

Trigger does not work 1. Measure trigger voltage with a voltmeter. It needs to be 11-16 volts **DC** to work (current is about 35mA total per amp). See page 5 for details.

Speaker pops when MA250 is turned on or off 1. Speaker may need resistor placed across terminal. Suggest 2000 ohm 1/4 watt. This discharges the speaker internal capacitor if it has one.

### Warranty

Knoll Systems warrants MA250 amplifiers sold in the USA and Canada by authorized Knoll dealers to be free of defects in materials and workmanship. This warranty extends for three full years from the date of purchase by the original consumer. Any products returned to Knoll Systems and found to be defective by Knoll Systems within the warranty period will be repaired or replaced at Knoll Systems decision, at no charge. Knoll Systems will not be responsible for the actual cost of installation or removal of the product, nor for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights. You may have additional legal rights that vary from state to state.

### Specifications:

Line level inputs /outputs	Gold RCA jacks
Input impedance	50k ohms
Speaker inputs /outputs	detachable plug
Output power	50 watts RMS per channel (8 ohms)
Peak output power	100 watts per channel (8 ohms)
Ideal impedance	4 - 8 ohms
Frequency response	10 Hz - 40 kHz +/- 1dB (1w)
S/N ratio	over 95 dB A weighted (50 watts)
THD distortion	less than 0.1% 20 Hz to 20 kHz
IMD distortion	less than 0.01% 60 Hz 7 kHz 4:1 (SMPTE)
Trigger control	12 VDC 35mA on 3.5mm mono jack
Dimensions	8.5" x 3.5" x 11.75" (216 x 89 x 298mm)
Video trigger	0.5 v p-p minimum
Power	175 watts at 117 VAC or 230 VAC
Weight	8 lbs (3.6 kg)

**Note:** Specifications subject to change without notice.

### Knoll Systems

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Made in Canada

# MA250

## Stereo Amplifier Installation Instructions v1.0



**Warning:** To be installed and/or used in accordance with appropriate electrical codes and regulations.

**Description:** Designed primarily for custom installations, the MA250 is used to power stereo speakers, usually in a single room. Each channel has a gain control. The MA250 can be turned on and off using the front panel power switch, composite video detection, when music is sensed or the 12 VDC trigger. A special feature of the MA250 is that whole house music from another amplifier can be heard on the speakers connected to the MA250. When the local source needs amplifier power the MA250 senses this, disconnects the other amplifier and amplifies the local source. The MA250 amplifier is designed to meet the amplifier needs of custom installed systems where high-quality sound is a specific requirement.

### Key Features:

**Manual and Automatic Power On and Off.** The MA250 stereo power amplifier is designed to be turned on when a video signal is detected, music inputs are sensed, a 12-volt trigger is activated or the front panel power switch is pushed on. Power off is automatic in all modes except the front panel power button.

**Whole house music override.** In homes, yachts, businesses and motor home applications (typically with plasma or large screen TV's) the MA250 features amplifier inputs so that whole house music system can be heard on the local speakers (without the MA250 turned on). When the local source (TV, dish, etc.) needs amp power, the whole house music switches off automatically and the MA250 amplifier plays the local source.

**Automatic protection circuitry.** Each MA250 channel is individually and fully protected against low impedance, overheating, overloading, overvoltage and undervoltage. The protection circuitry automatically restores the amplifier channel as soon as its parameter returns to the safe operating area.

**Individual input gain adjustment.** Each channel features an input gain adjustment pot to adjust each channel for gain and speaker sensitivity variations. The gain adjustments are on the rear of the MA250 so installers normally set the gain.

**Precautions:** The amplifier is a wideband design with substantial power output capability. Certain precautions must be taken to ensure proper operation:

1. Never expose the unit to moisture.
2. Never plug an input cable into the amplifier while the amplifier is turned on.
3. Never apply the "thumb test" (touching the "hot" lead of the input cable with your finger) to the tip of the input cable or input jack of the amplifier. RF rectification and/or hum will be created and could cause damage to the loudspeakers. Knoll will not be responsible for damage to the loudspeakers due to improper use of the equipment.
4. Under no circumstances should the output terminals of the amplifier be short-circuited.
5. Avoid restricting the airflow around the unit. Good airflow is necessary to help ensure proper operation.
6. Be sure that the loudspeakers connected can handle the output power of the amplifier at the loudspeakers rated impedance. The warranty on the amplifier does not cover damage to loudspeakers that have inadequate power handling capabilities.
7. Do not stack other system components or any other materials directly on top of the unit. The heat dissipating system of the amplifier depends on free-flowing air around the chassis.

