USER'S MANUAL

6 Zone Home Audio Multizone Controller and Amplifier Kit

Thank you for purchasing the 6 Zone Home Audio Multizone Controller and Amplifier Kit!

The 6 Zone Home Audio Multizone Controller and Amplifier Kit is a full function audio system, which combines the functions of a preamplifier, a full 6x6 audio matrix, and six 50 watt power amplifiers for driving speakers in up to six separate zones. Additionally, up to three units can be combined to provide full signal switching and amplification to up to 18 different speaker zones!

For best results, please read and understand this manual thoroughly before installation, paying particular attention to the safety warnings and guidelines. Keep this manual in a safe place for future reference.

SAFETY WARNINGS

To avoid personal injury or damage to the equipment, please please adhere to the following safety guidelines:

1. Do not expose this device to water or moisture of any kind. Do not place objects filled with liquids on or near this device.
2. Do not install this device in an enclosed space. Ensure that there is sufficient ventilation to keep the unit from overheating.
3. Do not place objects on this device or otherwise block the cooling vents.
4. Do not install near any heat sources, such as stoves, radiators, or fireplaces.
5. Do not place naked flames, such as candles, on or near this device.

6. Clean only with a dry cloth. Do not use liquid cleaners or solvents to clean this device.
7. Unplug the unit during lightning storms or when the unit will be unused for a long period of time.
8. Do not allow the power cords to be walked on, pinched, tripped over, or otherwise damaged.
9. Do not attempt to defeat the grounded AC power plug by using a "cheater" plug adapter or modifying the power cable. If the grounded plug will not fit in your AC power outlet, please contact a professional electrician to replace the obsolete outlet.
10. Ensure that any cables that are run through the walls or between floors are properly rated for "in-wall" or "riser" use. Use of unrated cables could contribute to the rapid spread of any fire and could invalidate insurance claims.

PACKAGE CONTENTS

After receiving the product, please inventory the contents to ensure you have all the proper parts, as listed below.

- 1x 6 Zone Home Audio Multizone Controller/Amplifier
- 6x Keypad controllers
- 1x Keypad in-wall hub connection plate
- 1x Infrared remote control

1 POWER SWITCH

Depress the power switch to power the unit ON. Press it again to release the latch and power the unit OFF. Note that even the Master Controller is powered on, each zone will remain in Standby until the zone keypad is activated.

2 ZONE STANDBY/ON LEDS

These six LEDs illuminate to indicate the status of each zone. The LED will glow Blue when in Standby and will glow White when activated.

3 PEAK LEDS

These six LEDs illuminate to indicate when the input level of the connected source is too high. It is normal for the LED to flash red once in a while, but if it glows red steadily or is glowing red most of the time, the input level should be reduced.
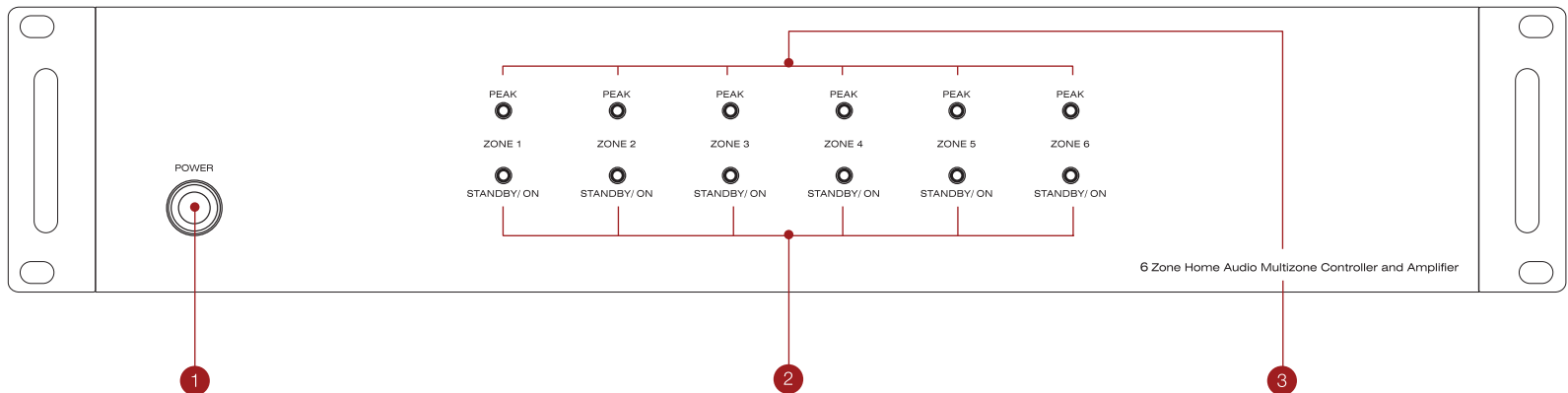
4 PREAMP OUTPUTS

These six stereo pairs of RCA jacks are used to connect to a dedicated power amplifier. The output levels are adjusted using the system's volume controllers.

5 BRIDGED SWITCHES

These six slide switches are used to switch the zone between Stereo and Bridged mode. In bridged mode the output power level is effectively quadrupled along with the reduction of the number of channels from two to one. In stereo mode you can connect 4 or 8 ohm speakers, but bridged mode can only connect 8 ohm loads.

