MX1680

MULTI-ZONE AMPLIFIER

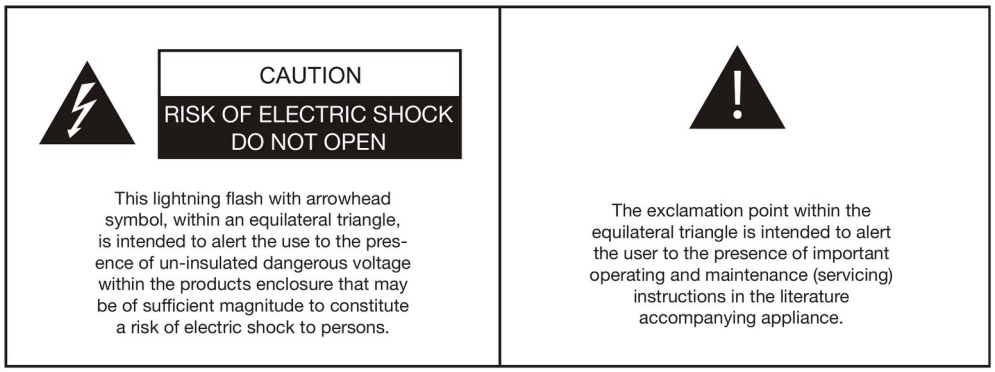
OWNER'S MANUAL



OSD Audio | Brea, CA | osdaudio.com

Warning

- TO PREVENT FIRE OR SHOCK HAZARD, DO NOT USE THIS PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.
- TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
- TO PREVENT ELECTRICAL SHOCK, MATCH WIDE BLADE PLUG TO WIDE SLOT, FULLY INSERT.



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 a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. 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 third prong is provided for your safety. If the provided plug does not fit into your outlet, consult a qualified electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it exits the apparatus.
11. Only use attachments and accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Additional Safety Information

- **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- **WARNING:** Do not remove the product cover. There are no user-serviceable parts inside. Refer servicing to qualified personnel.
- Maintain adequate ventilation around the amplifier. Do not install in an enclosed space without proper airflow.
- Disconnect AC power before making speaker or audio connections.

Introduction

The MX1680 is a multi-zone power amplifier designed for distributed audio and home theater applications. It provides 16 amplifier channels across 8 zones. Each zone supports a dedicated Line In, the shared Bus In, 12V trigger control, audio signal sensing, independent volume adjustment, and selectable Stereo or Bridge operation.

The MX1680 delivers:

- 50W per channel into 8Ω
- 80W per channel into 4Ω
- 160W bridged into 8Ω

Designed for residential and commercial audio installations, the MX1680 can be used as a standalone multi-room amplifier or integrated with audio matrix systems, streamers, preamplifiers, and home theater processors.

Thermal Protection

The MX1680 includes thermal protection circuitry that automatically disables audio output if internal operating temperatures exceed safe limits. If this fault occurs, turn off the amplifier, and check that the speaker impedance rating is above the minimum rating. Also check for adequate ventilation around the amplifier and make adjustments if necessary. Once the unit has cooled to safe operating temperatures, the amplifier may be powered back on.

Protection Circuitry

The MX1680 includes short-circuit protection circuitry to help prevent damage caused by faulty speaker wiring or speaker failures. The Zone LED indicator will blink rapidly between red and blue. If this fault condition occurs, turn off the amplifier and check speakers for short circuit conditions when appropriate.

Installation

The MX1680 can be placed on a shelf, as part of an equipment rack, or on a table or cabinet. During installation, keep in mind that the amplifier requires proper clearances for ventilation and heat dissipation. The amplifier will take two rack spaces with the feet removed.

