

McIntosh Laboratory, Inc. 2 Chambers Street Binghamton, New York 13903-2699 Phone: 607-723-3512 www.mcintoshlabs.com

MI128 Eight Channel Power Amplifier Owner's Manual





Important Safety Information is supplied in a separate document "Important Additional Operation Information Guide"

Thank You

Your decision to own this McIntosh MI128 Eight Channel Power Amplifier ranks you at the very top among discriminating music listeners. You now have "The Best." The McIntosh dedication to "Quality," is assurance that you will receive many years of musical enjoyment from this unit.

Please take a short time to read the information in this manual. We want you to be as familiar as possible with all the features and functions of your new McIntosh.

Please Take A Moment

The serial number, purchase date and McIntosh Deale	er
name are important to you for possible insurance	
claim or future service. The spaces below have been	
provided for you to record that information:	

Serial Number:	
Purchase Date:	
Dealer Name:	

Technical Assistance

If at any time you have questions about your McIntosh product, contact your McIntosh Dealer who is familiar with your McIntosh equipment and any other brands that may be part of your system. If you or your Dealer wish additional help concerning a suspected problem, you can receive technical assistance for all McIntosh products at: McIntosh Laboratory, Inc.

McIntosh Laboratory, Inc. 2 Chambers Street Binghamton, New York 13903 Phone: 607-723-3512 Fax: 607-724-0549

Customer Service

If it is determined that your McIntosh product is in
need of repair, you can return it to your Dealer. You
can also return it to the McIntosh Laboratory Service
Department. For assistance on factory repair return
procedure, contact the McIntosh Service Department

at: McIntosh Laboratory, Inc. 2 Chambers Street Binghamton, New York 13903 Phone: 607-723-3515 Fax: 607-723-1917

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General Information

1. For additional connection information, refer to the owner's manual(s) for any component(s) connected to the MI128.

- 2. The MI128 mutes the speaker output for approximately two seconds when first turned on.
- 3. Included with the MI128 and located in the Owner's Manual Packet are two Side Rack Mount Brackets and screw fasteners. Below are graphic images of the MI128 with and without the Side Rack Mounted Brackets attached. Refer to page 5 for installing the Side Rack Mount Brackets.



MI128 4 Channel Power Amplifier



MI128 8 Channel Power Amplifier with Side Rack Mount Brackets installed

- For the best performance and safety it is important to always attach a single Loudspeaker with an 8 Ohm or 4 Ohm impedance to the Channel 1 Channel 8 output terminals. Refer to "How to Connect" pages 8 thru 11.
 - Note: The impedance of a Loudspeaker actually varies as the Loudspeaker reproduces different frequencies. As a result, the nominal impedance rating of the Loudspeaker (usually measured at a midrange frequency) might not always agree with the impedance of the Loudspeaker at low frequencies where the greatest amount of power is required. Contact the Loudspeaker Manufacturer for additional information about the actual impedance of the Loudspeaker before connecting it to the McIntosh MI128.

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- 5. In the event the MI128 Channels over heat, due to improper ventilation or Loudspeaker Impedance, the protection circuits will activate. The Front Panel Channel LED will change color and the audio will be muted. Refer to page 13. When the MI128 has returned to a safe operating temperature, the Channel(s) normal operation will resume.
- 6. If it becomes necessary to replace the Loudspeaker Connection Plugs used on the MI128 Rear Panel, order part number 31065800 from the McIntosh Parts Department.
- 7. For additional information on the MI128 and other McIntosh Products please visit the McIntosh Website at www.mcintoshlabs.com.

Connector Information

Power Control Connector

The MI128 Power Control Input receives an On/Off signal from +5 to +12 volts. The Power Control Output will in turn provide a +12 volt Output Signal with a

total current up to 50mA. An additional connection is for controlling the illumination of the MI128 Meter Power Output Indicators. The 3.5mm stereo mini phone plug connects to a



McIntosh Preamplifier or A/V Control Center Power Control Output.

