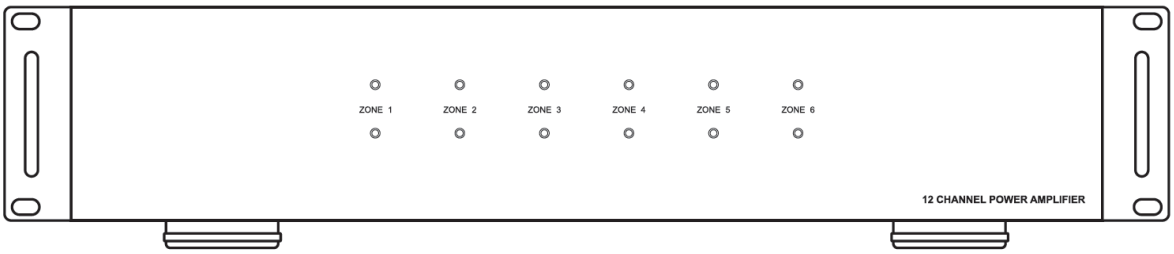
6 Zone Home Audio Multizone 12-channel Amplifier



P/N 31028

User's Manual

CONTENTS

SAFETY WARNINGS AND GUIDELINES

Please read this entire manual before using this device, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

- This device is intended for indoor use only.
- Do not expose this device to water or moisture of any kind. Do not place drinks or other containers with moisture on or near the device. If moisture does get in or on the device, immediately unplug it from the power outlet and allow it to fully dry before reapplying power.
- Do not touch the device, the power cord, or any other connected cables with wet hands.
- This device uses a grounded power cord and requires a ground connection for safe operation. Ensure that the power source has a proper ground connection. Do not modify the plug or use a "cheater" plug to bypass the ground connection.
- Do not expose this device to excessively high temperatures. Do not place it in, on, or near heat sources, such as a fireplace, stove, radiator, etc. Do not leave it in direct sunlight.
- This device ventilates excessive heat through the slots and openings in the case. Do not block or cover these openings. Ensure that the device is in an open area where it can get sufficient airflow to keep from overheating.
- Prior to operation, check the unit and power cord for physical damage. Do not use if physical damage has occurred.
- Take care to prevent damage to the power cord. Do not allow it to become crimped, pinched, walked on, or become tangled with other cords. Ensure that the power cord does not present a tripping hazard.
- Never unplug the unit by pulling on the power cord. Always grasp the connector head or adapter body.
- Ensure that power is turned off and disconnected before making any electrical connections.

- Disconnect the unit from the power source when replacing the fuse. Replace the fuse only with the same type.
- Clean using a soft, dry cloth only. Do not use chemical cleaners, solvents, or detergents. For stubborn deposits, moisten the cloth with warm water.
- This device has no user serviceable parts. Do not attempt to open, service, or modify this device.

INTRODUCTION

Thank you for purchasing this 6-Zone Home Audio Multizone 12-channel Amplifier! This amplifier is a 12-channel audio distribution amp that can be configured for six stereo 4-8 ohm zones, six stereo 70/100V constant voltage zones, or three high powered 8-ohm bridged zones. It supports any combination of stereo, bridged, and constant voltage zones.

Each zone can be controlled using the included IR remote control or RS-232 computer control. The RS-232 section is bi-directional, with an easy to configure command structure. It can be configured to automatically send zone status updates or respond to queries to confirm zone status and settings.

It has an Audio Bus IN, which can be manually selected using the remote control, RS-232 commands, or a voltage trigger. The voltage trigger will switch the zone to use the Audio Bus IN as long as there is voltage present on the zone Line / Bus Trigger IN. When the voltage is removed, the zone automatically switches back to the zone Line IN, making it ideal for global paging across an entire facility.

Additionally, each zone has a Mute Trigger IN, which mutes zone audio when voltage is present. Each zone also has a +12 VDC Status or Control OUT, which can be used to activate a zone specific voltage controlled device or otherwise indicate zone ON/OFF status. Audio is rounded out with a built-in -20dB audio limiter for each zone, designed to prevent incidental peaks from becoming irrevocable problems.

Finally, each zone features a Remote Bypass switch, which allows or blocks IR and RS-232 control for those zones that you want to set and not mess with again. You can select 110-120 VAC or 220-240 VAC input voltage, allowing the amp to be used anywhere there is AC voltage. It is rack mountable, with removable rack ears for shelf mounting.

FEATURES

- Each zone can independently select a zone-specific stereo audio source or the global unbalanced stereo Audio Bus IN
- Each zone can be independently configured for stereo 4Ω/8Ω mode, high powered bridged 8Ω mode, or 70V/100V constant voltage mode for total flexibility
- All zones are independently controllable using the included IR remote control, RS-232 control, and voltage trigger lines
- Each zone has a built-in -20dB Audio Limiter
- Each zone has an independent mute trigger input
- Each zone has an individual Status Output that corresponds to the zone's ON/OFF status
- Front panel Zone ON and Zone Overload LED indicators for each zone
- Master global Control In and Control Out
- Detachable screw-terminal connectors for Zone IR IN, Zone Mute, Zone Status OUT, and Zone Speaker Outputs
- Global optical S/PDIF and analog stereo 3.5mm audio inputs for the global Audio Bus IN/OUT
- Rack mountable in a standard 19" equipment rack (2U height)
- Selectable 110-120 VAC, 60Hz or 220-240 VAC, 50Hz power input

CUSTOMER SERVICE

The Monoprice Customer Service department is dedicated to ensuring that your ordering, purchasing, and delivery experience is second to none. If you have any problem with your order, please give us an opportunity to make it right. You can contact a Monoprice Customer Service representative through the Live Chat link on our website **www.monoprice.com** during normal business hours (Mon-Fri: 5am-7pm PT, Sat-Sun: 9am-6pm PT) or via email at **support@monoprice.com**

PACKAGE CONTENTS

Please take an inventory of the package contents to ensure you have all the items listed below. If anything is missing or damaged, please contact Monoprice Customer Service for a replacement.

