

CPA 130

# Operation Manual

**B I A M P<sup>®</sup>**

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S Y S T E M S

10074 SW Arctic Drive      Beaverton, OR 97005      503-641-7287

# CPA130

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## INTRODUCTION

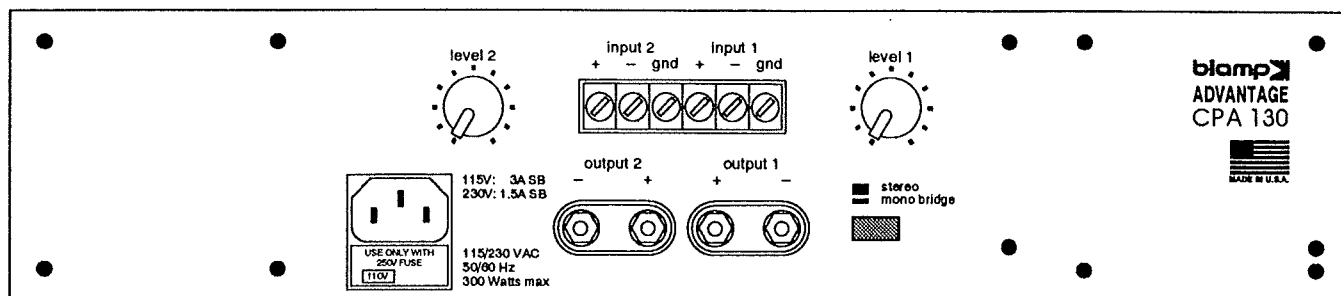
Advantage **CPA130** dual channel power amplifiers are designed to supply reliable service in permanent installations. CPA130 amplifiers have complete short-circuit and thermal protection with automatic reset, as well as internal speaker protection fuses. Barrier strip input and 5-way binding post output connectors provide trouble free, dependable connections. CPA130 amplifiers are passively cooled for quiet operation, without fan noise or filter maintenance. CPA130 amplifiers carry a 5-year warranty.

Advantage CPA130 features include:

- ◆ balanced inputs on barrier strip terminals
- ◆ 65 watts/channel @ 4 ohms (stereo)
- ◆ 40 watts/channel @ 8 ohms (stereo)
- ◆ 130 watts @ 8 ohms (mono bridge)
- ◆ peak indicators on each channel
- ◆ detented level controls (front or rear mounting)
- ◆ complete short-circuit, speaker, and thermal protection
- ◆ turn-on muting to prevent "thumping"
- ◆ selectable stereo or mono bridge operation
- ◆ internal jumpers select input sensitivity (1V or 0.1V)
- ◆ internal jumpers select HPF (12dB/octave @ 60Hz)
- ◆ passively cooled (no fan noise or maintenance)
- ◆ optional distribution autoformers (rear panel mounting)
- ◆ 5-year Gold Seal warranty

After reading this manual, if you have any questions or need technical assistance, please call Biamp Systems toll-free (1-800-826-1457).

## REAR PANEL



**Autoformer Mounting Holes:** These holes are for mounting of optional autoformers to the rear panel of the CPA130. Autoformers allow the CPA130 to be used to drive 25V, 70V, or 100V distributed speaker systems (see 5-Way Speaker Binding Posts below).

**AC Power Entrance:** This receptacle accepts the detachable AC Power Cord. The AC Power Cord is for connection to three-prong grounded AC outlets. *CAUTION: Do not remove or defeat the ground prong on the AC Power Cord, as this constitutes a shock hazard.* The Fuse Clip may be removed by first detaching the AC Power Cord, then prying the Fuse Clip out from above, using a flat-blade screwdriver in the notch provided. The Fuse Clip contains both the standard fuse and an alternate fuse. The standard fuse is held in the clip, and becomes the actual AC fuse when the Fuse Clip is installed. Replace the standard fuse only with the same value and type (3A SB for 110 VAC operation or 1.5A SB for 240 VAC operation). The alternate fuse, held in a drawer inside the Fuse Clip, is provided only for use at the alternate operational voltage setting. If it is necessary to change the operational voltage, first slide the voltage selector out of the left side of the Fuse Clip. Turn the voltage selector over, and slide it back into the Fuse Clip, making sure the desired voltage selection is visible through the voltage window. Then change the standard fuse value (3A SB for "110V" or 1.5A SB for "240V"), before re-installing the Fuse Clip.

