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

MX160

A/V Processor

Owner's Manual

Thank You

Your decision to own this McIntosh MX160 A/V Processor 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 Dealer 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.
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

Table of Contents

Copyright 2017 © by McIntosh Laboratory, Inc.

Trademark and License Information

The McIntosh MX160 incorporates copyright protected technology that is protected by U.S. patents and other intellectual property rights. The MX160 uses the following Technologies:

This item incorporates copy protection technology that is protected by U.S. patents and other intellectual property rights of Rovi Corporation. Reverse engineering and disassembly are prohibited.

Trademark Logo	License Information
AURO3D AUDIO ®	Manufactured under license from Auro Technologies. Auro-3D® and the related symbols are registered trademarks of Auro Technologies. All materials contained in this work are protected by copyright law and may not be reproduced, distributed, transmitted, displayed, published or broadcast without the prior written permission of Auro Technologies NV or in case of third party materials, the owner of that content. You may not alter or remove any trademark, copyright or other notice from copies of the content. Auro Technologies: mail info@auro-technologies.com, phone +32-(0)-14314343, fax +32-(0)-14321224, www.auro-technologies.com.
DOLBY ATMOS	Manufactured under license from Dolby Laboratories. Dolby, Dolby Atmos, Dolby Surround, and the double-D symbol are trademarks of Dolby Laboratories.
dts X ™	For DTS patents, see http://patents.dts.com. Manufactured under license from DTS, Inc. DTS, the Symbol, DTS in combination with the Symbol, DTS:X, and the DTS:X logo are registered trademarks or trademarks of DTS, Inc. in the United States and/or other countries. © DTS, Inc. All Rights Reserved.
dts-HD Master Audio	Manufactured under license under U.S. Patent Nos: 5,956,674; 5,974,380; 6,226,616; 6,487,535; 7,212,872; 7,333,929; 7,392,195; 7,272,567 & other U.S. and worldwide patents issued & pending. DTS-HD, the Symbol, & DTS-HD and the Symbol together are registered trademarks & DTS-HD Master Audio is a trademark of DTS, Inc. Product includes software. © DTS, Inc. All Rights Reserved.

Trademark Logo	License Information
HDMI ™ HIGH-DEFINITION MULTIMEDIA INTERFACE	HDMI, the HDMI Logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.
RoomPerfect	Manufactured under license from Lyngdorf Audio A/S. ROOMPERFECT is a registered trademark and the ROOMPERFECT logo is a trademark of Lyngdorf Audio A/S. (C) Lyngdorf Audio A/S 2009.

General Information

1. For additional connection information, refer to the owner's manual(s) for any component(s) connected to the MX160 A/V Processor.

2. The Main AC Power going to the MX160 and any other McIntosh Component(s) should not be applied until all the system components are connected together. Failure to do so could result in malfunctioning of some or all of the system's normal operations. When the MX160 and other McIntosh Components are in their Standby Power Off Mode, the Microprocessor's Circuitry inside each component is active and communication is occurring between them.

3. Sound Intensity is measured in units called Decibels and "dB" is the abbreviation.

4. LFE (Low Frequency Effects) refers to the Dolby Digital or DTS sound channel dedicated to sound effects (such as explosions) and is usually reproduced by the Subwoofer.

5. The MX160 processes Dolby Atmos, DTS-X and Auro 3D Soundtracks. With these new soundtracks there are additional discrete channels of sound present. In this Owner's Manual the number of channels are referred to as follows:

Number of Subwoofer Channels

Number of Ear Level Channels

Number of Overhead Channels

7.1.4
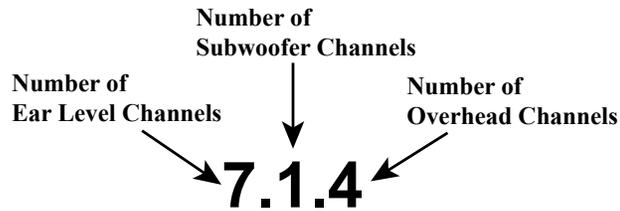
6. The advanced Digital Sound Processing Circuitry in the MX160 can output up to 12 discrete channels simultaneously, not including the four additional Subwoofer Outputs (Left and Right Front, and Left and Right Rear); for a total of sixteen channels.

7. When discarding the unit, comply with local rules or regulations. Batteries should never be thrown away or incinerated but disposed of in accordance with the local regulations concerning battery disposal.

8. The MX160 Owner's Manual and supplied Separate Information Sheets are also available in electronic form (PDF) for download. Find them and additional information on the MX160 and other McIntosh Products by visiting the McIntosh Web Site at *www.mcintoshlabs.com*.

9. MX160 is a two Zone Product (Zone A and Zone B). This allows two different Audio Sources to be available simultaneously for two separate rooms. The Zone B Audio Stereo Output (which provides a two channel down mix from multichannel sources) may also be used to provide an Audio Signal for recording purposes, instead of an Audio Signal to a second room. For more information contact your McIntosh Dealer or McIntosh Technical Support.

10. The Zone A and Zone B IR Inputs, with 1/8 inch mini phone jacks, are configured for non-McIntosh IR sensors such as a Xantech Model DL85K Kit. Use a Connection Block such as a Xantech Model ZC21 when two or more IR sensors need to be connected to the MX160.

11. Setup Mode operations should be performed in the order they appear in the Main Setup Menu presented, as some adjustments are interactive.

12. In order to hear bass frequencies below 80Hz, your system must include either a Subwoofer or Large Front Loudspeakers.

13. The MX160 has built-in Digital Video Processing Circuitry to upconvert lower resolution Video Signals to 4K Video Resolution.

14. HDMI Cable lengths between source components and the MX160 should not exceed 25ft (8.3m). If there is need to use HDMI Cables longer than 25ft (8.3m) a high quality inline HDMI Buffer/Converter would be required for reliable digital signal transmission via the HDMI Connections.

15. Use the MX160 HDBT OUT (HDBT is an HDMI extender to squeeze uncompressed HDMI Signal over one Ethernet CAT6 cable up to 70m long) when the Cable length between the MX160 and the Monitor/TV needs to exceed 25ft (8.3m) in length.

16. The MX160 is designed to pass through a 3D Digital Video Signal from a source component to a 3D TV/Monitor via the HDMI Connections. It is extremely important the HDMI cables used for connections meet or exceed the HDMI High Speed Cable Standards for proper 3D Video Playback.

17. The Remote Control supplied with the MX160 A/V Processor is capable of operating other components. For additional information go to www.mcintoshlabs.com.

18. When the MX160 and a PC Computer are connected to the same ethernet network, the Web Interface built into the MX160 becomes available. This allows Operational Control and Setup Mode Functions, for the MX160, to be available on the PC Computer for changes and adjustments. It requires the latest version of the Internet Browser (Firefox, etc.) to be installed on the PC. For additional information refer to "Advanced Operation and Setup" on pages 38-39.

Connector and Cable Information

XLR Connectors

Below is the Pin configuration for the XLR Balanced Output Connectors on the MX160. Refer to the diagrams for connections:

PIN 1: Shield/Ground
PIN 2: + Signal
PIN 3: - Signal

PIN 2 PIN 1   PIN 1 PIN 2
   PIN 3   PIN 3
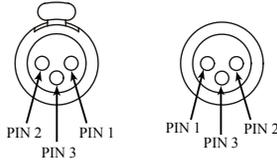
Power Control (Trigger) Connectors

The MX160 Power Control (Trigger) Output Jacks send Power On/Off Signals when connected to other Components. An additional connection on the Main Power Control Jack is for controlling the illumination of the Power Output Meters on McIntosh Power Amplifiers. A 3.5mm stereo mini phone plug is used for connection to the Power Control (Trigger) Outputs on the MX160.

Power Control
Meter Illumination Control
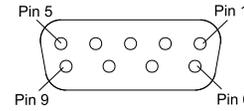Ground
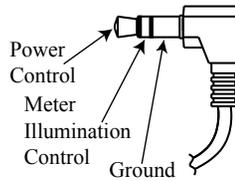
Data Output and IR IN Port Connectors

The MX160 Data Out Ports send Remote Control Signals to McIntosh Source Components. A 3.5mm stereo mini phone plug is used for connection.

The IR IN Port also uses a 3.5mm stereo mini phone plug and allows the connection of other brand IR Receivers to the MX160.

Data Signal
N/C
Data Ground

IR Data Control
N/C
Ground
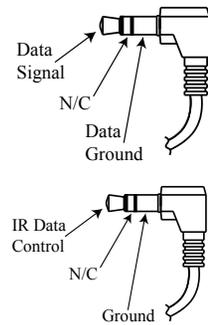
RS232 DB9 Connector Pin Layout

1. N/C
2. Data In (RXD)
3. Data Out (TXD)
4. N/C
5. Gnd.

6. N/C
7. N/C
8. N/C
9. N/C

Pin 5   Pin 1
Pin 9   Pin 6

Note: The use of a RS232 Crossover Cable or Crossover Adapter may be required.

Microphone XLR Connectors

Below is the Pin configuration for the Microphone Connector on the MX160. Refer to the diagram for connections:

PIN 1: Shield/Ground
PIN 2: Signal
PIN 3: +8.9VDC

PIN 2 PIN 1
   PIN 3
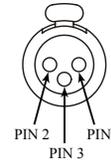
Ethernet RJ45 Socket

1. Transmit Data (+)   5. N/C
2. Transmit Data (-)   6. Receive Data (-)
3. Receive Data (+)   7. N/C
4. N/C   8. N/C

Pin 1   Pin 8

Ethernet Cable - Straight Thru Connections

Pin Number - Wire Color		Pin Number - Wire Color
1. Orange/White	→	1. Orange/White
2. Orange	→	2. Orange
3. Green/White	→	3. Green/White
4. Blue	→	4. Blue
5. Blue/White	→	5. Blue/White
6. Green	→	6. Green
7. Brown/White	→	7. Brown/White
8. Brown	→	8. Brown
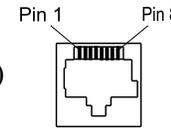
Ethernet Cable - Crossover Connections

Pin Number - Wire Color		Pin Number - Wire Color
1. Orange/White	→	1. Green/White
2. Orange	→	2. Green
3. Green/White	→	3. Orange/White
4. Blue	→	4. Blue
5. Blue/White	→	5. Blue/White
6. Green	→	6. Orange
7. Brown/White	→	7. Brown/White
8. Brown	→	8. Brown

Pin 8   Pin 1
Pin 1   Pin 8

Introduction

The MX160 A/V Processor sets the standard of excellence in a Home Theater System. The MX160 provides superior multichannel reproduction, Room-Perfect correction, the latest in digital audio decoding and digital video conversion circuitry.

Performance Features

• HDMI Audio/Video Switching with Up-Conversion Processing

There are eight HDMI Inputs with Digital Video Conversion Circuitry with scaling of the video input signal from 480p up to 2160p 4K Video Resolution.

• Input Selection

There are 7 Analog Audio Inputs (one eight channel), 8 Digital Audio Inputs and 8 Digital Video Inputs. The MX160 has the ability to add 64 phantom Inputs which can be titled and matched in level, so there are no abrupt changes in volume levels between the different Inputs. Any unused input can be "turned off" so the input selector will skip over it.

• Balanced Audio Inputs and Outputs

Two pair of Balanced high level Inputs and sixteen channel Balanced Outputs allow long cable lengths without a loss in sound quality.

• Moving Magnet Phono Input

There is a Precision Phono Preamplifier for Moving Magnet Cartridges.

• Digital Audio Decoders

The MX160 also provides built-in decoding of the latest Digital Audio Signal Audio/Video Formats from Dolby, DTS and Auro 3D. These include Dolby Atmos, Dolby True HD, DTS-X, DTS Master HD and Auro 3D Sound. It can also decode Dolby Upmixer, DTS Neo:X and Cinema, Music and Game. Digital Audio Streaming via the USB PC Input Streaming includes processing Digital Audio Signals up to 192kHz with 24Bit resolution.

• On-Screen and Multifunction Fluorescent Displays

A comprehensive On-Screen Display capability makes it easy to perform setup and operational adjustments using the Remote Control. The front panel display indicates input selection, volume levels, and other operating functions.

• LED Channel Status Indicators

The MX160 includes multiple LEDs on the Front Panel to indicate what type of operating signals are being received, signal processing mode and the output format chosen.

• RoomPerfect™ Automatic Measurement

The RoomPerfect Automatic Measurement System provides precise adjustment of Loudspeaker Volume Levels, Time Delay and Equalization for all channels. Supplied Calibrated Microphone with stand/boom allows for the multiple room measurements for precise adjustments.

• Digitally Controlled Audio Trim Functions

Audio Trim functions include Bass, Treble and Voicing (equalzation) adjustments, provide a wide range of tone shaping with no loss in traditional McIntosh sonic excellence.

• Dual Zone

The MX160 has the built-in ability to control a separate remote audio/video zone with program selection independent of Zone A, using a dedicated power amplifier and speakers.

• Fiber Optic Solid State Front Panel Illumination

The Illumination of the Glass Front Panel is accomplished by the combination of custom designed Fiber Optic Light Diffusers and extra long life Light Emitting Diodes (LEDs). This provides even Front Panel Illumination and is designed to ensure the pristine beauty of the MX160 will be retained for many years.

• Power Control (Triggers) and Full Function Remote Control

The Power Control (Triggers) provides convenient Turn-On/Off of components connected to the MX160. The Remote Control Push-buttons provide complete control of the MX160 operating functions.

• Machined Side Panels

The sides of the MX160 are machined from thick aluminum panels with a smooth black finish.

• Special Power Supply

The Power Supply has Multiple Regulators to ensure stable noise free operation even though the power line varies.

Dimensions

The following dimensions can assist in determining
the best location for your MX160.

Front View of the MX160

17-1/2"
44.5cm

7-1/8"
18.1cm

7-5/8"
19.4cm

Side View of the MX160

16-1/2"
41.9cm

14-1/2"
36.8cm

3/16"
0.5cm

6-9/16"
16.7cm

Rear View of the MX160

17-1/8"
43.5cm

6-3/8"
16.2cm

13/16"
2.1cm

1-15/16"
4.9cm

10-9/16"
26.8cm

2"
5.1cm

13 -1/4"
33.7cm
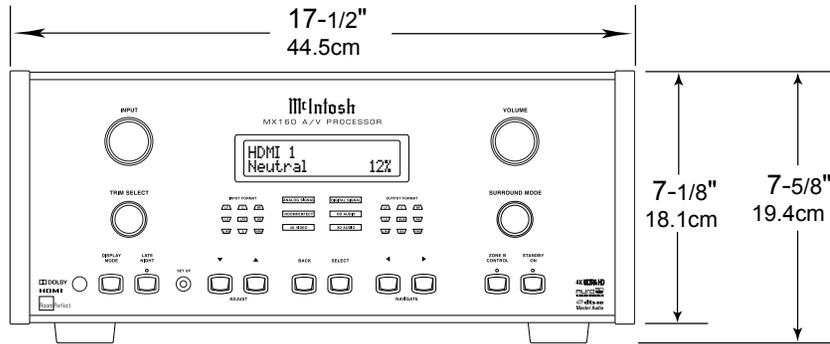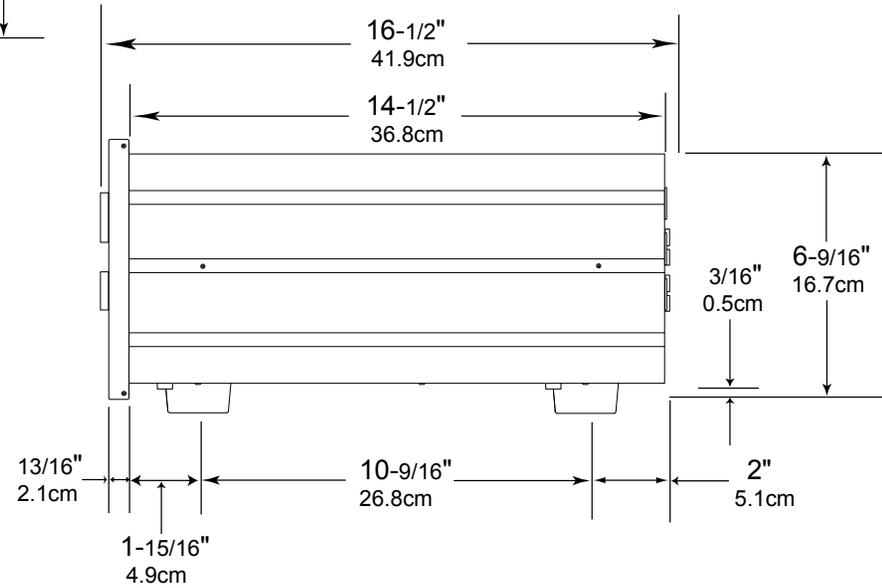
Installation

The MX160 can be placed upright on a table or shelf, standing on its four feet. It also can be custom installed in a piece of furniture or cabinet of your choice. The four feet may be removed from the bottom of the MX160 when it is custom installed as outlined below. The four feet together with the mounting screws should be retained for possible future use if the MX160 is removed from the custom installation and used free standing. The required panel cutout, ventilation cutout and unit dimensions are shown.

