

AUTONOMIC

A  **Snap** COMPANY
av

MAS M-801E

4-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.

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 suojamaadoituskoskettimily 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 Autonomous 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.

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.

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

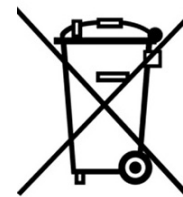
REMARQUE: CET APPAREIL NUMÉRIQUE DE LA CLASSE B EST CONFORME À LA NORME NMB-003 DU CANADA.

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 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-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 MAS 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 pre-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 (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:

- 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 – 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.

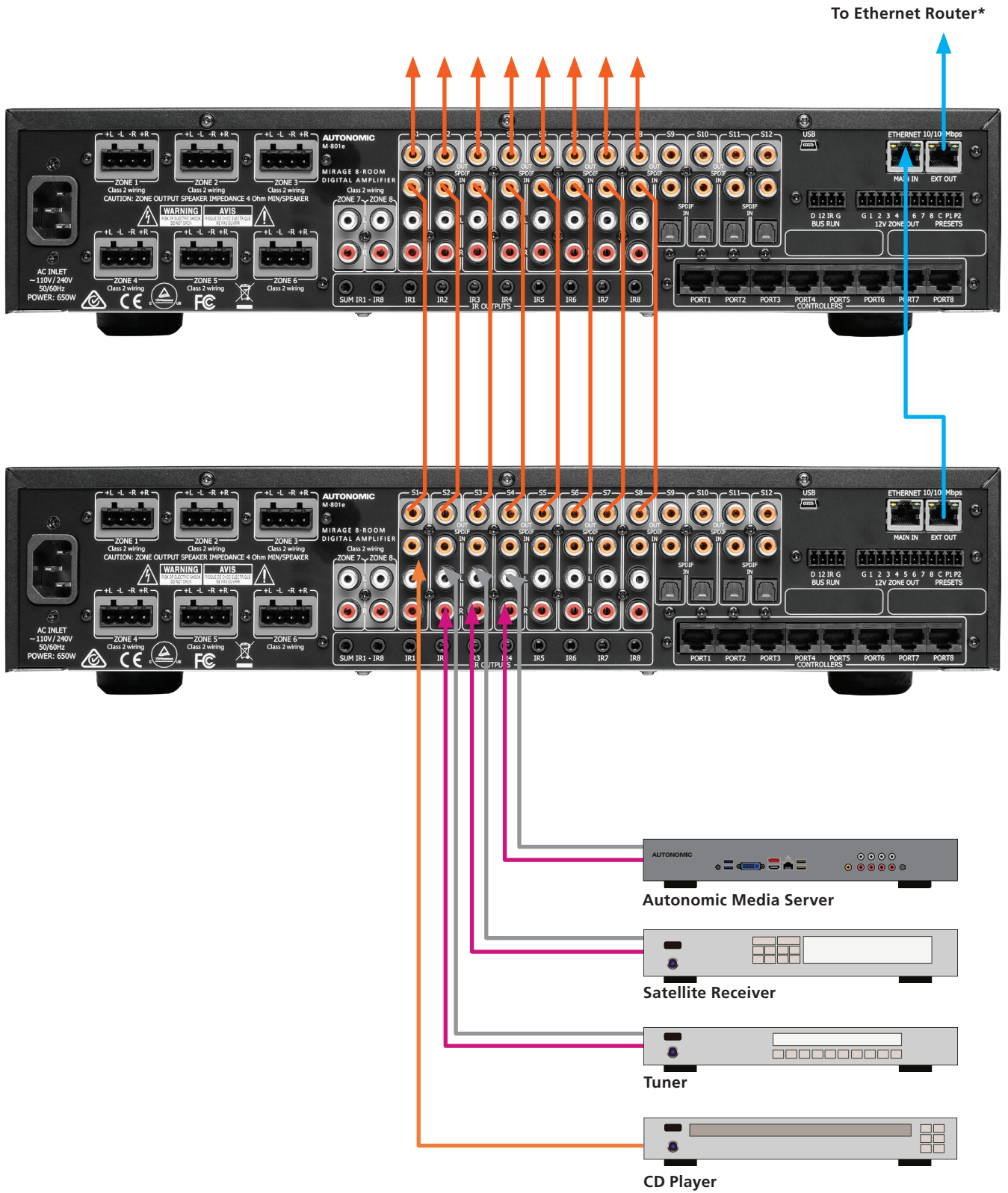
Autonomic Media Server

When pairing your M-801e amplifier with a 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



To Ethernet Router*

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.