Introduction

Now you can take advantage of traditional McIntosh standards of excellence in the MI128 Power Amplifier. The Eight Channel Power Amplifier produces high power output per channel and will drive quality Loudspeakers to a high level of performance. The MI128 reproduction is sonically transparent and absolutely accurate. The McIntosh Sound is "The Sound of the Music Itself."

Performance Features

Power Output

The MI128 consists of Eight Power Amplifier Channels, each capable of 120 watts into 8 ohm or 150 watts into 4 ohm Loudspeakers with distortion less than 0.025%.

• Loudspeaker Guard

The McIntosh Loudspeaker Guard Circuit prevents the amplifier from being over driven into clipping, with its harsh distorted sound that can damage your valuable Loudspeakers.

• Versatile Operation

The MI128 provides power amplification for up to eight channels in a multi Zone Audio System.

• Unbalanced Inputs

There are eight Unbalanced Analog Audio Inputs for all eight Power Amplifier Channels.

Digital Audio Inputs

The Digital Inputs decode PCM Signals from external sources. The Optical Inputs process Digital Signals from 32kHz to 192kHz with 24-Bit resolution.

• Sentry Monitor and Thermal Protection

McIntosh Sentry Monitor power output stage protection circuits ensure the MI128 will have a long and trouble free operating life. Built-in Thermal Protection circuits guard against overheating.

Power Control

The McIntosh Power Control Circuit allows for remote turn-on of the MI128 Power Amplifier from a McIntosh A/V Control Center or Preamplifier for a single or dual Zone System.

• Special Power Supply

A regulated Power Supply ensures stable noise free operation even though the power line varies.

• LED Solid State Front Panel Illumination

The even Illumination of the Front Panel is accomplished by extra long life Light Emitting Diodes (LEDs). The Metal and Glass Front Panel ensures the pristine beauty of the MI128 will be retained for many years.

1-5/16"

3.4cm

13-19/32"

34.7cm

Dimensions

The following dimensions can assist in determining the best location for your MI128.







2.0"

5.0cm



Installation

The MI128 needs to be placed upright on its four feet. It also can be custom installed. Remove the four feet when it is custom installed and retain them with the fastening screws for possible future use. The required panel cutout, ventilation cutout and unit dimensions are shown in the drawing on the right side of this page.

It is necessary to provide adequate ventilation for cool operation, ensuring long life for the MI128. Do not install the MI128 above heat generating components. When the MI128 is installed in a cabinet with other components, use a ventilation fan to provide cool operating temperature.

A custom cabinet installation needs to provide the following minimum spacing for cool operation:

Allow at least 3 inches (7.6cm) above the top, 2 inches (5.08cm) below the bottom, 3 inches (7.62cm) behind the rear panel and 2 inches (5.08cm) on each side of the MI128, providing airflow. Allow 2-1/2 inches (6.35 cm) in front of the mounting¹ panel for clearance. Be sure to cut out a ventilation hole in the mounting shelf according to the dimensions in the drawing.

¹ When the MI128 is installed together with other McIntosh Components, check clearances on all components before proceeding.

Installation of Side Rack Mount Brackets

When desired, to install MI128 Side Rack Mounting Brackets, follow the steps below for one side at a time:

- 1. Refer to figure A to remove the two side screws and save them for possible future use.
- 2. Position the Side Rack Mounting Bracket as illustrated in figure B. Then attach the Bracket to the Front and Side Panel of the MI128, using the screws supplied with the Bracket.
- 3. Perform steps 1 and 2 to mount the second Bracket to the other side of the MI128.





Audio Input Selection for each Power Amplifier Channel

Each Channel of the MI128 allows selection of different Audio Signal Inputs to be Amplified after selected via the two switches.

The first switch LOCAL/BUS selects between the specific Channel Unbalanced Input Jack or BUS which allows selection of the BUS Switch (1, 2, D1 or D2).