Always provide adequate ventilation for your MX160. Cool operation ensures the longest possible operating life for any electronic instrument. Do not install the MX160 directly above a heat generating component such as a high powered amplifier. If all the components are installed in a single cabinet, a quiet running ventilation fan can be a definite asset in maintaining all the system components at the coolest possible operating temperature.
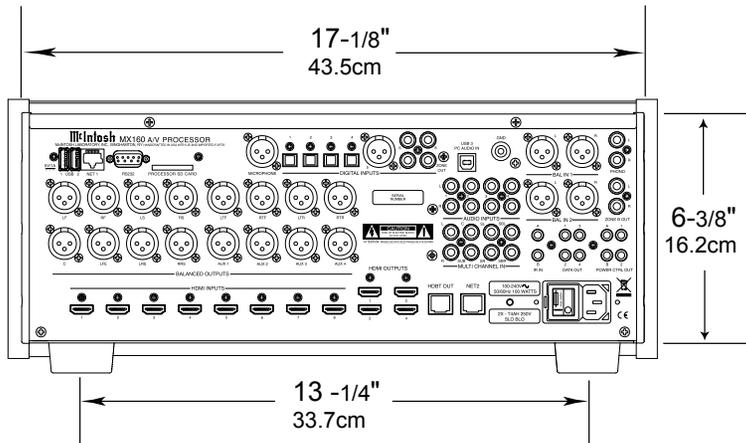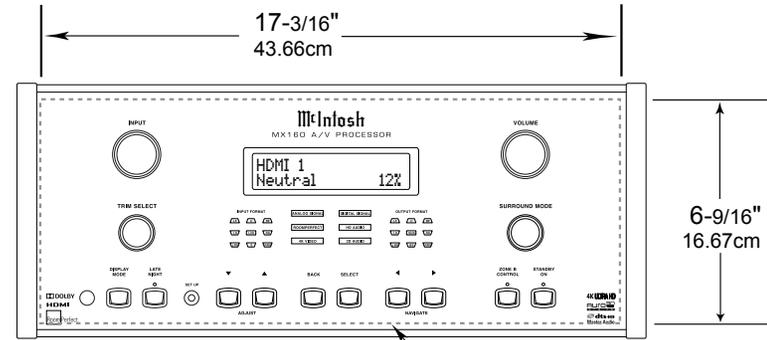
A custom cabinet installation should provide the following minimum spacing dimensions for cool operation.

Allow at least 2 inches (5.1cm) above the top, 2 inches (5.1cm) below the bottom and 1 inch (2.5cm) on each side of the Preamplifier, so that airflow is not obstructed. Allow 20 inches (50.8cm) depth behind the front panel. Allow 1-7/16 inch (3.7cm) in front of the mounting panel for knob clearance. Be sure to cut out a ventilation hole in the mounting shelf according to the dimensions in the drawing.

MX160 Front Panel Custom Cabinet Cutout

Cutout Opening for Custom Mounting

17-3/16" 43.66cm

6-9/16" 16.67cm

Cabinet Front Panel

MX160 Side View in Custom Cabinet

Cutout Opening for Ventilation

Support Shelf

Chassis Spacers

2-1/4" 5.72cm
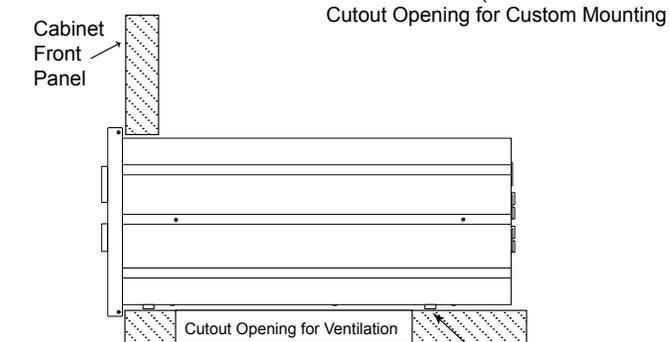
MX160 Bottom View in Custom Cabinet

9-1/8" 23.18cm

15" 38.10cm

Cutout Opening for Ventilation

15" 38.10cm

1-1/16" 2.70cm

12-5/16" 31.27cm
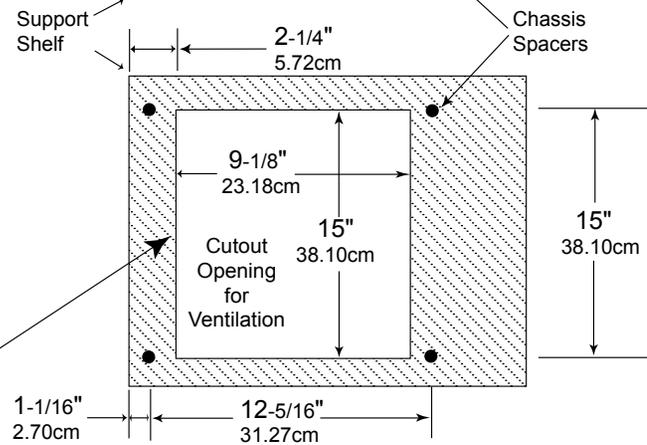
Note: Center the cutout Horizontally on the unit. For purposes of clarity, the above illustration is not drawn to scale.

Rear Panel Connections

The identification of Rear Panel Connections for the MX160 A/V Processor is located on a separate folded sheet contained in the Owner's Manual Packet.
Refer to separate sheet "Mc1A" for the Rear Panel Connections.

MX160 A/V Processor Rear Panel
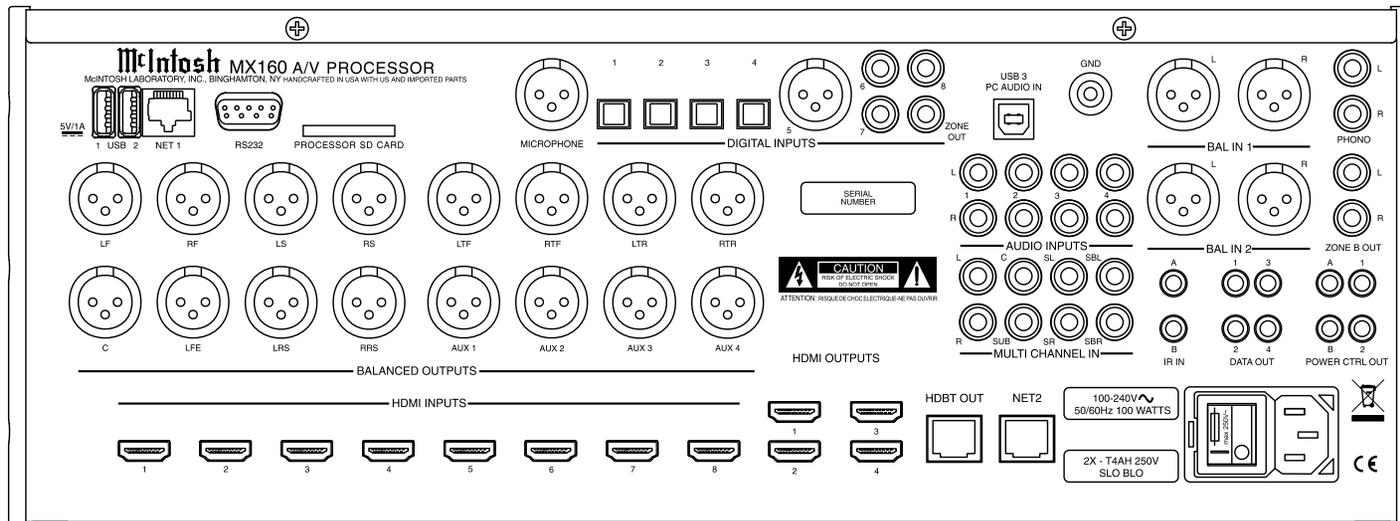
MX160 Zone A Input Connections

The MX160 has the ability to automatically switch power On/Off to Source Components via the Power Control (Trigger) connections. The Data Port Connections allow for the remote operation of basic functions of McIntosh Source Componets using the MX160 Remote Control. With an external sensor(s) connected, remote control operation of the system is possible.

The Zone A connection instructions below, together with the MX160 Input Connection Diagram located on the separate folded sheets "**Mc2A**", is an example of a typical Home Theater 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 6.

Note: The following source component and sensor connections made to the MX160 are using the default settings starting on page 19. To make changes to the default settings proceed to Setup Mode starting on page 17.

Power Control Connections:
1. Connect a Control Cable from the MX160 POWER CTRL (Control) A (Zone A) Jack to the Power Control Remote In Jack on the Turntable.
2. Connect a Control Cable from the Turntable Power Control Remote Out Jack to the Streaming Audio Player Trigger In Jack.
3. Connect a Control Cable from the Streaming Audio Player Trigger Out Jack to the AM/FM Tuner Power Control In Jack.
4. Connect a Control Cable from the AM/FM Tuner Power Control Out Jack to the Audio/Video Disc Player Power Control In Jack.
5. Connect a Control Cable from the Audio/Video Disc Player Control Out Jack to the Media Bridge PWR CTRL (Power Control) In Jack.

6. Connect any additional McIntosh Components in a similar manner, as outlined in steps 1 thru 5.
7. Connect a Control Cable from the Media Server PWR CTRL (Power Control) Out Jack to Power Amplifier One Power Control In Jack.

Data Control Connections:
8. Connect a Control Cable from the MX160 DATA OUT 1 Jack to the Media Server Data In Jack.
9. Connect a Control Cable from the MX160 DATA OUT 2 Jack to the Audio/Video Disc Player Data In Jack.
10. Connect a Control Cable from the MX160 DATA OUT 3 Jack to the AM/FM Tuner Data In Jack.
11. Connect any additional McIntosh Components in a similar manner, as outlined in steps 8 thru 10.

IR In Connections:
12. Optionally, connect the Control Cable from the Zone A External Sensor to the MX160 IR IN A (Zone A) Jack.
    Note: Refer to page 5 for information on compatible Sensors and page 6 for Cable/Connection information.
13. Optionally, connect the Control Cable from the Zone B External Sensor to the MX160 IR IN B (Zone B) Jack.

Analog Audio Connections:
14. Connect Balanced Cables from the MX160 BALanced IN 1 Jacks to the Media Center Audio Output Balanced Jacks.
15. Connect Audio Cables from the MX160 PHONO Jacks to the Turntable Out Jacks.

Digital Audio Connections:
16. Connect a Digital Coaxial Cable from the MX160 DIGITAL INPUT 6 Coaxial Connector to the AM/FM Tuner Digital Coaxial Output Connector.

17. Connect a Digital Optical Cable from the MX160 DIGITAL INPUT 7 Optical Connector to the Streaming Audio Player Digital Optical Output Connector.

HDMI Connections:
18. Connect a HDMI Cable from the MX160 HDMI INPUT 1 Connector to the Satellite Receiver HDMI Out Connector.
19. Connect a HDMI Cable from the MX160 HDMI INPUT 2 Connector to the Media Server HDMI Out Connector.
20. Connect a HDMI Cable from the MX160 HDMI INPUT 3 Connector to the Audio/Video Disc Player HDMI Out Connector.

Ground Connections:
21. Connect a Ground Cable from the MX160 GND Binding Post to the Turntable GND Binding Post.

Computer/Network Connections:
22. Using a CAT 5/6 Ethernet Cable, connect the cable from the Network Router/Switch to the NET 1 (Network) connector on the Rear Panel of the MX160.
    Note: If there is no Network Router/Switch available, a computer may be connected to the MX160 Network Connectors NET 1 by using an Ethernet Crossover cable/adapter. Refer to "Connector and Cable Information" on page 6.

Proceed to Zone A Output Connections on the next page.

MX160 Zone A Output Connections

The MX160 has the ability to automatically switch power On/Off to a Power Amplifier via the Power Control (Trigger) Connections.

The connection instructions below, together with the MX160 Zone A Output Connection Diagram located on the separate folded sheet "**Mc2B**" (an example of a typical 5.1 thru 7.1 Channels using three Power Amplifiers) and separate folded sheet "**Mc3A**" (an example of a typical 5.1 thru 7.1.4 Channels using two additional Power Amplifiers) Home Theater 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 5.

> *Note: The following component connections made to the MX160 are using the default settings. To make changes to the default settings proceed to Setup Mode starting on page 17.*

5.1 THRU 7.1 CHANNEL CONNECTIONS:
Power Control Connections:

1. Connect a Control Cable from the Media Server Power Control OUT Jack to the Power Control In Jack on Zone A Power Amplifier One.
   > *Note: Refer to separate folded sheet "Mc2A" and page 11 step 7 for additional information.*

2. Connect a Control Cable from Zone A Power Amplifier One Power Control Out to Zone A Power Amplifier Two Power Control In Jack.

3. Connect a Control Cable from Zone A Power Amplifier Two Power Control Out 1 to Zone A Power Amplifier Three Power Control In Jack.

4. Connect a Control Cable from Zone A Power Amplifier Three Power Control Out 1 to the Powered Subwoofer Power Control In Jack.

5. Connect any additional McIntosh Components in a similar manner, as outlined in steps 1 thru 4.

6. Connect a Control Cable from the Zone A Power Amplifier Three, Power Control Out 2 Jack to Zone A Power Amplifier Four Power Control In Jack (used in a 5.1.4 or 7.1.4 Channel System).

Analog Audio Connections:

7. Connect Balanced Audio Cables from the MX160 LF (Left Front Channel), C (Center Channel) and RF (Right Front Channel) to Zone A Power Amplifier One Inputs 1, 2 and 3 respectively.

8. Connect Balanced Audio Cables from the MX160 LS (Left Surround Channel) and RS (Right Surround Channel) to Zone A Power Amplifier Two Inputs Left and Right respectively.

9. Optional, connect Balanced Audio Cables from the MX160 LRS (Left Rear Surround Channel) and RRS (Right Rear Surround Channel) to Zone A Power Amplifier Three Inputs Left and Right respectively.

10. Connect a Balanced Audio Cable from the MX160 LFE (Low Frequency Effects, also referred to as a "Subwoofer Out") to the Powered Subwoofer MONO Input.

HDMI Connections:

11. Connect a HDMI Cable from the MX160 HDMI OUTPUT 1 Connector to the Zone A TV/Monitor HDMI Input connector.
    > *Notes: 1. When the system is either a 5.1 or 7.1 Channel Home Theater System proceed to step 16. If the Home Theater System consists of 5.1.4 or 7.1.4 Channels proceed to step 12.*
    > *2. When Zone B (Audio/Video in another room) on the MX160 will be utilized, proceed to page 12 for information on making the needed additional connections after all the Zone A Power Amplifier connections are completed.*

5.1.4 THRU 7.1.4 CHANNEL CONNECTIONS:
Power Control Connections:

12. Connect a Control Cable from Zone A Power Amplifier Three Power Control Out 2 Jack (or Zone A Power Amplifier Two Power Control Out 2) to the Power Control In on Zone A Power Amplifier Four.

13. Connect a Control Cable from Zone A Power Amplifier Four Power Control Out Jack to Zone A Power Amplifier Five to Power Control In Jack.

Analog Audio Connections:

14. Connect Balanced Audio Cables from the MX160 LTF (Left Top Front Channel) and RTF (Right Top Front Channel) to Zone A Power Amplifier Four Inputs Left and Right respectively.

15. Optional, connect Balanced Audio Cables from the MX160 LTR (Left Top Rear Channel) and RTR (Right Top Rear Channel) to Zone A Power Amplifier Five Inputs Left and Right respectively.

Proceed to Zone B Output Connections on the next page when MX160 Zone B will be utilized. If Zone B will not be used at this time perform step 16 below:

AC Power Cords Connections:

16. Connect the MX160 and any remaining components' AC Power Cords to a live AC outlet.

MX160 Zone B Output Connections

In a typical MX160 two Zone Audio/Video System, Source Components can share the same Power Control (Trigger) and Data Port Connections. The two Zones in the MX160 share the same Audio/Video Input Connections.

The MX160 Zone B Input Connection Diagram (located on the separate folded sheet **"Mc3B"**) is an example of a typical Zone B Second Room 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 5.

> Note: The following connections made to the MX160 are using the default settings. To make changes to the default settings proceed to Setup Mode starting on page 17.

Power Control Connections:
1. Connect a Control Cable from the MX160 POWER CTRL (Power Control) B OUT Jack to the Power Control In on Zone B Power Amplifier One.
2. Connect any additional Components in a similar manner, as outlined in step 1.

