

Installation and Operation

Audio Authority®



Model 1173BK

Model 1173BK

Multi-Zone Audio Router with Volume Control
for the

AVAtrix™

HD Cat 5 Matrix Routing System

Audio  Authority®



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Audio Authority® Corporation Lexington, Kentucky
www.audioauthority.com • 800-322-8346 • 859-233-4599

Warnings

To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.



The exclamation point symbol alerts users to important operating and maintenance instructions in this booklet.

- Read this manual before installing or using this product.
- This product must be installed by qualified personnel.
- Do not open the cover—there are no user-serviceable parts inside.
- Do not expose this unit to excessive heat.
- Install only in dry, indoor locations.
- Do not obstruct the ventilation slots.
- Clean the unit only with a dry or slightly dampened soft cloth.

Getting Started

- Register your purchase at www.audioauthority.com/register to activate your warranty and for future upgrade notification. Write your registration password on the back cover of these instructions.
- Unpack the product and its accessories, and check to see all contents are included.
- Read these instructions.
- Connect associated equipment (see detailed instructions in the AVAtrix Manual).
- Connect the product to a suitable power outlet using only the power supply furnished.
- Update AVAtrix firmware to v1.4 or greater.

General Information

The Model 1173BK Multi-Zone Audio Router with Volume Control is a companion product to the AVAtrix™ HD Cat 5 Routing System. It provides six analog or digital audio source outputs to a distributed audio system to enable coordination of a room's audio program with the video program being received on a Cat 5 zone receiver. The 1173BK responds to IR or RS-232 commands from programmable control systems to attenuate volume levels on individual analog outputs.

Key Features

- Independently adjusts volume from 0 to -78dB in each zone (analog only)
- Maximum configuration is six sources on 18 AVAtrix zones (Tracking Mode), or six sources on 30 zones (Source Mode)
- IR routing for volume control and source control signals from zones
- *ExpressRamp™* zone volume control*

Carton Contents

- Model 1173BK Audio Router
- 18-volt power supply
- User manual
- Rack mounting adapters

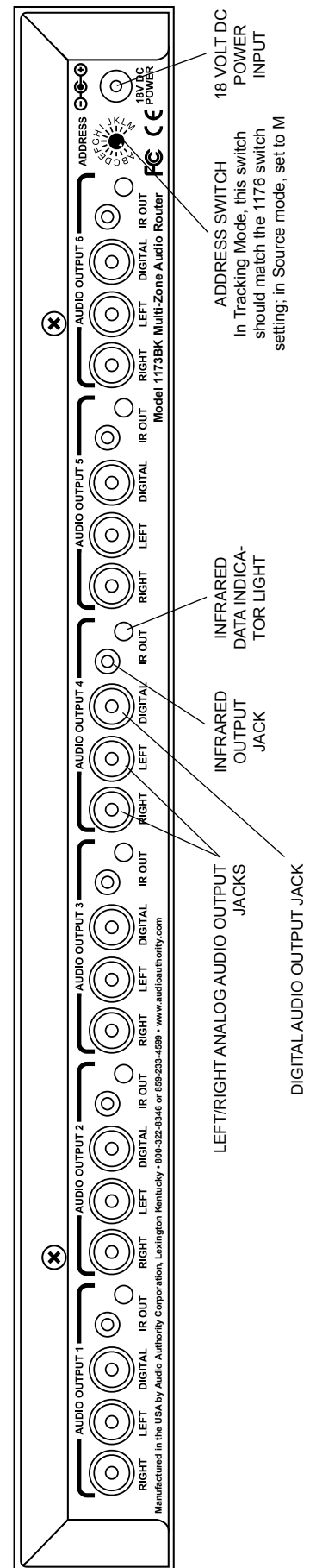
Other Materials You May Need

- RCA patch cords
- IR emitters with 3.5mm plugs
- IR receivers (to connect to each Cat 5 zone receiver)
- Firmware upgrade for older AVAtrix installations (download the upgrade from www.audioauthority.com/page/software)

Installation

These instructions address the Model 1173BK, which is always used with an AVAtrix™ system. The system must include either a Model AVM-562 or Model AVX-562 with Cat 5 zone receivers, and can also include up to four Model 1176BK matrix expanders. Refer to the AVAtrix instruction manual for complete installation and setup directions.

* *ExpressRamp™* enables a smooth volume change from the current level to a pre-defined level using a single RS-232 command. It streamlines the programming of audio "scenes" on control systems and avoids abrupt volume changes. ExpressRamp is not available using IR commands. See page 10 for details.



