

MILLER & KREISEL®

**X+ SERIES
OPERATION
MANUAL**

The Choice of Professionals®



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 a 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) Apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.
- 10) Do not defeat the safety purpose of the polarized or ground plug: A polarized plug has two blades with one wider than the other. The wide blade is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 11) Protect the power cord from being walked on or pinched particularly at plug, convenience receptacles, and the point where they exit from the apparatus.
- 12) Only use attachments/accessories specified by the manufacturer.
- 13) Use only with a cart, stand, tripod, bracket, or table specified with the apparatus, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 14) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 15) Refer all servicing to a 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 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.
- 16) To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- 17) Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, shall not be placed on the apparatus.
- 18) Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

CONSIGNES DE SÉCURITÉ IMPORTANTES

- 1) Lisez ces instructions.
- 2) Conservez ces instructions.
- 3) Respectez toutes les instructions.
- 4) Suivez toutes les instructions.
- 5) Ne pas utiliser cet appareil près de l'eau.
- 6) Nettoyer avec un chiffon sec.
- 7) Ne pas bloquer les ouvertures de ventilation. Installer conformément aux instructions du fabricant.
- 8) Ne pas installer près de sources de chaleur telles que radiateurs, registres de chaleur, poêles ou autres appareils (y compris les amplificateurs) produisant de la chaleur.
- 9) Ne vainquez jamais la sécurité des prises bipolaires ou des prises terre. Une fiche polarisée possède deux lames dont l'une est plus large que l'autre. Une prise de terre possède deux lames et une broche de terre. La lame large ou la troisième broche est fournie pour votre sécurité. Si la fiche fournie ne rentre pas dans votre prise, consultez un électricien pour faire remplacer la prise obsolète.
- 10) Protégez le cordon d'alimentation d'être piétiné ou pincé, particulièrement au niveau des prises de commodité, et le point où ils sortent de l'appareil.
- 11) N'utilisez que des accessoires spécifiés par le fabricant.
- 12) Utilisez uniquement le chariot, un trépied, une console ou table spécifiés par le fabricant ou vendus avec l'appareil. Quand un chariot est utilisé très prudemment lorsque vous déplacez l'ensemble chariot / appareil pour éviter les blessures renversement.
- 13) Débranchez cet appareil pendant les orages ou lorsqu'il n'est pas utilisé pendant de longues périodes de temps.
- 14) Les travaux d'entretien à un personnel qualifié. Un entretien est requis lorsque l'appareil a été endommagé de quelque façon, par exemple ce cordon d'alimentation ou ploy est endommagé, liquide a été renversé ou des objets sont tombés dans l'appareil. L'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement, ou s'il est tombé.
- 15) L'appareil doit être déconnecté de l'alimentation secteur en plaçant le commutateur d'alimentation en position fermée et en débranchant le cordon d'alimentation de l'appareil de la prise secteur.
- 16) La prise de sortie doit être installée près de l'équipement et doit être facilement accessible.
- 17) Ce produit ne doit jamais être placé dans une installation encastrée comme une bibliothèque ou une étagère à moins qu'une ventilation adéquate soit assurée ou les instructions du fabricant ont été respectées.
- 18) L'appareil ne doit pas être exposé à des gouttes ou des éclaboussures et qu'aucun objet rempli de liquide, tels que des vases ne doit pas être placé sur l'appareil.



EXPLANATION OF GRAPHICAL SYMBOLS:

EXPLICACION DE SIMBOLOS GRAFICOS:

EXPLICATION DES SYMBOLES GRAPHIQUES:



"DANGEROUS VOLTAGE"

"VOLTAJE PELIGROSO"

"DANGER HAUTE TENSION"



"IT IS NECESSARY FOR THE USER TO REFER TO THE INSTRUCTION MANUAL"

"ES NECESARIO QUE EL USUARIO SE REFIERA AL MANUAL DE INSTRUCCIONES."