**SAFETY INSTRUCTIONS:**

**WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.**

Read all the safety and operating instructions before connecting or using this unit. All warnings on the unit and in this operating manual should be adhered to. All operating and use instructions should be followed.

**WARNING:** This product contains chemicals, including lead, known to the State of California to cause birth defects or other reproductive harm. **Wash hands after handling.**

**Knoll Systems service information**

The MA250 amplifier does not contain any user serviceable parts inside. If a problem is encountered with the MA250, the most expedient procedure is to locate the problem and if possible repair it before requesting service. Be sure to carefully check other system components such as controllers, CD players, volume controls, wiring, speakers, etc. that may be at fault. If you suspect a problem that may require servicing, contact us at [www.knollsystems.com/contact.html](http://www.knollsystems.com/contact.html), or by phone at 800-566-5579 or 604-272-4555.

<b>Problem</b>	<b>Action</b>
Power LED does not light - no sound	<ol style="list-style-type: none"> <li>1. Check that the MA250 is plugged in.</li> <li>2. Test the AC outlet with a lamp.</li> <li>3. If remote on/off is used, check that the trigger voltage is at 12 VDC.</li> <li>4. Check MA250 power button on (in).</li> </ol>
Sound cuts out	<ol style="list-style-type: none"> <li>1. Verify speaker impedance is 4-16 ohms. Changing speakers may be required.</li> <li>2. Check if the MA250 feels hot. If it's hot increase cooling - see <b>Installation</b>.</li> <li>3. If music sense is selected on the rear, the music level may be too low to activate and hold the amp on. Turn the source volume up and the MA250 gain controls down to compensate. Connect a 12 VDC trigger (trigger mode) or contact Knoll for information on defeating the music sense mode.</li> </ol>
Distorted sound	<ol style="list-style-type: none"> <li>1. Turn the volume down.</li> <li>2. Check speakers for damage.</li> <li>3. Check inputs for proper levels. MA250 gain and source output level may need adjusting.</li> <li>4. Speakers may be less than 4 ohms.</li> </ol>
MA250 does not turn off	<ol style="list-style-type: none"> <li>1. In trigger mode, make sure trigger power is turning off by removing trigger plug on rear. Front panel power switch needs to be OUT.</li> <li>2. In music sense mode, turn off source music components. If the MA250 doesn't turn off after about 2 minutes remove the RCA input plugs. If the MA250 turns off, reconnect the RCA plugs and turn down the sensitivity.</li> </ol>

...continued on last page.

## Hum and noise

In most cases, one of the following suggestions should help you solve a hum noise in your system. Please try these steps in the order shown, proceeding from one step to the next if the prior suggestion does not eliminate the problem.

### *Suggestion #1*

To determine if a cable TV connection is responsible for the hum, first turn off all the components. Disconnect the cable TV feed to your system at the first place where it connects to your components. Alternatively, disconnect the cable TV wire where it is connected at the wall outlet. Turn your system back on, and listen if the hum has disappeared. If removing the cable TV feed has eliminated the hum, you will need to insert a Ground Loop Isolator (Knoll model GB634) before reconnecting the cable TV feed, or contact your cable TV operator to see if they can better isolate your cable feed.

### *Suggestion #2*

*Turn off all components in your system and then disconnect the input cables at the amplifier. Turn the amplifier back on to see if the hum is still present. If the hum disappears, the fault may be in the input cables used. Try replacing them with cables that have better shielding, and make certain that the input cables are not running on top of any AC power cords. Change the cables one at a time to determine if one or all cables are responsive. If the hum disappears when the input cables are disconnected but returns after the cables are changed and the system reconnected, your source device may be causing the problem.*

### *Suggestion #3*

Poor grounding of the electrical system in your home may also cause ground loop problems, particularly when there are multiple components with three prong, grounded, power cords. Unplug these components one at a time, and see if one or all of them is causing the problem. The ultimate solution to this type of problem is to rewire your house with an isolated, star type-grounding configuration. Knoll understands that this may be impractical and expensive. In some instances, the use of an approved AC Power Isolation Transformer (Knoll model PLB200) of sufficient capacity may solve this problem.