Front Panel



MX1680 shown

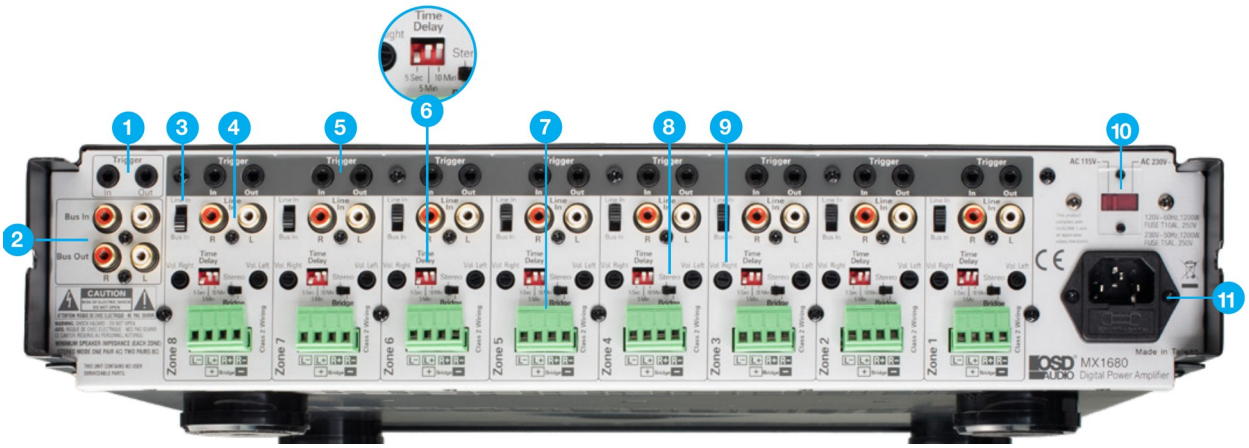
1. Power/Standby LED

The Power/Standby LED glows red whenever the amplifier is powered — both in standby and when zones are active. The blue Zone LEDs indicate which zones are active.

2. Zone LED

- **Blue** — the corresponding zone is powered on.
- **Off** — the corresponding zone is off (standby mode).
- **Red/Blue** — a short circuit has occurred on the speaker outputs.

Rear Panel



MX1680 shown — callout 6 shows the per-zone Time Delay switch bank enlarged.

1. Bus 12VDC Trigger In/Out

Bus 12V Trigger In activates all zones assigned to the Bus In. When a 12V trigger signal is present, assigned zones turn on and ignore audio sensing and individual zone trigger settings. Bus 12V Trigger Out passes the trigger signal to another compatible device.

2. Bus In / Bus Out

The Bus In allows a single audio source to be shared across multiple zones. The Bus Out provides a pass-through connection for sending the same source signal to additional amplifiers.

3. Line In / Bus In Switch

Selects the audio source for the zone:

- **Line In** — dedicated zone Line In
- **Bus In** — shared Bus In

4. Line In

Dedicated audio input for the zone. When Audio Sense is enabled, the zone automatically turns on when an audio signal is detected.

5. 12VDC Trigger In/Out (Each Zone)

Trigger In turns on the zone when a 12VDC signal is present. Trigger Out provides a 12VDC output for controlling compatible devices. When Trigger In is used, Audio Sense and Time Delay functions are bypassed.

6. Time Delay

Marked **Time Delay** on the rear panel. Sets how long the amplifier waits before entering standby after audio and trigger signals are removed. Selectable options:

- 5 Seconds
- 5 Minutes
- 10 Minutes

Note: Only one delay setting may be selected at a time.

7. Speaker Outputs

Connect speakers to the zone output terminals. Minimum load:

- 4Ω in Stereo Mode
- 8Ω in Bridge Mode

8. Stereo/Bridge Switch

Selects the operating mode for the zone:

- **Stereo** — Left and Right channel operation
- **Bridge** — Higher-power mono operation

9. Vol. Right / Vol. Left

Adjust the output level for the zone. **Vol. Right** sets the right channel and **Vol. Left** sets the left channel. In Bridge Mode, use the Vol. Left control only.

10. Voltage Switch

Select the appropriate AC input voltage before connecting power.

- 115V
- 230V

11. AC Input

Connect the supplied AC power cord. Verify the voltage selector is set correctly before powering on the amplifier.

Quick Start Guide

1. Before You Begin

- Verify the amplifier voltage selector matches local AC power (115V/230V).
- Confirm speaker impedance — Stereo Mode: 4Ω minimum; Bridge Mode: 8Ω minimum.
- Ensure adequate ventilation around the amplifier.

2. Connect Audio Sources

For one source shared across multiple zones:

- Connect the source to the Bus In.
- Set the desired zones to BUS IN.

For independent zone sources:

- Connect the source to the zone Line In.
- Set the zone switch to LINE IN.

3. Connect Speakers

- Connect speakers to the appropriate zone output terminals.
- Verify polarity (+ to +, – to –).
- Do not power the amplifier until all speaker wiring is complete.

4. Select Operating Mode

- **Stereo Mode** — standard left/right speaker pair.
- **Bridge Mode** — higher-power mono output.
- Set the Stereo/Bridge switch before powering on.

5. Configure Zone Activation (Optional)

Choose one method:

- Audio Signal Sensing
- Zone 12V Trigger
- Bus 12V Trigger

6. Set the Time Delay

Select one: 5 Seconds, 5 Minutes, or 10 Minutes.

Note: Only one delay switch may be selected per zone.

