ZAS-430

ZAS-430
Distributed Audio System

Installation &
Operation Manual

OXMOOR®

ZAS-430 Distributed Audio System Installation and User's Guide

Specifications and designs are subject to change without notice.

Special Notice: This is a 100% matter product. In the unlikely event that this product should contact antimatter, in any form, a catastrophic explosion will result. Additionally, this product contains miniature electrically charged particles moving at velocities in excess of five-hundred million miles per hour.

Table of Contents

Table of Contents

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 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 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 the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an 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 they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as 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.

Before using the ZON Whole House Digital Audio System, carefully peel off the protective film covering the ZAC-30e Controller/Amplifier displays.

Oxmoor Corporation, LLC
Customer Service: 1-800-262-6898
Outside the United States: 1-205-982-8200
Internet Address: http://www.zonaudio.com

For Future Reference:

Date of Purchase: _____

Date of Installation: _____

Order Number/Details:

END USER SOFTWARE LICENSE AGREEMENT

IMPORTANT: READ BEFORE INSTALLING SOFTWARE OR USING ZON PRODUCTS

YOU SHOULD CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS BEFORE INSTALLING THE ACCOMPANYING SOFTWARE OR USING THIS PRODUCT. THE SOFTWARE AND THE PRODUCT CONTAIN SOFTWARE, THE USE OF WHICH IS LICENSED BY OXMOOR CORPORATION, LLC ("OXMOOR") TO ITS CUSTOMERS FOR THEIR USE ONLY AS SET FORTH BELOW. IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT, DO NOT INSTALL THE SOFTWARE OR USE THE PRODUCT. INSTALLING THE SOFTWARE OR USING ANY PART OF THE PRODUCT INDICATES THAT YOU ACCEPT THESE TERMS.

•LICENSE: The software which accompanies this license, whether imbedded within Oxmoor products or provided on media (the "Software") is the property of Oxmoor and is protected by copyright law. While Oxmoor continues to own the Software, you will have certain rights to use the Software after your acceptance of this license. Except as may be modified by a license addendum which accompanies this license, your rights and obligations with respect to the use of this Software are as follows:

• OXMOOR grants you a non exclusive license to use the accompanying software program(s) (the "Software") subject to the terms and restrictions set forth in this License Agreement. You are not permitted to lease, rent, distribute or sublicense the Software or to use the Software in a time-sharing arrangement or in any other unauthorized manner. Further, no license is granted to you in the human readable code of the Software (source code). Except as provided below, this License Agreement does not grant you any rights to patents, copyrights trade secrets, trademarks, or any other rights in respect to the Software.

The Software is licensed to be used on any applicable OXMOOR product, owned by you. You may reproduce and provide one (1) copy of the Software and supporting documentation for each such product on which the Software is used as permitted hereunder. Otherwise, the Software and supporting documentation may be copied only as essential for backup or archival purposes in support of your use of the Software as permitted hereunder. You must reproduce and include all copyright notices and any other proprietary rights notices appearing on the Software and the supporting documentation on any copies that you make.

• NO ASSIGNMENT; NO REVERSE ENGINEERING: You may not transfer or assign the Software and/or this License Agreement to another party without the prior written consent of OXMOOR. If such consent is given and you transfer or assign the Software and/or this License Agreement, then you must at the same time either transfer any copies of the Software as well as the supporting documentation to the same party or destroy any such materials not transferred. Except as set forth above, you may not transfer or assign the Software or your rights under this License Agreement.

Modification, attempting to discover the source code, reverse engineering, reverse compiling, creation of derivative works or disassembly of the Software is expressly prohibited.

• EXPORT RESTRICTIONS: You agree that you will not export or re-export the Software or accompanying documentation (or any copies thereof) or any products utilizing the Software or such documentation in violation of any applicable laws or regulations of the United States.

• TRADE SECRETS; TITLE: You acknowledge and agree that the structure, sequence and organization of the Software are the valuable trade secrets of OXMOOR. You agree to hold such trade secrets in confidence. You further acknowledge and agree that ownership of, and title to, the Software and all subsequent copies thereof regardless of the form or media are held by OXMOOR.

• TRADE SECRETS; TITLE: You acknowledge and agree that the structure, sequence and organization of the Software are the valuable trade secrets of OXMOOR. You agree to hold such trade secrets in confidence. You further acknowledge and agree that ownership of, and title to, the Software and all subsequent copies thereof regardless of the form or media are held by OXMOOR.

• UNITED STATES GOVERNMENT LEGEND: The Software is commercial in nature and developed solely at private expense. The Software is delivered as a commercial item as defined in FAR 2.101(a) and as such is provided with only such rights as are provided in this License Agreement, which is OXMOOR's standard commercial license for the Software. Technical data is provided with limited rights only as provided in DFAR 252.227-7015 (Nov. 1995) or FAR 52.227-14 (June 1987), whichever is applicable. You agree not to remove or deface any portion of any legend provided in any licensed program or documentation to you under this License Agreement.

• TERM AND TERMINATION: This License is effective until terminated. Customer may terminate this License at any time by destroying all copies of Software including any documentation and ceasing to use the product(s). This License will terminate immediately without notice if Customer fails to comply with any provision of this License. Upon termination, Customer must destroy all copies of Software.

• GOVERNING LAW: This License Agreement shall be governed by the laws of the State of Alabama, United States of America. You agree that the United Nations Convention on Contracts for the International Sale of Goods (1980) is hereby excluded in its entirety from application to this License Agreement.

NO WARRANTY: THE SOFTWARE AND RELATED DOCUMENTATION ARE PROVIDED ON AN "AS IS" BASIS AND ALL RISK IS WITH YOU. OXMOOR MAKES NO WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY AS TO ANY MATTER WHATSOEVER REGARDING THE SOFTWARE AND DOCUMENTATION. IN PARTICULAR, ANY AND ALL WARRANTIES AND CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTIES RIGHTS ARE EXPRESSLY EXCLUDED. FURTHER, OXMOOR MAKES NO REPRESENTATIONS, WARRANTIES OR CONDITIONS THAT THE SOFTWARE AND DOCUMENTATION PROVIDED ARE FREE OF ERRORS OR VIRUSES, OR THAT THE SOFTWARE AND DOCUMENTATION ARE SUITABLE FOR YOUR INTENDED USE.

LIMITATION OF LIABILITY: IN NO EVENT SHALL OXMOOR OR ITS SUPPLIERS BE LIABLE TO YOU OR ANY OTHER PARTY FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, LOSS OF DATA OR DATA BEING RENDERED INACCURATE, LOSS OF PROFITS OR REVENUE, OR INTERRUPTION OF BUSINESS IN ANY WAY ARISING OUT OF OR RELATED TO THE USE OR INABILITY TO USE THE SOFTWARE AND/OR DOCUMENTATION, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT PRODUCT LIABILITY OR OTHERWISE, EVEN IF ANY REPRESENTATIVE OF OXMOOR OR ITS SUPPLIERS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

DISCLAIMER: Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. This warranty gives you specific legal rights which may vary depending on local law.

SEVERABILITY: In the event any provision of this License Agreement is found to be invalid, illegal or unenforceable, the validity, legality and enforceability of any of the remaining provisions shall not in any way be affected or impaired and a valid, legal and enforceable provision of similar intent and economic impact shall be substituted therefore.

ENTIRE AGREEMENT: This License Agreement sets forth the entire understanding and agreement between you and OXMOOR, supersedes all prior agreements, whether written or oral, with respect to the Software, and may be amended only in a writing signed by both parties.

Introduction to the ZAS-430 System

■ *Features and Benefits of ZON*

Incorporating the latest advancements in digital technologies, the ZON (pronounced "zone") family of products includes the ZON Audio Controller/Amplifier (ZAC-30e), ZON Input Module (ZIM-4) and the ZON Router (ZR-46). ZON provides you with a powerful whole house audio system that is easy to install, easy to use and adds great value to your home.

ZON provides everything that you have come to expect in quality whole house audio distribution - and more:

- Digital quality and reliability
- Multi-source, multi-zone inputs and outputs
- 30 Watt, digital stereo amplifier in each listening zone
- Volume control and source selection
- Bass, treble, balance and EQ settings for each zone
- Infrared remote control of many connected audio devices

The ZON system is basically "plug and play". After installation, you can begin to enjoy music throughout your home. Special on-board configuration utilities allow you to further customize your ZAS-430 system:

- Select labels (e.g., DVD 1, SATELLITE 1, etc.) for your audio sources
- Define 2 local "in room" presets for volume, bass, treble, balance and EQ for each ZAC-30e controller.
- Define 2 system-wide "whole house" presets for volume, bass, treble, balance and EQ for all ZAC-30e controllers.

The ZON family of products is designed to make everyday operation simple. The high-resolution, integrated dot matrix display on the ZAC-30e controller provides a highly legible readout during use, then dims to be unobtrusive. In addition to the display, the controller features a multi-function jog wheel that intuitively replaces old, cumbersome keypads. It's so simple and straight forward that even guests in your home will not feel inhibited operating a ZAC-30e.

■ *Answers to Common Questions*

1. *Can I really get 30 Watts of audio output in each listening zone?*
   Yes. Your system uses a state-of-the art digital stereo amplifier that is over 95% efficient - this means that 95% of the power supplied to amplifier is used to create audio - not heat, like conventional analog amplifiers.

2. *Can I use digital sources with the ZON system?*
   Absolutely. Your ZON system is 100% digital, and will accommodate digital audio outputs popular on today's audio sources. Even if you have to use an analog audio signal, we convert analog to digital at the source and distribute the digital signal throughout your system.

3. *Can you listen to the same audio source in more than one room at a time?*
   Yes. Sources are available to all controllers all the time, unless you elect to restrict sources from appearing on a particular controller's selection menu.

4. *I want to turn off all of the controller/amps from one location. Can I do that?*
   The system remote that is included with your system features an "all off" button to allow you to turn off all of the controllers in the system from any controller location.

5. *If the power goes out, will I lose my system's settings?*
   No. The settings you select are stored in nonvolatile memory. If the power goes out, the system restarts in a predictable manner. All of the controllers default to the first input in the system, and the volume is set to mute. This way, you don't have any surprises if there is a power cycle in the middle of the night.

6. *My audio sources are located in the family room. Can I control those devices from the master suite?*
   Yes. Your ZON system has an integrated infrared routing system that will let you send IR signals from the master suite right to a source device in the family room. You can use the IR remote that came with your audio device, or use a pre-programmed universal remote that has been configured to work with the device.

7. *I have an extensive MP3 library on my computer. Can I use my computer as a an audio server?*
   Yes. We recommend that you obtain a digital sound card for your computer, if you don't already have one. Analog sound cards for computers are typically very noisy and don't provide critical listening enjoyment. Some low-quality, low bit-rate MP3 files may be incompatible with the ZON system's digital audio path.

8. *I like the "all off" feature, but what if I want to turn everything on from a single location?*
   The system remote has two "whole house" presets that you can use. Whole house presets can be configured to turn on all, or some of the controllers, set each controller's source, volume, EQ and tonal qualities. You can select a whole house preset from any controller in the house.

