

IWA 250 - USER MANUAL

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INTRODUCTION

The **IWA 250** In-Wall Powered Mixer provides an 8 input/2 output mixer plus emergency page interrupt, a 9-band graphic equalizer, and a 250 Watt power amplifier with outputs for standard and distributed speaker systems. Optional VCA remote control cards may be added for controlling mixer input/output levels. Designed for in-wall or surface mounting, with integral security cover, the IWA 250 is UL/C-UL listed and is covered by a five-year warranty.

- six balanced microphone/line level mixer input channels
- two balanced/summing line level mixer input channels
- high & low tone controls on each mixer input channel
- independent main & aux level controls on each channel
- trim control & peak indicator on each mic/line input channel
- additional balanced line input for emergency page interrupt
- main & aux mixer outputs with master level controls
- mixer functions provided on screw-driver adjustable controls
- optional VCA cards for remote control of input/output levels
- 9-band graphic equalization integrated at amplifier input
- patch points provided for mixer outputs & equalizer input
- mixer inputs & outputs on front panel plug-in barrier strips
- output taps for standard and distributed speaker systems
- +48 Volt phantom power selectable for microphone inputs
- "in-wall" or "surface-mount" chassis with security cover
- **UL** and **C-UL** listed
- covered by Biamp Systems' five-year warranty

IMPORTANT SAFETY INFORMATION

Read these instructions.

Keep these instructions.

Heed all warnings.

Follow all instructions.

Do not use this apparatus near water.

Clean only with a dry cloth.

Do not block any of the ventilation openings.

Install in accordance with the manufacturers instructions.

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

Unplug this apparatus during lightning storms or when unused for long periods of time.

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Explanation of safety related markings and symbols which appear on the outside of the apparatus.



Lightning Bolt: Hazardous Live voltages present when this unit is in operation. Do not touch terminals marked with this symbol while the unit is connected to live power.

