AUTONOMIC

MMS 1E/3E/5E

Multi-Source Music Streamer with eAudioCast™



eSERIES

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Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including other amplifiers) that produce heat.
9. Use the apparatus only in Moderate climates (not in tropical climates).
10. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other, a grounding type plug has two blades and a third grounding prong, the wide blade or the third grounding prong are provided for your safety. If the provided plug does not fit onto your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments / accessories specified by the manufacturer.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. If you install the apparatus in a built-in installation, such as a bookcase or rack, ensure that there is adequate ventilation. Leave 20cm (8") of free space at the top and sides and 10cm (4") at the rear. The rear edge of the shelf or board above the apparatus shall be set 10cm (4") away from the rear panel or wall, creating a flue like gap for warm air to escape. Good airflow is necessary to help ensure proper operation. Not only should you provide enough free space around the unit, but also ensure that air can flow freely and escape from the amplifier surroundings. Failure to do so may cause thermal shutdown of the unit, and reduced life expectancy.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as:
    a. When the power supply cord or plug is damaged.
    b. If liquid has been spilled, or objects have fallen into the apparatus.
    c. If the apparatus has been exposed to rain or water.
    d. If the apparatus has been dropped or damaged in any way.
    e. If the apparatus does not operate normally by following the instructions. Adjust only those controls that are covered by the operating instructions.
    f. When the apparatus exhibits distinct change in performance this indicates a need for a service.

WARNING!
Do not expose the apparatus to dripping or splashing. Do not place objects filled with liquids near the apparatus.
WARNING!
To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
WARNING!
Equipment must be connected to a Mains socket outlet with a protective earthing connection.
WARNING!
Never push objects of any kind into the apparatus through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.
IMPORTANT!
Ensure adequate ventilation. Do not install in a cabinet that is smaller than 60cm (24") wide x 45cm (18") deep x 20cm (8") high. If you do the device may overheat.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Precautions

1. **AC Fuse**
   The AC fuse inside the unit is not user-serviceable. If you cannot turn on the unit, contact the dealer from whom you purchased this unit.
2. **Care**
   Occasionally you should dust the unit all over with a soft cloth. For stubborn stains, use a soft cloth dampened with a weak solution of mild detergent and water. Dry the unit immediately afterwards with a clean cloth. Don't use abrasive cloths, thinners, alcohol, or other chemical solvents, because they may damage the finish or remove the panel lettering.
3. **POWER WARNING: Before plugging in this device for the first time, read the following section carefully.**
   AC outlet voltages vary from country to country. Make sure that the voltage in your area meets the voltage requirements printed on the unit's rear panel. e.g. ~ 110V / 240V, 50/60HZ. The power cord is used to disconnect this unit from the AC power source. Make sure that the plug is readily operable (easily accessible) at all times. If you do not intend to use the unit for an extended period, remove the power cord from the AC outlet.
4. **Earth**
   The unit is defined as Class1 in EN60065 (low voltage directive) and MUST BE EARTHED. Connect only to a mains socket outlet with protective earth, and only use the power cord supplied.
   Finland: "Laite on Liitettävä suojamaadoituskoskettimilly varustettun pistorasiaan"
   Norway: "Apparatet må tilkoples jordet stikkontakt."
   Sweden: "Apparaten skall anslutas till jordat uttag."
5. **Never Touch This Unit with Wet Hands**
   Never handle this unit or its power cord while your hands are wet or damp. If water or any other liquid gets inside this unit, have it checked by your Autonomic dealer.
6. **Handling Notes**
   a. If you need to transport this unit, use the original packaging.
   b. Do not leave rubber or plastic items on this unit for a long time; they may leave marks on the case.
   c. This unit's top and rear panels may get warm after prolonged use. This is normal.
7. **Speaker Shorts**
   Under no circumstances should the speaker output terminals of the unit be short circuited, grounded or connected to another output.

8. **Direct Sun light**
   Avoid installing the amplifier in positions where the front panel is exposed to direct sunlight – may cause control to become sluggish
9. **Controller Connection**
   Never connect more than eight Autonomic controllers. The supply is internally fused (self-resetting) and may open circuit. Never connect the unit's 12VDC terminal ("Bus Run" port) to an external power supply.

Declaration of Conformity

We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards:

- EN60065
- EN55013
- EN55020
- EN61000-3-2
- EN61000-3-3

Following the provisions of Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC, the EC regulation 1275/2008 and its frame work Directive 2009/125/EC for Energy-related Products (ErP).

TUV Certification

This product has been certified and conforms to UL60065 and certified to CAN/SSA, IEC 60065.

For North American Models

FCC interference statement
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT!

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

For Canadian Models

NOTE: THIS CLASS B DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

For models having a power cord with a polarized plug:

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT FULLY INSERT.

Modèle pour les Canadien

REMARGUE: CET APPAPEIL NUMÉRIQUE DE LA CLASSE B EST CONFORME À LA NORME NMB-003 DU CANADA.

Sur les modèles dont la fiche est polarisée:

ATTENTION: POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

A Note About Recycling

This product's packaging materials are recyclable and can be reused. Please dispose of any materials in accordance with the local recycling regulations.



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.

This product and the supplied accessories constitute the applicable product according to the WEEE directive.

New Dealers - What to know

We strongly recommend performing setup and configuration prior to installing at the customer site. This is especially important if this is your first time working with the product. Please retain this manual for future reference.

Important Tools and Resources

Resources

- OvrC – http://www.ovrc.com/
- DealerZone – https://dealerzone.autonomic-controls.com/
- Knowledge Base – www.autonomic-controls.com/kb

Tools

- a display monitor or laptop or tablet connected to the internet
- audio/network cables,
- a voltmeter,
- headphones,
- powered speakers

Get to Know the MMS

Overview

The MMS product line offers state-of-the-art, high resolution audio with the convenience of accessing all local audio content and streaming Internet services with a single device.

Multiple independent streams of audio (five on the MMS-5e, or three on the MMS-3e, and 2 on the MMS-1e) can be played using analog, digital, or pristine jitter-free high definition USB audio for audiophile DACs and high-end amplifiers that have digital USB inputs.

The MMS has one video output that can be configured to display Now Playing information for any of the audio outputs.

MMS Capabilities

- Control of multiple discreet audio channels throughout the home.
- Play back of audiophile grade uncompressed, lossless 24-bit/192kHz audio files through analog, digital coax or USB outputs.
- Browse music and control playback from around the home using any iOS or Android device, web browser, or control system including Crestron, AMX, Control4, RTI, URC, Savant, ELAN, Command Fusion and BitWise.
- Access an online library of tens of thousands of albums with Napster®, Spotify or Slacker Premium.
- Access SiriusXM online without having to install an antenna.
- Create custom radio stations via Pandora or Slacker Radio.
- Browse thousands of AM and FM radio broadcasts around the world using TuneIn Internet Radio service.
- Synchronize with Apple iCloud. (Requires the Media Sync and iTunes software to be installed). This synchronization allows access to media anywhere in the world using any iOS or Android device or web browser.
- Synchronize the content of multiple MMS Servers located anywhere on the planet using Google Drive.
- Play content from any Android or iOS device through a home audio system using Spotify Connect available on each audio output on the MMS.

Streaming Services

NOTE: This product incorporates Spotify software which is subject to 3rd party licenses found here:
https://developer.spotify.com/esdk-third-party-licenses/

The MMS provides access to several online music services via an Internet connection, such as PANDORA®, SiriusXM, Spotify, Slacker, Napster and TuneIn.

Autonomic is constantly working to develop partnerships with content service providers to bring even more of the best Internet-delivered media through future firmware updates.

Local Content

To keep libraries organized, the MMS comes preloaded with software to install onto a Mac or PC that automatically keeps music files and playlists synchronized with the server. This software can be downloaded from the server onto the computers once the MMS is setup on the home network. Whenever new content is added to the computer, the MMS Media Sync software automatically catalogs it and sends it to the MMS server for on-demand playback. The MMS can be configured to stream content from a NAS device or other shared network storage as well.

Cloud Synchronization Features

The MMS can synchronize with Google Drive™ and Apple iCloud™ (iCloud requires the MMS Media Sync and iTunes software to be installed). This unique feature provides several distinct benefits:

1. All content can be bidirectionally synchronized with MMS servers at multiple locations by entering the same credentials at each site.
2. All content is securely backed up off site on Google or Apple servers. (Confirm)
3. The entire library can be accessed in nearly any location using a number of different applications available on Android and Apple iOS mobile devices or with your laptop.
4. The MMS can be configured so that any time new music is purchased either in the home or with a mobile device, it is automatically added to the home library (or other connected locations).

TuneBridge

TuneBridge™ technology can easily switch between online services and purchased music in a library. Mixed queues and playlists can be created with content from Napster, Spotify and the local music collection. TuneBridge can instantly queue up an entire album with Napster or Spotify, or play a custom Pandora or Slacker radio station with similar music from a song played from the local library, online radio or streaming service.

Control System Integration

The MMS Media Server is designed to work seamlessly in an automated home environment. Autonomic works closely with all leading control system manufacturers to ensure the smoothest operation and access to all features of the MMS on control system touch panels or automation applications. Autonomic has partnered with Crestron, AMX, Control4, URC, RTI, Savant, Elan, Command Fusion, Bitwise Controls, and Key Digital to provide modules, UI templates and other tools needed for a successful integration.

Features

Thank you for purchasing an MMS. Please read this manual thoroughly before making connections and plugging in the device. Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new Media System. Please retain this manual for future reference.



MMS-5e



MMS-3e

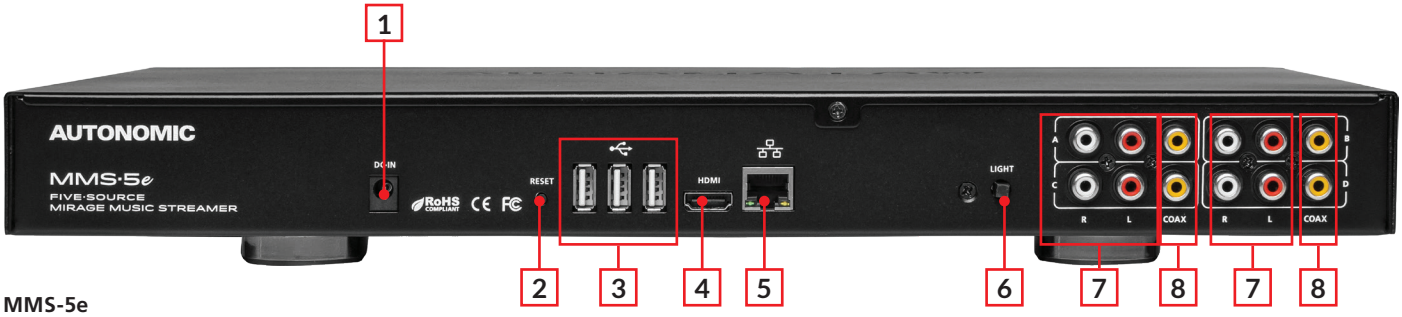


MMS-1e

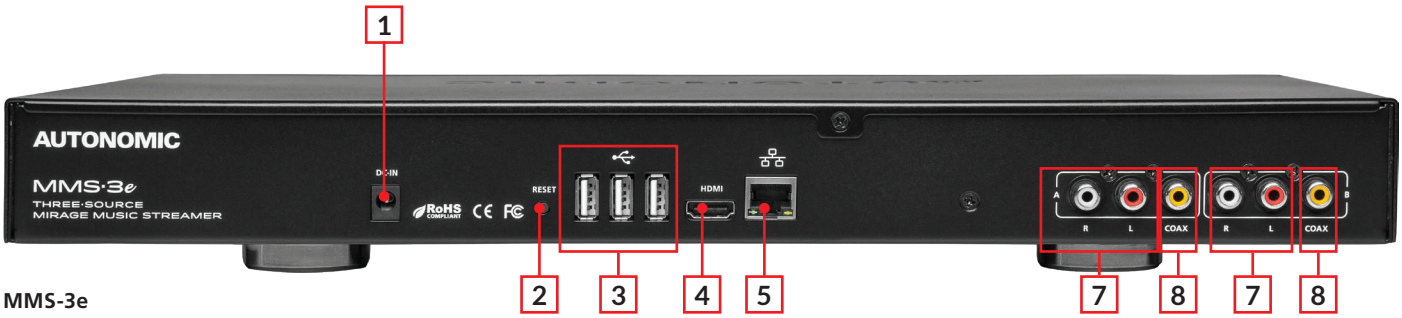
1. **Infra-Red Receiver (5e and 1e Only)**
   Receiver for front panel IR control (Used only for amplifier control, not IR pass through). A remote not supplied, however an IRC profile is located at:
   www.Autonomic-Controls.com/Support/
2. **Power Indicator (5e and 1e Only)**
   Lights blue when AC power is supplied.

Note: The power button lights blue on the 3e when power is supplied.

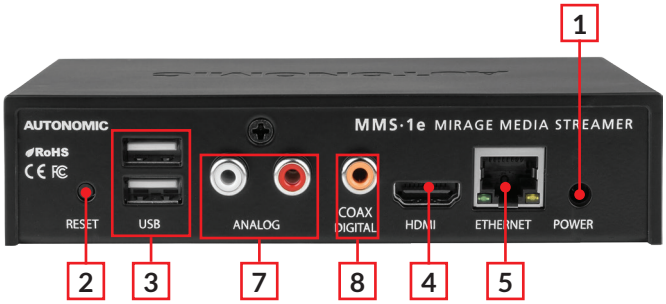
3. **Chassis Feet**
   Provide unrestricted air-flow through the chassis for convection cooling.
4. **Power Button**
   Press to manually power on and off the server. Illuminates when powered on.
5. **Rack Mount Ears (Optional)**
   To mount the server in a rack. (Not pictured)



MMS-5e



MMS-3e



MMS-1e

1. **AC Inlet**
   Connect power source to this port.
2. **Reset Button**
   Press to soft reset the server.

Note: Press and hold the reset button for 10 seconds while the server powers on to factory reset. Progress of the reset can be displayed on screen via the HDMI output.

3. **USB Ports**
   To connect an external hard drive for additional storage.
4. **HDMI Port**
   To connect a display for set up and "Now Playing" information.
5. **Ethernet Port**
   Ethernet port for connection to the Home network.
6. **Light Switch (5e only)**
   Press to turn on the light bar.
7. **Zone Pre Amplifier Out**
   Analog Audio L/R zone outputs
8. **Coax Digital Source Output Terminals** Coax digital outputs for expansion to further amplifier zones.

MMS - Connections

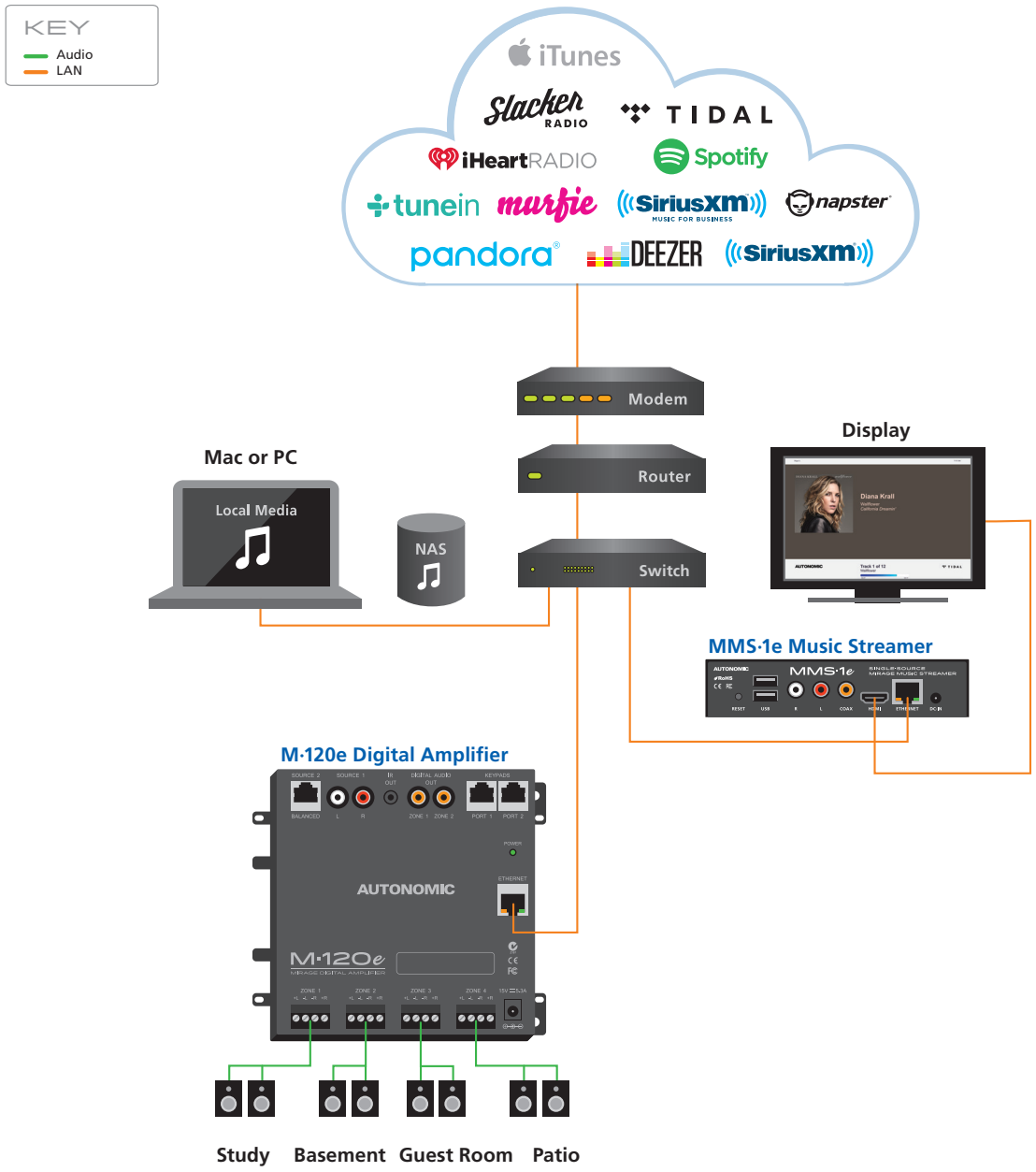
See below for a basic connection diagram for an MMS setup.

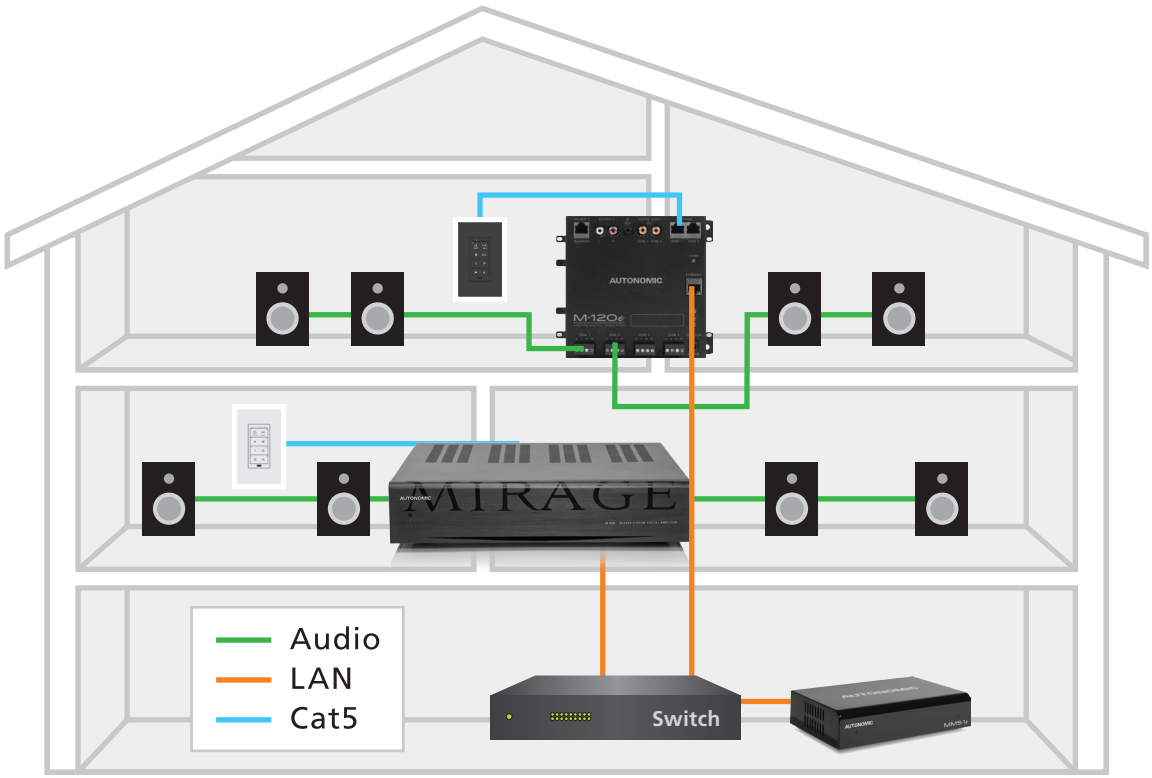
This section provides an overview of powering up the server for the first time and using the MMS Configuration Utility to configure the device.

NOTE Plug everything in and connect all wires before powering up. It is recommended to attach a display when first powering up the server as the IP address will be on screen.

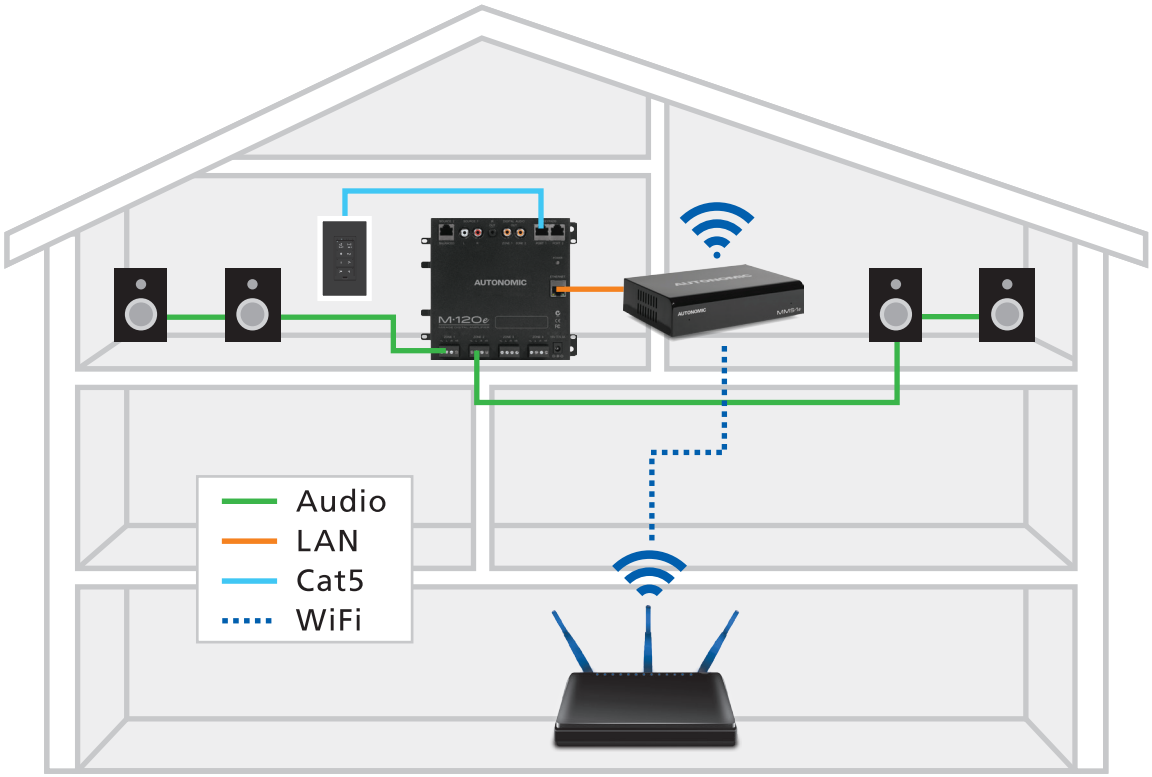
Once all necessary connections are made, press the power button located on the front of the unit once to turn on the MMS. The power button will illuminate.

Wait 2-3 minutes for the server to completely boot up. If the server is connected to a video display, wait until the Now Playing screen shows on the display.