Analog Audio Connections:
3. Connect Audio Cables from the MX160 Zone B OUT - L (Left Channel) and R (Right Channel) to Zone B Power Amplifier Left and Right respectively.
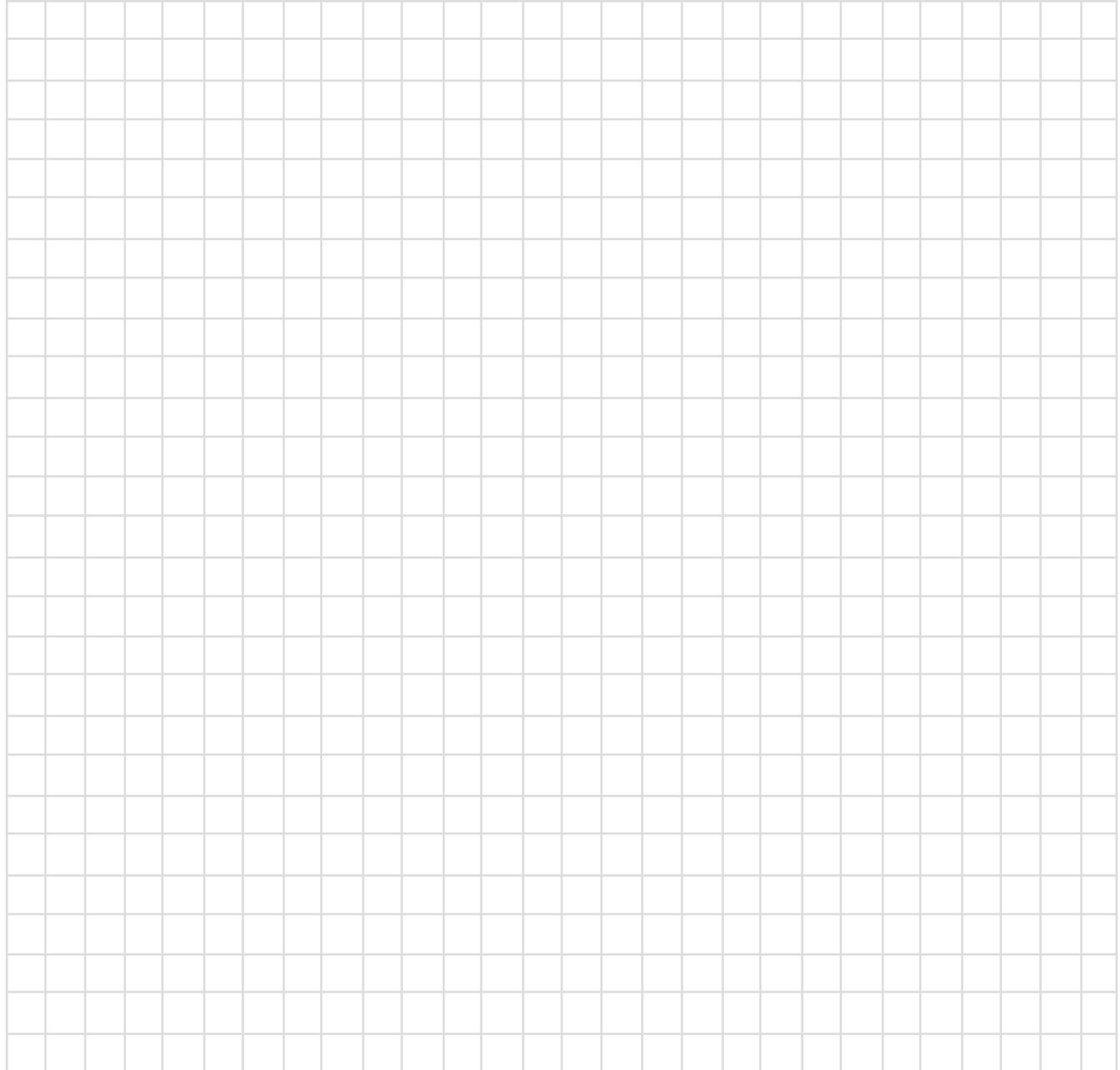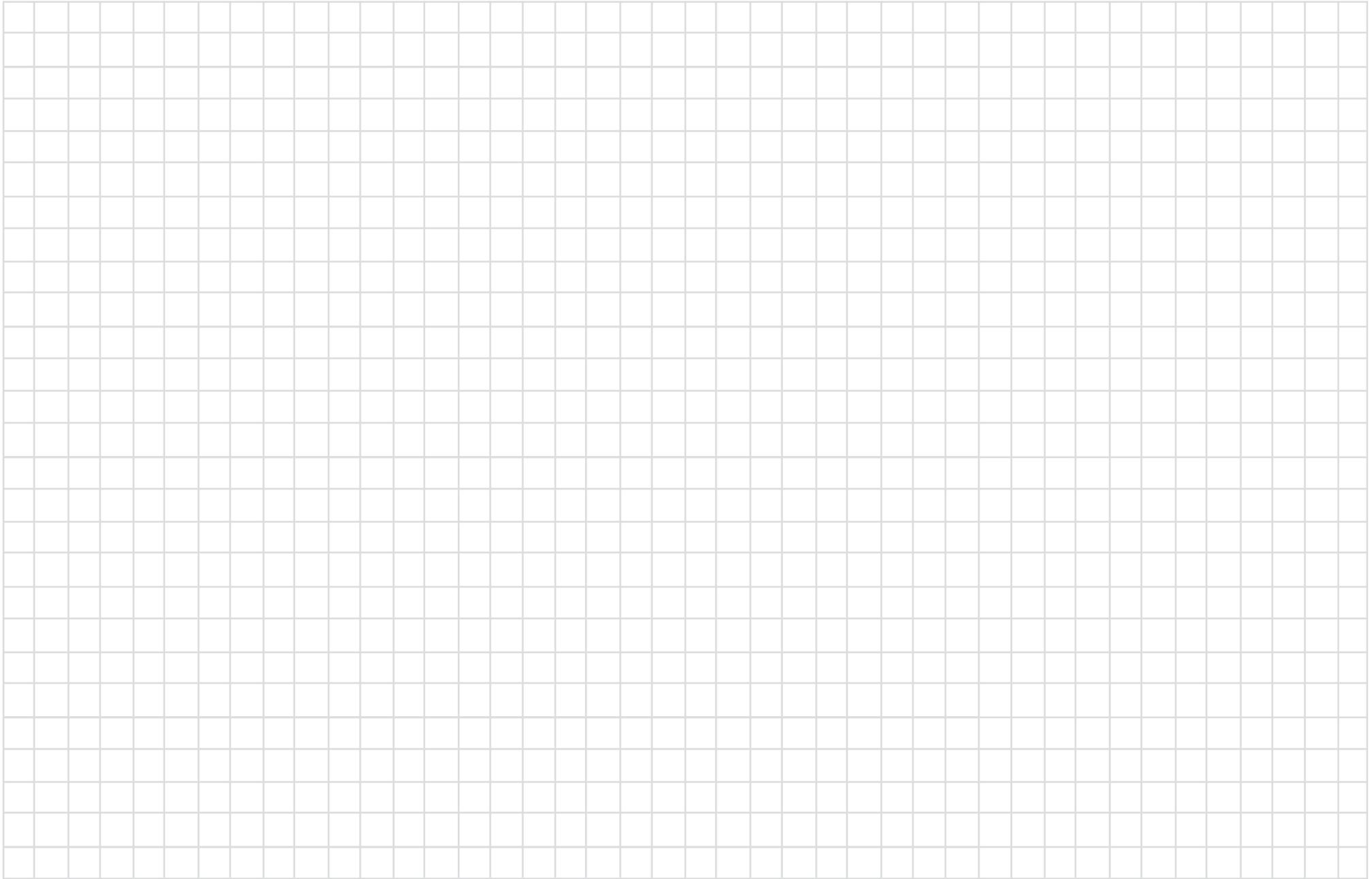
Video Connections:
4. Connect a HDMI Cable from the MX160 HDMI OUTPUT 2 Connector to the Zone B TV/Monitor HDMI Input connector.

AC Power Cords Connections:
5. Connect the MX160 and any remaining components' AC Power Cords to a live AC outlet.

Proceed to Remote Control Push-buttons on page 14.

LEDs illuminate during the time a remote command is sent and when programming the remote control

Select the DEVICE to issue a remote control command to

SETUP (Shift) Push-button used to select a function with blue color nomenclature

Selects AM Tuner Operating Functions (when connected to a McIntosh), also Track Selection on certain McIntosh CD Players

Press the Trim Push-button and then the LEVEL UP Push-button to select and adjust various functions. MENU is used with McIntosh Models displaying choices on a video screen.

Activates the TRIM Mode. GUIDE is used with McIntosh Models displaying instructions on a video screen.

Press the Trim Push-button and then the LEVEL DOWN Push-button to select and adjust various functions. INFO is used with McIntosh Models displaying information on a video screen.

Scrolls through the available INPUTS

Mutes the audio

Selects transport functions of STOP, PLAY/PAUSE, RECORD, BACK for the previous-selection, FAST-REVERSE, FAST-FORWARD and NEXT for the next selection

Selects Previous Tuner Station PRESET

Tuner scans Down the dial to SEEK the next Station
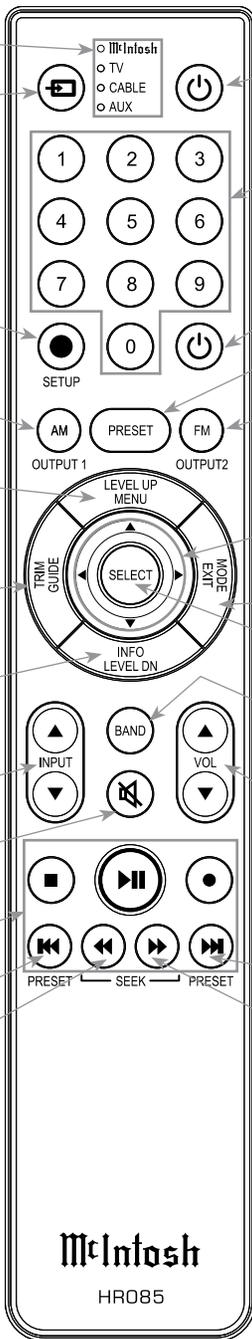
Press to Power the amplifier ON

Use to select tuner presets, direct access an AM/FM Station Frequency, disc tracks or any numbered operation

Press to Power the amplifier OFF

Direct access to stored Tuner PRESETS when used with the numeric Push-buttons (0 thru 9)

Selects FM Tuner Operating Functions (when connected to a McIntosh), also Track Selection on certain McIntosh CD Players

Use ▲ and ▼ to tune Up or Down the AM/FM Dial, use ▶ and ◀ for the next or previous HD Radio Program (McIntosh HD Tuner)

EXIT is used with McIntosh Models displaying information or choices on a video screen

Used to SELECT/Enter the indicated choice

Press to change broadcast bands on a connected Tuner. Select certain functions on a variety of McIntosh Models

Adjusts the VOLume level up or down

Selects Next Tuner Station PRESET

Tuner scans Up the dial to SEEK the next Station

Note: Push-buttons whose function is not identified above are for use with other McIntosh Products.

How to use the Remote Control

The supplied MX160 Remote Control (HR085) is capable of directly controlling the functions of contemporary McIntosh Source Components connected to the MX160 via the Data Ports.

> *Notes: 1. If at any time the MX160 seems unresponsive to HR085 Remote Control Commands, press the ⊟ DEVICE Push-button to select* 𝕸𝕔𝕴𝖓𝖙𝖔𝖘𝖍 *first.*
>
> *2. For additional information on using the HR085 Remote Control with the McIntosh Model, please refer to the "How to Operate" starting on page 30.*
>
> *3. For additional information on assigning the Data Ports, refer to "How to Setup" starting on page 17.*

Trim

Press the TRIM Push-button until the desired Trim function (Balance, Trim Level, etc.) appears on the MX160 Front Panel Display, then press the LEVEL Up or Down Push-button to adjust the Trim setting.

> *Note: Press the TRIM Push-button to recall the last Trim function selected. For additional information on using the Trim Functions refer to "How to Operate" page 32.*
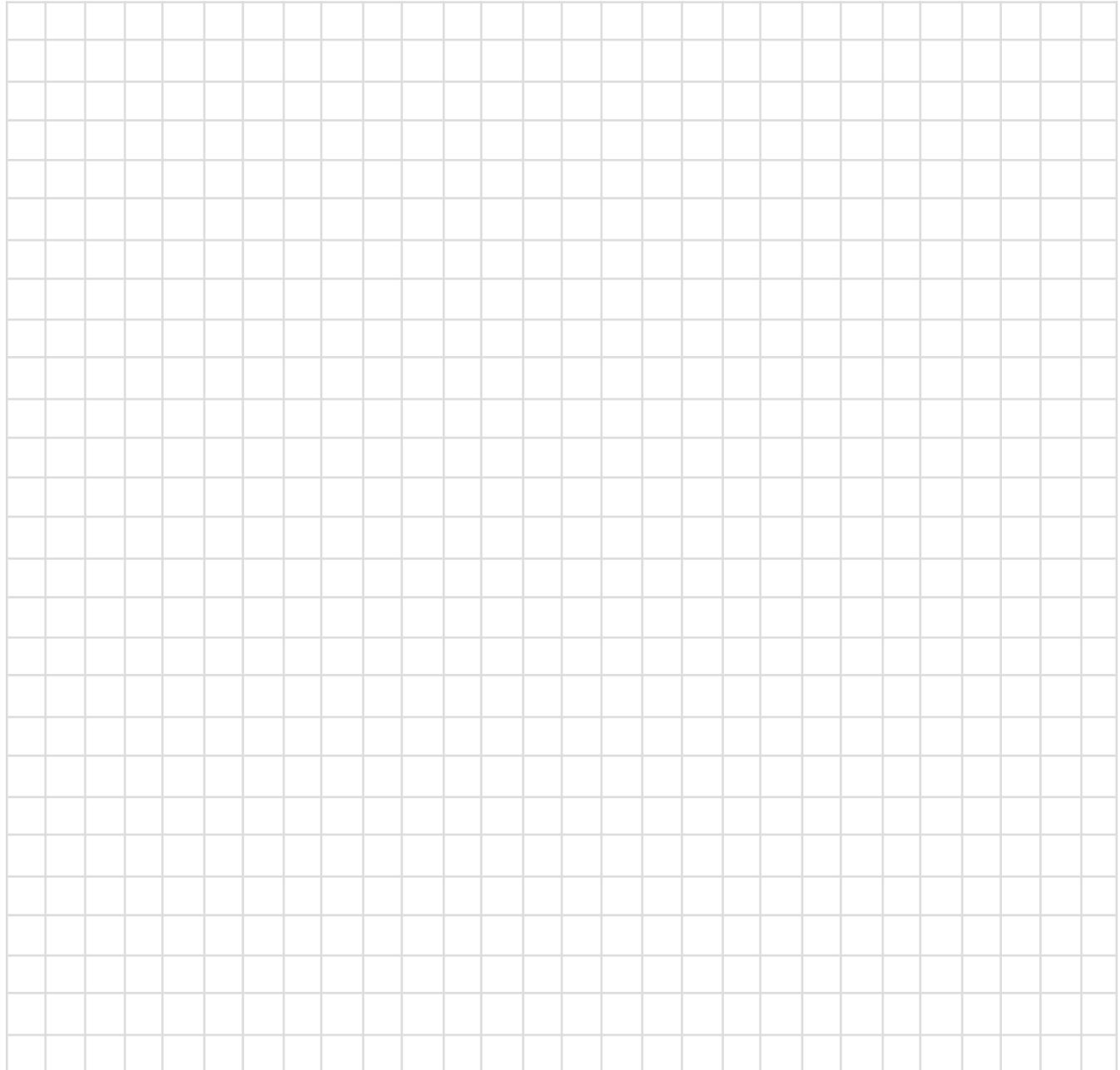
Front Panel Display, Controls, and Push-buttons

The identification of the MX160 A/V Processor Front Panel Display, Controls, and Push-buttons is located on a separate folded sheet contained in the Owner's Manual Packet. Refer to separate sheet **"Mc1B"**.

Introduction to the MX160 Setup Mode

The McIntosh MX160 has been factory configured for default operating settings, allowing immediate enjoyment of superb audio and video without the need for further adjustments. If you wish to make changes, a Setup Feature is provided to customize the settings. To assist in navigating the TV/Montior Setup (Installer) On-Screen Menus, please refer to the MX160 Menu separate folded sheets "MX160-Menu-1 thru Menu-11". These separate sheets are contained in the Owner's Manual Packet.
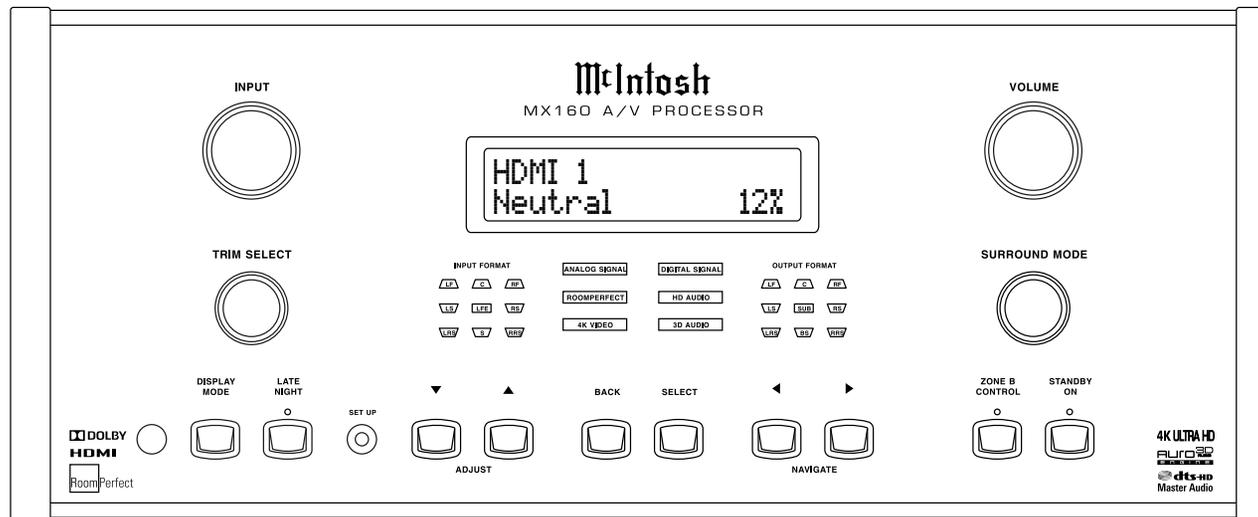
> *Note: When the MX160 is connected to a computer network, along with a Computer using a Windows WEB Browser, will provide access to MX160 Setup (Installer) and Operation Modes the via the IP Address Assigned by the network to the MX160. For additional information, refer to page 38.*

1. The MX160 has a Rear Panel Main Power rocker type switch. This switch removes all AC Power from the MX160 circuitry. It is useful to remove AC Power when the unit will not be used for an extended period of time, during lightning storms or AC Power outages. Referring to figure 1, the rocker switch is placed in the OFF ○ position when shipped from the factory. Place the Main Power rocker switch to the ON ━ position. The Front LED located above the STANDBY ON Push-button should now be illuminated. Refer to figure 2.
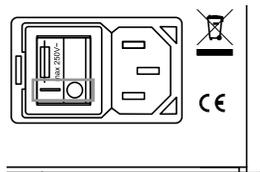

Figure 1

2. Press the STANDBY ON Push-button on the Front Panel or press the ⏻ (Power ON) Push-button on the Remote Control to switch On the
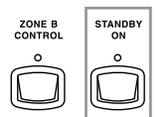

Figure 2

MX160. The MX160 will go through a brief start-up initialization with the Front Panel Information Display briefly indicating "McIntosh, MX160" followed by the last used source and volume setting. Refer to figures 3 and 4.

Figure 3

Figure 4

3. Press the SET UP Push-button on the MX160 Front Panel or the SETUP Push-button on the Remote Control. The Front Panel Information will now indicate "INSTALLER MENU" and the TV/MONITOR will display the MX160 "McIntosh Setup (Installer) Menu". Refer to figures 5 and 6.

