BIAMP MCA Series Multi Channel Amplifiers Instruction Manual

MCA Series
Multi-Channel
Amplifiers
Operation Manual
February 2012

Contents

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.

5. Do not use this product near water.
6. Clean only with dry cloth.
7. Do not block 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 product (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong.

   The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the product.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with equipment rack, cart, stand or table designed to provide adequate mechanical strength, heat dissipation and securement to the building structure.

     When a cart is used, use caution when moving the cart and product combination to avoid injury from tip-over.
13. Unplug this product during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the product 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 product, the product has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING – To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.
WARNING – This product employs Safety Grounding and must be connected to a MAINS socket that is properly grounded to provide a protective eathing connection.
Disconnect Device – The MAINS plug is used to disconnect MAINS power and must be installed near the equipment and remain readily accessible.
Explanation of safety related symbols – Product labeling and the operation manual may use the internationally recognized symbols defined below to note safety messages.

⚠ **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.

MCA MULTI-CHANNEL AMPLIFIERS

MCA Series Multi-Channel Amplifiers provide eight channels of power amplification. Model MCA 8050 delivers 50 watts/channel into 4 ohms. Model MCA 8150 delivers 150 watts/channel into 4 ohms. Channels may be bridged in pairs for higher combined wattage. MCA Series amplifiers are covered by Biamp Systems' five-year warranty.

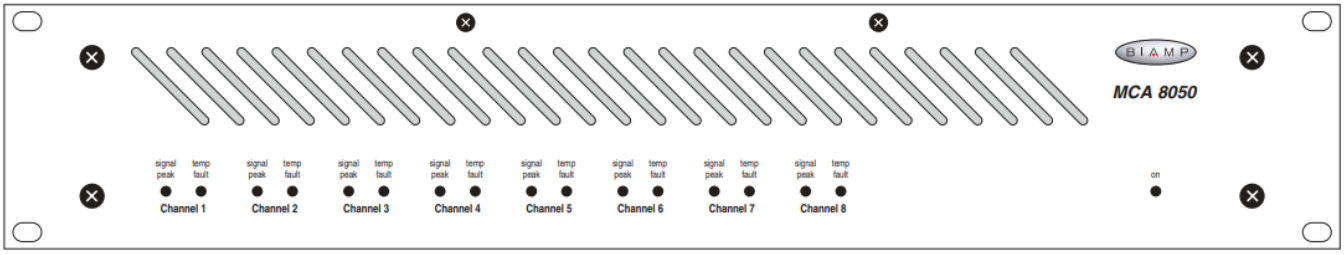
FEATURES:

- 8 channels of 50W (MCA 8050) or 150W (MCA 8150)
- Channels may be bridged in pairs for combined power
- Balanced line-level inputs on plug-in barrier strips

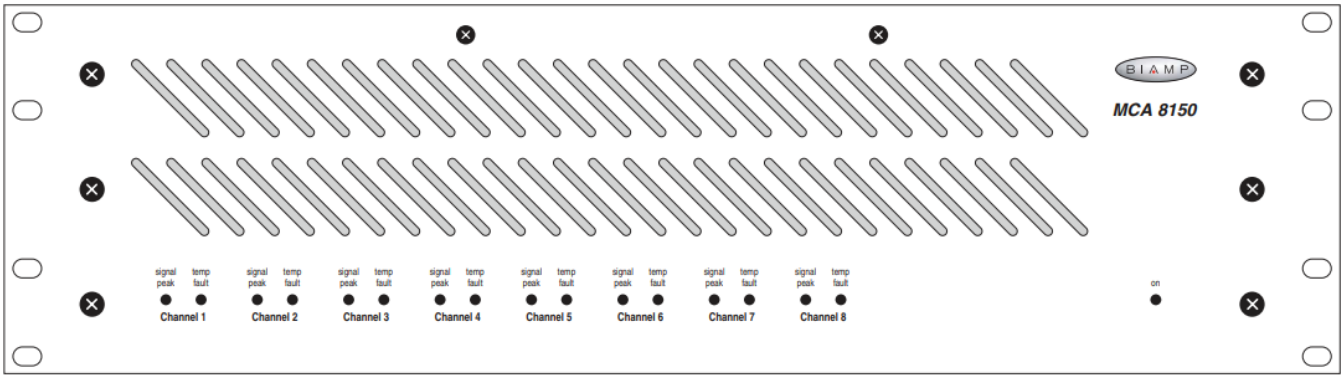
- Rear panel level controls & high-pass filter switches
- Amplifier outputs on screw-terminal connectors
- Dual-color signal/peak indicators on front & rear panels
- Front panel indicators for amplifier temp/load faults
- Fan cooled with complete output/speaker protection
- Optional transformers for 25/70/100 Volt systems
- Incorporates AES recommended grounding practices
- CE marked and UL / C-UL listed
- CCC Certified
- Covered by Biamp Systems' five-year warranty