Recommended **WIRED** Configuration for Distributed Audio Installation



Recommended **WIRELESS** Configuration for Distributed Audio Installation

MMS - Web Configuration

Initial configuration of the MMS is accomplished through a web browser using the MMS web interface. Launch Internet Explorer or Google Chrome and enter the URL as such: **http://<Server-IP>/config.** For example, if the IP address of the MMS is 192.168.1.10, the URL for accessing the Web Configuration is **http://192.168.1.10/config.**

Configuration is broken up into Tabs (Machine, System, Content, Schedule, Control Systems and Firmware).

Machine Tab

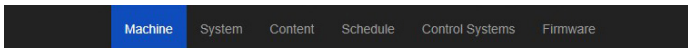


Figure 1

The Machine tab allows setup for important functions such as server identification, remote management, access security, time zone and IP network settings.

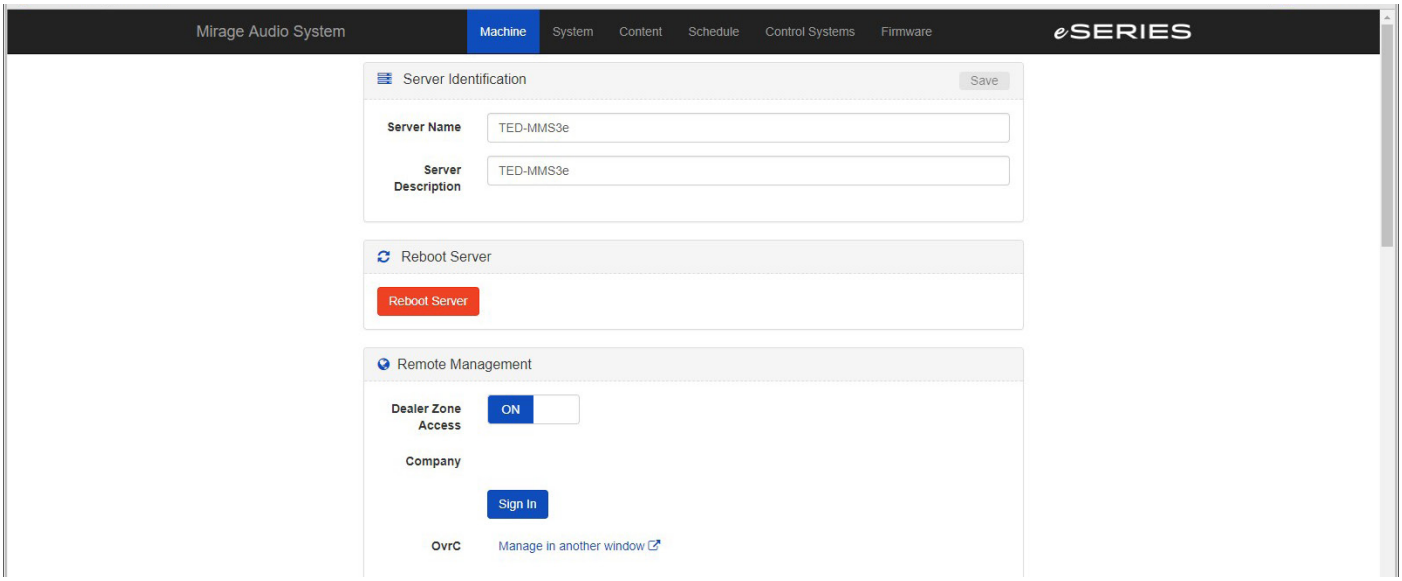
1. Server Identification:
   a. Name: Displays the MMS network name.
   b. Description: Provide an optional text description for the server.

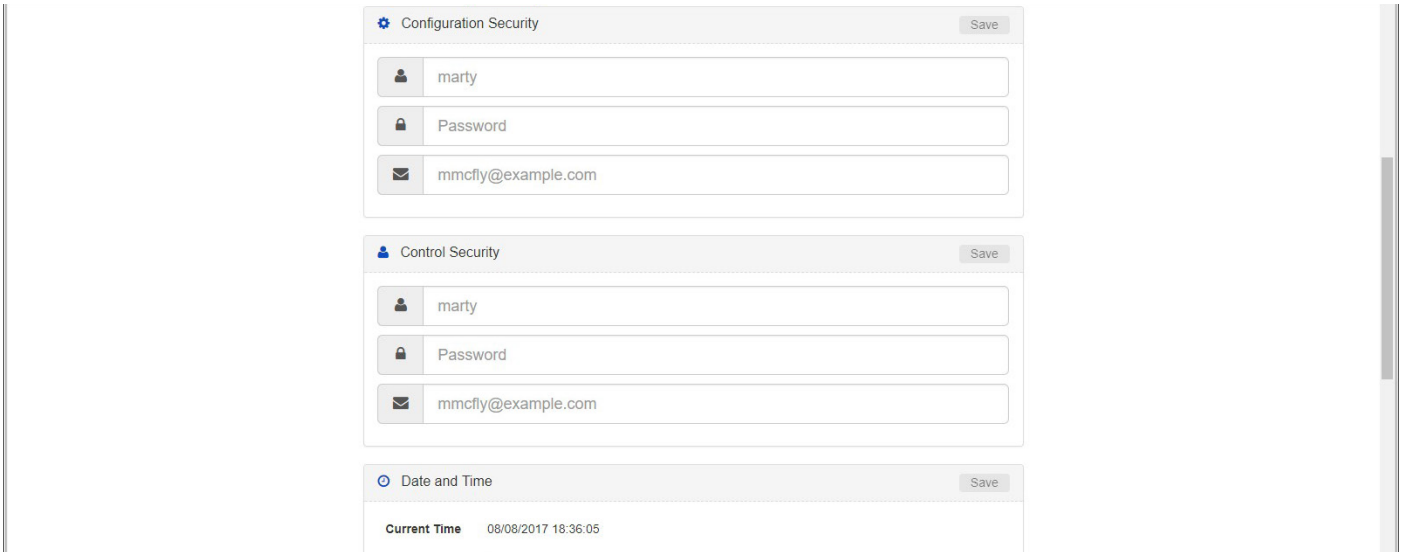
TIP: For easier remote management through the OvrC interface, it is recommended that an identifying Name and Description are added.

2. Reboot Server: Restarts the system
3. Remote Management: Grant remote access via DealerZone or OvrC to the third party indicated. If access is toggled off, remote management is disabled.

TIP: Register this device with an OvrC account by entering your credentials in a separate window.

4. Configuration Security: Optionally password protect the MMS configuration page to prevent unauthorized/unintended configuration changes. This is desirable when the system is installed in a commercial or public location.
   a. User/Password: Enter the user name and password to gain access to the config page.
   b. Recovery email address: Password recovery emails are sent to this email address after 3 unsuccessful login attempts.
5. Control Security: Optionally password protect the MMS Web Player. This prevents unauthorized audio playback and may be desirable in a commercial or public location.
   a. User/Password: The user name and password to gain access to the web player.
   b. Recovery email address: Password recovery emails will be sent to this email address after 3 unsuccessful login attempts.





6. Date and Time
   a. Date: Current time and date
   b. Time Zone: Select the time zone for your device.
   c. Time Server: Select a preferred NTP server in reasonable geographic proximity.

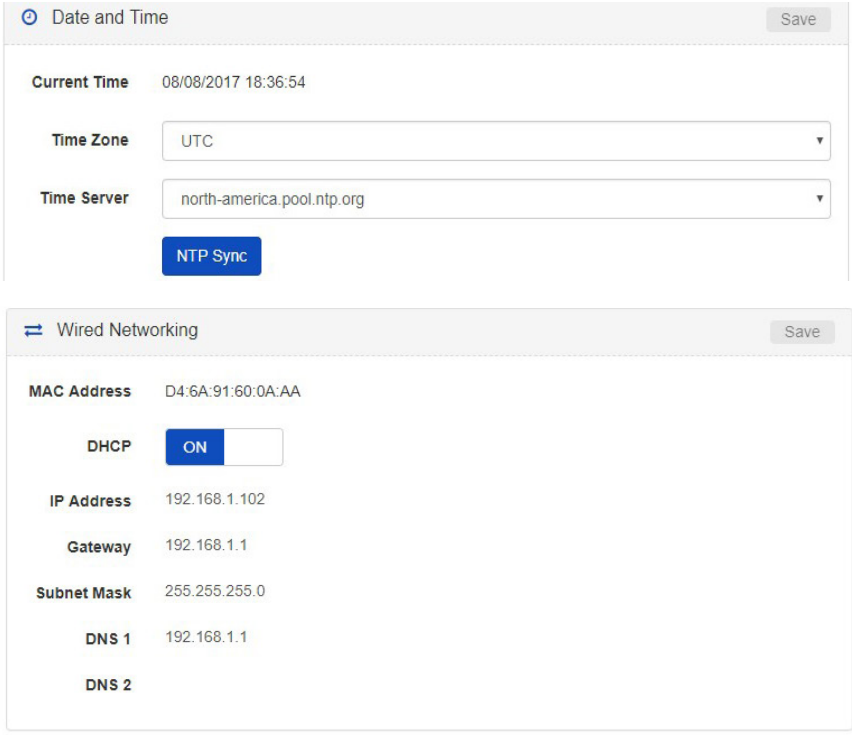
TIP: The time zone must be set prior to pressing the NTP sync button for accurate timekeeping. Failure to configure time or time zone properly may result in some features not functioning correctly.

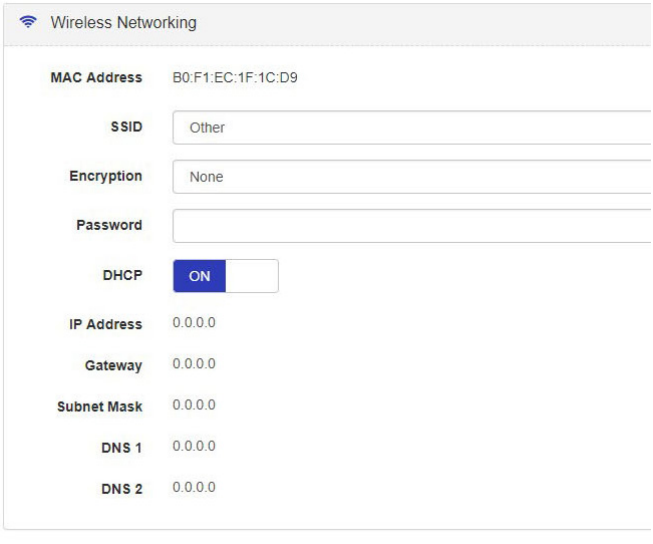
7. Wired Networking: Displays the device's network configuration.
   a. Connection: Configure the device for either DHCP or static IP address. The device must be properly configured with an IP address, gateway, subnet mask and DNS to allow connection to the Internet.

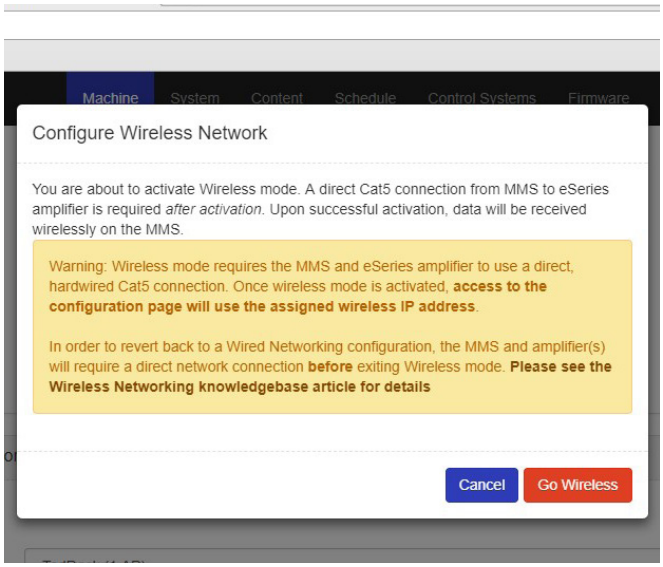
TIP: Configure the server network connection to automatically use a network DHCP server to obtain its IP address and network settings, or manually specify a static IP setting.

8. The following details must be entered if using a static address:
   a. IP Address: The unique address of the server on the local network.
   b. Subnet mask: The subnet mask for the local network (commonly 255.255.255.0).
   c. Gateway: The IP address for the router. This is necessary for the MMS to access the Internet.
   d. DNS 1 & 2: IP addresses providing Domain Name Services.
      i. DNS 1: Suggested server: OpenDNS [208.67.222.222]
      ii. DNS 2: Suggested server: Google's DNS [8.8.8.8]

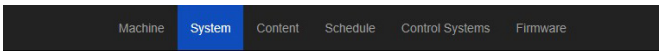
9. Wireless Networking – Enter WiFi settings here for models with wireless support. It is recommended to use a wired connection for optimal network performance and reliability whenever possible.
   a. SSID: Choose from the available SSIDs from the drop-down list.
   b. Encryption: Select the configured encryption for the WiFi network.
   c. Password: Enter the wireless password for the SSID device
   d. Configure for DHCP or Static IP address as directed in the Wired Network instructions above.
   e. Select Go Wireless to save the settings.
   f. If configuring the MMS with an eSeries amplifier, connect an Ethernet cable directly from the network port of the MMS to the network port of the eSeries Amplifier.







System Tab



The System tab contains configuration for audio settings and system outputs on the MMS and connected devices.

1. System
   a. System Id: The ID of the MMS device **group**. Communication between eSeries devices (servers and amplifiers) is enabled when sharing the same System ID. By default, eSeries devices are configured for System ID 1 and therefore will automatically link together.

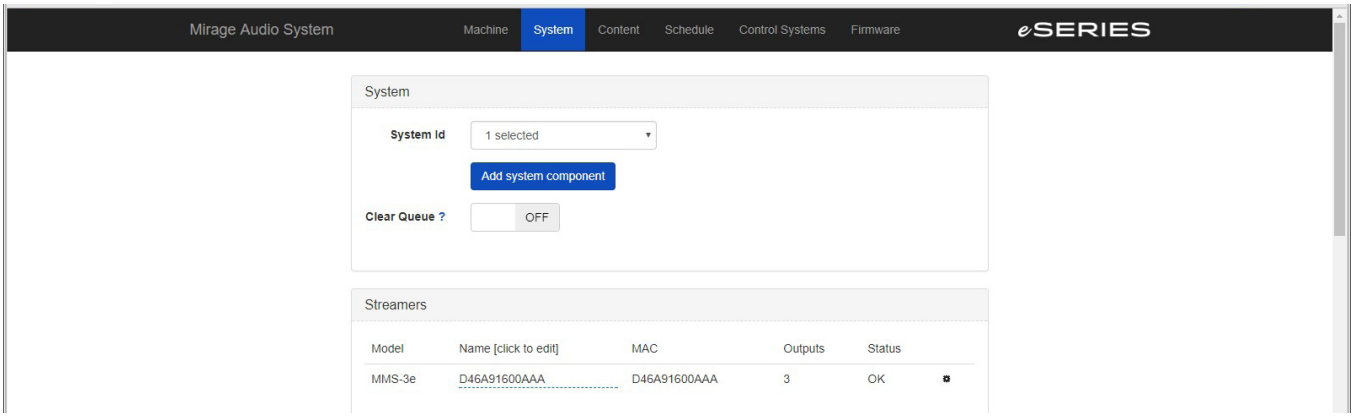
TIP: Leaving the system ID at 1 (auto-join) will allow new eSeries devices to be visible when added to the system. Changing the System ID will create an isolated music system **

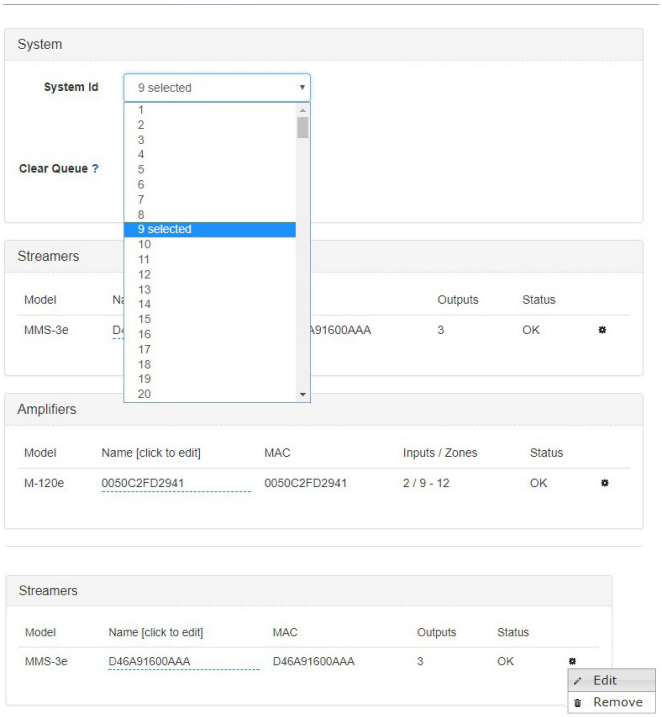
   b. Add system component: Discover additional network connected devices on another System ID. Adding the device will reconfigure it with your System ID.
   c. Clear Queue – When set to "on" empties the queue when the last zone listening to an audio source is turned off. When toggled off, the MMS queues remain intact, even if the zones are powered off.

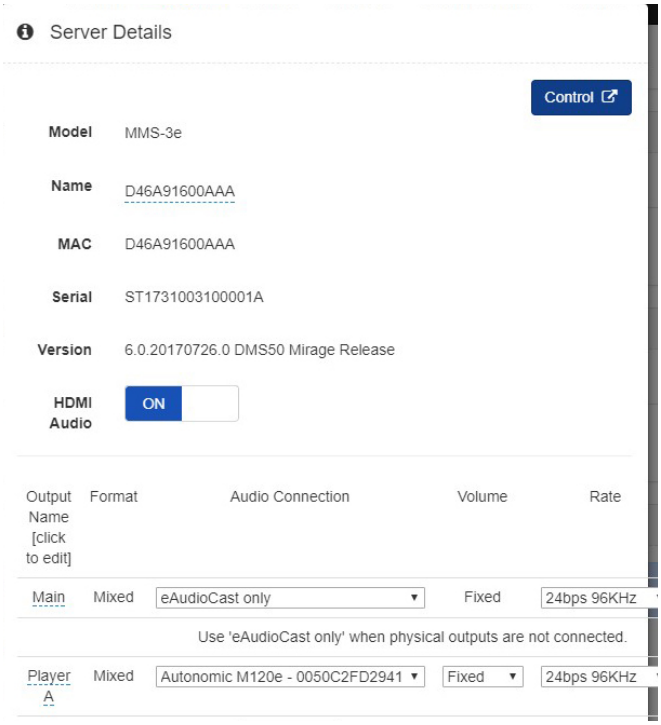
2. Streamers: Lists all MMS devices sharing the same System Id. Click the gear icon to edit a device's configuration or remove the device from this System Id.

TIP: When using System Id 1 (auto-join), eSeries devices can only be removed if they are offline. Otherwise, removing an eSeries device will reset its System Id back to 1 (default).

   a. Server Details: Lists information such as Model, Serial Number and Firmware version of the device
   b. Click on the Name field to edit the System name of the selected device.
   c. Click on the Output name to modify its default label. (e.g. Player A). When used with eSeries amplifiers, sources are automatically managed and generally not exposed in control clients (except in the MMS Web Client). Therefore when using eSeries amplifier(s) editing the default Output names is unnecessary.







TIP: The HDMI output of the MMS servers can be assigned to whatever output necessary for the system design.

Click the gear on the system tab, then choose the zone for the HDMI output port. Select "Done" when finished.



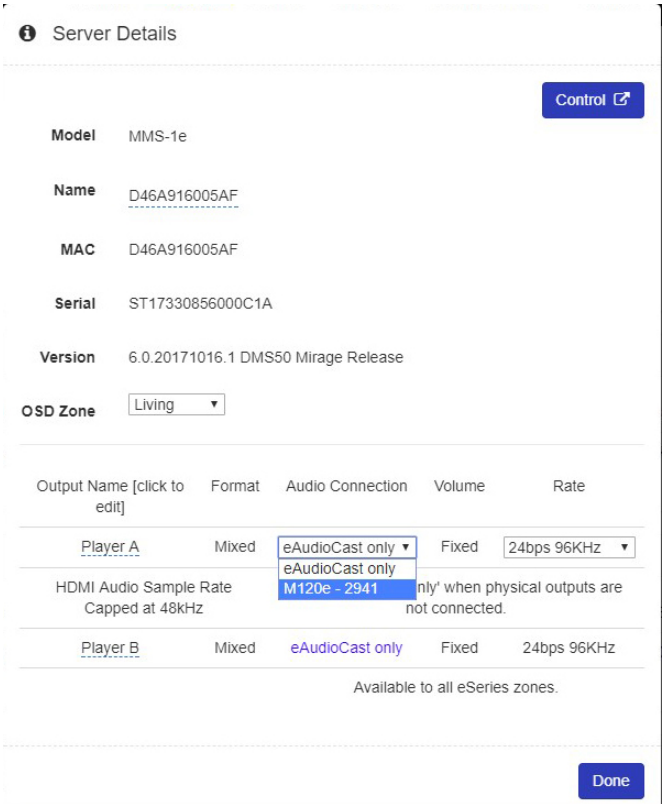


TIP: For controlThe HDMI OUT system programming, the server will respond to commands issued using the default output names, as well as commands issued using custom names.

d. Configure audio details for each configured MMS output by following the below guidance.

- **i.** Output Name: Editable text label for the source output (Player)
- **ii.** Format: Displays output type
  - **01.** Mixed - Physical and eAudioCast
  - **02.** eAudioCast - output available on the network
- **iii.** Audio Connection
  - **01.** Zone Player - Treats the output as a controllable audio endpoint.
  - **02.** eAudioCast Only
  - **03.** Amplifier (displays grouped amplifiers)
- **iv.** Volume - Sets the gain as Fixed or Variable.
  - **01.** Fixed: The MMS gain is preset and volume is adjusted at the amplifier.
  - **02.** Variable: The gain can be adjusted by the MMS Player or other control system.
- **v.** Rate - The bit depth and sample rate resolution of the source output signal.)

Note: When a 1e is paired with a 120e amplifier, Player B will only have an option for an eAudioCast Audio Connection.



Bit Depth and Sample Rate Resolution

Bit depth and sample rate of the digital audio outputs can be set to values from 16-bit/44 kHz, up to 24-bit/192 kHz.

Set this value to the highest setting that the connected amplifier or AV receiver can support. If the highest supported bit depth and sample rate on the connected equipment is not known, the MMS will play a sample sound in each speaker whenever this setting is changed. If the test tone is audible, that setting is supported by the amplifier. If the test tone is not audible, lower this setting until the test signal is audible.

Audio Player Screen

The Audio Player Screen is accessible by entering the streamer IP address in a web browser, or by clicking the "Control" button on the "Server Details" screen in the streamer configuration screen on the System Tab.

Note: The MMS player requires flash to operate.

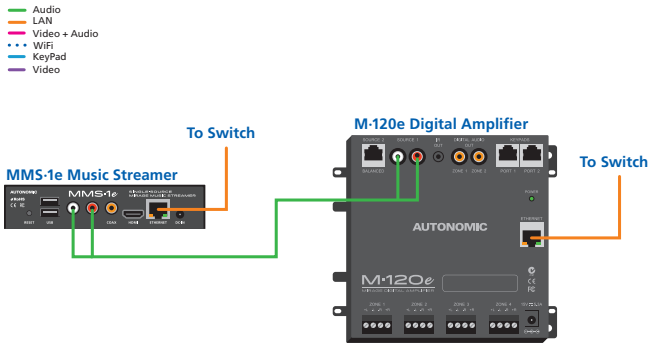


Using the MMS with eSeries Amplification

Audio can be delivered to the eSeries amplifier either via eAudioCast or a traditional physical cable connection (e.g. Digital Coax). Audio rates up to 24bps/192KHz are supported when physically connected (e.g. using RCA digital coax cables) to eSeries amplifiers.

TIP: Review the "System Tab" section on page 11 to bring one or more eSeries amplifiers into the System ID group for configuration.