Figure 5
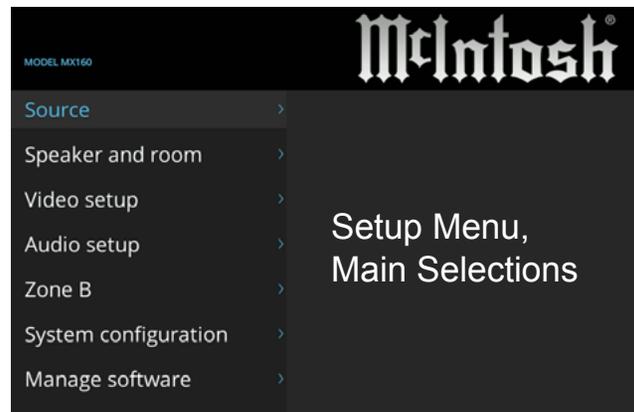
Figure 6

4. The Setup Menu provides access to the MX160 Default Settings and the ability to change them for your Home Theater System:
   1. Source Input settings
   2. Speaker and Room settings
   2. Video Processing settings
   3. Audio Processing settings
   4. Zone B settings
   5. System configuration
   6. Manage software

Adjustments and Setting changes

All of the adjustments and settings are performed by using the extensive On-Screen Setup Menu System. The On-Screen Setup Menuing System is interactive. The ability to change a menu item setting or have access to a menu item setting, is dependent on the operational state of the MX160 and the choices made in other menu items. Some menu choices require more than one step to complete.

1. Press the SETUP Remote Control Push-button, to enter the Setup Mode. The Front Panel Information Display will indicate the "Installer Menu". Refer to figure 5.

2. Navigating thru and making changes to the Setup Menus are performed by using the HR085 Remote Control directional Up ▲ or Down ▼, Left ◄ or Right ►, SELECT and the SETUP Push-buttons. The MX160 Front Panel Navigation Up ▲ or Down ▼ ADJUST Push-Buttons, Left ◄ or Right ► NAVIGATE Push-Buttons and the SELECT Push-button may also be used.

The following example will illustrate how to navigate through the built-in MX160 SETUP Mode and the multiple On-Screen Setup Menus. Occasionally, it may become necessary to return the MX60 to default

Introduction to the MX160 Setup Mode, con't

settings after major changes are made to the equipment of your Home Theater System. Follow the steps below on how to activate a "A Reset to Factory Default Settings".

1. Press the SETUP Push-button on the Remote Control and the Main Setup Menu will appear on the Monitor/TV screen. Refer to figure 7.
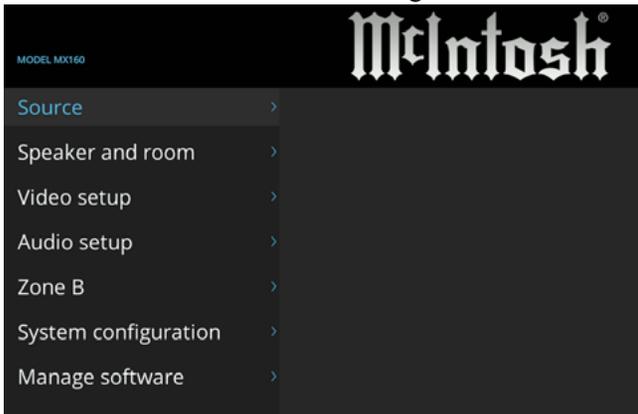
Figure 7

2. Select "Manage software" by using the Down ▼ Directional Push-button on the Remote Control. Refer to figure 8.
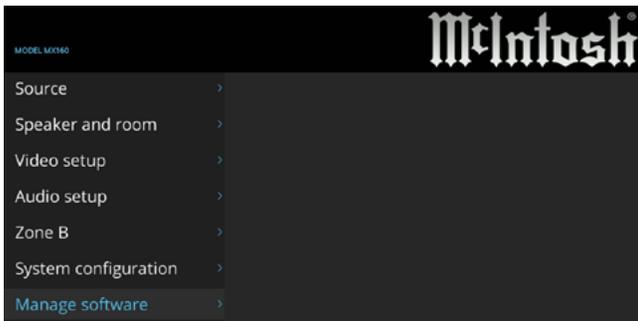
Figure 8

3. Press the Right ▶ Directional Push-button on the Remote Control and the "Manage software" sub-

Menus will appear. Refer to figure 9.
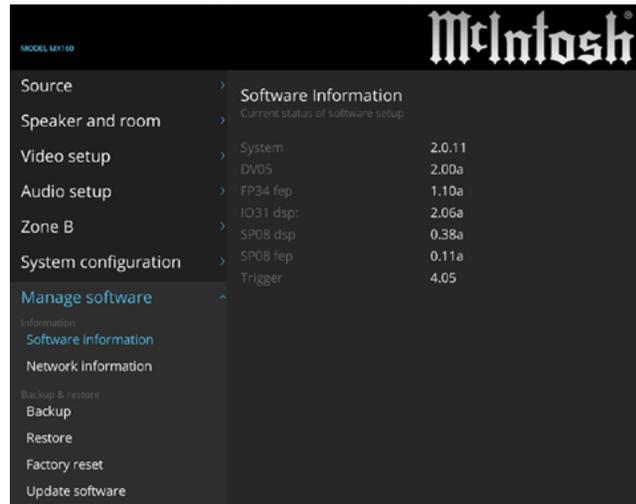
Figure 9

4. Select "Factory reset" by using the Down ▼ Directional Push-button on the Remote Control. Refer to figure 10.
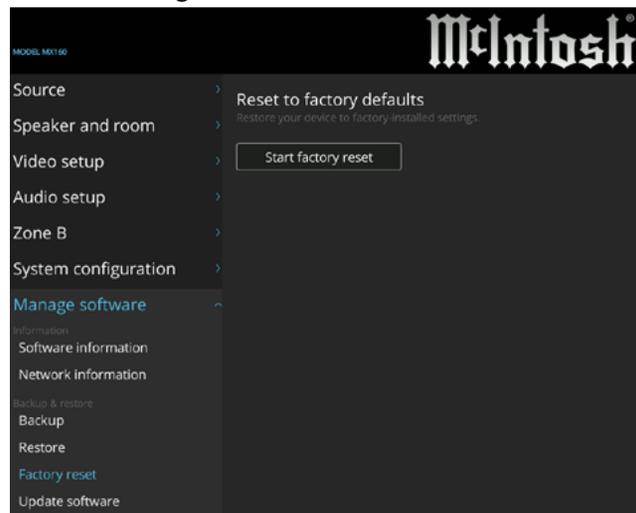
Figure 10

5. Press the Right ▶ Directional Push-button to Highlight the "Start factory reset". Refer to figure 11.
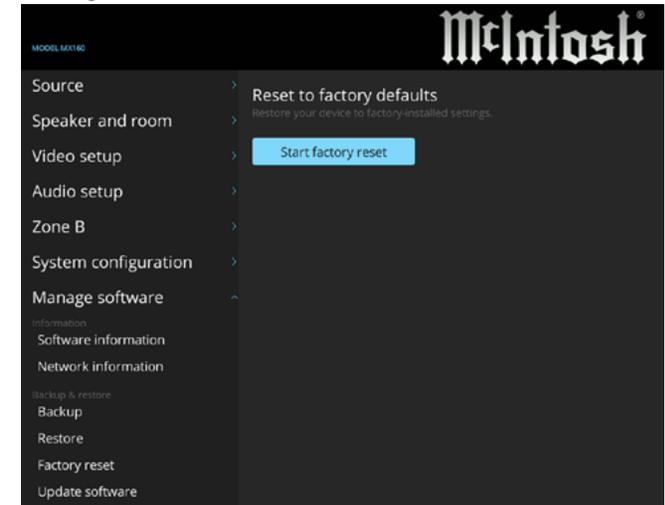
Figure 11

6. To implement the return to Factory Default Settings for the MX160, press the SELECT Push-button. If you do not want to reset the MX160 at this time, press the SETUP Push-Button to exit the MX160 SETUP Mode.

For the vast majority of MX160 Owners, the Default Settings and Suggested Component Connections are all one needs for full enjoyment of movies and music. The MX160 Setup Mode has a number of additional options for your Home Theater System. Usually, your McIntosh Dealer and/or Custom Installer uses these additional capabilities. The navigation and selection methods previously illustrated also apply to the remainder of Setup Mode Settings on the next page.

If not, proceed to "How to Operate the MX160" starting on page 30.

SOURCE SETUP MENU				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Create a New Source	Refer to the MX160 Separate Sheet Menu 2, "Create new source" Note: After a new Source Input and its settings have been entered, select the "Accept" icon push-button by pressing the SELECT push-button on the Remote Control			
	Source name	●Blank	Up to 27 characters long	Press SELECT to use the built-in keyboard, select "CLOSE" to exit
	Volume offset	●0.0dB	-20dB to +20dB	Press SELECT, then use directional Left ◄ or Right ►, to enter value
	Default (audio) postprocessing	●Dolby Upmixer	Choose one of 9 choices	Press SELECT, then use directional Up ▲ or Down ▼, to enter value
	Video input	●None	Choose one of 9 choices	Press SELECT, then use directional Up ▲ or Down ▼, to enter value, HDMI Internal will display On-Screen the McIntosh Logo when Audio Only Inputs are selected
	IR command	●None	Note: Contact your Dealer for assistance in selecting the IR Command Settings	
	Lipsync offset	●0ms	0-223ms	Press SELECT, then use directional Up ▲ or Down ▼, to enter value
	Audio input	●None	Choose one of 19 choices	Press SELECT, then use directional Up ▲ or Down ▼, to enter value
	Data out	●None	Choose one of 4 Data Ports	Press SELECT, then use directional Up ▲ or Down ▼, to enter value
	Default voicing	●Neutral	Choose one of 9 choices	Press SELECT, then use directional Up ▲ or Down ▼, to enter value
	Trigger out	●None	Before a choice can be made, the System configuration "Trigger out setup" needs to be setup first, refer to page 27 and MX160 Separate Sheet Menu 9. Press SELECT, then use directional Up ▲ or Down ▼, to enter value	
Edit Existing Sources	Refer to the MX160 Separate Sheet Menu 2, "Edit" source Follow the above "Create a new Source" Selection, Option(s) and Description for altering the existing Source Inputs and their default settings			
Arrange Sources	Refer to the MX160 Separate Sheet Menu 2, "Arrange" source Follow the On-Screen instructions for changing the order of appearances for selection of the used MX160 Inputs without deleting the non-used Inputs to shorten the time it takes to select the desired input using the INPUT Control and/or the REMOTE CONTROL INPUT ▲ or ▼ Push-button			
Delete Sources	Refer to the MX160 Separate Sheet Menu 2, "Delete" source Follow the On-Screen instructions for Deleting MX160 Inputs shorten the time it takes to select the desired input using the INPUT Control and/or the REMOTE CONTROL INPUT ▲ or ▼ Push-button			

Speaker and room SETUP MENU				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Edit Speaker configuration	Refer to the MX160 Separate Sheet Menu 3, "Speaker and Room Menu - Part #1"			
	Speaker setup: (Identification listed below are from the On-Screen Graphic Icons)	Select "Edit configuration" to identify the number of loudspeakers and their position in the Home Theater Room Notes: The square/rectangle symbols On-Screen with a solid white color outline indicates an active Loudspeaker in that position and a dashed outline Indicates no Loudspeaker at that position. Solid gray fill indicates selected Loudspeaker position. Press the SELECT Push-Button to change Options Loudspeaker Sizes: 　XXL - Loudspeaker response down to 20Hz (-3dB), reproduces Low Frequencies from all channels set to L, M, S, or XS. It also reproduces the LFE information when there is no Subwoofer 　XL - Loudspeaker response down to 20Hz (-3dB), reproduces Low Frequencies from all channels set to L, M, S, or XS when there is no Subwoofer. It also reproduces the LFE information when there is no Subwoofer 　L - Loudspeaker response down to 40Hz (-3dB) 　M - Loudspeaker response down to 80Hz (-3dB) 　S - Loudspeaker response down to 100Hz (-3dB) 　XS - Loudspeaker response down to 120Hz (-3dB) Custom - Manual setting of Low Frequency Cutoff, Gain and Use natural roll-off		
	HL	●None	Speaker size, gain, natural roll-off, custom	Height Left Position (above ear level)
	HC	●None	Speaker size, gain, natural roll-off, custom	Height Center Position (above ear level)
	HR	●None	Speaker size, gain, natural roll-off, custom	Height Right Position (above ear level)
	Sub L	●None	Sub size (high pass filter) 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 400Hz, 800Hz, Custom (Sub size, LFE low pass filter, Gain)	Subwoofer Front Left Position LFE filter settings - 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 310Hz, 400Hz, 500Hz, 630Hz, 800Hz
	LW	●None	Speaker size, gain, natural roll-off, custom	Left Front Width Loudspeaker
	L L	●Large Left	Speaker size, gain, natural roll-off, custom	Main Front Left Loudspeaker
	L C	●Large Center	Speaker size, gain, natural roll-off, custom	Main Front Center Loudspeaker
	L R	●Large Right	Speaker size, gain, natural roll-off, custom	Main Front Right Loudspeaker
	RW	●None	Speaker size, gain, natural roll-off, custom	Right Front Width Loudspeaker
	Sub R	●None	Sub size (high pass filter) 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 400Hz, 800Hz, Custom (Sub size, LFE low pass filter, Gain)	Subwoofer Front Right Position LFE filter settings - 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 310Hz, 400Hz, 500Hz, 630Hz, 800Hz
	Sub LFE	●80Hz	Sub size (high pass filter) 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 400Hz, 800Hz, Custom (Sub size, LFE low pass filter, Gain)	Main Subwoofer Front Position

MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION

Speaker and room SETUP MENU, con't				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Edit Speaker configuration	Refer to the MX160 Separate Sheet Menu 3, "Speaker and Room Menu - Part #1"			
	L LS	●Large Left Surround	Speaker size, gain, natural roll-off, custom, Dolby enabled speaker	Main Left Surround Loudspeaker
	L RS	●Large Right Surround	Speaker size, gain, natural roll-off, custom, Dolby enabled speaker	Main Right Surround Loudspeaker
	Sub LR	●None	Sub size (high pass filter) 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 400Hz, 800Hz, Custom (Sub size, LFE low pass filter, Gain)	Subwoofer Left Rear Position LFE filter settings - 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 310Hz, 400Hz, 500Hz, 630Hz, 800Hz
	L LRS	●Large Left Rear Surround	Speaker size, gain, natural roll-off, custom, Dolby enabled speaker	Main Left Rear Surround Loudspeaker
	CB	●None	Speaker size, gain, natural roll-off, custom	Center Rear Surround, when the Loudspeaker Setup is 6.1 Channels
	L RRS	●Large Right Rear Surround	Speaker size, gain, natural roll-off, custom, Dolby enabled speaker	Main Right Rear Surround Loudspeaker
	Sub RR	●None	Sub size (high pass filter) 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 400Hz, 800Hz, Custom (Sub size, LFE low pass filter, Gain)	Subwoofer Rear Right Position LFE filter settings - 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 310Hz, 400Hz, 500Hz, 630Hz, 800Hz
	Ceiling speakers			
	LTF	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Left Top Front Loudspeaker
	RTF	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Right Top Front Loudspeaker
	HLS	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Height Left Surround Loudspeaker
	LTM	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Left Top Middle Loudspeaker
	TOP	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Top Ceiling Center Loudspeaker
	RTM	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Right Top Middle Loudspeaker

			Speaker and room SETUP MENU, con't	
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Edit Speaker configuration	Refer to the MX160 Separate Sheet Menu 4, "Speaker and Room Menu - Part #2"			
	Ceiling speakers, con't			
	HRS	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Height Right Surround Loudspeaker
	LTR	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Left Top Rear Loudspeaker
	RTR	●None	Speaker size, gain, natural roll-off, custom (Sub size, High Pass filter, Gain)	Right Top Rear Loudspeaker
	Verify speakers	To verify all of the Loudspeakers choices made during the On-Screen "Edit Speaker configuration" settings are connected correctly, SELECT "Start" and a test tone will be sent to each of the Loudspeakers one at a time. The On-Screen Display will indicate which Loudspeaker the test single should be coming from, if necessary use the VOL ▲ or ▼ Push-button so the test tone can be heard		
	Adjust Sub	To verify the Subwoofer (LFE) Loudspeaker is set to a correct volume level, SELECT "Start" and a test tone will be sent to the Front Left Loudspeaker to act as a reference for adjusting the Subwoofer (LFE) Loudspeaker volume level. Follow the On-Screen instruction		
	Room Perfect Initial Setup	Measure and enter the distances (inches or centimeters) between each of the Home Theater Loudspeakers and the main viewing/listening position/location in the Home Theater Room. Then activate the "Save distances"		
	Run Room Perfect Setup	After performing Speaker Configuration, the next step is to implement Room Perfect's Acoustic Measurement and Correction. Following the instructions starting on page 28		
	Refer to the MX160 Separate Sheet Menu 5, "Speaker and Room Menu - Part #3"			
	Channel Gain	After performing the Room Perfect Acoustic Measurement and Correction of your Home Theater Loudspeakers and Room, the "Channel Gain" option provides the ability to change the volume level of any channels during playback of a movie and save the change so it can be recalled the next time that movie is played		