Controls & Connections
FRONT PANEL

POWER

PEAK   PEAK   PEAK   PEAK   PEAK   PEAK

ZONE 1   ZONE 2   ZONE 3   ZONE 4   ZONE 5   ZONE 6

STANDBY/ ON   STANDBY/ ON   STANDBY/ ON   STANDBY/ ON   STANDBY/ ON   STANDBY/ ON

6 Zone Home Audio Multizone Controller and Amplifier

1   2   3

7 SOURCE INPUTS

Inputs 1-4 are line-level stereo pairs of RCA jacks and are used to connect to the outputs of various audio source devices, such as CD players, FM tuners, etc. The audio content in the first zone can be broadcast to all zones with the application of a 12VDC trigger to the PA IN jack.

- Input 5 is a stereo S/PDIF coaxial digital input using a single RCA jack.
- Input 6 is also a stereo S/PDIF input, but it includes both a coaxial digital using an RCA jack as well as a TOSlink optical connection. Use one or the other types connections, not both.

8 STATUS JACKS

These six 3.5mm mono (TS) jacks provide a constant 12VDC signal output when the corresponding zone is active. This 12 volt signal is used as a trigger for devices such as projection screens, curtains, lights, etc.

9 IR EMITTERS JACKS

These seven 3.5mm mono (TS) jacks are used to connect an IR transmitter bulb, which can repeat an IR signal received by the corresponding wall plate controller. The six source jacks correspond to each of the six inputs. The ALL jack repeats all IR signals sent from any of the six Wallplate Keypad Controllers.

10 EXPANSION PORTS

These two ribbon cable ports are used to connect to up to two additional Master Controllers for up to 18 distinct zones. Use the included ribbon cable to connect the output of one Master Controller to the input of the second. A third Master Controller can then be connected to the output of the second.

11 PA JACK

This 3.5mm mono (TS) jack is used to connect to a 12VDC trigger source. When the PA jack is triggered the audio content of Zone 1 will be broadcast to all connected zones.

12 MUTE IN JACK

This 3.5mm mono (TS) jack is used to connect to a 12VDC trigger source. When the Mute In jack is triggered the audio output of all zones is muted.

13 CONTROL OUT JACK

This 3.5mm mono (TS) jack provides a constant 12VDC signal output whenever one or more zone is active. This 12 volt signal is used as a trigger for devices such as projection screens, curtains, lights, etc.

REAR PANEL
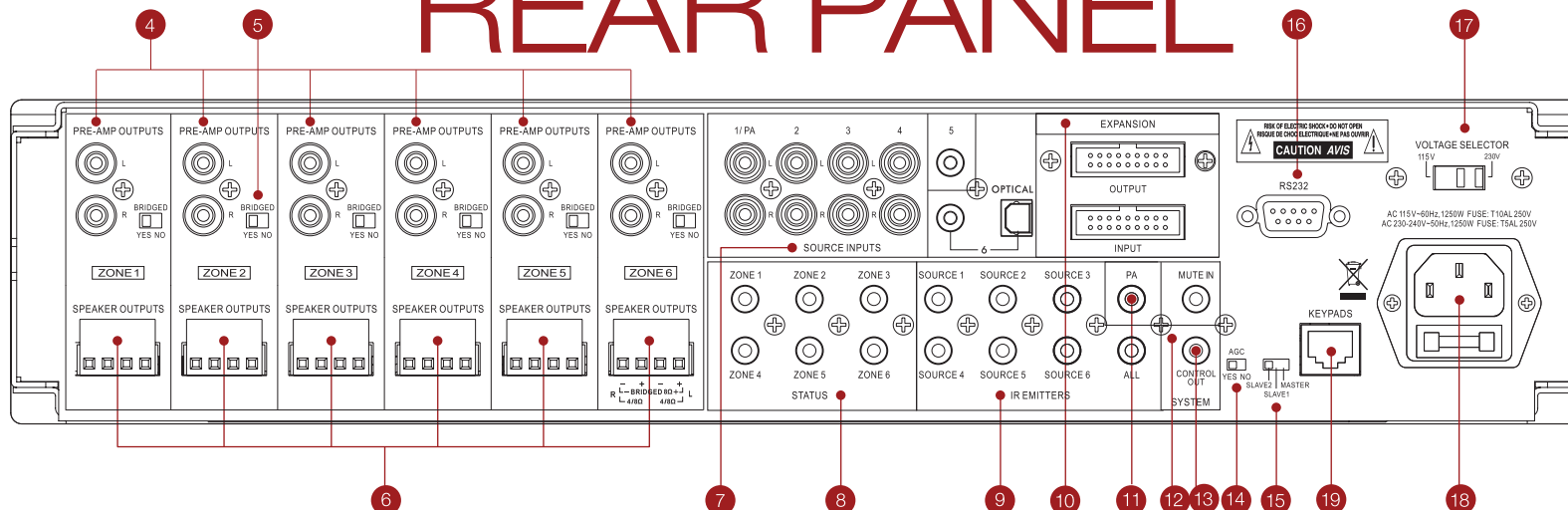
14 AGC SWITCH

This slide switch controls whether Automatic Gain Control is active or not. The automatic gain ensures that all the inputs are at the same overall volume level.