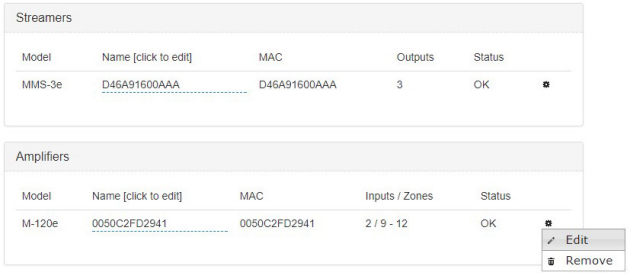
Physical cable connection: Connect the MMS to an available amplifier source input. For each MMS Player output, identify the amplifier and the specific source input connected on the amplifier config page.



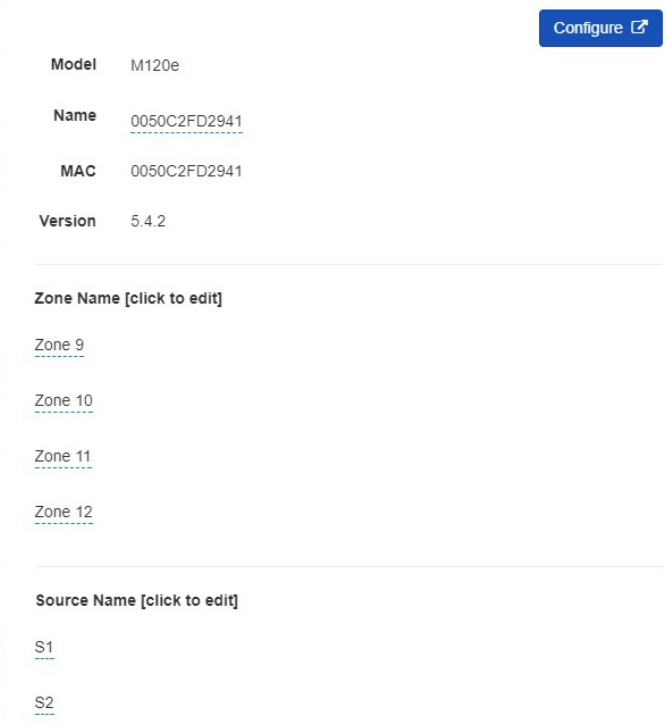
eAudioCast: Connect a Player from the MMS to playback to an available amplifier with audio quality up to 24bps/96KHz output.

TIP: Sources can be "eAudioCast only" or "Mixed" format. "eAudioCast only" means that the audio source is available over Ethernet to be received by an eAudioCast capable device. "Mixed" format means the source is available on a physical MMS output as well as (mirrored) over Ethernet to eAudiocast capable devices.

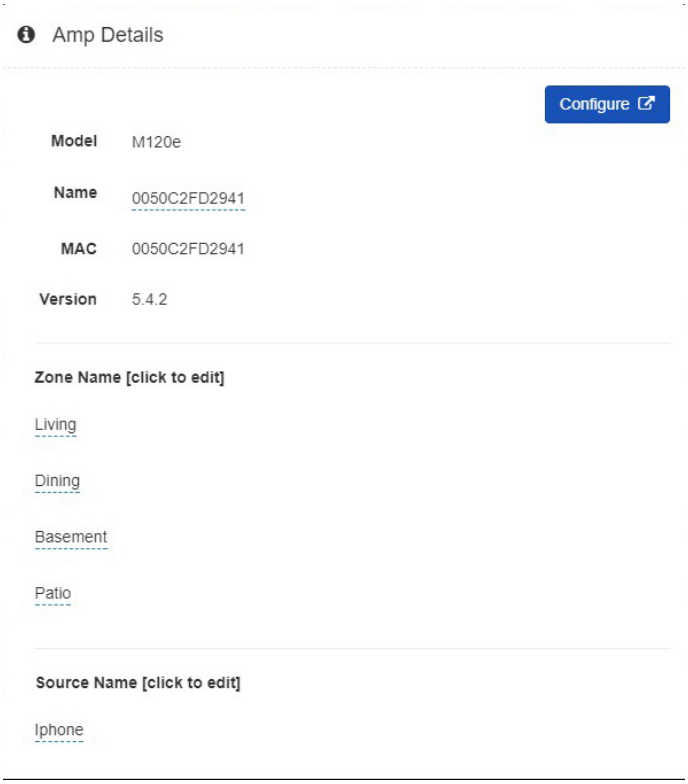
Amplifiers: Lists any supported amplifiers sharing the same System ID. Click the gear icon to edit device configuration.



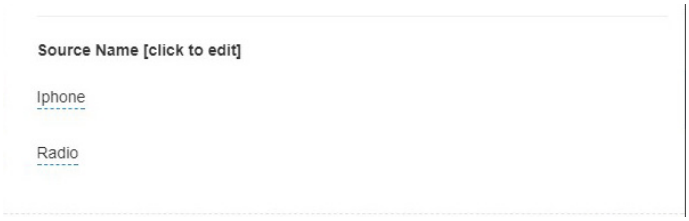
a. Name the device by clicking on the Name field.
b. Click the Zone Names field to rename.



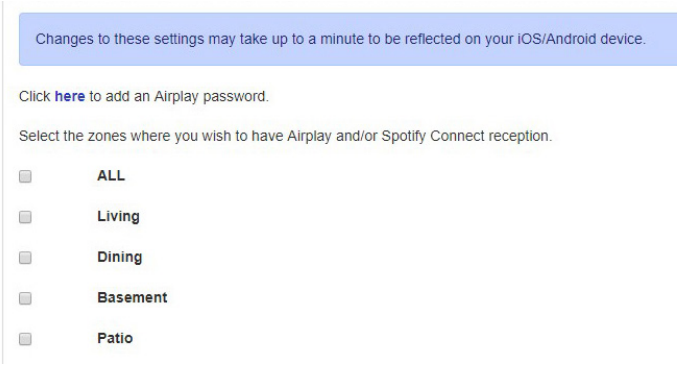
TIP: When one or more zones are renamed, any remaining zones with default names are assumed unused and hidden from user



c. Name any of the local sources in use on the amplifier (e.g. iPhone). Click "Done to save.



Spotify Connect: devices will be able to play directly to selected zones. A password may be set to prevent unauthorized playback to all enabled zones.

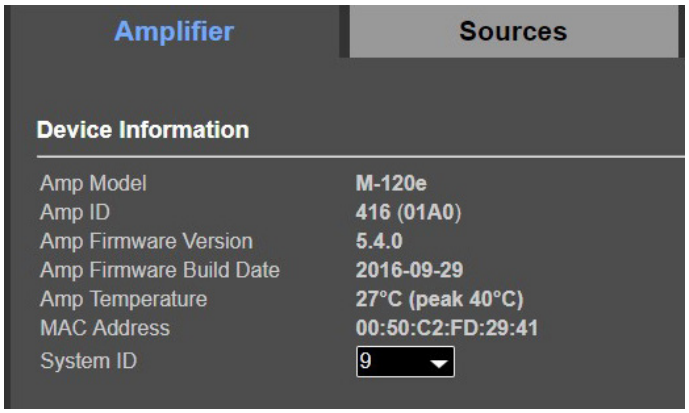


Amplifier Configuration

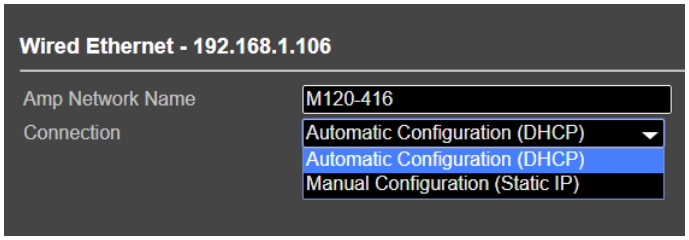
Click the Gear icon under the Amplifier field, click "Edit", then click the "Configure" button on the Amp Details screen to configure the connected amplifiers.

Amplifier Tab

Device Information: Displays the device information for the connected amplifier. The System ID field notes the system ID which is assigned to the amplifier. Changing the system ID will change the system to which this amplifier is assigned. This is useful when there are two or more streamer and amplifier systems set up in one residence.



Wired Ethernet: Network to which the amp is assigned is displayed here. Choose whether to configure the amplifier to use a static IP or DHCP. Use a static IP to reserve the IP address for devices on the network. This can help reduce opportunity for connectivity errors. Improperly setting up IP settings can lead to connectivity issues.



Important: Clicking "Save Changes" for each tab is necessary to save all changes.

Sources Tab

Physical Source: Displays the actual source of the connected amplifier. The number of sources available for name assignments depends on how many are available on the amplifier connected.



Source Name: Displays the name assigned to each source connected to the amplifier. The name chosen here will display on all keypads connected. Keep device names to a maximum of 15 characters.



Source Gain: Set the gain for sources connected to the amplifier via analog inputs.



Zones Tab

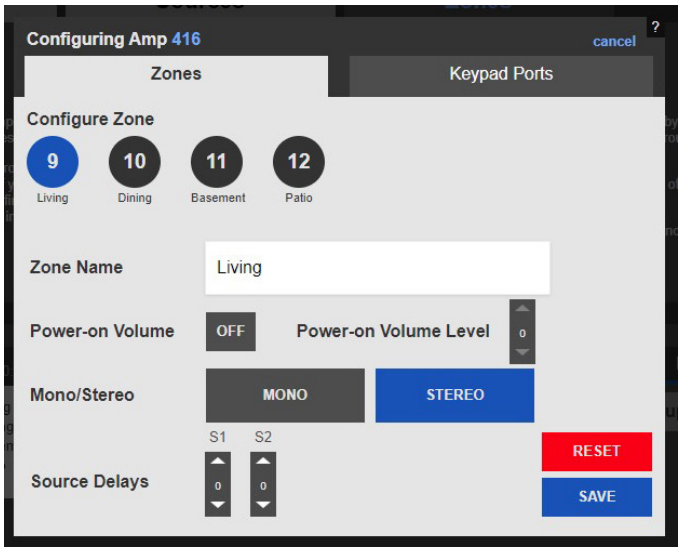
Zone Settings: Rename the zones for any linked amplifiers as they appear on keypads. Names here also have a 15 character limit. Zones appear grouped to the corresponding amplifier. Amps and their zones are displayed in the order as discovered by the server on the network.

Note: It is not necessary to connect all amplifiers in a chain (loopout connected amps) to the network. Only connect the first amplifier via Ethernet. The server will locate the zones from the connected amplifier.

Click the configure button to configure each zone.



Amplifier Zone Configuration



Configure Zone: Choose which zone to configure.

Zone Name: The zone name can be changed here as well as on the initial Amplifier configuration screen. Changing the zone name here will also change the zone name where ever else it is displayed, provided the save button is pressed.

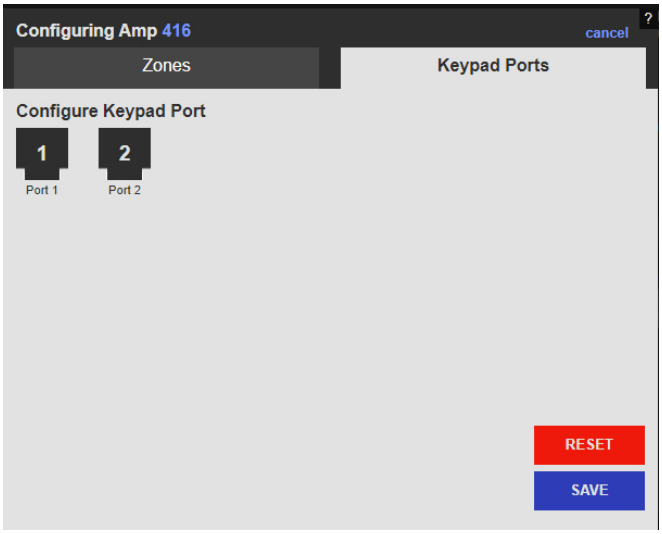
Power On Volume: Set the volume level of that zone when powered on. Default state for this option is set to "Off". Click to set to "ON" then click the arrows next to "Power on Volume Level" to set the volume level.

Mono/Stereo: Set the Zone to Mono or Stereo Output.

Source Delays: Set the number of seconds to delay playback from a source.

Note: Click "Save"before navigating away from this page to ensure all changes are saved.

Keypad Ports Tab

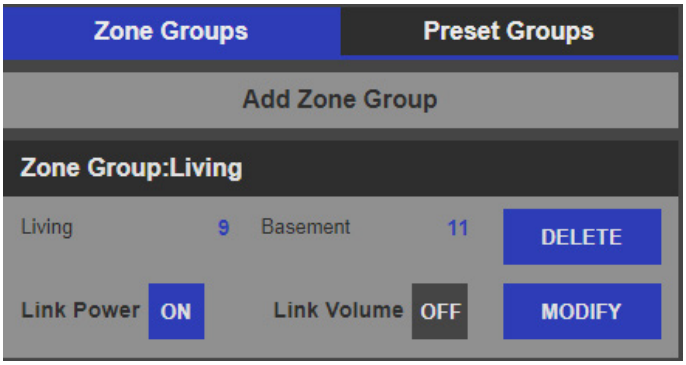


Configure Keypad Port: Configure any keypads connected to the amplifier. (Look up options). Unresponsive keypads can be reset from this screen.

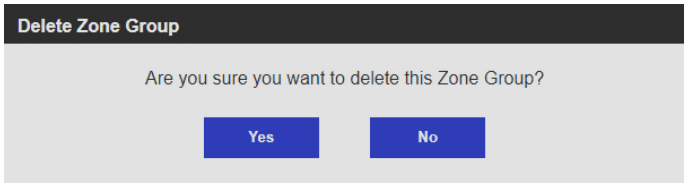


Zone Groups: Zone Groups can be configured to be linked by power, Volume or both. Zones in a group are unlimited, however a single zone can only be included in a single group.

Click "Add Zone Group", then click on the zone to add it to the new zone group. Click "Save" once all desired zones have been added to the group.



Once the zone group is created, it will be named after the lowest numbered zone in the group. Choose to link power, volume or both. Click "Modify" to add or remove zones from the group, then click "Save" to retain changes. Clicking "Delete" will remove the zone group.

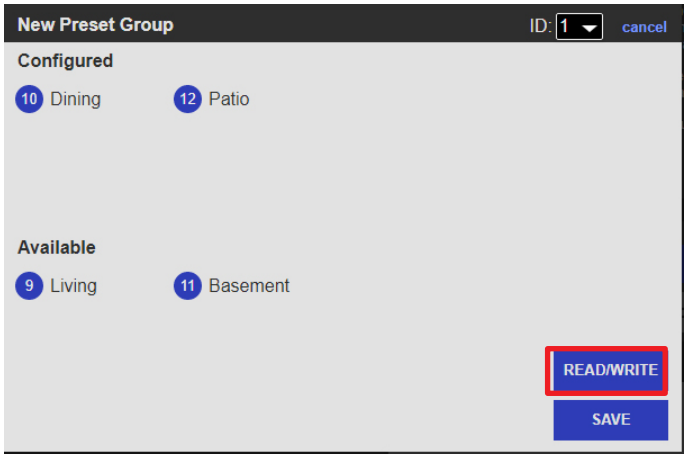


Click "Delete" then click "Yes" to confirm and remove the zone group.

Preset Groups: Preset groups assign zones to the same preset slots on connected Servers. Assign Preset Groups with easily identifiable names, and set to read only to prevent end user changes. Zone group inclusion does not exclude a zone from being included in a Preset group.

Click "Add Preset Group", then click on the zone to add it to the new zone group. Click "Save" once all desired zones have been added to the group.

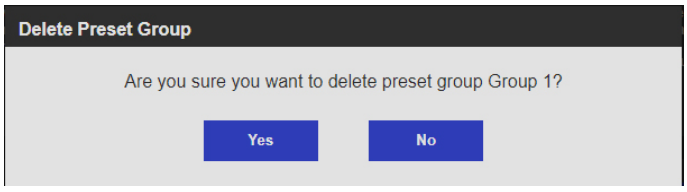
Click "Read/Write" to change the property of the Preset group to "Read Only" Conversely, Click "Read Only" To set the property to "Read/Write".



Once the zone group is created, it will be named "Group 1".



Click "Modify" to add or remove zones from the group, then click "Save" to retain changes. Clicking "Delete" will remove the zone group.



Click "Delete" then click "Yes" to confirm and remove the preset group.

Using the MMS with Third-Party Amplifiers

Audio Connection: Set to "Zone Player" when connecting to a third-party amplifier or control system.

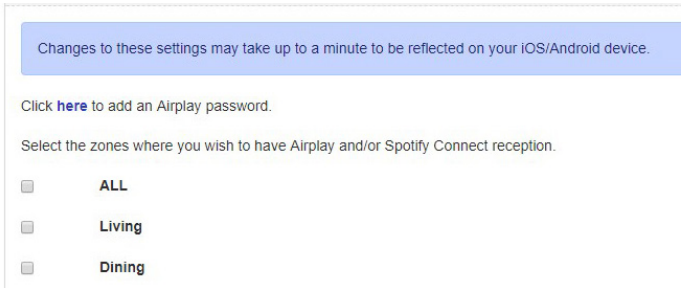
Fixed Volume: The MMS output will be fixed at 100% volume. Control the volume using the available methods from the third-party amplifier or control system vendor.

Variable Volume: Set the volume to variable only if using the MMS without a control system or controllable amplifier and require volume to be adjusted on the MMS.

TIP: Verify the maximum supported audio rate of the third-party amplifier when connecting it to the MMS via digital audio.

Using Spotify Connect

The Spotify section allows assignment of outputs on the MMS to be Spotify Connect receivers. When enabled, the MMS is displayed on the Spotify menu of any device or software that supports Connect (iOS devices and Android Devices).

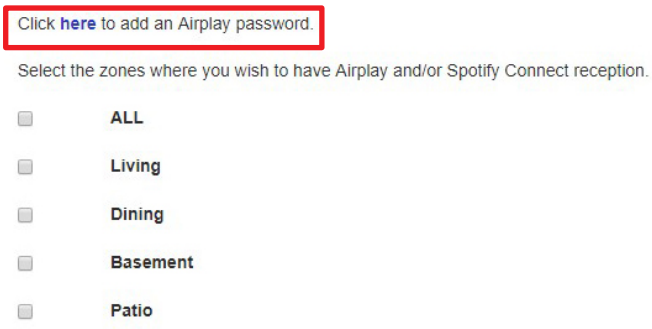


NOTE: In a MMS Audio System configuration, Spotify will be displayed on the Spotify Connect menu of any device or software that supports it (iOS and Android devices and Spotify running on a Mac or PC) as zone names.

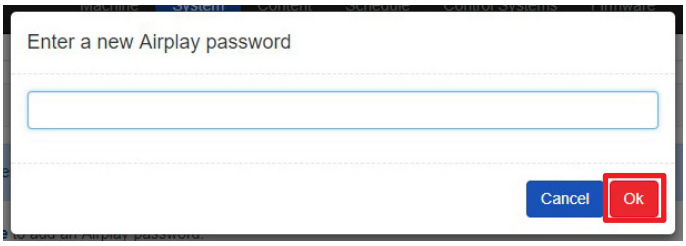
When the MMS is selected, any currently playing content will be interrupted and the server will begin to wirelessly stream the content from the connected device.

This can be overridden by selecting any other content for playback through the MMS web interface, mobile applications, or IP control.

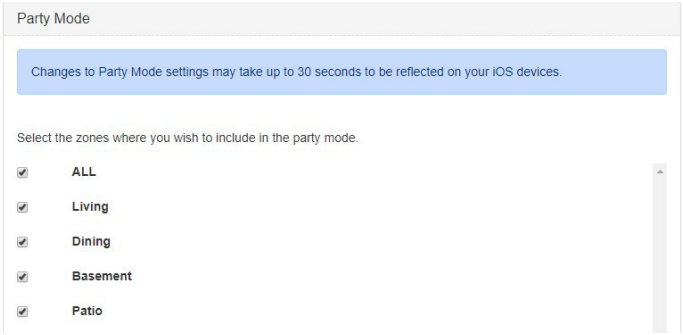
The optional password allows a password to be set that the user of the mobile device (or iTunes) will be prompted for before the MMS will accept a stream from the device. This will prevent uninvited transmissions from being broadcast to the amplifier.



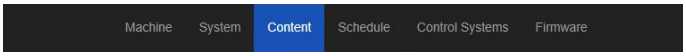
Click in the link to add a password. The password pop-up window will appear. Enter the new password and click "OK" to save.



Party Mode: "Party Mode" is a predefined zone group which enables a listener to quickly and easily start playing music throughout the house. By default, all zones are grouped together when using the Party Mode feature. De-select any zones you wish to exclude from participating in Party Mode.

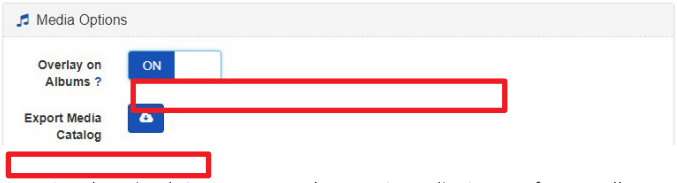


Content Tab

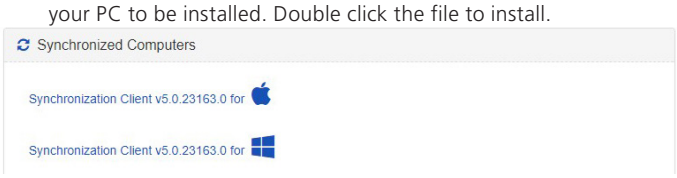


The Content tab contains configuration for accessing local and streaming music content.

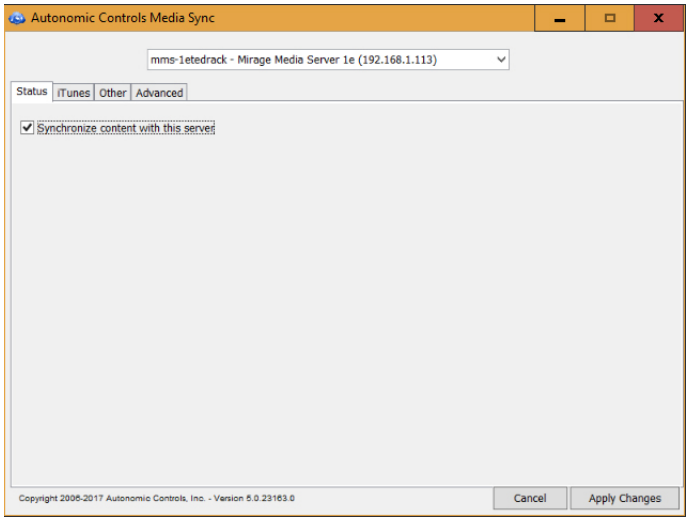
1. Media Options
   a. Overlay on Albums - By default, the album art is displayed unadulterated. Select the check box to overlay the artwork with the artist and album name.
   b. Export Media Catalog - Downloads a .csv file with local library catalog details, such as Name, Artist, Album, Genre, etc.



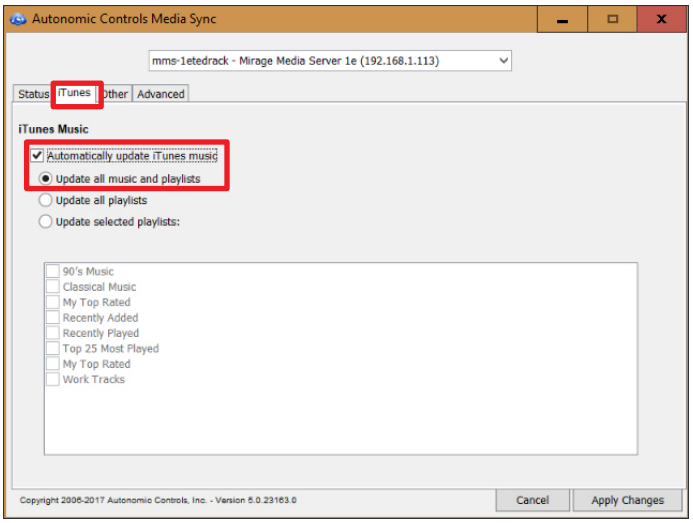
2. Synchronized Computers - The MMS Media Sync software allows synchronization of music libraries on another device with the MMS. This software is provided for both Windows and Macintosh and must be installed on the device in the home containing the source music. Clicking on either link will download the software to your PC to be installed. Double click the file to install.