VIDEO SETUP MENU				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Video Output	Refer to the MX160 Separate Sheet Menu 6, "Video Setup Menu" The MX160 has five separate Video Outputs which allow for different types of utilization. The HDBT Output allows for extremely long cable run between the MX160 and a TV/Monitor located in another room (refer to General Information note 15 on page 4 for additional information). The four HDMI Outputs allow two different types of video capabilities. One video capability is where four TV/Monitors provide a super large four segment wall display image with up to 1080P resolution (each monitor displays one quarter of the total video image). The second video capability is where the five (or less) HDMI Outputs of the MX160 are all connected to four (or less) HDMI Inputs on the same TV/Monitor. This allows the TV/Monitor (and/or its Remote Control) to select any one of the four Video Sources without changing Input Selection on the MX160 which could be playing an Audio Source Input at the same time. It also would allow for different Video/Audio settings (Resolution, Audio Outputs) for each of the four HDMI Sources connected to the TV/Monitor *Note: For additional MX160 HDMI Output Control Capability, contact your McIntosh Dealer for assistance.*			
Set the Main Video Output	Preferred resolution, Video source, Audio out			
	HDMI 1 Output	●None (default) ●Independent ●Passthrough (default)	Preferred Resolution - (determinded by MX160 selected Input Source) Video Source - Main (determinded by selected Input Source) Audio Out - Passthrough (determinded by MX160 selected Input Source)	
	HDMI 2 Output	●None (default) ●Independent (default) ●Passthrough (default)	Preferred Resolution - None, 720p, 1080p or 2160p Video Source - Follow Main, HDMI 1 thru HDMI 8 Audio Out - Off, Passthrough (MX160 selected Input Source), or Zone B Audio	
	HDMI 3 Output	●None (default) ●Independent (default) ●Passthrough (default)	Preferred Resolution - None, 720p, 1080p or 2160p Video Source - Follow Main, HDMI 1 thru HDMI 8 Audio Out - Off, Passthrough (MX160 selected Input Source), or Zone B Audio	
	HDMI 4 Output	●None (default) ●Independent (default) ●Passthrough (default)	Preferred Resolution - None, 720p, 1080p or 2160p Video Source - Follow Main, HDMI 1 thru HDMI 8 Audio Out - Off, Passthrough (MX160 selected Input Source), or Zone B Audio	
	HDBT Out	●None (default) ●Independent (default) ●Passthrough (default)	Preferred Resolution - None, 720p, 1080p or 2160p Video Source - Follow Main, HDMI 1- HDMI 8 Audio Out - Off, Passthrough (MX160 selected Input Source), or Zone B Audio	

VIDEO SETUP MENU, con't				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Video Input	Refer to the MX160 Separate Sheet Menu 6, "Video Setup Menu"			
HDMI 1 thru HDMI 8				
	1080p/1080i/720p/576p/576i 50Hz	●One	Never, Always, All	Determines for each MX160 HDMI Input, the type of Video Signal (Resolution, Video Dynamic Range, Video Frame Rate and Video Color Sampling) it will accept
	1080p/1080i/720p/480p/480i 60Hz	●One	Never, Always, All	
	1080p 24/25/30Hz	●One	Never, Always, All	
	2160p 24/25/30Hz	●One	Never, Always, All	
	2160p 4:2:0 50Hz	●One	Never, Always, All	
	2160p 4:2:0 60Hz	●One	Never, Always, All	
	Basic 3D	●One	Never, Always, All	
	HDR	●All	Never, Always, All	
	HDCP compatibility	●HDCP 2.2 (default)	HDCP 1.4, No DDC, Sink	Determines the degree of HDCP (High-bandwidth Digital Content Protection) for each Video/Audio Source Component connected to a MX160 HDMI Input
	Audio	●PCM, bitstream, multichannel	PCM only, multichannel, PCM stereo only, PCM stereo up to 48kHz only	

AUDIO SETUP MENU				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Audio Configuration	Refer to the MX160 Separate Sheet Menu 7, "Audio Setup Menu" while performing Audio Configuration and Voicing setup			
S				
	Enable dynamic range control	●Off	On	Allow for suitable audible range at both high and low playback levels
	Set range control level	●100%	0% to 100%	
	Enable fade in	●On	Off	Prevents abrupt changes in volume at the start or end of a sound track
	Enable remapping	●On	Off	Produces a 7.1 channel output from a 5.1 channel input
Neo:X				
	Neo:X center gain: Cinema	●1.0	0.0 to 1.0	Provides changes in Neo:X Audio Processing for the center channel audio input signal
	Neo:X center gain: Game	●1.0	0.0 to 1.0	
	Neo:X center gain: Music	●0.3	0.0 to 1.0	
	Neo:X phantom center	●Off	On	
AURO				
	Strength	●-3dB	Mute, -30dB thru +3dB	Provides changes to the Auro 3D processing depending on the volume level of the incoming signal
	Preset	●small	medium1, medium2, speech	
Dolby				
	TrueHD dynamic range control	●Auto	Off, On	
	Atmos dynamic range control	●Off	On	
	Center spread	●Off	On	The Dolby Surround upmixer may spread the center channel content among the Left, Right, and Center speakers creating a wider frontal audio image for the listener
Voicing	The MX160 offers the ability to create custom Audio Equalization Frequency Response Curves, of which can be activated during Audio Playback using the Front Panel Trim Control along with the Adjust ▲ or ▼ Push-buttons or the Remote Control Trim Push-button along with the ▲ or ▼ Push-buttons			
	Edit or delete voicing	●Music	Music II, Relaxed, Tilt, Action, Action+Movie	Refer to the On-Screen Display while Voicing
	Add new voicing	●*Blank*	Bypass, Low pass, High pass, Low shelf, para-metric, High shelf	Refer to the On-Screen Display while Voicing while creating a new Voicing Curve
	Loading voicings from files	Contact your McIntosh Dealer for additional Voicing Files to load into the MX160		

ZONE B SETUP MENU				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Zone B Setup				
	Adjust Zone B volume settings			
	Max volume (%) setting	●59%	12 thru 99%	Max volume setting
	Use Fixed Volume	●No	Yes	
	Fixed Volume level (%)	●12	0 thru 59	Option only appears when "Use Fixed Volume" is selected
	Adjust Zone B default settings			
	Default power	●Off		
	Default source	●Last used	Follow Main, Independent	

SYSTEM CONFIGURATION SETUP MENU				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
General setup				
	Power management	●Network	Deep sleep	Choose delay from 0 to 30 minutes using the Remote Control Numeric Push-buttons
	Default volume settings	●Use last volume	Use fixed volume	Choose maximum volume from 12% to 99%
	HDMI CEC setting	●Off	On	Allows remote operation and Audio Out (from TV) via the HDMI Cable conection
	Display timeout	●0	Enter the desired number of seconds	Use the Remote Control Numeric Push-buttons
	Show bypass	●On	Off	Room Perfect Room Correction
	Password protection	●No	Yes	When Password protection is set to "Yes" the MX160 Setup Mode is no longer available via an external Computer using a WEB Browser
	Enable front IR sensor	●On	Off	The MX160 Front Panel Sensor, which receives the signals from the HR085 Remote Control, can be switched off to prevent interference when an external IR Sensor is connected
	OSD info level	●Show all	Show volume, show nothing	Displays information On Screen over the video from the selected source

SYSTEM CONFIGURATION SETUP MENU, con't				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Trigger out setup				
	Output trigger 1	●Power any	Off, Source, Source A, Source B, Power A, Power B	The function which activates Output trigger 1, refer to the Setup Source Edit Menu on page 19, Trigger setting
	Output trigger 1	●Level	Pulse	Determines the type of signal available at the Trigger Output Jack
	Output trigger 2	●Power any	Off, Source, Source A, Source B, Power A, Power B	The function which activates Output trigger 1, refer to the Setup Source Edit Menu on page 19, Trigger setting
	Output trigger 2	●Level	Pulse	Determines the type of signal available at the Trigger Output Jack
Network setup				
	Network configuration	●Automatic	Manual	Manually enter the IP Address, Net mask, Gateway and DNS server

MANAGE SOFTWARE SETUP MENU				
MENU ITEM	SUB MENU	SELECTION	OPTION(S)	DESCRIPTION
Manage software				
	Software information	A list of current Firmware Modules installed into the MX160 with their version numbers		
	Network information	Current Network Setting for the MX160		
Backup and restore				
	Backup (device used for storing the data)	●Sd-card	USB (Device inserted into USB Socket 1 or 2)	It is best to maintain a separate Sd-Card or USB Drive for the sole purpose of backing up the current MX160 Operating and Setup Settings. Enter a name and including the date for reference purpose
	Restore (device previously used for backing up the data)	●Sd-card	USB (Device inserted into USB Socket 1 or 2)	Insert the device previously used for backing up the MX160 Data to restore it. Then select the type of device and backup file name/date, followed by "Start restore"
Factory Reset	If it becomes necessary to return the MX160 Operational and Setup Settings to the factory default values and settings select "Start factory reset" now			
Update Software	Please contact your McIntosh Dealer about the MX160 Software Update			

RoomPerfect

The Room Perfect Measure and Adjustment Process uses multiple measurement locations in the listening room to achieve the best possible acoustical results. The Focus Position (location in the room) is typically where one would be during serious viewing/listening. Refer to figure 20. The Room Positions are other locations in the room where noncritical viewing/listening occurs.
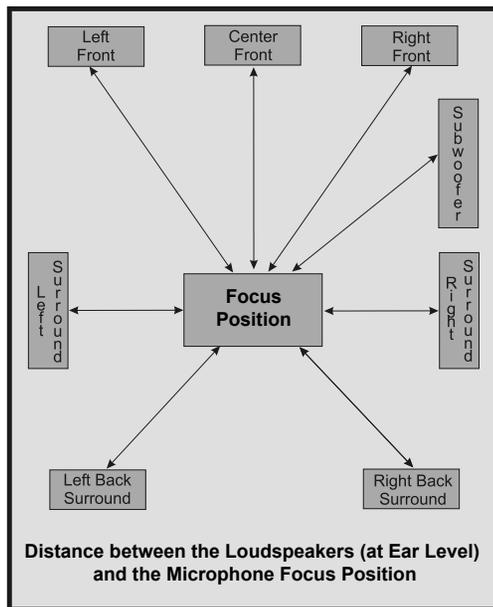
Distance between the Loudspeakers (at Ear Level) and the Microphone Focus Position

Figure 20

Notes: 1. Assemble the supplied Microphone Holder/ Stand/Boom Adapter and connect the Microphone to the MX160 MICROPHONE Connector on the Rear Panel using the supplied cable.
2. Set the trim controls on the MX160 to the flat setting position and the volume control to a normal listening volume level.
3. It might be advisable to temporarily switch off the room/house heating/cooling system while the Room Perfect measurement process is occurring. If there are open windows, they should all be closed. All of these steps will allow lower testing volume levels and more accurate measurements.
4. While performing the following steps, refer to the MX160 Separate Sheets Menu 3 and 4, "Speaker and Room Menu - Part #1 and #2" along with the various On-Screen Menus illustrated.
5. The next time RoomPerfect is run, some of the On-Screen Menus will have changed to reflect the already stored settings.

Before starting the "Room Perfect Measurement and Adjustment Process", it is very important to have performed the Speaker and Room "Speaker Setup Edit Configuration and Verify Speakers". Refer to pages 20 thru 22.

1. Press the SETUP Push-button to enter the Setup Mode. Use the Down ▼ Push-button to highlight Speaker and room Setup, then press the Directional ► Push-button.
2. Use the Directional ► Push-button to select "Room Perfect".
3. If the previous measured distances from each of the Loudspeaker Positions to the "Focus Position" were not saved, re-enter them now.
4. Select "Run RoomPerfect™ setup".
5. Follow the On-Screen instructions and reposition the microphone to the necessary measurement locations. Refer to figures 21, 22 and 23.
   Note: The Microphone Stand Boom Adapter allows the microphone to be placed over objects such as a chair or table.
6. When Room Perfect has completed its Measurement and Adjustments, press the SETUP Push-button to exit.

Note: When the RoomPerfect Calibration has been completed, the MX160 Front Panel "ROOMPERFECT" indicator will be illuminated.
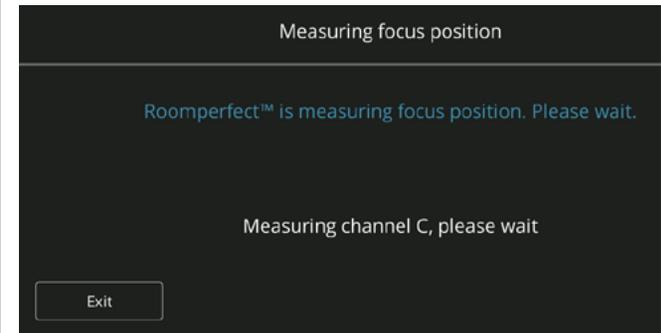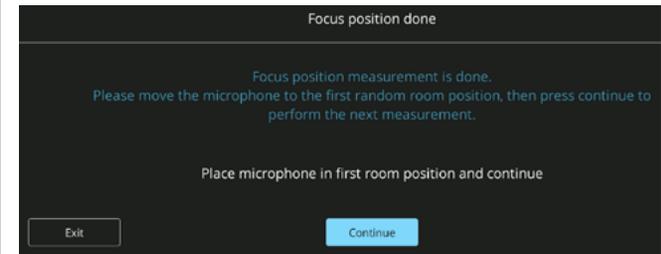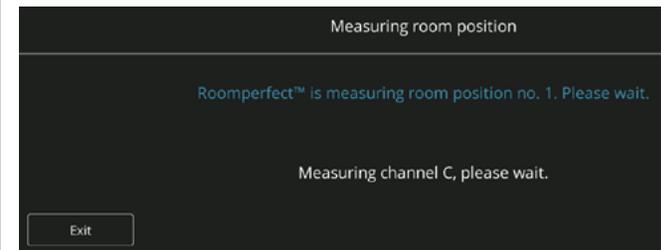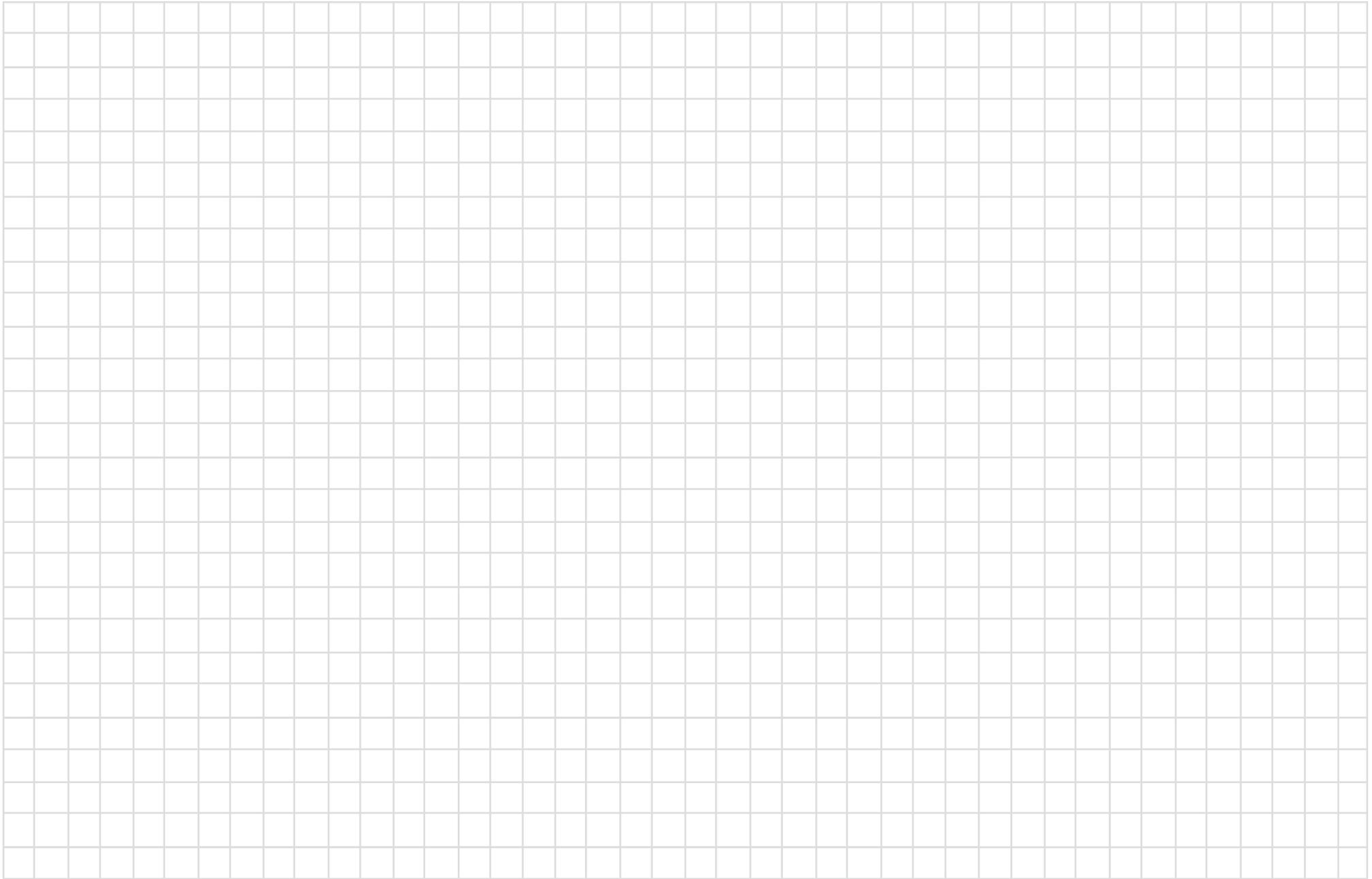
Figure 21

Figure 22

Figure 23

How to Operate the MX160

The McIntosh MX160 has been factory configured for default operating settings, allowing for immediate enjoyment of superb video and high fidelity audio without the need for further adjustments. If you wish to make changes to the factory default settings, refer to the SETUP Section of this Owner's Manual starting on page 17.

> *Note: It is advisable to perform "Speaker Configuration" and "RoomPerfect" to ensure the best audio performance. Refer to pages 20 thru 22 and page 28.*

The MX160 has a Rear Panel Main Power rocker type switch. This switch removes all AC Power from the MX160 circuitry. It is useful to remove AC Power when the unit will not be used for an extended period of time, during lightning storms or AC Power outages. Referring to figure 50, the rocker switch is placed in the OFF ○ position when shipped from the factory. Place the Main Power rocker switch to the ON ▬ position. The Front LED located
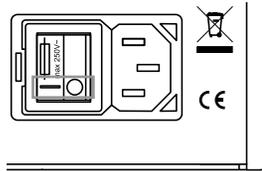
Figure 50

above the STANDBY ON Push-button should now be illuminated. Refer to figure 51.