The 1173BK provides an audio breakout point to connect AVAtrix source audio to audio distribution equipment that accepts stereo analog audio (for digital audio, see page 7). The analog outputs are volume controlled via commands transmitted through the AVAtrix IR inputs or the RS-232 port. The 1173BK can be used in two different modes: Tracking Mode or Source Mode, each designed to integrate with a different types of audio system, as follows:

Tracking Mode, for Use with Simple Amplifiers or AVRs

In Tracking Mode, each 1173BK output switches its content along with the AVAtrix so that the audio distribution system's output automatically matches what is playing on the video display in each room. Example: Zone 2 is viewing Source 5 - the 1173BK outputs Source 5 audio from its Output 2. IR commands, including volume control, are routed to the appropriate zone outputs and sources.

Source Mode, for an Audio System with its Own Switching and Volume Control

In Source Mode, each 1173BK output always provides the audio signal from its corresponding source input on the AVAtrix (e.g. source 2 audio is always available on 1173BK output 2). The audio distribution system handles audio signal switching and volume control for each zone. The 1173BK volume control is generally not used in Source Mode.

Both modes allow for infrared communication from the AVAtrix Cat 5 receivers in each room back to a distributed audio system. AVAtrix IR codes are available at www.audioauthority.com/page/software, or from your remote control manufacturer. ExpressRamp volume control is only active when using RS-232 commands. See page 10 for details.

Tracking Mode Installation

Place a Model 1173BK in the AVAtrix equipment stack immediately beneath the related Cat 5 output row. The diagram on the facing page shows a basic system (for six zones), but an expanded system (for 12 or 18 zones) would be configured as shown in the table.

The AVM-562 architecture allows up to five expanders. Using Tracking Mode, the maximum number of Cat 5 zone outputs is 18 (shown) with three 1173BK expanders installed.

Model AVM-562 (Address A)	
Model 1173BK	Address A
Model 1176BK	Address B
Model 1173BK	Address B
Model 1176BK	Address C
Model 1173BK	Address C