1x Amplifier

1x IR remote control

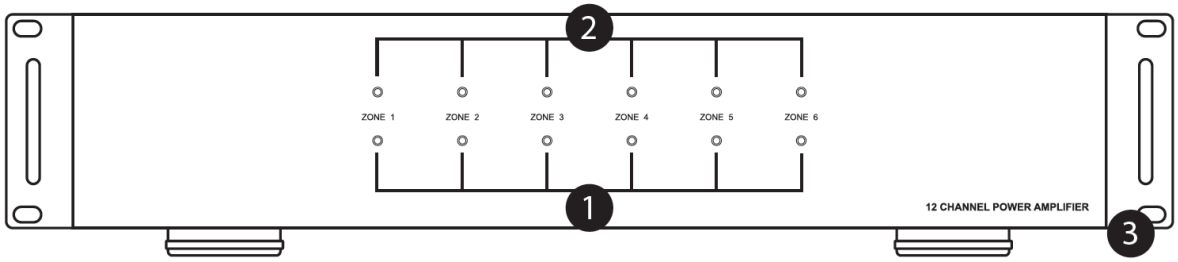
1x IR transmitter

1x AC power cord

1x User's manual

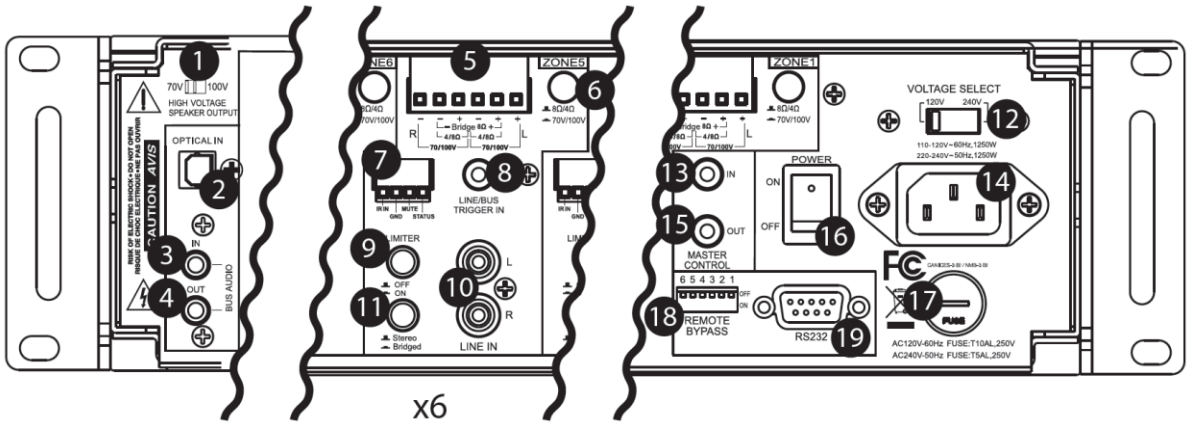
PRODUCT OVERVIEW

Front Panel



1. **ZONE POWER LEDs:** Six LEDs illuminate solid green when a stereo zone is ON and is off when the zone is OFF.
2. **PEAK OUTPUT LEDs:** Six LEDs illuminate red when the amplifier is within 5% of the maximum volume setting. To be safe, back off the volume a bit when this LED illuminates to prevent damage to the amplifier or speakers.
3. **RACK EARS:** Two rack ears for mounting the amplifier in a standard 19" equipment rack (2U height). If rack mounting, leave one empty rack space above and below to allow for ventilation. The rack ears can be removed for shelf mounting, as desired.

Rear Panel



1. **70V/100V HIGH VOLTAGE SPEAKER OUTPUT:** Slide switch for selecting **70V** or **100V** for all zones configured for constant voltage output. The U.S. National Electrical Code prohibits the use of 100V constant voltage systems for installations in the United States.
2. **OPTICAL IN:** S/PDIF digital optical audio input for BUS AUDIO. When **OPTICAL IN** is used, 3.5mm **BUS AUDIO IN (3)** cannot be used and vice versa. The optical audio signal is converted to analog and is distributed to the **BUS AUDIO OUT (4)** and to each zone.
3. **BUS AUDIO IN:** 3.5mm TRS unbalanced stereo input jack for **BUS AUDIO**. When **BUS AUDIO IN** is used, **OPTICAL IN (2)** cannot be used and vice versa. The analog signal is distributed to the **BUS AUDIO OUT (4)** and to each zone.
4. **BUS AUDIO OUT:** 3.5mm TRS unbalanced stereo output jack for delivering **BUS AUDIO** to another 6-zone amplifier, powered speakers, or other line level input device.
5. **SPEAKER OUTPUT:** Removable screw-terminal plug for connecting the speaker output(s). Each plug has six connections for different speaker output configurations, as detailed below. *Note that failure to adhere to the warnings in the notes below can result in permanent damage to the amplifier and/or the speakers.*

    - **Bridge 8Ω:** Use the indicated terminals (2 and 5) to connect a single 8-ohm speaker for bridged mono operation (100W@8Ω). WARNING! When using the

Bridge 8Ω terminals, the **8Ω/4Ω-70V/100V switch (6)** MUST be in the **OUT** position and the **Stereo-Bridged switch (11)** MUST be in the **IN (Bridged)** position.

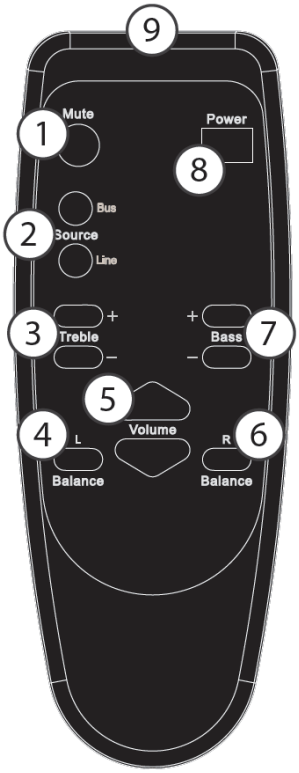
- **4/8Ω:** Use the indicated terminals (2 and 3, 4 and 5) to connect a pair of 4-ohm or 8-ohm speakers (30W@8Ω or 50W@4Ω). WARNING! When using the 4/8Ω terminals, the **8Ω/4Ω-70V/100V switch (6)** MUST be in the OUT position and the **Stereo-Bridged switch (11)** MUST also be in the OUT (Stereo) position.
- **70/100V:** Use the indicated terminals (1 and 3, 4 and 6) to connect a pair of constant voltage speakers (30W@70V/100V). WARNING! When using the 70/100V terminals, the **8Ω/4Ω-70V/100V switch (6**) MUST be in the IN position, the **Stereo-Bridged switch (11)** MUST also be in the OUT (Stereo) position, and the **70V/100V HIGH VOLTAGE SPEAKER OUTPUT switch (1)** must be set to the proper voltage.