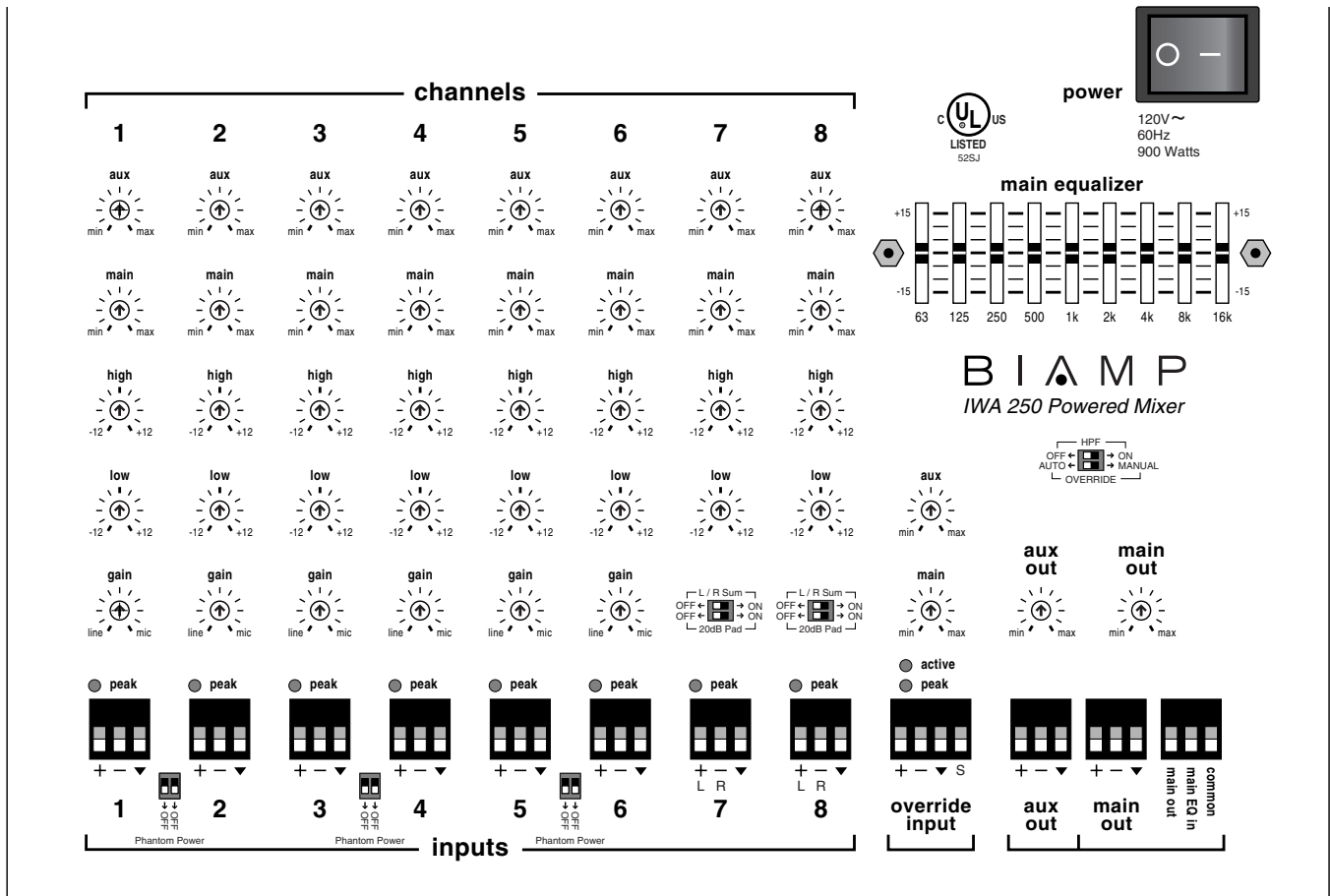


Exclamation Point: Replace components (i.e. fuses) only with the values specified by the manufacturer. Failure to do so will compromise safe operation of this unit.



CAUTION: Opening the unit enclosure will place operator at risk of injury due to electric shock.

FRONT PANEL FEATURES



Aux: These screw-driver controls set the level of channel signals sent to the Aux Out master control. Aux controls are used to create an independent mix of channel signals for a secondary sound system. This mix is sent (via the Aux Out master control) to the Aux Out connector (see below).

Main: These screw-driver controls set the level of channel signals sent to the Main Out master control. Main controls are used to create an independent mix of channel signals for the primary sound system. This mix is sent (via the Main Out master control) to the Main Equalizer and Main Amplifier, as well as to the Main Out connector (see below).

High: These screw-driver controls set the high-frequency equalization (Treble) for the channels. High equalization is a shelving type filter, which provides ± 12 dB of gain adjustment for frequencies above 10kHz. Equalization is used to compensate for tonal differences which may exist between various input signals.

Low: These screw-driver controls set the low-frequency equalization (Bass) for the channels. Low equalization is a shelving type filter, which provides ± 12 dB of gain adjustment for frequencies below 50Hz. Equalization is used to compensate for tonal differences which may exist between various input signals.

Gain (Channels 1-6): These screw-driver controls set the channel gain (0-60dB) to compensate for different input signal levels. Adjust these controls so the channel Peak indicators flash only on occasional peaks (see below).

L / R Sum (Channels 7 & 8): These DIP switches convert the the balanced mono inputs to unbalanced stereo (L/R) summing inputs. Use L / R Sum whenever input is from an unbalanced stereo program source (i.e. CD player, tape deck, etc.).

20dB Pad (Channels 7 & 8): These DIP switches reduce input gain by 20dB to compensate for higher level input signals. Use 20dB Pad whenever input signal levels cause the channel Peak indicator to light more often than just on occasional peaks.

Peak: These red LEDs will light whenever channel signal levels reach +10dB (8dB below clipping). Use this feature to aid in proper adjustment of Gain and 20dB Pad (see above).

Phantom Power: These DIP switches assign +48 Volt DC to the respective inputs for powering condenser microphones. Phantom Power should remain off when input is from line-level sources or dynamic microphones. Always turn AC power off, or turn all level controls down, before switching Phantom Power.

FRONT PANEL FEATURES

Inputs (Channels 1-6): These plug-in barrier strips provide mic/line input to Channels 1-6. These inputs accept signals from balanced low-impedance microphones or from balanced (or unbalanced) line-level sources. Balanced input (Mic or Line) is wired high to (+), low to (-), and ground to (▼). Unbalanced Line input is wired high to (+), and ground to both (-) and (▼). Phantom Power (+48V) is selectable per input (see above) and remote level control is optional.

Inputs (Channels 7 & 8): These plug-in barrier strips provide line level input to Channels 7 & 8. These inputs accept mono (balanced or unbalanced) or stereo (unbalanced) signals from line-level sources (see L/R Sum above). Balanced mono input is wired high to (+), low to (-), and ground to (▼). Unbalanced mono input is wired high to (+), and ground to both (-) and (▼). Unbalanced stereo input is wired left high to (L), right high to (R), and both grounds to (▼). Stereo signals are summed together into a mono signal at this input. Two independent mono signals may be connected here (wired to left & right respectively), which will be summed together providing common channel equalization and level controls. Remote level control is optional.