"REFERREZ-VOUS AU MANUAL D'UTILISATION"

TABLE OF CONTENTS

Chapter	Page
1. SAFETY INSTRUCTIONS	2
2. INTRODUCTION	4
3. VOLTAGE INPUT & POWER CORD	4
4. SUBWOOFER HOOK-UP	5
4. WIRING WITH LINE-LEVEL RCA or XLR BALANCED INPUTS	5
5. PLUGGING IN THE SUBWOOFER & START UP	6
6. USE OF THE PHASE CONTROL	7
7. LOW PASS FILTER SETTING	8
8. NO LOW PASS THX MODE	8
9. VARIABLE LOW PASS FILTER CONTROL	8
10. 80Hz LOW PASS FILTER	9
11. THX BASS EQ / ANECHOIC MK EQ	9
12. BASS LEVEL REFERENCE	10
13. MULTIPLE SUB CONNECTION	11
14. TROUBLESHOOTING	12
15. IF YOU NEED SERVICE	13
16. SYSTEM SETUP GUIDE	14
17. SPEAKER SETUP GUIDE	15
18. APPENDIX A: SPEAKER PLACEMENT DIAGRAMS	16
19. APPENDIX B: SPECIFICATIONS	17
20. THX	19

Please record the following information for your records:

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

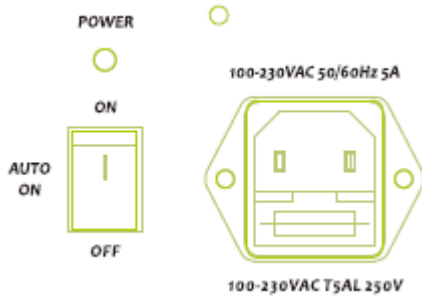
2. INTRODUCTION

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 M&K 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 M&K Sound dealer.

3. VOLTAGE INPUT & POWER CORD



M&K Sound X+ Series subwoofers employ an auto detecting universal power supply to handle input voltage from 100-230VAC 50/60 Hz.

Europe, UK, Asia: 230VAC/50 Hz.

USA, Canada: 115VAC/60Hz.

Japan: 100V/60Hz

If you have questions about this, contact your M&K Sound dealer.

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.

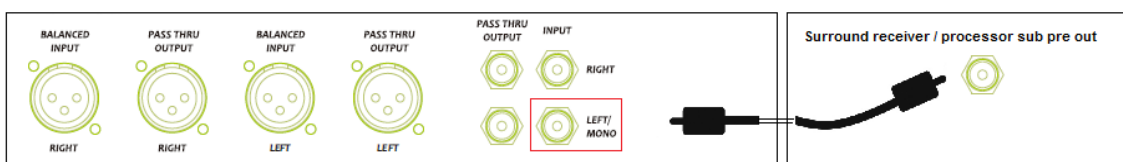
4. SUBWOOFER HOOK-UP - WIRING WITH LINE LEVEL RCA or XLR BALANCED INPUTS

M&K Sound X+ Series subwoofers are fitted with line-level input RCA connectors and XLR connectors.

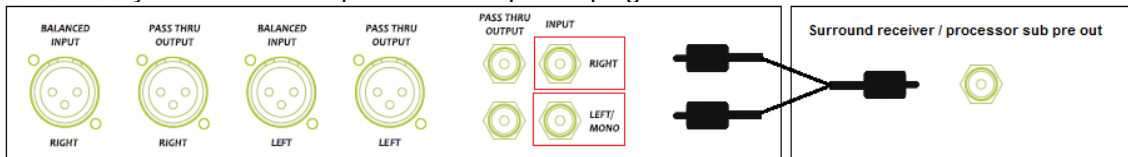
The line-level RCA and XLR inputs allow you to directly connect your subwoofer to corresponding preamp-level outputs on components such as surround sound receivers and processors that have pre-amp outputs.

(Please note the receiver/processor line level output may be sometimes labeled "Sub", "Sub Out", "SW" or "LFE")

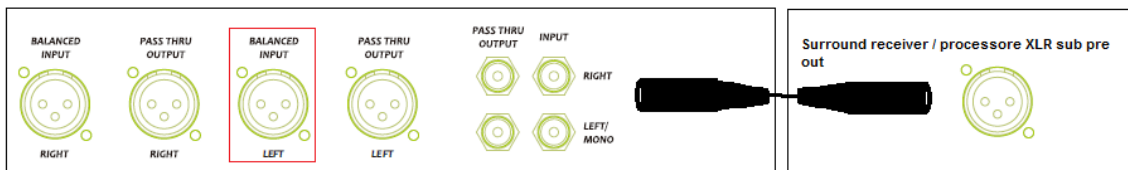
Connect your receiver or processor line-level subwoofer output to the RCA input socket **Left/Mono** for basic operation by simply running a shielded interconnect cable with phono plugs at each end.