6. **8Ω/4Ω-70V/100V:** Push button switch to select passive (8Ω/4Ω) or constant voltage (70V/100V) operation. **8Ω/4Ω** operation is selected when the switch is in the **OUT** position and **70V/100V** operation is selected when the switch is in the **IN** position.
7. **IR IN/MUTE/STATUS:** Connect the included IR transmitter to the **IR IN** and **GND** terminals to allow for zone IR control using the included IR remote control. Connect a +3 ~ +30 VDC@1mA control voltage to the **MUTE** and **GND** terminals to mute the local zone. Connect a trigger enabled device to the **STATUS** and **GND** terminals to provide a +12 VDC@1mA Status OUT signal to trigger the zone specific device.
8. **LINE/BUS TRIGGER IN:** 3.5mm jack for connecting a +3 ~ +30 VDC@1mA control voltage to determine the zone's audio source. When there is no voltage present, the zone uses its **LINE IN RCA jacks (10)** for the audio source. When a +3 ~ +30 VDC@1mA signal is present, the zone uses **BUS AUDIO (2 or 3)** for the audio source.
9. **LIMITER:** Push button switch to determine whether the built-in -20dB Audio Limiter is used on not. The Audio Limiter is **ON** when the switch in the **IN** position and is **OFF** when the switch is in the **OUT** position.
10. **LINE IN:** Two RCA jacks for connecting a line level stereo audio source.
11. **STEREO/BRIDGED:** Push button switch to determine whether the zone is set for Bridged or Stereo operation. The zone is set for **Stereo** operation when the switch is

in the **OUT** position and is set for **Bridged** operation when the switch is in the **IN** position.

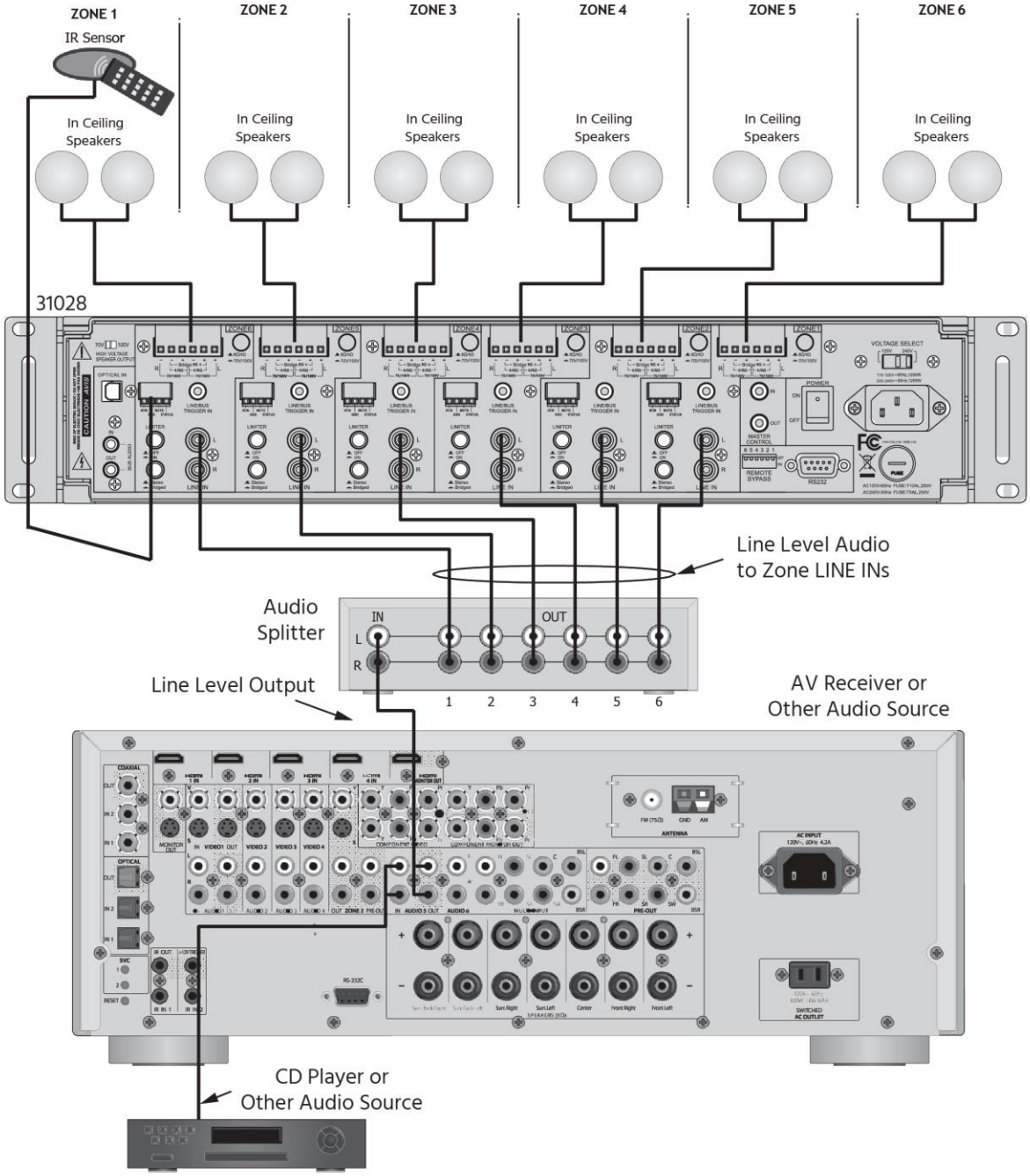
12. **VOLTAGE SELECT:** Slide switch for setting the input AC voltage level to nominal 120V or 240V operation. The switch is set to the 120V position at the factory and the appropriate fuse is installed. If you change to 240V operation, the fuse must also be changed to the appropriate type.
13. **MASTER CONTROL IN:** 3.5mm jack for connecting a +3 ~ +30 VDC@1mA control voltage to turn the amplifier ON. When voltage is applied, the amplifier powers **ON** and when no voltage is present, the amplifier powers **OFF**. Note that the **POWER ON/OFF switch (16)** must be set to the **OFF** position when using this feature.
14. **POWER IN:** Three-conductor IEC 60320 C14 panel connector for connecting the included AC power cord or an alternate power cord (not included) if operating the amplifier in a country that doesn't use NEMA power plugs.
15. **MASTER CONTROL OUT:** 3.5mm jack for connecting a trigger voltage controlled device that is intended to be automatically turned on or off depending on the amplifier's status. Whenever any zone is ON, the **MASTER CONTROL OUT** jack will output +11.5 VDC@1mA ~ +10 VDC@5mA. When all zones are OFF, the output is 0 VDC.
16. **POWER ON/OFF:** Rocker switch to turn the amplifier on or off. Note that when the switch is set to the **OFF** position, the **MASTER CONTROL IN (14)** trigger can be used to turn the amplifier on or off.
17. **FUSE:** Fuse holder for the system fuse. If the **VOLTAGE SELECT (12)** is changed, the fuse must also be changed. The proper fuse for nominal 120 VAC operating is **T10AL, 250V**, while the proper fuse for nominal 240 VAC operation is **T5AL, 250V**.
18. **REMOTE BYPASS:** A six position DIP switch that determines whether the zone can respond to IR remote control and RS-232 control inputs or not. When set to the **OFF** position, the zone can respond to IR and RS-232 control signals. When set to the **ON** position, the zone will not respond to IR and RS-232 control signals.
19. **RS232:** Female DB9 jack for connecting an automation system or other controller for bi-directional communications with and control of the amplifier.