> *Notes: 1. After the Rear Panel rocker switch is placed in the ON position, the MX160 will switch On for a few seconds while it checks the current firmware status and will then switch Off.*
> *2. If the MX160 A/V Processor is not going to be used for an extended period of time, please place the Rear Panel Main Power rocker switch in the OFF position.*

Power On and Off

Press the STANDBY/ON Push-button on the Front Panel or press the ⏻ (Power On) Push-button on the Remote Control. Refer to figures 50 and 54. The LED located above the STANDBY ON Push-button will turn off and the Front Panel Information Display will indicate "McIntosh, MX160" during the initializing process. Refer to figure 52.

```
       McIntosh
         MX160
```

Figure 52

When the initialization process is over, the display will indicate the last Source Selected, Voicing Mode (equalization/tone adjustment) and the Volume Level. "HDMI 1, Neutral 12%" is the factory default setting. Refer to figure 53.

```
 HDMI 1
 Neutral          12%
```

Figure 53

Input Selection

The INPUT Control selects the desired source (42 Inputs) and is indicated on the top line of the Front Panel Information Display. Refer to figure 53. The selection of the sources may also be accomplished by pressing the ▲ Up or ▼ Down Push-button on the Remote Control. Refer to figure 54.

> *Notes: 1. In addition to 42 direct connection Inputs the MX160 has an additional 117 assignable Phantom Inputs, each Input with its own name and other settings assigned to it.*
> *2. For additional information on assigning Inputs, re-naming Inputs, changing the order in which they are displayed, activating the HDMI ARC (Audio Return Control) and removing unused Inputs from the Input selection operation, refer to the "SETUP" section of this Owner's Manual starting on page 17.*

Volume Control

Adjust the VOLUME Control to select the desired listening level. The Volume Control adjusts all channels simultaneously, and level is indicated from 0 to 99% on the bottom line (right side) of the Front Panel Information Display. The Volume Level adjustment may also be accomplished by pressing the VOL ▲ Up or ▼ Down Push-button on the Remote Control.
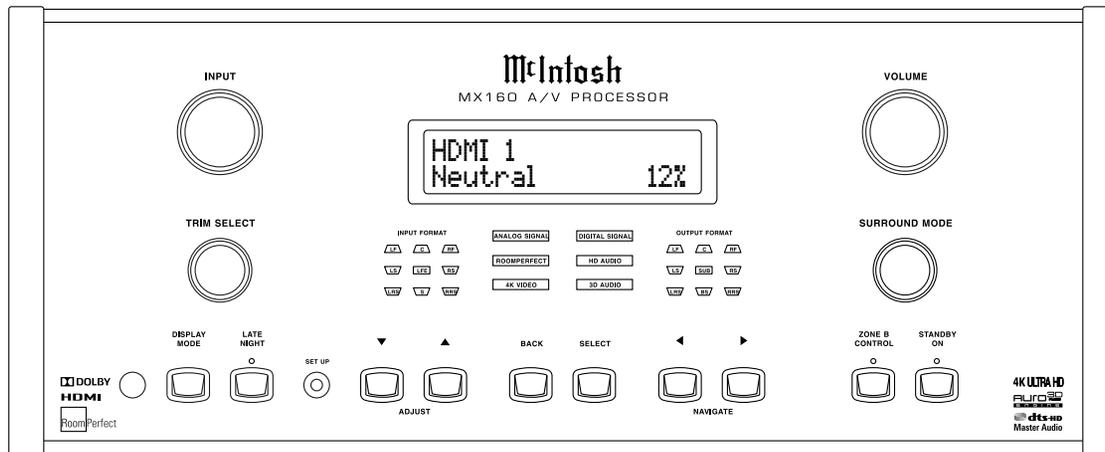
Figure 51

During the time the volume level is being changed, the On-Screen Display will indicate the Volume Level %. When the ◀ MUTE Push-button is pressed, the Front Panel Information Display will indicate the word "Muted" in place of the Volume % and the On-Screen Display will replace the word "Volume:__" with "Muted:__". Pressing the MUTE Push-button a second time, the listening volume level will be restored and the displays will again indicate the Volume:__ %.

Front Panel Status
The three sets of front panel LEDs indicate the status of Input Format, Operating/Decoding Modes and the Output Format.
    Notes: 1. *If a Digital Input is selected and the Digital Source Component is not producing an output signal, none of the Front Panel Status LEDs will illuminate.*
    2. *The new Digital Sound Formats, including Dolby Atmos, DTS-X and Auro 3D, do not rely on discrete fixed channel positions but rather as audio sound objects that can be correctly placed in your Home Theater Loudspeaker Setup Environment. Thus, when these sound formats are played back, the MX160 Front Panel Input Format and Output Format LED Indicators are not illuminated.*
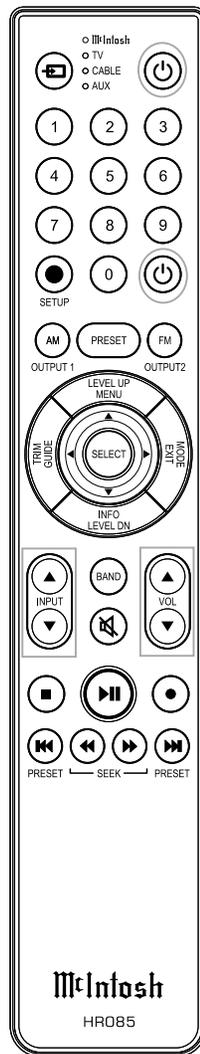
Figure 54

Input Format
    A. If the input signal source is Eight Channel, the front panel INPUT FORMAT LEDs LF, C, RF, LS, LFE, RS, LRS, S and RRS will illuminate. Refer to figure 55.
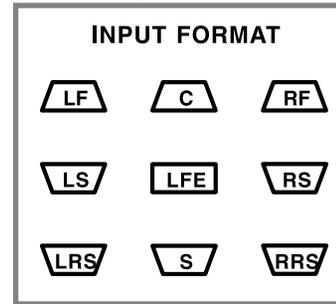

INPUT FORMAT

LF	C	RF
LS	LFE	RS
LRS	S	RRS

Figure 55

    B. If a Digital Input Signal Source is 2 Channel Surround Encoded, the front panel INPUT FORMAT LEDs LF, RF and S will illuminate.
        Note: The "S" indicator will only illuminate on some surround encoded program material.
    C. If the Analog Input Signal Source is Stereo, the INPUT FORMAT LEDs LF and RF will illuminate.
    D. If an Analog Input Signal Source is Mono, both channels will be receiving the mono signal and the INPUT FORMAT LEDs LF and RF will illuminate.

Operating Mode Displays
    E. The ANALOG SIGNAL Display will illuminate when the audio input signal is analog. Refer to figure 56.
    F. The DIGITAL SIGNAL Display will illuminate when the audio input signal is Digital.
    G. The ROOM-PERFECT Display will illuminate when RoomPerfect Correction Circuitry is Active.

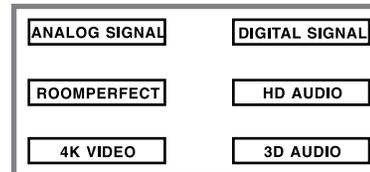| ANALOG SIGNAL | DIGITAL SIGNAL |
| ROOMPERFECT | HD AUDIO |
| 4K VIDEO | 3D AUDIO |

Figure 56

    H. The HD AUDIO Display will illuminate when the audio input signal is Digital High Definition such as Dolby True HD, Dolby Atmos, DTS Master HD, DTS-X or Auro 3D.
    I. The 3D Audio will illuminate when the audio input signal is Digital High Definition such as Dolby Atmos, DTS-X or Auro 3D.
    J. The 4K Video Display will Illuminate when the video input signal is Digital Ultra High Definition (UHD).

Output Format:
    K. The OUTPUT FORMAT LEDs indicate the SURROUND MODE selected and the active audio channels. Refer to figure 57.
        Note: The following example of the illuminated LED is based upon a 7.1 channel system. If your system is configured as something other than 7.1 (e.g. no Center Loudspeaker or a single Back Surround Loudspeaker) then the number of LEDs illuminated will be different.
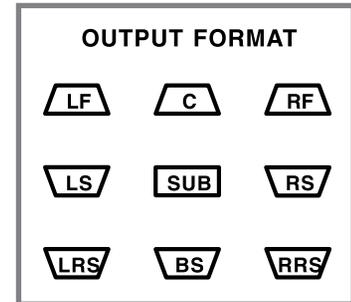   L. NO PROCESSING mode for a two channel (Stereo) Input will cause the L, R and SUB LEDs to illuminate.
    M. Dolby Upmixer or DTS NEO: X (MOVIE, CINEMA, MUSIC or GAMES) mode will cause the LF, C, RF, RS, RRS, LRS, LS and SUB to illuminate.

OUTPUT FORMAT

LF	C	RF
LS	SUB	RS
LRS	BS	RRS

Figure 57

Trim Functions

The MX160 TRIM SELECT Control together with the Front Panel Push-buttons or the Remote Control Push-buttons provide the means to select and adjust any one of the ten different Trim Functions. Refer to figures 58A and 58B (Front Panel Control and Push-buttons).
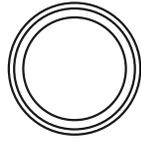
TRIM SELECT

Figure 58A

Primary Trim Setting
▼   ▲   BACK   SELECT
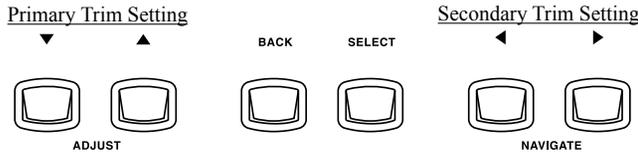
Secondary Trim Setting
◄   ►

ADJUST   NAVIGATE

Figure 58B

Figure 59 illustrates the Remote Control Trim Settings Push-buttons. The Charts to the right provide information about Trim Functions, Trim Function Adjustments and the Front Panel Information Display indicating the Trim Functions and Adjustments.

Note: Changes made to "RoomPerfect" and "Voicing" Trim Settings are retained in memory, all other Trim Adjustments return to default setting when changing Inputs and switching the MX160 On/Off.
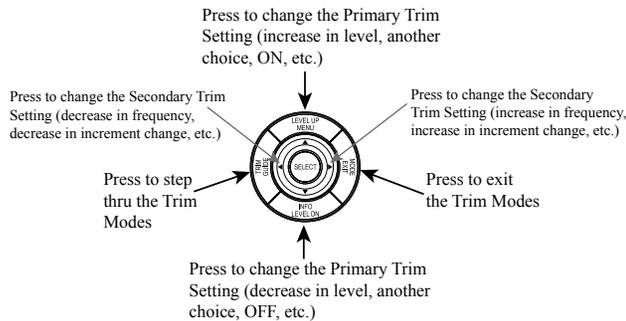
Press to change the Primary Trim Setting (increase in level, another choice, ON, etc.)

Press to change the Secondary Trim Setting (decrease in frequency, decrease in increment change, etc.)

Press to change the Secondary Trim Setting (increase in frequency, increase in increment change, etc.)

Press to step thru the Trim Modes

Press to exit the Trim Modes

Press to change the Primary Trim Setting (decrease in level, another choice, OFF, etc.)

Figure 59

TRIM FUNCTIONS	
TRIM NAME	**TRIM DESCRIPTION**
Voicing	There are seven built in different equalization variations to select from to restore musical balance: Neutral - Flat frequency response Music - Slight reduction in midrange frequencies Music II - Slight reduction in midrange frequencies and slight high frequencies reduction Relaxed - Slight increase in midbass frequencies and light reduction in midrange frequencies Tilt - Increase of low frequencies and a reduction in high frequencies Action - A slight boost in low frequencies Action + Movie - A slight boost in low frequencies and a gentle roll off in high frequencies
Bass	Allows for adjustment of the low frequencies; ±12dB in volume level, from 20Hz to 800Hz in frequency
Treble	Allows for adjustment of the high frequencies; ±12dB in volume level, from 1,500Hz to 16,000Hz in frequency
VFD Level	The Front Panel Information Display Brightness Level; has four choices 25, 50, 75 or 100 (default setting)
Multi-View	Ok to activate
Lip Sync	Allows correction when the Video and Audio are out of synchronization; time delay is adjustable from 0ms to 500ms in either 5ms or 25ms increments
Amp Light	Allows for switching Off the Meter Illumination of a connected compatible McIntosh Power Amplifiers (via the Power Control Cable Connection)
Trim Center	Allows for adjustment of the Center Channel Volume Level relative to the Front Channels and Surround Channels; ±10dB in volume level, adjustable in 1dB increments
Trim LFE	Allows for adjustment of the LFE (Low Frequency Effects) Channel Volume Level relative to the Front, Center and Surround Channels; ±10dB in volume level, adjustable in 1dB increments
Trim Surrounds	Allows for adjustment of the Surround Channels Volume Level relative to the Front Channels, Center Channel and LFE Channel; ±10dB in volume level, adjustable in 1dB increments
Room Perfect	RoomPerfect Correction Process generates two room corrections, one for the **"Focus 1"** listening location and one for the **"Global"** large listening area. (refer to page 28)

TRIM FUNCTION ADJUSTMENTS AND DISPLAY				
FRONT PANEL PUSH-BUTTONS		REMOTE CONTROL PUSH-BUTTONS		FRONT PANEL INFORMATION DISPLAY
PRIMARY ADJUSTMENT	SECONDARY ADJUSTMENT	PRIMARY ADJUSTMENT	SECONDARY ADJUSTMENT	
▼ ▲ ADJUST PUSHBUTTONS	◄ ► NAVIGATE PUSHBUTTONS	LEVEL UP (menu) PUSHBUTTON	LEVEL DN (info) PUSHBUTTON	
Neutral, Music, Music II, Relaxed,Tilt, Action or Action + Movie		Neutral, Music, Music II, Relaxed,Tilt, Action or Action + Movie		```HDMI 1``` ```Neutral 15%```
±12dB in volume level	20Hz to 800Hz in frequency	±12dB in volume level	20Hz to 800Hz in frequency	```Bass:``` ``` 0.0dB 350Hz```
±12dB in volume level	1,500Hz to 16,000Hz in frequency	±12dB in volume level	1,500Hz to 16,000Hz in frequency	```Treble:``` ``` 0.0dB 7500Hz```
25%, 50%, 75% or 100%				```VFD Level:``` ```100%```
0ms to 500ms in 5ms increments	0ms to 500ms in 25ms increments	0ms to 500ms in 5ms increments	0ms to 500ms in 25ms increments	```Lip Sync:``` ```0.0```
ON or OFF		ON or OFF		```AMP Light:``` ```ON```
±10dB in volume level, in 1dB increments		±10dB in volume level, in 1dB increments		```Trim Center:``` ``` 0.0dB```
±10dB in volume level, in 1dB increments		±10dB in volume level, in 1dB increments		```Trim LFE:``` ``` 0.0dB```
±10dB in volume level, in 1dB increments		±10dB in volume level, in 1dB increments		```Trim Surrouds:``` ``` 0.0dB```
Focus 1 or Global		Focus 1 or Global		```Room Perfect:``` ```Focus 1```

Surround Mode

The MX160 provides eight different default Surround Modes. The MX160 Signal Processing Circuitry first looks at the incoming audio signal to see if it is either Digital or Analog. If the signal is analog (two channel or multichannel) the signal will be processed according to the Surround Processing Mode selected. Multichannel Digital Audio Signals will be processed in the format of the incoming signal (eg. DTS-Master 7.1 will be processed as a 7.1 channel signal).

The MX160 Surround Processing Modes:

      1. None
      2. dts Neo: X Cinema
      3. dts Neo: X Music
      4. dts Neo: X Game
      5. Auro-3D/Auromatic
      6. Dolby Upmixer
      7. Stereo
      8. Party

In the first example, the selected Input is Tuner with a 2-Channel Digital Audio Signal Present. Pressing the Front Panel DISPLAY MODE Push-button, the Information Display indication is illustrated in figure 60.

```
Audio Out:      2.0.0
Stereo Downmix
```
Figure 60

Pressing the Front Panel DISPLAY MODE Push-button four times, the Information Display indication is illustrated in figure 61.

```
Audio:     48kHz 2.0.0
PCM
```
Figure 61

The second example has the HDMI 1 Input selected and a Dolby Atmos Digital Multichannel Signal present. Refer to figure 62.

```
Audio Out:
No Post Processing
```
Figure 62

Pressing the Front Panel DISPLAY MODE Push-button four times, the Information Display indication is illustrated in figure 63.
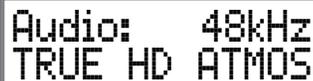
```
Audio:    48kHz
TRUE HD ATMOS
```
Figure 63

Note: Any changes made using the Surround Mode Control only apply until a different Input is selected or power is switched Off. The next time a given Input is selected, the default Surround Mode Processing will apply.

In the Setup Mode, the default Surround Mode settings for each Input may be changed. Refer to "Audio Setup Mode" starting on page 25.

Display Mode

The Display Mode Function indicates the operational status of the MX160 on the Front Panel Information Display. Pressing the Front Panel DISPLAY MODE Push-button or the Remote Control INFO Push-button allows viewing the Audio, Video, Audio Processing and Network Connection of the MX160. In the chart below, the information listed occured during playback of a 4K Blu-ray Video Disc with a Dolby ATMOS Soundtrack; a 4K Blu-ray Player is connected to the HDMI 1 Input Connector on the Rear Panel of the MX160.