Alternatively run an RCA Y-split cable with phono plugs at each end.



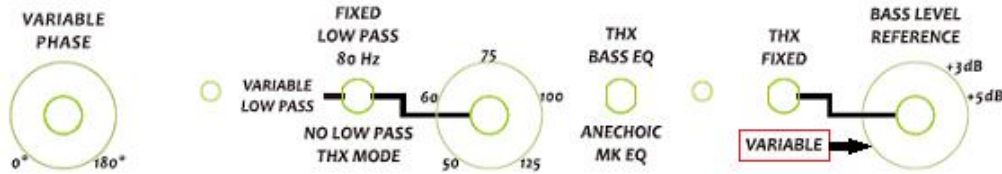
For balanced input – simply run a shielded XLR interconnect cable from sub pre out to balanced XLR input.



5. PLUGGING IN THE SUBWOOFER AND START UP

Once your audio connections are complete, you are ready to make the electrical connection.

Set the switch for “BASS LEVEL reference to variable and turn the volume control down to “Min”.

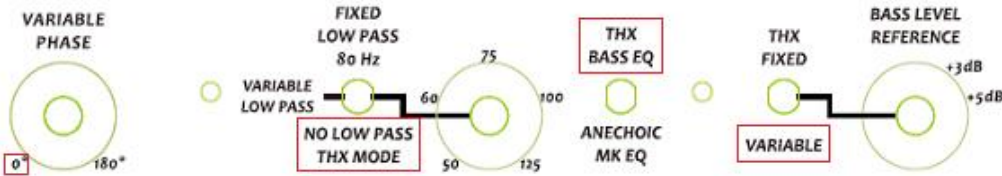


Attach the power cord to the receptacle on the subwoofer’s back panel and plug the other end of the power cord into an AC outlet.

Do NOT use the “switched” power outlet found on the back of some receivers, processors and amplifiers.

Set 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.)

Set switches in position to THX Low Pass filter and THX Bass EQ for THX recommended settings, else the switch shall be set to “No Low Pass” & “Bass EQ positions”



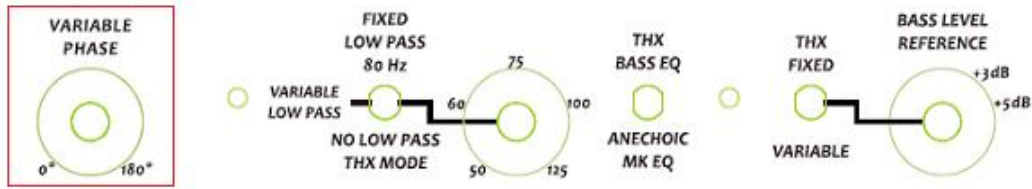
Now, play some music through your system to make sure that the satellite (main) speakers are working properly. Once you confirm that they are, slowly advance the “BASS LEVEL” control and the subwoofer should begin to play.

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 M&K Sound dealer.

M&K 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.

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



M&K Sound X+ Series subwoofers feature a continuously variable phase control 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 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.

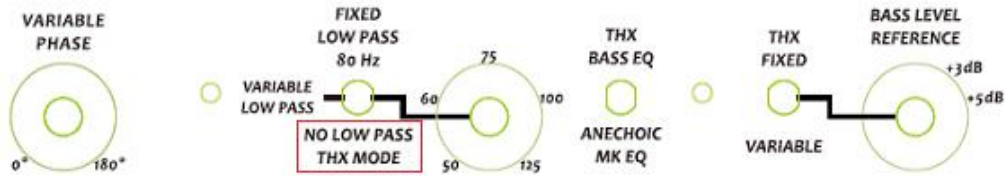
If your preamp/receiver features a phase control, you can further fine-tune your system by adjusting this control between 0 and 180 degrees. When you hear the best balance between stereo image localization, maximum low bass impact and well-defined output in the mid-bass, you have found the correct setting.