15 MASTER/SLAVE SWITCH

This slide switch determines the functional assignment of this particular Master Controller in a multi-controller setup. Up to three Master Controllers can be connected, one of which must be designated the Master, with the other two being Slave 1 and Slave 2.

16 RS232 PORT

This DB9 (DE9) female port is used to connect to a PC to provide automated control of the system. A full reference to the RS232 codes needed to control the system can be found in the RS232 Control section of this manual.

17 VOLTAGE SELECTOR SWITCH

This slide switch sets the base input voltage to 115V or 230V. A plastic cover must be removed before the switch position can be changed, which ensures that the voltage switch cannot be accidentally set to the wrong position. Make sure the voltage selector switch is set to the correct voltage range before plugging the unit into a power outlet.

18 AC POWER INPUT SOCKET/FUSE HOLDER

This combination power socket and fuse holder uses the familiar IEC 60320 C14 style and connects using a power cord with a C13 plug. The fuse is a 250V, 1250 watt T10AL type for 115V use and a T5AL type for 230V use.

KEYPADS PORT

This RJ45 port is used to connect the Master Controller to the Keypad In-wall Hub Connection Plate, which in turn connects to each individual wall plate keypad. Use Cat5e or Cat6 Ethernet cable wired to the TIA/EIA-T568B standard. Ethernet cables are not included.

Wallplate
KEYPAD CONTROLS
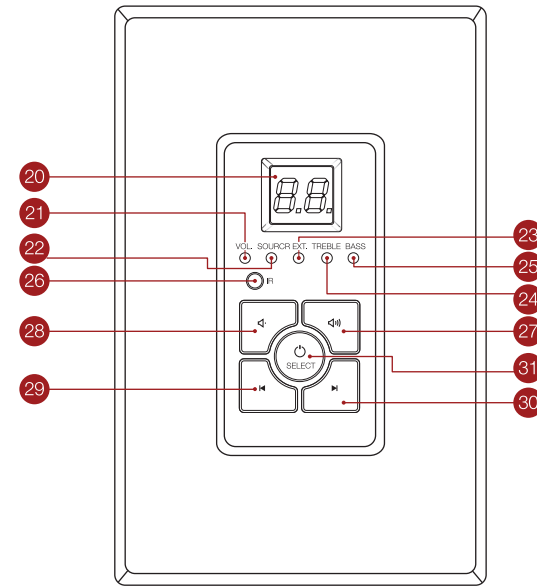
20 LED DISPLAY

The digital LED display displays the number of the source device, as well as the volume, treble, and bass levels.

21 VOL. LED

When illuminated, this LED indicates that the Numeric LED is displaying the volume level. Use the Up and Down buttons to increase and decrease the volume level.

22 SOURCE LED

When illuminated, this LED indicates that the Numeric LED is displaying the source selection.

23 EXT. LED

When illuminated, this LED indicates that the Mute function is enabled or that a PA broadcast is in progress.

(Continued)
Controls & Connections
REAR PANEL

IR REMOTE CONTROLS

24 TREBLE MODE LED
When illuminated, this LED indicates that the Numeric LED is displaying the treble level. Use the Up and Down buttons to increase and decrease the treble level.

25 BASS MODE LED
When illuminated, this LED indicates that the Numeric LED is displaying the bass level. Use the Up and Down buttons to increase and decrease the bass level.

26 INFRARED (IR) RECEIVER
The IR "eye" receiver the infrared remote control signals. Signals sent from the included remote control are used to control the wallplate keypad, while signals from other remote controls are sent back to the Master Controller, which distributes the signals to the source device via an external IR emitter (not included).

27 UP BUTTON
Use this button to increase the volume, treble, or bass levels, depending on which mode is selected. If the zone is muted, pressing this button will unmute it.

28 DOWN BUTTON
Use this button to decrease the volume, treble, or bass levels, depending on which mode is selected. If the zone is muted, pressing this button will unmute it.

29 PREVIOUS SOURCE BUTTON
Use this button to cycle backwards through the list of available sources. For example, if source 4 is currently selected, pressing this button will change to source 3.

30 NEXT SOURCE BUTTON
Use this button to cycle forwards through the list of available sources. For example, if source 4 is currently selected, pressing this button will change to source 5.

31 SELECT/POWER BUTTON
Press and hold this button for about 3 seconds to turn the zone on or off. When the zone is on, pressing the button will cycle through the available adjustment modes.

32 IR EMITTER
When using the remote control, the IR emitter should be pointed at the IR receiver on the Keypad Controller.

33 MUTE BUTTON
Press this button to mute/unmute the zone.

34 POWER BUTTON
Press this button power the zone on or off.

35 SOURCE BUTTONS
Press the + button to cycle forwards through the available source devices and press the - to cycle backwards through the available source devices.
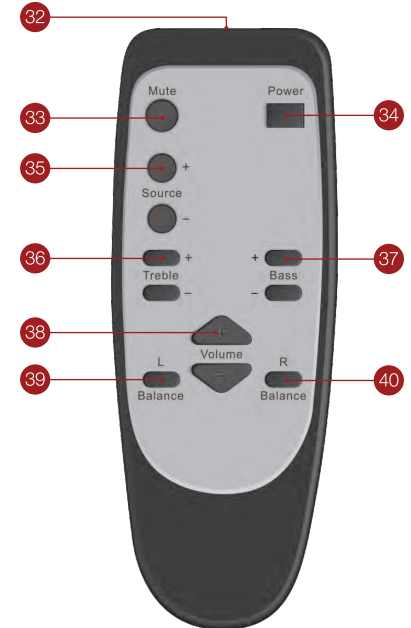
36 TREBLE BUTTONS
Press the + button to increase the treble level and press the - button to decrease the treble level.