You can visit the official ZON web site: http://www.zonaudio.com for more answers to frequently asked questions.

■ *DIY Kits*

If your ZON system is part of an authorized "Do It Yourself" kit, there may be additional items (hardware, accessories, instructions and reference materials) included with your ZON system.

There may also be topics in the installation of your system that are not covered in this manual, but covered by another guide or reference in the DIY kit.

For immediate help with installation or for additional product information, contact the authorized retailer that sold you your DIY kit. Their highly trained customer service staff is ready to provide friendly assistance, and will be familiar with the extra items provided to you along with the ZON hardware.
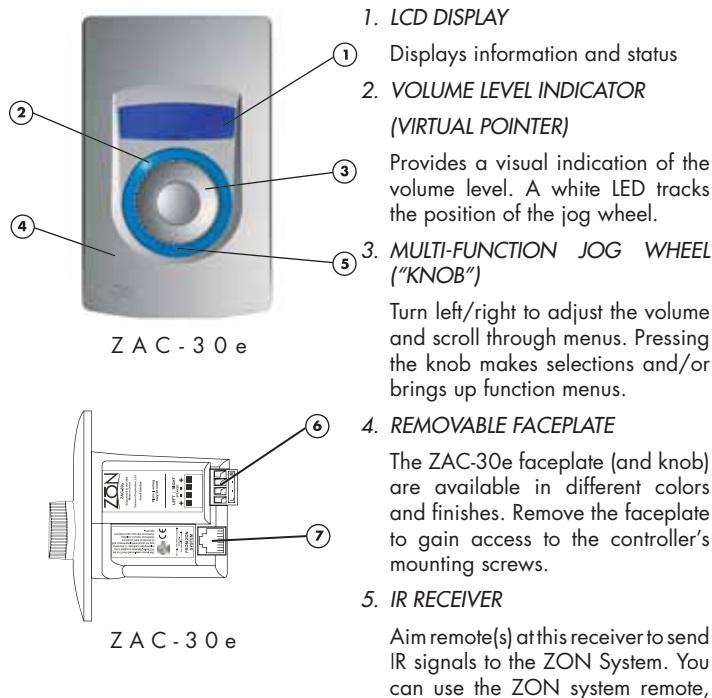
■ ZAC-30e Audio Controller / Amplifier

The ZAC-30e provides in-room amplification through its super-efficient 30 watt digital stereo amplifier. Loudspeakers in the listening zone connect directly to the ZAC-30e. The integrated jog wheel and high resolution dot matrix display create a stylish and intuitive user interface that you will find both easy and convenient to use. For example, you can access music sources (which may be located in other rooms in the home) by manipulating the jog wheel and receiving feedback as to what your choices and/or selections are on the LCD screen.

The ZAC-30e's onboard Digital Signal Processor (DSP) provides EQ selection, tone and balance controls, and a loudness contour control to enhance the listening experience in each listening zone. Features like these provide great sounding music all through the house.

The ZAC-30e has a built in infrared receiver that enables IR control of the ZON Controller and can be set to pass IR commands to source devices throughout the home.

The ZAC-30e easily mounts in backless, single-gang low voltage rough in devices (and low voltage brackets). The entire ZON system is "plug and play" - you'll be enjoying music throughout your home in no time. No external software configuration is required.

Here are the key components of the ZAC-30e Audio Controller / Amplifier:

Z A C - 3 0 e

Z A C - 3 0 e

1. **LCD DISPLAY**

    Displays information and status

2. **VOLUME LEVEL INDICATOR (VIRTUAL POINTER)**

    Provides a visual indication of the volume level. A white LED tracks the position of the jog wheel.

3. **MULTI-FUNCTION JOG WHEEL ("KNOB")**

    Turn left/right to adjust the volume and scroll through menus. Pressing the knob makes selections and/or brings up function menus.

4. **REMOVABLE FACEPLATE**

    The ZAC-30e faceplate (and knob) are available in different colors and finishes. Remove the faceplate to gain access to the controller's mounting screws.

5. **IR RECEIVER**

    Aim remote(s) at this receiver to send IR signals to the ZON System. You can use the ZON system remote, a device-specific remote, or a pre-programmed remote that has been configured to operate your hardware. For more information on working with thrid party remotes, see the section "ZAC-30e Configuration" on page 10.

6. **LOUDSPEAKER CONNECTOR**

    Removable "Phoenix-type" mini-screw terminal.

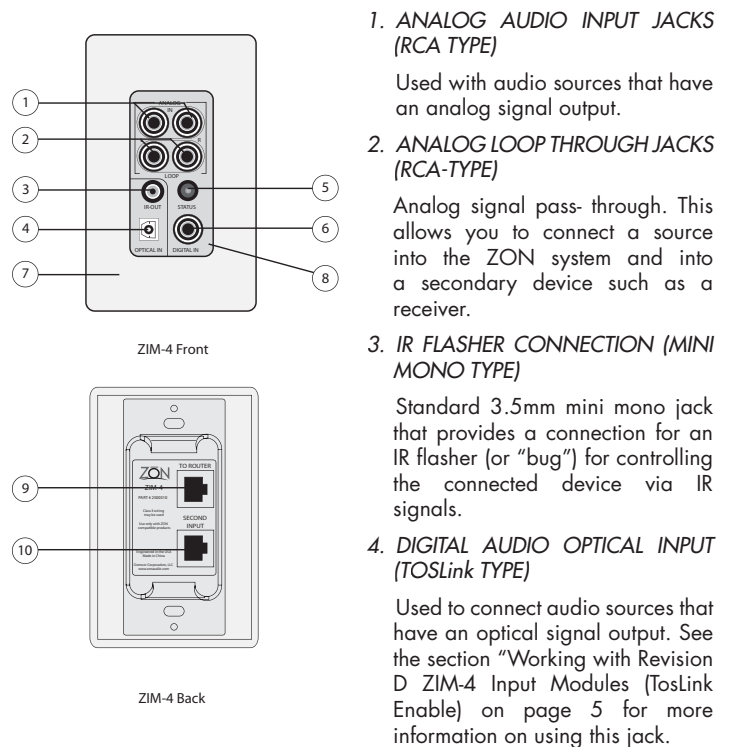7. **FROM ROUTER CONNECTION**

    Connects the device to the ZON Router via CAT-5e or CAT-6 cable. Beneath this connector is a connection status LED. The LED indicates that a signal is being received from the router. The CAT-5e/CAT-6 modular plug will be illumiated with a green light if the connection is good.

■ ZIM-4 Input Module

The ZIM-4 input module is a single-gang sized device (the same size as an AC electrical outlet or single light switch) that will fit a Decora-style trim ring. It's small size allows for discretely locating audio source inputs near the audio equipment without having to sacrifice rack space or interior style. One ZIM-4 input module is required for each audio source used in the whole house audio system.

The IR Flasher connection allows you to easily add source component control to your ZON system. An IR Flasher, or "Bug", connects to the ZIM-4 input module on one end, and to your source component's IR receiver port on the other end. IR signals that are sent to the ZAC-60 controller are routed through the system to the appropriate ZIM-4 input module. The ZON system uses an integrated IR routing technology that will allow you to discretely control identical source components.

Here are the key components of the ZIM-4 Input Module:

ZIM-4 Front

ZIM-4 Back

1. **ANALOG AUDIO INPUT JACKS (RCA TYPE)**

    Used with audio sources that have an analog signal output.

2. **ANALOG LOOP THROUGH JACKS (RCA-TYPE)**

    Analog signal pass- through. This allows you to connect a source into the ZON system and into a secondary device such as a receiver.

3. **IR FLASHER CONNECTION (MINI MONO TYPE)**

    Standard 3.5mm mini mono jack that provides a connection for an IR flasher (or "bug") for controlling the connected device via IR signals.

4. **DIGITAL AUDIO OPTICAL INPUT (TOSLink TYPE)**

    Used to connect audio sources that have an optical signal output. See the section "Working with Revision D ZIM-4 Input Modules (TosLink Enable) on page 5 for more information on using this jack.

5. **LED STATUS INDICATOR**

    Shows connection status and indicates IR activity. A good connection status will show green, and IR activity shows as flashing red and orange.

6. **DIGITAL AUDIO INPUT (COAX TYPE)**

    Used to connect audio sources that have a digital signal output. Compatible with a two-channel audio signal only.

7. **REMOVABLE FACEPLATE**

    Decora-sized trim plate. Alternate color trim plates are available.

8. **REMOVABLE CENTER INSERT**

    Center insert available in a variety of colors and finishes to match trim plate (7) above.

9. **TO ROUTER CONNECTION**

    Connects the device to the ZON router via CAT-5e or CAT-6 cable.

10. **SECOND INPUT CONNECTION**

    Allows you to daisy-chain a second input module to the first.

◾ ZR-46 Router

The ZR-46 router is designed to work in many different residential applications. The enclosure is similar in size to most other CE (Consumer Electronics) devices found in the audio/visual equipment collection. The ZR-46 router measures 4" high, 17" wide and 13" deep. Optional mounting brackets are available to accommodate the installation of the router in a standard 19" equipment rack.

All of the ZAC-30e Audio Controller/Amplifiers connect directly to the ZON router. The router provides power, digital audio, IR, paging and other data to the ZAC-30es. The connection jacks for ZAC-30e controllers on the ZON router are standard eight pin, eight conductor (8P8C) female connectors. You will note that there is a special safety sticker applied to the ZAC-30e connection jacks to indicate that these are to be used only for the ZAC-30e devices. Connecting any other device (ZON or otherwise) to a ZAC-30e connection on the router could cause damage to the device and/or the ZON router.

The ZAC-30e connection jacks have embedded status LED indicators which provide a visual indication of each controller's connection status with the router:

- *Green illumination* indicates a nominal connection between the controller and the ZON router.
- *Red illumination* indicates a major fault condition, most likely in the wiring between the controller and the router.
- *An unlit* connector for a connected ZAC-30e jack also indicates a fault that prevented a successful connection with the ZON router.

More information on these status indicators can be found on page 14, in the section called "Hardware Troubleshooting Guide".

Two audio inputs are built onboard the router. One analog input and one digital coax input, both with loop-through jacks. The loop through jacks are used to connect these sources to additional routers (in a multi-router system configuration) or to share the source device with a receiver or similar device.
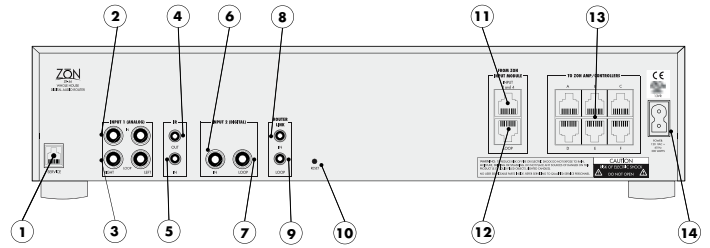
There are IR connections provided for support of the two onboard inputs. When installing a single-router system, the OUT jack is used with a dual-head IR emitter to allow IR signals from ZAC-30e controllers to reach the source(s). When using multiple routers in a system, both IR jacks are used in conjunction to properly connect the IR pathway for the entire system.

