Crestron Adagio® AAS-1/2/4 Audio Server

Operations Guide







Crestron Electronics, Inc. 15 Volvo Drive Rockleigh, NJ 07647 1-888-CRESTRON

Important Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 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.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- 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.
- Disconnect power prior to connecting or disconnecting equipment.
- Do not install in direct sunlight.
- The apparatus must be installed in a way that the power cord can be removed either from the wall outlet or from the device itself in order to disconnect the mains power.
- Prevent foreign objects from entering the device.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE. THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING. OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THE APPARATUS.

WARNING:

TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. ONLY QUALIFIED SERVICE PERSONNEL SHOULD PERFORM SERVICE.





The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

THIS IS AN APPARATUS WITH CLASS I CONSTRUCTION. IT SHALL BE CONNECTED TO AN ELECTRICAL OUTLET WITH AN EARTHING GROUND TERMINAL.

IMPORTANT:

The AAS can be used with Class 2 output wiring.

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Audio Server: Adagio® AAS-1/2/4

Introduction

The AAS-1, AAS-2-80, AAS-2, and AAS-4 are functionally identical. For simplicity within this guide, AAS is used except where noted.

Models

DESCRIPTION	MODEL NUMBER
One stereo output, 80Gb hard drive.	AAS-1
Two Stereo outputs, 80Gb hard drive.	AAS-2-80
Two Stereo outputs, 160Gb hard drive	AAS-2
Four stereo outputs, 250Gb hard drive.	AAS-4

Features and Functions

- High-performance digital audio server
- Choice of 80GB, 160GB or 250GB capacity
- Supports WMA, MP3 up to 320k and uncompressed WAV formats
- Multi-zone outputs up to four discrete analog outputs
- Audiophile quality high-end Wolfson Delta-Sigma 24-bit DACs on a dedicated audio board
- Lossless optical and coaxial digital outputs
- Digital and analog inputs record to hard disk from vinyl records, tapes and radio.
- Access on screen menu (OSM) control screens and view cover art on any video display, Crestron[®] touchpanel or Flash-enabled Web browser
- Access the music library from or any device running Windows Media[®] Player, Apple iTunes[®], or other media player compliant application
- Transfer PC files easily using AAS as a network drive
- Ethernet and IR controllable
- Plug and play integration with Adagio systems
- Optional Network Attached Storage (NAS).

NOTE: Further information can be found in the Crestron Adagio Audio Server User Guide (Part Number 2014056).

As the centerpiece for any home audio system, the Adagio Audio Server (AAS) provides an easy, powerful way to store and enjoy your complete music collection, with the ability to instantly access any album or track from touchpanels, keypads and computers throughout the home.

Instant Access

The AAS Audio Server is a hard disk based audio system which can store many hundreds of hours of music, all with the convenience of instant access from its front panel, from a computer, or from Crestron touchpanels and keypads. Whether you select a track by title, album, artist, or genre, the AAS locates it instantly and plays it at your command. And with hard disks up to 250GB, plus the added storage of the Network Attached Storage option, many thousands of hours worth of music can be stored.

On-Screen Menu

Browsing through albums and tracks, ripping CDs, and organizing a complete music library is fun and easy using the onscreen menu (OSM). Displayed on a video or SVGA monitor, the OSM shows full album, track, and artist names as well as album cover art, letting you manage and play the entire music library using the front panel controls or IR remote. The same OSM can be viewed and navigated using any computer Web browser (Macromedia Flash required), or even a Crestron touchpanel as part of a complete control system.

Easy Loading

Loading an entire CD collection onto the AAS is easy. Just place a CD into the disk tray, and the AAS rips it to digital in less time than it would take to play it. Then, the AAS automatically connects to the Gracenote CDDB Music Recognition Service via the built-in modem or Ethernet connection, downloading all of the information and cover art graphics for that CD. This information can also be entered manually, building a complete database for the entire music library.

Custom Playlists

The AAS lets you organize and control your music collection the way you want it. Using playlists, the AAS can be customized to suit the individual tastes of each family member, with the ability to compile different playlists for different moods and occasions. At any time, just select a playlist and let the AAS be the DJ, serving up a perfect mix of music from the list of tracks that you specified.

Multi-Zone Outputs

With up to four stereo outputs, the AAS is a vital component of any multi-room audio distribution system. The discrete outputs allow up to four different tracks to play in four different rooms at once. Professional quality features ensure exceptional audio quality in every room.

Plug-and-Play Integration

The AAS affords easy plug-and-play setup as part of a complete Adagio system. Without any programming, Adagio delivers full access and control of the AAS from every room in the house. The AAS can also be integrated with other systems, with control provided via Ethernet or IR.