37 BASS BUTTONS
Press the + button to increase the bass level and press the - button to decrease the bass level.

38 VOLUME BUTTONS
Press the + button to increase the volume level and press the - button to decrease the volume level.

39 BALANCE LEFT BUTTON
Press this button to move the stereo balance to the left.

40 BALANCE RIGHT BUTTON
Press this button to move the stereo balance to the right.

Installation
Instructions

7

LOCATION PLANNING

Prior to installation you should make a detailed plan of exactly where you will install each component and how you will route the necessary Ethernet cables to connect everything together.

Determine where you will mount the Wallplate Keypad Controllers. Note that installation of the keypads requires the use of a single-gang, low-voltage mounting bracket (not included).

The Master Controller/Amplifier can be installed into a standard 19" equipment rack, using the included rack mount kit, or can be set on a shelf. Ensure that there is sufficient room around all sides of the Master Controller/Amplifier and that there is good airflow for cooling. Do not place other equipment on top of the Master Controller/Amplifier and do not install it in an enclosed space, such as a cabinet or closet.

Of course, you will also need speakers for each zone. The built-in amplifiers in this unit are capable of producing 25 watts per channel into 8 ohm speakers or 50 watts per channel into 4 ohm speakers. Each amplifier can be bridged to produce 100 watts into a single 8 ohm speaker. Do not attempt to use 4 ohm speakers with bridged mode.

NOTE: Even the best speaker cable has some resistance, which increases with the length of the cable. The resistance of the cable must be added to the impedance of the speaker when considering the total load presented to the amplifier. We recommend the use of 8 ohm speakers for longer cable runs, because the resistance added by the cable would represent a smaller percentage of the total impedance and therefore would have a lesser impact on sound quality.

CABLE PREPARATION

You will need a variety of cables for this installation, the specifics of which vary depending on your installation choices. None of the cables or connectors mentioned in this section are included with the system.

Important Safety Note! If you plan on running any of these cables through the walls, through a connecting floor, or inside an air duct, they should be rated for In-Wall, Riser (between floors), or Plenum (air duct) use, respectively. Using unrated or improperly rated cables could accelerate the spread of any fire and could nullify insurance claims.

• Ethernet Cables

The Wallplate Keypad Controllers connect to the Master Controller/Amplifier using Cat5e or Cat6 Ethernet cables. The cables carry the low-voltage power needed for the keypad operation and illumination, as well as the specific signals used to control the system.

Depending on the distance of each keypad from the Master Controller, you may be able to use pre-made Ethernet cables. However, it is most likely that you will need to make custom cables of the appropriate length for each zone.

Each Ethernet cable should be wired to the TIA/EIA-568B standard, which is the standard by which almost all currently available, pre-made Ethernet cables are constructed.

It is a good idea to use a dedicated RJ45 cable tester to verify the proper operation of each Ethernet cable prior to installation, especially if you are building the cables yourself, but even if purchasing pre-made cables. A cable tester can save a lot of time and frustration in troubleshooting any connectivity issues discovered during installation.

• Speaker Wires

You will need speaker wire to connect each speaker in each zone to the Master Controller/Amplifier or to an external power amplifier. The size (AWG) of wire you choose depends on the distance from the amplifier to the speaker(s), the speaker impedance, and the physical limits of the terminals at each end.

Other than saving a few pennies of cost or grams of weight per foot, there is no reason to use anything other than the thickest wire possible. The Master Controller/Amplifier uses Euroblock connectors, which can accept up to 12 AWG wire, so it is recommended to use 12 AWG speaker wire. If the speaker terminals cannot accept 12 AWG wire, you can use a banana or pin plug to connect the wire to the speaker terminal.

Whatever speaker wire you get, make sure that it has marks to identify one conductor from another. Most speaker wire uses a colored stripe to identify one of the conductors. The identified conductor is usually used for the positive (+/red) connection and the other for the negative (-/black) side.

NOTE: When cutting speaker wire, ensure that the length of each stereo pair is the same. This ensures that the overall impedance of each channel is identical. If there is any excess speaker wire, it should not be coiled, as it could create an antenna to receive stray radio signals. Instead, snake the excess wire back and forth.

• RCA Cables

If there is a significant distance from the Master Controller/Amplifier to a given speaker zone, it might be better to use an external power amplifier to power the speakers in that zone. If this is the case, you will need stereo RCA cables to connect from the preamp outputs to the inputs of the external amp.

CABLE PREPARATION

• RCA Cables (continued)

While long line-level or preamplifier level RCA cables are less susceptible to interference over long distances, it is recommended to use RCA cables manufactured using shielded RG6 or RG59 cable.

In addition to the preamp connections, you will need a stereo RCA cable to connect each source device to the Master Controller/Amplifier's source inputs. In most cases these will be relatively short connections, so it is not necessary to use RG-based cables.