Output Plug Connection

When connecting the Loudspeaker Hookup Cables to the MI128 using the supplied Loudspeaker 00 Connection Plugs. Refer to figure 1. $\oplus \ominus$

1. When connecting Loudspeakers to the MI128 it is very important to use cables of adequate size, so there is little to no power loss in the cables. The size is

specified in Gauge Numbers or AWG (American Wire Gauge). The smaller the Gauge number, the larger the wire size:

Figure 1

Loudspeaker Cable Distance vs Wire Gauge Guide											
Loudspeaker Impedance	25 feet (7.62 meters) or less	50 feet (15.24 meters) or less	100 feet (30.48 meters) or less								
4 Ohms	14AWG	12AWG	10AWG								
8 Ohms	16AWG	14AWG	12AWG								

This McIntosh MI128 Power Amplifier is designed for Loudspeakers with an impedance of 4 ohms or 8 ohms. Connect a single Loudspeaker only to each Channel Output Terminal.

2. Prepare the Loudspeaker Hookup Cable for attachment to the MI128 Power Amplifier:

Bare wire cable ends:

Carefully remove sufficient insulation from the cable



the cable is stranded, carefully twist the strands together as tightly as possible.

Notes: A. If the Loudspeaker Cable used is greater in size than 12AWG, it can be used by removing some of the copper strands after

the insulation is removed from the cable end. The acceptable diameter of the copper stands size is 0.100 inches (2.54 mm) so it will fit the into opening on the MI128 Connection Plug.

B. If desired, the twisted ends can be tinned with solder to keep the strands together.

Screws

3. Adjust the two top screws of the Loudspeaker Connection Plug to provide a sufficient opening size so the bare wire

will fit into the connector.

Refer to figure 2.

4. Insert the Loudspeaker

Hookup Cable bare

wire end into the

Connection Plug

opening. Refer to

5. With the Hookup Ca-

ble insulation flush

with the Loudspeak-

er Connection Plug

opening, now rotate

secure the Hookup

Refer to figure 4.

Cable with the plug.

the two top screws to

figure 3.



Figure 2



Cable Insulation Figure 3



Figure 4

6. Now complete the remaining Loudspeaker Connection Plugs and the Loudspeaker Hookup Cables WARNING: The MI128 Chassis Loudspeaker Connection Socket Pins present a risk of electric shock when the Amplifier is **On.** For additional assistance on using Loudspeaker Connections Plugs contact your McIntosh Dealer or McIntosh Technical Support.

How to Connect from a Multichannel Zone Preamplifier

Caution: Do not connect the AC Power Cord to the MI128 Rear Panel until after the Loudspeaker Connections are made. Failure to observe this could result in Electric Shock.

The connection instructions below, together with the MI128 Connection Diagram located on the separate folded sheet "Mc1B", is an example of a typical Multichannel System. Your system may vary from this, however the actual components would be connected in a similar manner. For additional information refer to "Connector and Cable Information" on page 3.

- 1. For Remote Power Control, connect a power control cable from the A/V Control Center Power Control Trigger/Output 2 to the Amplifier POWER CON-TROL INPUT.
 - Note: When the Power Control Cable is connected between the MI128 and an A/V Control Center, the AUTO OFF Signal Sensing Circuitry is automatically disabled.
- 2. Optionally, connect the MI128 POWER CON-TROL OUT using a power control cable to the first Loudspeaker and then connect the first Loudspeaker Power Control Out to the Power Control In on the next Loudspeaker. Connect the remaining Loudspeakers in the same way.
- 3. Connect unbalanced cables from the A/V Control Center Analog Audio Out Zone 2 (Left and Right Channel) to the MI128 BUS 1 INPUTS, making sure to match up channel designations.
- 4. Connect unbalanced cables from the A/V Control Center Analog Audio Out Zone 3 (Left and Right Channel) to the MI128 BUS 2 INPUTS, making sure to match up channel designations.



- 5. Place the CHANNEL 1/2 and 3/4 Input Selector Switches to the "1" Position.
- 6. Place the CHANNEL 5/6 and 7/8 Input Selector Switches to the "2" Position.
- 7. Place the Analog Audio/Digital Audio CHANNEL 1/2, 3/4, 5/6 and 7/8 Input Selector Switches to the "BUS" Position.