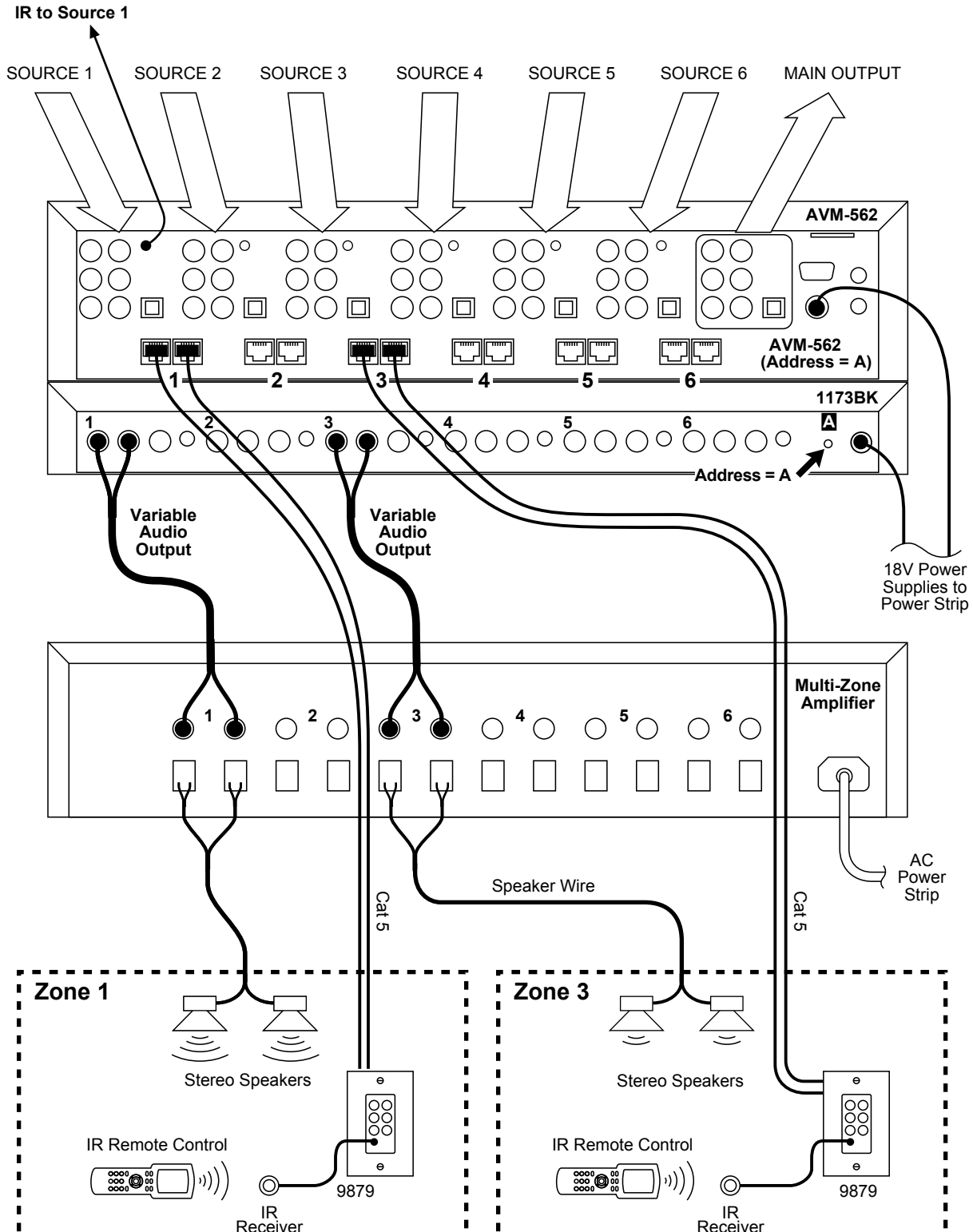
1. Set the 1173BK rotary address switches to match the corresponding Cat 5 matrix outputs (AVM-562 and 1176BK).
2. Connect the #1 Cat 5 output of the AVAtrix to the Cat 5 receiver in Zone 1.
3. Connect the #1 analog output of the Model 1173BK to the Zone 1 audio inputs of the amplifier or audio system (see diagrams on pages 5 and 6). Digital Audio may be used where desired, but volume control must be performed by the audio distribution system (see diagram on page 7).
4. If the AVAtrix system does not have current firmware (December 16 or later) then the firmware must be upgraded to version 1.4 or greater. This upgrade allows the AVAtrix to control volume via the 1173BK.
5. Program the remote control system using AVAtrix IR codes, or RS-232 commands. To program IR remotes, download AVAtrix IR codes from www.audioauthority.com/page/software or obtain the codes from your remote control manufacturer. ExpressRamp volume control is only active when using RS-232 commands (see page 10 for serial potocol).

IR Receivers

An IR receiver plugged into a dual Cat 5 zone receiver permits infrared commands to be sent to the 1176BK for A/V source selection, to the AVAtrix A/V sources for source control, and to the 1173BK for volume control. The AVAtrix takes care of routing the IR signals generated in each room to where they must go. The AVAtrix may be used with any of five Cat 5 receiver styles. Models 9878 and 9879 and 9880 dual Cat 5 receivers feature an IR pathway and analog audio, and 1180R and 1180RD do not.