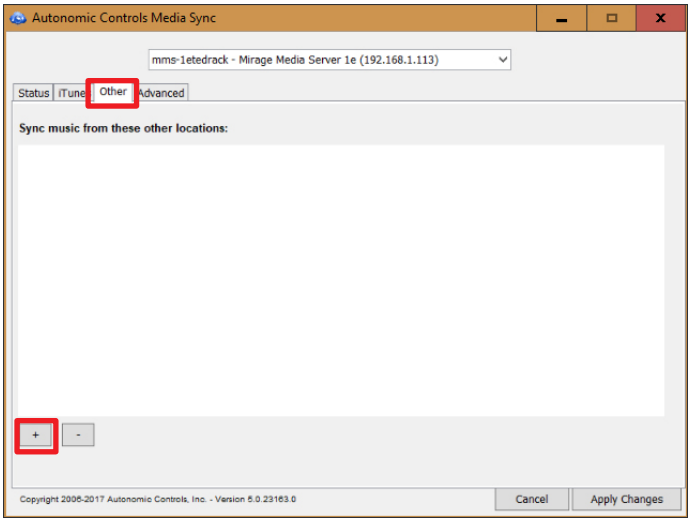
   a. Once Media Sync is installed, select the server which will synchronize content, and select the option to synchronize with that server if desired.



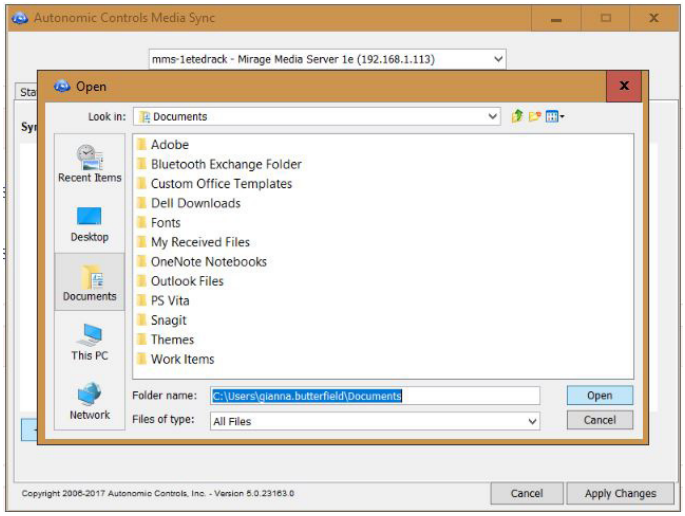
b. Select options to synchronize all music, or selected playlists in iTunes if available.



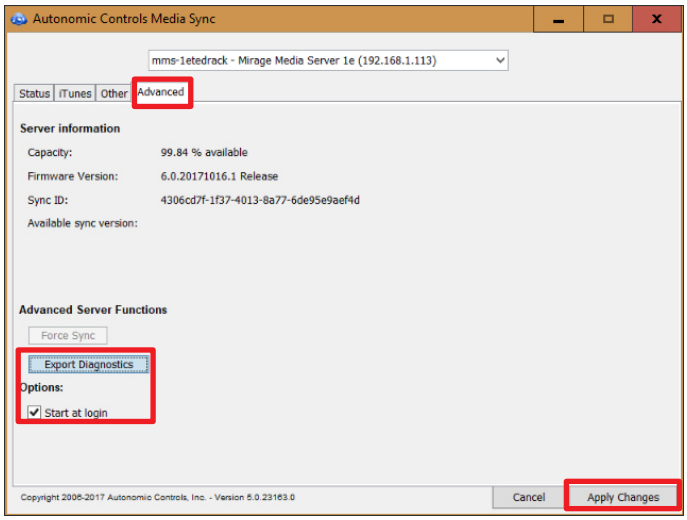
c. Other locations on the network can also be synchronized. Click the "+" to add an other location from which to synchronize more music.



d. Navigate to the appropriate folder location on the network, then click "save", to synchronize that network folder location.



e. Click on the "Advanced Tab" to see server information, export diagnostics and change Media Sync startup options.



f. Click "Apply Changes" to save.

7. Network Storage - complete this section to allow the streamer to access music stored on a network location.

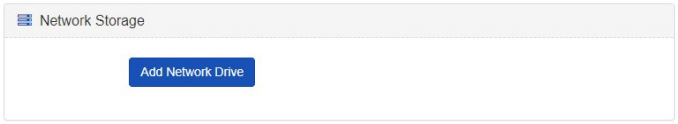
NOTE: This method has a few caveats for consideration.

- This content will only be available for playback when the NAS device or computer hosting the files is online.
- The MMS cannot read playlists from iTunes or Windows Media Player using this method since those playlists reside inside special databases that are only accessible to the MMS when the files are transferred.
- Playback can be affected by local network performance.

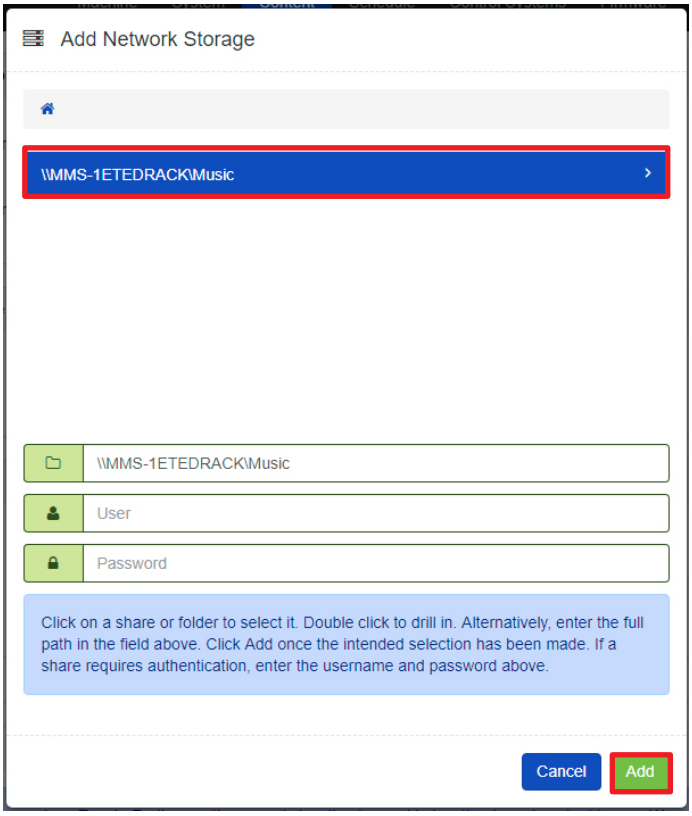
For these reasons, synchronizing the content to the MMS rather than streaming it may provide a more stable experience.

If a local library is too large to fit on the MMS internal hard drive, use the MMS Media Sync software to selectively synchronize selected playlists, then use the NAS streaming method to provide access to the rest of the content, or attach an external USB.

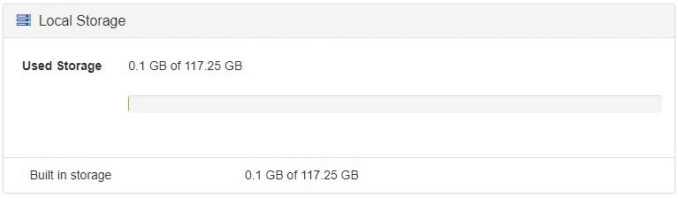
a. Click "Add Network Drive" to add storage from a NAS drive or a network folder.



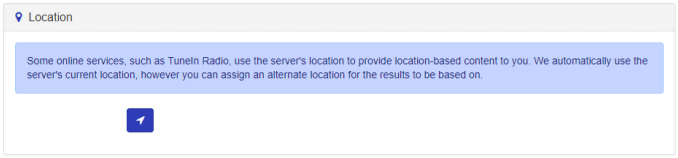
b. Click the path of the selected server at the top of the page.
c. Click on a folder to select it or, enter the full path in the field.
d. Click "Add" once the desired folder is selected. The user name and password must be added if the folder requires authentication.



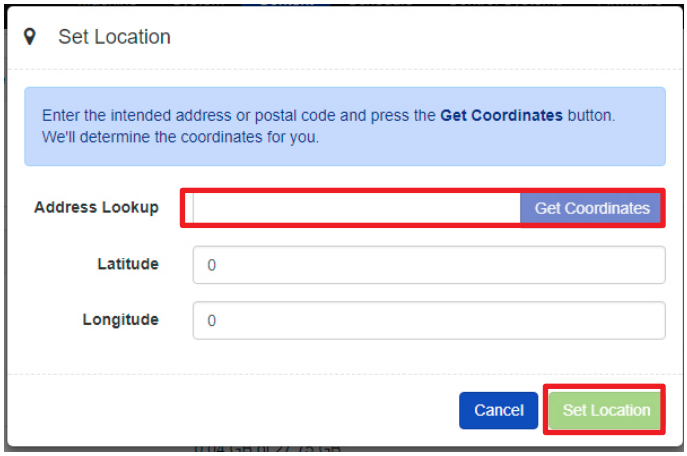
8. Local Storage. This section details the available storage on the device.



9. Location. Certain online services use the location of the server for location based content. Change the default location in this section.



a. Add the postal code to the "Address Lookup" section and click "Get Coordinates".
b. Click "Set Location" once done.



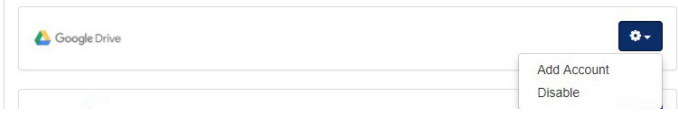
Adding Digital Content and Configuring Cloud Services

The Content tab allows account credentials to be entered for streaming media services and cloud services supported by the MMS.

Google Drive

The MMS can interface with a Google account to synchronize content to and from the cloud from multiple locations.

To enable this feature, click the gear in the right side, and select "Add account. Enter a Google user ID and password, and select one or both options for copying content to or from Google online storage.



The MMS will synchronize all music files with Google online storage, even uncompressed FLAC or WAV files. These files will be stored in the Google account and will be available for multi-location synchronization.

Synchronizing Multiple Servers Via Google

MMS synchronization does not require any one unit to be designated as the master. The server accomplishes bidirectional synchronization with all locations.

To create a master/slave relationship between one master and one or more slaves enable only the "Copy To my Google Online Storage Account" option on the server acting as a master, and only the "Copy From my Google Online Storage Account" on the server acting as a slave.

Changes to the files synchronized to the MMS hard drive in the shared Music folder are copied to a hidden location on the MMS in order to maintain the integrity of the synchronization. These files must be modified at the source, or on Google Online storage.

iCloud Synchronization

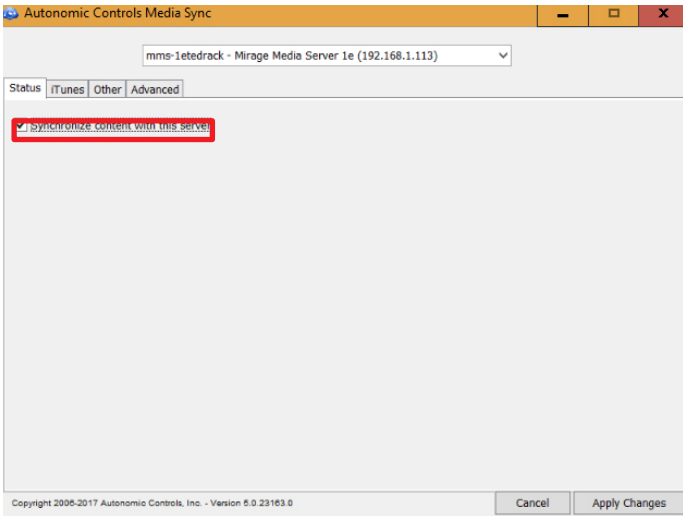
Apple's iCloud service allows synchronization of music stored on multiple computers and devices via an iCloud account. This service is supported on the MMS via MMS Media Sync software.

NOTE: Only content downloaded to the Mac or PC will synchronize with the MMS.

The following settings are recommended for the most seamless experience:

1. Turn on iTunes Match. This allows synchronization of content from other computers and devices, which in turn is synchronized to the MMS via the MMS Media Sync software.
2. Enable automatic downloads of Music purchases. This setting can be found under iTunes > Preferences > Store.

When configuring the MMS Media Sync software, select the "Synchronize content with this server" option.



Synchronizing Files and Playlists To The MMS with iCloud

To automatically synchronize content with iCloud, configure iCloud using iTunes on any computer that will host the MMS Media Sync software.

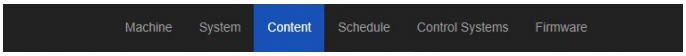
The synchronization software can be configured to synchronize all music, or individual playlists can be selected and copied to the MMS.

All content synchronized with this utility is physically copied to the MMS to provide for backup and high availability. This means that once synchronized, content on the MMS can still be played even when the computer is off.

To stop synchronizing with one of the computers, click the "X" next to the computer name to remove it from the list and remove all content contributed by that computer to the MMS library.

Streaming Music Services

Configuration of streaming music services is accomplished on the Content tab of the configuration utility in a web browser.



The information on these services changes frequently. Please check with the service provider for most current info.

Link to appendix with a chart for music services here

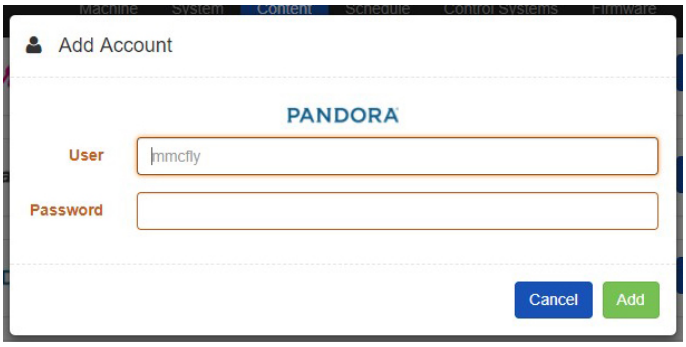
Pandora Internet Radio

Pandora is a service that allows creation of custom radio stations based on chosen albums or artists while including similar music from other artists and albums.

Subscribing to Pandora Paid Services will yield additional benefits on the MMS such as higher bitrate content, and commercial-free playback.

Select the gear to the right of the Pandora section under "Online Credentials"and click "Add Account". Enter Pandora credentials to associate the MMS with an online Pandora Internet Radio account.





When valid credentials are supplied, all online Pandora radio stations are available for playback on the MMS, and any new stations that created on the MMS will be saved in the online account.

The MMS supports multiple Pandora accounts, which can be created through the MMS Application (app) for iOS and Android, the MMS Web Interface and most third party control interfaces. Additionally, an existing Pandora account can be accessed through the interfaces by entering credentials when prompted.

New Pandora radio stations can be created using the MMS app, MMS Web Interface, and most third party interfaces.

The MMS TuneBridge™ technology allows creation of new Pandora stations based on any song or artist heard while playing back music from any streaming service or the local music collection. This feature can be accessed in the "Actions" menu of the MMS Web Interface and on third party control system touch panel interfaces or the TuneBridge™ icon in the iOS and Android MMS Media Controller app.

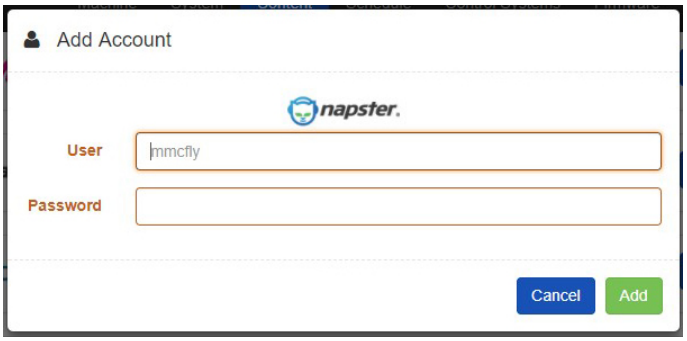
Pandora allows listening to up to six simultaneous streams with a single user ID and password on the MMS-5e, or three on the MMS-3e.

More information about Pandora Internet Radio can be found at **www.Pandora.com**

Napster®

Select the gear to the right of the Napster section under "Online Credentials"and click "Add Account". Enter Napster credentials to associate the MMS with a Napster online music account.





Napster is a digital music service that allows listening to all the music on the MMS and create cloud-based libraries from millions of songs available for on-demand playback.

Music can be browsed or searched by Album, Artist, Genre, and Popular Playlists via the Music Guide.

The Actions button on the MMS Web Interface or control system or the TuneBridge™ icon on the MMS Media Controller can be used to add the Album, Artist, or Track to your virtual collection.

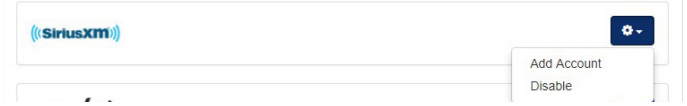
Napster allows you to listen to one stream with a single user ID and password. The MMS supports multiple Napster accounts. Simultaneous streaming playback is supported using multiple accounts.

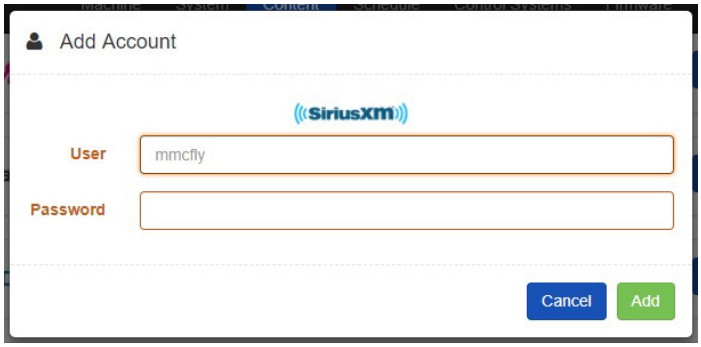
Additional accounts can be created via a new Napster account through the MMS Media Controller for iOS and Android, the MMS Web Interface, and most third party control system interfaces.

More information about Napster can be found at **us.napster.com**

SiriusXM Internet Radio

Select the gear to the right of the SiriusXM section under "Online Credentials"and click "Add Account". Enter the credentials to associate the MMS with an online SiriusXM Internet Radio account.





The MMS can access SiriusXM Radio subscriptions through an Internet connection. This eliminates the need for an external antenna or line of sight access to SiriusXM satellite transmitters.

NOTE: This information does not apply to the Auto radio subscription accounts.

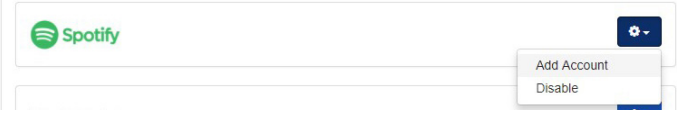
IMPORTANT: While a single SiriusXM account can be used on any of the multiple MMS outputs, SiriusXM radio subscribers must provide one account ID and password for each simultaneous stream that is listened to on any of the audio outputs.

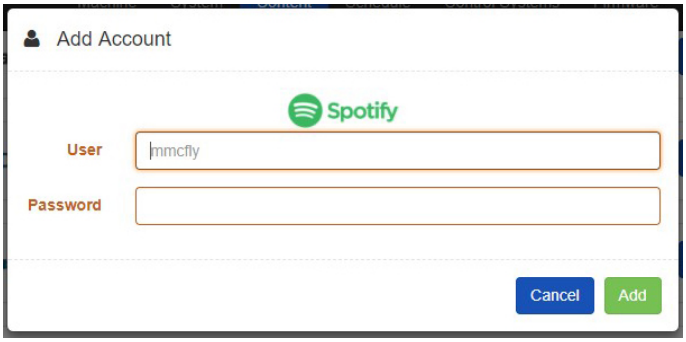
SiriusXM will provide additional SiriusXM Internet Radio accounts for a reduced monthly fee.

More information about SiriusXM can be found at **www.SiriusXM.com**

Spotify

To activate the Spotify service on the MMS, select the gear to the right of the Spotify section under "Online Credentials"and click "Add Account". Enter the credentials to associate the MMS with an online Spotify account.





Spotify is a music streaming service offering streaming of selected music from a range of major and independent record labels. Music can be searched by artist, album, genre, or playlists, and searches can be saved as custom playlists. Most Spotify content is streamed at 320 Kbps, one of the highest bitrates offered by streaming music services.

Spotify allows for multiple accounts that can be added through the MMS Player app for iOS and Android, the MMS Web and most third party control system interfaces. While a single Spotify account can be used on any of the multiple MMS outputs, Spotify subscribers must provide one account ID and password for each simultaneous stream that is listened to on any of the audio outputs.

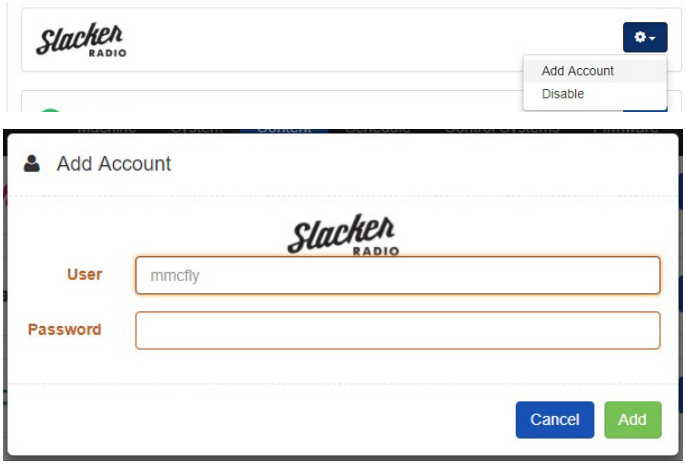
NOTE: Login must be from the account name, and not through a Facebook account.

More information about Spotify can be found at **www.Spotify.com**

This product incorporates Spotify software which is subject to 3rd party licenses found here:
https://developer.spotify.com/esdk-third-party-licenses/

Slacker

To activate Slacker services on the MMS, select the gear to the right of the Slacker section under "Online Credentials"and click "Add Account". Enter the credentials to associate the MMS with an online Spotify account.



Slacker gives listeners access to music and entertainment. Listeners can personalize Slacker with talk, sports, news, and entertainment. Stations are updated daily based on trending and real-time user feedback.

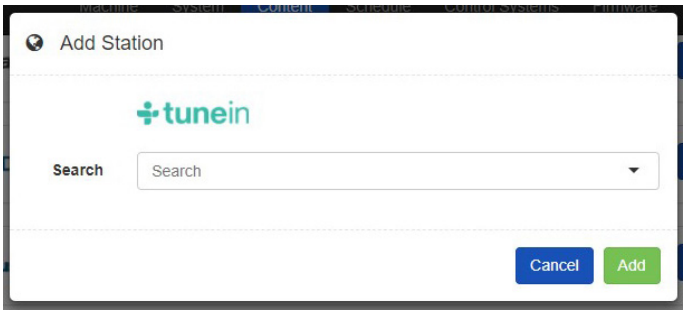
Slacker supports multiple accounts that can be added or created through the MMS app for iOS, Android, and the MMS Web Player and most third party control interfaces. While a single Slacker account can be used on any of the multiple MMS outputs, Slacker radio subscribers must provide one account ID and password for each simultaneous stream that listened to on any of the audio outputs.

More information about Slacker can be found at **www.Slacker.com.**

TuneIn

To activate TuneIn services on the MMS, select the gear to the right of the TuneIn section under "Online Credentials"and click "Add Account". Enter the credentials to associate the MMS with an online TuneIn account.





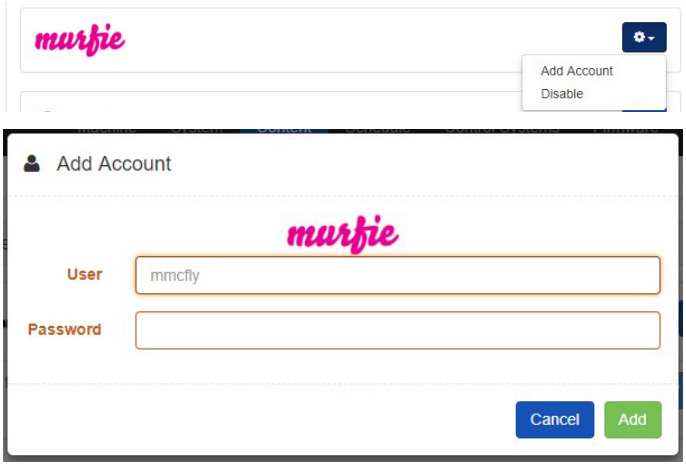
TuneIn is a free service that brings AM, FM, and Internet radio stations to the home. This service provides a directory of the world's radio stations that broadcast over the Internet. Many, if not all local AM and FM radio stations are available for crystal clear online streaming through the MMS without an over the air antenna. Thousands of radio stations world-wide can be browsed by genre or program name.