FRONT PANEL

MCA 8050 Front Panel

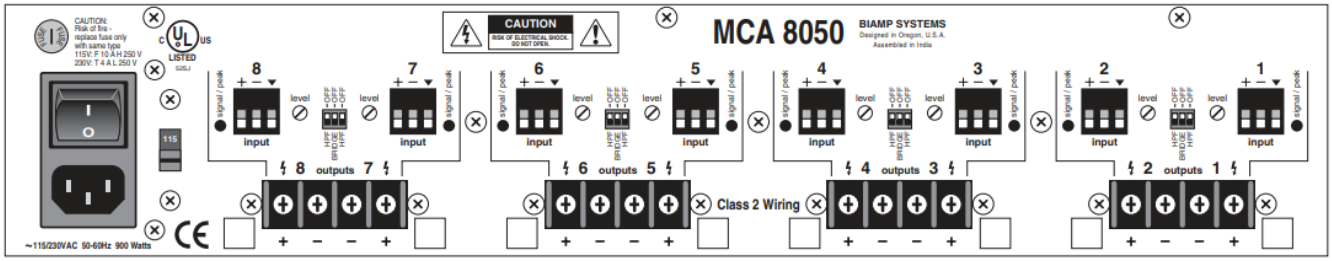


MCA 8150 Front Panel

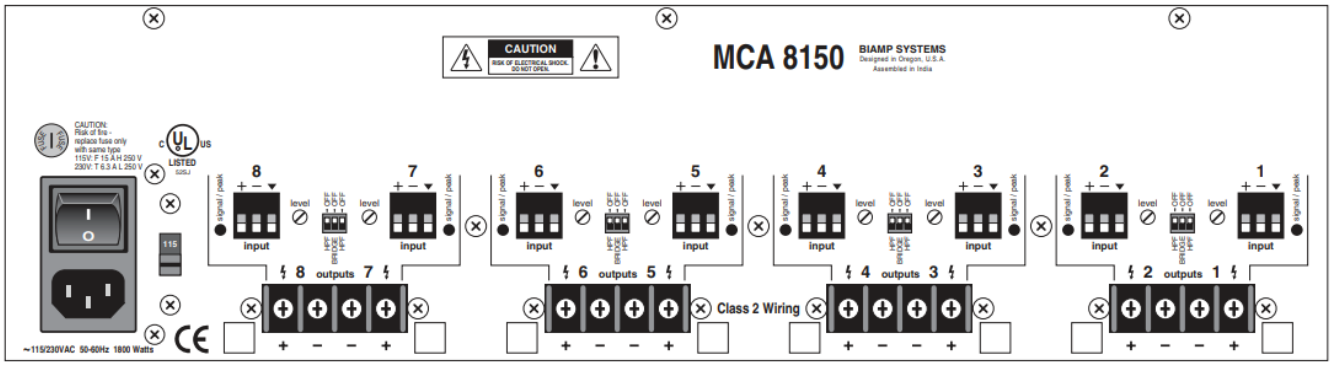


Signal / Peak Indicators
These 2-color LEDs indicate the signal level for each channel. When an LED is green, that channel has signal (above -30dB). When an LED is red, that channel signal is clipping (max. power).
CAUTION: Signal levels should be adjusted to avoid clipping. Clipping can cause severe distortion, over-temperature conditions, and even loudspeaker damage.
NOTE: Signal / Peak indicators will turn off during Temp / Fault conditions (see Temp / Fault Indicators below).
Temp / Fault Indicators
These red LEDs indicate over-temperature and output fault conditions for each channel. When an LED remains lit, that channel has an over-temperature condition. When an LED is flashing, that channel has an output fault condition. Either condition will temporarily de-activate the channel, causing the Signal / Peak LED to turn off as well. The channel will attempt to self-reset once the over-temperature or output fault condition is resolved.
On Indicator
This green LED remains lit when AC power is applied to the unit.
REAR PANEL

MCA 8050 Rear Panel



MCA 8150 Rear Panel



Input

These plug-in barrier strips provide the balanced line-level inputs to the channels. For balanced connection, wire high (+), low (-), and ground (▼). For unbalanced connection, wire high (+) and ground to both (▼) & (-).