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. LOW PASS FILTER SETTING - NO LOW PASS THX MODE

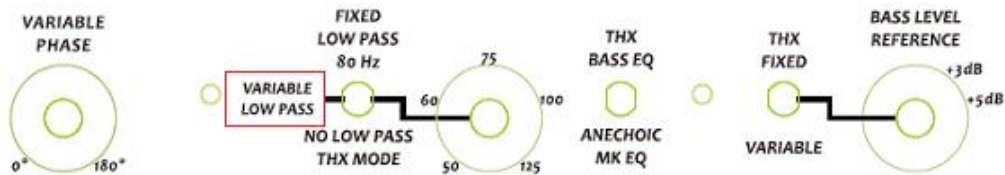
Home Theater receivers and processors provide the necessary high-pass and low pass filtering (bass management) to ensure proper integration of satellite/subwoofer speaker systems. When using your subwoofer with one of these components – simply set the switch on the back of the subwoofer to **“No Low Pass / THX mode”**.



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. VARIABLE 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 “**VARIABLE 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 to enjoy full audio bandwidth reproduction from 20 Hz to 20 kHz.



The variable low pass control is a means of fine-tuning the transition of sound between your satellite or main speakers and your subwoofer, providing a roll-off of 24dB up to 125 Hz.

In most systems, including M&K Sound systems, 80 Hz is a recommendable crossover frequency for the satellites or main speakers to reproduce frequencies from 80 Hz to 20 KHz, while your subwoofer reproduces frequencies below 80 Hz.

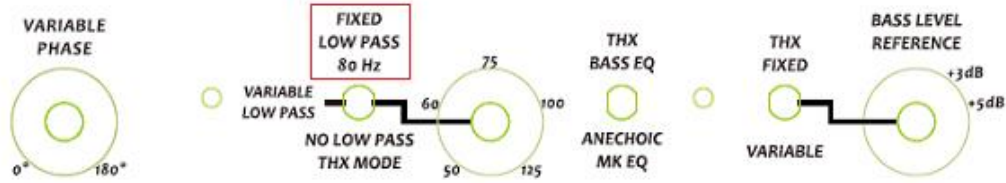
Whether you use the bass management controller in your receiver or processor, or the method discussed here, this is the most efficient method of reproducing full bandwidth multi-channel audio today.

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 M&K Sound satellite/subwoofer system will provide you with the highest quality sound reproduction available today.

9. FIXED 80 HZ LOW PASS FILTER

The built-in fixed 80 Hz filter is especially designed to be used with M&K Sound professional satellite speakers.

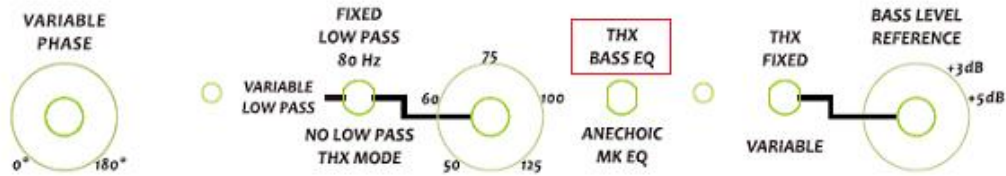


Set the switch for Low Pass filtering on X-sub to **“Fixed Low Pass 80 Hz”** when used in combination with M&K Sound professional satellite monitors.

Set the active M&K Sound professional monitors to use the built-in “Fixed High Pass 80 Hz” filters – the setup for a complete M&K Sound sat sub system is easily done.

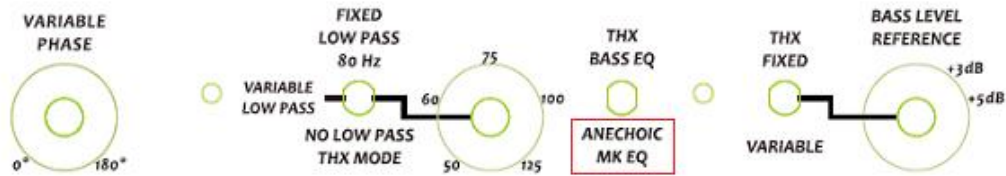
10. THX Bass EQ / Anechoic MK EQ

Setting EQ to position **“THX BASS EQ”** provides low frequency response according to THX specifications down to 20Hz at -6dB. (Free field) for X+ models.