Tracking Mode Diagram 1: Multi-Zone Amplifier

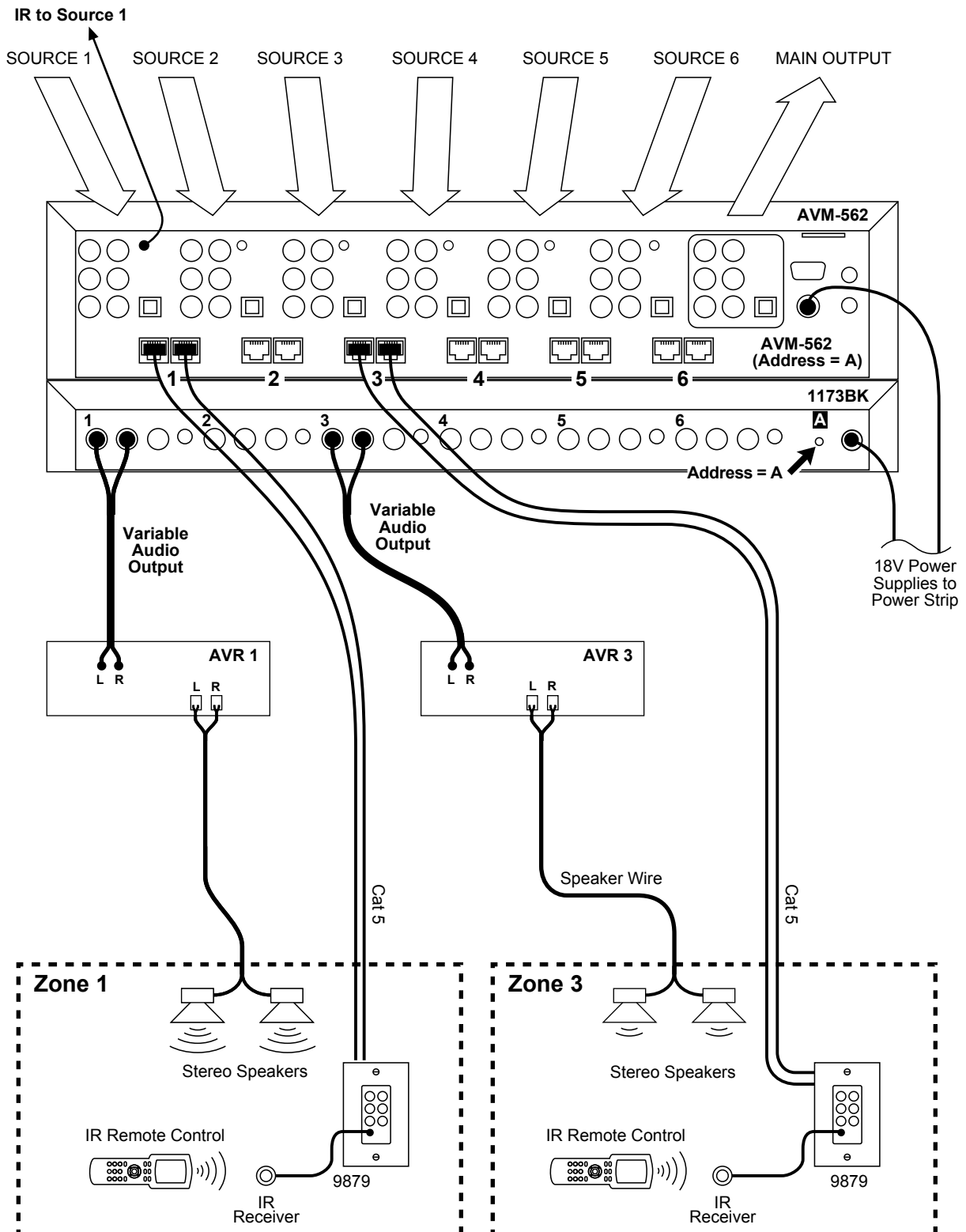
Tracking Mode is used with audio distribution systems having dedicated amplifiers for each room's speakers. The amps may be dedicated A/V receivers (see page 10) or a multi-zone amp, as shown below. The 1173BK audio output #1 tracks with the AVatrix Cat 5 output #1 so that the audio always matches the video at the zone. Address each 1173BK to match the AVatrix outputs (see page 4).



Tracking Mode Diagram 2:

A/V Receivers as Zone Amplifiers

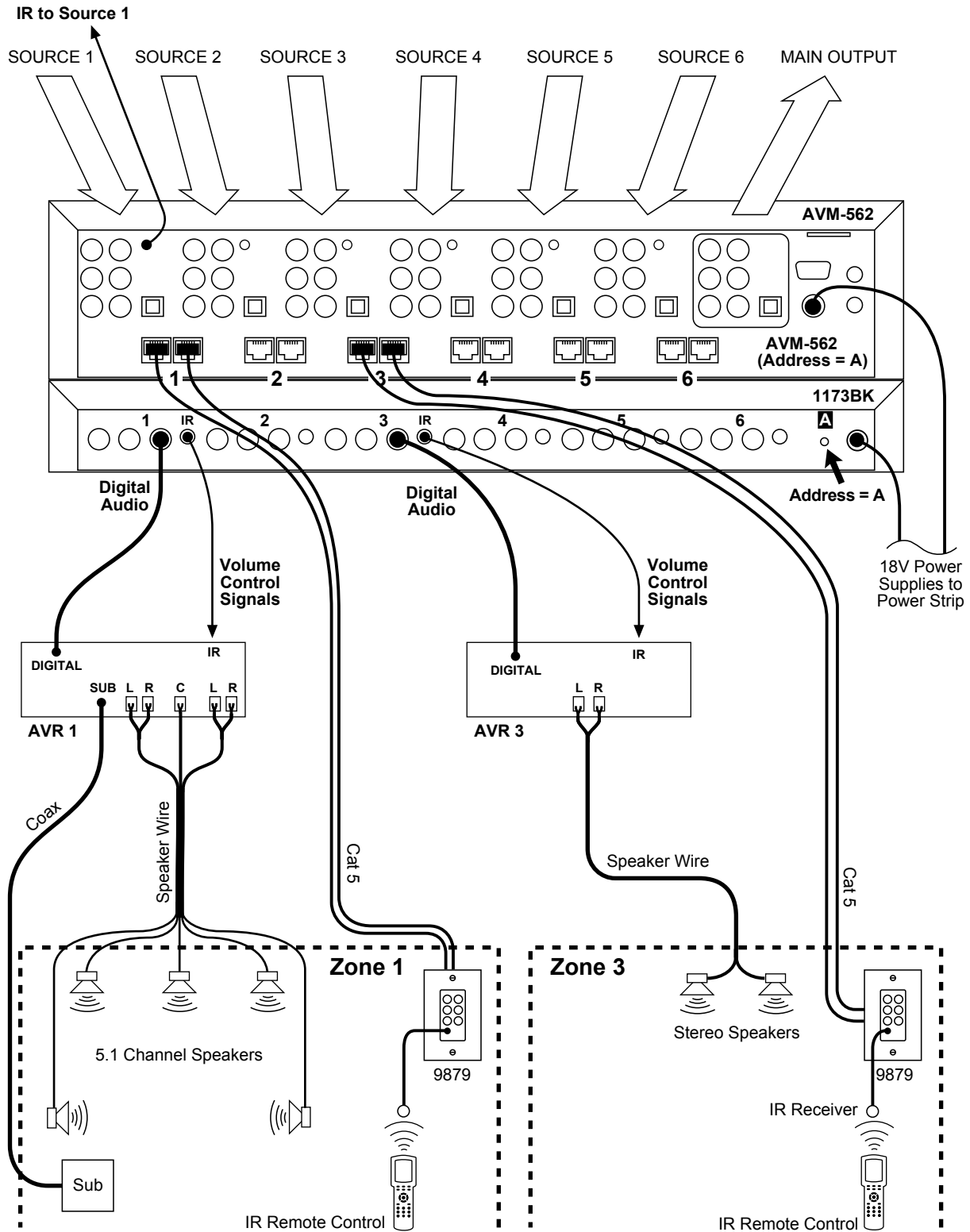
In this configuration dedicated A/V receivers are used in place of a multi-zone amp. Here the 1173BK performs volume control, whereas in diagram 3 IR signals are routed to each AVR to control volume. The 1173BK audio output #1 tracks with the AVAtrix Cat 5 output #1 so that the audio always matches the video at the zone. Address each 1173BK to match the AVAtrix outputs (see page 4).



Tracking Mode Diagram 3:

Digital AVRs as Zone Amplifiers with Volume Control

In this configuration dedicated AVRs are used. Analog or digital audio may be connected from the 1173BK to the AVR inputs. Digital output may be either 5.1 surround sound (e.g. zone 1 below), or two channel PCM (e.g. zone 3). IR signals from each zone are routed to that zone's AVR to control volume. The 1173BK audio output #1 tracks with the AVAtrix Cat 5 output #1 so that the audio always matches the video at the zone. Address each 1173BK to match the AVAtrix outputs (see page 4).



Source Mode Installation

In this mode the unswitched audio channels of the six AVAtrix system A/V sources are provided as inputs to the audio distribution system. The Model 1173BK is therefore not associated with any one Model 1176BK, so only one 1173BK is necessary even when there are multiple 1176BKs in the system as shown in the table.

The AVM-562 architecture allows up to five expanders. Using Source Mode, the maximum number of Cat 5 zone outputs is 30 (shown) with one 1173BK installed.

Model AVM-562 (Address A)	
Model 1176	Address B
Model 1176	Address C
Model 1176	Address D
Model 1176	Address E
Model 1173BK	Address M

1. Install the Model 1173BK anywhere in the AVAtrix stack and set its address dial to the "M" position.
2. Connect the desired audio outputs, which represent the six AVAtrix A/V sources, to audio input channels on the audio distribution system.
3. Audio system infrared outputs, if present, are intended to control its input sources. Plug a stick-on IR emitter into each of the audio system's IR output jacks and apply the emitter to the corresponding A/V source. In this way, source control commands originating in each room are routed by the audio system via infrared to the relevant source. See below for more information about using RF control systems.