**Channel Level Controls:** These controls adjust the input signal level for each channel (see Internal Modifications: Input Sensitivity on page 5). After setting appropriate levels at the signal source, then adjust the Channel Level Controls for the desired output volume from the CPA130. In mono-bridge mode, Channel 1 becomes the active input and Channel 2 input is inactive. As an option, the Channel Level Controls may be mounted to the CPA130 front panel (see Internal Modifications: Front Panel Level Controls on page 5).

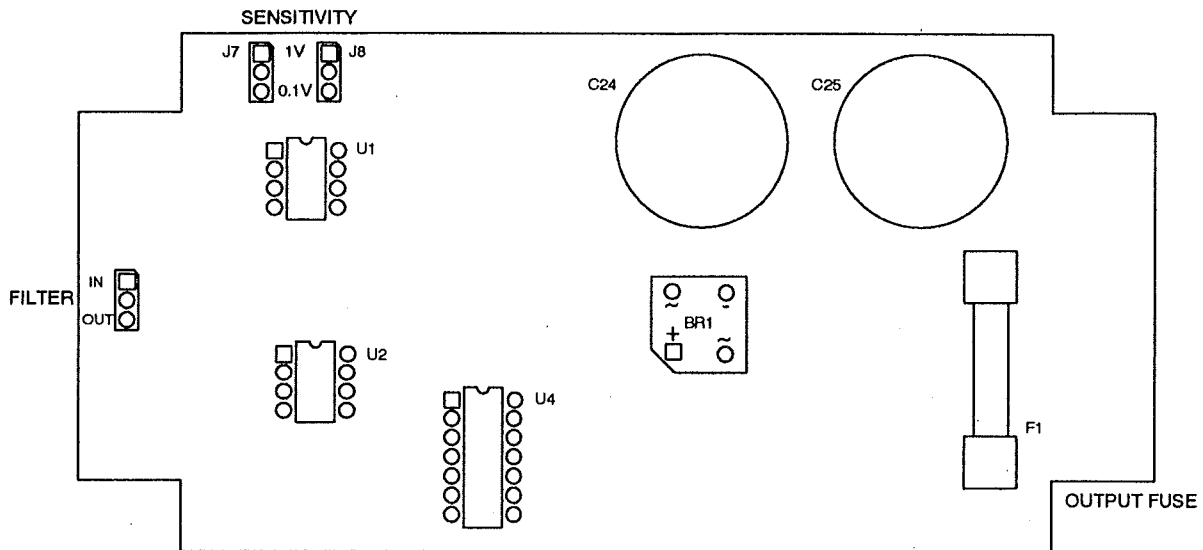
**Input Barrier Strip:** These barrier strip screw terminals are for connection of line-level input signals to the channels. For balanced inputs, connect High to (+), Low to (-), and Ground to (gnd). For unbalanced inputs, connect High to (+) and Ground to both (-) & (gnd). In mono-bridge mode, Channel 1 becomes the active input and the Channel 2 input is inactive.

**5-Way Speaker Binding Posts:** These 5-way binding posts are for connection of speaker loads to the CPA130. In stereo mode, the red (+) terminal of each channel is for connection to speaker positive, and the black (-) terminal for each channel is for connection to speaker negative. The CPA130 will deliver up to 65 Watts per channel into 4 ohm minimum loads. In mono-bridge mode, the red (+) terminal of Channel 1 is for connection to speaker positive, and the red (+) terminal of Channel 2 is for connection to speaker negative. The CPA130 will deliver up to 130 Watts mono-bridged into an 8 ohm minimum load. The CPA130 has internal fuses to help protect the amplifiers and speakers from short-circuit or DC voltages (see Internal Modifications: Output Fuse on page 5). Autoformers are available from Biamp Systems, which allow the CPA130 to be used to drive 25V, 70V, or 100V distributed speaker systems (see Internal Modifications: High-Pass Filter on page 5). When using the CPA130 in stereo mode, the appropriate autoformer for each channel is a DT-2A (#909-0025-00). When using the CPA130 in mono-bridge mode, the appropriate autoformer is a DT-1A (#909-0026-00), which will provide a maximum output of 108 Watts. In mono-bridge, the CPA130 can drive a 25V system without an autoformer. However, the speaker load must be floating (neither side grounded) and 'back-to-back' series capacitors (1000uF/100V polar) should be used for isolation. Also, the High-Pass Filters must be enabled for this application (see Internal Modifications: High-Pass Filter on page 5).