IR Remote Control



1. **Mute:** Press the **Mute** button to turn zone audio muting on or off.
2. **Source:** Press the **Source** buttons to select Bus or Line for the zone audio source.
3. **Treble:** Press the **Treble** buttons to increase or decrease the zone treble response.
4. **Balance L:** Press the **Balance L** button to increase the zone volume level of the left channel relative to that of the right channel. Note that an RS-232 command is required to reset the zone balance to center.
5. **Volume:** Press the **Volume** buttons to increase or decrease the overall zone volume level.
6. **Balance R:** Press the **Balance R** button to increase the zone volume level of the right channel relative to that of the left channel. Note that an RS-232 command is required to reset the zone balance to center.
7. **Bass:** Press the **Bass** buttons to increase or decrease the zone bass response.
8. **Power:** Press the **Power** button to turn the zone on or off.
9. **IR LED:** The high-power IR LED on the front of the remote control transmits infrared control signals whenever a button is pressed.

SAMPLE CONNECTION DIAGRAM



CONSTANT VOLTAGE VS LOW IMPEDANCE SPEAKER SYSTEMS

A constant voltage speaker system differs from a traditional low impedance (e.g., 8-ohm) speaker system in that it uses a step-up transformer at the audio source to raise the voltage and lower the current on the transmission line. At the speaker end, a step-down transformer converts the signal back to a normal speaker level voltage. This reduces power loss during transmission, which allows for the use of longer speaker wire runs using smaller gauge wire.

Additionally, a constant voltage speaker system allows for the use of multiple speakers on each channel, without the need for complicated impedance calculations and configurations. In a constant voltage system, all speakers on a given channel are connected in parallel and the complicated impedance calculations are replaced by simple wattage calculations.

For example, if you want to connect two speakers per channel in a traditional 8-ohm speaker system, you must either connect them in series, which results in an overall 16-ohm impedance, or in parallel, which results in an overall 4-ohm impedance. In the first case, the 16-ohms impedance effectively halves the output power of your amplifier, resulting in lower overall volume levels. In the latter case, the 4-ohms impedance means that your amplifier will have to work harder and must be rated as stable at 4 ohms. Adding a third speaker to the mix would complicate it further, producing either a 24-ohm or 2.67-ohm overall impedance. Note that very few amplifiers are stable under 2-ohm loads, so that is usually not an option.

On the other hand, with a constant voltage system, you consider first the RMS output wattage of the amplifier. This should be reduced by 20% to compensate for insertion loss. Each individual speaker on a given channel is set to a value such that the total does not exceed the rated power, less 20%. You do not need to worry about making the total as close as possible to the limit; just ensure that the total does not exceed the limit. For example, with this 30-watt amplifier, the total load from speakers should not exceed 24 watts.

If all speakers are set to the same wattage value, they will all have the same volume level. If one speaker is set to a higher wattage value, it will be louder than the others, while a

speaker set to a smaller value will be quieter than the others. This allows you to compensate for the environment in which the speaker is placed. For example, a speaker placed outside would need to be louder than a speaker placed in a small room.

WIRE GAUGES

The following tables show the maximum speaker wire lengths using different gauge wires for both 4Ω/8Ω and 70V/100V installations.

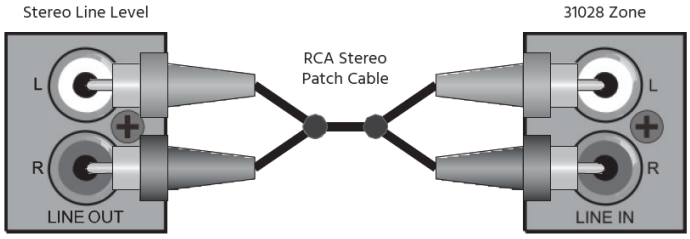
4Ω/8Ω Installations	
Maximum Wire Length	**Wire Gauge**
150 ft. (46m)	16 AWG
400 ft. (122m)	14 AWG
1000 ft. (305m)	12 AWG

70V/100V Installations	
Maximum Wire Length	**Wire Gauge**
350 ft. (106m)	24 AWG
550 ft. (167m)	22 AWG
900 ft. (274m)	20 AWG
1400 ft. (426m)	18 AWG
2300 ft. (701m)	16 AWG

LINE CONNECTIONS

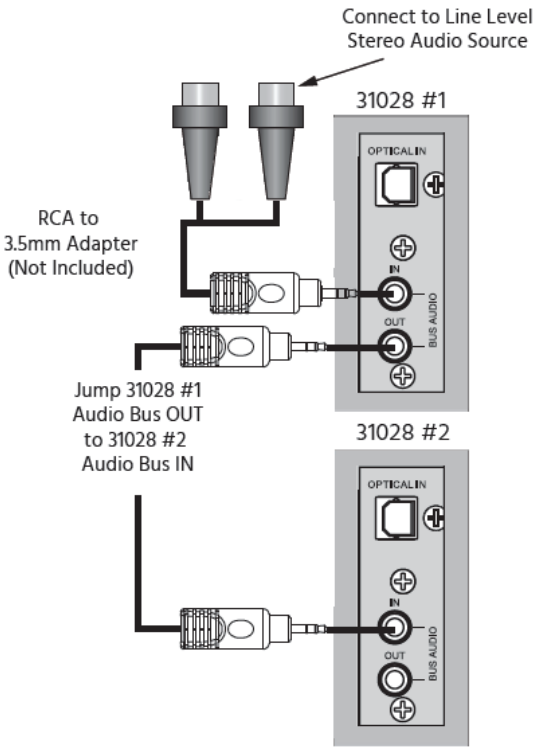
Line In

Each zone has its own dedicated stereo LINE IN using two RCA jacks. Use a stereo RCA audio cable (not included) to connect the LINE OUT of an audio source device (e.g., CD player, FM tuner, etc.) to the individual zone LINE IN, as shown in the diagram below.