IMPORTANT: TuneIn allows for multiple streams. No account is required, however a TuneIn account allows favorite titles to be saved.

More information about TuneIn Radio can be found at **www.TuneIn.com**

Murfie HiFi

To activate Murfie services on the MMS, select the gear to the right of the Murfie section under "Online Credentials"and click "Add Account". Enter the credentials to associate the MMS with an online Murfie account.



Murfie is a cloud-based service that allows listeners to upload their entire physical music collection, and purchase digital or physical copies of music from other collections of uploaded libraries.

Collections are uploaded daily, and hosted in an online account in the cloud. For a Monthly fee, once music is added to a library hosted on Murfie, it can be played on any compatible device.

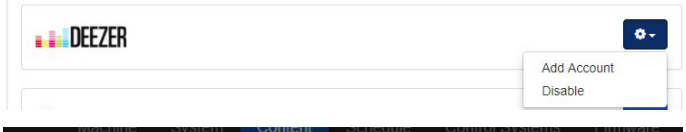
Most Murfie content is streamed at 320 kbps, one of the highest bitrates offered by streaming music services.

Murfie HiFi allows for multiple accounts that can be added through the MMS Player app for iOS and Android, the MMS Web and most third party control system interfaces. While a single Murfie account can be used on any of the multiple MMS outputs, HiFi subscribers must provide one account ID and password for each simultaneous stream that is listened to on any of the audio outputs.

More information about Murfie can be found at **www.Murfie.com/hifi**

Deezer

To activate Deezer services on the MMS, select the gear to the right of the Deezer section under "Online Credentials"and click "Add Account". Enter the credentials to associate the MMS with an online Deezer account.





Deezer is a music streaming service offering streaming of selected music from a large range of major and independent record labels. Music can be searched by artist, album, genre, or playlist, and searches can be

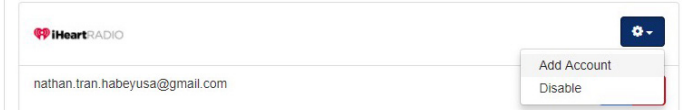
saved as custom playlists. With the Premium Plus membership, music can be downloaded to any device for playback without an internet connection.

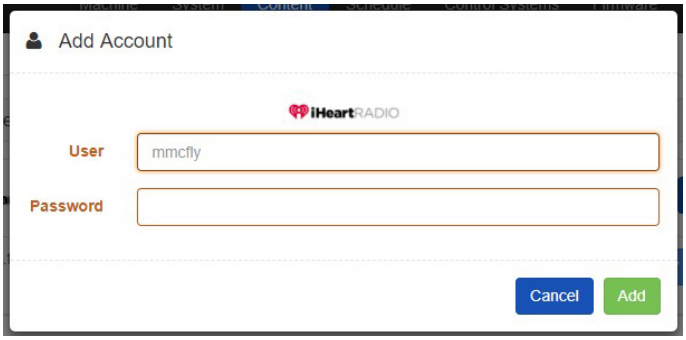
Deezer allows for multiple accounts that can be added through the MMS Player app for iOS and Android, the MMS Web and most third party control system interfaces. While a single Deezer account can be used on any of the multiple MMS outputs, Deezer subscribers must provide one account ID and password for each simultaneous stream that is listened to on any of the audio outputs.

NOTE: More information about Deezer can be found at **www.Deezer.com.**

iHeartRadio

To activate iHeartRadio services on the MMS, select the gear to the right of the iHeartRadio section under "Online Credentials"and click "Add Account". Enter the credentials to associate the MMS with an online iHeartRadio account.



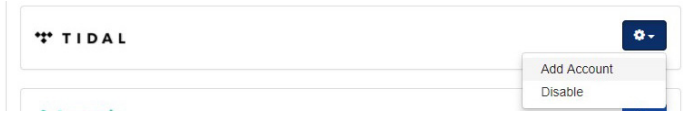


iHeartRadio is a free broadcast and internet radio platform that aggregates thousands of radio stations and podcasts. A paid subscription allows on demand playback of saved songs from live broadcasts

More information about iHeartRadio can be found at **www.iHeart.com.**

Tidal HiFi

To activate Tidal services on the MMS, select the gear to the right of the Tidal section under "Online Credentials"and click "Add Account". Enter the credentials to associate the MMS with an online Tidal account.



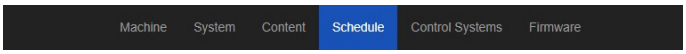


Tidal is a subscription based music streaming service offering high-definition lossless audio and music videos. Master Quality Authenticated technology provides subscribers with premium quality audio not matched by other online subscription services.

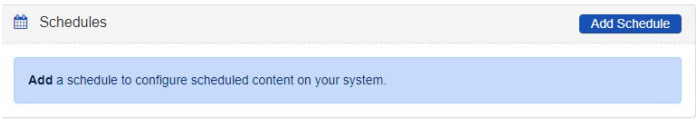
More information about Tidal can be found at **Tidal.com/us.**

Schedules

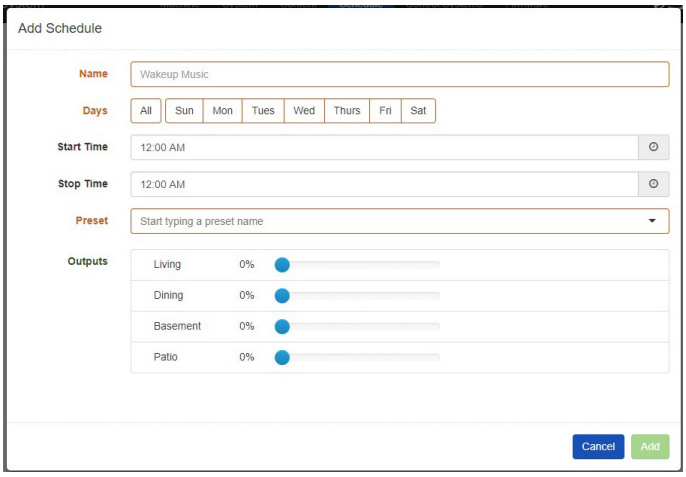
The Schedule tab allows creation and modification schedules for content playback. Click the Schedule Tab to get started.



1. Click on "Add Schedule" to open the Schedule window and add options.



2. Add a title to the "Name" field.
3. Select the days on which to apply the scheduled start and stop time for content playback.
4. Select the start and stop time.
5. Type a preset name in the "Preset" field
6. Set the volume levels for each of the zones that will apply to the scheduled playback.
7. Click Add to complete the schedule.



Control Systems

The Control Systems tab allows configuration of compatible control systems. Please note that some control systems do not need additional configuration beyond installation of the control system module. Visit **http://www.autonomic-controls.com/support_downloads.php** to download.

Crestron

Drivers for the streamers and SystemBuilder along with a guide to installation and programming is available on the product support tab on the SnapAV **website**. A link is also available in the top right corner of the Crestron field on the Control Systems tab. Click "Save" to keep any changes.

Control4

Drivers, a sample installation guide and an MMS programming guide are available on the product support tab on the SnapAV **website.** Install the driver and follow the instructions for configuration to set up and use the MMS with a Control 4 system.

ELAN

A driver for the MMS is only available on the ELAN Dealer Portal. This driver is limited to control of a single device.

Savant

A driver for Savant control of the MMS is only available from Savant. Visit the website at **www.Savant.com.**

Lutron

RadioRa® integration can be done via the Control System tab on the streamer configuration page. A guide for installation is available on the product support tab on the SnapAV **website**.

RTI* (Not compatible with eAudiocast at this time)

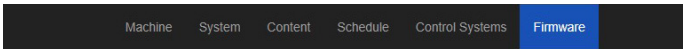
An MMS programming guide and the RTI driver are available on the product support tab on the SnapAV **website.** Install the driver and follow the instructions for configuration to set up and use the MMS with an RTI system.

URC

An MMS programming guide and the URC driver are available on the product support tab on the SnapAV **website.** Install the driver and follow the instructions for configuration to set up and use the MMS with a URC system.

Firmware Updates

View the current firmware version on the MMS, update the software in the MMS, download utility and control software for controlling the server and synchronizing content, and contact remote technical support on the Firmware Tab.



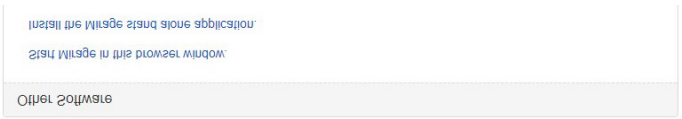
From time to time, new software is released to add new services, features, and correct any reported issues. If there is an update available, a button will appear in this section that allows download and application of the update.

After clicking the Update Firmware button, the MMS automatically downloads the latest version, installs the new operating firmware, and restarts the MMS. This process can take several minutes depending on the size of the update and internet speed.

WARNING: Do not power off the MMS during a firmware update. Doing so could require factory service to restore the MMS. The MMS should become available within a few minutes, at which point the update is complete and the MMS is available for normal use.

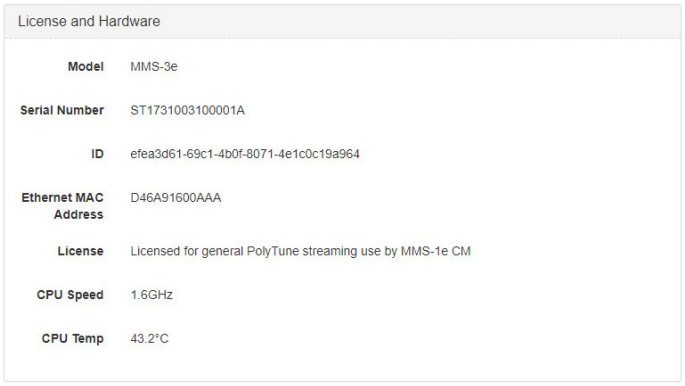
Other Software

This section contains links for starting the standalone app or Web player for the MMS.



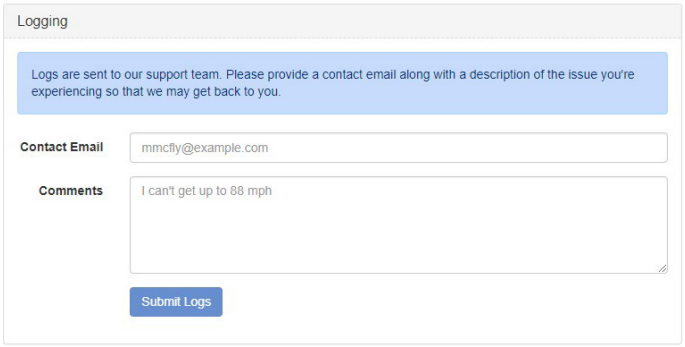
License and Hardware

This section displays the product license information and serial number. Software serial number and hardware serial number are also printed on the bottom of the unit.



Logging

Internal server logs and media databases can be uploaded here. Enter your contact information and a description of the issue. These log files are sent directly to Tech Support.



Remote Support

Tech Support may request remote access to a server through the Internet in order to check the operation of a server during service calls.

In that event, a security code will be provided that can be entered into this field to grant Technical Support remote access to the MMS.

Call 866.838.5052 or visit **www.SnapAV.com** for technical support.



Safety Information

FCC - Federal Communications Commission Information

CAUTION: User changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital devices, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CE - European Conformity Information

This equipment bares the CE marking of conformity that indicates a product complies with the essential requirements of the applicable European laws or directives with respect to safety, health, environment and consumer protection. Generally, this conformity to the applicable directives is done through self-declaration. The CE Marking is required on products in the countries of the European Economic Area (EEA) to facilitate trade among the member countries. The manufacturer or their authorized representative established in the EEA is responsible for affixing the CE Marking to their product. The CE Marking provides a means for a manufacturer to demonstrate that a product complies with a common set of laws required by all of the countries in the EEA to allow free movement of trade within the EEA countries.

Our Promise

Autonomic is committed to updating and supporting our products to provide dealers with maximum value and the best digital media control solutions.

If there's any way we can serve your needs, please email Techsupport@SnapAV.com, visit **www.SnapAV.com** or contact our support team at 866.838.5052.

MMS OS STREAMING SERVICES

The MMS and MAS operating system (OS) provides playback of the most popular online streaming music services. Many of the services support multiple accounts that can be entered and accessed directly from the UI controlling the MMS or MAS. Service terms vary per streaming service, and although one account may suffice for playback on one player of the MMS, multiple accounts may be required to play simultaneous streams of the service. Below is a comprehensive list of streaming services available through the MMS, highlighting account types required and number of accounts needed to support simultaneous streams of playback per service.

SUPPORTED STREAMING SERVICES

Streaming Service*	Account Type / Subscription Supported	Number of Accounts	Number of Simultaneous Streams per Account	Additional Information
iCloud	Free or Premium	(1) One	Not Applicable	Sync multiple MMS content
iHeartRADIO	Free	Unlimited	Not Applicable	...
iTunes	Free or Premium	Unlimited	Unlimited	...
PANDORA	Free or Premium	Multiple	Unlimited	...
napster	Premium	Multiple	(1) One	Napster offers a family plan, for more information visit: us.napster.com/family
SiriusXM	Premium	Multiple	(1) One	SiriusXM offers a family plan, for more information visit: www.SiriusXM.com
SiriusXM MUSIC FOR BUSINESS	Premium	Multiple	(1) One	No timeout restrictions. For more information, visit: https://www.siriusxm.com/siriusxmfor-business
Spotify	Premium	Multiple	(1) One	Spotify offers a family plan, for more information visit: www.Spotify.com
Slacker RADIO	Free or Premium	Multiple	(1) One	Limits of 200 track starts on free accounts in Canada
TIDAL	Premium	Multiple	(1) One	TIDAL offers a family plan, for more information visit: www.Tidal.us
DEEZER	Free or Premium	Multiple	(1) One	International; Premium tier US available
tunein	Free	(1) One (optional)	Unlimited	Account only required to browse presets
murfie	Premium	Multiple	Unlimited	...

*To see which countries support each service, please reference: http://www.pro-music.org/legal-music-services.php
For additional questions or information, please contact Autonomic Technical Support at 914-598-1647, option 2, or email support@autonomic-controls.com

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Specifications



High Resolution Output

As with the premium music servers in the lineup, the MMS-1e supports full High Resolution Audio (HRA) at 24bit/192kHz.

Flexible Output Options

The MMS-1e supports one analog output through its on board HRA 24bit/192kHz DAC, plus mirrored High Resolution PCM digital outputs in both Coax and HDMI formats.

eAudioCast™

The MMS-1e will support one physical stream mirrored to Analog, PCM, and HDMI outputs. Our proprietary eAudioCast™ technology enables two network streams of audio to be played back on the MMS-1e versus usage of the single stream available with use of one of the physical outputs. eAudioCast™ network streams are only available for use when the MMS-1e is paired with a complementing eSeries MMS Digital Amplifier.

All Solid State

All eSeries products are completely solid state. Autonomic has eliminated all moving parts from its entire lineup with solid state storage and re-engineered passive cooling systems, which translates to years of trouble free and silent performance, lower power consumption, and snappier responsiveness.

WiFi Support

The MMS-1e supports both wired and bi-directional WiFi connections for convenient placement.

MMS·1e	
Streaming Services	Deezer, iHeartRadio, Murfie, Napster, PANDORA® Internet Radio, SiriusXM Internet Radio, Slacker Radio, Spotify, TIDAL, TuneIn
Audio Formats	.aif, .aifc, .aiff, .au, .cda, .flac, .m4a, .m4p, .mp2, .mp3, .mpa, .rmi, .snd, .wav, .wma, .wpl
Internal Storage	32 GB Flash Memory; holds approximately 10,000 songs
External Storage	Expandable via USB external hard drives or network shared storage
Pre-Amp Audio Output	(1) analog, unbalanced, stereo RCA type, line level audio output
Digital Audio Output	(1) Stereo Coaxial, RCA type, PCM (1) Stereo USB for connection to external DAC PCM (1) Stereo HDMI PCM
Digital-to-Analog Conversion	High-resolution 24bit/192kHz
Supported Sample Rates	44.1/48/96/192 kHz at 16-bit or 24-bit resolution
S/N Ratio	96db, A weighted
Video Outputs for OSD	HDMI (Max Resolution of 1920 X 1080)
Local Synchronization	MMS Media Sync for both Mac and Windows: download from web-based configuration under Firmware tab
Cloud-based Synchronization	Google Drive Cloud Sync (fees for online storage may apply)
Control System Protocols	IP, 2-way documented API
Control Interfaces	AMX, Command Fusion, Control4, Crestron, Elan, KNX, Leviton, Lutron, ON Controls, RTI, Savant, URC, Windows/Mac, on-screen display (OSD), mobile devices and computers, MMS Media Controller for Apple iPad, iPhone/iPod Touch, Android and Amazon Kindle
LAN Connection	(1) 8-wire RJ45 with 2 LED indicators; 10/100/1000 Mbits/sec BaseT Ethernet port; green LED indicates link status; yellow LED indicates Ethernet activity
Wireless LAN	802.11 a/b/g/n/ac; Dual-band 2.4 GHz/5GHz
USB	(2) USB 2.0
Power Connection	100V–240V AC ~ 50-60Hz: External DC 5 V @ 2A (included)
Main Power Consumption	10W @ 100–240 V AC, 50–60Hz
Environmental Requirements	Humidity: 10% to 90% RH (non-condensing) Temperature: 32°F to 104°F (0°C to 40°C)
Dimensions	With feet: 6" x 3.9" x 1.4"; with brackets: 6.5" x 3.9" x 1.3" (With feet: 153mm x 100mm x 36mm; with brackets: 165mm x 100mm x 33mm)
Net Weight	1 lb (0.5 kg)
Mounting	(4) feet included; (2) brackets for structured wire cabinet / wall mount included
Warranty	2-year limited warranty

INTEGRATE ANY STREAMING SERVICE WITH YOUR CONTROL SYSTEM







Audiophile Quality Sound

Supports reference quality, High Resolution Audio (HRA) 24-bit/192kHz content, perfectly rendered through analog, coaxial digital and USB outputs, in addition to eAudioCast™ network streams.

Flexible Output Options

The MMS-3e supports two analog outputs through its on board HRA 24-bit/192kHz DAC, plus mirrored High Resolution PCM coax digital outputs and one output mirrored to both HDMI and USB (to DAC) formats.

eAudioCast

Our innovative, proprietary eAudioCast technology enables audio-over-Ethernet to compatible eSeries devices. The MMS-3e will support three eAudioCast streams, including both physical streams mirrored to eAudioCast, as well as a third eAudioCast-only stream available when paired with MMS eSeries amplifiers.

All Solid State

All eSeries products are completely solid state and use passive cooling systems. All moving parts have been eliminated from the entire Autonomic lineup, which translates to years of trouble free and silent performance, lower power consumption, and quick responsiveness.

MMS-3e

Streaming Services	Deezer, iHeartRadio, Murfie, Napster, PANDORA® Internet Radio, SiriusXM Internet Radio, Slacker Radio, Spotify, TIDAL, TuneIn
Audio Formats	.aif, .aifc, .aiff, .alac, .au, .cda, .flac, .m4a, .m4p, .mp2, .mp3, .mpa, .rmi, .snd, .wav, .wma, .wpl
Internal Storage	120 GB SSD; holds approximately 25,000 songs
External Storage	Expandable via USB external hard drives or network shared storage

Audio Outputs (3 Total)	Supported Format	Output 1	Output 2	Output 3
	Analog[1]	✓	✓	
	COAX[2]	✓	✓	
	USB[3]			✓
	HDMI[4]			✓
	eAudioCast[5]	✓	✓	✓

Analog[1]: unbalanced, stereo RCA type, line level audio output
COAX[2]: Stereo Coaxial, RCA type, PCM
USB[3]: Stereo USB for connection to external DAC PCM
HDMI[4]: Stereo HDMI, Type A, PCM
eAudioCast[5]: Provides audio-over-Ethernet technology when paired with eSeries devices

Digital-to-Analog Conversion	High-resolution 24-bit/192kHz
Supported Sample Rates	44.1/48/96/192 kHz at 16-bit or 24-bit resolution
S/N Ratio	96db, A weighted
Video Outputs for OSD	HDMI (Max Resolution of 1920 X 1080)
Local Synchronization	MMS Media Sync for both Mac and Windows: download from web-based configuration under Firmware tab
Cloud-based Synchronization	Google Drive Cloud Sync (fees for online storage may apply)
Control System Protocols	IP, 2-way documented API
Control Interfaces	AMX, Command Fusion, Control4, Crestron, Elan, KNX, Leviton, Lutron, ON Controls, RTI, Savant, URC, Windows/Mac, on-screen display (OSD), mobile devices and computers, MMS Media Controller for iOS and/or Android devices
LAN Connection	(1) 8-wire RJ45 with 2 LED indicators; 10/100/1000 Mbits/sec BaseT Ethernet port; green LED indicates link status; yellow LED indicates Ethernet activity
USB	(3) USB 2.0
Power Connection	110V-240V external DC 12 V @ 5 A with removable IEC 60320-1 C13/C14 power cord (included)
Main Power Consumption	10W @ 100–240 V AC, 50–60Hz
Environmental Requirements	(Humidity: 10% to 90% RH (non-condensing) Temperature: 32°F to 104°F (0°C to 40°C)
Dimensions	2.25" H (with included feet installed) x 17" W x 10" D (5.7cm x 43cm x 25cm); 1RU rack-mount chassis
Net Weight	5 lbs (2.27 kg)
Mounting	Four (4) screw on feet included; two rack ears included
Warranty	2-year limited warranty





Audiophile Quality Sound

Supports reference quality, High Resolution Audio (HRA) 24-bit/192kHz content, perfectly rendered through analog, coaxial digital and USB outputs, in addition to eAudioCast™ network streams.

Flexible Output Options

The MMS-5e supports four analog outputs through its on board HRA 24-bit/192kHz DAC, plus mirrored High Resolution PCM coax digital outputs and one output mirrored to both HDMI and USB (to DAC) formats.

eAudioCast

Our innovative, proprietary eAudioCast technology enables audio-over-Ethernet to compatible eSeries devices. The MMS-5e will support five eAudioCast streams, including all four physical streams mirrored to eAudioCast, as well as a fifth eAudioCast-only stream available when paired with MMS eSeries amplifiers.

All Solid State

All eSeries products are completely solid state and use passive cooling systems. All moving parts have been eliminated from the entire Autonomic lineup, which translates to years of trouble free and silent performance, lower power consumption, and quick responsiveness.

