

MKSOUND



SUBWOOFER OPERATION MANUAL

The Choice of Professionals™

Important Safety Instructions

1. Read these instructions thoroughly.
2. Keep these instructions in a safe place for future reference.
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 source (radiator, heat register, stove, amplifier, etc.).
9. If your electrical outlet accepts a polarized or grounding-type plug, do not defeat the safety purpose of the 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 is provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, especially at the plug and socket ends, 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.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all service to authorized service personnel. Service is required when the apparatus has been damaged in any way: damage to power cord or plug, spilt liquid or foreign objects in the apparatus, exposure to rain or moisture, abnormal function, dropping, etc.
15. Do not expose the apparatus to dripping or splashing. Do not place objects containing liquids (vases, cups, bottles, cans, etc.) on or near the apparatus.
16. **WARNING:** To reduce the risk of fire or electric shock, do not expose the apparatus to rain or moisture.
17. There should always be easy access to the mains plug or electrical switch used to turn off the apparatus.
18. **WARNING:** A Class I apparatus must be connected to a mains socket outlet with a protective earth connection.



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Please record the following information for your records:

Serial Number:
Date of Purchase:
Dealer Name:
Dealer Address:
City/State/Zip:
Country:
Invoice Number:

2. INTRODUCTION

CONGRATULATIONS! You have just made perhaps the most exciting and dramatic addition that you could possibly make to your audio system. The new dimension of deep, powerful bass provided by your MK Sound powered subwoofer will positively thrill and excite you.

We encourage you to read this owner's manual, as there is a great deal of information provided here to help you get the best possible performance from your new subwoofer. This manual will give you basic set-up instructions and a system overview followed by more detailed information.

If you still have questions about your subwoofer or your system installation after you have read this manual, please contact your MK Sound dealer.

3. VOLTAGE SELECTOR AND POWER CORD

Adjacent to the AC power cord receptacle on the back of the subwoofer you will find a voltage selector switch. This switch is pre-set at the factory for the proper local voltage, so there should be no need to change the switch setting. For the USA and Canada, the voltage should be set for 115 Volts. For Europe, the UK and Asia, the correct voltage is 230 Volts. Always check to make sure that your subwoofer is set to your country's voltage. If you have questions about this, contact your MK Sound dealer.

WARNING: This voltage selector switch must be set to the correct local voltage with the proper fuse installed. Attempting to operate the subwoofer with the switch set to the incorrect position or with an incorrect fuse may damage the subwoofer and there is also a risk of fire. Any such damage is not covered by warranty.

DETACHABLE POWER CORD

Your new subwoofer is provided with a detachable power cord. ALWAYS attach the cord to the subwoofer first, BEFORE plugging it into the AC wall socket.

4. WHERE TO PLACE YOUR SUBWOOFER

MK Sound subwoofers perform well in most room locations. With a properly tuned speaker system, you should hear deep bass coming from the front of your system as if your satellites and subwoofer were one big system rather than separate speakers.

One proven way to find the best location for your subwoofer is to first place the subwoofer at the *listening position*. Run music with good bass content through it and then go over to the area where you believe the final subwoofer placement will be. Listen to how the room reacts to deep bass being played. As you walk around that area, you should find places where the bass sounds deep and well defined and places where the bass sounds weak and less well defined. The place where you hear the tightest bass with the most impact is probably the best location for your subwoofer.

We recommend that you place your subwoofer as close to a solid wall as possible. Avoid placing your subwoofer farther than a few inches away from any wall surface as the reflected sound from the wall will interfere with the direct sound coming from the subwoofer and create phase anomalies that will be destructive to good bass performance. Also try to avoid corners that are near doorways or openings.

Sometimes the best sound results from aiming the subwoofer's drivers directly into the wall (1" to 2" away from the wall itself.)

If you are using multiple subwoofers, sometimes putting them in the same location provides the best solution. Stacking them is also a possible solution or you could place them side-by-side.

Alternatively, when using multiple subwoofers, you could try placing them in different locations. This may be appropriate when you have limited choices for placement and none of the available locations seem to work well. Try to place your subwoofers at equal distances from the listening position to avoid phase problems.

Ultimately, the amount and quality of deep bass you get in your room are dependent on the room itself. Low frequency sounds are affected most by the size of the room and construction used to build it. All rooms are different when it comes to reproducing bass, and in any given room, bass quality and quantity change when the subwoofer is moved from one location to another.

In some rooms, a corner location may excite resonance modes resulting in a muddy or boomy sound. In this situation, a more central location along a wall, away from a corner may give better results. It's a good idea to experiment with your subwoofer location or locations. Try to find a placement or placements that provide an overall sound that is powerful and well defined throughout the audio bandwidth, where no one bass note or notes overpower others.

Because the subwoofer generates so much sonic energy, its output may cause objects in and around the listening room to vibrate. If this occurs in your room, you may need to damp the vibration of these objects.