Bus Audio

The amplifier also features a stereo analog **BUS AUDIO IN (3)**, a digital S/PDIF **OPTICAL IN (2)**, and an analog **BUS AUDIO OUT (4)**. The audio on **BUS AUDIO IN** overrides the zone's **LINE IN (10)** audio whenever a +3 ~ +30 VDC trigger voltage is applied to **LINE BUS TRIGGER IN (8)**.



BUS AUDIO IN (3) is a 3.5mm stereo analog input. Use a stereo 3.5mm to RCA or 3.5mm to 3.5mm audio cable (not included) to connect to a stereo line level or headphone level source. Alternatively, use a digital optical S/PDIF cable (not included) to connect the BUS AUDIO **OPTICAL IN (2)** to the optical S/PDIF output of an audio source device.

BUS AUDIO OUT (4) is a 3.5mm analog stereo audio output that can be used to connect to the input of another amplifier or audio processor. **BUS AUDIO OUT (4)** is a copy of **BUS**

AUDIO IN (3) or a digital-to-analog converted version of the **OPTICAL IN (2)** signal. Use a 3.5mm to RCA or 3.5mm to 3.5mm stereo audio cable (not included) to connect **BUS AUDIO OUT (4)** to the line input of another audio device.

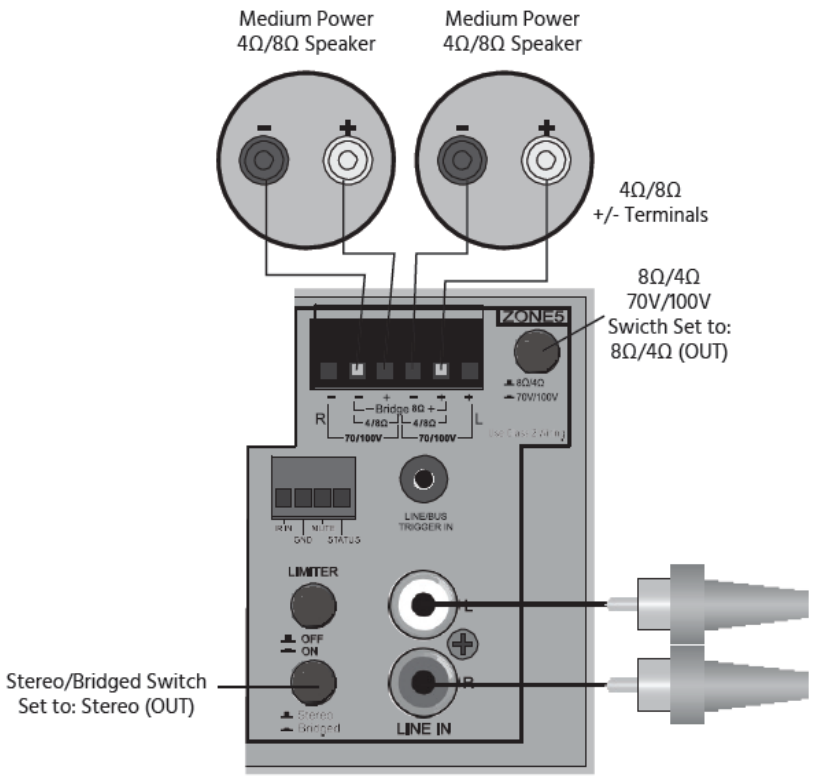
SPEAKER CONNECTIONS

Each of the six zones on this amplifier support three different kinds of speaker connections: passive stereo 4Ω/8Ω speakers, passive bridged monophonic 8Ω speaker, and stereo 70V/100V constant voltage speakers.

4Ω/8Ω Stereo

The basic speaker connection for each zone uses a pair of 4-ohm passive speakers designed to handle up to 50 watts each or a pair of 8-ohm passive speakers designed to handle up to 30 watts each.

Connect the speakers to the **4/8Ω terminals (2 and 3, 4 and 5)**, then ensure that the **8Ω/4Ω-70V/100V switch (6)** is in the **8Ω/4Ω (OUT)** position and that the **Stereo/Bridged switch (11)** is in the **Stereo (OUT)** position.