MMS-5e

Streaming Services	Deezer, iHeartRadio, Murfie, Napster, PANDORA® Internet Radio, SiriusXM Internet Radio, Slacker Radio, Spotify, TIDAL, TuneIn, AirPlay
Audio Formats	.aif, .aifc, .aiff, .alac, .au, .cda, .flac, .m4a, .m4p, .mp2, .mp3, .mpa, .rmi, .snd, .wav, .wma, .wpl
Internal Storage	256 GB SSD; holds approximately 50,000 songs
External Storage	Expandable via USB external hard drives or network shared storage

Audio Outputs (5 Total)

Supported Format	Output 1	Output 2	Output 3	Output 4	Output 5
Analog[1]	✓	✓	✓	✓	
COAX[2]	✓	✓	✓	✓	
USB[3]					✓
HDMI[4]					✓
eAudioCast[5]	✓	✓	✓	✓	✓

Analog[1]: unbalanced, stereo RCA type, line level audio output
COAX[2]: Stereo Coaxial, RCA type, PCM
USB[3]: Stereo USB for connection to external DAC PCM
HDMI[4]: Stereo HDMI, Type A, PCM
eAudioCast[5]: Provides audio-over-Ethernet technology when paired with eSeries devices

Digital-to-Analog Conversion	High-resolution 24-bit/192kHz
Supported Sample Rates	44.1/48/96/192 kHz at 16-bit or 24-bit resolution
S/N Ratio	96db, A weighted
Video Outputs for OSD	HDMI (Max Resolution of 1920 X 1080)
Local Synchronization	MMS Media Sync for both Mac and Windows: download from web-based configuration under Firmware tab
Cloud-based Synchronization	Google Drive Cloud Sync (fees for online storage may apply)
Control System Protocols	IP, 2-way documented API
Control Interfaces	AMX, Command Fusion, Control4, Crestron, Elan, KNX, Leviton, Lutron, ON Controls, RTI, Savant, URC, Windows/Mac, on-screen display (OSD), mobile devices and computers, MMS Media Controller for iOS and/or Android devices
LAN Connection	(1) 8-wire RJ45 with 2 LED indicators; 10/100/1000 Mbits/sec BaseT Ethernet port; green LED indicates link status; yellow LED indicates Ethernet activity
USB	(3) USB 2.0
Power Connection	110V-240V external DC 12 V @ 5 A with removable IEC 60320-1C13/C14 power cord (included)
Main Power Consumption	10W @ 100–240 V AC, 50–60Hz
Environmental Requirements	(Humidity: 10% to 90% RH (non-condensing) Temperature: 32°F to 104°F (0°C to 40°C)
Dimensions	2.25" H (with included feet installed) x 17" W x 10" D (5.7cm x 43cm x 25cm); 1RU rack-mount chassis
Net Weight	5 lbs (2.27 kg)
Mounting	Four (4) screw on feet included; two rack ears included
Warranty	2-year limited warranty





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autonomic-controls.com/eseries

AUTONOMIC

MIRAGE M·801E

8-room Digital Amplifier with eAudioCast™



eSERIES

MIRAGE
AUDIO SYSTEM

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Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including other amplifiers) that produce heat.
9. Use the apparatus only in moderate climates. (not in tropical climates)
10. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other, a grounding type plug has two blades and a third grounding prong, the wide blade or the third grounding prong are provided for your safety. If the provided plug does not fit onto your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. If you install the apparatus in a built-in installation, such as a bookcase or rack, ensure that there is adequate ventilation. Leave 20cm (8") of free space at the top and sides and 10cm (4") at the rear. The rear edge of the shelf or board above the apparatus shall be set 10cm (4") away from the rear panel or wall, creating a flue like gap for warm air to escape. Good airflow is necessary to help ensure proper operation. Not only should you provide enough free space around the unit, but also ensure that air can flow freely and escape from the amplifier surroundings. Failure to do so may cause thermal shutdown of the unit, and reduced life expectancy.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as:
    a. When the power supply cord or plug is damaged.
    b. If liquid has been spilled, or objects have fallen into the apparatus.
    c. If the apparatus has been exposed to rain or water.
    d. If the apparatus has been dropped or damaged in any way.
    e. If the apparatus does not operate normally by following the instructions. Adjust only those controls that are covered by the operating instructions.
    f. When the apparatus exhibits distinct change in performance this indicates a need for a service.

WARNING!
Do not expose the apparatus to dripping or splashing. Do not place objects filled with liquids near the apparatus.
WARNING!
To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
WARNING!
Equipment must be connected to a Mains socket outlet with a protective earthing connection.
WARNING!
Never push objects of any kind into the apparatus through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.
IMPORTANT!
Ensure adequate ventilation. Do not install in a cabinet that is smaller than 60cm (24") wide x 45cm (18") deep x 20cm (8") high. If you do the device may overheat.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Precautions

1. **AC Fuse**
   The AC fuse inside the unit is not user-serviceable. If you cannot turn on the unit, contact the dealer from whom you purchased this unit.
2. **Care**
   Occasionally you should dust the unit all over with a soft cloth. For stubborn stains, use a soft cloth dampened with a weak solution of mild detergent and water. Dry the unit immediately afterwards with a clean cloth. Don't use abrasive cloths, thinners, alcohol, or other chemical solvents, because they may damage the finish or remove the panel lettering.
3. **POWER WARNING: Before plugging in this device for the first time, read the following section carefully.**
   AC outlet voltages vary from country to country. Make sure that the voltage in your area meets the voltage requirements printed on the unit's rear panel. e.g. ~ 110V / 240V, 50/60HZ.
   The power cord is used to disconnect this unit from the AC power source. Make sure that the plug is readily operable (easily accessible) at all times.
   If you do not intend to use the unit for an extended period, remove the power cord from the AC outlet.
4. **Earth**
   The unit is defined as Class1 in EN60065 (low voltage directive) and MUST BE EARTHED. Connect only to a mains socket outlet with protective earth, and only use the power cord supplied.
   Finland: "*Laite on Liitettävä suojamaadoituskoskettimilly varustettun pistorasiaan*"
   Norway: "*Apparatet må tilkoples jordet stikkontakt.*"
   Sweden: "*Apparaten skall anslutas till jordat uttag.*"
5. **Never Touch This Unit with Wet Hands**
   Never handle this unit or its power cord while your hands are wet or damp. If water or any other liquid gets inside this unit, have it checked by your Autonomic dealer.
6. **Handling Notes**
   a. If you need to transport this unit, use the original packaging.
   b. Do not leave rubber or plastic items on this unit for a long time; they may leave marks on the case.
   c. This unit's top and rear panels may get warm after prolonged use. This is normal.

7. **Speaker Shorts**
   Under no circumstances should the speaker output terminals of the unit be short circuited, grounded or connected to another output.
8. **Direct Sun light**
   Avoid installing the amplifier in positions where the front panel is exposed to direct sunlight – may cause control to become sluggish.
9. **Controller Connection**
   Never connect more than eight Autonomic controllers. The supply is internally fused (self-resetting) and may open circuit. Never connect the unit's 12VDC terminal ('Bus Run' port) to an external power supply.

Declaration of Conformity

We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards:

- EN60065
- EN55013
- EN55020
- EN61000-3-2
- EN61000-3-3

Following the provisions of Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC, the EC regulation 1275/2008 and its frame work Directive 2009/125/EC for Energy-related Products (ErP).

TUV Certification

This product has been certified and conforms to UL60065 and certified to CAN/SSA, IEC 60065.

For North American Models

FCC interference statement
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT!

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For Canadian Models

NOTE: THIS CLASS B DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

For models having a power cord with a polarized plug:

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT FULLY INSERT.

Modèle pour les Canadien

REMARGUE: CET APPAPEIL NUMÉRIQUE DE LA CLASSE B EST CONFORME À LA NORME NMB-003 DU CANADA.

Sur les modèles dont la fiche est polarisée:

ATTENTION: POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

A Note About Recycling

This product's packaging materials are recyclable and can be reused. Please dispose of any materials in accordance with the local recycling regulations.



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.

This product and the supplied accessories constitute the applicable product according to the WEEE directive.

Features

Thank you for purchasing an M-801e Mirage Multi-Zone Amplifier. Please read this manual thoroughly before making connections and plugging in the device. Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new Multi-Zone Amplifier. Please retain this manual for future reference.

Multi-Zone, Multi-Source Switching
The M-801e amplifier has six separate amplifiers and two separate pre-amplifiers, providing 8 independent zones with integrated control. There are 12 input sources comprising the following:

- Sources 1 – 8 are either Analog Stereo, or Coax Digital Audio (PCM) Digital Coax has priority if both are connected.
- Sources 9 - 12 are either Coax (PCM) or Optical Digital Audio (TOSLINK) Only one connection is permitted to each source.
- Sources 1 -12 have a programmable delay: up to 600ms - 5ms steps.

eAudioCast
Six separate amplifiers independent yet integrated control. Multiple remote sources may be assigned, originating from a connected eSeries amplifiers and streamers.

Amplifier Physical Stacking for Zone Expansion
Additional zones may be added by physically linking amplifiers in a stack through the Digital Coax connections. Use sources 1-12 Digital Coax outputs for connection to the Digital Coax inputs of additional Autonomic amplifier(s).

As an alternative to physically linking amplifiers together, eSeries amplifiers support adding zones over Ethernet via Autonomic's proprietary eAudioCast technology.

Pre-amplifiers and Outputs
Each zone has bass, treble, balance and loudness control. These are accessed from the front panel or Mirage Web Interface. A feature called Maximum Volume Limiting, is useful for protecting connected speakers. It may be applied to both amplifier and preamplifier outputs.

Amplifier Power, Protection, and Clipping Indicators
55 Watts into 8 ohm loads, and 75 Watts into 4 ohm loads with < 1% THD. The amplifiers are protected against output shorts, and have algorithms that prevent hard clipping when the zone amplifiers are overdriven.

Thermal Control
There are two progressive levels of thermal control:

- The amplifier volume is reduced 20dB.
- The amplifiers are shutdown until the temperature reduces below the first level.

Care should be taken to ensure adequate ventilation. See "Important Safety Instructions" on page 2.

IR Emitter Ports
There are 10 Buffered IR emitter Ports. Ports 1 – 8 have IR routing, and are intended to control specific input source components.

Two IR ports 9 & 10 are the sum of all IR sources and control the "All" zone source components.

Ethernet and IR Control
The M-801e amplifier may be controlled and monitored via Ethernet. An M-801e amplifier may receive IR directly from the front panel receiver. There are zone specific IR commands and also a set of global IR commands. The commands are:

- ON
- OFF
- Standby (toggling)
- Mute
- Volume Up
- Volume Down
- Source Selects
- Discrete Audio Source Selects
- On with Source Specific commands

Amplifier Zone ON Status – "Amp-On"
Each zone has AMP-ON status: 12VDC OUT on the rear panel connector: (1, 2, 3, 4, 5, 6, 7, 8).

Discrete Audio Selection
Audio selection may be independent. There are IR Discrete control commands available.

Zone Linking
A zone may be programmed to be linked with other zones. Zone linking ties the source selection together. Optionally, it may also be configured to tie the zone group's volume and power. In your specific listening area(s) it may be advantageous to have different volume control but the same source, or the same volume with separate power control. Zone linking is setup via the amplifier's web interface.

96 Zones
There are 96 zones of possible control. On an M-801e amplifier each zone must be different, however in a multiple amplifier stack, same zone amplifiers are possible (they simply mimic every parameter).

Power Failure Restoration
After an AC power outage the M-801e amplifier restores its settings to the ore-interrupted state. All internal settings are stored in non-volatile memory, except the clock that runs for at least 48 hours on stored power.

Restore Defaults
The M-801e amplifier may be set to the default settings. Restoring defaults clears all memory and resets the zone allocations to zones 1 – 8. It will also reset any custom zone and source names to default (Zone 1 and S1, for example).

Firmware Upgradable
The M-801e amplifier may be updated with the latest operational firmware. See **www.Autonomic-Controls.com** for support.

Front Panel Guide



1. **Front Panel**
   Solid Aluminium front Panel.
2. **Infra-Red Receiver**
   Receiver for front panel IR control (Used only for amplifier control, not IR pass through). No IR Remote supplied, however an IRC profile is located at: **www.Autonomic-Controls.com/Support/**
3. **Power Indicator**
   The power indicator glows blue whenever AC power is applied.
4. **2.4" Color LCD Touch Panel display**
   LCD touch panel display for menu guided control and programming. The display is dimmed to **Off** after 15 minutes of inactivity.
5. **Chassis Feet**
   Set high enough to provide unrestricted air-flow through the chassis for convection cooling.
6. **Rack Mount Ears (Optional)**
   Rack mount ears not depicted.

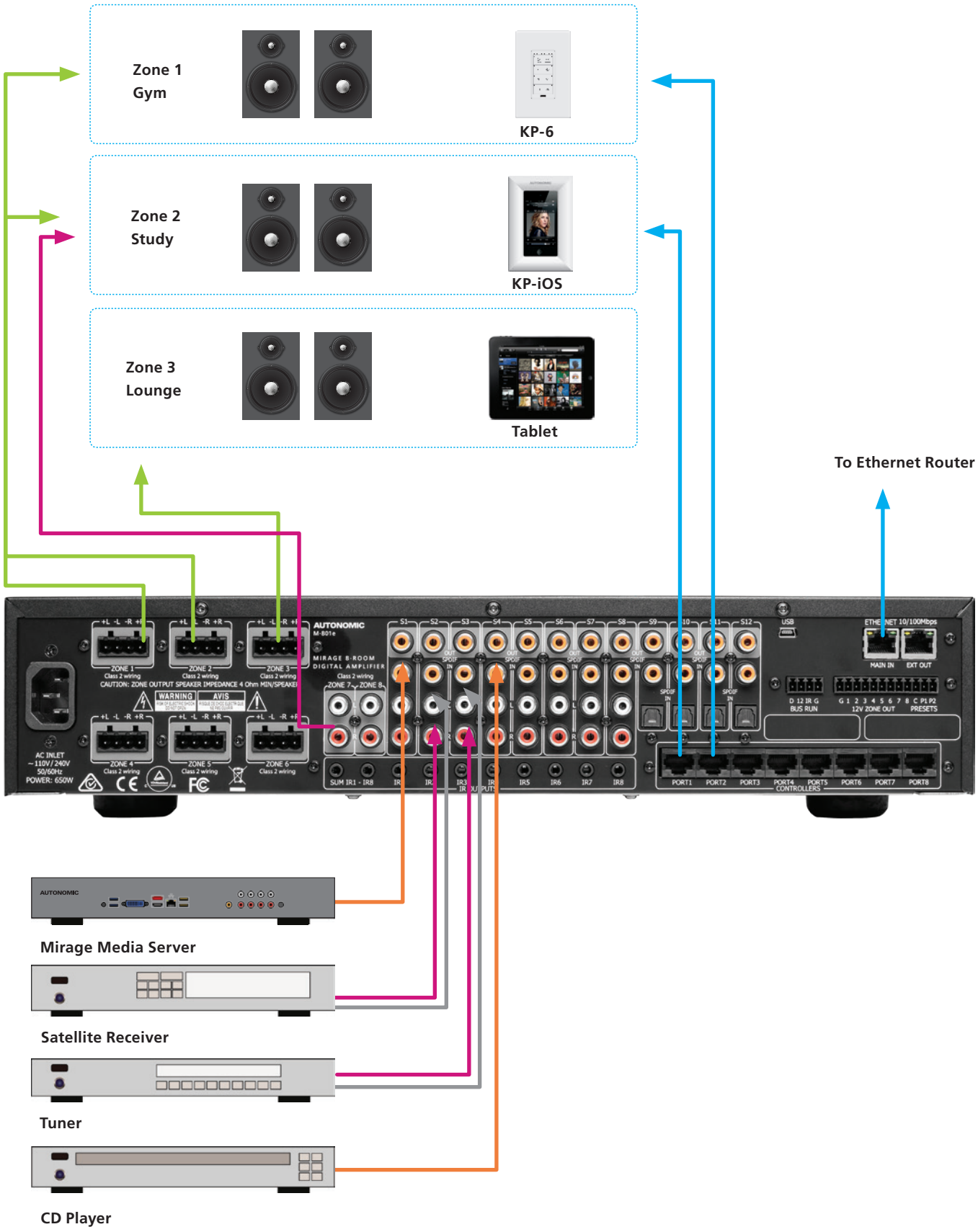
Rear Panel Guide



1. **AC Inlet**
   IEC socket.
2. **Speaker Terminals**
   Plug in terminal clamp connectors accept 1.5mm² speaker wires.
3. **Coax Digital Input Terminals**
   Coax digital (SPDIF) inputs.
4. **Coax Digital Source Output Terminals**
   Coax digital outputs for expansion to further amplifier zones.
5. **USB for Programming**
   USB mini B socket for firmware updates.
6. **Ethernet Port – MAIN IN**
   MAIN IN is 10/100 Base T primary Ethernet port for connection to the Home network.
7. **Ethernet Port – EXT OUT**
   EXT OUT is 10/100 Base T secondary port for connection to another eSeries Amplifier's "MAIN IN" Ethernet Port.
8. **Zone Pre Amplifier Out**
   Analog Audio L/R zone 7 & 8 outputs
9. **Analog Input Terminals**
   Analog audio L/R inputs
10. **IR Emitter Ports**
    3.5mm mono jacks. IR9 & IR10 ports output the combined IR1 – IR6 infra-red strings. Ports are not usable but are future ready for IR routing.
11. **Optical Digital Inputs**
    Optical (TOSLINK) digital inputs.
12. **Controller Interface**
    For connection to keypads and IR receivers. 8 controller interface ports - RJ45 sockets.
13. **AMP ON Control**
    AMP-ON 1 - 8 output 12VDC when Zone is ON.
14. **PRESETS – Door Bell**
    12 – 24V AC/DC powered doorbell trigger terminals.

Typical System Configuration

FIGURE 1



Typical System Configuration (Continued)

Fig. 1 depicts a typical configuration where the M-801e amplifier is providing audio into six of the possible eight listening zones. Only three of the zones are depicted.

Each zone consists of a room with a pair of speakers and a suitable controller. Each zone may be listening on any of the connected sources:

- Mirage Media Server
- Satellite Receiver
- Tuner
- CD Player

Controllers
Each zone has a specific control requirement. Choose controllers that best suit the application.

Zone 1 – The Gym: Speakers & KP-6 Keypad

Zone 2 – The Study: Speakers & KP-iOS Keypad

Zone 3 – The Lounge: Speakers & Tablets

1. The KP-6 Keypad may be plugged into any of the four controller ports.
2. Source control IR emitters are plugged into the IR ports. There are ten IR ports: IR1 - IR8, and IR9 & IR10.
3. IR 1 – 8 route source specific IR signals from connected controllers, while IR9 & IR10 output the common IR or the sum of all received IR signals.
4. These ports may be used for source equipment that is common to all zones.

When controlling a stand alone M-801e using an iPad or other web tablet, the M-801e must be connected to a wi-fi enabled ethernet router and the web tablet browser must be directed to the M-801e's IP Address. The M-801e's web application also provides source control functionality.

Speakers
Speakers in each zone are connected to the amplifier by "Home Run" speaker cables.

Source Equipment
The M-801e amplifier has eight stereo RCA audio inputs for connecting to source equipment. These input channels feature coax digital inputs.

If a signal is present on the digital input, it takes precedence over the analog input. There are four additional Digital only input channels featuring both coax and Optical inputs. Any source can be listened to in any zone, simultaneously.

All eight zones may select the same source, in such circumstances there is a possibility that all eight zones may be trying to control that source (not always desirable) so a system should be well planned and where appropriate additional source equipment installed.

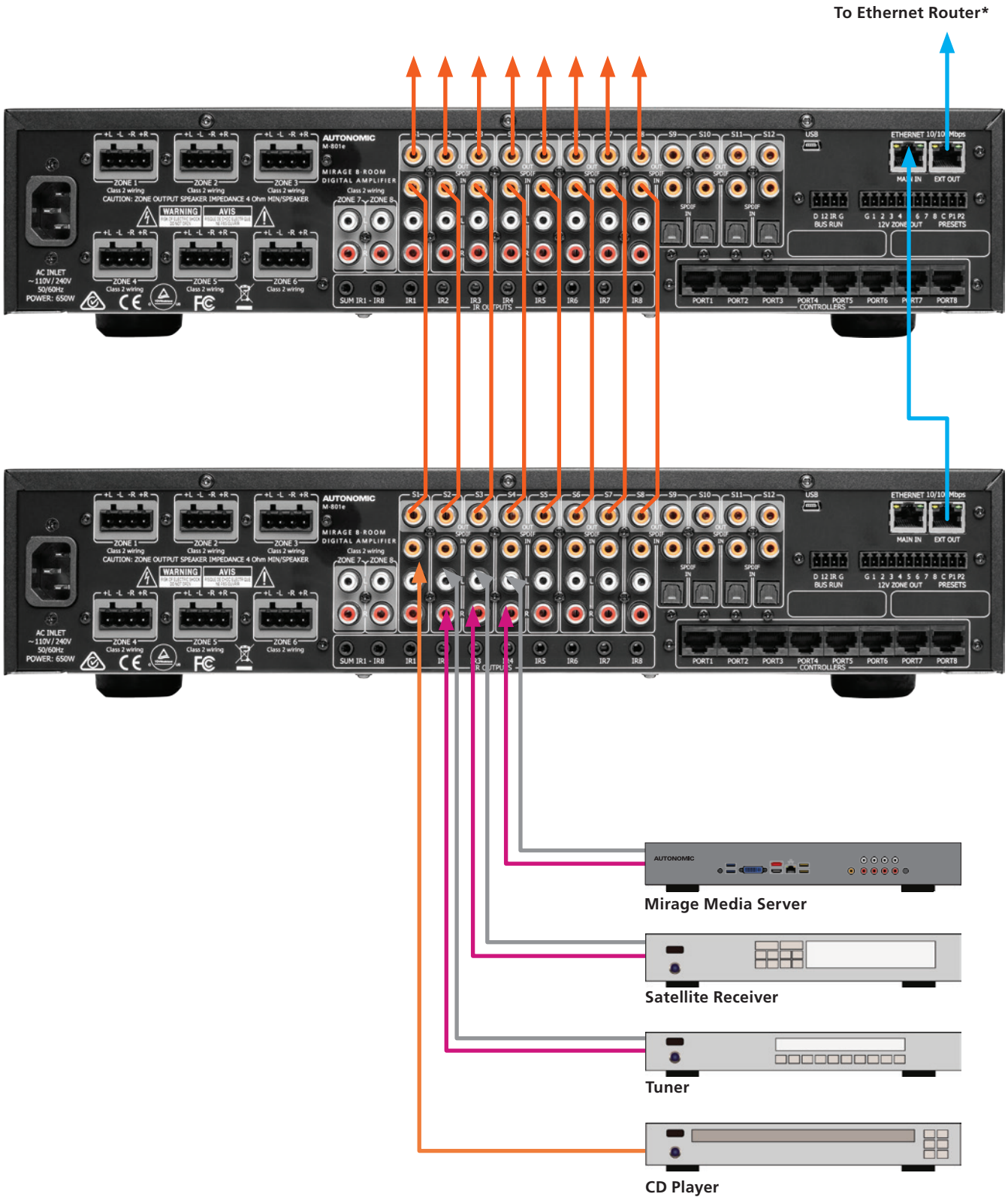
Preamplifier Zone Outputs
The preamplifier output zones are completely independent of the digital amplifier zones. These can optionally be used for locations where a high or lower power amplifier / speaker would be required. A third party power amplifier is required to power the zone speakers. Alternatively a preamplifier zone may be zone linked to one of the digital amplifier zones, and provide line level outputs to the zones sub-woofer.

Mirage Media Server
When pairing your M-801e amplifier with a Mirage Media Server, be sure to use the Mirage Media Server's web configuration Sources page and follow the pairing process there. This will ensure full control via the Mirage iOS and Android applications.

Multiple Amplifier Stacks

FIGURE 2

Linking to the next M-401e or M-801e Multi-Zone Amplifier



Multiple Amplifier (Continued)

In large installations where multiple M-801e amplifiers are required, Ethernet conveys amplifier control, and link to other Media sources if connected to the Home network Router or Switch. Ensure all amplifiers using same the amp ID in the stack.

The source equipment audio inputs must be plugged into the first amplifier where they are buffered and sent to the next amplifier in the stack. The maximum recommended expansion is 24 units.

Fig 2. shows a stack of M-801e with Source connections to first amplifier where they are converted to Digital audio, buffered and sent to the next amplifier in the stack. Use good quality Coax Digital Shielded RCA cables for the interconnection, cables should be no more than 3 meters or 10 feet. The maximum recommended expansion is twelve units.

*This chaining of Ethernet is an option but a direct connection to the router is the best option.

Controller Wiring

The M-801e is packed with control options:

- **USB:**
  Used for firmware update.
- **ETHERNET:**
  Two 100BaseT connections to a home network or to daisy chain other amplifiers.
- **CONTROLLERS:**
  Conveys +12VDC, IR and data between the M-801e and KP-6 keypad controllers, connected using CAT5 cables.
- **BUS RUN:**
  For future use.
- **TRIGGERS:**
  +12VDC 100mA trigger output when a zone is on.



FIGURE 3

Menu Navigation

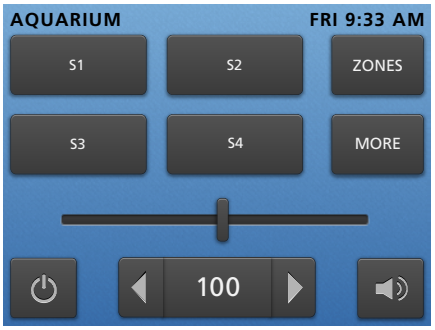
Front Panel User Interface

The M-801e amplifier has a 2.4" Touch Panel LCD color display which is used for control and accessing status of all amplifier functions. After 2 minutes of inactivity the LCD dims to 50% brightness. After a further 15 minutes it dims OFF. A touch of the screen will restore the LCD to full brightness, enabling touch control.