One subwoofer is usually sufficient in a two-channel stereo system for the same reason that one subwoofer works well with multi-channel systems. Our ear-brain hearing physiology is unable to locate the direction of low frequencies below approximately 80 Hz. The directionality of low frequency sounds (bass drums, bass instruments, etc.) is determined by the higher frequency overtones and harmonics that are reproduced by the satellite speakers.

Some people believe that we can determine directionality from frequencies down to 60 Hz. In any case, MK Sound satellite speakers are tuned to crossover to an MK Sound subwoofer at 80 Hz. This is also the Dolby Laboratory and THX specification.

Your MK Sound subwoofer is magnetically shielded to eliminate adverse effects when a subwoofer is placed next to a conventional CRT (cathode ray tube) television or computer. While the new plasma and LCD screens should be immune to magnetic interference, some of the older plasma screens experienced gausing (green shadows appearing on the screen) when a magnetic source was placed next to it.

No matter where you place your subwoofer, you must allow room for ventilation of its heatsink and backplate. The subwoofer's power amplifier is mounted on the backplate and it generates heat. Please observe the following:

1. Leave adequate clearance around the subwoofer's heatsink. Do not cover it with drapes or close it up in an unventilated cabinet.
2. Do not place the subwoofer near baseboard heaters or forced air heating outlets.
3. Do not use your subwoofer outdoors or in an overly humid environment.
4. Do not plug the subwoofer into an AC outlet until all system wiring is complete.

5. SUBWOOFER HOOK-UP

Some MK Sound subwoofers come with speaker wire connections as well as line-level phono (sometimes referred to as RCA) connectors. Some models are fitted with line-level phono and XLR connectors, but no speaker wire terminals. If your receiver or processor has a line-level subwoofer output (sometimes labeled "Sub", "Sub Out", "SW" or "LFE") with XLR or phono connectors, use it. This is the preferred connection for your MK Sound subwoofer.

NOTE: You cannot use the "Tape Out" connectors on the rear of your receiver/processor to connect to the line input connectors of your subwoofer, because these outputs have a fixed output level that does not change when you adjust the system volume control.

WIRING YOUR SUBWOOFER USING THE LINE-LEVEL INPUTS

The line-level XLR or phono inputs on the back panel of your subwoofer allow you to directly connect your subwoofer to corresponding preamp-level outputs on components such as surround sound receivers and processors that have pre-amp outputs.

Simply run a shielded interconnect cable with male phono plugs at each end or a balanced interconnect cable with a female XLR plug on one end and a male XLR plug on the other, from the pre-amp output of your receiver or processor to your subwoofer. If your subwoofer has left and right inputs, it is not necessary to connect both. One cable connected to the left input is sufficient.

This will give you better quality performance from your subwoofer than using the speaker inputs, because the pre-amp output bypasses the amplifier stage of your receiver or processor.