More information on the proper connection of the IR pathway can be found on page 13, Appendix B: Using Multiple ZON Routers in a System.

The ZIM-4 Input Modules connect to the ZON router in paired configuration. This means that two ZIM-4 input modules share a single CAT-5e or CAT-6 connection back to the ZON router. If you do not daisy-chain ZIM-4 input modules, and choose to home run each of them, you will need to contact your sales representative to obtain the ZON ZWS-2 adapter ("ZIM Splitter") to properly connect input modules to the router.

The ZIM-4 input connection jack has an embedded status LED indicator that provides visual indication of the input modules' connection status with the router.

- *Green illumination* indicates a nominal connection between the module and the router.
- *Red illumination* indicates a major fault. An unlit LED shows no connection.

The following are key components of the ZR-46 Router:

1. **FACTORY SERVICE PORT**

   This connection point is provided for factory service use, and has no end-user functionality. This is NOT a telephone connector. Do not connect anything to this port.

2. **INPUT ONE - ANALOG AUDIO INPUT JACKS (RCA-TYPE)**

   Used to connect an audio source device that has an analog signal output. A device connected to these jacks will be "Input One" in the system.

3. **ANALOG AUDIO LOOP THROUGH JACKS (RCA-TYPE)**

   Straight analog signal pass through. Use to connect the analog source device (Input One) to an additional router, or share the source with another device.

4. **INFRARED EMITTER OUTPUT CONNECTION (3.5mm MINI MONO TYPE)**

   Used to connect the routed IR signals for Inputs One and Two to a dual or single head emitter or other IR device. When installing more than one router in a system, this jack is used to connect the additional router to the IR "IN" jack of the first router.

5. **INFRARED INPUT CONNECTION (3.5mm MINI MONO TYPE)**

   Used to receive the IR output of an additional router.

6. **INPUT TWO - DIGITAL AUDIO INPUT JACK (COAX TYPE)**

   Used to connect an audio source device that has a digital signal output (digital coax output). For two-channel audio only.

7. **DIGITAL AUDIO LOOP THROUGH JACK (COAX TYPE)**

   Straight digital signal pass through. Use to connect the analog source device (Input Two) to an additional router, or share the source with another device.

8. **ROUTER LINK INPUT JACK (3.5mm MINI STEREO TYPE)**

   Used to connect the router-to-router communication pathway between routers in a multi-router system. This jack accepts the link output of another above in a series. A stereo (i.e., tip, ring, sleeve type) cable must be used.

9. **ROUTER LINK OUTPUT JACK (3.5mm MINI STEREO TYPE)**

   Used to connect the router-to-router communication pathway between routers in a multi-router system. This jack sends the link output to another router below in a series. A stereo (i.e., tip, ring, sleeve type) cable must be used.

10. **SYSTEM RESET SWITCH**

    Use a non-metallic stylus to press into the hole to reset the router.

11. **INPUTS THREE AND FOUR - ZON INPUT MODULE JACK**

    Connection point for two ZIM-4 Input Modules via CAT-5e or 6 cable

12. **ZON INPUT MODULE LOOP OUT JACKS (INPUTS 3 AND 4)**

    Connection point for looping two input modules from one router to another.

13. **ZON AUDIO CONTROLLER/AMPLIFIER INPUT JACKS (A - F)**

    Connection point for six (6) ZAC-30e or ZAC-30ejr controller/amplifiers via CAT-5e or CAT-6 cable.

14. **AC POWER INPUT (IEC TYPE)**

    Used to connect the provided AC power cord to the ZON router.

Installing ZON System Components

■ *Installation Overview*

Before you install your ZON system components, you should have already installed all the wiring required for the system. This includes all of the connection cables for the ZAC-30e controllers, connection cables for the ZIM-4 input modules and speaker wires. Refer to Appendix E on page 16 for a sample wiring diagram for a six-zone, four input system.

If you are installing this system as part of an authorized DIY kit, you may need to refer to the additional instructional guides that will help you with planning and installing ZON wiring.

ZON Component Installation Tasks

You will have four primary tasks when you install your ZON system components:

1. Install the ZON Router
2. Install ZIM-4 Input Modules
3. Install ZAC-30e Controllers and connect to loudspeakers
4. Connect ZON components to the ZON router

What do you Need?
Tools:
- #2 Phillips screwdriver
- Small standard screwdriver
- Level
- Tape measure

   Depending upon your situation, you may also need other such tools as a hammer, pliers, wire strippers and a small flat-blade screwdriver.

■ *Installing the ZON Router*

The ZON router serves as a distribution center for ZON components, providing power and centralizing various aspects of the system in one unit. From a design aspect, the ZON router is best placed in among your audio hardware, and should be located where your ZON system's connection cables are consolidated. From an functional aspect, once your ZON system is installed, your daily interaction with the ZON system will not involve the ZON router, but rather will involve the stylish ZAC-30e controllers and your audio equipment.

ZON Router Location Guidelines

The following guidelines will help you decide on the location for your ZON router:

1. The installed ZON router complies with the safety recommendations provided in this manual.
2. There is convenient access for installation, ZON component connection, troubleshooting and future access.
3. The unit must be installed where the AC mains plug connection or the ZR-46 router's rear panel AC mains inlet are readily accessible.
4. There is adequate air circulation.
5. There is a logical collection point for all incoming and outgoing cables.

After locating the ZON router, you will need to install the remaining ZON components before making any router connections. Do not connect the AC power to the router at this time.
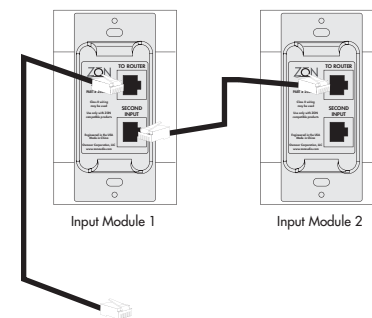
■ *Installing ZIM-4 Input Modules*

The ZIM-4 input modules are single-gang sized devices, that mount in standard electrical J-boxes (as you would an AC outlet) or mount in low-voltage trim rings (primarily used in existing construction)

- Input modules can be located anywhere in the home where audio sources may be present (as long as the location is protected from weather and high humidity).

- Input modules can be mounted in a single or multi-gang electrical J-box, *but may not be mounted in the same box as AC power outlets or switches!*

- Input modules can be trimmed out with Decora-sized trim rings.

Input Module Wiring and Installation

You will need to install j-boxes or low-voltage trim rings in each location where you are planning ZIM-4 input modules.

Daisy-Chaining Input Module Pairs
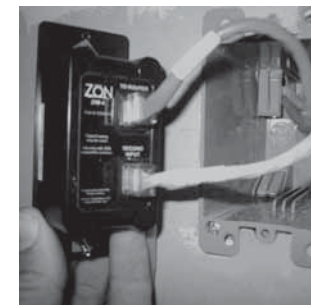

Input Module 1   Input Module 2

ZIM-4 input modules connect to the ZON router in pairs, which means that you need one run of CAT-5e/CAT-6 cable from the J-box to the router, and another run of CAT-5e/CAT-6 cable from the first input module to the second one. This saves wire and time when you are ganging input modules in a single J-box.

Following your wiring plan, identify the location(s) of your input modules. Check that you have the following wires in place:

- CAT-5e/CAT-6 cable from the J-box to the router, properly terminated at both ends.
- If you are daisy chaining input modules in the same J-box, you will need shorter CAT-5e/CAT-6 jumpers to go between the two input modules.
- If you are daisy chaining to an input module that is in another location, you should have a second CAT-5e/CAT-6 cable that runs from where you are to the second location.

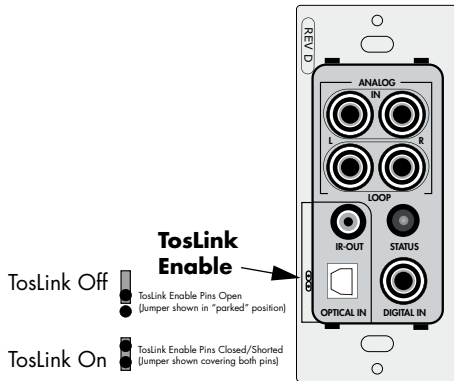With the proper wiring in place, installation is straight forward:

1. Remove the module's trim ring.
2. On the back of the ZIM-4, connect the cable that runs from the J-box (or trim ring) to the ZON router into the "TO ROUTER" jack.
3. Connect either the second CAT-5e/CAT-6 cable, or one end of a short jumper to the "SECOND INPUT" jack.
4. Connect the daisy chain cable to the "TO ROUTER" jack on the second input module.
5. Mount the modules to their j-box(es) or trim rings using the silver device mount screws.
6. Re-install trim ring.

Working with Revision D ZIM-4 Input Modules (TosLink Enable)

The TosLink Optical Input on Revision D ZIM-4 Input modules must be enabled before use.

To see if you have Revision D ZIM-4 input modules, remove the Decora-sized faceplate and look for a "REV" sticker on the upper left-hand side of the device. Should you see a "REV D" sticker, then the following pertains to your particular situation.

Revision D ZIM-4 input modules ship with a fully functional analog input, analog loop output, coaxial digital input and IR bug output. If you wish to connect a TosLink optical input, you must enable the TosLink input as shown below:
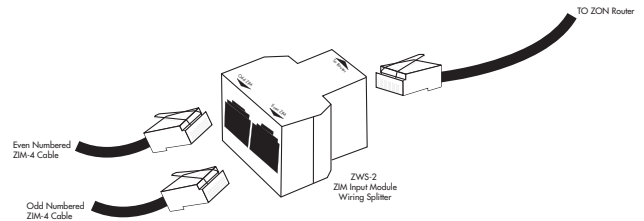

If you do not plan to connect a TosLink optical input, not action is necessary.

To enable the TosLink input connection, carefully remove the jumper from its default "parked" position and re-insert the jumper so that it is covering both TosLink enable pins. When both TosLink enable pins are covered by the jumper, the TosLink input connection is available for use.
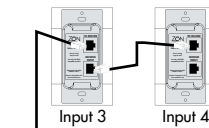
Working with ZIM-4 Home Runs

If you elected to make both of your ZIM-4 connections home runs between J-boxes and the ZON router, you will need to use an input module wire splitter to make "paired" connection at the router.
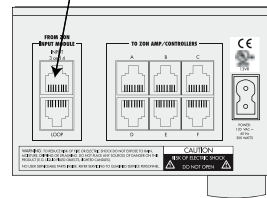

The splitter (model ZWS-2) has three jacks: Two for the cables coming from two different input modules and a third that connects a piece of cable to one of the router's input module jacks.

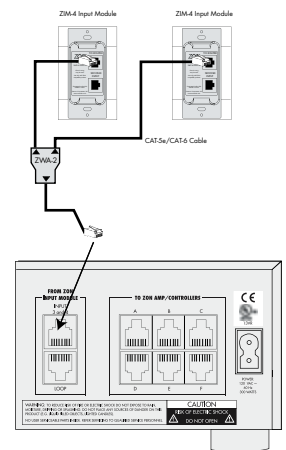## Connecting Input Modules to Router

At the ZON router, locate the "FROM ZON INPUT MODULES" connection block. Jacks are labeled "3-4" (for inputs three and four). Connect your input module cables in the appropriate jack.