This McIntosh MI128 Power Amplifier is designed for Loudspeakers with an impedance of 4 ohms or 8 ohms. Connect a <u>single Loudspeaker only</u> to each Channel Output Terminals.

8. With the Loudspeaker Hookup Cable attached to the Loudspeaker Connection Plug, insert the Plug End into the correct MI128 Rear Panel Chassis Loudspeaker Socket. Then connect the opposite end of the Loudspeaker Hookup Cable to the Loudspeaker Connection Terminals. Make sure to match up the MI128 Negative and Positive Output Connection on the Plug Connector, with the Loudspeaker Negative and Positive Input Connections.

WARNING: Loudspeaker terminals are hazardous live and present a risk of electric shock. For additional instruction on making Loudspeaker Connections contact your McIntosh Dealer or McIntosh Technical Support.

9. After all the connections have been completed, connect the MI128 power cord to an active AC outlet.

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Output Plug Connection

When connecting the Loudspeaker Hookup Cables to

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the MI128 using the supplied Loudspeaker Connection Plugs. Refer to figure 1.



Loudspeaker Cable Distance vs Wire Gauge Guide										
Loudspeaker Impedance	25 feet (7.62 meters) or less	50 feet (15.24 meters) or less	100 feet (30.48 meters) or less							
4 Ohms	14AWG	12AWG	10AWG							
8 Ohms	16AWG	14AWG	12AWG							

This McIntosh MI128 Power Amplifier is designed for Loudspeakers with an impedance of 4 ohms or 8 ohms. Connect a single Loudspeaker only to each Channel Output Terminal.

2. Prepare the Loudspeaker Hookup Cable for attachment to the MI128 Power Amplifier:

Bare wire cable ends:

Carefully remove sufficient insulation from the cable



the cable is stranded, carefully twist the strands together as tightly as possible.

Notes: A. If the Loudspeaker Cable used is greater in size than 12AWG, it can be used by removing some of the copper strands after the insulation is removed from the cable end. The acceptable diameter of the copper stands size is 0.100 inches (2.54 mm) so it will fit the into opening on the MI128 Connection Plug.

- B. If desired, the twisted ends can be tinned with solder to keep the strands together. Screws
- 3. Adjust the two top screws of the Loudspeaker Connection Plug to provide a sufficient opening size so the bare wire Openings will fit into the connector. Refer to figure 2.
- 4. Insert the Loudspeaker Hookup Cable bare wire end into the **Connection Plug** opening. Refer to figure 3.
- 5. With the Hookup Cable insulation flush with the Loudspeaker **Connection Plug** opening, now rotate the two top screws to secure the Hookup Cable with the plug. Refer to figure 4.
- 6. Now complete the remaining Loudspeaker Connection Plugs and the Loudspeaker Hookup Cables WARNING: The MI128 Chassis Loudspeaker Connection Socket Pins present a risk of electric shock when the Amplifier is On. For additional assistance on using
 - Loudspeaker Connections Plugs contact your McIntosh Dealer or McIntosh Technical Support.

How to Connect for Eight Zones

Caution: Do not connect the AC Power Cord to the MI128 Rear Panel until after the Loudspeaker Connections are made. Failure to observe this could result in Electric Shock.

The connection instructions below, together with the MI128 Connection Diagram located on the separate folded sheet "Mc1C", is an example of a typical Multichannel System. Your system may vary from this, however the actual components would be connected in a similar manner. For additional information refer to "Connector and Cable Information" on page 3.