FIGURE 1. CONNECTING TO A COMPONENT'S SUBWOOFER OUTPUT

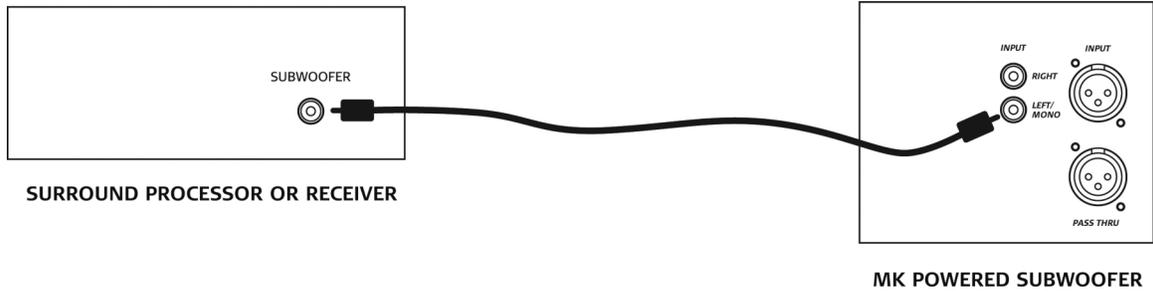
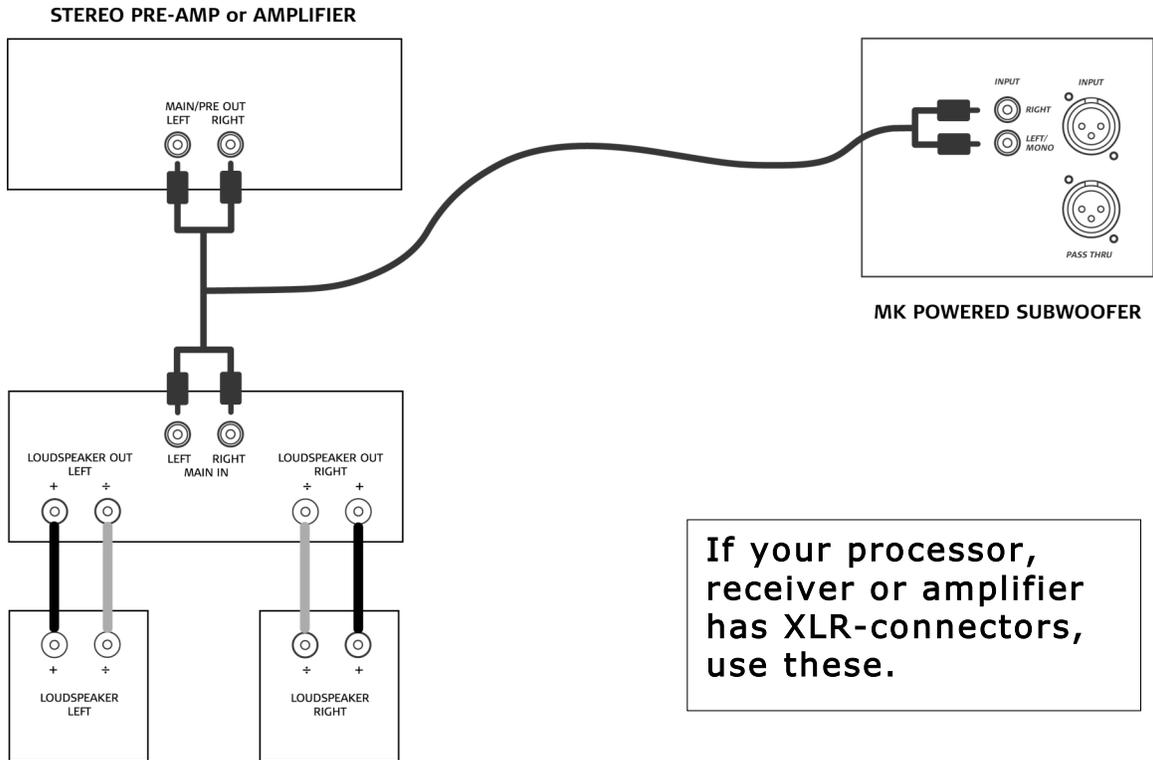


FIGURE 2. CONNECTING TO A STEREO AMP OR PRE-AMP



If you don't have a subwoofer output available, check to see if you have pre-amp outputs on your pre-amp, amp, receiver or processor. If you have only one set of pre-amp outputs and these are being used to feed an external power amplifier, use a Y-connector to feed both the amplifier and the subwoofer. Use both the left and right inputs of the subwoofer in this case – these inputs are summed to mono in the subwoofer's amplifier input stage.

USING SPEAKER WIRE CONNECTIONS

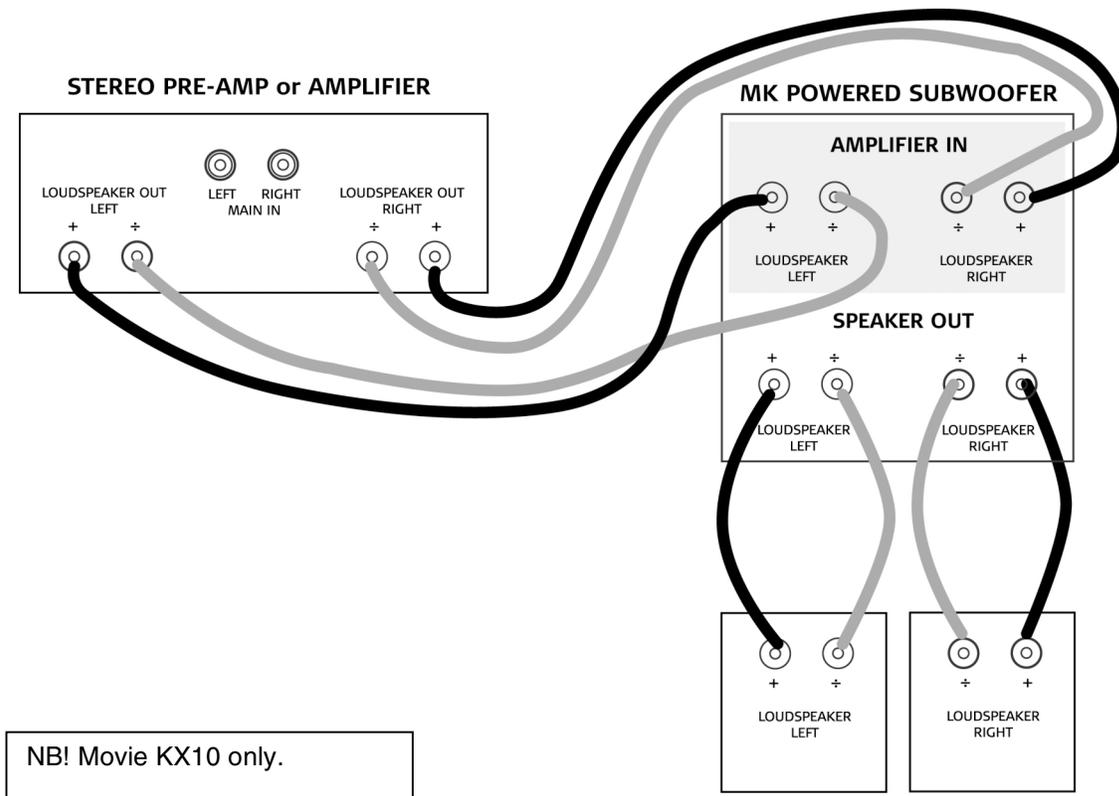
Some MK Sound owners hook up their subwoofers by connecting them to their receiver or amplifier using speaker wires. To do this, you make the same kind of connections that you would use to connect your satellite (or main) speakers, except that both the left and right channels first go to the subwoofer. (If you are using two subwoofers, connect one channel only to each subwoofer.) To make this connection, use heavy gauge wire – at least 2 mm diameter (12 AWG) – see figure 3 and do the following:

1. Run speaker wire from your receiver or amplifier's left speaker output terminals to the subwoofer's left channel "FROM AMPLIFIER" terminal.
2. Connect your receiver or amplifier's left channel positive (+) terminal to the subwoofer's left red (+) "FROM AMPLIFIER" terminal.
3. Connect your receiver or amplifier's left channel negative (-) terminal to the subwoofer's left black (-) "FROM AMPLIFIER" terminal.
4. Make identical connections for the right channel.

If you are setting up a two-channel system, your connections are now complete. You need only place your subwoofer(s) and adjust the settings as described in the following pages.

If you are setting up a surround system, you can still set up your left and right channels in this manner, but you will also need an additional subwoofer to reproduce the low end from the center, left surround, right surround and LFE channels. Set your left and right front channels to "Large" in your surround sound receiver's set-up menu, and set the other channels to "Small".

FIGURE 3. CONNECTING A SUBWOOFER USING SPEAKER WIRES



PLUGGING IN THE SUBWOOFER

Once your audio connections are complete, you are ready to make the electrical connection. Set the “BASS LEVEL” control to “MIN”, attach the power cord to the receptacle on the subwoofer’s back panel and plug the other end of the power cord into an AC outlet. Do NOT use the “switched” power outlet found on the back of some receivers, processors and amplifiers.

Slide the power switch on the back of your subwoofer to either the “AUTO” or “ON” position. (If you hear a thump from the subwoofer, this is the normal sound of the power supply charging.)

Some MK Sound subwoofers feature an “AUTO ON” function with the power switch. With “AUTO ON”, your subwoofer is in Standby until it receives an audio signal. At that point, it automatically switches on and continues operation as long as an audio signal is detected. After a few minutes without an audio signal, it will power down to Standby.

With the power switch in the “ON” position, the subwoofer is fully active whether or not your other components are switched on.

Now, play some music through your system to make sure that the satellite (main) speakers are working properly. Once you confirm that they are, slowly advance the “BASS LEVEL” control. The subwoofer should begin to play. Set the “BASS LEVEL” control to where the subwoofer sounds in balance with the satellite speakers. If the system is not working properly, unplug the subwoofer and check all of your connections. If you still have no success, contact your MK Sound dealer.

NOTE: Once you have achieved a rough subwoofer level setting, refer to the system set-up guide found later in this manual.

NOTE: When your subwoofer is switched to the “AUTO ON” position, it will use a slight amount of electricity when in Standby. If you are concerned about power usage, you may want to switch the subwoofer off instead. Switching the unit off is also a good idea if you know that you will not be using it for some time.

6. USE OF THE PHASE CONTROL

Some MK Sound subwoofers feature a phase switch (0 or 180 degrees) and some feature a phase control (continuously variable from 0 to 180 degrees). This control will help you to fine-tune the transition between sound sent to your main speakers and your subwoofer.

In order to optimize the integration of your subwoofer with your main speakers, you should perform a phase test. This test will help you to achieve a seamless transition between your main speakers and subwoofer(s).

A phase test is helpful, because when satellite (or main) speakers are located in a different location from the subwoofer, each speaker is located at a different distance to the listener. Even small differences in distance mean that the arrival times of sound from the various speakers to the listener are also different. These time differences can cause phase anomalies, which are destructive to the reproduction of sound in your room. Be sure to re-do this test if you move your speakers.

To begin, select something to play through your speakers that you are familiar with. A stereo CD is a good choice since surround sound material with its complexity can make this test more difficult. While playing the CD through your left and right front speakers along with your subwoofer, listen to the mid-bass region (70 - 100 Hz) – that part of the audio spectrum where instruments like bass and drums need both the satellites and subwoofer for accurate reproduction.