The Bass EQ Setting / THX mode is the typical default setup mode for movies.

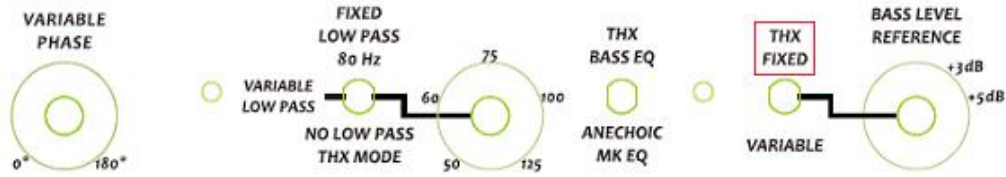
Optional setting for EQ to **“Anechoic MK EQ”** position adjusts the low frequency response at 20Hz to be -12dB. (Free field)



The Anechoic MK EQ is designed to optionally provide a low frequency character with less low frequency extension than when Bass EQ is set in THX mode. Anechoic MK EQ position is intended to be used for smaller rooms and music reproduction.

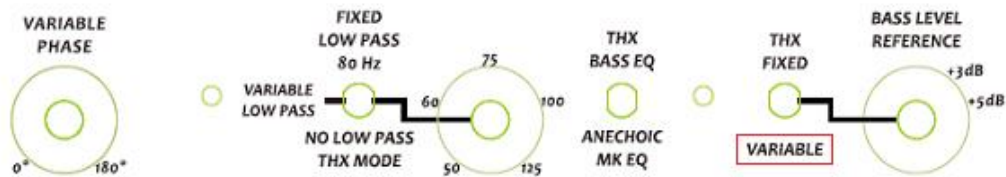
11. BASS LEVEL REFERENCE

Use **“THX Fixed”** Bass Level Reference when the X+ Subs are connected to THX approved surround receivers or processors.



The built-in bass management level adjustment in THX approved surround receivers or processors will accordingly supply the sub with input gain to match the overall system volume adjustment.

Set switch to **“Variable”** to activate adjustable Bass level reference volume control. For all X+ sub models the variable level control add +20dB gain at max position.

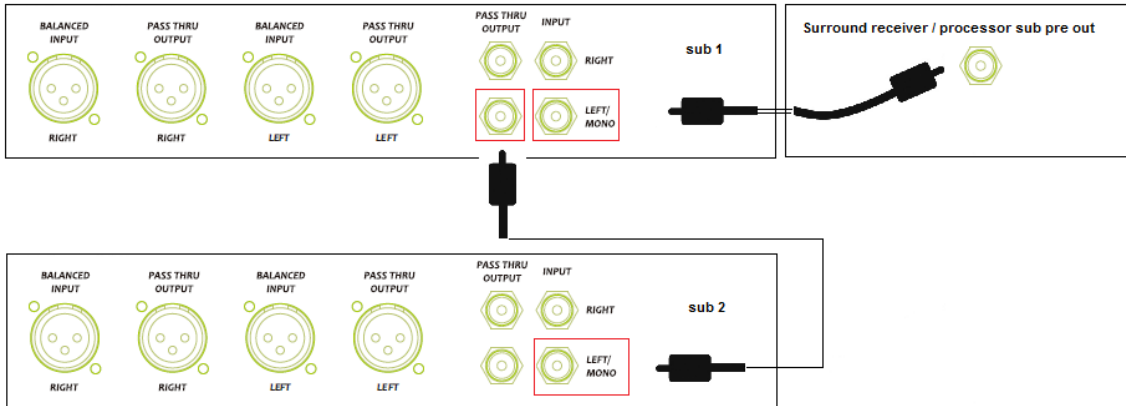


Use a Sound Level Meter. Point it directly at the speaker being measured. Set all channels to the same level, using your receiver or processor’s internal test signal. Set the meter to “C” weighting and “Slow” response. Set the levels to 75 dB if you have a THX processor or receiver or are using the Video 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.)