***Warning: If you suspect that the grounding system in your home's electrical wiring is causing the hum problem, it is important that you do not make any changes to the wiring. Only a licensed electrician should make any changes to household wiring and they must be made in full compliance with all local building, safety and electrical codes.***

## Installation

Installing the MA250 should be relatively easy. With a bit of planning, the MA250 will give trouble-free service for years.

**1. The most important consideration when installing the MA250 is cooling.** The MA250 has a lot of power packed into a small chassis size. When installing it in an equipment stack, it should be the top component. It needs at least 3"-5" of space above the amplifier to allow for adequate convection cooling.

**2.** When installing the MA250 in a rack, we suggest adding a 3-1/2" blank above and below the MA250. In multiple MA250 installations, plan for a 3-1/2" blank (double) between each MA250 and a 3-1/2" blank on the top and bottom. Amplifiers should always be the top components in a rack system.

**3.** If MA250 channels frequently shutdown due to overheating, install a fan directed up from the MA250 bottom center.

**4.** Never operate the MA250 on its side, as the cooling potential drops significantly when operated on the side.

**5.** Connect the MA250 inputs to the source component outputs with good quality, short as possible RCA jack cables. Connect each channel individually.

**6.** Connect the MA250 speaker outputs to speakers using good quality speaker wire. Minimum 16 gauge copper wire is recommended with 14 gauge minimum for runs over 30' (10m).

**Note:** Ideally the MA250 likes 6-8 ohm loads. Connecting to 4 ohm loads won't hurt the MA250 but it may occasionally shutdown. Never connect a MA250 to less than 4 ohms. Do not attempt to mono bridge the MA250.

**7.** Make sure the speakers in each room are connected in phase with the amplifier + going to the speaker + . Out of phase speakers give unstable imaging and poor bass response.

**8. If connecting the MA250 to a whole house sound system or another amplifier make sure that the other amplifier is a common ground amplifier** and that you use good quality speaker wire, minimum 16 gauge.

9. If a video signal is being used to trigger the MA250 on and off, connect good quality short as possible video wire with a RCA jack to the MA250 "Video Input". Make sure the music sense button is OUT.

10. If the music sense or video input is being used to turn the MA205 on and off, set the "Music Sense" button to OUT. Adjust the Sens (sensitivity) so the MA250 turns on when quieter sound passages are playing. Adjust the "Delay" so the MA250 turns itself off 25-120 seconds after the sound has stopped.