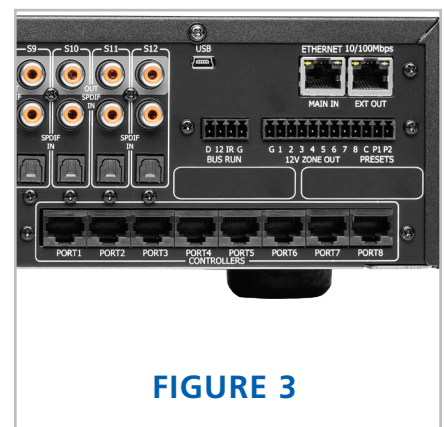
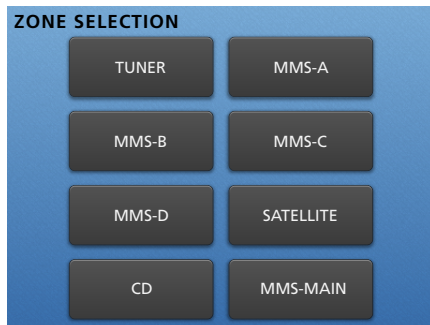


FIGURE 3

Menu Navigation

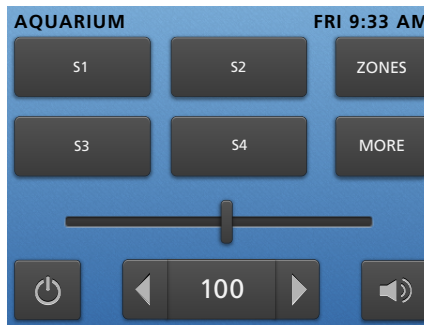
Front Panel User Interface

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.

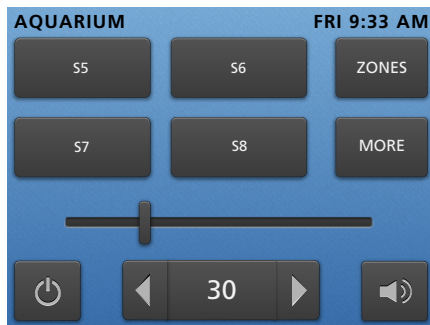


Zone Control Page

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

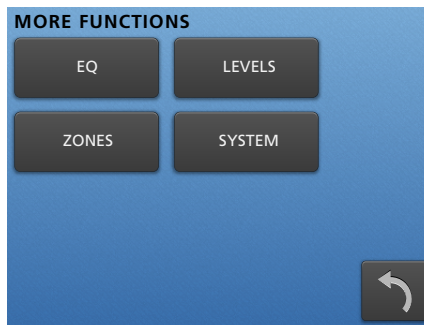


If the button has blue text with a white glow behind the button, it indicates selection or ON status. The Volume Slider changes color as the volume increases, i.e. Green –Yellow – Red.

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.



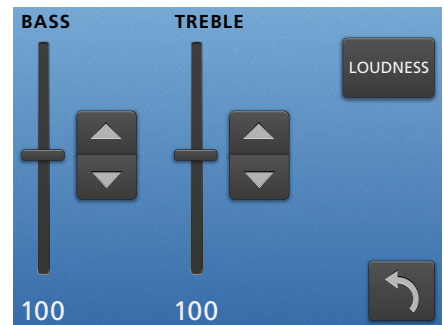
More Functions Page

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.



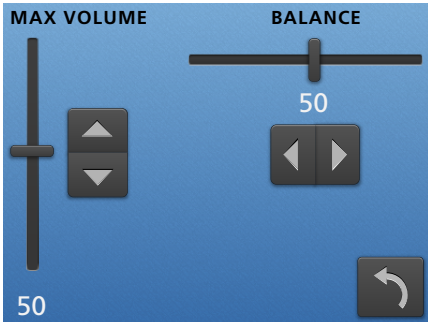
EQ Setup Page

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

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

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

Menu Navigation (Continued)

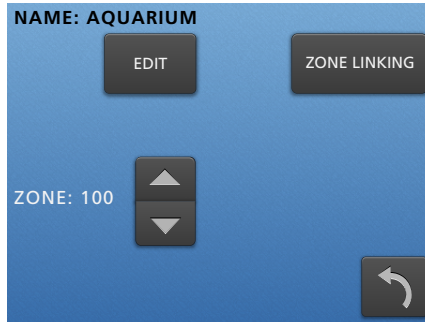


Levels Setup Page

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

- Balance $\pm 20\text{dB}$ 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.

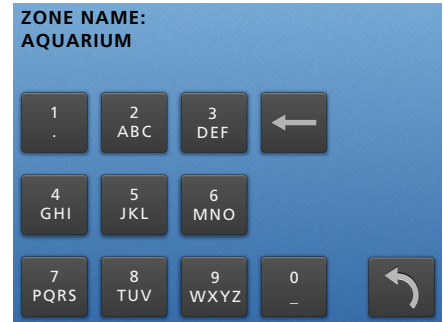


Zones Setup Page

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.

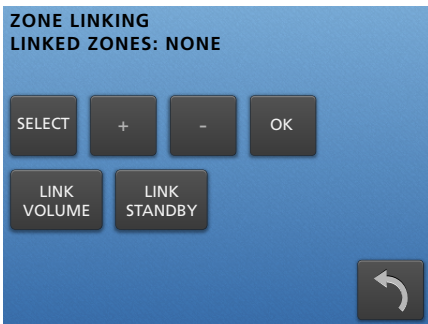
To name the Zone, select "Edit" and the Zone Name page opens.

The Back arrow button returns to the More Functions page.