Override Input: This plug-in barrier strip provides the line level override input. This inputs accepts mono (balanced or unbalanced) signals from line-level sources. Balanced input is wired high to (+), low to (-), and ground to (▼). Unbalanced input is wired high to (+), and ground to both (-) and (▼). The Override Input channel includes the same Main & Aux level controls as all other inputs. However, there is no input Gain control. Therefore, input level must be adjusted at the override source. For best performance, adjust the override source level so the channel Peak indicator flashes only on occasional peaks (see Peak above). The Override Input can trigger muting of all other input signals either manually (via external switch) or automatically (via signal presence), regardless of Main or Aux level settings (see Override below). For manual muting (as from a push-to-talk paging microphone) the switch is wired across the Override Input (S) and (▼) terminals. For automatic muting (as from telephone paging), an Override Sensitivity adjustment must be made. The green Active LED indicator will remain lit during either form of Override muting.

Main Out: The Main Out screw-driver control sets the overall level of signals sent (from channel Main controls) to the Main Out connector. The Main Out connector is a plug-in barrier strip, which provides a balanced line-level output for feeding external equipment (recorders, auxiliary amplifiers, etc.). For unbalanced output, wire high to (+) and ground to (▼), leaving (-) un-connected. An additional plug-in barrier strip connector (to the right of Main Out) provides unbalanced access to the mixer Main Out, and to the Main Equalizer input. From the factory, a jumper wire between "Main Out" and "Main EQ In" routes signal from the Main Out control to the Main Equalizer and the Main Amplifier. Signal processing may be inserted between the mixer and the equalizer by first removing the jumper wire, then wiring "Main Out" to processor input and "main EQ In" to processor

output, using a common ground (▼). To access unbalanced Main Out from the mixer (to feed recorders, auxiliary amps, etc.) wire high to "Main Out" and ground to (▼), *without removing the jumper wire*. **NOTE:** *If the jumper is removed, the main output and equalizer input are separated (no signal passes between them).* Remote level control is optional.

Aux Out: The Aux Out screw-driver control sets the overall level of signals sent (from channel Aux controls) to the Aux Out connector. The Aux Out connector is a plug-in barrier strip, which provides a balanced line-level output for feeding external equipment (recorders, auxiliary amplifiers, etc.). For unbalanced output, wire high to (+) and ground to (▼), leaving (-) un-connected. Remote level control is optional.

HPF: This DIP switch enables a high-pass filter (12dB/octave @ 125Hz) which reduces unnecessary low-frequency signals. Enable HPF whenever the 70V or 25V outputs are being used, or in any 'speech only' applications.

Override: This DIP switch determines whether the Override Input will trigger muting of all other input signals automatically (via signal presence) or manually (via external switch).

Main Equalizer: This 9-band graphic equalizer adjusts the frequency response (tonal balance) of signals sent to the Main Amplifier. Each control provides ± 15 dB boost/cut at the designated center frequency. From the factory, the Main Equalizer receives signal from the mixer Main Out. However, the Main Equalizer may instead be wired to receive signal from another source (see Main Out above). Do not boost frequencies below 250Hz whenever the 70V or 25V outputs are being used.

Power Switch: This switch applies power to the unit. *Caution: complete all connections & installation before turning power on.*

Power Indicator (not shown): This green LED lights when power is applied to the IWA 250.