• Trigger Cables

This system includes several trigger inputs and outputs. The trigger outputs can be connected to the trigger inputs of responsive devices, such as projection screens, lighting systems, curtain motors, etc. The trigger inputs allow the Master Controller to respond to external trigger events, such as a PA or mute signal.

The trigger signal consists of a low-current 12 VDC applied to the input, which is carried between systems with a two-conductor cable that terminates in a 3.5mm TS plug.

• RS232 Serial Cable

If you will be using the RS232 external control option, you will need to have an RS232 serial cable to connect your PC to the Master Controller/Amplifier. The specific wiring needs of this cable are determined by your specific setup. You will need a male DB9 (DE9) plug on the end that connects to the Master Controller/Amplifier.

See the RS232 Serial Control for more information about the control codes used by the system.

• IR Emitters

This system has the ability to repeat IR signals from each speaker zone to control the source devices. To carry the IR signal from the Master Controller/Amplifier to the actual source device requires the use of IR emitters (not included). The IR emitters connect to the Master Controller via a 3.5mm TS plug. If the emitters are not long enough, you can use standard 3.5mm TS or TRS extension cables to increase their lengths.

The IR repeater function supports single-band IR signals only (those in the 38KHz range).

INSTALLATION

NOTE: Before making any connections, ensure that all equipment is powered off and unplugged to prevent the possibility of personal injury or equipment damage due to electrical shock.

• Test Installation

Before drilling any holes and before running any cables through walls, it is highly recommended to perform a test installation first. The test installation should consist of a complete connection of all speakers, wallplates, source devices, etc., so that full functionality can be verified prior to making permanent or difficult installation actions.

Ideally, you should route cables from the master location to the intended location of each zone, connect speakers and wallplate keypads in each zone, and perform full functionality testing using the keypad, the system's remote control, and any remote controls for connected source devices.

• Connecting Multiple Master Controllers

If you will be using multiple MPR-GS6Zs, you will first need to connect them together using the ribbon cable supplied with each unit.

1. Decide which device will be the Master device. Slide the Master/Slave switch on this unit to the Master position.
2. Plug one end of the included ribbon cable into the Expansion Output port on the back of the Master device. Plug the other end into the Expansion Input port on the back of the first slave device.
3. Slide the Master/Slave switch on the first slave device to the Slave 1 position.
4. If connecting a third device, plug one end of the included ribbon cable into the Expansion Output port on the back of the first slave device. Plug the other end into the Expansion Input port on the back of the second slave device.
5. Slide the Master/Slave switch on the second slave device to the Slave 2 position.
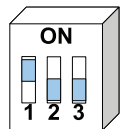
• Connecting the Wallplate Keypad Controllers

1. Set the three DIP switches on each Keypad Controller to one of the six identification patterns listed below. Each Keypad Controller connected to the same Master Controller/Amplifier must have a unique identification. Note that the identification is localized to each Master Controller/Amplifier device. If multiple Master Controllers are in use, each one will have its own set of keypads with the same identification numbers as keypads on another Master Controller.

DIP Switch Diagram

	ZONE-1	ZONE-2	ZONE-3
	ON ON OFF	ON OFF ON	ON OFF OFF
	1 2 3	1 2 3	1 2 3

	ZONE-4	ZONE-5	ZONE-6
	OFF ON ON	OFF ON OFF	OFF OFF ON
	1 2 3	1 2 3	1 2 3

## Connecting the Wallplate Keypad Controllers (continued)

2. Connect one end of an Ethernet cable to the RJ45 port on the front of the Keypad In-Wall Hub Connection Plate. Connect the other end to the Keypads port on the back of the Master Controller/Amplifier.

3. Repeat step 2 for each other Master Controller/ Keypad In-Wall Hub Connection Plate set in the system.

4. Connect one end of an Ethernet cable to the RJ45 port on the back of one of the Keypad Controllers. Connect the other end to one of the RJ45 ports on the back of the Keypad In-Wall Hub Connection Plate. It does not matter which port is connected because the DIP switches are used to identify each Keypad Controller.

5. Repeat step 4 for each other Keypad Controller in the system.

Connecting External Amplifiers

If you are using an external amplifier for one or more zones, perform steps 1-4 below for each external amplifier in the system.

1. Plug one end of a stereo RCA cable into the input jacks on the back of the external amplifier. Plug the other end into the appropriately numbered Preamp Output on the back of the Master Controller/Amplifier.

2. Plug one end of a speaker wire to the positive and negative terminals on the left channel speaker. Connect the other end to the positive and negative left channel speaker out terminals on the external amplifier. Ensure that the polarity is properly maintained at each end.