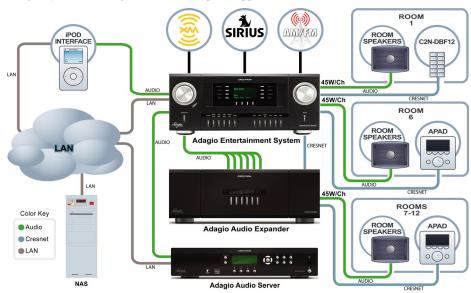
Computer Access

The AAS even lets you listen to your music directly on any computer and transfer tracks to portable devices using applications such as Windows Media[®] Player or Apple[®] iTunes[®]. Connected to your home LAN, the AAS simply behaves as a network drive allowing for easy file management.

Applications

The following diagram shows how an Adagio home entertainment system, using out-of-the-box functionality, might be configured to include the AAS.

Adagio System Showing the AAS in a Typical Application



Specifications

Specifications for the AAS are listed in the following table.

AAS Specifications

SPECIFICATION	DETAILS
Operating System	Microsoft® Windows® XP Embedded
Ethernet	10/100BaseT, static IP or DHCP/DNS
Encoding Formats MP3 Bit Rates	MP3, WMA, WAV (uncompressed) 128k – 320k, or variable
Audio (Analog)	
D-A Conversion Frequency Response S/N Ratio Dynamic Range THD (Total Harmonic Distortion) Channel Separation	Wolfson Delta-Sigma 24-bit 20Hz to 20kHz ±0.5dB typical 100dB at 1kHz A-weighted >96dB 0.003% at 1kHz typical 110dB at 1kHz typical
Power Requirements	60 Watts, 100-240V AC @ 50/60Hz*

AAS Specifications (Continued)

SPECIFICATION	DETAILS
Environmental	
Temperature Humidity	50° to 104°F (10° to 40°C) 10% to 90% RH (non-condensing)
Enclosure	Black metal, extruded aluminum faceplate
Dimensions	Height: 3.93 in (9.98 cm) Width: 17.20 in (43.69 cm) Depth: 14.49 in (36.08 cm)
Weight	18.74 lbs (8.5 kg)

^{*} Uninterruptible power supply recommended, Crestron CEN-UPS1250 or similar.

NOTE: Cable connections can extend the overall depth of the AAS by approximately two to three inches.

Physical Description

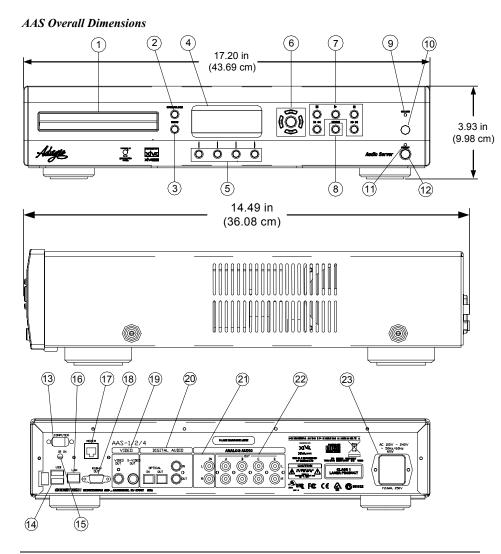
This section provides information on the connections, controls, and indicators available on your AAS.

AAS Physical View (Front)



AAS Physical View (Rear)





NOTE: Cable connections can extend the overall depth of the AAS by approximately two to three inches.

Connectors, Controls and Indicators

#	CONNECTORS, CONTROLS, & INDICATORS	DESCRIPTION
1	CD TRAY	Plays and copies CDs.
2	OPEN/CLOSE	Pushbutton, opens and closes CD tray.
3	MENU	Pushbutton, selects menu items.
4	LCD Display	Green LCD, 4 lines by 20 characters, adjustable LED backlight.
5	Softkeys	(4) LCD-driven pushbuttons.
6	Navigation	(4) Cursor buttons and (1) Select button for menu navigation and selection.
7	Transport	(5) buttons for PLAY, PAUSE, STOP, RWD/SKIP BACK, FFWD/SKIP AHEAD.