Adjust the phase control or switch from 0 degrees to 180 degrees. Note the difference between the two settings. If you hear a tighter, more defined quality to the sound with better low bass reproduction with one of these options, then that is probably the best setting. If you are using two or more subwoofers, perform this test with each subwoofer individually with the others turned off.

If your subwoofer features a phase control, you can further fine-tune your system by adjusting this control between 0 and 180 degrees. When you hear the best balance between stereo image localization, maximum low bass impact and well defined output in the mid-bass, you have found the correct setting.

If you hear little or no difference when adjusting the phase control knob or phase switch, set it to the 0 degree (default) position.

A more accurate method of establishing the phase relationship between your satellites and subwoofer or subwoofers is to use a pink noise generator and a spectrum analyzer. Place the microphone at the listening position and run pink noise through the system. Take note of the mid-bass region (70 - 100 Hz) on the analyzer's display. The setting that shows the most output in that region and also shows the best low bass response has the correct phase.

7. “BYPASS” SETTING

All current home theater receivers and processors provide the necessary high-pass and low-pass filtering (bass management) to ensure proper integration of satellite/subwoofer speaker systems. When using your subwoofer with one of these components simply set the “LOW-PASS FILTER” control on the back of the subwoofer to the “BYPASS” position. This bypasses the subwoofer’s internal low-pass filter so that there is no interaction between the subwoofer’s filter and your receiver or processor’s filter. This is the recommended setting for your subwoofer.

8. “LOW-PASS FILTER” CONTROL

If your receiver or processor does not have an internal crossover, there is another way to match the subwoofer to your main speakers using the “LOW-PASS FILTER” control. This control sets the upper roll-off point of the subwoofer and allows you to integrate your satellites with your subwoofer so you can enjoy full audio bandwidth reproduction from 20 Hz to 20 kHz. The control is a means of fine-tuning the transition of sound between your satellite, or main speakers, and your subwoofer. It provides a roll-off of 12 dB/octave up to 200 Hz where the filter shifts to 36 dB/octave. In most systems, including MK Sound systems, 80 Hz gives the best blend.

The satellites, or main speakers, will reproduce frequencies from 80 Hz to 20 KHz and your subwoofer will reproduce frequencies from 80 Hz down to 20 Hz.

Whether you use the bass management controller in your receiver or processor or the method discussed here, this is the most efficient method of reproducing full bandwidth multi-channel audio today.

The satellites, or main speakers, which reproduce the upper frequencies, need only a small cabinet and small drivers to do their job, while the subwoofer, which reproduces the low frequencies, requires a larger cabinet, a larger driver and sufficient power in order to do its job.

Properly tuned, your MK Sound satellite/subwoofer system will provide you with the highest quality sound reproduction available today.

9. USING MULTIPLE SUBWOOFERS

Using two or more subwoofers in your system will give you the ultimate in low bass performance. You will hear improved impact and definition, as well as greater output and dynamic range.

While all the information in section 4 WHERE TO PLACE YOUR SUBWOOFER should be observed, additional considerations need to be taken into account when using multiple subwoofers.

First, try to place all subwoofers at equal distances from the listening position. This will help to avoid phase anomalies.

Check the phase relationship between each subwoofer and your main speakers by using the phase test discussed earlier.

Since your receiver or processor may only have one XLR or phono subwoofer output, you may need to use a “Y” connector to feed the additional subwoofers.

10. HOME THEATER USAGE

The subwoofer in a home theater system has a critical role to play in the enjoyment of your system. First, all the low end from the five main channels is reproduced by the subwoofer. Everything below 80 Hz is typically routed to the subwoofer, no matter which main channel the source comes from. This makes perfect sense, as the subwoofer is the only speaker in your system capable of accurately reproducing low bass.

The other job the subwoofer has is to reproduce the LFE (Low Frequency Effects) channel. This is a separate channel that the film mixer creates to supplement the low end content of the film. This LFE channel has a bandwidth of 120 Hz to 20 Hz and is responsible for the dramatic low end effects that we hear in movies.

The LFE channel is also known as the .1 (point one) channel in a 5.1 (five point one) surround system, because it reproduces one tenth of the bandwidth of the other channels – hence .1.

If you are using your subwoofer in a surround sound home theater system, make sure that you connect the subwoofer to the XLR or phono subwoofer output on your home theater receiver or processor and that you set your receiver or processor for small speakers with the subwoofer selected (“On” or “Yes” in the set-up menu). Both the subwoofer channel (the combined low end from all the main channels) and the LFE channel will be properly blended in your receiver or processor and sent to your subwoofer through this connection.