IR Signal Routing

In Source Mode, the A/V sources and zone volume are generally controlled via IR through the audio distribution system keypad / IR receiver in each zone. The AVAtrix IR commands must be routed through a separate IR receiver connected to the AVAtrix Cat 5 receiver, necessitating two IR receivers in rooms with both A/V Cat 5 receivers and distributed audio service. To program IR remotes, download AVAtrix IR codes from www.audioauthority.com/page/software or obtain the codes from your remote control manufacturer. The AVAtrix may be used with any of five Cat 5 receiver styles. Models 9878 and 9879 and 9880 dual Cat 5 receivers feature an IR pathway and analog audio, and 1180R and 1180RD do not.

Using RF Control Systems

If desired, use the RS-232 connection for source switching and volume control, utilizing the 1173BK ExpressRamp volume control (see page 10). The RF base station should generally be located near the AVAtrix. It may be to advantage to use Model 1111 to inject IR commands from the RF base station zone outputs into the Cat 5 pathways to simplify programming. See Model 1111 manual for details.

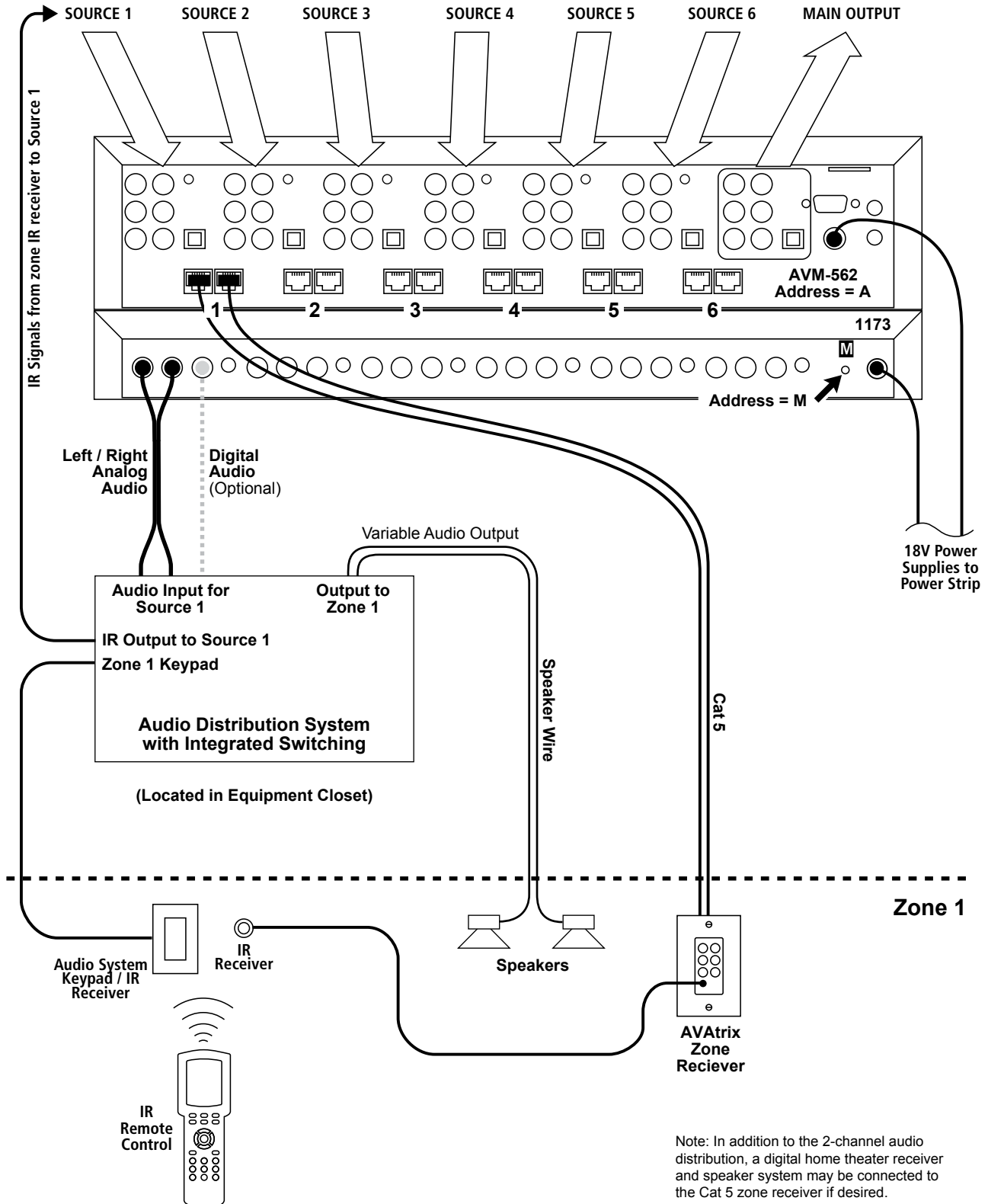
Source Mode User Instructions

Depending on the installation, you will use a wall-mounted controller or an infrared or wireless controller to select which music from various audio-only or audio/video sources you wish to enjoy. Your installer will have connected the AVAtrix system and your whole-house or room audio system to work together, enabling you to bring the pictures and sound you desire to each location in your home.