If you daisy-chained your input modules, you should have one CAT-5e/CAT-6 cable for each pair of input modules used. In the illustration, Input #3 and #4 are shown being connected to the router's "Input 3 and 4" connection jack.

If you used a home-run for all of your input modules, you will have two cables (one for each of the input modules) at the router's location. To properly combine the pair of cables into a single cable that is compatible with the ZR-46 router's wiring jack, you will need to use the ZWS-2 splitter (as shown in the illustration).

◾ *Installing ZAC-30e Audio Controller/Amplifiers*

The ZAC-30e mounts to a low-voltage junction box or bracket via two device mount screws (pre-installed on the unit). Here are some ZAC-30e installation tips to keep in mind:

- Use a #2 Phillips screwdriver to tighten the mounting screws. Don't use a powered driver or drill to tighten the screws.

- Don't over-tighten. If you over-tighten you could warp the controller's frame, which will cause the faceplate not to install correctly.

- Use care while handling the controller while it's faceplate is removed, taking special care not to push on the LCD screen or other internal components.

Steps for Installation in New Construction

If you are installing the ZAC-30e during new construction, it is recommended that you use a backless, single-gang junction box. The ZAC-30e, when installed with it's speaker wires and CAT-5e/CAT-6 cable, may not fit in small junction boxes used for high voltage applications.

Single Gang Low Voltage Junction Box

Installing a Junction Box

1. The center of the junction box should be located between 52 and 56 inches above the finished floor. Locate and mark the center height on the wall stud.

2. Position the junction box so that it's at the proper mounting heigh for the ZAC-30e, and has the proper depth for the finished wall material that will be used.

3. Fasten the junction box to the wall stud. Make sure the box is level.

4. Attach the speaker wires and CAT-5e/CAT-6 cable to the junction box for later use, making sure that the wires are portected during the time wall material is being installed.

Typical ZAC-30e rough in using a single gang low voltage junction box

Steps for Installation in Existing Construction

If you are installing your ZON system in existing construction (or after wall materials have been installed), you will not need a junction box - just a rough opening and a low voltage install bracket.

1. Before cutting a hole in your wall, make sure that your target location does not interfere with any obstructions behind the wall (studs, wiring, etc.).

2. Locate the bracket on the wall. The center of the bracket should be between 52 and 56 inches above the finished floor. Allow at least 1.5 inches of clearance around the bracket (when next to switches, trim, etc.).

3. Trace the opening required, and cut the wall material in one piece.

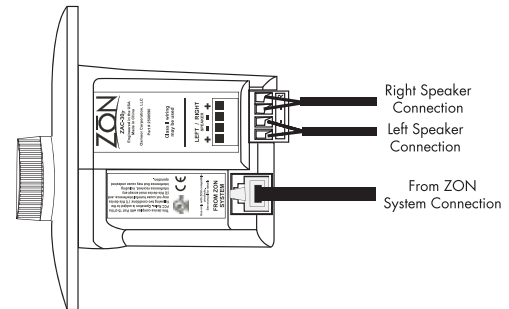4. Install the bracket in the rough opening.

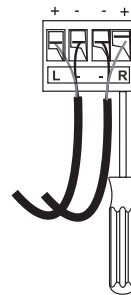Single Gang Low Voltage Bracket - also referred to as a "Caddy"

Connecting Wires to the ZAC-30e

Following your wiring plan, you should have these cables ready for connection to the controller

- A properly terminated CAT-5e/CAT-6 cable that runs from the rough opening to the ZON router's location.

- Two speaker wire pairs that run from the rough opening to a pair of loudspeakers used in the room.

Right Speaker Connection
Left Speaker Connection
From ZON System Connection

Connect the following wires:

- Connect the CAT-5e/CAT-6 cable to the "FROM ZON SYSTEM" jack. Make sure that your modular jack "snaps" in place, and is firmly and completely connected.

- Connect the speaker wires to the speaker wire connector. The connector is removable for ease of installation. You will need a small, flat blade screwdriver to open and close the wire traps in the connector. Ensure that you maintain proper polarity (+ to +, - to -).

You will only need about 1/8th of an inch of exposed copper strands on the ends of the speaker wires when working with the speaker wire connector. It is recommended that you have no exposed copper showing after securing the wires in the connector.

The connector on the controller will only accomodate one 14 or 16 gauge wire at a time. If you are connecting multiple speakers, connect the first pair of speakers to the controller, then connect the second pair of speakers to the first.

The Consumer Electronics Association (CEA) has designated the following color code when four conductor speaker wire is used:

> LEFT CHANNEL
> + White
> - Green
>
> RIGHT CHANNEL
> + Red
> - Black

It is important that you check and verify the polarity at both ends of the cable (at the speaker-end and at the controller-end).

Mounting the Controller

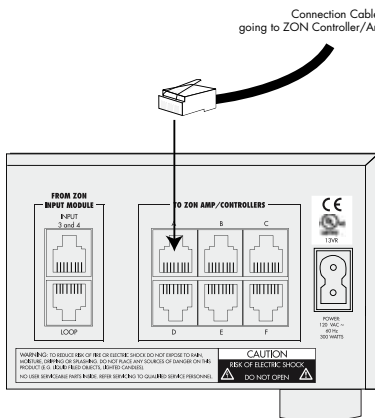Prior to mounting the ZAC-30e, check the following:

- Proper CAT-5e/CAT-6 connection: Make sure your cable connecting the router to the controller is properly connected to the "FROM ZON SYSTEM" jack on the back side of the controller.
- Proper loudspeaker connection: Make sure that your left and right loudspeaker wire are properly connected to the correct loudspeaker connectors on the controller, and that you maintained the proper polarity (+ to +, - to -).

Mounting the controller is straightforward, using these steps:

Mounting Screw

Mounting Screw

1. Carefully remove the controller's faceplate by lifting up and out on the cover from the center of the lower edge of the faceplate.
2. Locate the two device mount screws. There is one on the top edge and another olong the bottom edge, both in the center.
3. Carefully place the excess wire in the rough opening, making sure not to pinch or twist the wires.
4. Place the controller in the rough opening. Position the controller so that it is level and square.
5. Tighten the mounting screws (turn clockwise). Don't use a powered driver or drill to tighten the mounting screws.
6. Alternate between the two screws so that you provide equal pressure. Don't over-tighten. The device mount screws provide adequate pressure to hold the controller firmly in the wall.
7. To perfect the alignment and level, loosen the mounting screws prior to making your fine adjustments. Reposition and retighten as needed.
8. Carefully re-install the faceplate. Place the top edge of the faceplate on the top edge of the controller and snap in place by applying pressure to the bottom center of the faceplate.

Connecting Controllers to Router

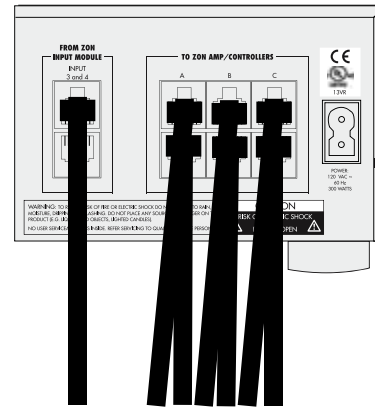Connection Cable
going to ZON Controller/Amplifier "A"

At the ZON router, locate the "TO ZON AMP/ CONTROLLERS" connection block. Jacks are labeled "A" through "F". Following your wiring plan, connect each of your controllers in the appropriate jack.

For optimal system performance, connect ZAC-30e controllers in order from port "A" through "F" in sequence - don't skip a port, or leave an open port between two active ones.
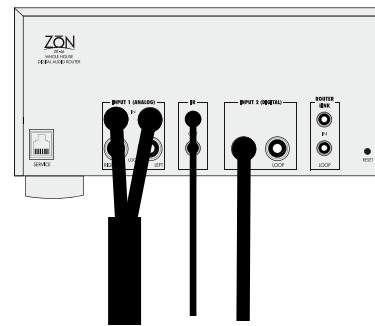
■ *Completing the Installation*

At this point in the installation:

- Your ZON router is securely installed.
- You have connected and installed ZON input modules.
- You have connected and installed ZAC-30e controllers.
- You have connected the ZON components to the router (as shown in the illustration)

–and–

- You have connected an analog source device to Input One
- You have connected a digital source device to Input Two
- You have connected an IR emitter to the "IR Out" jack.

Connect the supplied power cord to the ZON router, and connect to AC power. Your ZON system installation is now complete.

Use the IEC-type AC power cord that was shipped with your ZON router. If you require a longer length, you can purchase UL approved IEC-type power cords of various lengths.
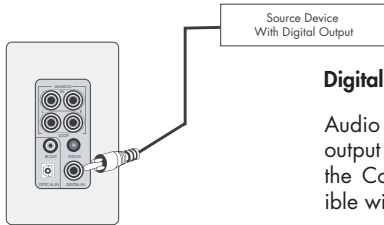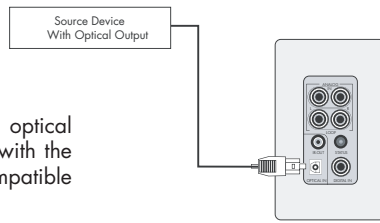
▪ *Working with Audio Devices*

Audio devices connect to the ZON system via ZIM-4 input modules. Input modules offer different audio connection options:

Optical (TOSLink)

Audio devices that have a digital optical output connect the input module with the TOSLink connector as shown. Compatible with two-channel audio only.
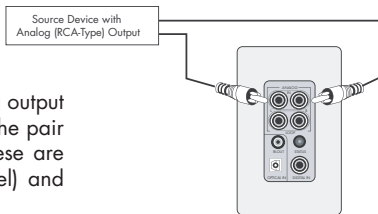
Digital (Coax)

Audio devices that have a digital coax output connect to the input module with the Coax connector as shown. Compatible with two-channel audio only.
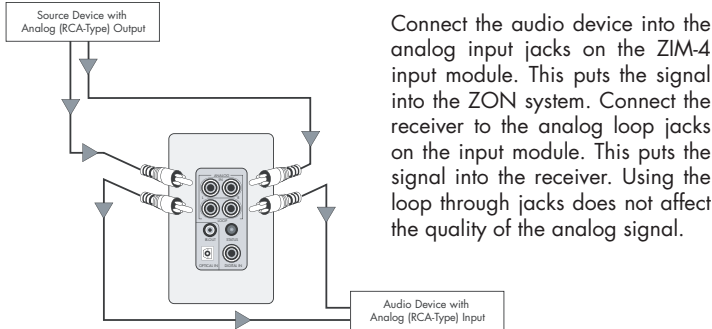
Analog (RCA)

Audio devices that have an analog output connect to the input module with the pair of RCA connectors as shown. These are color coded white (for left channel) and red (for right channel).
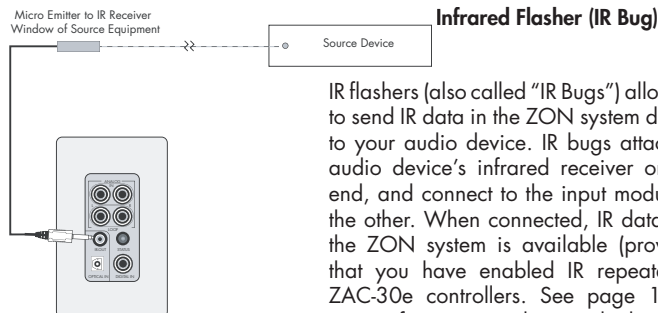
Analog Loop Through

A nice feature of the ZON system is that you can share audio sources with your main receiver in a media room and the ZON system. When you share, you operate your receiver and hardware in the media room as normal, and the audio sources are available for use in the listening zones outside the family room.