**Mono-Bridge Switch:** When depressed, this switch selects the mono-bridge mode of operation. In mono-bridge mode, Channel 1 becomes the active input and the Channel 2 input is inactive. The red (+) speaker terminal of Channel 1 is for connection to speaker positive, and the red (+) speaker terminal of Channel 2 is for connection to speaker negative. The CPA130 will deliver up to 130 Watts mono-bridged into an 8 ohm minimum load. The Input Sensitivity jumper straps for each channel must be in the same position during mono-bridge operation (see Internal Modifications: Input Sensitivity on page 5).

## INTERNAL MODIFICATIONS

**NOTE:** Disconnect the CPA130 from the AC outlet. Remove the top panel to access internal modifications. The diagram below shows the printed circuit board (PCB) and components as they appear on each amplifier channel module.



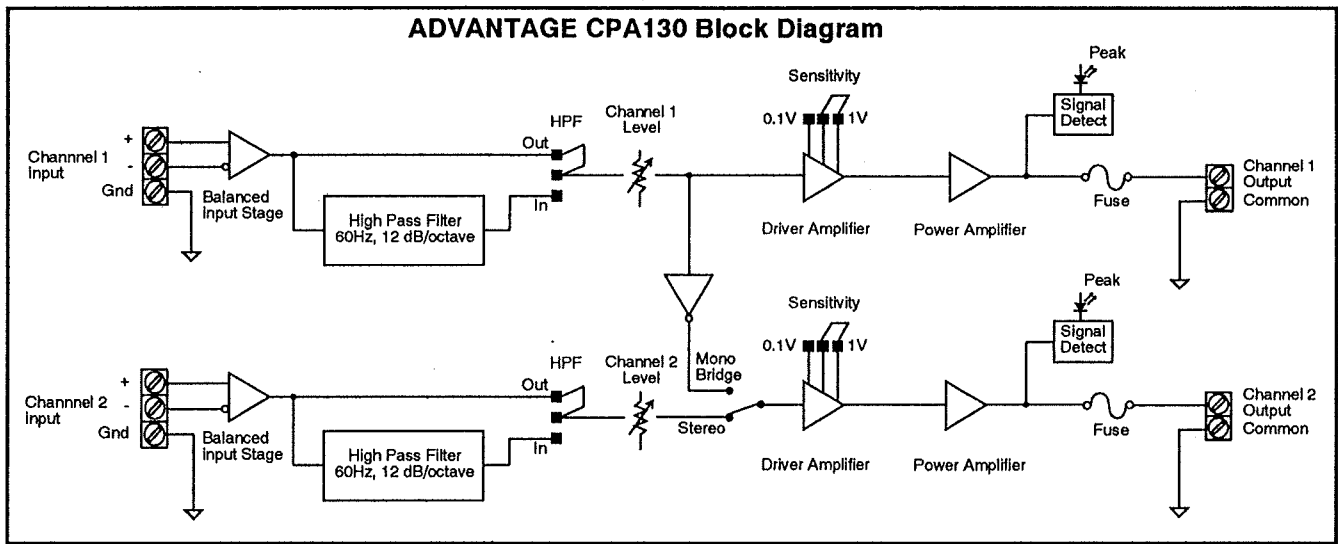
**Input Sensitivity:** This pair of two-position jumper straps determines the input sensitivity (gain) for that channel of the amplifier. When both straps are in the "1V" (up) position, input signals of approximately 1 Vrms are sufficient to drive the amplifier channel to full output. When both straps are in the "0.1V" (down) position, input signals of approximately 0.1 Vrms are sufficient to drive the amplifier channel to full output. When changing input sensitivity, always make sure that both jumper straps are in the same position (both up or both down). When using the CPA130 in the mono-bridge mode, both channels must have the same sensitivity settings. The CPA130 is shipped from the factory with input sensitivity set to "1V" (1 Vrms).