NOTE: When using a pair of channels in 'bridged' mode (see Bridge below), input signal must be connected to the odd numbered channel.

Level

These screw-driver adjustable controls determine the level of input signals allowed into the channels. Level provides a gain range from 'off' (min.) to 'unity' (max.). The Level control is factory set for -24dB of gain, which will produce maximum output power with input signal peaks of +24dBu. For best performance, first adjust the source signals for optimum (maximum) levels, then adjust the MCA Series Level controls for the desired volume.

Signal / Peak Indicators

These 2-color LEDs indicate the signal level for each channel. When an LED is green, that channel has signal (above -30dB). When an LED is red, that channel signal is clipping (max. power).

CAUTION: Signal levels should be adjusted to avoid clipping. Clipping can cause severe distortion, over-temperature conditions, and even loudspeaker damage.

NOTE: Signal / Peak indicators will turn off during Temp / Fault condition (see Temp / Fault Indicators on pg. 5).

HPF

These DIP switches provide High-Pass Filters for the input channels. High-Pass Filters are used to eliminate unnecessary lower frequencies (12dB/octave @ 125Hz) for speech and distributed speaker applications. From the factory, the High-Pass Filters are bypassed (switches up). To assign a High-Pass Filter on an input channel, move the switch to the down position.

CAUTION: To avoid output fault conditions, High-Pass Filters must be assigned on channels driving 25/70/100 Volt speaker systems (see Output below). Also, any other system equalization affecting frequencies below 125 Hz should remain flat or be used as cut-only.

Bridge

These DIP switches allow adjacent channels to Bridge together in pairs, for a higher, combined output power (see Bridging on pg. 9). Bridge disables the even numbered input, and applies the odd numbered input signal to both amplifier channels. From the factory, Bridge is bypassed (switches up). To assign Bridge to a pair of channels, move the switch to the down position.

Output

These screw terminals provide the speaker outputs from the channels. Connect the positive speaker line to the (+) terminal and the negative speaker line to the (-) terminal of the channel being used. The minimum speaker load on an individual channel is 4 ohms.

NOTE: When using a pair of channels in 'bridged' mode (see Bridge above), connect the positive speaker line to the (+) terminal of the odd numbered channel and the negative speaker line to the (+) terminal of the even numbered channel. The minimum speaker load for a bridged output is 8 ohms. Output transformers for 25/70/100

Volt speaker systems are available as an option (installation instructions are included with the output transformers).
Transformers (by model) are as follows:
TDT50 = MCA 8050 individual channels (50 Watts)
TDT100 = MCA 8050 bridged channels (100 Watts)
TDT150 = MCA 8150 individual channels (150 Watts)
TDT300 = MCA 8150 bridged channels (300 Watts)

AC Power Entrance

The switch applies AC power to the unit. The 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.

Line Voltage Selector Switch

Set this switch to “115” for nominal line voltages of 110-120 VAC. Set this switch to “230” for nominal line voltages of 220-240 VAC. Make sure that the appropriate fuse is installed when changing voltage selections.