NOTE: For maximum enjoyment of your MK Sound satellite/subwoofer system, be sure to set your receiver or processor to “Small” speakers with the subwoofer selected (“ON” or “Yes” in the set-up menu).

11. TROUBLESHOOTING

Your MK Sound subwoofer amplifier provides high reliability and, in the rare event service is ever required, easy modular replacement of parts. This section of the manual will help you to solve or diagnose most problems that can occur with your subwoofer. In the event that a fuse blows, ALWAYS replace it with a fuse of the correct value to avoid malfunction of the unit or even a fire hazard. Use of an incorrect fuse value will void your warranty.

A. If your subwoofer has no output.

1. Make sure that the subwoofer is plugged into an AC outlet that you know is active and that is the power cord is securely plugged into the back of the subwoofer.
2. Make sure that the “POWER” switch is set to the “AUTO” or “ON” position. If you hear no output with the switch set to “AUTO”, move the switch to the “ON” position.
3. Check the “BASS LEVEL” control and make sure that it is set above the “MIN” position. Rotate it clockwise, if it is set to the “MIN” position.
4. Check the Power ON LED on the subwoofer’s back panel. If the LED is not lit (usually green), check the fuse. ALWAYS unplug the subwoofer before changing the fuse. If the element inside the fuse is broken, replace the fuse with a new one of the same value. If the new fuse blows immediately, contact your MK Sound dealer.
5. If the Power LED is lit, but you still hear no sound, try this test: Disconnect the phono interconnect cable from the back of the receiver or processor. Touch the tip of the connector. If

you hear sound coming from the subwoofer when you touch the connector, the subwoofer is working. You need to look elsewhere in your system to solve the problem.

6. Make sure that all the cables in your system are OK. Double check all your connections. If necessary, replace any defective cables.

B. After operating the subwoofer at high volume levels for a long time, the subwoofer cuts out or stops working or becomes intermittent:

1. Your subwoofer has a protection circuit that protects it from overheating. After hours of continuous operation at extremely high volume levels, this circuit may shut off the power to the subwoofer. When it activates, the sound may switch in and out rapidly, with a fluttering sound. If this happens, unplug the unit and let it sit for at least half an hour. After that time, plug it back in. It should operate normally. If you find this happens frequently, contact your MK Sound dealer.

C. If you are using the “FROM AMPLIFIER” speaker wire terminals and the subwoofer has very little output:

1. Make sure that the speaker wire connections are in phase. Try reversing the plus (+) and minus (-) speaker wire connections on one channel only. If the problem persists, put the connection back as it was. Repeat the phase test discussed earlier in this manual.

D. If the mid-bass range – the area of transition between your subwoofer and satellite speakers - sounds weak:

1. Refer to the section on phase testing discussed earlier in this manual. Try reversing the phase switch from plus (+) to minus (-) (or vice versa.)

E. If you hear a persistent hum or buzz through the subwoofer:

1. Because the subwoofer is able to reproduce the 60 Hz hum frequency, it is often blamed for causing hum that originates elsewhere in the system. Always avoid running all speaker wires and phono interconnect cables near to AC cords and component power supplies.

Wires and cables running close to AC lines are a common source of hum. If necessary, reroute your cables.

2. To identify the source of a perceived hum or other noise, remove all input cables to the subwoofer, but leave it plugged into the AC outlet. Carefully turn the “BASS LEVEL” control up towards the “MAX” position. If you hear hum or other noise coming from the subwoofer, then the subwoofer is the source of the noise. If you hear little or no hum coming from the subwoofer, then the subwoofer is working properly and the problem is coming from another component.

3. Hum can also be caused by AC ground loops. If the subwoofer is plugged into a separate AC outlet, try plugging it into the same outlet used for your receiver or processor. You might also try reversing the polarity of the AC plug. If none of these suggestions solve the problem, contact your MK Sound dealer.

F. If unusual sounds come from the subwoofer with no music playing:

1. Try removing the input cable. If the sound disappears, the noise is coming from one of your other components. If it does not go away, the subwoofer may have a problem. In this case, contact your MK Sound dealer.

12. IF YOU NEED SERVICE

Contact your MK Sound dealer. Do not send your speaker to MK Sound directly without obtaining prior authorization.

13. SYSTEM SET-UP GUIDE

The 5 Most Important Items in System Set-up:

- 1. Find the best location for the subwoofer for maximum output and flattest response (possibly the corner closest to the listening position)**
- 2. Aim the front speakers (and the surrounds, if possible) for the flattest response and the best imaging**
- 3. Set all speakers to the "Small" setting for proper High-Pass and Low-Pass Filter operation to get the lowest distortion and maximum dynamic range**
- 4. Calibrate all speakers and the subwoofer to the identical level for proper imaging and balance**
- 5. Make sure all speakers are in phase for proper imaging and impact**

These instructions will help you make sure that you cover all steps in setting up a 5.1 multi-channel or Pro-Logic surround system. In addition to following this list, make certain that you study and understand the owner's manual for each and every component used in the system, especially the processor/receiver. Have fun and good luck!