Front Panel Display Modes		
Button Presses	**Description**	**Front Panel Display Indication**
None	Default display indicates Input Voicing Setting and Volume Level	HDMI 1 Neutral 12%
One*	Indicates the Format of the incoming Audio Signal	Audio: 48.0kHz TRUE HD ATMOS
Two*	Indicates the Audio Out Processing status of the signal	Audio Out: No Post Processing
Three*	Indicates the incoming and outgoing Video Signal Resolution	Video 2160p
Four*	Indicates the MX160 Network assigned IP Address, allowing for remote control operation of the MX160 via a Computer and Internet Web Brower	IP Address 192.168.1.1
* Note: The number of Button Presses and which Display Mode is indicated from this chart, is for the first time AC Power is applied. After the first time the Display will indicate which Display Mode was last selected.		

Late Night
The LATE NIGHT Push-button turns a volume compression circuit On and Off. This feature suppresses loud sounds or music that might disturb neighbors or others not in the immediate area of the Home Theater. Soft levels are also raised slightly so they are still listenable at reduced overall volume levels. This works only on a Dolby Digital Sound Track with encoded data that supports the compression function.

Setup
Pressing the SETUP Push-button activates the MX160 SETUP Mode for making changes to the System settings.

Adjust ▼ ▲
The ADJUST ▼ (Down) and ▲ (Up) Push-buttons allow for adjustment of a selected Trim Function and are used when in the Setup Mode.

Back
When the MX160 is in Setup Mode it is used for returning to a previous Menu Screen.

Select
When the MX160 is in the Setup Mode it is used to select the highlighted option.

Navigate ◄ ►
The NAVIGATE ◄ (Left) and ► (Right) Push-buttons move Left or Right through Menu Options. Also used to activate the Trim Mode selecting the various Trim Functions.

Reset of Microprocessors
In the highly unlikely event the Controls and/or Push-buttons on the MX160 become non-response, it may become necessary to reset the microprocessors in the MX160. Perform the following steps to take corrective action:
1. Switch the Rear Panel Main Power Rocker Switch to the OFF ○ Position.
2. After having waited at least 20 seconds, switch the Rear Panel Main Power Rocker Switch to the ON▬ Position
3. Press the STANDBY/ON Push-button.

How to Operate Zone B

The MX160 includes the capability of being able to operate and control a second audio zone (Zone B), independently from the Main Primary Home Theater Listening Area (Zone A). Zone B is configured for a Secondary Remote Location providing two channel audio listening.

Operating Zone B from the MX160 Front Panel
To activate Zone B Control from the MX160 Front Panel, perform the following steps.
1. With the MX160 On, press the ZONE B CONTROL Push-button. The LED above the ZONE B CONTROL Push-button will now illuminate and the Front Panel Information Display will indicate "Zone B: Off" with a zero volume setting. Refer to figures 64 and 65.

```
Zone B: Off
_
```
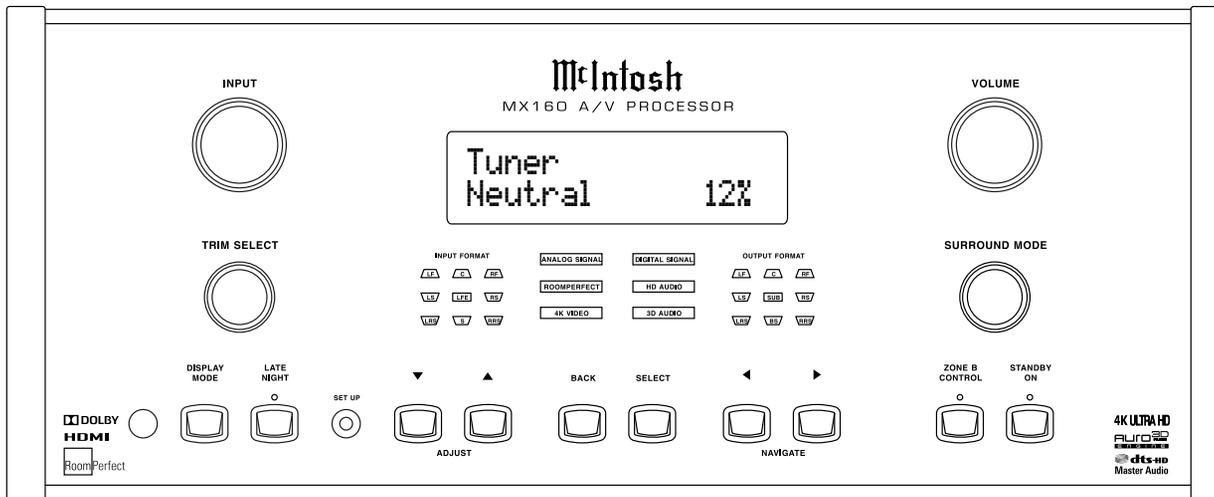Figure 64

Then press the STANDBY/ON Push-button to switch Zone B On. The Front Panel Information Display will indicate the Zone B Source with no Volume Setting. Then rotate the VOLUME Control to the desired volume level for Zone B. Refer to figure 66.

```
Zone B:         31%
Follow Main
```
Figure 66

Note: The first time Zone B is switched On, the default source is "Follow Main" (which is the same Input Source as Zone A). After the first time, Zone B will wake up to the last source and previous volume setting, unless changed in the MX160 Zone B Setup Menu, refer to page 26).

2. Rotate the INPUT Control to select the desired source for Zone B. Refer to figure 67.
3. Return to Main (Zone A) Front Panel Control at any time by pressing the ZONE B CONTROL Push-button, the LED illumination above the

```
Zone B: Tuner    31%
```
Figure 67

ZONE B CONTROL Push-button will go out. The Front Panel Information Display will now indicate current Zone A status and returns the Front Panel Controls, Displays and Push-buttons for Zone A operation.

4. To switch Zone B Off, first press the ZONE B CONTROL Push-button (unless the LED above the push-button is already illuminated) then press the STANDBY/ON Push-button. Refer to figure 64.

Operating Zone B from a Sensor
To activate Zone B Control from an External IR Sensor using a Remote Control, perform the following:
1. Press the ⏻(Power On) Push-button on the Remote Control aimed at a Sensor located in the Zone B area.
   Note: The Front Panel Alphanumeric Display will indicate "Zone B is on" (Zone A needs to be On). Refer to figure 67.
2. Select the desired Zone B Source by pressing the INPUT ▲ Up or ▼ Down Push-button on the Remote Control. Refer to figure 68.
3. Press the VOLume ▲ Up or ▼ Down Push-button to adjust the volume to the desired listening level.
4. Press the ◁ MUTE Push-button to mute the sound; press the MUTE Push-button to resume listening.
5. If a McIntosh source component is connected to the MX160 via data ports, basic operating functions of the source component can be performed using the Remote Control aimed at a Sensor located in Zone B.
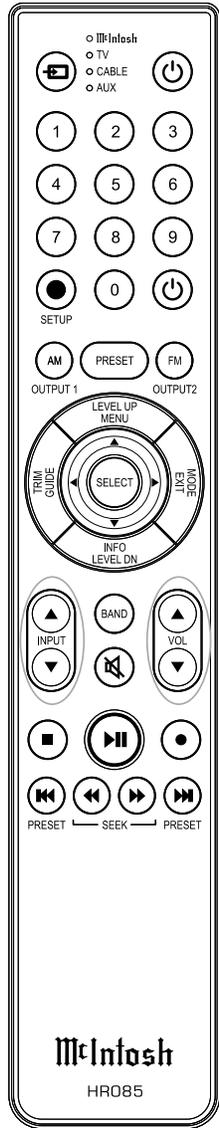

Figure 65

Figure 68

Advanced Operation and Setup

Introduction
The MX160 A/V Processor has the ability to be remotely controlled by a PC running Windows via a network connection. Remote functions include access to the MX160 Setup and User Operation along with indicating the current Operational Status. The PCs GUI (Graphical User Interface) together with a keyboard and mouse, allows for quicker navigation of menus, entering settings, viewing current status and operating the MX160.

Hardware Requirements
The hardware requirements include a functioning MX160 A/V Processor, TV/Monitor, Computer with Windows (OS versions 7 thru 10) with an internet browser program. The MX160 and Computer need to e connected to the same RJ45 Wired Network.

Hardware Connections
With power Off to the MX160 make the following connections:
1. An Ethernet Connection between the MX160 NET 1 (using a CAT5, CAT5E or CAT6 cable) to a Computer Network. Refer to figure 70.
   Note: A single computer may be connected to the MX160 NET RJ45 Connection by using a RJ45 CAT5/5E/6 Crossover Adapter/Cable and RJ45 CAT5/5E/6 cable(s). Refer to figure 71.
2. A TV/Monitor connected to the MX160 (Zone A).

Operation and Setup Menus
The following steps are based on having operated the MX160 A/V Processor including using the Setup Mode. Refer to the MX160 Owner's Manual - pages 17 thru 29 and the MX160 Menu separate folded sheets "MX160-Menu-1 thru Menu-11". These separate
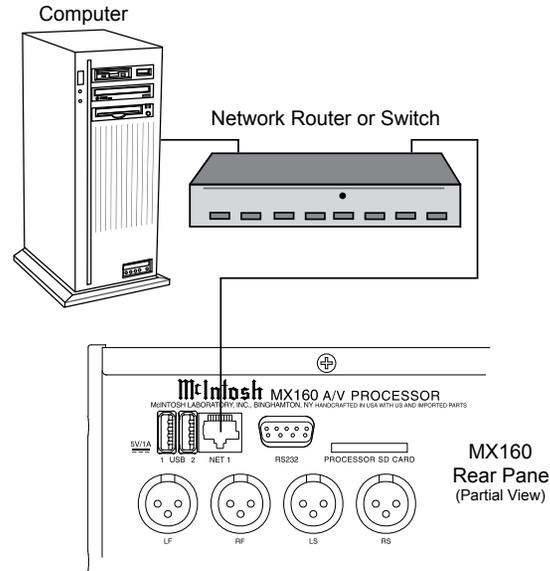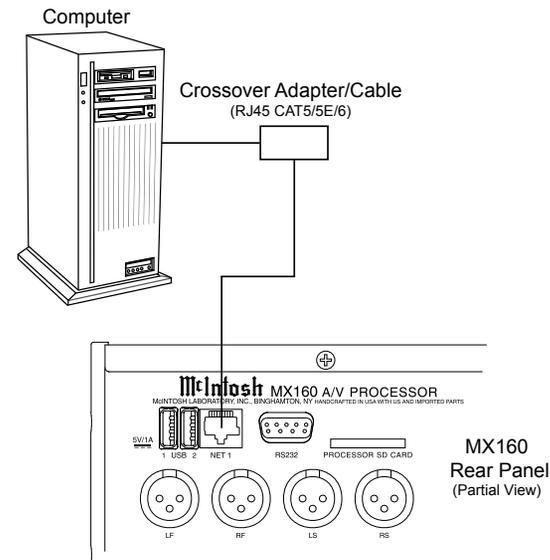

Figure 70

Figure 71

sheets are contained in the Owner's Manual Packet.
1. Switch power On to the MX160, TV/Monitor and Computer.
2. Repeatedly press the Front Panel DISPLAY MODE Push-button until the Information Display indicates the current "IP ADDRESS" number assigned to the MX160.
3. Launch the Computer Internet WEB Browser and enter in the URL (Uniform Resource Locator) entry box the current MX160 IP Address "http://___.___.___.___" and press return. Refer to figure 72.

In the upper left corner of the Computer WEB Browers Display there is a three item selection Menu under the title "MODEL MX160". The choices include "HOME (Zone A), ZONE B and SETUP". Refer to figures 72, 73 and 74.
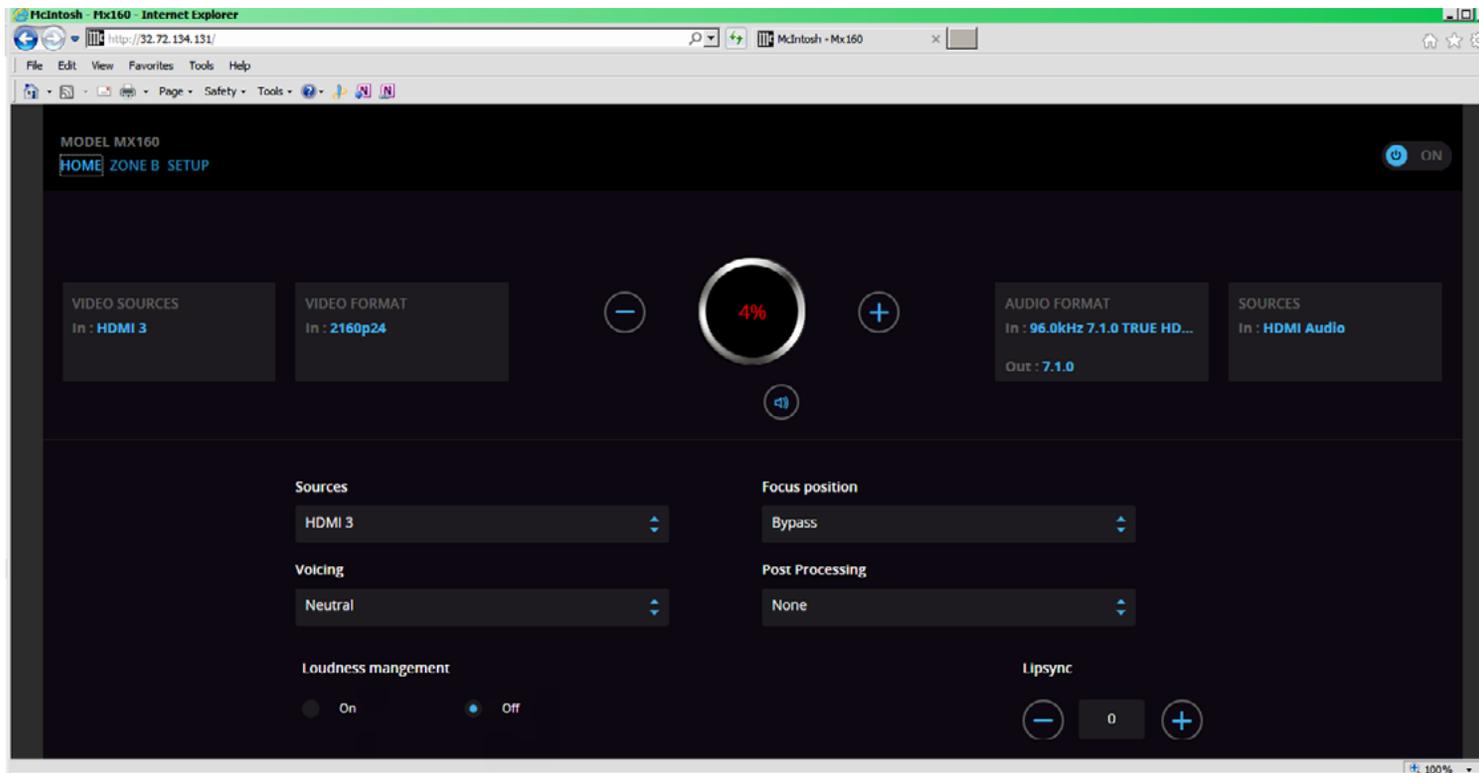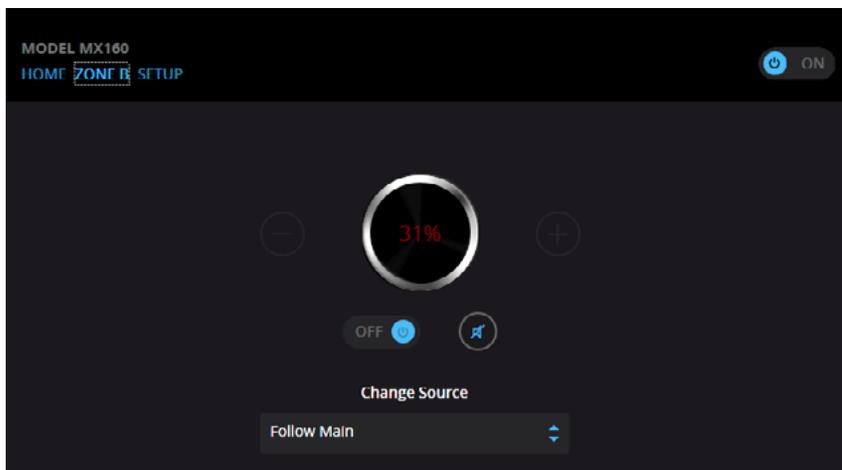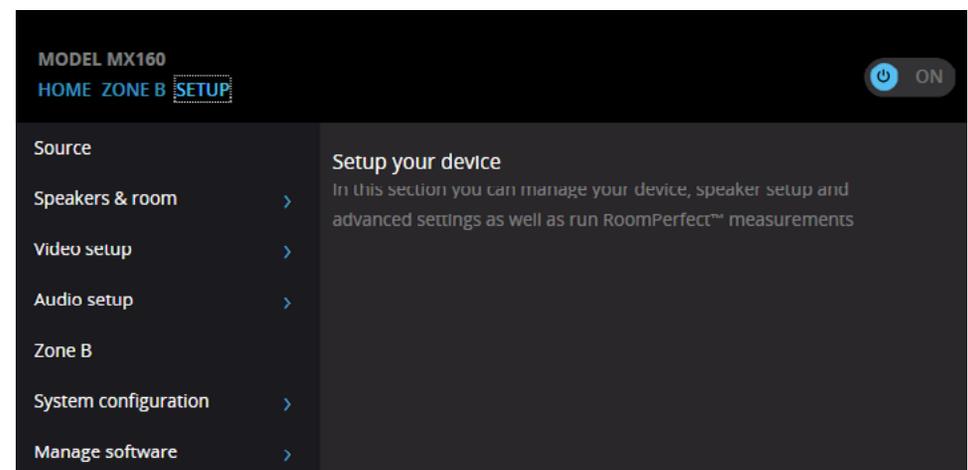
Figure 72

Figure 73

Figure 74

Introduction

The MX160 offers additional Zone A Left Front Channel and Right Front Channel Balanced Outputs. These Auxiliary Outputs (1 thru 4) may be used for additional subwoofer outputs or for using the MX160 built-in electronic crossover circuitry. In this guide, the example will illustrate connections along with Setup Mode Settings for using the MX160 Electronic Crossover Circuitry.