Fuse

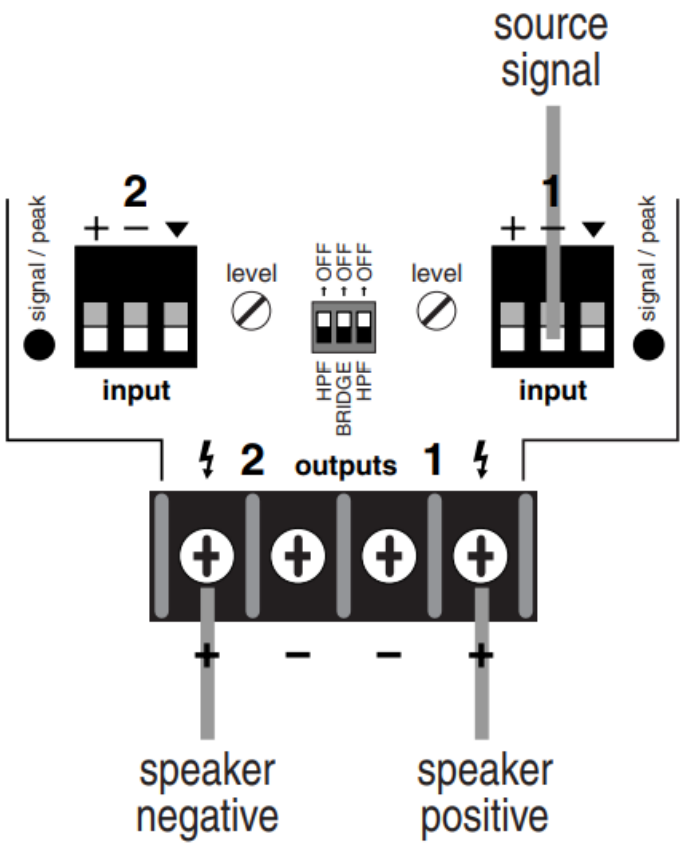
Replace Fuse with same type and value only.
MCA 8050 @ 115VAC Fuse = F 10 A H 250 V
MCA 8050 @ 230VAC Fuse = T 4 A L 250 V
MCA 8150 @ 115VAC Fuse = F 15 A H 250 V
MCA 8150 @ 230VAC Fuse = T 6.3 A L 250 V

NOTE: If the Fuse continues to blow (even after checking for proper output connections and speaker loads) the amplifier may require service.

BRIDGING

Bridge DIP switches allow the adjacent odd/even numbered channels to be bridged together in pairs, for a higher, combined output power (see Bridge on pg. 7). When a pair of channels are bridged, their wattage is combined, but the minimum load increases to 8 ohms (MCA 8050 = 100 watts @ 8 ohms; MCA 8150 = 300 watts @ 8 ohms). Bridge disables the even numbered input, and applies the odd numbered input signal to both amplifier channels. From the factory, Bridge is bypassed (switches up). To assign Bridge to a pair of channels, move the related switch to the down position. Connect the source signal to the odd numbered input channel, connect the positive speaker line to the (+) output terminal of the odd numbered channel, and connect the negative speaker line to the (+) output terminal of the even numbered channel (see diagram on right).

NOTE: Only adjacent odd/even numbered channels, which share a common Bridge switch, can be bridged. When channels are bridged, the minimum load is increased to 8 ohms. The negative (-) output terminals on bridged channels are not used (no connection).



SPECIFICATIONS

MCA 8050 SPECIFICATIONS

MCA 8050 SPECIFICATIONS		MCA 8150 SPECIFICATIONS	
Maximum Power Output (@ 2kHz):		**Maximum Power Output (@ 2kHz):**	
Individual channel into 4 ohm load	50 watts/channel	Individual channel into 4 ohm load	150 watts/channel
Individual channel into 8 ohm load	30 watts/channel	Individual channel into 8 ohm load	90 watts/channel
Bridged channels into 8 ohm load	100 watts	Bridged channels into 8 ohm load	300 watts
Signal-to-Noise Ratio (20Hz-20kHz @ rated power):	> 85dB	**Signal-to-Noise Ratio** (20Hz-20kHz @ rated power):	> 85dB
THD + Noise (20Hz-20kHz @ rated power):	< 0.2%	**THD + Noise** (20Hz-20kHz @ rated power):	< 0.2%
Intermodulation Distortion (SMPTE):	< 0.35%	**Intermodulation Distortion (SMPTE):**	< 0.35%
Frequency Response (20Hz~20kHz):	+0/-1dB	**Frequency Response (20Hz~20kHz):**	+0/-1dB
Input Impedance:		**Input Impedance:**	
Balanced	20k ohms	Balanced	20k ohms
Unbalanced	10k ohms	Unbalanced	10k ohms
Input Sensitivity:	0.775 Vrms (0dBu)	**Input Sensitivity:**	0.775 Vrms (0dBu)
Channel High-Pass Filters:	12dB/octave @ 120Hz	**Channel High-Pass Filters:**	12dB/octave @ 120Hz
Power Requirements:	115/230VAC 50/60Hz	**Power Requirements:**	115/230VAC 50/60Hz
Power Consumption:	900 watts max.	**Power Consumption:**	1800 watts max..
Dimensions:		**Dimensions:**	
Height (2 rack spaces)	3.5 inches (89mm)	Height (3 rack spaces)	5.25 inches (133mm)
Width	19 inches (483mm)	Width	19 inches (483mm)
Depth	15.5 inches (394mm)	Depth	15.5 inches (394mm)
Weight:	30 lbs. (13.6kg)	**Weight:**	35 lbs. (15.9kg)
Compliance:	AES48-2005 Grounding & EMC practices EU Directive 2002/95/EC, RoHS directive CE marked UL / C-UL listed CCC Certified	**Compliance:**	AES48-2005 Grounding & EMC practices EU Directive 2002/95/EC, RoHS directive CE marked UL / C-UL listed CCC Certified