- 1. For Power Remote Control of the MI128, connections from the Audio Source Components Power Control Connection(s) can provide that operation.
 - Note: When the Power Control Cable is connected between the MI128 and an Audio Source Component, the AUTO OFF Sensing Circuitry of the MI128 is disabled.
- 2. Connect a Power Control Cable from the Streaming Audio Player Trigger (Power Control) Output connector to the FM/AM Tuner Power Control IN (Input) Connector.
- 3. Connect a second Power Control Cable from the FM/AM Tuner Power Control OUT (Output) connector to the MI128 POWER CONTROL INput Connector.
- 4. Optionally, connect the MI128 POWER CON-TROL OUTput if any of the Loudspeaker connected to the MI128 have Power Control In connectors.
- 5. Using a Digital Optical Cable connect the Streaming Audio Player Audio Output Optical Connector to the MI128 DIGital 1 Optical Input Connector.
- 6. Connect a Coaxial Digital Cable from the FM/AM Tuner Digital Coaxial Output Connector to the MI128 DIGital 2 Coaxial Input Connector.



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Figure 3



Plug

- 7. Place the CHANNEL 1/2 and 3/4 Digital Input Selector Switches to the "D1" Position.
- 8. Place the CHANNEL 5/6 and 7/8 Digital Input Selector Switches to the "D2" Position.
- 9. Place the CHANNEL 1/2, 3/4, 5/6 and 7/8 Mode Switches in the "MONO" Position.

This McIntosh MI128 Power Amplifier is designed for Loudspeakers with an impedance of 4 ohms or 8 ohms. Connect a <u>single Loudspeaker only</u> to each Channel Output Terminals.

10. With the Loudspeaker Hookup Cable attached to the Loudspeaker Connection Plug, insert the Plug End into the correct MI128 Rear Panel Chassis Loudspeaker Socket. Then connect the opposite end of the Loudspeaker Hookup Cable to the Loudspeaker Connection Terminals. Make sure to match up the MI128 Negative and Positive Output Connection on the Plug Connector, with the Loudspeaker Negative and Positive Input Connections.

WARNING: Loudspeaker terminals are hazardous live and present a risk of electric shock. For additional instruction on making Loudspeaker Connections contact your McIntosh Dealer or McIntosh Technical Support.

11. After all the connections have been completed, connect the MI128 power cord to an active AC outlet.

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How to Operate

Power On

The LED STANDBY/ON Indicator illuminates to

indicate the MI128 is connected to AC Power. To switch ON the MI128, press the POWER Push-button on the Front Panel or switch On the Audio Source Component providing there is a Power Control Cable Connection to the MI128. Refer to figure 20.



- Notes: 1. It will take about 6 seconds for initialization of the internal circuitry to take place on the MI128 when switched On.
 - 2. There must be a power control connection between the MI128 and the Audio Source Component in order for the Remote Control Operation Power ON/OFF to function.
 - *3. When the MI128 is receiving a Power Control* ON Signal, the Front Panel POWER Push-Button becomes inactive.

Auto Off Function

The MI128 incorporates Power Save Circuitry to automatically place the MI128 into the power saving Standby Mode approximately 10 minutes after there has been an absence of an audio input signal on all eight channels.

When there is a Power Control Connection between the MI128 and a Preamplifier or Source Component, the AUTO OFF Function is bypassed.

Channel Operational Indication

The MI128 Front Panel has eight LEDs. The LEDs indicate the current functioning status for each of the eight channels.

MI128 Channel Operation Functions											
LED COLOR	Functional Status										
LED not Illuminated	Indicates when the Channel is OFF										
Green	Indicates when the Channel is ON with an Audio Signal Present and Normal Operation for the Channel exists										
Amber	Indicates when maximum Power Output for the Channel has occured with prevention of Audio Clipping										
Red	Indicates current limit or short circuit for the Channel Loudspeaker Output Connection										

Volume Controls

Each of the eight MI128 Power Amplifier Channels

have a VOLume Control to allow altering the incoming audio signal volume level. Refer to figure 21.

Input Selector

Each pair of the eight Power Amplifier Channels (1&2, 3&4, 5&6 and 7&8) have switches located on the MI128 Rear Panel for selection of the Input Source Signal and determine the Audio Signal Mode. Refer to pages 6 and 7 for additional information.

The LOCAL-BUS Switch determines for the Power Amplifier Channels (1&2, 3&4, 5&6 and 7&8) if the Audio Signal will be from the LOCAL BUS

Unbalanced Left and Right Input Jacks or from the BUS Analog/Digital Input Connectors. Refer to figure 22.