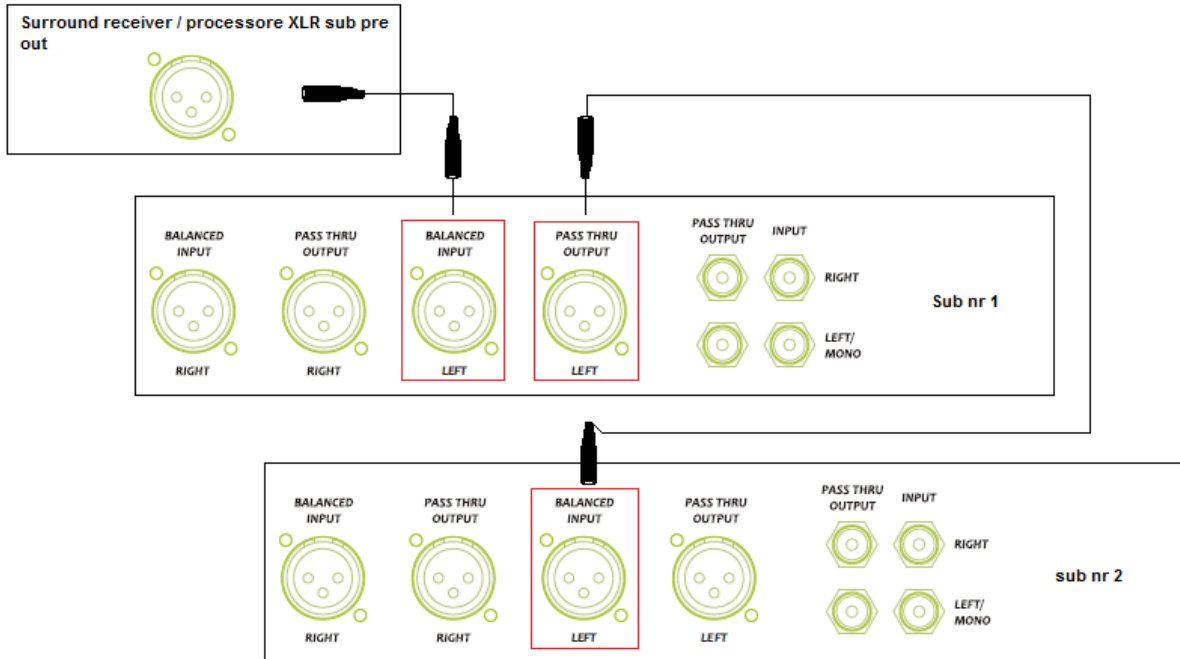
12. MULTIPLE SUB CONNECTION

Connecting multiple subs is simply done by linking through the RCA phono “pass through output socket” from a sub number one to sub number two.

Simply run an RCA cable from sub 1 RCA pass thru output to sub 2 input -



Or simply run a balanced XLR cable from sub 1 pass thru output to sub 2 input -



The Pass Thru output signal for RCA phono and XLR balanced sockets bypasses all internal filters. The signal is identical to the input signal.

13. TROUBLESHOOTING

Your M&K 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 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 M&K 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 M&K Sound dealer.

C. 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.)

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

1. Because the subwoofer is able to reproduce the 50 Hz or 60 Hz Mains 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 M&K Sound dealer.

E. 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 M&K Sound dealer.

14. IF YOU NEED SERVICE

Contact your M&K Sound dealer. Do not send your speaker to M&K Sound directly without obtaining prior authorization.

15. 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 near the corner closest to the listening position)**
- 2. Position and 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 5.1 or 7.1 multi-channel systems. 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!

One subwoofer is usually sufficient in a 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.

16. SPEAKER SET-UP GUIDE

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, try placing them in the same position, stacked or 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. A single rear surround speaker (6.1) should face the front center speaker.

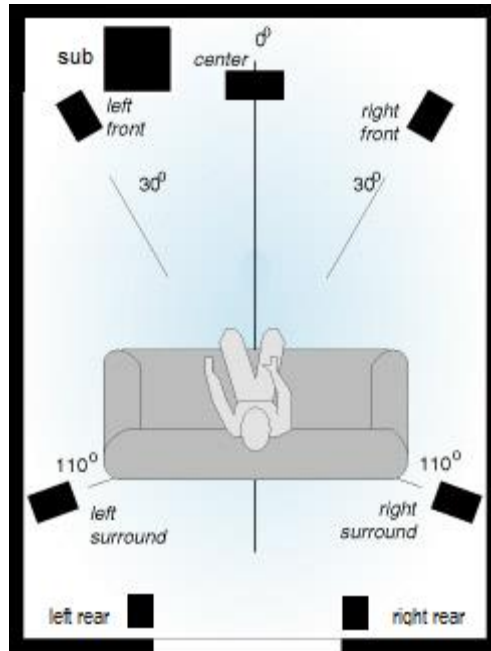
A pair of surround back speakers (7.1) should face the left and right front speakers.