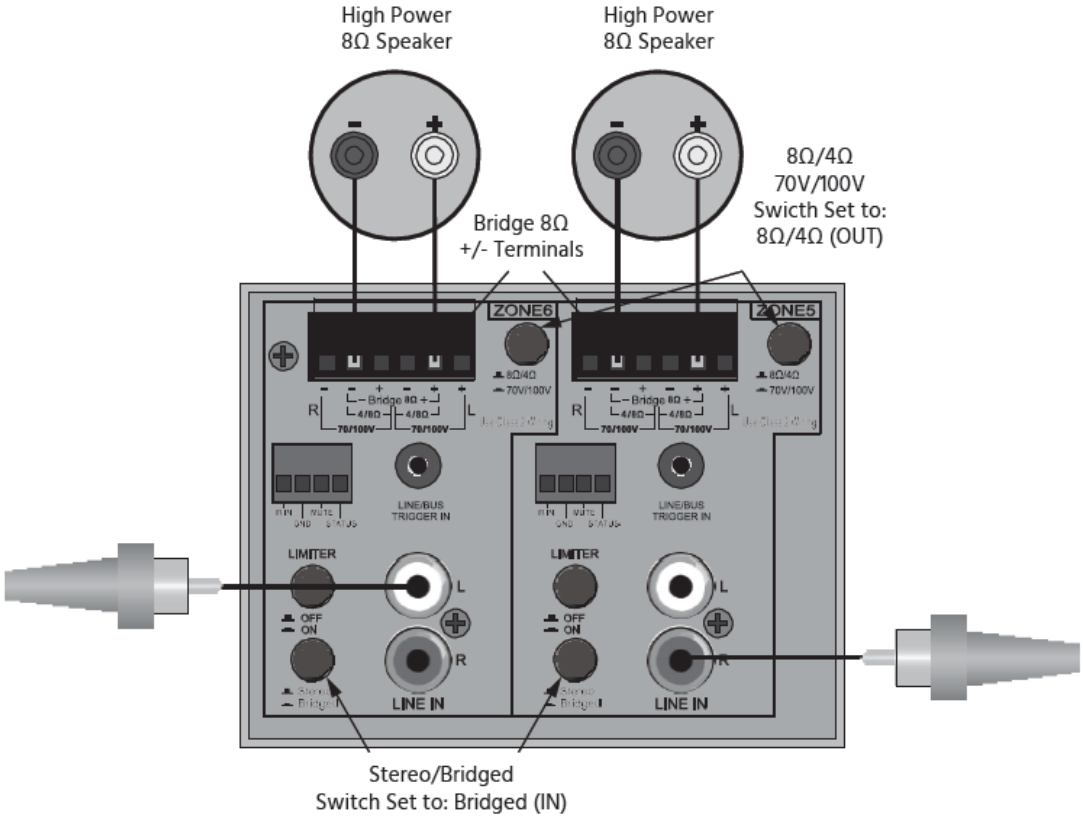


Bridged 8Ω Mono

Another option is to configure the zone to bridge the stereo outputs to a single monophonic audio output with approximately double the power of the stereo outputs. In this configuration, each zone only connects to a single 8-ohm speaker designed to handle up to 100 watts of power.

Connect the speaker to the **Bridge 8Ω terminals (2 and 5)**, then ensure that the **8Ω/4Ω-70V/100V switch (6)** is in the **8Ω/4Ω (OUT)** position and that the **Stereo/Bridged switch (11)** is in the **Bridged (IN)** position.

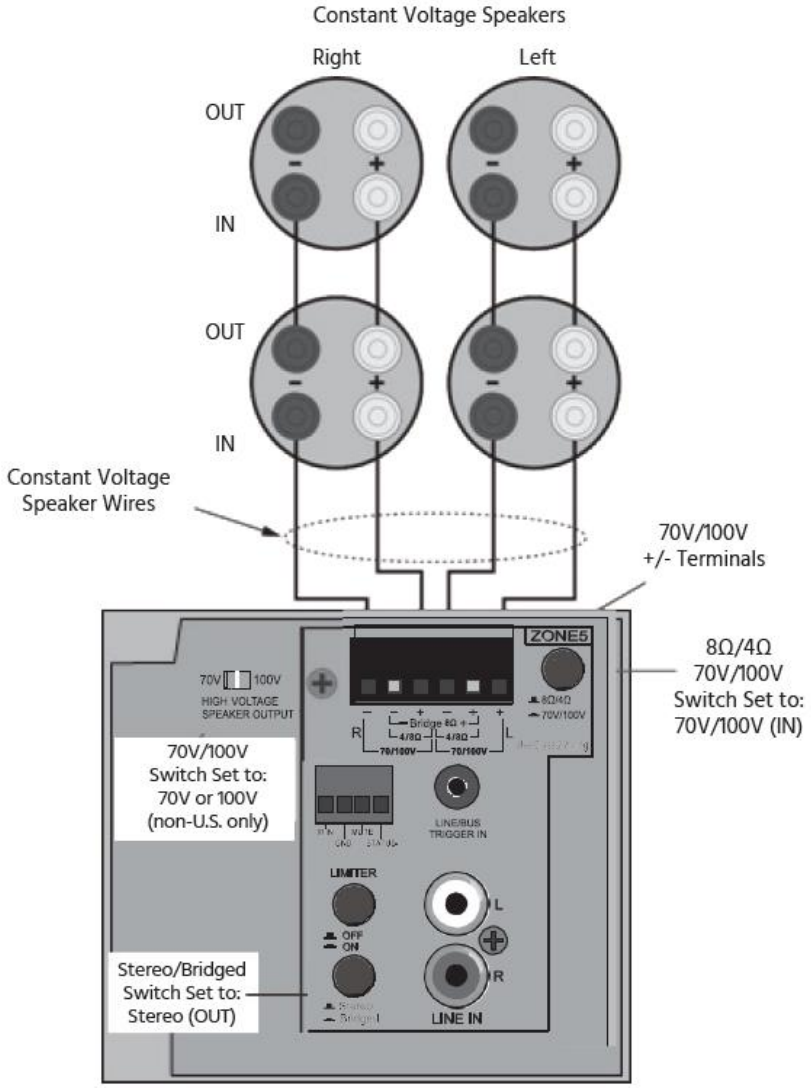
Note that the only way to get a stereo output using Bridged 8Ω mode by using two zones and splitting the left channel input to one zone and the right channel input to the other, as shown in the image below.



Constant Voltage 70V/100V Stereo

The third speaker option is to use a pair of constant voltage speaker arrays. Each array can consist of almost any number of speakers. When an array uses multiple speakers, they must all be wired in parallel and the wattage settings of each must not exceed **24 watts** (30 watts x 80%).

Connect the two speaker arrays to the **70/100V terminals (1 and 3, 4 and 6)**, then ensure that the **8Ω/4Ω-70V/100V switch (6)** is in the **70V/100V (IN)** position and the **Stereo/Bridged switch (11)** in the **Stereo (OUT**) position. For installations in the United States, the **70V/100V switch (1)** must be set to the **70V (left)** position, while installations in other countries can be set to either the 70V (left) or the 100V (right) position, as desired.

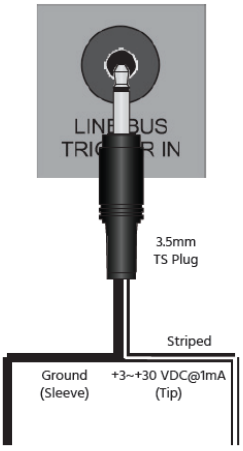


TRIGGER CONNECTIONS

This amplifier features several trigger inputs and outputs. The trigger inputs activate when a +3 ~ +30 VDC@1mA voltage is applied, while the trigger outputs deliver ether +11.5 VDC@1mA ~ +10 VDC@5mA or +12 VDC. Each trigger output is used for activating another trigger-enabled devices, such as a motorized projection screen.