**High-Pass Filter:** This two-position jumper strap enables or disables a 12dB/octave 60Hz High-Pass Filter for that channel of the amplifier. When the strap is in the "IN" (up) position, the High-Pass Filter is enabled. When the strap is in the "OUT" (down) position, the High-Pass Filter is disabled. The High-Pass Filters must be enabled whenever the CPA130 is used for driving distributed speaker systems. This eliminates excessive current at low frequencies due to speaker transformer inductance, which can cause distortion or damage to the amplifier. If the CPA130 is used in mono-bridge mode to drive a distributed speaker system, it is only necessary for the Channel 1 High-Pass Filter to be enabled. The CPA130 is shipped from the factory with the High-Pass Filters disabled ("OUT").

**Front Panel Level Controls:** The Channel Level Controls may be moved to the front panel of the CPA130. Remove the plugs from the front panel mounting holes (save them for the rear panel mounting holes). Remove the knobs from the level controls. Remove the nuts from the level controls using a 11mm (7/16") nut driver. Move the level controls to the front panel mounting holes (make sure that Channel 1 and Channel 2 level controls are in their proper locations). Re-install nuts and knobs (hold onto controls to avoid twisting wires). Install plugs in rear panel mounting holes. Check wire routing to avoid pinching or over-heating of wires.

**Output Fuse:** This fuse is in series with the output of the amplifier channel, and provides some protection to the speakers in the event of a catastrophic amplifier failure. If the output fuse should require replacement, the maximum recommended value is 4 Amps. The output fuse should always be a Normal Blow (NB) fuse. Never use a Slow-Blow (SB) fuse. The CPA130 is shipped from the factory with the output fuses being 4 Amp Normal-Blow (4A NB).

# BLOCK DIAGRAM



## WARRANTY

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### BIAMP IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS OWNER'S MANUAL.

BIAMP Systems expressly warrants this product to be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase as a new product from an authorized BIAMP dealer under the following conditions.

1. The Purchaser is responsible for completing and mailing to BIAMP, within 10 days of purchase, the attached warranty application.

2. In the event the warranted BIAMP product requires service during the warranty period, BIAMP will repair or replace, at its option, defective materials, provided you have identified yourself as the original purchaser of the product to any authorized BIAMP Service Center. Transportation and insurance charges to and from an authorized Service Center or the BIAMP factory for warranted products or components thereof to obtain repairs shall be the responsibility of the Purchaser.

3. This warranty will be VOIDED if the serial number has been removed or defaced; or if the product has been subjected to accidental damage, abuse, rental usage, alterations, or attempted repair by any person not authorized by BIAMP to make repairs; or if the product has been installed contrary to BIAMP's recommendations.

4. Electro-mechanical fans, electrolytic capacitors, and the normal wear and tear of appearance items such as paint, knobs, handles, and covers is not covered under this warranty.

5. BIAMP SHALL NOT IN ANY EVENT BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, LOSS OF USE, PROPERTY DAMAGE, INJURY TO GOODWILL, OR OTHER ECONOMIC LOSS OF ANY SORT. EXCEPT AS EXPRESSLY PROVIDED HEREIN, BIAMP DISCLAIMS ALL OTHER LIABILITY TO PURCHASER OR ANY OTHER PERSONS ARISING OUT OF USE OR PERFORMANCE OF THE PRODUCT, INCLUDING LIABILITY FOR NEGLIGENCE OR STRICT LIABILITY IN TORT.

6. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED. BIAMP EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES SET FORTH HEREIN SHALL BE THE PURCHASER'S SOLE AND EXCLUSIVE REMEDIES WITH RESPECT TO ANY DEFECTIVE PRODUCT. THE AGENTS, EMPLOYEES, DISTRIBUTORS, AND DEALERS OF BIAMP ARE NOT AUTHORIZED TO MODIFY THIS WARRANTY OR TO MAKE ADDITIONAL WARRANTIES BINDING ON BIAMP. ACCORDINGLY, ADDITIONAL STATEMENTS SUCH AS DEALER ADVERTISEMENTS OR REPRESENTATIONS DO NOT CONSTITUTE WARRANTIES BY BIAMP.

7. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.

Thank you for purchasing BIAMP...  
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