Connect the audio device into the analog input jacks on the ZIM-4 input module. This puts the signal into the ZON system. Connect the receiver to the analog loop jacks on the input module. This puts the signal into the receiver. Using the loop through jacks does not affect the quality of the analog signal.

Infrared Flasher (IR Bug)

IR flashers (also called "IR Bugs") allow you to send IR data in the ZON system directly to your audio device. IR bugs attach the audio device's infrared receiver on one end, and connect to the input module on the other. When connected, IR data from the ZON system is available (providing that you have enabled IR repeaters in ZAC-30e controllers. See page 10 for more information on how to do this.

▪ *Working with ZAC-30e Controllers*

Power Cycle Modes

There are two power cycle modes for the ZAC-30e controller. One is a power up following a hard power reset (e.g., power cycling the ZON router by removing then reconnecting the AC power) and the other is a power up following a soft power reset (e.g., pressing the power button on the ZON system remote).

Power Up From Hard Power Reset

Following a hard power reset of the ZON router, the ZAC-30e controllers will perform a series of power up self-tests as part of their booting process. This booting process takes only a few seconds.

Once powered up, the ZAC-30e controller will establish a connection with the ZR-46 router. After connecting, the controller will then test the data path between itself and the router by sending and receiving test data with the router.

ZAC-30e Screens Following Hard Power Reset

After testing, the controller and the router synchronize configuration data that may be present, then boots up to it's operational mode, as seen by the ZON logo appearing to "rise" on the screen.

Following a hard power reset, the ZAC-30es in the system will default to INPUT ONE as their source and the volume will be set to mute.

See Appendix C on page 14 for troubleshooting ZAC-30e boot-up issues.

Power Up From Soft Power Reset

Following a soft power reset, the ZAC-30e controller will boot up to it's operational mode, as seen by the ZON logo appearing to "rise" on the screen. The controller will return to the state it was in prior to turning it off - same source, same volume, same tonal settings, etc.

Sleep/Background Mode

After a period of inactivity, your controllers will automatically enter a "sleep" or "background" mode. The display and volume indicator ring are slightly illuminated. Turn or press the wheel to activate the controller's back-light.

Adjusting Volume

Turning the jog wheel adjusts volume. Turn left to decrease, turn right to increase. The Virtual Pointer™ provides a visual indication of the current volume level.

A flashing LED on the Virtual Pointer indicates loudspeaker mute. To manually mute, turn the wheel counter-clockwise until the LED reaches the seven o'clock position. You can also mute directly from the ZON remote.
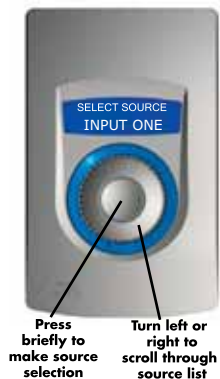
Virtual Pointer™ shows current volume level

Use jog wheel to adjust volume

Selecting Audio Sources

To select an audio source, briefly press the jog wheel. The display will change to the "Select Source" menu.

Turn the wheel left or right to view the available sources. When you reach the desired source, press the jog wheel once to select.

SELECT SOURCE
INPUT ONE

Press briefly to make source selection

Turn left or right to scroll through source list

Using ZON System Remotes

The remote that came with your system is designed to give you controls that are controller-specific and system-specific. See the section "Working with the ZON System Remote" on page 11 for more ZON system remote operating instructions.

IR signal from remote

Using Other IR Remotes

The ZAC-30e's IR receiver can send infrared data to the audio source currently selected. Use the source's remote (or one programmed to work with the audio device). Consult your audio device's user's manual for information pertaining to it's infrared remote capabilities. You may also want to visit the official ZON website to view helpful application guides that discuss working with IR and ZON systems.

For IR to pass from the ZON system to your connected audio devices, you will need to purchase and install the appropriate kind and number of IR emitters.

If you plan to use a source remote (or a pre-programmed remote) to control connected devices the ZAC-30es in your system will require a settings change. By default, the IR repeater in a ZAC-30e is disabled, which means that IR signals from a thrid party remote will not pass through the ZON system. See the section "ZAC-30e Functions and Features" on page 10 for more information on how to enable the ZAC-30e IR repeater via the controller's CONFIGURATION menu.

Remote Control

■ *ZAC-30e Functions and Options*

ZAC-30e Functions and Options at a Glance

The ZAC-30e contains a powerful set of functions and options that are designed to provide enhanced operation of the ZAS-430 system. With these functions and options you can:

• Go directly to local and whole house presets
• Adjust bass, treble, balance and loudness settings
• Select a built-in EQ preset

Using built-in configuration options, you can:

• Store settings for local and whole house presets
• Select a name for your audio inputs from the on-board library of source names
• Work with IR repeater settings

There are also more advanced settings options that allow you to further change how you interact with your system and controllers.

ZAC-30e Functions Menu

To select a function, press and briefly the jog wheel. The display will change to the "Choose Function" menu.

Turn the wheel left or right to view the available functions. When you reach the desired fucntion, press the jog wheel once to select. You will immediately see the function's action menu.

To exit from the "Choose Function" menu, trun the jog wheel left or right until you see "EXIT", then briefly press the jog wheel to exit.

When CHOOSE FUNCTION is shown on the display, scroll to view available functions

CHOOSE FUNCTION
GO TO PRESET

Turn left or right to scroll through function list

Briefly press to select a function

Go To Preset Function

The GO TO PRESET function allows you to select one of the four pre-set selections for your system directly from the ZAC-30e controller. For more information on how to configure local and whole house presets, see the section "ZAC-30e Configuration - Presets" on page xx.

To access the GO TO PRESET function, press and briefly hold the jog wheel to view the "Choose Function" menu. The GO TO PRESET function should be the first function that you see. If not, turn the jog wheel left or right until you see "GO TO PRESET" on the screen. Briefly press the jog wheel to select.

Turn the jog wheel left or right to scroll through the preset selections (local presets 1 and 2, whole house presets 1 and 2). When you see your desired preset, briefly press the jog wheel to select.

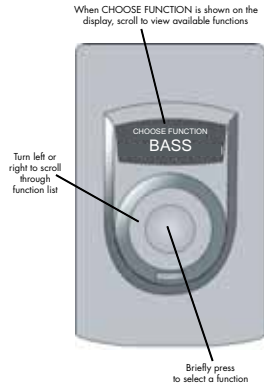**GO TO PRESET**
LOCAL PRESET 1 ▶

If you choose a local preset that is empty (i.e., no settings have been saved for the local preset), the controller will tell you that the "preset is empty" and immediately take you back to the "Now Playing" menu.

Listening Enhancements

The ZAC-30e provides tone and balance controls, EQ presets and loudness compensation. To access these features, press and briefly hold the jog wheel to view the "Choose Function" menu.

Turn jog wheel left or right to view the menu of available functions. To select a function, briefly press the jog wheel. This will give you access to the function, or it's sub-menu.

When CHOOSE FUNCTION is shown on the display, scroll to view available functions

CHOOSE FUNCTION
BASS

Turn left or right to scroll through function list

Briefly press to select a function

Adjusting Bass

From the "Choose Function" menu, scroll until you see BASS on the display. Press the wheel to select.

ADJUST BASS
-6   0   +6

The ZAC-30e has 6 dB of bass boost or cut. Adjust the amount of bass you desire by turning the wheel left or right. Briefly press the wheel to exit and return to the "Choose Function" menu.

Adjusting Treble

From the "Choose Function" menu, scroll until you see TREBLE on the display. Press the wheel to select.

ADJUST TREBLE
-6   0   +6

The ZAC-30e has 6 dB of treble boost or cut. Adjust the amount of treble you desire by turning the wheel left or right. Briefly press the wheel to exit and return to the "Choose Function" menu.

Adjusting Balance

From the "Choose Function" menu, scroll until you see BALANCE on the display. Press the wheel to select.

ADJUST BALANCE
L   C   R

Adjust the balance between the left and right loudspeaker by turning the jog wheel left or right. When you have your desired setting, briefly press the wheel to exit and return to the "Choose Function" menu.
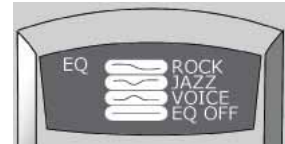
Loudness Compensation

When you listen to music in the background, loudness compensation can be used to enhance low and high frequencies that are diminished in low volume situations.

LOUDNESS COMPENSATION
▸OFF   ON

From the "Choose Function" menu, scroll until you see LOUDNESS on the display. Press the wheel to select. To enable/disable loudness compensation, turn the jog wheel right to move the selection cursor to ON (or left to move the cursor to OFF) and briefly press the jog wheel to select and return to the "Choose Function" menu.
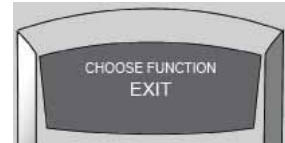
EQ

From the "Choose Function" menu, scroll until you see EQ on the display. Press the wheel to select.

EQ   ROCK
      JAZZ
      VOICE
      EQ OFF

The EQ menu shows the available equalization presets. To choose an EQ preset, turn the job wheel right or left to move the selection cursor beside the different options. If you are playing audio through the controller, you will hear the EQ curve's effect on the music as you move the selection cursor. To select an EQ preset, move the cursor next to your choice and briefly press the jog wheel. Once you make your selection, you will be returned to the "Choose Function" menu.
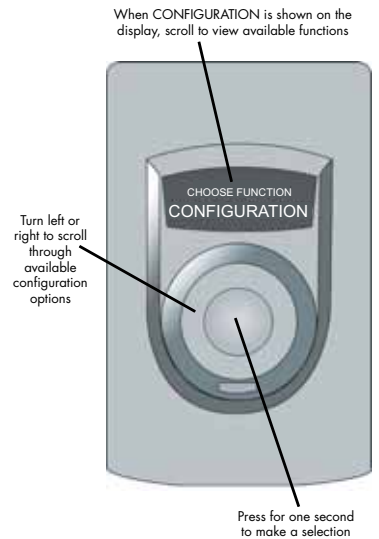
Leaving the Functions Menu

To the leave the "Choose Function" menu, scroll until you see EXIT on the display. Briefly press the jog wheel to exit.

CHOOSE FUNCTION
EXIT

ZAC-30e Configuration

The Configuration menu contains operational and functional settings that are used on an occasional basis.

From the "Choose Function" menu, scroll until you see CONFIGURATION on the display. Press the wheel to select.