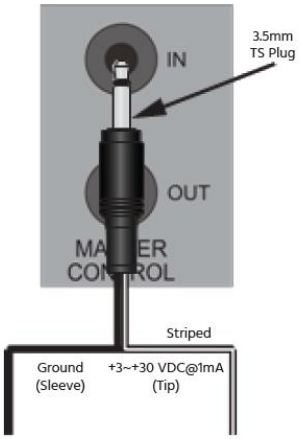
Line/Bus Trigger In

Each zone has a Line/Bus Trigger In, which is a 3.5mm TS plug. Normally, the zone outputs the audio signal on the zone's **LINE IN (10)** RCA audio inputs, but outputs BUS AUDIO when a +3 ~ +30 VDC@1mA voltage is applied.



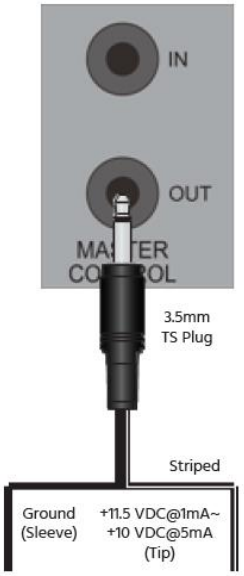
Master Control In

The amplifier has a single **Master Control In (13)**, which is used to turn the amplifier on or off. To use the **Master Control In (13)** trigger input, place the **POWER switch (16)** in the **OFF** position, then whenever a +3 ~ +30 VDC@1mA voltage is applied, the amplifier will power on. When the voltage is removed, the amplifier will power off.



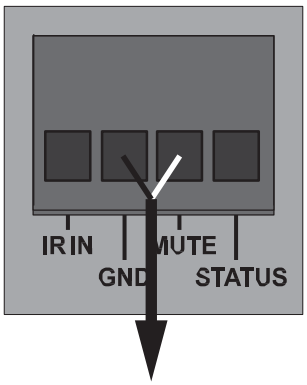
Master Control Out

The amplifier features a single **Master Control Out (15)**, which outputs a +11.5 VDC@1mA ~ +10 VDC@5mA voltage for triggering another trigger-enabled device. The voltage is applied whenever the amplifier is powered on and delivers 0 VDC when the amplifier is powered off.



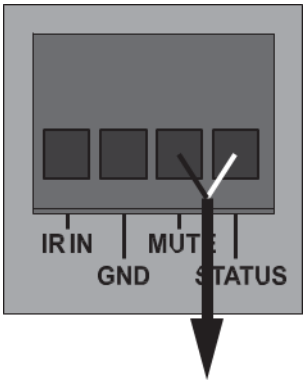
Mute In

Each zone features a **MUTE IN (7)**, which accepts a +3 ~ +30 VDC@1mA trigger voltage to mute the audio in that zone. When voltage is present, the zone is muted. When voltage is not present, audio will play as normal. Connect a two conductor wire from an audio mute trigger source to the **GND** and **MUTE** terminals.



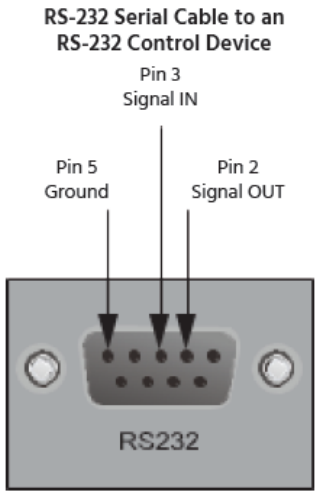
Status Out

Each zone has a **STATUS OUT (7)** connection, which provides +12 VDC whenever the zone is active to trigger external trigger controlled devices, such as a motorized projection screen. Connect a two conductor wire from the **GND** and **STATUS** terminals to an external trigger controlled device.



RS-232 CONNECTION

Use an RS-232 serial cable (not included) to connect the amplifier to a computer or other serial control device for issuing RS-232 control commands. Pin 2 is the signal output, pin 3 is the signal input, and pin 5 is the common ground.



RS-232 COMMANDS

This amplifier can accept RS-232 commands from a connected PC to change settings and get status reports. RS-232 commands should be issued through any third party RS-232 control software. The following table lists the serial communications parameters:

Baud Rate	9600
Data Bits	8
Parity	none
Stop Bits	1
Flow Control	none

The following table explains the meaning and value range for the variables in the RS-232 commands.

Variable	Value Range	Description
{z#}	1 ~ 6	Zone number.
{c#}	1 ~ 12	Channel number (each zone has two channels).
{0 / 1}	0 ~ 1	Binary selection. 0 = Off, 1 = On.

{v#}	0 ~ 38	Volume level (see the *Volume Level* table below).
{bt#}	0 ~ 14	Bass/Treble level (see the *Bass/Treble Level* table below).
{b#}	0 ~ 63	Balance setting (see the *Balance Setting* table below).

RS-232 Commands

Function	Command	Remarks
Zone Power	!{z#]**PR**{0 / 1}+	Turns zone power on or off.
Zone Power Toggle	!{z#]**PT**+	Toggles zone power from on to off or from off to on.
Zone Volume	!{z#}**VO**{v#}+	Sets zone volume to an absolute value.
Zone Volume Increase	!{z#]**VI**+	Increase zone volume one step.
Zone Volume Decrease	!{z#]**VD**+	Decrease zone volume one step.
Zone Input Select	!{z#}**IS**{0 / 1}+	Sets the zone input to BUS or LINE. 0 = BUS, 1 = LINE.
Zone Input Select Toggle	!{z#]**IT**+	Toggles the zone input from BUS to LINE or from LINE to BUS.
Channel Input Select	!{c#}**CS**{0 / 1}+	Sets the channel input to BUS or LINE. 0 = BUS, 1 = Line. Note that setting one channel in a zone will automatically set the paired channel to the same input.
Channel Input Select Toggle	!{c#}**CT**+	Toggles the channel input from BUS to LINE or from LINE to BUS. Note that setting one channel in a zone will automatically set the paired channel to the same input.