A useful tool for system setup is the DVD called Video Essentials. If you don't have one, you can order it at www.videoessentials.com.

Speaker Set-Up

1. Front Speaker Placement

The left, right, and center speakers should be equidistant from the main listening position. Try to set up the speakers so that they are reasonably symmetrical to room surfaces. A tape measure may be very helpful.

2. Subwoofer Placement

One possible location for the subwoofer is the corner with the best structural strength. If the corners are roughly equal in construction, use the corner nearest the listening position. If the listening position is in the front half of the room, place the subwoofer in a front corner. If it is in the back of the room, place the subwoofer in a back corner. If possible, avoid corners near doorways or openings.

If you are willing to experiment, another option is to place the subwoofer at the listening position and walk around the room. Stand in and near each corner. The location where you hear the tightest bass with the most impact is probably the best location in the room for the subwoofer. If multiple subwoofers are used, place them in the same location. Stacking is best, but you can also put them side by side.

Another option for multiple subwoofers is to place them in different locations. This is appropriate when you have limited choices in locating the subwoofer and none of the available locations work well. Try to place multiple subwoofers at equal distances from the listening position to avoid phase cancellation.

3. Surround Speaker Placement

Determine the best position in the room. It will probably be the position directly to the right and left of the main listening position on the side walls (so that a listener in the center seat is directly between the speakers). If that doesn't work or is not practical because of the room, try these locations: on the ceiling; on the back wall.

4. Install all wiring and interconnects.

5. Connect the subwoofer.

Always use the processor/receiver's subwoofer (or LFE) output.

6. Aim the front left and right speakers in both the horizontal and vertical planes.

Horizontal toe-in may help to achieve the best possible imaging.

7. If you have a Dolby Digital or DTS processor/receiver, follow these instructions.

If you have a Pro-Logic processor/receiver, go to item 8 below.

SPECIAL NOTE: Always check the processor/receiver's owner's manual. Different manufacturers use different descriptions for the same function, and sometimes the same description for different functions! Your component may use terminology different from that used below.

A. High-Pass Filters: All Dolby Digital processor/receivers have built-in high-pass filters for the Left, Center, Right, Left Surround, and Right Surround channels. When using MK Sound speaker systems, turn these filters ON by using the SMALL setting. If you have a THX component, use the THX setting. See the owner's manual of the processor/receiver for instructions.

B. Bass Management: If the processor/receiver has a setting to turn the Subwoofer off or on, make sure that it is set to SUBWOOFER YES or ON.

C. Dialog Normalization: If your component has this function, turn it off to avoid any possible effect on sound quality.

D. THX Dolby Digital units have an adjustable limiter for the subwoofer feed, called "Bass Peak Level Management". Turn it off, or set it for the highest possible level. M&K subwoofers do not need this limiter.

8. If you have a Pro-Logic only processor/receiver, follow these instructions.

A. If the component has high-pass filters for the Left, Center, and Right channels (usually only THX components have these filters), they should be turned on or set to THX (if you have a choice, use the frequency closest to 100 Hz - 120 Hz for Xenon Series speakers). The surround channels in a Pro-Logic only system do not have switchable filters.

B. Set the center channel to Normal, unless you have a THX controller. With a THX controller, set the center channel to the THX setting.

C. Turn off all limiters and compressors, auto azimuth controls, auto balance controls, etc.

D. If the processor/receiver has an input level control, calibrate it per the manufacturer's instructions.

E. If the component has a digital input, and you are using a source component with a digital output, always use the digital input, not the analog input.

9. Channel Calibration

Take the measurement at the listening position to establish the reference level. Set all channels to exactly the same level (usually 75 dB for home theater systems.)

Use a Sound Level Meter. (A good quality, inexpensive analog meter – model # 33-4050 - is available from Radio Shack stores or on their website, www.RadioShack.com.) Point it directly at the speaker being measured. Set all channels to the same level, using your receiver or processor's internal test signal. Set the meter to "C" weighting and "Slow" response. Set the levels to 75 dB if you have a THX processor or receiver or are using the Video Essentials disc as a source for setting levels. (Note: some people prefer to set their subwoofers to 80 dB or even 85 dB with the satellites at 75 dB – this is a personal preference.)

10. Check phase. Make sure that all five main channel speakers are wired in phase. The Video Essentials disc has tests for main speaker phase.

11. Make sure that the subwoofer and main speakers are in phase at the 80 Hz crossover point. Listen to something with a consistent bass line around 80 Hz while a partner switches the “Phase” control on the subwoofer from “+” to “-”. The switch position that results in the greatest bass at the listening position is the correct setting.

12. Play something that is familiar to you through the system to verify the system’s overall performance. If something does not sound right, recheck your connections and settings. Re-measure, re-check, re-align.