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 here

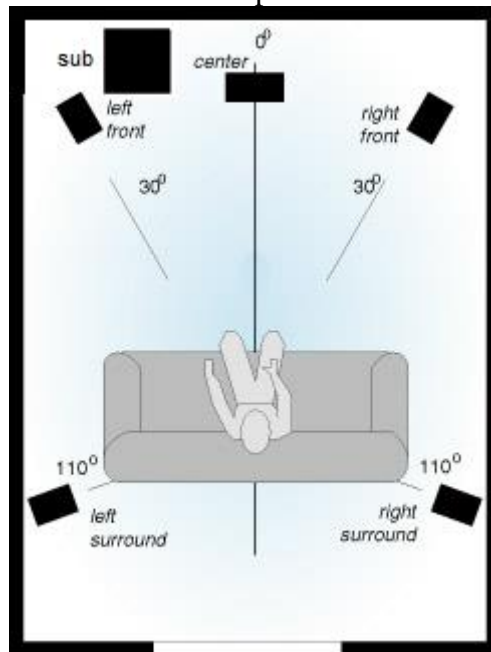
Appendix A - Speaker Placement Diagrams

Typical Surround System Speaker Placement

Set up 7.1



Set up 5.1



Appendix B Specifications

X10+

Power Amp: 500W / 1000W Peak (Sub-woofer uses two 8ohm Woofers in Parallel, equivalent to one 4ohm speaker)

Frequency Response: 20-200 Hz (+/- 1 dB in band tolerance)
Amplifier Total Harmonic Distortion: Less than 0.5% at 300W into 4 ohm
Dimensions: W40.0cm x H64.7cm x D34.0cm / W15.7 x H25.5 x D13.4 inch
Net Weight: 40.1 kg / 88.4 lbs
AC Power Consumption: 0.5W Standby, 100W Average, 600W Peak

X12⁺

Power Amp: 600W / 1200W Peak (Sub-woofer uses two 8ohm Woofers in Parallel, equivalent to one 4ohm speaker)
Frequency Response: 18-200 Hz (+/- 1 dB in band tolerance)
Amplifier Total Harmonic Distortion: Less than 0.5% at 350W into 4 ohm
Dimensions: W45.0cm x H72.8cm x D38.5cm / W17.7 x H28.7 x D15.2 inch
Net Weight: 45.9 kg / 101.2 lbs
AC Power Consumption: 0.5W Standby, 110W Average, 700W Peak