Turn the jog wheel left or right to view the menu of available configuration options. To select a particular option, press the jog wheel for one second. This will give you access to the option, or it's sub menu.

When CONFIGURATION is shown on the display, scroll to view available functions

CHOOSE FUNCTION
CONFIGURATION

Turn left or right to scroll through available configuration options

Press for one second to make a selection

Presets

This settings option lets you save the controller's current operational state (source, volume, tone and eq) as a preset. The ZAS-430 system can store two local presets for each controller as well as two house-wide presets. Presets are selected by the ZON System Remote.

To create a preset, first set the controller's source, volume, bass, treble, balance and EQ to desired settings.

Then, enter the CONFIGURATION menu and select PRESETS to enter the "Select Preset" menu. Turn the jog wheel left or right to choose the preset you wish to set. Briefly press the jog wheel to select.
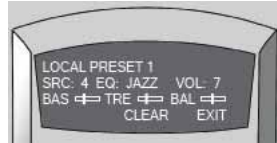
SELECT PRESET
LOCAL PRESET 1

The next screen will provide information about the preset - whether it's empty, or whether it already has settings saved to it. The SET option should be blinking. Briefly press the jog wheel to save the controller's current operational status for this preset.

◀ PRESET EMPTY ▶
SET   CLEAR   EXIT

The controller will acknowledge that you have stored information for the preset, then show you a summary of the settings that have just been saved for the preset.

To clear a preset, select PRESETS from the CONFIGURATION menu and then select the preset you wish to clear. Move the jog wheel to the right so that the CLEAR option is blinking. Briefly press the jog wheel to select. The display will tell you that the preset is now empty.

The ZSR-4 System Remote can be used to store both of the Local Presets and both of the Whole House Presets. Once you have your controller configured to your liking, aim the remote at the controller and press and hold the preset button of your choice. Once saved, the controller's display will tell you that you have saved settings for the particular preset, then return to the "Now Playing" menu.
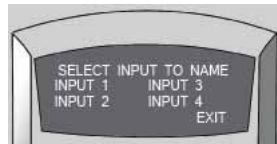
More About Presets

As the name implies, a local preset only changes the operational status of the ZAC-30e controller you are working with. Selecting a local preset for the controller in the master suite does not affect the operation of the other controllers elsewhere. House presets, however, affect all controllers that have stored settings for house presets. Selecting a house preset from the master suite will cause all controllers in the system to jump to their settings stored for that house preset.

Selecting a preset for which no settings are stored will have no effect on a controller's current operation.

Source Names

This settings option lets you change the source name labels for your audio inputs. By default, the four sources in the system are given labels like "Input One", "Input Two" and so on. Using built-in labels, you can change a factory default label to one that better matches what is connected to a given input.

To change an input label, turn the jog wheel left or right until the input you wish to change is blinking. Briefly press the jog wheel to select and to enter the "Select Input Name Menu".

While in the "Select Input Name" menu, turn the jog wheel left and right to view the available label names. These will be shown in the middle of the screen. As a reference, the screen displays the input that you are working with on the bottom line of the display.

When you have located a label that you want to use, briefly press the jog wheel to select that label. You will then be returned to the previous menu, and the new label name will be shown on the screen.

Repeat the process to name the remaining inputs. When you are finished, turn the jog wheel left or right to select EXIT and briefly press the jog wheel to select. For a complete list of the available source names, please see Appendix D: User-Selectable Source Name List on page XX.

R Repeater Setting

This setting allows you to turn on or turn off the IR repeater in the ZAC-30e. *By default, the IR repeater is turned off.* Turning on the IR repeater will allow IR signals from non ZON remotes to enter the ZON system's IR bus, and pass through to IR outputs on the ZON router and ZIM-4 Input modules.

To change the state of the IR repeater (ON or OFF), turn the jog wheel to move the selection cursor (the small, white triangle) to the setting you desire. Press the jog wheel briefly to exit, and return to the CONFIGURATION menu.

Device Info

This configuration option has no user settings, but lists important information about the ZAC-30e. From this menu, you can see the controller's firmware level and can see which port on the ZON router the controller is connected.

The other information displayed on the screen may be of use during service or maintenance by the factory.

Controller Power Controls

The controller can be turned off by pressing and holding the jog wheel until the "Turn Off" menu is displayed.

The "Turning OFf" menu provides two power-off choices. You can turn off the controller you are currently working with, or turn off all of the controllers in the house. If you reached the "Turn Off" menu by mistake, you can choose "Never Mind", and be taken back to the "Now Playing" menu.

To choose a power-off selection, turn the jog wheel left or right until the cursor is next to your desired choice. Briefly press the jog wheel to select.

When using the ZSR-4 System Remote to cycle power, the "POWER" button will turn off the controller you are aiming for without first displaying the "Turn Off" menu. The remote also features an "All Off" button, should you wish to turn off all of the controllers in the house. For more information on the ZSR-4 System Remote, see the section " Working with the ZON System Remote" on page 12.

■ *Working with ZAC-30e Options (Advanced)*

Choose DEVICE INFO from the CHOOSE FUNCTION menu

When you see the DEVICE INFORMATION screen, press and hold to enter the CHOOSE OPTION Menu

ZAC-30e Options

The ZAC-30e provides advanced options to further enhance and configure your system. These options are not part of the every-day use of the system, however, may be desired during the initial setup of the system.

To access these features, press and briefly hold the jog wheel to view the "Choose Function" menu. Select CONFIGURATION from the Function menu. Turn the jog wheel until you see DEVICE INFO, and briefly press to select.

While the controller is displaying the Device Information, briefly press and hold the jog wheel until you see the CHOOSE OPTION menu. Turn the jog wheel left or right view your "Choose Option" choices.

Reminder: The Options Menu is for advanced use only. For more information on advanced options, please consult the ZON web site for application guides and installation notes pertaining to these advanced options. Improper use of any of these advanced options can cause your system to work poorly, or not at all.

Auto Save

Controller settings that pertain to tone, balance, loudness and EQ can be stored in the Router's memory so that these settings can be recalled after a hard power cycle. By default, the Auto Save option is set to "Never", which means that the controller will not attempt to write its settings for tone, balance, loudness and EQ to the router. Setting this option to "Auto" will save the settings each time you adjust tone, balance loudness and EQ. Choosing "Now" will write the current settings for tone, balance, loudness and EQ to the router. Each time the controller saves its settings to the router, there is a brief interruption in the audio playback while the data is being saved.

DB Display

Choosing "YES" will display the numeric volume setting (as dB values) on the display while adjusting the controller's volume. By default, this setting is "NO".

House Off

Turning this option "NO" will not show the "Turning Off" menu when powering off the controller from the jog wheel. While in the "NO" setting, pressing and holding the jog wheel will power off this controller only. This option setting has no effect on the power buttons used on the ZSR-4 remote.

Hide Menus

Turning this option "ON" will disable access to the "Choose Function" menu (and all sub menus) on this controller. The controller will have the ability to select sources and adjust volume only.

Sleep Lighting

After a period of inactivity, the ZAC-30e will enter a "sleep" mode. This option allows you to choose the intensity of the sleep lighting. Choosing "BRIGHT" will keep the back lights at full intensity all the time, "DIM" is the default setting and "NONE" will be very, very faint.

Router Logo

The ZON logo on the front of the ZON router has an intensity setting that ranges from BRIGHT (default), MEDIUM and DIM.

Speaker Imepdance

The default speaker impedance is set to 8 Ohms, but if you are using a 4 Ohm loudspeaker (or will have a 4 Ohm load on the each of the amplifier loudspeaker outputs), you can set this option to "4 OHMS" to allow the controller to auto-optimize its operation for a 4 Ohm load.
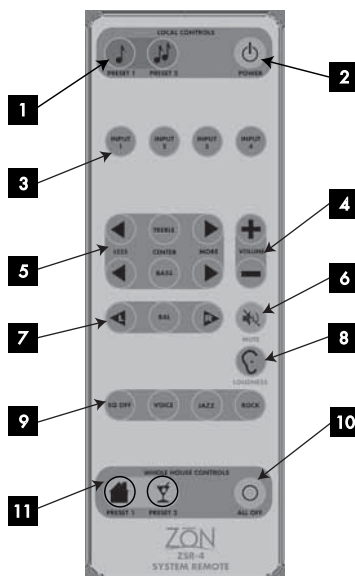
Input 1 Gain

A gain adjustment (-12 dB to +12 dB) can be set for the analog input on the ZON Router with this option. The default setting for this option is 0 dB.

IR Carrier 1 and IR Carrier 2

Trouble using a source component remote through the system may be resolved by changing the IR carrier frequencies used by the ZON system. This is an extreme configuration option, and should not be adjusted unless directed to do so by technical support. Changing values with these options without proper guidance can cause the IR fuctions of your ZON system to work poorly or not at all.

■ *Working with the ZON Sytem Remote*

The provided ZSR-4 remote has eleven different functions, all designed to offer simple, yet complete control of your ZAC-30e controllers and your ZAS-430 system.

1. LOCAL PRESETS 1 AND 2
   Sets the controller to the stored settings for Local Preset 1 and Local Preset 2.Pressing and holding either of these buttons will store the controller's current state as the settings for the preset.

2. POWER
   Turns the ZAC-30e controller ON and OFF.

3. INPUTS 1 - 4
   Direct selection of Inputs 1 through 4.

4. VOLUME
   Use the + and - keys to increase and decrease the volume.

5. TREBLE and BASS
   Use the Less and More keys to decrease or increase the amount of bass or treble.
   The Center buttons allow you to quickly move the bass and treble settings to the "center" or to a zero value.

6. MUTE
   Mutes the ZAC-30e controller.

7. BAL ('Balance")
   Use the L and R keys to move the balance left and right. The BAL key in the center moves the balance so that left and right are equal, or in the center.

8. LOUDNESS
   Toggles the ZAC-30e's loudness contour ON and OFF.

9. EQ SETTINGS (OFF, VOICE, JAZZ, ROCK)
   Direct selection of the four preset EQ settings that are onboard the ZAC-30e controller.

10. ALL OFF
    Switches all ZAC-30e controllers in the system to OFF.

11. WHOLE HOUSE PRESETS 1 AND 2
    Sets the controllers in the system to their stored settings for House Preset 1 and House Preset 2. These presets apply to all controllers in the system. Pressing and holding either of these buttons will store the controller's current state as the settings for the preset.

To use the ZSR-4 remote, aim the remote at a ZAC-30e controller. The operation of the ZSR-4 remote is not affected by the IR REPEATER setting in the ZAC-30e controller.
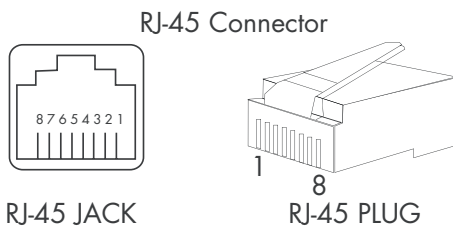
Appendix A: CAT-5e / CAT-6 Installation Tips

CAT-5e/CAT-6 Installation Tips

1. While terminating Category 5/Category 6 cable, be sure the natural twist of each pair is carried through as close as possible to the point of mechanical termination. More than 1/2 inch untwisted cable could affect performance.