13. Switch the processor/receiver to each input that you will use. Check your settings for each input and each mode. Some processor/receivers require that you enter settings separately for each mode and/or input.

14. Before playing the system, check levels and speaker alignment one last time. Make sure that you write down all processor settings for future reference.

Appendix A

Speaker Placement Diagrams

Figure 4. Surround System Speaker Placement

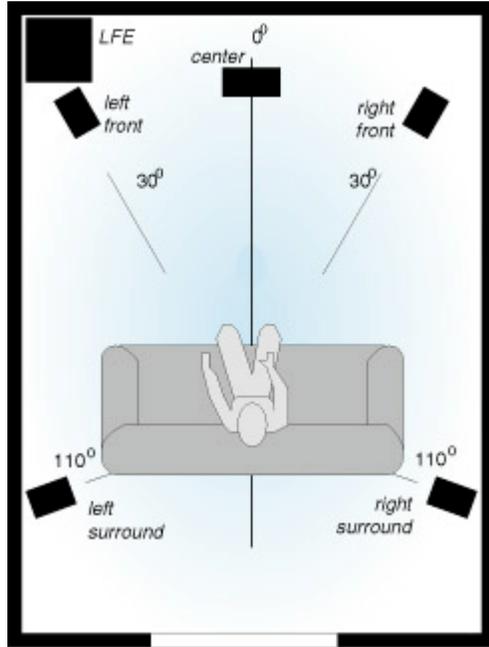
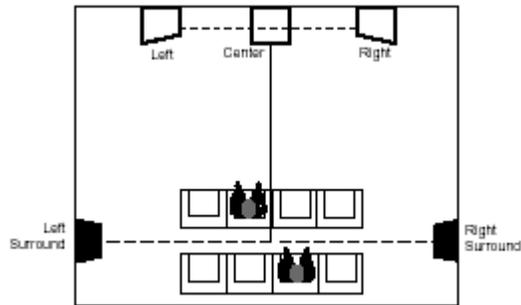


Figure 5. Side Wall Mounted Surround Speakers



Appendix B Specifications

SB8 / SB8HG

ENCLOSURE TYPE: sealed cabinet
WOOFER DRIVER: single 8" magnetically shielded
POWER AMP: 150 Watts RMS
FREQUENCY RESPONSE: 35 Hz to 200 Hz +/- 2 dB
DIMENSIONS (H X W X D): 10.2 X 13.8 X 10" – 25.8 X 35 X 25.4 cm
WEIGHT: 22 lbs – 10 kg

SB12 / SB12HG

ENCLOSURE TYPE: sealed cabinet
WOOFER DRIVER: single 12" magnetically shielded
POWER AMP: 250 Watts RMS
FREQUENCY RESPONSE: 20 Hz to 200 Hz +/- 2 dB
DIMENSIONS (H X W X D): 15 X 15 X 17.25" – 38.1 X 38.1 X 43.8 cm
WEIGHT: 45 lbs – 20.4 kg

SB1250

ENCLOSURE TYPE: sealed cabinet
WOOFER DRIVER: single 12" magnetically shielded
POWER AMP: 250 Watts RMS
FREQUENCY RESPONSE: 20 Hz to 200 Hz +/- 2 dB
DIMENSIONS (H X W X D): 18" X 15.25" X 23" – 45.7 X 38.7 X 58.4 cm
WEIGHT: 45 lbs – 20.4kg

MOVIE KX10

ENCLOSURE TYPE: sealed cabinet
WOOFER DRIVER: single 8" magnetically shielded
POWER AMP: 150 Watts RMS
FREQUENCY RESPONSE: 40 Hz to 200 Hz +/- 2 dB
DIMENSIONS (H X W X D): 10.2 X 13.8 X 10" – 25.8 X 35 X 25.4 cm
WEIGHT: 22 lbs – 10 kg

MX250

ENCLOSURE TYPE: sealed cabinet - push-pull configuration
WOOFER DRIVER: dual 12" – magnetically shielded
POWER AMP: 250 Watts RMS
FREQUENCY RESPONSE: 20 Hz to 200 Hz +/- 2 dB
DIMENSIONS (H X W X D): 23 3/8" X 15 1/4" X 20" – 59.37 X 38.73 X 50.8 cm
WEIGHT: 75 LBS - 34 kg

MX350 MKII

ENCLOSURE TYPE: sealed cabinet - push-pull configuration
WOOFER DRIVER: dual 12" – magnetically shielded
POWER AMP: 400 Watts RMS
FREQUENCY RESPONSE: 20 Hz to 200 Hz +/- 2 dB
DIMENSIONS (H X W X D): 23 3/8" X 15 1/4" X 20" – 59.37 X 38.73 X 50.8 cm
WEIGHT: 75 LBS - 34 kg



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