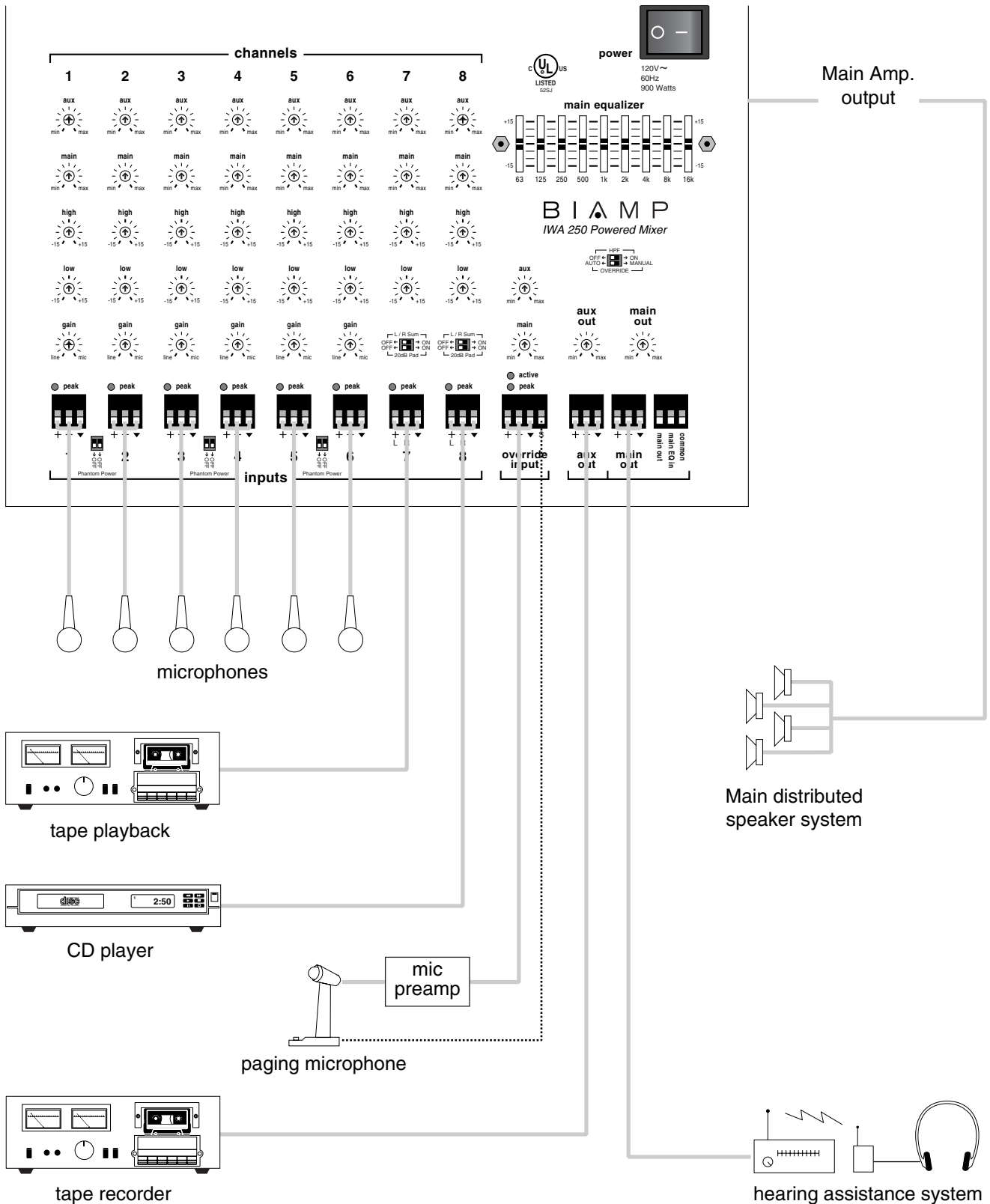
Temp/Fault Indicator (not shown): This red LED indicates over-temperature and output fault conditions for the amplifier. When the LED remains lit, the amplifier has an over-temperature condition. When the LED is flashing, the amplifier has an output fault condition. Either condition will temporarily de-activate the amplifier, causing the Signal/Peak LED to turn off as well. The amplifier will attempt to self-reset once the over-temperature or output fault condition is resolved.

Signal/Clip Indicator (not shown): This 2-color LED indicates the signal level for the amplifier. When the LED is green, the amplifier has signal (above -30dB). When the LED is red, the amplifier signal is clipping (max. power). **CAUTION:** *Signal levels should be adjusted to avoid clipping. Clipping can cause distortion, over-temperature conditions, and even loudspeaker damage.* **NOTE:** *Signal/Peak indicators will turn off during Temp/Fault conditions (see Temp/Fault Indicator above).*