11. Individually adjust the channel gains as required. Ideally, the gains are fully on (fully clockwise).

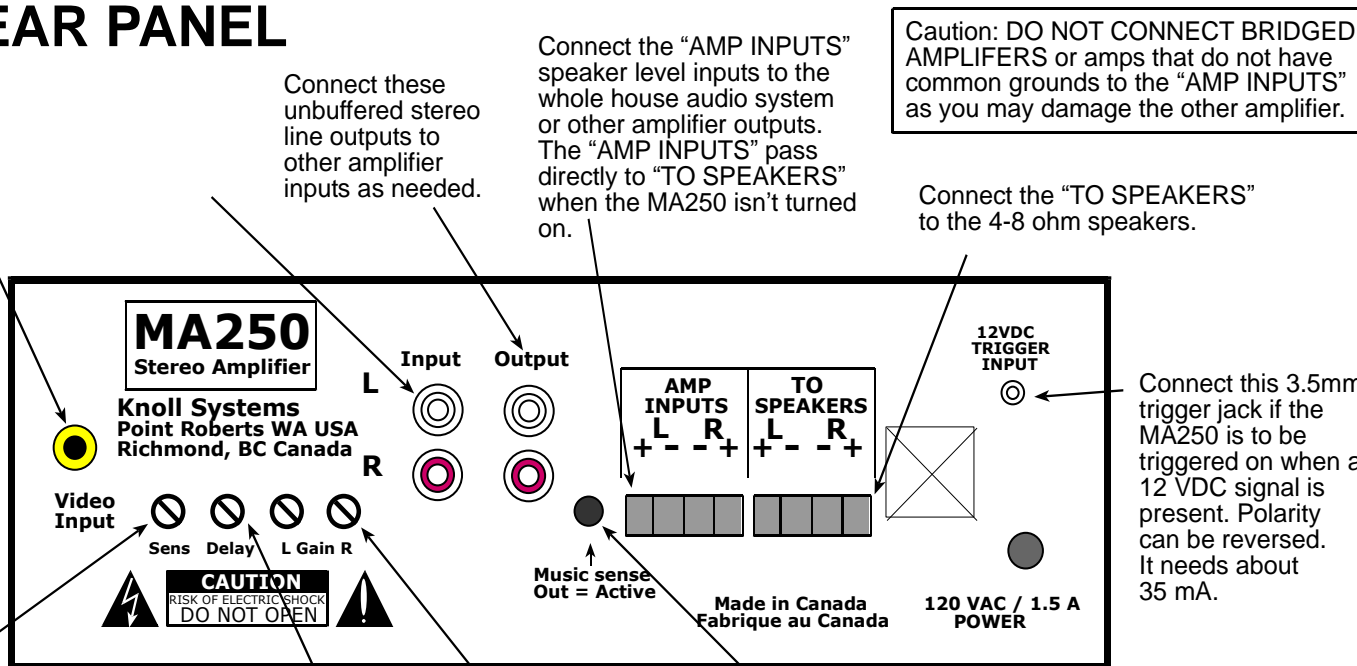
12. If the 12 volt trigger is being connected, use a 12 VDC source (about 35mA) with a 3.5mm mono jack. Knoll PS1202 with a new 3.5mm jack works well. 5 VDC triggers will not work.

**Caution:** Never listen to sound that is distorted. If distorted sound is heard, turn the volume down immediately or speaker and/or amplifier damage could occur that is not covered by the warranty. If this problem persists, contact your dealer.

## MA250 REAR PANEL

Connect a composite video output from a VCR, plasma TV, etc. to the "Video Input" if the MA250 is to be triggered on when a video signal is present. Make sure the music sense button is switched to the OUT position.

For video triggering without music sensing turn the "Sens" pot fully counterclockwise.



Connect these unbuffered stereo line outputs to other amplifier inputs as needed.

Connect the "AMP INPUTS" speaker level inputs to the whole house audio system or other amplifier outputs. The "AMP INPUTS" pass directly to "TO SPEAKERS" when the MA250 isn't turned on.

**Caution:** DO NOT CONNECT BRIDGED AMPLIFIERS or amps that do not have common grounds to the "AMP INPUTS" as you may damage the other amplifier.

Connect the "TO SPEAKERS" to the 4-8 ohm speakers.

Connect this 3.5mm trigger jack if the MA250 is to be triggered on when a 12 VDC signal is present. Polarity can be reversed. It needs about 35 mA.

### User adjustments and service:

There are no user adjustments on the MA250. Your installer may make certain gain level adjustments on the rear panel.

**Caution:** The MA250 contains no user serviceable parts, so do not attempt to open or repair the MA250. Refer servicing to a qualified technician only or contact the factory for information.

When using music sense only, adjust Sens so the MA250 turns on when the source music is at a medium low volume. Sens is not used for video on or trigger on. For video sensing without music sensing turn Sens fully counterclockwise.

After MA250 is on, Delay is adjusted to turn off MA250 after the source music ends. Ideal delay adjustment is about 20-40 seconds. Delay is used with video on and music sense only.

Adjust the gain when the system is on. Best signal to noise ratio is when MA250 gains are on full (clockwise).

The music sense (auto turn on when music is present) button should be OUT (active) when the MA250 power is to be triggered either from music sense or the composite video signal.

The music sense button should be IN when the amp is turned off and on from the front panel switch or the 12 VDC trigger.

Ideal speaker impedance is 4-8 ohms.

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