Zone Name Page

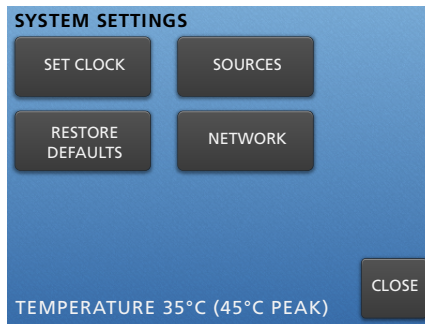
Use the keypad to enter the name text, the limit is 15 regular ASCII characters. Once entered, select the back arrow to return to the Zones Setup page.



Zones Setup Page

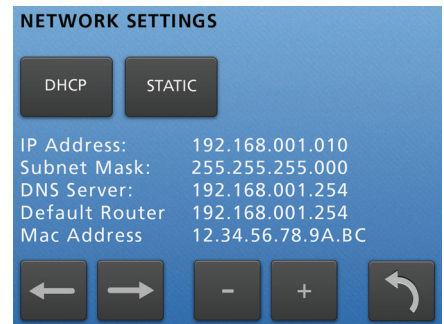
Zones setup page allows you to edit the name and set the Zone coding. There is also a button for zone linking setup. To change the Zone allocation simply make the adjustment using the Up/Down button. To name the Zone, select "Edit" and the Zone Name page opens.

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.

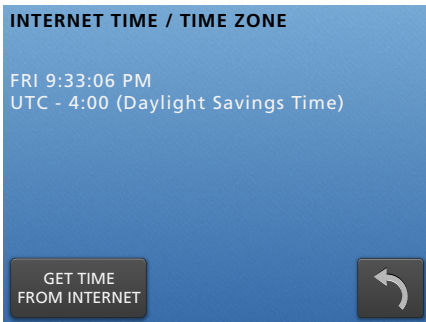


Zone Linking

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:

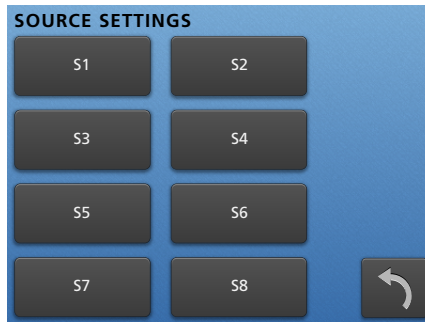
- Link Volume or Link Standby may be selected.

Menu Navigation (Continued)



NTP Settings

Update the time and time zone using an internet connection.

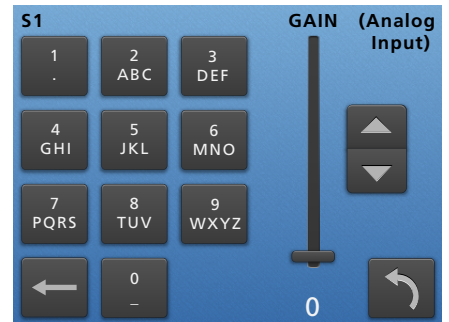


Source Settings Page

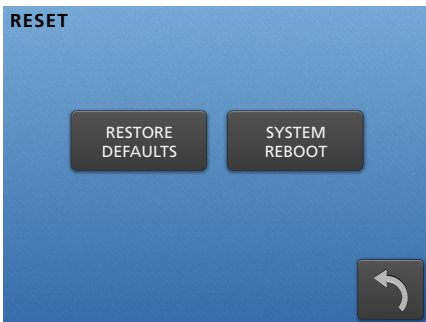
Select the Source to be adjusted, from S1-S8. This opens the Source edit page.

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.

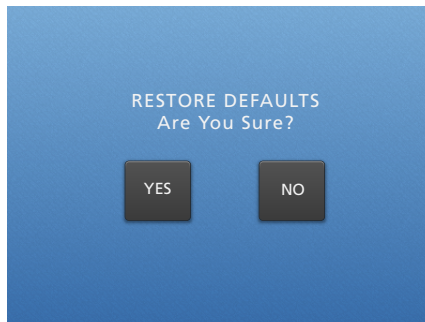


Gain is used to match the analog input levels to the Digital sources. Some Analog sources have large variation in output levels. The 0dB default setting is suitable for connection to high output devices like CD players, while the standard level (1Vrms) is achieved by setting the gain to +6dB. The Gain 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

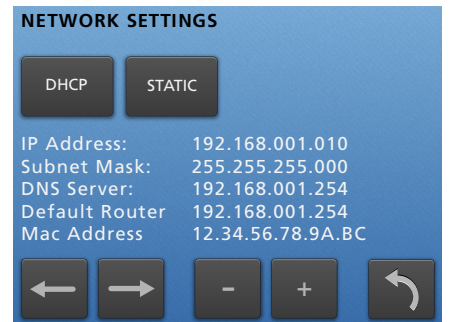
Restore your amplifier to factory defaults or reboot the amplifier.



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 MASamplifiers 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	04 – S8
	01 – S6	05 – S1
	02 – S7	06 – S2
	03 – S4	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.
- 031F02: 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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