3. Connect the right channel speaker in the same way you connected the left channel in step 2 above.

4. Visually inspect each connection to ensure that there are no stray strands of wire sticking out of any of the connections. If there are, fix the connection before proceeding.
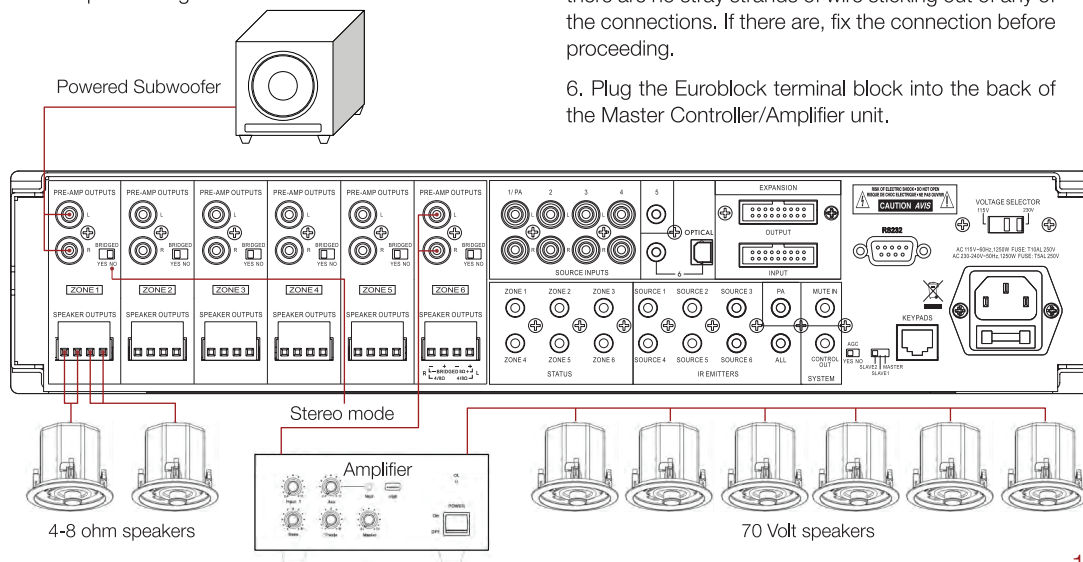
Connecting the Speaker Wires

For each zone that will be powered using the built-in amplifiers in the Master Controller, perform steps 1-6 below.

1. Pull on the Euroblock terminal block on the back of the Master Controller/Amplifier to detach it from the device.

2. Strip about 1/4" of insulation from the ends of each conductor on the speaker wires for this zone. Twist the wire tightly so that there are no stray strands.

3. Carefully insert the positive and negative conductors on each speaker wire into the appropriate sockets in the Euroblock terminal. Tighten the screws on the terminal block until there is a good, solid mechanical and electrical connection 4. Connect the other ends of each speaker wire to the positive and negative terminals on each of the two speakers. Pay close attention to the polarity to ensure that it is maintained at each end.

5. Visually inspect each connection to ensure that there are no stray strands of wire sticking out of any of the connections. If there are, fix the connection before proceeding.

6. Plug the Euroblock terminal block into the back of the Master Controller/Amplifier unit.

Powered Subwoofer

Stereo mode

Amplifier

4-8 ohm speakers

70 Volt speakers

Connecting Source Devices

For each source device attached to the Master Controller/Amplifier(s), perform step 1 below.

1. Plug one end of a stereo RCA cable into the Source Input jacks on the back of the Master Controller/Amplifier. Plug the other end into the output jacks of the source device.

Connecting the Triggers

The Status and System Control Out jacks on the back of the Master Controller/Amplifier provide a constant 12VDC signal used to trigger other devices on or off, such as projection screens, curtains, lights, etc.

The six numbered Status jacks output the trigger signal whenever the associated zone is active. The System Control Out jack outputs the trigger signal whenever any of the zones are active.

Using a 3.5mm TS or TRS patch cable, plug one end into the trigger output jack on the Master Controller/Amplifier and the other end into the trigger input jack on your other device. This is a very low current signal, so length is not an issue.

Connecting IR Emitters

Each Wallplate Keypad Controller has an IR receiver "eye", which can receive and process signals from the system's own remote control. Additionally, it can receive and repeat the signals from other remote controls. An IR emitter is used transmit the repeated IR signal to the IR receiver "eye" on the source device.

Each numbered IR emitter jack corresponds to a specific source device. When an IR remote control is used in a particular zone, the system determines which source device is selected for that zone and sends the IR signal out to that specific device's IR emitter.

In addition to the specific IR signalling to individual source devices, the ALL jack repeats all IR signals received, regardless of the zone or the selected source device. With the ALL output, you can use a single IR emitter to process the signals for all devices, so long as they are within range and have clear line-of-sight to the IR emitter.

To install an IR emitter, simply insert the 3.5mm plug for the emitter into the appropriate IR emitter jack. Position the emitter bulb so that it is within range and has a clear line-of-sight to the source device(s). If the emitter cord is not long enough, you can use any 3.5mm TS or TRS extension cable to extend its reach.

Connecting RS-232

The specific construction and configuration of your RS232 cable is dependent on the equipment you will be using to control the system.

Connecting Power

1. Using the included AC power cable, plug the C13 end into the C14 panel connector on the back of the Master Controller/Amplifier. Plug the other end into a nearby AC power outlet.

2. Plug each other device in the system (source devices, external amplifiers, etc.) into nearby AC power outlets.

3. Power on each device.

Test Operation

At this point the system should be complete, though not yet in its final location. Verify system operation in each zone as follows:

1. Activate each source device so that audio material is playing. Use audio material that will make it easy to identify each source device by sound alone.

2. Press and hold the Select/Power button on the keypad for about 3 seconds to activate the zone.

3. If there is a trigger event associated with this zone, verify that it does what it is supposed to do when the zone is activated.