Connectors, Controls and Indicators (Continued)

#	CONNECTORS, CONTROLS, & INDICATORS	DESCRIPTION	
8	MODE	Mode selection button.	
9	ON-LINE LED	Indicates modem activity (the modem is not currently supported).	
10	Remote Sensor	Receives IR signals transmitted by the remote control unit ¹ .	
11	STANDBY LED	Indicates unit is in standby mode.	
12	STANDBY	Standby/Off/On button.	
13	COMPUTER Pin 1 Pin 9	(1) DB9 female, bi-directional RS-232 computer console port. 115.2k baud maximum (not currently supported).	
14	USB	(2) USB Type A female, USB 1.1 ports for mouse, keyboard and storage devices (not currently supported).	
15	IR IN	(1) 3.5 mm TRS mini-phone jack ²	
16	GREEN YELLOW LED LED	(1) 8-wire RJ-45 with two LED indicators; 10BaseT/100BaseTX Ethernet port; Green LED indicates link status; Yellow LED indicates Ethernet activity.	
		PIN SIGNAL PIN SIGNAL	
		1 TX + 5 N/C	
	PIN 8 PIN 1	2 TX - 6 RC -	
		3 RC+ 7 N/C 8 N/C	
		4 N/C 8 N/C	
17	MODEM		
		4-pin RJ-11 56kb/s female modem port (not currently supported).	
	uad on following naga)		

Connectors, Controls and Indicators (Continued)

#	CONNECTORS, CONTROLS, & INDICATORS	DESCRIPTION	
18	RGBHV OUT 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DB15HD female, RGB display output; Format: RGBHV; Resolution: SVGA 800 x 600 pixels; Output Voltage: 0.75 V _{p-p} nominal; H and V Sync: 5.0 V _{p-p} nominal; Output Impedance: 75 ohms (R/G/B), 100 ohms (H/V) Pin 1 Red Video Pin 2 Green Video Pin 3 Blue Video Pin 4 Reserved Pin 5 Ground Pin 6 Red Ground Pin 7 Green Ground Pin 8 Blue Ground Pin 8 Blue Ground Pin 9 No Connect Pin 10 Ground Pin 11 No Connect Pin 12 No Connect Pin 13 Horizontal Sync Pin 14 Vertical Sync Pin 15 No Connect	
19	VIDEO and S-VIDEO OUT VIDEO S-VIDEO	(1) 4-pin mini DIN female, S-video (Y/C) input Input impedance: 75 Ω Maximum input: level: 1 V _{p-p} Signal sensing on Y. S-video DIN connector pin assignments PIN DESCRIPTION 1 Luminance Ground 2 Chrominance Ground 3 Luminance 4 Chrominance	
20	DIGITAL AUDIO	(2) JIS F05 female (TOSLINK) optical fiber connectors; S/PDIF optical digital audio input and output; Input Sample Rate Conversion: 32, 44.1, or 48 kHz supported	
	IN O DOUT	(2) RCA female, S/PDIF coaxial digital audio input and output; Input Sample Rate Conversion: 32, 44.1, or 48 kHz supported; Maximum Input/Output Level: 0.5 V _{p-p} ; Input/Output Impedance: 75 ohms	

Connectors, Controls and Indicators (Continued)

#	CONNECTORS, CONTROLS, & INDICATORS	DESCRIPTION
21	ANALOG AUDIO IN	Two RCA jacks are used to connect unbalanced left and right line-level audio. Maximum Input Level: 2 V _{rms} ; Input Impedance: 10k ohms. (not currently supported)
22	ANALOG AUDIO OUT	(2, 4 or 8) RCA female providing (1, 2 or 4 depending upon model) unbalanced stereo line-level audio outputs; Output Level: 2 V _{rms} ; Output Impedance: 600 ohms
23	100 – 240V ~2.4A 50/60 Hz (MAIN POWER INPUT)	(1) IEC Socket and fuse holder; Mates with removable power cord, included

- Refer to Crestron Adagio Audio Server User Guide (Part Number 2014056) for details on the remote control.
- IR IN accepts remote control information from other devices such as the Crestron PRO2 control system.

Industry Compliance

This product is listed to applicable UL Standards and requirements by Underwriters Laboratories Inc.



As of the date of manufacture, the AAS has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labeling.



NOTE: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Setup

Network Wiring

Unlike other Crestron network devices, the AAS does not use Cresnet[®] for communications between the device and the control system. The AAS requires the use of a high-speed Ethernet connection for control system communications.

For information on connecting Ethernet devices in a Crestron system, refer to the latest version of the Crestron e-Control[®] Reference Guide (Doc. 6052), which is available for download from the Crestron website (www.crestron.com/manuals).

Installation

CAUTION: The AAS cannot be mounted at an angle. Damage to the internal hard drive and CD player may result. The unit must be installed on a level, vibration-free surface.