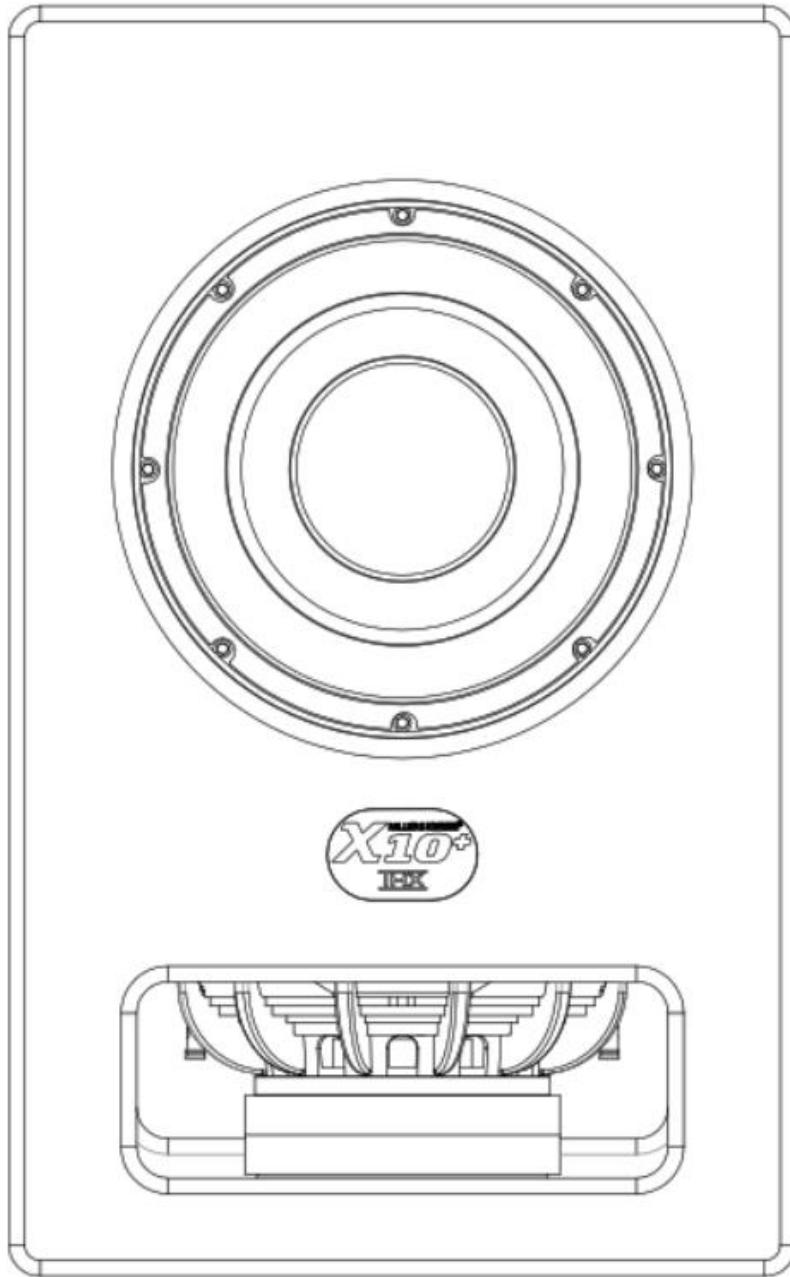
X15⁺

Power Amp: 700W / 1400W Peak (Sub-woofer uses two 8ohm Woofers in Parallel, equivalent to one 4ohm speaker)
Frequency Response: 16-200 Hz (+/- 1 dB in band tolerance)
Amplifier Total Harmonic Distortion: Less than 0.5% at 450W into 4 ohm
Dimensions: W51.5cm x H83.3cm x D46.0cm / W20.3 x H32.8 x D18.1 inch
Net Weight: 61.1 kg / 134.7 lbs
AC Power Consumption: 0.5W Standby, 120W Average, 800W Peak

AC Line Voltage: All models 100-230 VAC 50/60 Hz 5A

The equipment shall be used at Maximum 45°C Ambient Temp and Altitude 2000 Meter.




L'équipement doit être utilisé à une température ambiante maximale de 45°C et à une altitude de 2000 mètres.



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THX Certified performance classes

The X15+ subwoofer is THX Certified Dominus, the X12+ subwoofer is THX Certified Ultra and the X10+ subwoofer is THX Certified Select

		
DOMINUS	ULTRA	SELECT
THX RECOMMENDED USE	THX RECOMMENDED USE	THX RECOMMENDED USE
Expansive Home Theaters or Screening Rooms	Large Home Theaters or Living Rooms	Medium Home Theaters or Living Rooms
THX CERTIFICATION FEATURES	THX CERTIFICATION FEATURES	THX CERTIFICATION FEATURES
Extended Bandwidth and Flat Frequency Response.	Extended Bandwidth and Flat Frequency Response.	Extended Bandwidth and Flat Frequency Response.
High Output, Low Distortion Design at 20 ft Listening Distance.	High Output, Low Distortion Design at 12 ft Listening Distance.	High Output, Low Distortion Design at 10 ft Listening Distance.
Conforms to THX Bass Management Requirements.	Conforms to THX Bass Management Requirements.	Conforms to THX Bass Management Requirements.
THX PERFORMANCE NOTES	THX PERFORMANCE NOTES	THX PERFORMANCE NOTES
Capable of THX Reference Level in a room up to 6,500 cubic feet (185 cubic meters).	Capable of THX Reference Level in a room up to 3,000 cubic feet (85 cubic meters).	Capable of THX Reference Level in a room up to 2,000 cubic feet (57 cubic meters).
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