Zone Audio Mute	!{z#}**MU**{0 / 1}+	Turns zone muting on or off. 0 = Off, 1 = On.
Zone Audio Mute Toggle	!{z#}**MT**+	Toggles zone muting from on to off or from off to on.
Zone Treble	!{z#}**TR**{bt#}+	Sets the zone treble level (see the *Bass/Treble Level* table below).
Increase Treble	!{z#}**TI**+	Increase the zone treble level one step.
Decrease Treble	!{z#}**TD**+	Decrease the zone treble level one step.
Zone Bass	!{z#}**BS**{bt#}+	Sets the zone bass level (see the *Bass/Treble Level* table below).
Increase Bass	!{z#}**BI**+	Increase the zone bass level one step.
Decrease Bass	!{z#}**BD**+	Decrease the zone bass level one step.
Zone Balance	!{z#}**BA**{b#}	Sets the zone balance (see the *Balance Setting* table below).
Zone Balance Step Left	!{z#}**BL**+	Moves the zone balance one step to the left.
Zone Balance Step Right	!{z#}**BR**+	Moves the zone balance one step to the right.
Zone Activity Auto Update	!**ZA**{0 / 1}+	Enables or disables automatic updating of zone information whenever anything about the zone changes (see the *Zone Status* section below).
Zone Maximum Volume	!{z#}**MX**+	Sets the current zone volume level as the maximum level allowed. This acts as a volume limiter for the zone.

RS-232 Queries

Function	Query	Response	Description
Zone Volume	?{z#}**VO**+	?{z#}**VO**{v#}+	
Channel Volume	?{c#}**CH**+	?{c#}**CH**{v#}+	
Zone Audio Mute	?{z#}**MU**+	?{z#}**MU**{0 / 1}+	
Zone Power	?{z#}**PR**+	?{z#}**PR**{0 / 1}+	
Zone Input Select	?{z#}**IS**+	?{z#}**IS**{0 / 1}+	0 = BUS, 1 = LINE.
Zone Treble	?{z#}**TR**+	?{z#}**TR**{bt#}+	
Zone Bass	?{z#}**BS**+	?{z#}**BS**{bt#}+	
Zone Balance	?{z#}**BA**+	?{z#}**BA**(b#}+	
Zone Activity Auto Update	?**ZA**+	?**ZA**{0 / 1}+	
Zone Status	?**ZS**+	See the *Zone Status* section below.	

Zone Status

Whenever a Zone Status query is issued or if the Zone Activity Auto Update function is enabled and something about the zone changes, a Zone Status Report will be sent. The automatic Zone Status Report will be sent one second after zone activity stops. The metadata is also sent whenever it changes. The Zone Status Report is a string of characters that conforms to the various RS-232 Commands above. The format of the string is as follows:

#{z#}ZS **VO**{v#} **PO**{0 / 1} **MU**{0 / 1} **IS**{0 / 1}+

Following is an example of a Zone Status Report string:

#6ZS **VO**8 **PO**1 **MU**0 **IS**0+

This is interpreted as Zone 6 (#**6**ZS) is powered on (**PO**1), has the volume level set to 8 (**VO**8), audio muting off (**MU**0), and with the BUS as the audio input (**IS**0).

Volume Level

Volume Setting	Attenuation (dB)	Volume Setting	Attenuation (dB)
0	-78.75	20	-22.50
1	-75.00	21	-21.25
2	-71.25	22	-20.00
3	-67.50	23	-18.75
4	-63.75	24	-17.50
5	-60.00	25	-16.25
6	-56.25	26	-15.00
7	-52.25	27	-13.75
8	-50.00	28	-12.50
9	-47.50	29	-11.25
10	-45.00	30	-10.00
11	-42.50	31	-8.75
12	-40.00	32	-7.50
13	-37.50	33	-6.25
14	-35.00	34	-5.00
15	-35.50	35	-3.75
16	-30.00	36	-2.50
17	-27.50	37	-1.25
18	-25.00	38	0
19	-23.75		

Bass/Treble Level

Setting	Level (+/-dB)
0	-14
1	-12
2	-10
3	-8
4	-6
5	-4
6	-2
7	0
8	+2
9	+4
10	+6
11	+8
12	+10
13	+12
14	+14

Balance Setting

Setting	Left Channel (+/-dB)	Right Channel (+/-dB)
0	0	Mute
1	0	-37.50
2	0	-36.25
...	...	...
29	0	-2.50
30	0	-1.25
31	0	0
32	0	0
33	-1.25	0
34	-2.50	0
...	...	...
61	-36.25	0
62	-37.50	0
63	Mute	0

TECHNICAL SUPPORT

Monoprice is pleased to provide free, live, online technical support to assist you with any questions you may have about installation, setup, troubleshooting, or product recommendations. If you ever need assistance with your new product, please come online to talk to one of our friendly and knowledgeable Tech Support Associates. Technical support is available through the online chat button on our website **www.monoprice.com** during regular business hours, 7 days a week. You can also get assistance through email by sending a message to **tech@monoprice.com**

SPECIFICATIONS

Model	31028
Number of Zones	6
Continuous Output Power (per zone)	30 watts/channel into 8 ohms@1kHz 50 watts/channel into 4 ohms@1kHz 100 watts bridged into 8 ohms@1kHz 30 watts/channel 70V/100V@1kHz
Frequency Response	20Hz ~ 20kHz ±1dB
Total Harmonic Distortion	0.1%@10W
Signal-to-Noise Ratio	90dB A-weighted 1kHz
Channel Separation	65dB 1kHz
Input Sensitivity	600mV@30W
Bass Control	100Hz ±12dB
Treble Control	10kHz ±12dB
Line Input Impedance	47 kilohms
Master Control Input Voltage	+3 ~ +30 VDC@1mA
Master Control Output Voltage	+11.5 VDC@1mA ~ 10 VDC@5mA
Zone Line/Bus Trigger Input Voltage	+3 ~ +30 VDC@1mA
Zone Mute Trigger Input Voltage	+3 ~ +30 VDC@1mA
Zone Status Output Voltage	+12 VDC
RS-232 Communications Parameters	9600/8-N-1
RS-232 Flow Control	None
Input Power	115 VAC, 60 Hz, 10A or 230 VAC, 50Hz, 5A
Dimensions (without rack ears)	16.9" x 3.5" x 16.4" (430 x 88x 416 mm)
Weight	48.5 lbs. (22 kg)

REGULATORY COMPLIANCE

Notice for FCC

Modifying the equipment without Monoprice's authorization may result in the equipment no longer complying with FCC requirements for Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

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 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.

Notice for Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.