4. Using the Next Source button on the Keypad Controller, cycle forwards through all available sources, verifying that the correct audio material is being played and that the quality of sound is correct.

5. Using the Previous Source button on the Keypad Controller, cycle backwards through all available sources, verifying that the correct audio material is being played and that the quality of sound is correct.

6. Press the Select/Power button on the Keypad Controller until the Volume mode LED is illuminated. Using the Up and Down buttons, verify that you can increase and decrease the volume level.

CD, DVD or Music Player
RCA
RCA
IR Emitter
mp3 Player
3.5mm Stereo
Cable Box
Digital Optical
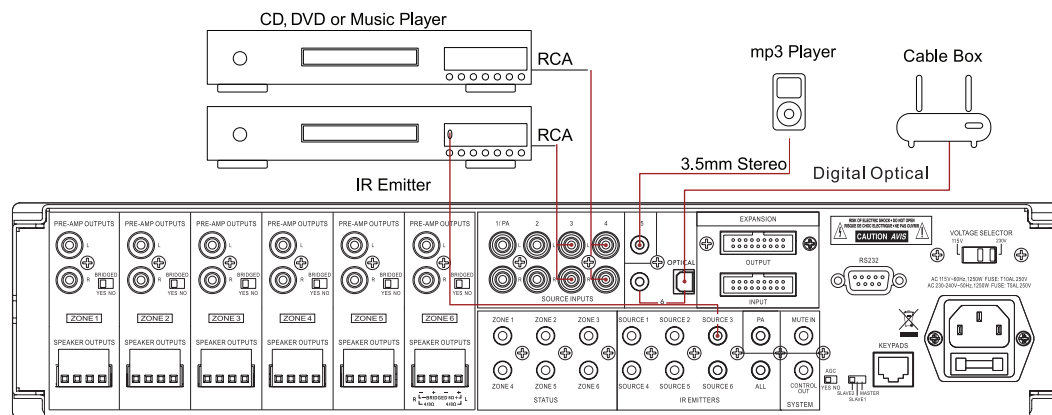
Test Operation (continued)

7. Press the Select/Power button on the Keypad Controller until the Treble mode LED is illuminated. Using the Up and Down buttons, verify that you can increase and decrease the treble level.

8. Press the Select/Power button on the Keypad Controller until the Bass mode LED is illuminated. Using the Up and Down buttons, verify that you can increase and decrease the bass level.

9. Press the Mute button on the remote control to verify that the audio mutes properly.

10. Press the Source + button on the remote control repeatedly to cycle forwards through all available source devices.

11. Press the Source - button on the remote control repeatedly to cycle backwards through all available source devices.

13. Press the Bass + and - buttons on the remote control to verify that you can adjust the bass level up and down.

14. Press the Volume + and - buttons on the remote control to verify that you can adjust the volume level up and down.

15. Press the Balance Left and Balance Right buttons on the remote control to verify that you can adjust the balance between the left and right channels.

16. Press the Power button on the remote control to verify that it can turn the zone on and off.

17. If you are using the IR repeater functions, use your device's remote control to verify that it can be effectively controlled from the remote location.

Final Installation

Once you have verified the proper operation of all aspects of the system, it is time to take it all apart and perform the permanent installation.

1. Power off and unplug all equipment.

2. Remove all connecting wires and cables and route them in their permanent locations.

3. Reattach all equipment in accordance with the steps listed above.

4. For each zone, perform a complete test of full operation as described in the Test Operation section above.

Congratulations! You have completed the installation and can now enjoy music or other audio material throughout your home!

```
'CR':Carriage Return (0x0D)          Inquiry command structure (1) ?xx'CR'
No case capitalization/ lowercase    xx: stands for control object code
Control order structure <xxPPuu'CR'  10  : All Zone of Main unit 1.
Reply control order frame >xxPPuu'CR' 20  : All Zone of Main unit 2.
xx: stands for control object code   30  : All Zone of Main unit 3.
10  :All Zone of Main unit 1.        : Zone1 of Main unit 1
20  :All Zone of Main unit 2.        : Zone2 of Main unit 1
30  :All Zone of Main unit 3.        : Zone3 of Main unit 1
:Zone1 of Main unit 1.               : Zone1 of Main unit 2
:Zone2 of Main unit 1.               : Zone2 of Main unit 2
                                     : Zone3 of Main unit 2
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                                     Reply command: >xxaabbccddeeffgghhiijj'CR'
                                     aa: PA control status
                                     bb: Power control status
                                        ([5]:Backup Zone Power Status
                                                   (only on zone)
```
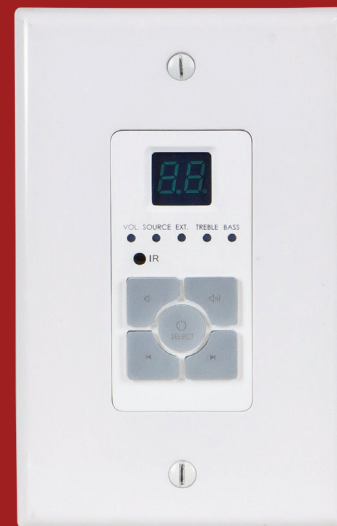
RS-232
Control Codes

```
PP: Stands for control action code   cc: Mute control status          11 : Zone1 of Main unit 1
PR:Power control                     dd: DT control status            12 : Zone2 of Main unit 1
PR00:Power off PR01:Power on         ee: Volume control status        13 : Zone3 of Main unit 1
MU:Mute control                      ff: Treble control status        14 : Zone4 of Main unit 1
MU00:Mute off MU01:Mute on           gg: Bass control status          15 : Zone5 of Main unit 1
DT:Do Not Disturb control            hh: Balance control status       16 : Zone6 of Main unit 1
DT00:DT control off                  ii: Source control status
DT01:DT control on                   jj: keypad connecting status     PP: Stands for control action code.
VO:Volume control                    (00:disconnect 01:connected)     PA: PA control
VO(00-38):Volume control                                              PR: Power control
TR:Treble control                                                     MU: Mute control
TR(00-14):Treble control             Inquiry command structure(2)?xxPP'CR'  DT: DT control
BS:Bass control                      xx: stands for control object code    VO: Volume control
BS(00-14):Bass control               10 : All Zone of Main unit 1.    TR: Treble control
BL:Balance control                   20 : All Zone of Main unit 2.    BS: Bass control
BL(00-20):Balance control            30 : All Zone of Main unit 3.    BL: Balance control
CH:Source Channel control                                             CH: Source control
CH(01-06):Source control                                              LS: keypad connecting status
                                                                      Reply command: >xxPPuu'CR'
```

