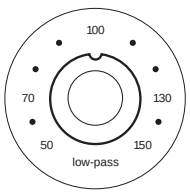
150 Hz

A Dolby Digital® decoder provides its own "bass management" processing when you activate the decoder's "SUB OUT" jack. Set the Newton Series powered subwoofer's low-pass control to 150 Hz in this case.

Note: Be sure to set the LARGE SPEAKER/ SMALL SPEAKER option for the Front, Center and Rear channels of the Dolby Digital decoder. Unless your main speakers are quite large (floor-standing types with a ten inch woofer or larger), we recommend choosing the SMALL SPEAKER option. This insures a smooth transistion between your main speakers and the Newton Series subwoofer, and that the subwoofer handles all the deep bass output.

Stereo sound systems using the Control Module's high-pass outputs.

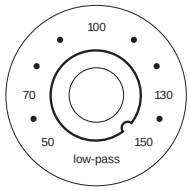
The Control Module's high-pass outputs block all low frequencies below 100 Hz. Set the low-pass control on the front panel no lower than 100 Hz when using these outputs. If your main speakers are medium-sized bookshelf speakers or smaller, set the low-pass control to 130 Hz or 150 Hz, as described in the Dolby Surround (Pro Logic) and Stereo sound section that follows.



100 Hz

Dolby Surround (Pro Logic) and Stereo sound systems

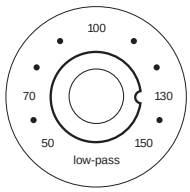
The following recommendations apply when both your main left and right speakers and your subwoofer are driven by a full range signal. This is the case in a stereo component system or a Dolby Surround with Pro Logic system.



150 Hz

Use this setting for small "satellite"-type main speakers ("minispeakers") or any speaker with a single four-inch low frequency driver or smaller. Use this setting with these Cambridge SoundWorks main speakers:

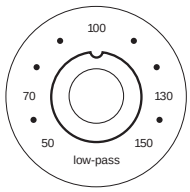
Ensemble III satellites
Ensemble IV satellites



130 Hz

Use this setting for larger satellite main speakers and the smallest bookshelf speakers. Use this setting with these Cambridge SoundWorks main speakers:

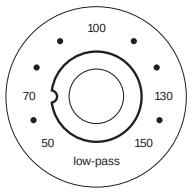
Ambiance 52
MovieWorks satellites
Ensemble satellites
Ensemble II satellites
Newton Series MC200



100 Hz

Use this setting for medium size bookshelf speakers. Use this setting with these Cambridge SoundWorks main speakers:

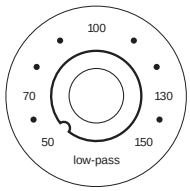
Model 17
Ambiance 62
Ambiance 82
Newton Series M50
Newton Series MC300



70 Hz

Use this setting for large size bookshelf speakers and small floor standing speakers. Use this setting with these Cambridge SoundWorks main speakers:

Model 6
Tower III
Newton Series M60
Newton Series M80
Newton Series MC500



50 Hz

Use this setting for large floor-standing speakers. Use the setting with these Cambridge SoundWorks main speakers:

Tower II
Tower
Newton Series T300
Newton Series T500

5. If you find the increase in output contributed by the phase control is more than you care for, reduce the volume control setting to bring the subwoofer output back in balance.

Congratulations! You have now adjusted the subwoofer to blend well with your main speakers.

6. The **equalizer frequency and equalizer level** controls:

Your listening room's shape and construction have an unpredictable but significant effect on how strong the deep bass output is *at your listening position*. These controls adjust the strength of the deep bass without affecting the subwoofer's blend with the main speakers. Follow this last procedure to adjust them.

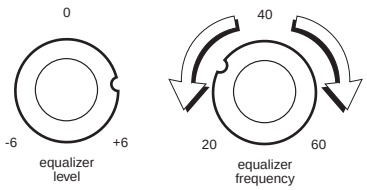
a) Adjust the **equalizer level** setting up to about 3 o'clock (see diagram in next column). From your listening position, play the passage you used previously to adjust the subwoofer volume. It should be easy to hear the effect of the control on deep bass content. Repeat the passage at different equalizer level settings. Make sure you assess the settings from your normal listening position. Leave the control at your preferred setting.

b) Play the same passage again and listen to higher and lower settings of the **equalizer frequency** control from your preferred listening posititon.

For recordings with deep bass content, setting the **equalizer frequency** control below 30 Hz will produce highly accurate and room-shaking results as it reveals near-infrasonic signals. There are only two main reasons to set this control above 20 Hz – the very deep bass bothers people in adjoining rooms or the overall output level isn't as strong as you would like.

If you have a large room, or desire very high sound pressure levels, setting the **equalizer frequency** control at 30 Hz or higher will still provide good deep bass, but will allow greater overall output.

6. Set the Controls



d) You may wish to repeat this adjustment procedure with some different musical or video program passages. Remember, there is no "perfect" setting for these controls. Once you have found a setting is good for a few recordings, you can reliably consider the adjustment complete.

Normal Use:

Afterwards, if you find you want more or less bass output from your system, either adjust any available tone controls on your receiver or adjust the volume control on the Control Module.

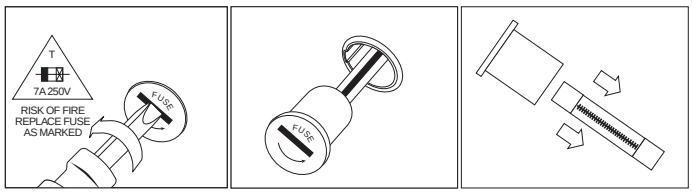
We hope you enjoy the new sonic dimensions your Newton Series powered subwoofer reveals to you!

Fuse Replacement

The fuse holder is located on the base of the subwoofer. Both subwoofer models use a metric 5X20mm size fuse, 7A.

To replace the fuse:

1) Unplug the AC cord from the AC power source, then remove the AC power cord from the speaker.
2) Remove the fuse cap with a small, flat blade screwdriver (see first and second diagram).
3) Replace the fuse inside the fuse cap with another metric 5X20mm size fuse, 7 A (see third diagram).
4) Replace the fuse and cap in the subwoofer.
5) Restore the sub to an upright position.
6) Connect the AC power cord first to the subwoofer and then to the power source.



Fuse Replacement