APPLICATIONS

250 Watt Distributed System plus Hearing Assistance & Recording Outputs

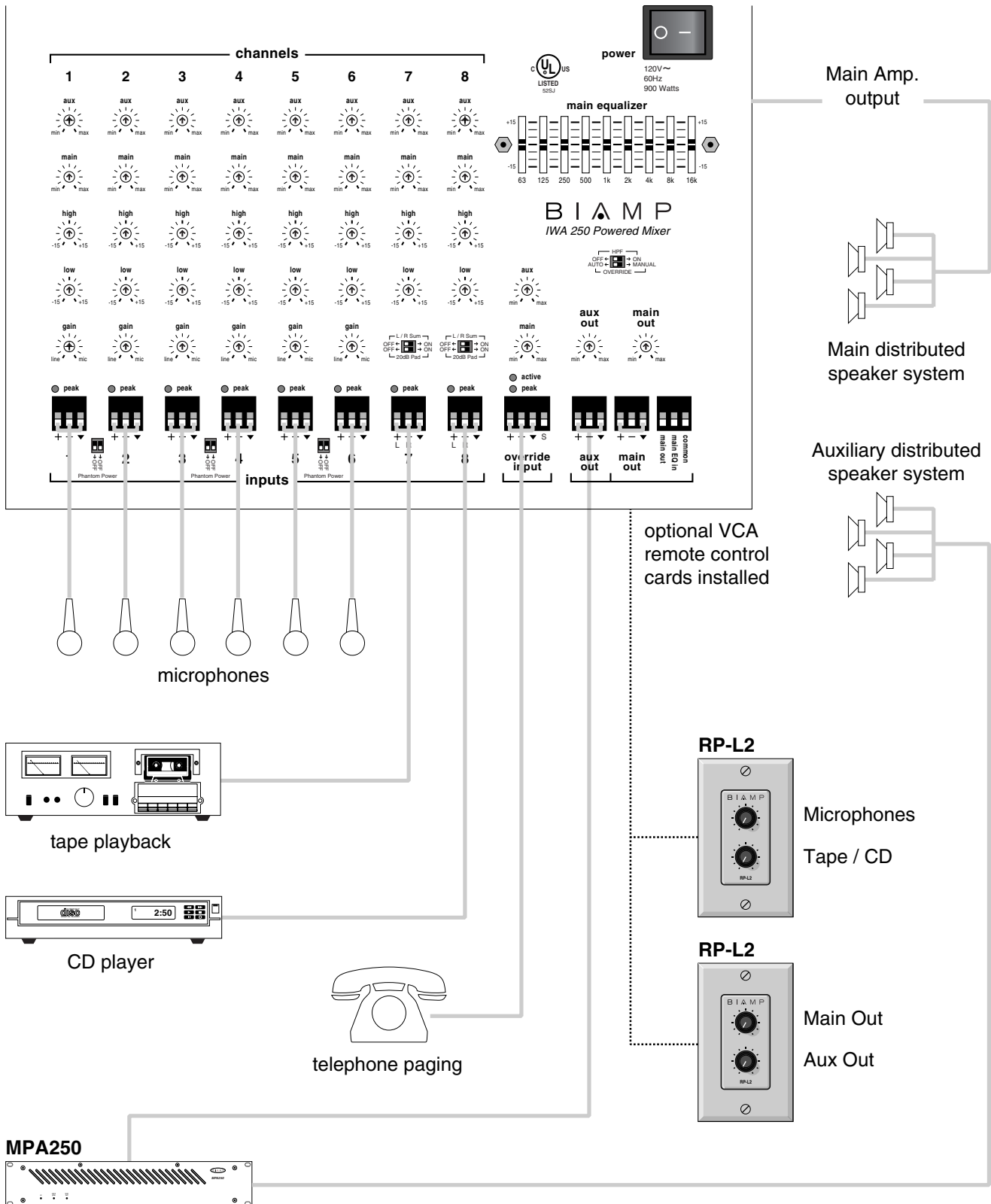
IWA 250



APPLICATIONS

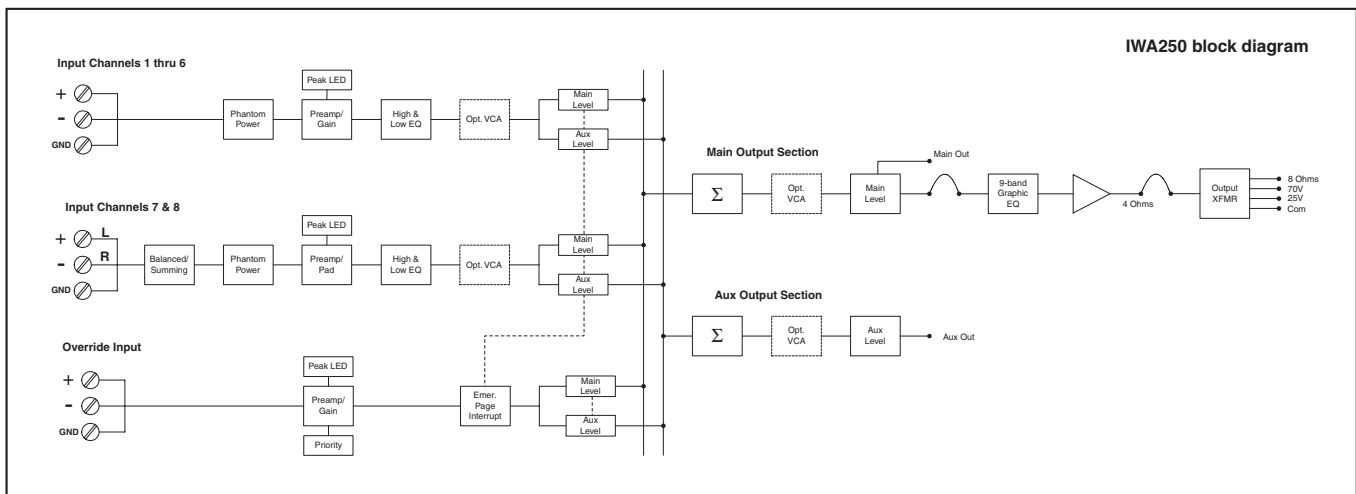
250 Watt Distributed System plus Remote Control & Auxiliary Speaker System