7. Power On

- Connect AC power.
- Press the Power button.
- Verify Zone LEDs illuminate when an audio or trigger signal is present.

8. Verify Operation

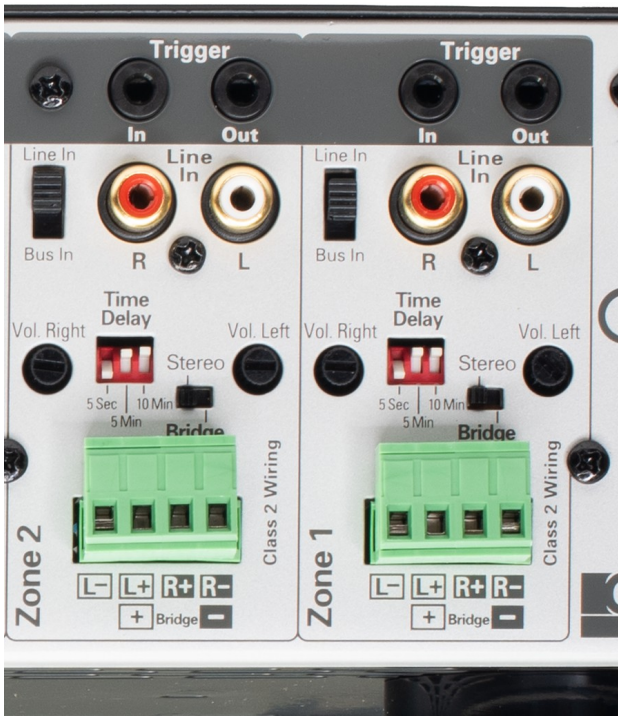
- Audio is heard from connected speakers.
- Zone LED is blue.
- No flashing red/blue LEDs.
- Adjust the zone Vol. Right and Vol. Left controls as needed.

Common Setup Examples

- One source to all rooms — Bus In + Bus In setting
- Different source per room — zone Line In + Line In setting
- Higher power for one speaker — Bridge Mode

Zone Setup Reference

Repeat the following steps for every zone in use. Each zone is configured independently.



Per-zone controls: Line In / Bus In switch, Vol. Right and Vol. Left, Time Delay bank, Stereo/Bridge switch, and the detachable speaker terminal block. (MX1680 shown)

1 · Set the Input Switch

- **Line In** — dedicated zone Line In.
- **Bus In** — shared Bus In.

2 · Set Volume Levels

- **Vol. Right** — right channel level (Stereo Mode).
- **Vol. Left** — left channel level (Stereo Mode).
- **Vol. Left only** — output level in Bridge Mode.

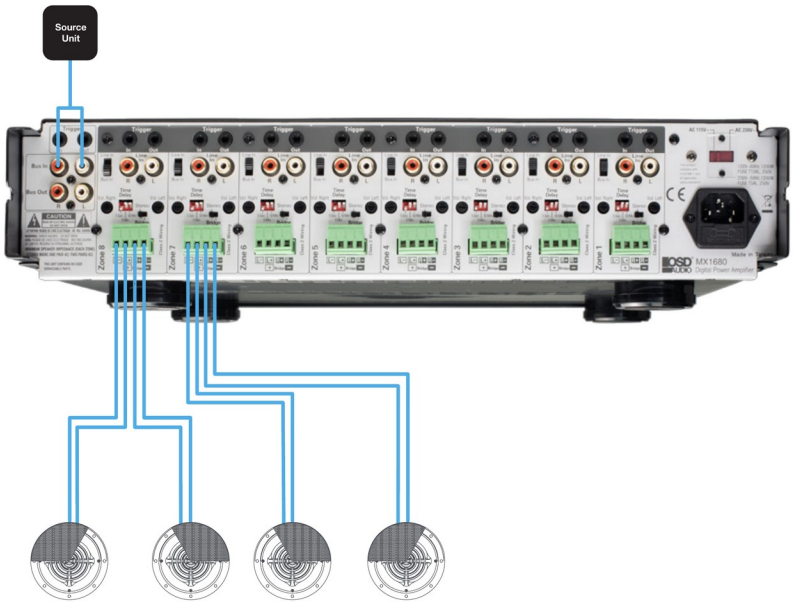
3 · Set the Stereo/Bridge Switch

- **Stereo** — left and right input from Line In or Bus In.
- **Bridge** — higher-power mono; connect Right-to-Left or Left-to-Left input.

Note: Each zone auto-senses an audio signal to power up and down when no 12V trigger is used; the front-panel power switch must be ON. The Time Delay is selectable — 5 seconds, 5 minutes, or 10 minutes per zone.