2. Cable should be placed and secured in a manner which prevents kinking and tight cinching. Cable ties should never be cinched tight enough to compress the outside jacket of the cable. Cable should never be subject to bends greater than 4 times the cable diameter.

3. Never subject cable to pulling tension greater than 25 pounds. Avoid crushing or stepping on the cable.

4. Always use proper tools for stripping and termination to avoid nicking the cable and/or an inadequate crimp.

Termination Tips

1. Use CAT-5/CAT-6 strippers to score the jacket about an inch. Be careful not to cut into the insulation around the copper conductors. There is no need to remove any insulation from the conductors. When the RJ-45 connector is crimped, the contacts inside cut through the conductor insulation.

2. Untwist the wire to within 1/8" of the jacket. Arrange the wires according to the specification below:

RJ-45 Connector

8 7 6 5 4 3 2 1

RJ-45 JACK   RJ-45 PLUG

1   8

ANSI/EIA/TIA- 568A PINOUTS	
PIN	WIRE COLOR
1	White/Green
2	Green
3	White/Orange
4	Blue
5	White/Blue
6	Orange
7	White/Brown
8	Brown

Oxmoor recommends the T568A termination method, although the T568B standard may be used. No matter which method is used, it is essential to use the same termination method throughout the system. Using any other wiring standard (other than T568A or T568B) will void your product warranty and probably damage your system.

3. Flatten and align the wires. Make one straight cut across all the conductors, removing approximately 3/4" of an inch. It is a good idea to ensure the ends are of equal length.

4. Slide the wires into the connector. The cable jacket should extend into the connector about 1/4" for strain relief. Orient the wires so connector Pin 1 aligns with cable Pin 1, etc. Hold the connector in front of you. With locking tab down, Pin 1 is on the far left.

5. Insert the connector into rachet-type crimp tool, and firmly squeeze the handle. Ratchet-type crimp tools will release when enough pressure is applied. If the crimper does not release, you need to apply just a little more pressure.

6. Once your crimper releases, check your plug to insure the conductors are in place and enough jacket is crimped to provide strain relief.

7. When you have terminated both ends of the cable, use a cable tester to check your cable. You should be checking for shorts, opens or mis-wires.
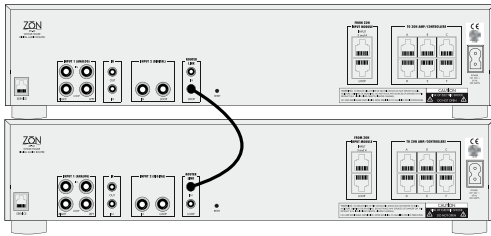
Appendix B: Using Multiple ZON Routers in a Single System

Multiple ZON routers can be linked together to create a whole house audio system with virtually any number of listening zones. For every six listening zones, you will need one ZON ZR-46 router.

There are three main wiring requirements to consider when planning more than one router in a system:
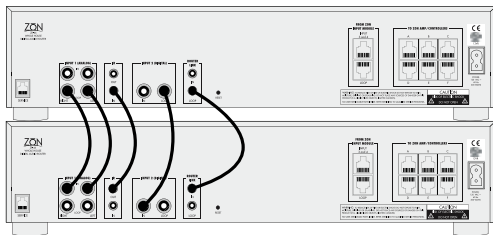
1. Router-to-router links - This ties the router's "administrative" functions together. There is a set of "Router Link" jacks on each router to accommodate these types of connections. A 3.5mm stereo cable must be used.

2. Linking onboard inputs and IR - This ties the audio sources for Inputs 1 and 2 and the IR line used for these inputs together between routers. Loop jacks for the analog audio on Input 1 and a loop jack for the digital coax on Input 2 are provided for this purpose. There are two IR jacks on each router to aid in the linking of IR needed for Inputs 1 and 2. A 3.5mm stereo cable must be used.

3. ZIM-4 input module loops - This ties the audio sources for Inputs 3 and 4 together between routers. There are input module loop out jacks on each router to accommodate these types of connections. Use a standard 568A CAT-5e/CAT-6 patch cable for this purpose.

Linking Routers Using the Router Link Connections

Using a 3.5mm stereo patch cable, connect one end of the cable to the LOOP jack of the first router, then the other end to the IN jack on the next router. This connection provides the communication link between routers for the support of such things as whole house presets.
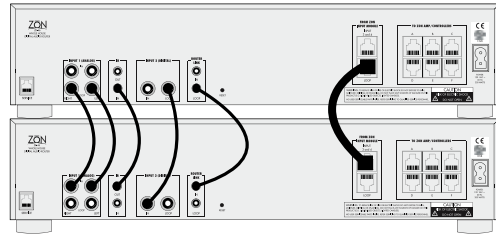
Linking Onboard Inputs and IR

Using an analog patch cable, connect one end to the LOOP jacks for Input 1 on the first router to the IN jacks for Input 1 on the next router. This provides audio from your source to both routers (on input one). Next, use a single RCA patch cable and connect one end to the LOOP jack for Input 2 on the first router to the IN jack for Input 2 on the next router. This provides audio from your source to both routers (on input two). The last portion of this step is to link the IR for inputs one and two between routers. Take a 3.5mm stereo patch cable and connect one end to the IN jack on the first router and connect the other end to the OUT jack on the next router. This links the IR between the two routers.
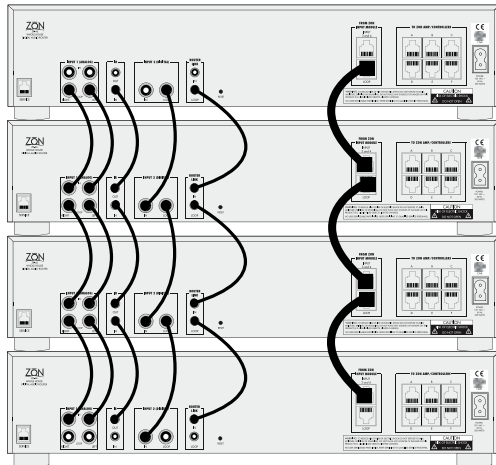
Looping ZIM-4 Input Modules Router-to-Router

After you link routers, local inputs and IR together, you will need to loop input modules from the first router to the next.

Connect a properly terminated CAT-5e/CAT-6 cable between the "Loop Out" jack on the first ZON router and the "From Input Module" jack on the next router as illustrated above. This now connects the audio sources you have connected to the ZON Input Modules between the two routers. The IR needed by the sources connected to the ZIM-4 Input Modules is automatically linked with the CAT-5e/CAT-6 connection.

You can create a system with virtually any number of listening zones. In the illustration below, four ZR-46 routers are linked together to create a four input by 24 listening zone system.

Appendix C: Hardware Troubleshooting Guide

For your assistance, the following troubleshooting guides can help you solve common operational difficulties.

Step 1: Check Your Wiring

Most operational difficulties are the result of bad wiring and/or connections. Check your wiring to make sure that it meets the requirements of the ZON system installation. For more about CAT-5e/CAT-6 wire and the ZON system, see Appendix A on page 12.

ZON system indicators are also a great tool to help you determine possible wiring problems:

Step 2: Check Status Indicators

ZON ROUTER (ZR-46) STATUS INDICATOR - FRONT PANEL		
INDICATOR	TROUBLE	SOLUTION
ZON logo not lit	• No AC power • Blown AC breaker or fuse	• Connect AC power cord • Check ac outlet, contact your ZON Dealer

ZON ROUTER (ZR-46) ZON AMP/CONTROLLER & ZON INPUT MODULE CONNECTOR		
INDICATOR	TROUBLE	SOLUTION
red	• Improper wiring creating a shorted connection	• Correct wiring on connection
none	• Improperly wired connection that does not create a fault, but does not create a positive connection	• Correct wiring on connection

ZON AUDIO CONTROLLER/AMPLIFIER (ZAC-30)		
INDICATOR	TROUBLE	SOLUTION
boot screen hangs on "connecting"	• Indicates major wiring or cable termination fault • Loose or damaged modular plug	• Check and test wiring and connections. • Re terminate CAT-5e or CAT-6 cables. • Power cycle ZON router
boot screen hangs on "testing" or "config"	• Indicates major communications difficulties between router and controller • IR spamming	• Power cycle ZON router • Turn off IR repeaters on ZAC-30s

ZON INPUT MODULE (ZIM-4)		
INDICATOR	TROUBLE	SOLUTION
none	• Module not connected to the ZON router	• Correct wiring on connection
solid red	• Improper wiring creating a shorted connection • IR spamming	• Correct wiring on connection • Turn off IR Repeaters on ZAC-30s

If you are unable to clear the status indicators, but still experience problems, move on to Step 3 below:

Step 3: Check Audio Sources

For each audio source in the system check the following:

a. Proper operation of the source.
b. Quality and condition of the audio cable used for the connection.
c. Proper connection of the audio source cable to the ZIM-4 input module.
d. If you are using a digital or optical output, confirm that your audio device is configured to send audio signals through that type of output. Some devices require that you enable digital audio outputs via the audio device menu or setup screen.
e. Encoded, multi-channel audio (e.g., 5.1, 7.1 etc.) will not work through the ZON system. Check that you are not using this type of audio format.
f. Low bit rate MP3 files sent digitally via COAX will not work with the ZON system. Check that you are not using this type audio file.

If you have enabled the IR repeater on the ZAC-30es there may be large amounts of IR being picked up by one or more ZAC-30e controller(s). Try disabling the IR repeaters to see if your system troubles clear. For more information on how to do this, see page 10.

If you are still experiencing difficulties after this step, move on to Step 4 below:

Step 4: Reset the Router

Correct any protection faults that may be affecting the microprocessors used in the system. Briefly press the RESET button to re-start the router. If, after a reset, you are still experiencing difficulties, you may also power cycle the router. Disconnect power, wait 60 seconds, then reconnect.

If you are still experiencing difficulties after this step, move on to Step 5 below:

Step 5: Contact Technical Support

You should contact the party from which you purchased your hardware. If you are a qualified ZON dealer or authorized ZON reseller, contact Oxmoor technical support. If you purchased your system from an authorized ZON dealer or reseller, contact them before calling Oxmoor technical support.

You may also want to visit the official ZON web site: www.zonaudio.com to view the Frequently Asked Questions database, and to find out additional technical information that can help you. Also, refer to page XX to learn how to obtain service for your ZON product.

Appendix D: User Selectable Source Name List

FCC Regulations

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 these 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.

UL Listing

The UL marking shows applicable UL Standards and requirements by Underwriters Laboratories Inc. The UL Mark means that UL has tested and evaluated representative samples of this product and determined that they meet UL's safety requirements. In addition, ZON components are periodically checked by UL at the manufacturing facility to make sure they continue to meet UL requirements. This product is UL listed.