Biamp Systems reserves the right to make changes to performance specifications without prior notice.

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, gooseneck microphones, cords connecting handheld microphones, hard-drives, displays, and normal wear and tear of items such as paint, knobs, handles, keypads and covers are not covered under this warranty. All serverbased devices are warranted for 3 years only.
5. This warranty is in lieu of all other warranties, expressed or implied. Biamp Systems disclaims all other warranties, expressed 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.

COMPLIANCE

EC Declaration of Conformity

Biamp Systems Corporation, as manufacturer having sole responsibility, hereby declares that our delivered version of the following described product complies with the applicable provisions of the DIRECTIVES except as noted herein. In case of any alterations to the product not agreed upon and directed by Biamp Systems Corporation, this declaration is no longer valid.
Product Models: MCA 8050 and MCA 8150
Product Description: Audio Amplifiers
Applicable EC Directives:
LVD Directive (2006/95/EC)
EMC Directive (2004/108/EC)

Applicable Harmonized Standards:
Safety, EN 60065:2001, Seventh Edition
Emissions, EN 55103-1:1996, Environment E2
Immunity, EN 55103-2:1996

Special Considerations for Product Environment or Compliance:

- Shielded cabling must be used for system connections.
- RE interference conducted through interconnecting cabling or connectors may cause varying degrees of random signal degradation. The effect of increased noise or distortion due to this interference is typically masked by the desired signal. In no instance is operation inhibited.

Technical Documentation File Location and Contact:
Biamp Systems, Inc.
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phone: (503) 641-7287
fax: (503) 626-0281
e-mail: **biamp@biamp.com**
Authorized Representative:
Larry Copley, Compliance Engineer

Authorized Signature:

SAFETY INFORMATION

The words WARNING and CAUTION throughout the manual, and on the device, call attention to important safety information. These words have the folowing meanings.
WARNING: The related information alerts you to conditions that couid result in serious injury or damage to property if the instructions are not followed properly.
CAUTION: The related information instructs you on how to prevent damage to the equipment or how to avoid conditions that could result in minor injury if proper steps are not followed.
Poduct labelling and the operation manual may use the internationally cognized symbols defined below to note safety messages.

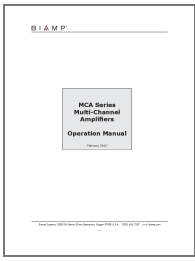
⚠ The lightning flash with arrowhead symbol, enclosed within a triangle, is intended to alert the user to the presence of uninsulated ‘dangerous votiage” within the apparatus’s enclosure or at connection terminals that may be of sufficient magnitude to constitute a risk of electrical shock.

⚠ The exclamation point, enclosed within a triangle, is intended to alert the user to important installation, operation, and maintenance (servicing) instructions in the literature accompanying the apparatus.
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK,
DO NOT EXPOSE THIS APPARATUS TO RAIN OR MCISTURE.
CAUTION: Installation of this apparatus should be made by a qualified instaflation person and should conform to all applicable local codes.

⚠ Modification and optional equipment information referenced in this manuat is for use by qualified installation and service personnal only.

Biamp Systems, 9300 SW Gemini Drive, Beaverton, Oregon 97008 U.S.A. (503) 641-7287 www.biamp.com

Documents / Resources

	BIAMP MCA Series Multi Channel Amplifiers [pdf] Instruction Manual MCA 8150, MCA Series Multi Channel Amplifiers, Multi Channel Amplifiers, Channel Amplifiers, Amplifiers

References

- User Manual