Hardware Hookup

Ventilation

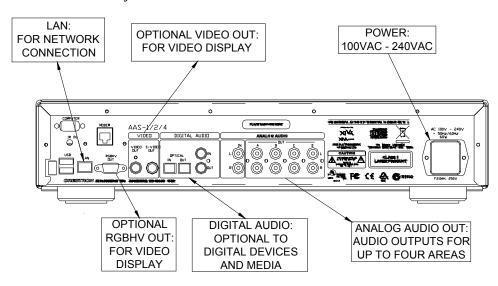
The AAS should be used in a well-ventilated area. The venting holes should not be obstructed under any circumstances.

To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the table of specifications. Consideration must be given if installed in an enclosed assembly since the operating ambient temperature of that environment may be greater than the room ambient. Contact with thermal insulating materials should be avoided on all sides of the unit.

Connect the Device

Make the necessary connections as called out in the illustration that follows this paragraph. Apply power after all connections have been made.

Hardware Connections for the AAS



NAS Installation

An optional Network Attached Storage (NAS) device can be purchased for the AAS. This consists of any device such as a hard drive, server or RAID array (Redundant Array of Independent Drives) attached to your network.

Currently the following devices are supported as NAS storage for the AAS:

- Infrant ReadyNAS products
- Devices using Windows Storage Server 2003 such as Dell–Power Edge Line and Iomega–StorCenter Pro Server (selected models)

NOTE: Please refer to the Crestron website for updated information on compatibility.

To set up a NAS storage device on your AAS, proceed as described below:

- Download and install the latest firmware for your AAS. Refer to the Crestron Adagio Audio Server User Guide (Part Number 2014056) for more information.
- 2. Navigate through the AAS' web browser to the **Set Up** menu. Select the new **Optional Features** choice installed by the new firmware.
- 3. Select Network Storage.
- 4. Select Enable.
- 5. When you are prompted to enter an activation code, call Crestron customer support. Refer to "Further Inquiries" on page 19.

To configure the network storage settings for the NAS device:

- 1. Navigate to **Set Up** on the AAS web browser.
- 2. Select Network Storage Settings.
- 3. Select **Edit** and then **Enable**.
- 4. In the resulting menu fill out the following fields:
 - Network Storage: Select Enable.
 - Network Location: Enter the network path to the NAS array (\nasdevice\NasShare). May require IP address.
 - User Name: Enter an appropriate username.
 - Password: Enter an appropriate password.
 - Domain: Enter an appropriate domain.
- 5. Select **Save**. A warning will display that you should make a back up before switching to the NAS array to prevent any potential data loss.
- 6. Select **Yes** and enter **ResetMyMusic** when prompted for a password.

NOTE: If you select or enter the wrong path or IP address in the *Network Location* field you will receive an error stating that the AAS could not connect to the NAS array. If the shared folder specified in the *Network Location* field is not empty, an error stating that will display.

Programming Software

Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website. To post a question or view questions you have submitted to Crestron's True Blue Support, log in at http://support.crestron.com. First-time users will need to establish a user account.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Crestron website.

Crestron has developed an assortment of Windows®-based software tools to develop an Adagio system. For the minimum recommended software versions, visit the Version Tracker page of the Crestron website (www.crestron.com/versiontracker).

Programming with Crestron SystemBuilder

The easiest method of programming, but does not offer as much flexibility as SIMPL Windows. For additional details, download SystemBuilder from the Crestron website and examine the extensive help file.

Programming with SIMPL Windows

SIMPL Windows is Crestron's premier software for programming Crestron control systems. It is organized into two separate, but equally important "Managers".

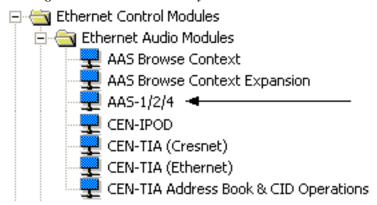
Configuration Manager

Configuration Manager is the view where programmers "build" a Crestron control system by selecting hardware from the *Device Library*.

 To incorporate the AAS into the system, drag the AAS symbol from the Ethernet Control Modules | Ethernet Audio Modules folder of the *Device Library* and drop it in the *System Views*.

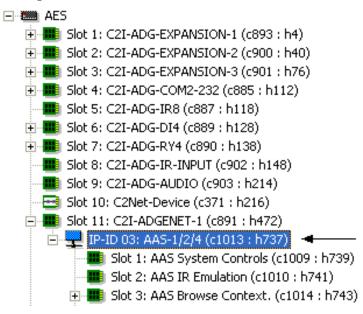
NOTE: It is suggested that you use the SIMPL windows example program referred to in the following section.