Wire gauge: the detachable terminal blocks accept up to 14 AWG. Use two-conductor cable for stereo zones and verify polarity at both ends.

System Configuration



MX1680 shown — example system showing source components connected to the MX1680 amplifier for distributed audio and home theater applications.

System Configuration Examples

Typical applications:

- Whole-home audio
- Restaurant audio
- Retail audio
- Office background music

Setup:

- Connect a source or audio matrix to the zone Line In jacks or the Bus In.
- Assign each zone as required.
- Connect speakers to the appropriate zone outputs.
- Adjust the zone Vol. Right and Vol. Left controls for desired listening levels.

Shared Source Configuration

Use the Bus In when the same audio source is required in multiple zones. Example: one music streamer feeding all zones.

1. Connect the source to the Bus In.
2. Set the desired zones to BUS IN.
3. Connect speakers.
4. Adjust the volume controls as needed.

Home Theater Expansion

The MX1680 can be used as an external amplifier for surround sound systems. Typical applications: 5.1 systems, 7.1 systems, additional height or surround channels.

Setup:

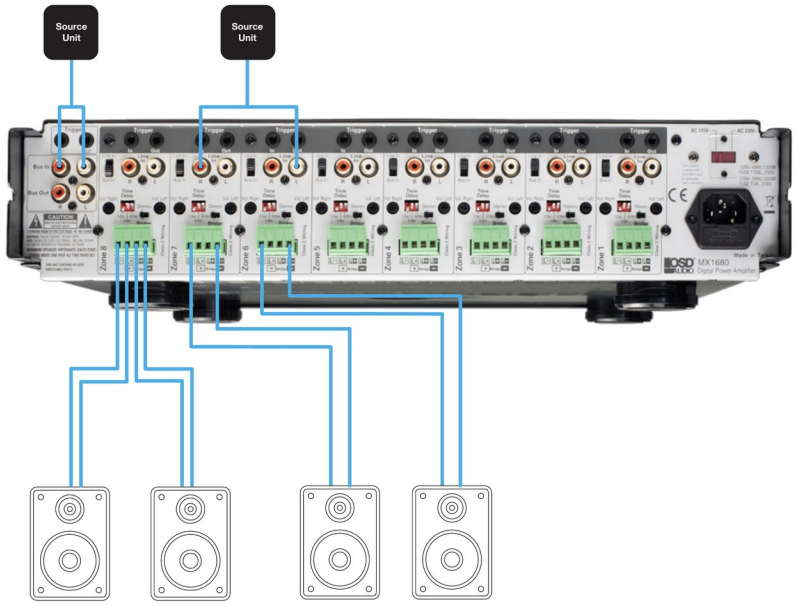
- Connect processor or AVR preamp outputs to the appropriate zone inputs.
- Set zones to LINE IN.
- Connect speakers.
- Configure channel assignments within the processor or AVR.

High-Power Zone Configuration

Use Bridge Mode when additional power is required for a single speaker or speaker circuit.

1. Set the zone to Bridge Mode.
2. Connect audio to the Left (L) Line In.
3. Connect the speaker to L+ and R– terminals.
4. Verify the speaker load is 8Ω or greater.

Bridged Mode



In Bridge Mode, only the Left audio input is used. The speaker must be connected between the L+ and R– terminals. (MX1680 shown)

Bridge Mode combines a zone's left and right amplifier channels into a single higher-power mono output. Use Bridge Mode when additional output power is required for a single speaker or speaker circuit.

Important

- Minimum speaker impedance is 8Ω in Bridge Mode.
- Audio must be connected to the Left (L) Line In only.
- The Vol. Left control is used to adjust output level.
- The zone Input Select switch must be set to Line In.

Bridged Mode Wiring

1. Turn off the amplifier.
2. Set the zone Stereo/Bridge switch to Bridge.
3. Connect the audio source to the Left (L) Line In.
4. Connect the speaker: positive (+) to L+, negative (–) to R–.
5. Verify the connected speaker load is 8Ω or greater.
6. Power on the amplifier.
7. Adjust output level using the Vol. Left control.

Bridged Mode Warning

- Do not connect speaker loads below 8Ω.
- Do not connect speakers to the L– or R+ terminals while operating in Bridge Mode.
- Always power off the amplifier before changing Stereo/Bridge settings.