CE Marking

The CE marking is a European marking of conformity that indicates that a product complies with the essential requirements of the applicable European laws or Directives with respect to safety, health, environment and consumer protection. Generally, this conformity to the applicable directives is done through self-declaration.
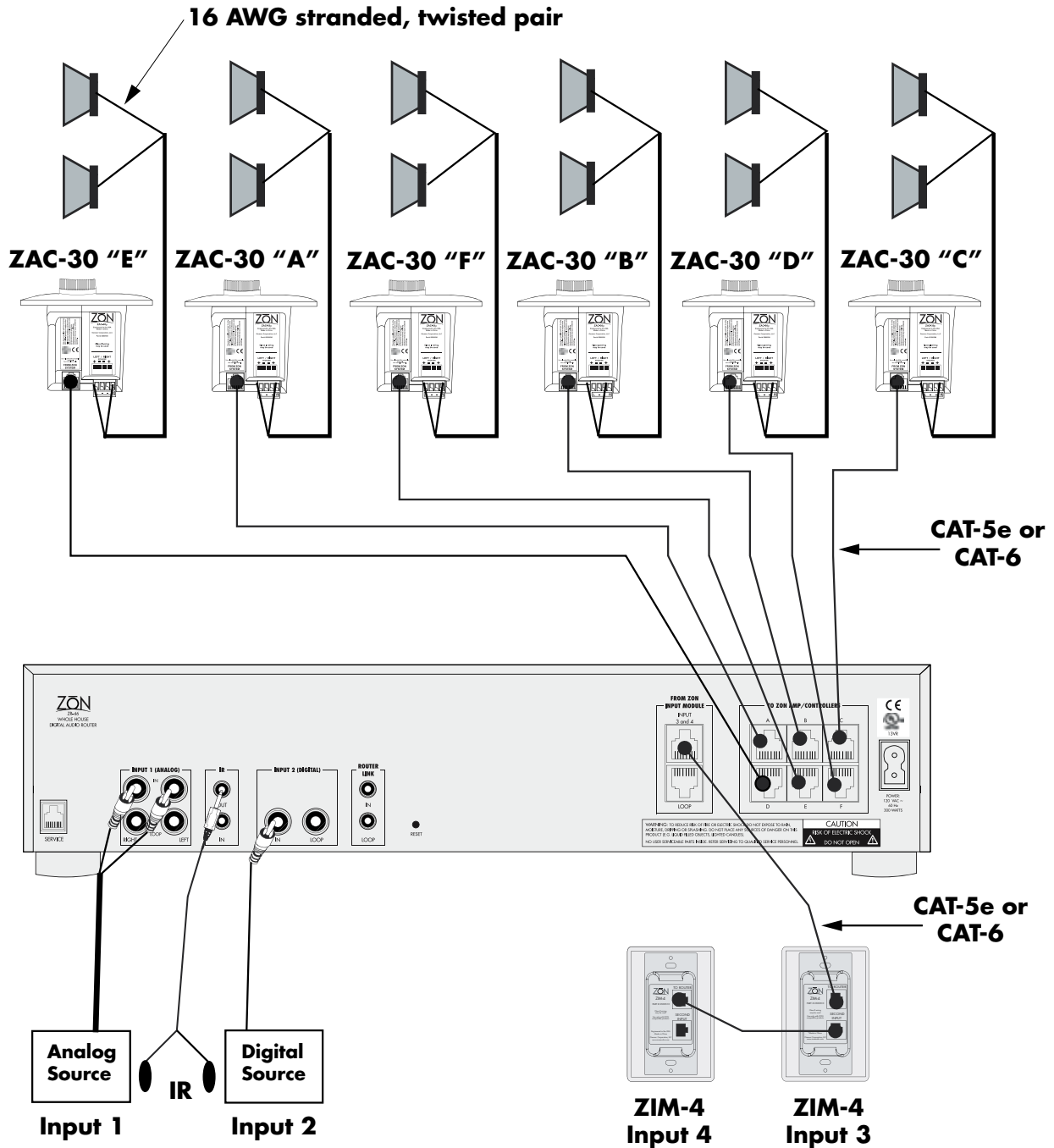
The CE Marking is required on products in the 18 countries of the European Economic Area (EEA) to facilitate trade between the member countries. The manufacturer or their authorized representative established in the EEA is responsible for affixing the CE Marking to their product.

The CE Marking provides a means for a manufacturer to demonstrate that his product complies with a common set of laws required by all of the countries in the EEA to allow free movement of trade within EEA countries.

The CE Mark is affixed to this Oxmoor Corporation product to confirm compliance with the following European Community Directives:

– Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of Member States relating to electromagnetic compatibility; and
– Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits; each amended by
– Council Directive 93/68/EEC of 22 July 1993 on the harmonization of CE Marking requirements.

Appendix F: Sample Wiring Diagram (Six Listening Zones, Four Sources)

16 AWG stranded, twisted pair

ZAC-30 "E"   ZAC-30 "A"   ZAC-30 "F"   ZAC-30 "B"   ZAC-30 "D"   ZAC-30 "C"

CAT-5e or CAT-6

CAT-5e or CAT-6

Analog Source
Input 1

IR

Digital Source
Input 2

ZIM-4 Input 4   **ZIM-4 Input 3**

Wiring Recommendations:

- Speaker Cable: 16 AWG stranded, twisted pair
- ZON Component Connections: CAT-5e (24 AWG, 0.5mm) or CAT-6 (23 AWG, 0.57mm)
- Maximum CAT-5e cable length between ZON components: 200 feet
- Maximum CAT-6 cable length between ZON components: 250 feet

Appendix D: User Selectable Source Name List

The following is a listing of the available user selectable source names (in order) included onboard the ZAC-30e controller, and visible while in the "Select Input Name" menu:

DEFAULT	LAUNDRY
AM TUNER	LIBRARY
ANTENNA	LIVING ROOM
ATTIC	MASTER BATH
AUX 1	MASTER BED
AUX 2	MEDIA CENTER 1
BASEMENT	MEDIA CENTER 2
BATH 1	MEDIA ROOM
BATH 2	MEDIA SERVER
BEDROOM 1	MISC 1
BEDROOM 2	MISC 2
BEDROOM 3	MP3 PLAYER
BLU RAY DVD	MUSIC ROOM
C BAND SAT	MUSIC SERVER
CABLE BOX	MUSICMATCH
CASSETTE	NOOK
CATV	OFFICE
CATV 1	PATIO
CATV 2	PDA
CD CHANGER	PHONO
CD PLAYER	PIANO
CLOSET	PLAYROOM
COMPUTER 1	PLAYSTATION
COMPUTER 2	POOL
DBS	PORCH
DECK	RADIO
DEN	REC ROOM
DESK	RECEIVER
DIG ENT SYSTEM	REEL TO REEL
DIGI RECORDER	REPLAY TV
DINING ROOM	SACD
DIRECTV	SAT 1
DISC CHANGER	SAT 2
DISH	SAT RADIO
DSS	SATELITE
DVD PLAYER	SIRIUS RADIO
DVR	STEREO
ECHOSTAR	STUDY
EIGHT TRACK	SUN ROOM
EQUIP RACK	TELEVISION
EQUIP ROOM	TIVO
FM TUNER	TUNER 1
GAME CONSOLE	TUNER 2
GARAGE	UNUSED
GREATROOM	UTILITY
GYM	VCR
HALL 1	VIDEO
HALL 2	WALL INPUT 1
HD DVD	WALL INPUT 2
HD RADIO	WORKSHOP
HD VCR	X BOX
HI FI VCR	XM RADIO
HOME THEATRE	ZONE 1
HOT TUB	ZONE 2
INTERNET RADIO	
IPOD	
IPOD 1	
IPOD 2	
IPTV	
JACUZZI	
JUKEBOX	
KIDS 1	
KIDS 2	
KITCHEN	
LASERDISC	

Warranty and Factory Service

ZON Whole House Digital Audio System - TWO-YEAR LIMITED WARRANTY

Pursuant to the limitations herein, Oxmoor Corporation, LLC warrants that each Oxmoor electronic product shall be free from defects in workmanship and materials and will, at its option, repair or replace any part of the product without charge, provided that the product is delivered to Oxmoor Corporation, LLC within two years of the date of original purchase from or delivery by an authorized Oxmoor dealer.

PRIOR AUTHORIZATION FROM OXMOOR CORPORATION, LLC IS REQUIRED BEFORE RETURNING GOODS.

To obtain warranty service call 1-800-262-6898 for a Return Authorization Number and shipping information.

Except as provided by applicable law, you assume the risk of loss or damage during transit and transportation and you are responsible for delivery or handling charges incurred in the transport of product(s) to the service location. Oxmoor Corporation, LLC will return repaired or replaced product under this limited warranty to you, with return transportation, delivery or handling charges prepaid.

If the product failure is not covered by this limited warranty, or if proof of purchase does not meet the terms of this limited warranty, Oxmoor will notify you and will request that you authorize the cost of repair and return shipping costs for the repair of products that are not covered by this limited warranty. Oxmoor Corporation, LLC assumes no risk for damage or loss of any product in transit. Shipping insurance is your responsibility.

WHAT MUST YOU RETURN WITH THE PRODUCT TO GET WARRANTY SERVICE?

* Return the product properly packaged to prevent damage during shipment
* Include a description of the malfunction or difficulty
* Include "valid proof of purchase" (sales receipt) identifying the product purchased and the date of purchase; and
* Provide your name, correct shipping address, telephone number, e-mail address and other contact information.

WHAT IS NOT COVERED BY THIS LIMITED WARRANTY

* Product that has been subjected to misuse, accident, shipping damage, flood, lightning or other physical damage, improper installation, abnormal operation or handling, neglect, inundation, fire, water or other liquid intrusion; or
* Product that has been damaged due to repair, alteration, or modification by anyone other than an authorized service representative or Oxmoor Corporation, LLC; or
* Product to the extent that the problem experienced is caused by signal conditions, network reliability or cable or antenna systems; or
* Product to the extent that the problem is caused by use with non-Oxmoor electrical accessories; or
* Product whose warranty/quality stickers, product serial numbers, plates or electronic serial numbers have been removed, altered or rendered illegible; or
* Product returned without valid proof of purchase; or
* Charges for installation or set-up, adjustment of customer controls, and installation or repair of system outside the unit.
* Any damages occurring or alleged to have occurred as a consequence of the failure of any Oxmoor product or service.

OTHER LIMITATIONS

This warranty is the complete and exclusive agreement between you and Oxmoor Corporation, LLC. It supersedes all other written or oral communications related to this product. Oxmoor Corporation LLC provides no other warranties for this product. The warranty exclusively describes all of Oxmoor's responsibilities regarding the product. Except as expressly set forth in this Limited Warranty, Oxmoor Corporation LLC makes no other warranties or conditions, express or implied, including any implied warranties of merchantability and/or fitness for a particular purpose. Oxmoor Corporation LLC expressly disclaims all warranties and conditions not stated in this limited warranty including any and all claims for consequential damages. No one is authorized to make modifications to this limited warranty, and you should not rely on any such modification. State Law Rights: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

OXMOOR FACTORY SERVICE

For service information contact:

Oxmoor Corporation, LLC
Factory Service Department
309A Cahaba Valley Parkway North
Indian Springs, AL 35124 USA

Telephone: 1-205-982-8200
Fax: 1-205-982-8292

OXMOOR®