Source Mode Diagram

Integrated Audio Distribution System

Source mode is used with a whole-house audio system that includes its own switching and volume control. The 1173BK audio output #1 always provides the audio from Source 1. 1173BK volume control is not generally used with this type of system.



RS-232 (Serial) Extended Command Set

All valid commands receive a response, and all changes in the AVAtrix system via any method are reported. In the "Command" column on the next page, actual commands are shown in upper case, and parameters are represented by lower case bold characters (commands are not case-sensitive). All commands must be surrounded by brackets [and].

Command Definitions (Extended)

Command: String received by the AVAtrix from the controlling hardware. Commands are not case sensitive and should be 8-bit with No parity. The only characters recognized are: letters (**a-z** and **A-Z**), numbers (**0-9**), brackets (**[** and **]**), signs (**+** and **-**), and the question mark (**?**). All other characters, including spaces and commas, are optional and may be either included for clarity or omitted entirely.

Response: String transmitted by the AVAtrix to the controlling hardware. Responses are 8-bit with no parity. Responses are transmitted as noted below, and always have a **C/R L/F** sequence (0x0d, 0x0a) after each line.

Query: A special command that requests the current status of one or more connections or settings, but does not change any operation within the AVAtrix. A query must always contain the **?** question mark character.

Parameters: Values contained within commands and responses which identify groups, sources, zones, and router devices.

- j:** group in range {1-6}
- m:** source in range {1-6}
- n:** zone in range {1-6}
- x:** A/V router device in range {A-F}

In this document, braces { and } are used to signify ONE of the enclosed characters. For example, {**L,U**} indicate *either* of the two characters **L** or **U**.

General Commands (Extended)

Command:	Response:	Description:
[C,M,lm]	(M,lm)	Connect main output to source m
[C,Rx,On,lm]	(Rx,On,lm)	Connect zone n of A/V router x to source m
[C,X,lm]	(X,lm)	Connect all zones on all A/V routers to source m
[C,Gj,lm]	(Gj,lm)	Connect all outputs in group j to source m
[R,Rx,On,V]	(Rx,On,R,V,t)	Restrict video from A/V router x, zone n's source from all other zones. t represents the number of minutes left for this restriction. (see note)
[R,Rx,On,C]	(Rx,On,R,C,t)	Restrict control of A/V router x, zone n's source from all other zones. t represents the number of minutes left for this restriction.(see note)
[A,Rx,On]	(Rx,On,A)	Allow, A/V Router x, Zone n's source to all zones.
[V,Rx,On,vvv]	(Rx,On,V,vvv)	Set volume level of zone n of 1173BK in tracking mode to volume vvv (<i>ExpressRamp*</i>)
[V,lm,vvv]	(lm,V,vvv)	Set volume level of source m (valid when 1173BK is in source mode)
[V,X,vvv]	(X,V,vvv)	Set volume level of all 1173BK's in tracking mode to volume vvv (<i>ExpressRamp*</i>)
[L,P]	(P,L)	Lock out front panel controls
[U,P]	(P,U)	Unlock front panel controls
[L,I]	(I,L)	Lock out internal IR receiver
[U,I]	(I,U)	Unlock internal IR receiver
[+B]	(B,+)	Turn on display blanking
[-,B]	(B,-)	Turn off display blanking
[+P]	(P,+)	Select Professional Screen
[-,P]	(P,-)	Select Residential Screen

* **ExpressRamp™** enables a smooth volume change from the current level to a pre-defined level using a single RS-232 command. It streamlines the programming of audio "scenes" on control systems and avoids abrupt volume changes.