Home Page

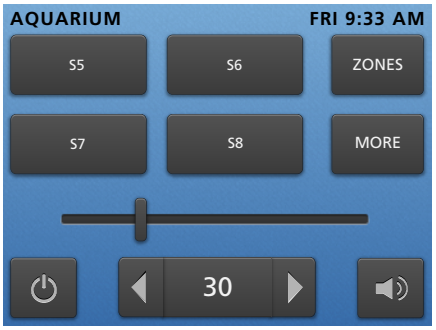
The Home page provides access to the Amplifier Zones: Zone1 - Zone 8.
In this example, Tuner, MMS-A, MMS-B, MMS-C, MMS-D, Satellite, CD and MMS-Main. Selecting a Zone opens its control page.



Zone Control Page

The top of the Control page displays the Zone as well as the current time & day. The "Zones" button will return you to the home page. The Zone Control page provides status & control for the selected zones:

- Standby
- Volume Slider
- Volume Up / Down with Digit readout
- Source Selects S1 – S4
- More button S5 - S8
- Mute

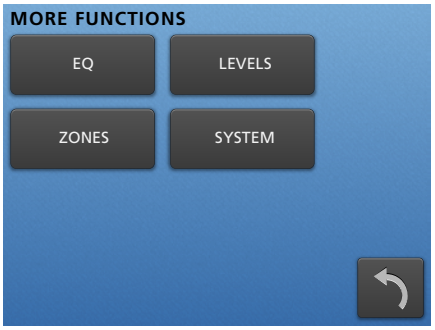


If the button has blue text with a white glow behind the button, it indicates selection or ON status. The Volume Slider changes color as the volume increases, i.e. Green –Yellow – Red.

Zone Control Page (Continued)

Selecting the "More" button will display the next set of sources: S5 – S8. To change the selected source, simply push a Source button.

If the "More" button is selected again the source selection loops back to the start: S1 – S4.

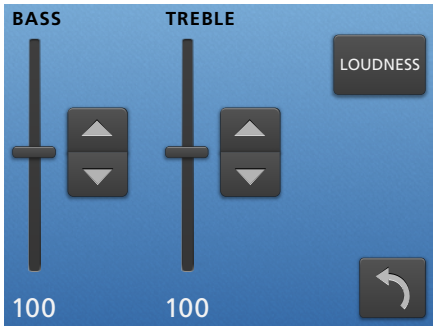


More Functions Page

When the "More" button is pressed and held for more than 1 second, a "More Functions" page opens. There are three Zone specific functions that when selected navigate to setup pages:

- EQ
- Levels
- Zones

There is also a System function which is not zone specific. The System page is covered later.
Note: System functions may be accessed via any of the Zones "More Functions" pages. The Back Arrow button returns to the Zone Control page.



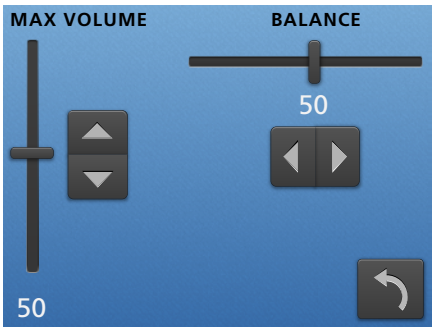
EQ Setup Page

The EQ setup page provides status & control for the selected Zones:

- Bass ± 12dB using Slider or Up/Down button
- Treble ±12dB using Slider or Up/Down Button
- Loudness Control – toggle.

The Back arrow button returns to the "More Functions" page.

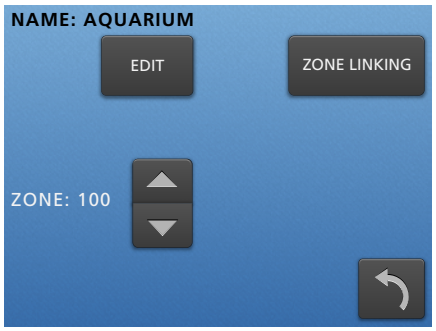
Menu Navigation (Continued)



Levels Setup Page
The Levels setup page provides status & control for the selected zones:

- Balance ±20dB using slider or Left/Right button
- Maximum Volume Limiting – can be reduced over the range from 100 to the minimum of 2 using the slider or Up/ Down button.

The Back arrow button returns to the More Functions page.



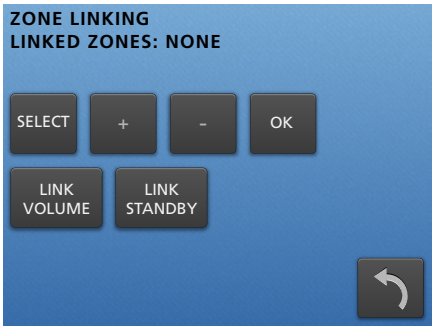
Zones Setup Page
Zones setup page allows you to edit the name and set the Zone coding. There is also a button for zone linking setup. To change the Zone allocation simply make the adjustment using the Up/Down button.

To name the Zone, select "Edit" and the Zone Name page opens.

The Back arrow button returns to the More Functions page.

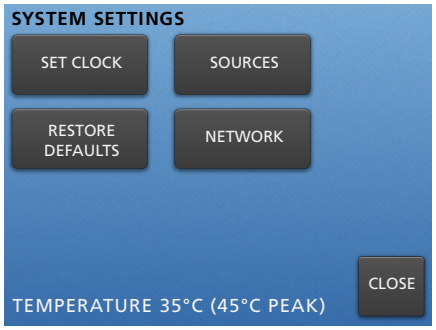


Zone Name Page
Use the keypad to enter the name text, the limit is 15 regular ASCII characters. Once entered, select the back arrow to return to the Zones Setup page.

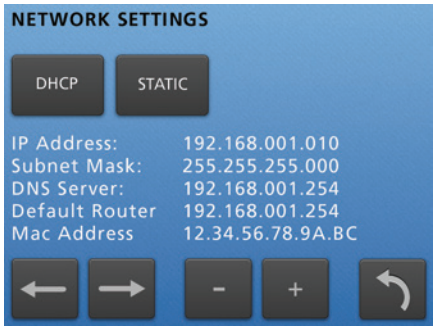


Zones Setup Page
Zones setup page allows you to edit the name and set the Zone coding. There is also a button for zone linking setup. To change the Zone allocation simply make the adjustment using the Up/Down button. To name the Zone, select "Edit" and the Zone Name page opens.

The Back arrow button returns to the More Functions page.



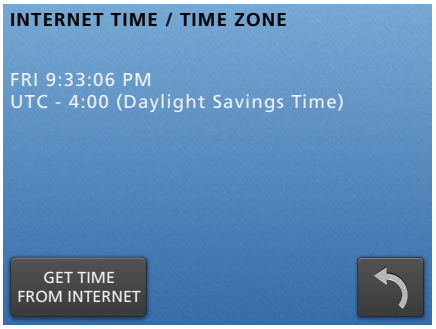
Zone Name Page
Use the keypad to enter the name text, the limit is 15 regular ASCII characters. Once entered, select the back arrow to return to the Zones Setup page.



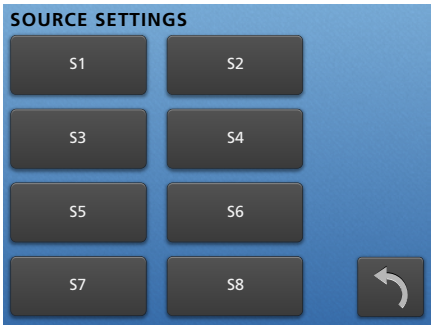
Zone Linking
The Zone may be linked with any other zone or zones. Make the selection by scrolling through the zone list and choosing OK.
The Type of Zone Linking:

- Link Volume or Link Standby may be selected.

Menu Navigation (Continued)

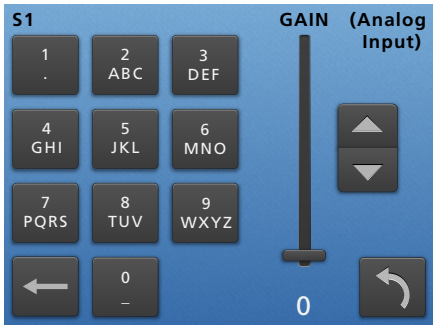


NTP Settings
Update the time and time zone using an internet connection.

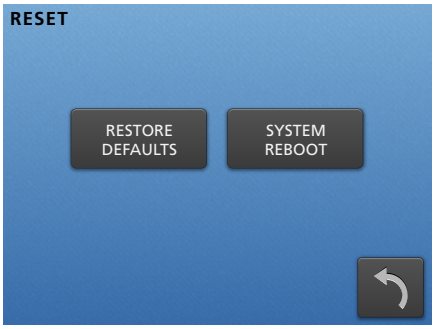


Source Settings Page
Select the Source to be adjusted, from S1-S8. This opens the Source edit page.

Source Settings Page (Continued)
A Source may be named, by using the phone Keypad. The analog input gain can be adjusted using the Gain slider or Up/Down buttons.



Gain is used to match the analog input levels to the Digital sources. Some Analog sources have large variation in output levels. The 0dB default setting is suitable for connection to high output devices like CD players, while the standard level (1Vrms) is achieved by setting the gain to +6dB. The Gain slider (and source button) will flash red if the gain is set to high and distortion is detected. Select the Back arrow to return to the System Settings Page.

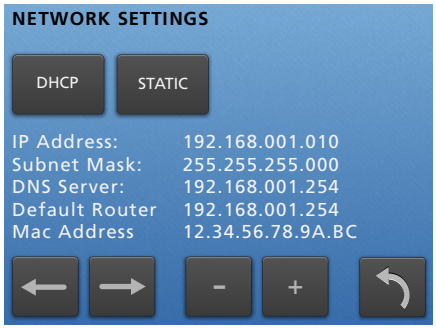


System Reset
Restore your amplifier to factory defaults or reboot the amplifier.



Restore Defaults Page
To restore the M-801e to factory defaults select "Yes", or to return to previous menu select "No".

Factory defaults will reset the zone allocations back to 1 - 8. It clears all settings like Zone Names, Source Names, Maximum Volume Limits, Bass, Treble and Loudness etc.



Network Settings Page
Network setting always defaults to DHCP. The connected Ethernet router's allocated IP address can be viewed. If for some reason a Static IP is required the selection can be made, and settings adjusted using the back and forward arrow and plus minus keys.

Select the back arrow to return to the System Settings page.

Ethernet Protocol

The Ethernet port provides data acquisition and control of the Mirage amplifiers by a home automation system, or PC Via TCP port 17037.
Command Structure: <**command**> <**zone**> <**data**> <**line feed**>

Please see online support documents under the amplifiers section.

Command

COMMAND	DESCRIPTION
01	Standby
02	Mute
03	Source Selection
04	Volume
05	Bass
06	Treble
07	Balance
09	Send All parameters
0B	Cause key press on Keypad
0C	Amplifier features
0D	Maximum Volume Limit
11	Volume Up
12	Volume Down
14	Request Device information
1C	Zone Name
1D	Preamplifier Volume Mode
26	Volume BCD format

Zone

Amplifiers are encoded with up to 96 zones.

The zone byte is used for checking if the command is applicable to the device receiving the command and if so, for optionally selecting a "sub-device," e.g. a bank or part of a device. All Zones are addressed using FF.
The lower 5 bits of the zone byte represent the zone 0 – 31.

Selection:

- 00000 bin = 00 (hex) = zone 0
- 00001 bin = 01 (hex) = zone 1
- 01010 bin = 0A (hex) = zone 10
- 11111 bin = 1F (hex) = zone 31

Examples:

Addressing a zone 10 amplifier: Binary 000-01010 or 0A hex Send ASCII "0A"
Addressing all Zone amp & preamplifier: FF hex Send ASCII "FF"

Data

COMMAND	CONTENT	
Standby **(01)**	**00** – Standby OFF **01** – Standby ON **04** – Toggle	
Mute **(02)**	**00** – Mute **01** – Un-mute **02** – Toggle Mute	
Source Selection **(03)**	**00** – S5 **01** – S6 **02** – S7 **03** – S4	**04** – S8 **05** – S1 **06** – S2 **07** – S3
Volume **(04)**	**00 – A0** Range	
Bass **(05)**	**F4 – 0C** (-12db - +12db)	
Treble **(06)**	**F4 – 0C** (-12db - +12db)	
Balance **(07)**	**EC – 14** (Left –20db – Right –20db)	
Send all parameters **(09)**	**XX** – Value Ignored	
Amplifier features **(0C)**	**00** – Loudness Disabled **01** – Loudness Enabled	
Maximum Volume Limit (0D)	**00 – A0** Range	
Volume Up **(11)**	**XX** – Value Ignored	
Volume Down **(12)**	**XX** – Value Ignored	
Zone Name **(1C)**	Data field contains the ASCII string.	
Preamplifier Volume Mode **(1D)**	**00 – A0** – Range **FF** = Independent Mode	

Notes

- When a command is sent to an amplifier it will first be transmitted on the control bus and then returned to the PC (Home Automation System). If an error occurs an error will be returned instead of the original command. The PC (Home Automation System) needs to ignore its command when it is returned.
- A Standby ON command implies that the amplifier is not muted, if the amplifier was previously Off, a mute command must follow the Standby command if it is muted.
- Not all Command and Data commands are covered in this document.
- The expected reply for the "Send all Parameters" command (09) is >144 bytes. All command fields listed in this document are contained in the reply. The reply also contains advanced commands not listed in this document. The home Automation or PC's buffer should be large enough to receive and process the 144-byte reply.
    a. Zone 2 links to Zone 3.
    b. Since Zone 2 is no longer linked to Zone 1, Zone 1 will no longer be linked to Zone 2.
    c. Since Zone 3 is no longer linked to zone 4, Zone 4 will no longer be linked to Zone 3.

Example strings:

- 010A01: Standby ON command for Zone 10 amplifier.
- 012A01: Standby ON command for Zone 10 preamplifier.
- 060002: +2db Treble setting on Zone 0.
- 03IF02: Select Source 7 on Zone 31.

Specifications

M·801e SPECIFICATIONS	
Rated Output Power (FTC) All Channels	55W per channel / 8Ω loads 75W per channel / 4Ω loads
Total Harmonic Distortion (THD)	0.1% (50 Watt, 8 Ω load)
Damping Factor (8Ω load)	10
Speaker Impedance (Z1 - Z6 L/R)	4Ω–8Ω
Analog Input Sensitivity (S1 - S8 L/R)	0.75V RMS (Vol 100, Gain 0dB, 55W Output)
Analog Input Impedance (S1 - S8 L/R)	22KΩ
Digital Input sensitivity	0dBFS
Pre Amplifier Output Level and Impedance (Z7 & Z8 L/R)	+14dB
Frequency Response	48 KHz sample rate: 10Hz - 22 KHz 96 KHz sample rate: 10Hz - 42 KHz
Tone Control	±12dB, 100Hz (Bass) ±12dB, 10kHz (Treble)
Signal to Noise Ratio	95dB (IHA-A, 0.75V input / unbalanced)
IR Output	(10) 3.5mm Jack: IR1 - IR8 current limited to 25mA
Source Inputs	(12) Digital Coaxial RCA, (8) Analog (L/R) RCA, (4) TOSLINK
Ethernet	(2) 100Base-T, MAIN IN and Switch EXT OUT
USB	(1) USB mini-B female 5 pin
Data	(1) 4 pole 3.5 mm terminal block connector (Data,12V, IR,0V)
Controllers	(8) RJ45 sockets Keypad controller ports
BUS RUN	(1) 4 way terminal block (0V, IR 12V & Data)
Amp On & PG Control	(1) 10 way terminal plug with Amp ON 1 - 8 and (2) page preset contact closure inputs: PG1 & PG2
Zone Triggers & Presets	(1) 12 pole 3.5 mm terminal block connector (Zone trigger 0V out, Zone trigger 1 - 8 12V out, Common, Preset 1 - 2 in)
Power Supply	110–240V AC 50–60Hz
Power Consumption	650W
Standby Power Consumption	6W
Dimensions with feet	4.0" H x 17" W x 15" D (10.2cm x 43.2cm x 38.1cm
Weight	15.4 lb. (7 kg)
Height including feet	105 mm
Touch Panel Display	2.4" color LCD touch panel display for menu guided control and programming.
Zones	(8) zones Expandable to 96 zones, attaching additional M-801e or M-401e amplifiers

A digital copy of this manual can be found at:
http://www.autonomic-controls.com/documents/Amplifiers/Manual_Instructions_Mirage_801e.pdf

Acknowledgments – FreeRTOS – uIP

The M-401e firmware is based in part on FreeRTOS.org™ V5.0.2 and the uIP TCP/IP stack.
For more information on FreeRTOS.org™ please visit http://www.freertos.org. Source code for FreeRTOS.org™ can be downloaded from their official website.
The following copyright and statements for uIP TCP/IP stack are required by license: Copyright © 2001-2003, Adam Dunkels. All rights reserved.

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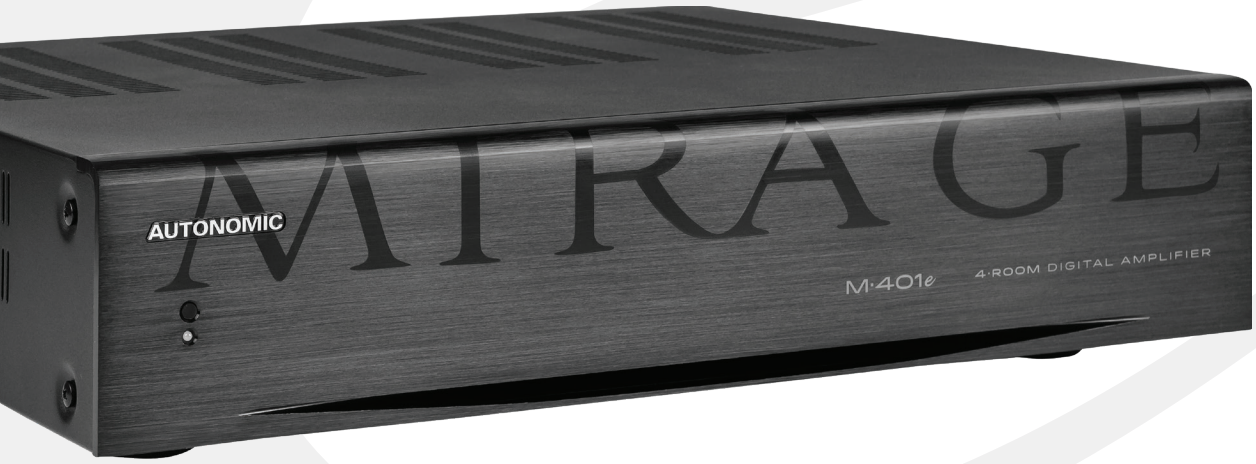
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AUTONOMIC

MAS·401E

4-room Digital Amplifier with eAudioCast™



eSERIES

MIRAGE
AUDIO SYSTEM

Table of Contents

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Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including other amplifiers) that produce heat.
9. Use the apparatus only in Moderate climates. (not in tropical climates)
10. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other, a grounding type plug has two blades and a third grounding prong, the wide blade or the third grounding prong are provided for your safety. If the provided plug does not fit onto your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments / accessories specified by the manufacturer.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. If you install the apparatus in a built-in installation, such as a bookcase or rack, ensure that there is adequate ventilation. Leave 20cm (8") of free space at the top and sides and 10cm (4") at the rear. The rear edge of the shelf or board above the apparatus shall be set 10cm (4") away from the rear panel or wall, creating a flue like gap for warm air to escape. Good airflow is necessary to help ensure proper operation. Not only should you provide enough free space around the unit, but also ensure that air can flow freely and escape from the amplifier surroundings. Failure to do so may cause thermal shutdown of the unit, and reduced life expectancy.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as:
    a. When the power supply cord or plug is damaged.
    b. If liquid has been spilled, or objects have fallen into the apparatus.
    c. If the apparatus has been exposed to rain or water.
    d. If the apparatus has been dropped or damaged in any way.
    e. If the apparatus does not operate normally by following the instructions. Adjust only those controls that are covered by the operating instructions.
    f. When the apparatus exhibits distinct change in performance this indicates a need for a service.

WARNING!
Do not expose the apparatus to dripping or splashing. Do not place objects filled with liquids near the apparatus.
WARNING!
To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
WARNING!
Equipment must be connected to a Mains socket outlet with a protective earthing connection.
WARNING!
Never push objects of any kind into the apparatus through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock.
IMPORTANT!
Ensure adequate ventilation. Do not install in a cabinet that is smaller than 60cm (24") wide x 45cm (18") deep x 20cm (8") high. If you do the device may overheat.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Precautions

1. **AC Fuse**
   The AC fuse inside the unit is not user-serviceable. If you cannot turn on the unit, contact the dealer from whom you purchased this unit.
2. **Care**
   Occasionally you should dust the unit all over with a soft cloth. For stubborn stains, use a soft cloth dampened with a weak solution of mild detergent and water. Dry the unit immediately afterwards with a clean cloth. Don't use abrasive cloths, thinners, alcohol, or other chemical solvents, because they may damage the finish or remove the panel lettering.
3. **POWER WARNING: Before plugging in this device for the first time, read the following section carefully.**
   AC outlet voltages vary from country to country. Make sure that the voltage in your area meets the voltage requirements printed on the unit's rear panel. e.g. ~ 110V / 240V, 50/60HZ.
   The power cord is used to disconnect this unit from the AC power source. Make sure that the plug is readily operable (easily accessible) at all times.
   If you do not intend to use the unit for an extended period, remove the power cord from the AC outlet.
4. **Earth**
   The unit is defined as Class1 in EN60065 (low voltage directive) and MUST BE EARTHED. Connect only to a mains socket outlet with protective earth, and only use the power cord supplied.
   Finland: "Laite on Liitettävä suojamaadoituskoskettimilly varustettun pistorasiaan"
   Norway: "Apparatet må tilkoples jordet stikkontakt."
   Sweden: "Apparaten skall anslutas till jordat uttag."
5. **Never Touch This Unit with Wet Hands**
   Never handle this unit or its power cord while your hands are wet or damp. If water or any other liquid gets inside this unit, have it checked by your Autonomic dealer.
6. **Handling Notes**
   a. If you need to transport this unit, use the original packaging.
   b. Do not leave rubber or plastic items on this unit for a long time; they may leave marks on the case.
   c. This unit's top and rear panels may get warm after prolonged use. This is normal.

7. **Speaker Shorts**
   Under no circumstances should the speaker output terminals of the unit be short circuited, grounded or connected to another output.
8. **Direct Sun light**
   Avoid installing the amplifier in positions where the front panel is exposed to direct sunlight – may cause control to become sluggish
9. **Controller Connection**
   Never connect more than eight Autonomic controllers. The supply is internally fused (self-resetting) and may open circuit. Never connect the unit's 12VDC terminal ("Bus Run" port) to an external power supply.

Declaration of Conformity

We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards:

- EN60065
- EN55013
- EN55020
- EN61000-3-2
- EN61000-3-3

Following the provisions of Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC, the EC regulation 1275/2008 and its frame work Directive 2009/125/EC for Energy-related Products (ErP).

TUV Certification

This product has been certified and conforms to UL60065 and certified to CAN/SSA, IEC 60065.

For North American Models

FCC interference statement
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT!

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

For Canadian Models

NOTE: THIS CLASS B DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.

For models having a power cord with a polarized plug:

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT FULLY INSERT.

Modèle pour les Canadien

REMARGUE: CET APPAPEIL NUMÉRIQUE DE LA CLASSE B EST CONFORME À LA NORME NMB-003 DU CANADA.

Sur les modèles dont la fiche est polarisée:

ATTENTION: POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

A Note About Recycling

This product's packaging materials are recyclable and can be reused. Please dispose of any materials in accordance with the local recycling regulations.



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.

This product and the supplied accessories constitute the applicable product according to the WEEE directive.

Features

Thank you for purchasing an M-401e MAS Multi-Zone Amplifier. Please read this manual thoroughly before making connections and plugging in the device. Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new Multi-Zone Amplifier. Please retain this manual for future reference.

Multi-Zone, Multi-Source Switching
The M-401e amplifier has four separate amplifiers, providing 4 independent zones with integrated control. There are 6 input sources comprising the following:

- Sources 1 – 4 are either Analog Stereo, or Coax Digital Audio (PCM) Digital Coax has priority if both are connected.
- Sources 5 - 6 are either Coax (PCM) or Optical Digital Audio (TOSLINK) Only one connection is permitted to each source.
- Sources 1 -6 have a programmable delay: up to 600ms - 5ms steps.

eAudioCast
Four separate amplifiers independent yet integrated control. Multiple remote sources may be assigned, originating from a connected eSeries amplifiers and streamers.