IWA 250



SPECIFICATIONS & BLOCK DIAGRAM

<p>Continuous Power (4 ohm direct & transformer outputs): 250 watts</p> <p>Signal-to-Noise Ratio (20Hz~20kHz): referenced to 250 watts into 4 ohm direct output > 90dB</p> <p>Total Harmonic Distortion: 20Hz~20kHz @ 250 watts into 4 ohm direct output < 0.2% 100Hz~15kHz @ 250 watts at transformer outputs < 1.0%</p> <p>Intermodulation Distortion (SMPTE): < 0.35%</p> <p>Frequency Response (20Hz~20kHz): +0/-1dB</p> <p>Input / Output Impedance: balanced mic/line inputs 600 ohms balanced line-level inputs 20k ohms unbalanced main & aux outputs 200 ohms unbalanced equalizer input 10k ohms</p>	<p>Equalization: low-frequency input channel EQ ±12dB @ 50Hz high-frequency input channel EQ ±12dB @ 10kHz 9-band graphic output EQ ±15dB @ 64Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz, 16kHz</p> <p>Dimensions (H x W x D): security cover 28.6" x 16.25" x 0.9" (726x413x23mm) in-wall back-box 26.6" x 14.25" x 4" (676x362x102mm) surface-mount back-box 28.6" x 16.25" x 4" (726x413x102mm)</p> <p>Weight: chassis + security cover < 34 lbs. (15.42kg) in-wall back-box < 14 lbs. (6.35kg) surface-mount back-box < 17 lbs. (7.71kg)</p>
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WARRANTY

BIAMP SYSTEMS IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS MANUAL

1. BIAMP Systems warrants to the original purchaser of new products that the product will be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase from an authorized BIAMP Systems dealer, subject to the terms and conditions set forth below.
2. If you notify BIAMP during the warranty period that a BIAMP Systems product fails to comply with the warranty, BIAMP Systems will repair or replace, at BIAMP Systems' option, the nonconforming product. As a condition to receiving the benefits of this warranty, you must provide BIAMP Systems with documentation that establishes that you were the original purchaser of the products. Such evidence may consist of your sales receipt from an authorized BIAMP Systems dealer. Transportation and insurance charges to and from the BIAMP Systems factory for warranty service shall be your responsibility.
3. This warranty will be VOID if the serial number has been removed or defaced; or if the product has been altered, subjected to damage, abuse or rental usage, repaired by any person not authorized by BIAMP Systems to make repairs; or installed in any manner that does not comply with BIAMP Systems' recommendations.
4. Electro-mechanical fans, electrolytic capacitors, and normal wear and tear of items such as paint, knobs, handles, and covers are not covered under this warranty.
5. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. BIAMP SYSTEMS DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
6. The remedies set forth herein shall be the purchaser's sole and exclusive remedies with respect to any defective product.
7. No agent, employee, distributor or dealer of Biamp Systems is authorized to modify this warranty or to make additional warranties on behalf of Biamp Systems. statements, representations or warranties made by any dealer do not constitute warranties by Biamp Systems. Biamp Systems shall not be responsible or liable for any statement, representation or warranty made by any dealer or other person.
8. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.
9. BIAMP SYSTEMS SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS OR LOSS OF USE ARISING OUT OF THE PURCHASE, SALE, OR USE OF THE PRODUCTS, EVEN IF BIAMP SYSTEMS WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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