Almost all Loudspeakers incorporate acoustic drivers and a passive crossover network. The passive crossover network channels the various audio frequencies to the appropriate acoustic driver taking into account the amplitude and phases of the audio signals the Loudspeaker reproduces. When an electronic crossover circuitry in the MX160 is used together with multiple Power Amplifiers and Loudspeakers, it is very important to maintain the correct amplitude and phases of the audio signals for accurate sound reproduction. Refer to pages 20 thru 22 and the MX160-Menu-3 separate folded sheet to set the "Custom" Crossover and Gain Settings.

Connecting the MX160 when using the Electronic Crossover

The following connection instructions and illustration on the next page are a supplement to the MX160 Zone A Output Connection instructions on page 11 of the Owner's Manual and the separate folded sheet "**Mc2B**" Diagram. It is an example of a typical Home Theater 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 5 of the MX160 Owner's Manual.

Power Control Connections:
1. Connect a Control Cable from the MX160 POW-ER CTRL (Power Control) OUT A Jack to the Power Control In on Zone A Power Amplifier One.
2. Connect a Control Cable from Zone A Power Amplifier One Power Control Out to Zone A Power Amplifier Two Power Control In Jack.

Perform additional Power Control Connections starting with step 3 on page 11 of the MX160 Owner's Manual.

Analog Audio Connections:
3. Connect Balanced Audio Cables from the MX160 Zone A - L (Left Front Channel) and R (Right Front Channel) to Zone A Power Amplifier One (High Frequencies) Inputs 1 and 3 respectively.
   Note: Unbalanced Audio Connections may be used in place of the Balanced Connections.
4. Connect Balanced Audio Cables from the MX160 Zone A - AUX 1 (Left Front Channel) and AUX 2 (Right Front Channel) to Zone A Power Amplifier Two (Low Frequencies) Inputs Left and Right respectively.

Perform additional Analog Audio Connections for the remaining channels, HDMI Connections and AC Power Cords by refering to steps (6 thru 11) on page 11 of the MX160 Owner's Manual.
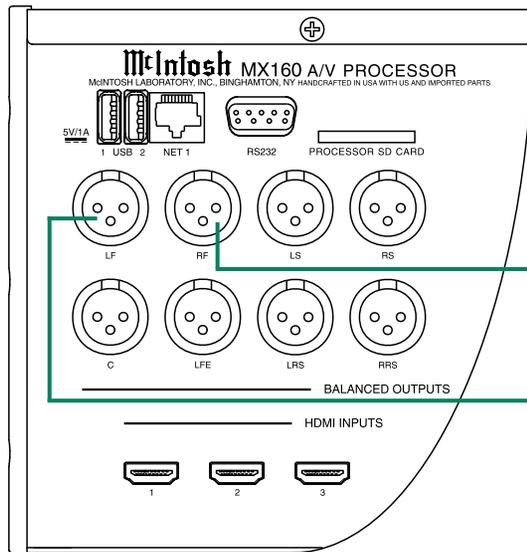

MX160 (Partial View)

Connect to AC Outlet
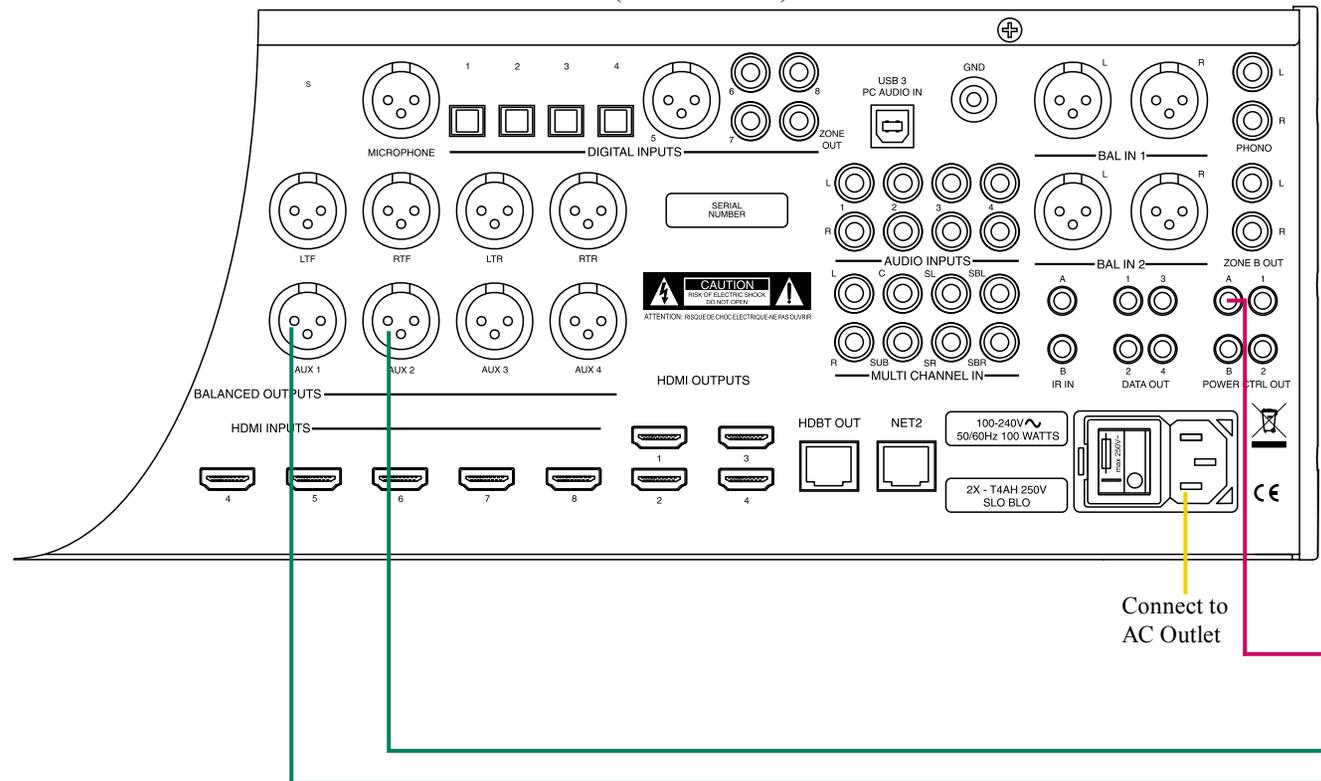
Note: Refer to the MX160 Owner's Manual pages 10 and 11 for additional connection information.
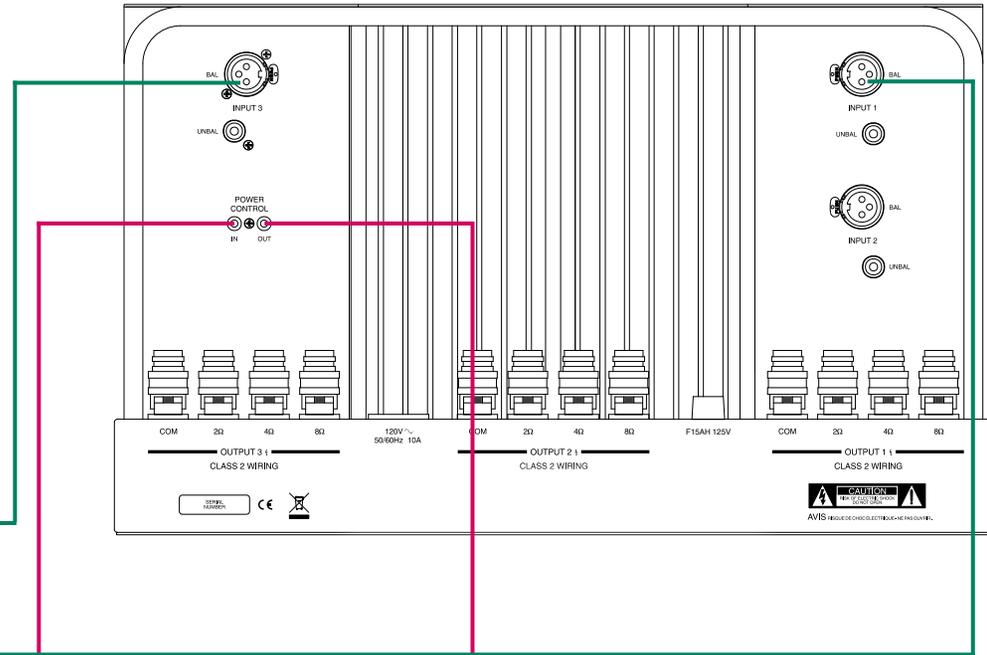
Connection Legend:
Power Control Cable* -   *AC Power Cords -*
Audio Signal Cable -
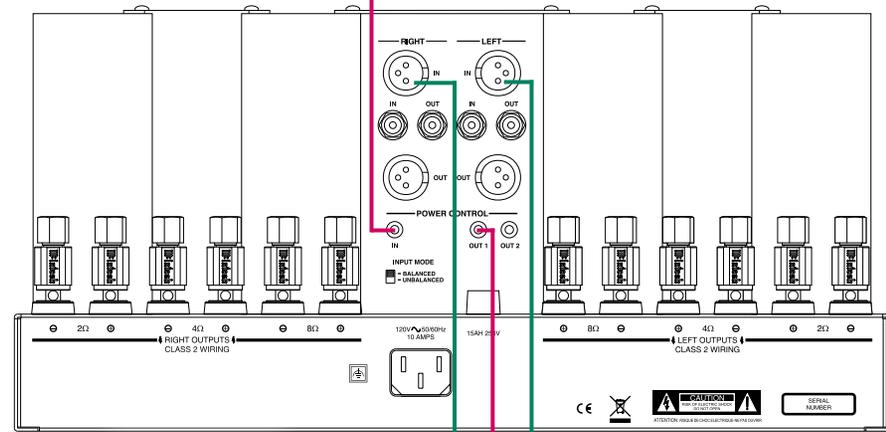** 2 conductor shielded with 1/8 inch stereo mini phone plug on each end.*

MX160 (Partial View)

Zone A - Power Amplifier One
High Frequencies
Left Front and Right Front Channels; Center Channel

Zone A - Power Amplifier Two
Low Frequencies
Left Front and Right Front Channels

Connect to the next Power
Amplifier, Power Control IN

Audio Specifications

Unless otherwise noted, the below MX160 Specifications where taken with RoomPerfect set to Bypass Mode and Voicing Mode set to Neutral.

Frequency Response
Left, Center, Right, Left Surround, Right Surround, Left Back Surround, Right Back Surround:
±0.5dB from 20Hz-20,000Hz

Subwoofer:
±0.5dB from 20Hz-8000Hz

Total Harmonic Distortion
0.005% maximum from 20Hz to 20,000Hz at rated output

Signal To Noise Ratio
Phono: 86dB below 10mV input (A Weighted)
High Level: 96dB below rated output (A Weighted)

Rated Output Voltage
2.5V Unbalanced Outputs (Main)
5.0V Balanced Outputs (Main)

Maximum Voltage Output
6.5V Unbalanced (8.5V Subwoofer)
13V Balanced (17V Subwoofer)

Output Impedance
75 ohms Unbalanced
100 ohms Balanced

Input Impedance
Phono: 47k Ohms, 65pf
High Level: 10k Ohms Unbalanced and Balanced

RoomPerfect and Voicing Specifications

Sensitivity for Rated Output
Phono: 5mV
High Level: 500mV Unbalanced
             1V Balanced

Maximum Input Signal
Phono: 50mV
High Level: 4.5V Unbalanced and Balanced

Tone Controls
Bass Control: ±10dB at 30Hz
Treble Control: ±10dB at 10,000Hz

General Specifications

Power Requirements
100 Volts, 50/60Hz at 100 watts
110 Volts, 50/60Hz at 100 watts
120 Volts, 50/60Hz at 100 watts
220 Volts, 50/60Hz at 100 watts
230 Volts, 50/60Hz at 100 watts
240 Volts, 50/60Hz at 100 watts
Standby, less than 0.5 watt
  Note: Refer to the rear panel of the MX160 for the correct voltage.

Overall Dimensions
Width is 17-1/2 inches (44.5cm)
Height is 7-5/8 inches (19.4cm) including feet
Depth is 19-1/2 inches (49.53cm) including the Front Panel, Knobs, Rear Panel Connections and USB Drive

Weight
32 pounds (14.5Kg) net, 56 pounds (25.4Kg) shipping

Shipping Carton Dimensions
Width is 25 inches (63.5cm)
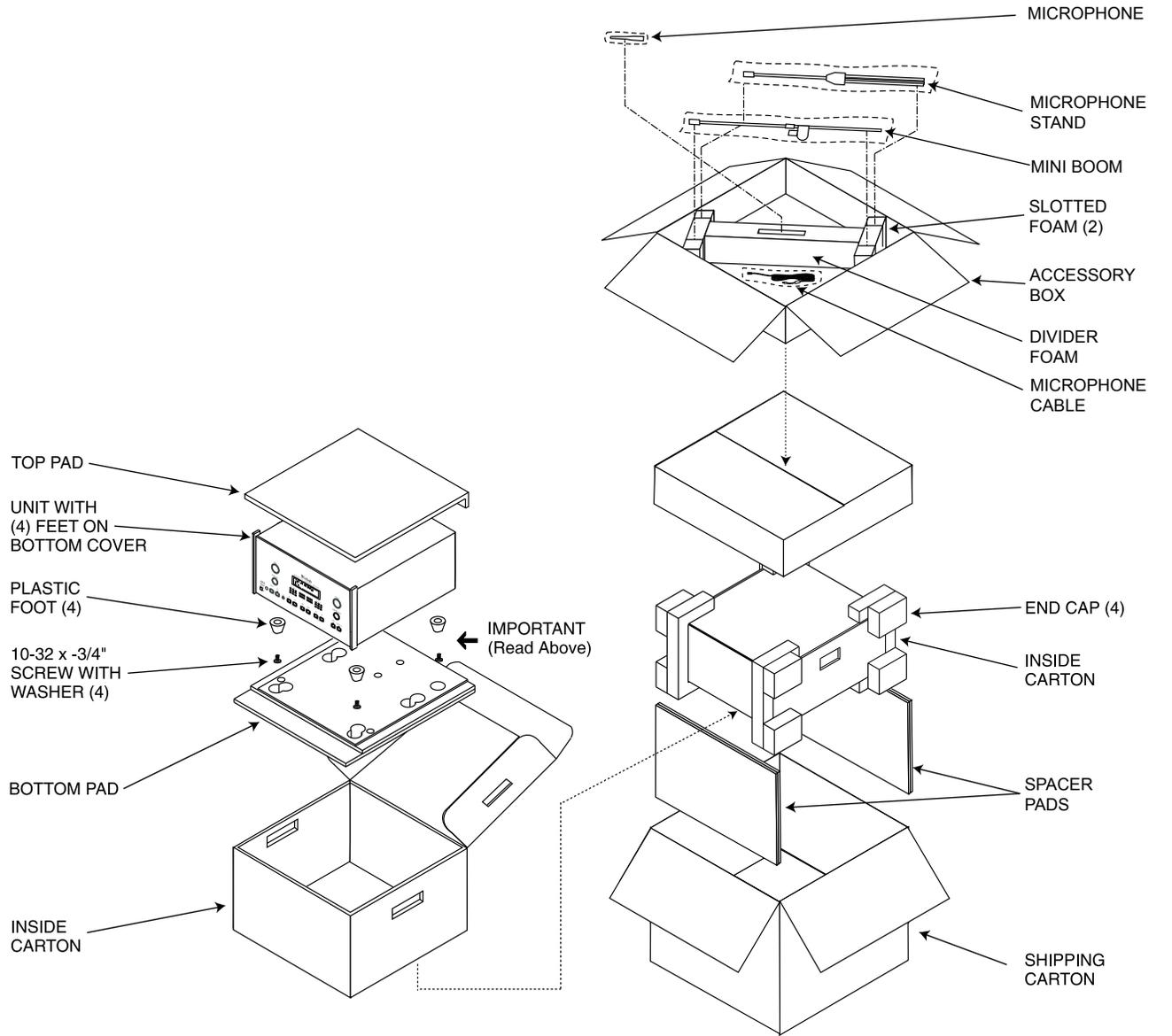Depth is 28 inches (71.12cm)
Height is 18-3/8 inches (46.67cm)

Packing Instructions

In the event it is necessary to repack the equipment for shipment, the equipment must be packed exactly as shown below. It is very important that the four plastic feet are attached to the bottom of the equipment. This will ensure the proper equipment location on the bottom pad. Failure to do this will result in shipping damage.

Use the original shipping carton and interior parts only if they are all in good serviceable condition. If a shipping carton or any of the interior part(s) are needed, please call or write Customer Service Department of McIntosh Laboratory. Refer to page 4. Please see the Part List for the correct part numbers.

Quantity	Part Number	Description
1	034256	Shipping carton only
4	033887	End cap
2	034493	Spacer pad
1	033697	Inside carton only
1	033725	Inner carton top pad
1	034576	Bottom pad
2	034446	Foam plug
4	017937	Plastic foot
4	400159	#10-32 x 3/4" screw
4	404080	#10 Flat washer
1	034499	Accessory Box
2	034500	Slotted foam
1	034501	Divider foam

MICROPHONE

MICROPHONE STAND

MINI BOOM

SLOTTED FOAM (2)

ACCESSORY BOX

DIVIDER FOAM

MICROPHONE CABLE

TOP PAD

UNIT WITH (4) FEET ON BOTTOM COVER

PLASTIC FOOT (4)

10-32 x -3/4" SCREW WITH WASHER (4)

IMPORTANT (Read Above)

BOTTOM PAD

INSIDE CARTON

END CAP (4)

INSIDE CARTON

SPACER PADS

SHIPPING CARTON

McIntosh Laboratory, Inc.
2 Chambers Street
Binghamton, NY 13903
www.mcintoshlabs.com

The continuous improvement of its products is the
policy of McIntosh Laboratory Incorporated who
reserve the right to improve design without notice.
Printed in the U.S.A.