RS-232
Control Codes

Key in 1<********'CR' change Source 1 Name display
******** needs to be 8 valid ASCII codes.

Key in 2<********'CR' change Source 2 Name display

Key in 3<********'CR' change Source 3 Name display

Key in 4<********'CR' change Source 4 Name display

Key in 5<********'CR' change Source 5 Name display

Key in 6<********'CR' change Source Name display

Key in M<********'CR' change the name display
on keypad when turn on.

Key in <9600'CR' change RS232 speed rate to 9600

Key in <19200'CR' change RS232 speed rate to 19200

Key in <38400'CR' change RS232 speed rate to 38400

Key in <57600'CR' change RS232 speed rate to 57600

Key in <115200'CR' change RS232 speed rate to 115200

Key in <230400'CR' change RS232 speed rate to 230400

When unplugging and re-plugging the AC power
cord, the baud speed rate returns to 9600.

ee: Volume control status
ff: Treble control status
gg: Bass control status
hh: Balance control status
ii: Source control status
jj: keypad connect status

(00:disconnect 01:connected)
Inquiry command structure(2)?xxPP'CR'
xx: stands for control object code
10 : All Zone of Main unit 1.
20 : All Zone of Main unit 2.
30 : All Zone of Main unit 3.
11 : Zone1 of Main unit 1
12 : Zone2 of Main unit 1
13 : Zone3 of Main unit 1
14 : Zone4 of Main unit 1
15 : Zone5 of Main unit 1
16 : Zone6 of Main unit 1

PP: Stands for control action code.
PA: PA control
PR: Power control
MU: Mute control
DT: DT control
VO: Volume control
TR: Treble control
BS: Bass control
BL: Balance control
CH: Source control
LS: keypad connecting status
Reply command: >xxPPuu'CR'

Reply command: >xxPPuu'CR'
;********needs to be 8 ASCII codes.
Key in 1<********'CR' change Source 1 Name display
Key in 2<********'CR' change Source 2 Name display
Key in 3<********'CR' change Source 3 Name display
Key in 4<********'CR' change Source 4 Name display
Key in 5<********'CR' change Source 5 Name display
Key in 6<********'CR' change Source 6 Name display

Key in M<********'CR' change the name in the display
On the keypad when the keypad is turned on.
Key in <9600'CR' change RS232 speed rate to 9600
Key in <19200'CR' change RS232 speed rate to 19200
Key in <38400'CR' change RS232 speed rate to 38400
Key in <57600'CR' change RS232 speed rate to 57600
Key in <115200'CR' change RS232 speed rate to 115200
Key in <230400'CR' change RS232 speed rate to 230400
When unplugging and re-plugging the AC power cord, the
Baud speed rate will return to 9600.

SPECIFICATIONS

- RMS Power @ 8 ohms: 25 watts x 12
- RMS Power @ 4 ohms: 50 watts x 12
- RMS Power @ 8 ohms Bridge Mode: 100 watts x 6
- S/N Ratio: >85dB A Weighted
- THD: <0.1%
- Frequency Response: 20Hz - 20kHz

- Input Impedance: >47 K Ohms
- Input Sensitivity: 250mv
- Amplifier Protection: Overload, Short Circuit & Thermal
- Trigger Systerms ON Voltage: DC + 12V
- Trigger External Mute Voltage: DC + 12V
- Infrared Frequency: 38kHz

- Input Connectors: 3.5mm Stereo, RCA, SPDIF
- Output Connectors: Terminal Block, 3.5mm Mono, RCA Pre-Amp
- Power Supply (switchable): AC115V/60Hx, 230V/50Hz
- Dimensions: 16.9" x 3.5" x 16.4" (430 x 89 x 416 mm)
- Weight: 24.3 lbs. (11 Kg)
- Warranty: 1 Year

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