When the LOCAL-BUS Switch is placed in the BUS Position the selection of the Audio Signal Input for the Power Amplifier Channels (1&2, 1 2 D1 D2 3&4, 5&6 and 7&8) is determined by the "1-2-D1-D2" Selector Switch. Refer to figure 23.

The 1 and 2 Selector Switch Positions are for the Analog Signals from the BUS1/BUS2 Left and Right Input Jacks for the Power Amplifier Channels.

The D1 Switch Position allows the Digital Audio Signals from the DIG1 Optical or Coaxial Input Connector to be available for the Power Amplifier Channels. The D2 Switch Position performs the same functions from the DIG2 Optical or Coaxial Input Connector

Mode Selector

Each pair of the eight Power Amplifier Channels (1&2, 3&4, 5&6 and 7&8) have a Mode Switch located on the MI128 Rear Panel for STEREO or MONO Mode of Operation. Refer to MONO STEREO figure 24. The Mode Switch Figure 24 affects all three of the Ana-

log Input Pairs. It also affects the Digital Optical or Coaxial Input Audio Signal.





Figure 21

Specifications

Power Output

Minimum sine wave continuous average power output per channel, all channels operating is: 120 watts into a 8 ohm load 150 watts into a 4 ohm ohm load

Output Load Impedance 8 and 4 ohms

Rated Power Band 20Hz to 20,000Hz

Total Harmonic Distortion 0.05% maximum harmonic distortion at any power level from 250 milliwatts to rated power, 20Hz to 20,000Hz

Dynamic Headroom 2.1dB, 8 ohm load 3.3dB, 4 ohm load

Frequency Response +0, -0.5dB from 20Hz to 20,000Hz

Input Sensitivity (for rated output) 1.6 Volt Unbalanced (8 ohm Loudspeaker) 1.3 Volt Unbalanced (4 ohm Loudspeaker)

Signal To Noise Ratio (A-Weighted) 85dB (95dB below rated output)

Intermodulation Distortion 0.2% maximum, if the instantaneous peak power output does not exceed twice the rated power output or less per channel with all channels operating for any combination of frequencies from 20Hz to 20,000Hz **Wide Band Damping Factor** Greater than 65, at 8 ohms Greater than 32, at 4 ohms

Input Impedance 26,000 ohms Unbalanced

Voltage Gain 29dB

Power Control Input 5-15VDC, less than 1mA

Power Control Output 12VDC, 50mA maximum total **Power Requirements** 100 - 240Volts, 50/60Hz at 10 Amps Standby: less than 0.5 watt

Overall Dimensions Width is 17-1/2 inches (44.5cm) Width with Side Mount Brackets attached is 19 inches (48.3cm) Height is 4-5/16 inches (11.0cm) including feet Depth is 21 inches (53.3cm) including the Front Panel and Cables

Weight 22 pounds (10 kg) net, 38.4 pounds (17.4 kg) in shipping carton

Shipping Carton Dimensions Width is 26-1/2 inches (67.3cm) Height is 11-3/4 inches (29.9cm) Depth is 24-1/4 inches (61.6cm)

Packing Instructions

In the event it is necessary to repack the equipment for Quantity Part Number Description shipment, the equipment must be packed exactly as 033838 Shipping carton only 1 shown below. It is very important that the four plas-2 033837 End cap tic feet are attached to the bottom of the equipment. This will ensure the proper equipment location on the Inside carton only 033836 1 bottom pad. Failure to do this will result in shipping 1 033725 Top pad Bottom pad 034576 damage. 1 Use the original shipping carton and interior parts 1 034592 Filler pad only if they are all in good serviceable condition. If 2 Foam plug 034446 a shipping carton or any of the interior part(s) are needed, please call or write Customer Service Depart-4 017937 Plastic foot ment of McIntosh Laboratory. Refer to page 2. Please 4 400159 #10-32 x 3/4" screw see the Part List for the correct part numbers. 4 404080 #10 Flat washer





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