Troubleshooting

Problem	Possible Cause	Solution
Zone LED is Off	No audio signal present	Verify source is playing audio
Zone LED is Off	No trigger signal present	Verify 12V trigger connection
No sound from speakers	Vol. Right / Vol. Left set too low	Increase the zone volume
No sound from speakers	Incorrect Line In / Bus In switch setting	Verify switch position matches source connection
No sound from speakers	Speaker wiring disconnected	Check speaker connections
Zone LED flashes Red/Blue	Speaker short circuit	Turn off amplifier and inspect speaker wiring
Amplifier shuts down	Thermal protection activated	Improve ventilation and allow amplifier to cool
Distorted audio	Speaker impedance below minimum rating	Verify speaker load meets specifications
Trigger does not activate zone	Insufficient trigger voltage	Verify 12VDC trigger source
Bridged Mode has no output	Incorrect speaker terminal connection	Verify wiring follows Bridge Mode instructions

Protection Indicators

Indicator	Meaning
Blue Zone LED	Zone operating normally
Off Zone LED	Zone in standby
Flashing Red/Blue Zone LED	Short-circuit protection active

When to Contact Support

- Unit does not power on.
- Protection mode remains active after wiring has been verified.
- Physical damage, smoke, or unusual odor is present.

Specifications

Power Output (Stereo)	80W per channel @ 4Ω, 1 kHz, one zone driven 50W per channel @ 8Ω, 1 kHz, one zone driven
Power Output (Bridged)	160W @ 8Ω, 1 kHz
Signal-to-Noise Ratio	90 dB (A-weighted)
Frequency Response	20 Hz – 20 kHz, +1.7/–1 dB @ 1W into 8Ω
Input Sensitivity	600 mV for 80W @ 4Ω 700 mV for 50W @ 8Ω
Input Impedance	>22 kΩ

Configuration & Connectivity

Amplifier Channels	16 channels (8 stereo zones)
Zone Inputs	Dedicated Line In per zone
Shared Input	Bus In with Bus Out pass-through
Input Selection	Line In / Bus In switch per zone
Trigger Inputs	12VDC Bus Trigger, 12VDC Zone Trigger
Trigger Outputs	12VDC Bus Trigger Out, 12VDC Zone Trigger Out
Bridge Mode	Selectable per zone
Speaker Connections	Detachable terminal blocks, supports up to 14 AWG wire
Minimum Speaker Impedance	4Ω Stereo Mode 8Ω Bridge Mode
Time Delay	Selectable 5 seconds, 5 minutes, or 10 minutes per zone

Power Requirements

AC Input Voltage	100–120VAC, 60Hz 220–240VAC, 50Hz
Maximum Power Consumption	1200W
Standby Power Consumption	0.5 W or less

Fuse Rating

AC Input	Fuse Rating
100–120VAC	T10A, 250V
220–240VAC	T5A, 250V

Weight & Dimensions

Dimensions (W × D × H)	16.81" × 16.14" × 3.46"
Weight	22.8 lb (10.3 kg)

Specifications are subject to change without notice.

Warranty Information

OSD Audio electronics have a two (2) year Limited Warranty against defects in materials and workmanship. Proof of purchase must accompany all claims. During the warranty period OSD Audio will replace any defective part and correct any defect in workmanship without charge for either parts or labor.

OSD Audio may replace returned electronics with a product of equal value and performance. In such cases, some modifications to the mounting may be necessary and are not OSD Audio's responsibility.

For this warranty to apply, the unit must be installed and used according to its written instructions. If necessary, repairs must be performed by OSD Audio. The unit must be returned to OSD Audio at the owner's expense and with prior written permission. Accidental damage and shipping damage are not considered defects, nor is damage resulting from abuse or from servicing performed by an agency or person not specifically authorized in writing by OSD Audio.

OSD Audio sells products only through authorized dealers and distributors to ensure that customers obtain proper support and service. Any OSD Audio product purchased from an unauthorized dealer or other source, including retailers, mail order dealers and online sellers, will not be honored or serviced under existing OSD Audio warranty policy. Any sale of product by an unauthorized source, or in any other manner not authorized by OSD Audio, shall void the warranty on the applicable product.

Damage to or destruction of components due to application of excessive power voids the warranty on those parts. In these cases, repairs will be made on the basis of the retail value of the parts and labor. To return for repairs, you must email customer service at RMA@audiogeargroup.com for a Returned Merchandise Authorization (RMA) number, then the unit must be shipped to OSD Audio at the owner's expense along with a note explaining the nature of service required. Be sure to pack the product(s) in a corrugated container with at least 3 inches of resilient material to protect the unit from damage in transit.

This Warranty Does Not Cover

- Damage caused by abuse, accident, misuse, negligence, or improper operation (installation).
- Any products that have been altered or modified.
- Any product whose identifying number or decal, serial number, etc. has been altered, defaced or removed.
- Normal wear and maintenance.

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