Amplifier Physical Stacking for Zone Expansion
Additional zones may be added by physically linking amplifiers in a stack through the Digital Coax connections.Use sources 1-6 Digital Coax outputs for connection to the Digital Coax inputs of additional Autonomic amplifier(s).

As an alternative to physically linking amplifiers together, eSeries amplifiers support adding zones over Ethernet via Autonomic's proprietary eAudioCast technology.

Pre-amplifiers and Outputs
Each zone has bass, treble, balance and loudness control. These are accessed from the front panel or MMS Web Interface. A feature called "Maximum Volume limiting," is useful for protecting connected speakers. It may be applied to both amplifier and preamplifier outputs.

Amplifier Power, Protection, and Clipping Indicators
55 Watts into 8 ohm loads, and 75 Watts into 4 ohm loads with < 1% THD. The amplifiers are protected against output shorts, and have algorithms that prevent hard clipping when the zone amplifiers are overdriven.

Thermal Control
There are two progressive levels of thermal control:

- The amplifier volume is reduced 20dB.
- The amplifiers are shutdown until the temperature reduces below the first level.

Care should be taken to ensure adequate ventilation. See "Important Safety Instructions" on page 2.

IR Emitter Ports
There are 8 Buffered IR emitter Ports. Ports 1 – 6 have IR routing, and are intended to control specific input source components.

Ethernet and IR Control
The M-401e amplifier may be controlled and monitored via Ethernet. An M-401e amplifier may receive IR directly from the front panel receiver. There are zone specific IR commands and also a set of global IR commands. The commands are:

- ON
- OFF
- Standby (toggling)
- Mute
- Volume Up
- Volume Down
- Source Selects
- Discrete Audio Source Selects
- On with Source Specific commands

Amplifier Zone ON Status – "Amp-On"
Each zone has AMP-ON status: 12VDC OUT on the rear panel connector: (1, 2, 3, 4, 5, 6, 7, 8).

Discrete Audio Selection
Audio selection may be independent. There are IR Discrete control commands available.

Zone Linking
A zone may be programmed to be linked with other zones. Zone linking ties the source selection together. Optionally, it may also be configured to tie the zone group's volume and power. In your specific listening area(s) it may be advantageous to have different volume control but the same source, or the same volume with separate power control. Zone linking is setup via the amplifier's web interface.

96 Zones
There are 96 zones of possible control. On an M-401e amplifier each zone must be different, however in a multiple amplifier stack, same zone amplifiers are possible (they simply mimic every parameter).

Power Failure Restoration
After an AC power outage the M-401e amplifier restores its settings to the ore-interrupted state. All internal settings are stored in non-volatile memory, except the clock that runs for at least 48 hours on stored power.

Restore Defaults
The M-401e amplifier may be set to the default settings. Restoring defaults clears all memory and resets the zone allocations to zones 1 – 4. It will also reset any custom zone and source names to default (Zone 1 and S1, for example).

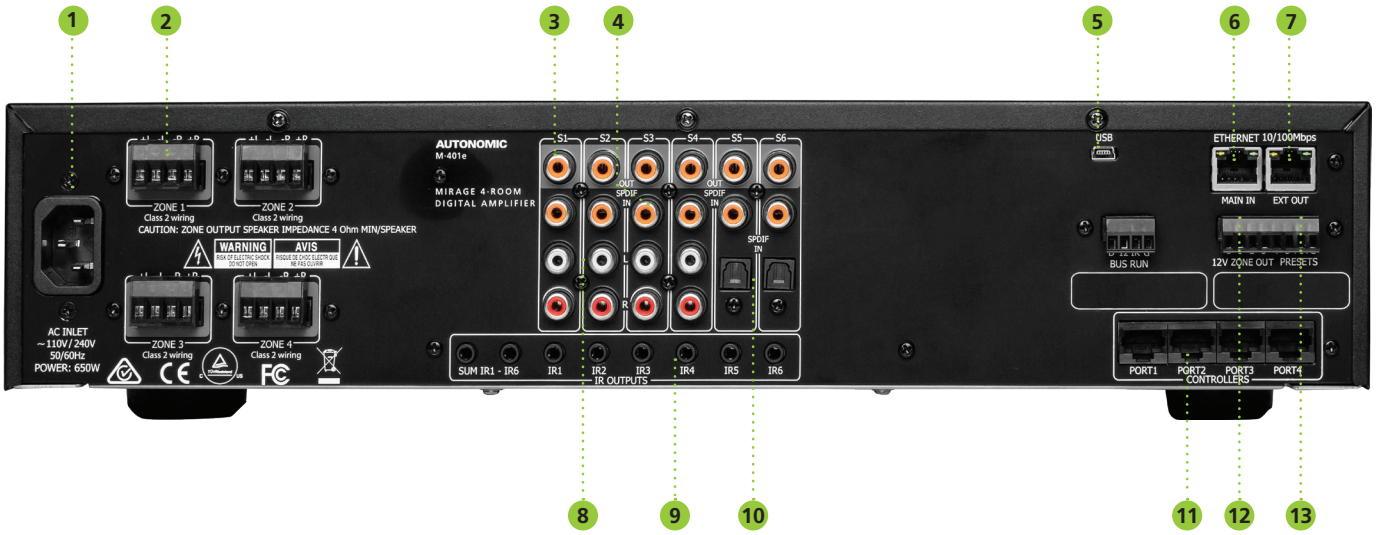
Firmware Upgradable
The M-401e amplifier may be updated with the latest operational firmware. See **www.Autonomic-Controls.com** for support.

Front Panel Guide



1. **Front Panel**
   Solid Aluminium front Panel.
2. **Infra-Red Receiver**
   Receiver for front panel IR control (Used only for amplifier control, not IR pass through). No IR Remote supplied, however an IRC profile is located at:
   www.Autonomic-Controls.com/Support/
3. **Power Indicator**
   The power indicator glows blue whenever AC power is applied.
4. **Chassis Feet**
   Set high enough to provide unrestricted air-flow through the chassis for convection cooling.
5. **Rack Mount Ears (Optional)**
   Rack mount ears not depicted.

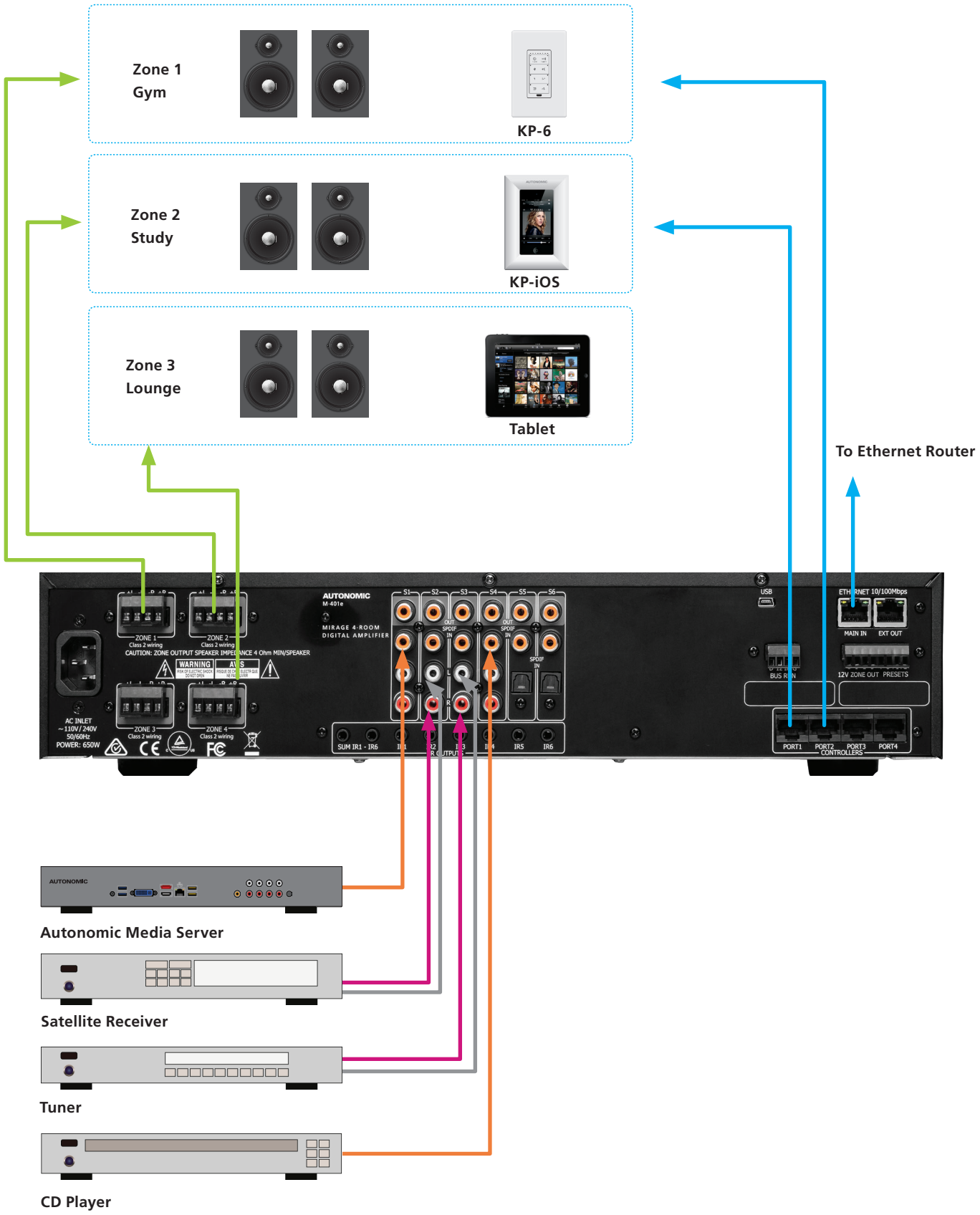
Rear Panel Guide



1. **AC Inlet**
   IEC socket.
2. **Speaker Terminals**
   Plug in terminal clamp connectors accept 1.5mm² speaker wires.
3. **Coax Digital Source Output Terminals**
   Coax digital outputs for expansion to further amplifier zones.
4. **Coax Digital Input Terminals**
   Coax digital (SPDIF) inputs.
5. **USB for Programming**
   USB mini B socket for firmware updates.
6. **Ethernet Port – MAIN IN**
   MAIN IN is 10/100 Base T primary Ethernet port for connection to the Home network.
7. **Ethernet Port – EXT OUT**
   EXT OUT is 10/100 Base T secondary port for connection to another eSeries Amplifier's "MAIN IN" Ethernet Port.
8. **Analog Input Terminals**
   Analog audio L/R inputs
9. **IR Emitter Ports**
   3.5mm mono jacks. IR9 & IR10 ports output the combined IR1 – IR6 infra-red strings. Ports are not usable but are future ready for IR routing.
10. **Optical Digital Inputs**
    Optical (TOSLINK) digital inputs.
11. **Controller Interface**
    For connection to keypads and IR receivers. 4 controller interface ports - RJ45 sockets.
12. **AMP ON Control**
    AMP-ON 1 - 4 output 12VDC when Zone is ON.
13. **PRESETS – Door Bell**
    12 – 24V AC/DC powered doorbell trigger terminals.

Typical System Configuration

FIGURE 1



Typical System Configuration (Continued)

Fig. 1 depicts a typical configuration where the M-401e amplifier is providing audio into six of the possible eight listening zones. Only three of the zones are depicted.

Each zone consists of a room with a pair of speakers and a suitable controller. Each zone may be listening on any of the connected sources:

- Autonomic Media Server
- Satellite Receiver
- Tuner
- CD Player

Controllers
Each zone has a specific control requirement. Choose controllers that best suit the application.

Zone 1 – The Gym: Speakers & KP-6 Keypad

Zone 2 – The Study: Speakers & KP-iOS Keypad

Zone 3 – The Lounge: Speakers & Tablets

1. The KP-6 Keypad may be plugged into any of the four controller ports.
2. Source control IR emitters are plugged into the IR ports. There are ten IR ports: IR1 - IR8, and IR9 & IR10.
3. IR 1 – 6 route source specific IR signals from connected controllers, while IR9 & IR10 output the common IR or the sum of all received IR signals.
4. These ports may be used for source equipment that is common to all zones.

When controlling a stand alone M-401e using an iPad or other web tablet, the M-401e must be connected to a wi-fi enabled ethernet router and the web tablet browser must be directed to the M-401e's IP Address. The M-401e's web application also provides source control functionality.

Speakers
Speakers in each zone are connected to the amplifier by "Home Run" speaker cables.

Source Equipment
The M-401e amplifier has eight stereo RCA audio inputs for connecting to source equipment. These input channels feature coax digital inputs.

If a signal is present on the digital input, it takes precedence over the analog input. There are four additional Digital only input channels featuring both coax and Optical inputs. Any source can be listened to in any zone, simultaneously.

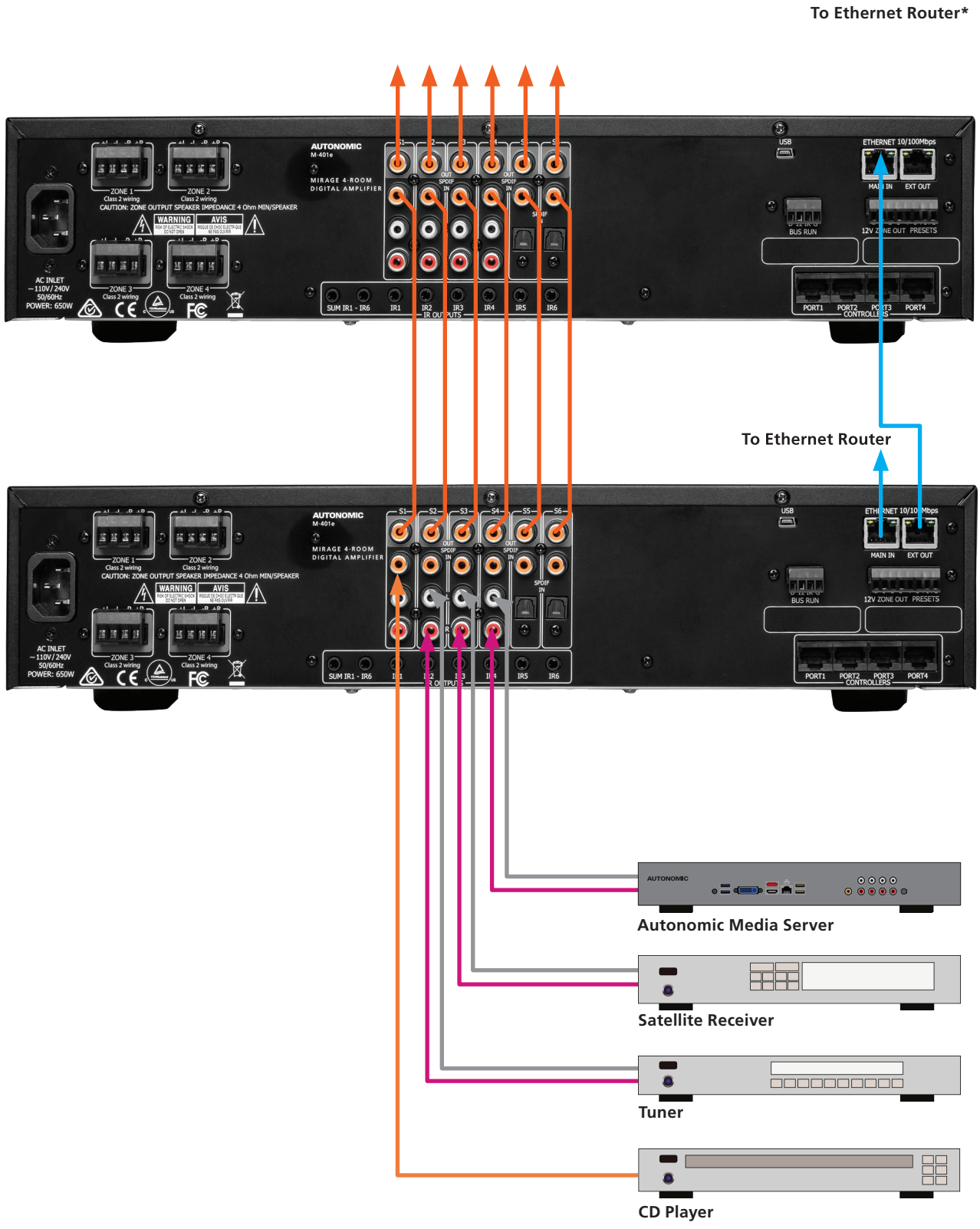
All eight zones may select the same source, in such circumstances there is a possibility that all four zones may be trying to control that source (not always desirable) so a system should be well planned and where appropriate additional source equipment installed.

Autonomic Media Server
When pairing your M-401e amplifier with an Autonomic Media Server, be sure to use the Media Server's web configuration Sources page and follow the pairing process there. This will ensure full control via the MMS iOS and Android applications.

Multiple Amplifier Stacks

FIGURE 2

Linking to the next M-401e or M-801e Multi-Zone Amplifier



Multiple Amplifier (Continued)

In large installations where multiple M-401e amplifiers are required, Ethernet conveys amplifier control, and link to other Media sources if connected to the Home network Router or Switch. Ensure all amplifiers using same the amp ID in the stack.

The source equipment audio inputs must be plugged into the first amplifier where they are buffered and sent to the next amplifier in the stack. The maximum recommended expansion is 24 units.

Fig. 2 shows a stack of M-401e with Source connections to first amplifier where they are converted to Digital audio, buffered and sent to the next amplifier in the stack. Use good quality Coax Digital Shielded RCA cables for the interconnection, cables should be no more than 3 meters or 10 feet. The maximum recommended expansion is twelve units.

*This chaining of Ethernet is an option but a direct connection to the router is the best option.

Controller Wiring

The M-401e is packed with control options:

- **USB:**
  Used for firmware update.
- **ETHERNET:**
  Two 100BaseT connections to a home network or to daisy chain other amplifiers.
- **CONTROLLERS:**
  Conveys +12VDC, IR and data between the M-401e and KP-6 keypad controllers, connected using CAT5 cables.
- **BUS RUN:**
  For future use.
- **TRIGGERS:**
  +12VDC 100mA trigger output when a zone is on.



FIGURE 3

Ethernet Protocol

The Ethernet port provides data acquisition and control of the Autonomic amplifiers by a home automation system, or PC Via TCP port 17037.
Command Structure: <**command**> <**zone**> <**data**> <**line feed**>

Please see online support documents under the amplifiers section.

COMMAND	DESCRIPTION
01	Standby
02	Mute
03	Source Selection
04	Volume
05	Bass
06	Treble
07	Balance
09	Send All parameters
0B	Cause key press on Keypad
0C	Amplifier features
0D	Maximum Volume Limit
11	Volume Up
12	Volume Down
14	Request Device information
1C	Zone Name
1D	Preamplifier Volume Mode
26	Volume BCD format

Zone

Amplifiers are encoded with up to 96 zones. The zone byte is used for checking if the command is applicable to the device receiving the command and if so, for optionally selecting a **sub-device**, e.g. a bank or part of a device. All Zones are addressed using FF. The lower 5 bits of the zone byte represent the zone 0 – 31.

Selection:

- 00000 bin = 00 (hex) = zone 0
- 00001 bin = 01 (hex) = zone 1
- 01010 bin = 0A (hex) = zone 10
- 11111 bin = 1F (hex) = zone 31

Examples:

Addressing a zone 10 amplifier:
Binary 000-01010 or 0A hex
Send ASCII "0A"

Addressing all Zone amp & preamplifiers:
FF hex Send ASCII "FF"

Data

COMMAND	CONTENT	
Standby **(01)**	**00** – Standby OFF **01** – Standby ON **04** – Toggle	
Mute **(02)**	**00** – Mute **01** – Un-mute **02** – Toggle Mute	
Source Selection **(03)**	**00** – S5 **01** – S6 **02** – S7 **03** – S4	**04** – S8 **05** – S1 **06** – S2 **07** – S3
Volume **(04)**	**00 – A0** Range	
Bass **(05)**	**F4 – 0C** (-12db - +12db)	
Treble **(06)**	**F4 – 0C** (-12db - +12db)	
Balance **(07)**	**EC – 14** (Left –20db – Right –20db)	
Send all parameters **(09)**	**XX** – Value Ignored	
Amplifier features **(0C)**	**00** – Loudness Disabled **01** – Loudness Enabled	
Maximum Volume Limit (0D)	**00 – A0** Range	
Volume Up **(11)**	**XX** – Value Ignored	
Volume Down **(12)**	**XX** – Value Ignored	
Zone Name **(1C)**	Data field contains the ASCII string.	
Preamplifier Volume Mode **(1D)**	**00 – A0** Range **FF** = Independent Mode	

Notes

- When a command is sent to an amplifier it will first be transmitted on the control bus and then returned to the PC (Home Automation System). If an error occurs an error will be returned instead of the original command. The PC (Home Automation System) needs to ignore its command when it is returned.
- A Standby ON command implies that the amplifier is not muted, if the amplifier was previously Off, a mute command must follow the Standby command if it is muted.
- Not all Command and Data commands are covered in this document.
- The expected reply for the "Send all Parameters" command (09) is >144 bytes. All command fields listed in this document are contained in the reply. The reply also contains advanced commands not listed in this document. The home Automation or PC's buffer should be large enough to receive and process the 144-byte reply.
    a. Zone 2 links to Zone 3.
    b. Since Zone 2 is no longer linked to Zone 1, Zone 1 will no longer be linked to Zone 2.
    c. Since Zone 3 is no longer linked to zone 4, Zone 4 will no longer be linked to Zone 3.

Example strings:

- 010A01: Standby ON command for Zone 10 amplifier.
- 012A01: Standby ON command for Zone 10 preamplifier.
- 060002: +2db Treble setting on Zone 0.
- 03IF02: Select Source 7 on Zone 31.

Specifications

M·401e SPECIFICATIONS	
Rated Output Power (FTC) All Channels	55W per channel / 8Ω loads 75W per channel / 4Ω loads
Total Harmonic Distortion (THD)	0.1% (50 Watt, 8 Ω load)
Damping Factor (8Ω load)	10
Speaker Impedance (Z1 - Z6 L/R)	4Ω–8Ω
Analog Input Sensitivity (S1 - S8 L/R)	0.75V RMS (Vol 100, Gain 0dB, 55W Output)
Analog Input Impedance (S1 - S8 L/R)	22KΩ
Digital Input sensitivity	0dBFS
Frequency Response	48 KHz sample rate: 10Hz - 22 KHz 96 KHz sample rate: 10Hz - 42 KHz
Tone Control	±12dB, 100Hz (Bass) ±12dB, 10kHz (Treble)
Signal to Noise Ratio	95dB (IHA-A, 0.75V input / unbalanced)
IR Output	(6) 3.5mm Jack: IR1 - IR8 current limited to 25mA
Source Inputs	(6) Digital Coaxial RCA, (4) Analog (L/R) RCA, (2) TOSLINK
Ethernet	(2) 100Base-T, MAIN IN and Switch EXT OUT
USB	(1) USB mini-B female 5 pin
Data	(1) 4 pole 3.5 mm terminal block connector (Data,12V, IR,0V)
Controllers	(4) RJ45 sockets Keypad controller ports
BUS RUN	(1) 4 way terminal block (0V, IR 12V & Data)
Amp On & PG Control	(1) 8 way terminal plug with Amp ON 1 - 8 and (2) page preset contact closure inputs: PG1 & PG2
Zone Triggers & Presets	(1) 8 pole 3.5 mm terminal block connector (Zone trigger 0V out, Zone trigger 1 - 8 12V out, Common, Preset 1 - 2 in)
Power Supply	110–240V AC 50–60Hz
Power Consumption	650W
Standby Power Consumption	6W
Dimensions with feet	4.0" H x 17" W x 15" D (10.2cm x 43.2cm x 38.1cm)
Weight	15.4 lb. (7 kg)
Height including feet	105 mm
Zones	(4) zones Expandable to 96 zones, attaching additional M-801e or M-401e amplifiers

A digital copy of this manual can be found at:
http://www.autonomic-controls.com/documents/Amplifiers/Manual_Instructions_Mirage_401e.pdf

Acknowledgments – FreeRTOS – uIP

The M-401e firmware is based in part on FreeRTOS.org™ V5.0.2 and the uIP TCP/IP stack.
For more information on FreeRTOS.org™ please visit http://www.freertos.org. Source code for FreeRTOS.org™ can be downloaded from their official website.
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