Query Commands (Extended)

Query:	Response:	Description:
[?,C,Rx,On]	(Rx,On,Im)	Query zone connection
[?,R,Rx,On]	(Rx,On,R,V,t)	Query zone restriction status. (see note)
[?,C,M]	(M,Im)	Query main connection
[?,C,X]	(RA,O1,Im) (RA,O2,Im) (RA,O3,Im) (RA,O4,Im) (RA,O5,Im) (RA,O6,Im) (RB,O1,Im) (RB,O2,Im) (RB,O3,Im) (RB,O4,Im) (RB,O5,Im) (RB,O6,Im) ...through all devices (M,Im)	Query all connections
[?,R,X]	(RA,O1,R,V,300) (RA,O2,Im) (RA,O3,Im) (RA,O4,Im) (RA,O5,Im) (RA,O6,Im) (RB,O1,Im) (RB,O2,Im) (RB,O3,Im) (RB,O4,Im) (RB,O5,Im) (RB,O6,Im) ...through all devices (M,Im)	Query restriction status of all zones (see note)
[?,C,RA]	(RA,O1,Im) (RA,O2,Im) (RA,O3,Im) (RA,O4,Im) (RA,O5,Im) (RA,O6,Im)	Query connections of all zones on A/V router x
[?,R,RA]	(RA,O1,R,V,300) (RA,O2,Im) (RA,O3,Im) (RA,O4,Im) (RA,O5,Im) (RA,O6,Im)	Query restriction status of all zones on A/V router x (see note)
[?,V,Rx,On,vvv]	(Rx,On,V,vvv)	Query volume level of zone n of 1173BK in tracking mode
[?,V,Rx]	(Rx,O1,V,vvv) (Rx,O2,V,vvv) (Rx,O3,V,vvv) (Rx,O4,V,vvv) (Rx,O5,V,vvv) (Rx,O6,V,vvv)	Query volume level of all zones of 1173BK tracking A/V router x
[?,V,Im]	(Im,V,vvv)	Query volume level of source m (valid when 1173BK is in source mode)
[?,V,I]	(I1,V,vvv) (I2,V,vvv) (I3,V,vvv) (I4,V,vvv) (I5,V,vvv) (I6,V,vvv)	Query volume level of all sources (valid when 1173BK is in source mode)
[?,V,X]	(RA,O1,V,vvv) (RA,O2,V,vvv) (RA,O3,V,vvv) (RA,O4,V,vvv) (RA,O5,V,vvv) (RA,O6,V,vvv) (RB,O1,V,vvv) (RB,O2,V,vvv) (RB,O3,V,vvv) (RB,O4,V,vvv) (RB,O5,V,vvv) (RB,O6,V,vvv) ...through all devices	Query volume level of all zones of all 1173's in tracking mode
[?,{L,U},P]	(P,{L,U})	Query status of panel lockout
[?,{L,U},I]	(I,{L,U})	Query status of internal I/R lockout
[?,{L,U},A]	(A,{L,U})	Query status of AutoSelect lockout
[?,{+,-},B]	(B,{+,-})	Query status of Display blanking
[?,{+,-},P]	(P,{+,-})	Query status of Display Screen

All valid commands are listed in the tables above. If the AVAtrix receives any other string in brackets [and] it is identified as an invalid command and the AVAtrix responds with the message **(ERROR)**.

Note: When a zone is restricted, its input is set to a non-valid input number. If a user tries to restrict video or control of a zone that is not on a valid input, the AVAtrix returns the input number to alert the programmer that the restriction was not performed. Example: (Rx,On,I7).

Limited Warranty

If this product fails due to defects in materials or workmanship within one year from the date of the original sale to the end-user, Audio Authority guarantees that we will replace the defective product at no cost. Freight charges for the replacement unit will be paid by Audio Authority (Ground service only). A copy of the invoice from an Authorized Reseller showing the item number and date of purchase (proof-of-purchase) must be submitted with the defective unit to constitute a valid in-warranty claim.

Units that fail after the warranty period has expired may be returned to the factory for repair at a nominal charge, if not damaged beyond the point of repair. All freight charges for out-of-warranty returns for repair are the responsibility of the customer. Units returned for repair must have a Customer Return Authorization Number assigned by the factory.

This is a limited warranty and is not applicable for products which, in our opinion, have been damaged, altered, abused, misused, or improperly installed. Audio Authority makes no other warranties either expressed or implied, including limitation warranties as to merchantability or fitness for a particular purpose. Additionally, there are no allowances or credits available for service work or installation performed in the field by the end user.



2048 Mercer Road, Lexington, Kentucky 40511-1071
Phone: 859/233-4599 • Fax: 859/233-4510
Customer Toll-Free USA & Canada: 800/322-8346
Website: <http://www.audioauthority.com>