Locating the AAS in the Device Library



• The system tree of the control system displays the device in the appropriate slot with the IP ID (03) assigned to it by SIMPL as shown in the following illustration.

C2I-AdgenetNet Device, Slot 11



- Additional AASs are assigned different Net ID numbers as they are added.
- If necessary, double click a device to open the "Device Settings" window and change the IP ID, as shown in the following figure.



"AAS-1/2/4 Device Settings" Window

 The IP ID specified in the SIMPL Windows program must match the IP ID of each unit.

Programming Manager

Programming Manager is the view where programmers "program" a Crestron control system by assigning signals to symbols. The symbol can be viewed by double clicking on the icon or dragging it into *Detail View*. A description for each signal in the symbol is described in the SIMPL Windows help file (F1).

Example Program

An example program for the AAS is available from the "Example Program" section of the Crestron website (http://www.crestron.com/exampleprograms).

Uploading and Upgrading

Crestron recommends using the latest programming software and that each device contains the latest firmware to take advantage of the most recently released features. However, before attempting to upload or upgrade it is necessary to establish communication. Once communication has been established, files (for example, programs or firmware) can be transferred to the control system (and/or device). Finally, program checks can be performed (such as changing the device ID or creating an IP table) to ensure proper functioning.

Establishing Communication

Access the AAS' web interface by typing the IP address of the AAS into the location or address field of your web browser. This is the only supported method of communication for uploading/upgrading firmware and software.

NOTE: Required for operation with the web interface.

Ethernet Communication



- Establish Ethernet communication between AAS and PC.
- If connecting through a hub or router, use CAT5 straight through cables with 8-pin RJ-45 connectors. Alternatively, use a CAT5 crossover cable to connect the two LAN ports directly, without using a hub.
- Use the web interface to ensure your network settings (Menu | Setup |
 Network Settings) are set to Ethernet for Internet Access and Static for
 Ethernet Mode.

NOTE: The remote control can also be used to access these settings. Refer to the Crestron Adagio Audio Server User Guide (Part Number 2014056) for details.

- Enter the IP address and Subnet mask of the AAS (Menu | Setup | Static Ethernet Settings).
- Ensure that the Software Update settings are correct (Menu | Setup | Software Update Settings), that they point to "adagio.crestron.com" as the server and that they list the correct user name, password and domain.

NOTE: Only local updates require a username and password. Web updates require only the correct hostname.

NOTE: DHCP can also be used to set up Ethernet communications.

Programs and Firmware

Program or firmware files may be distributed from programmers to installers or from Crestron to dealers. Firmware upgrades are available from the Crestron website as new features are developed after product releases.

SIMPL Windows

If a SIMPL Windows program is provided, it can be uploaded to the control system using your web browser.

Firmware

Check the Crestron website to find the latest firmware. (New users may be required to register to obtain access to certain areas of the site, including the FTP site.)

Upgrade AAS firmware via the front panel. Refer to "Online Updates" in the Crestron Adagio Audio Server User Guide (Part Number 2014056) for the procedure.

Operation

This section provides a description of the AAS control functions available via the front panel of an Adagio System.

Operation via an Adagio System

In order to access these AAS functions, it is necessary to become familiar with basic Adagio System controls affecting AAS operation.

The following are likely front panel buttons and controls you should know how to use:

- Selection Knob
- Enter Button
- Room Button
- Soft Buttons
- Source Button
- Menu Button
- Volume Knob
- Mute Button

Please refer to the latest version of the specific Adagio System guide for detailed information on source mode control of the AAS.

Front Panel and Web Browser

For information on front panel and web browser operation, please refer to the Crestron Adagio Audio Server User Guide (Part Number 2014056) on the Crestron website.

Problem Solving

Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

AAS Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Device does not function.	No power supplied to unit.	Supply proper power.
Sound is not heard.	Room or group is muted or disabled.	Turn off mute function or enable the room/group.
	Volume is turned down.	Raise volume to an audible level.
	Speakers are not properly connected.	Verify speaker connections.
Cannot connect to download and install updates.	Improper Software Update Settings.	Ensure that the Software Update Settings are correct for your installation.
	Incorrect network or Ethernet settings.	Ensure that the network and Ethernet settings are correct for your installation.
Cannot save albums or tracks.	Disk full.	Check Disk Space under System Information. The number listed there is the remaining disk space.
Cannot set up NAS option.	Incorrect firmware version.	Update the AAS with the latest firmware.
Cannot connect to the NAS array.	Incorrect network path or IP address specified.	Enter the correct network path or IP address.

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron website (http://www.crestron.com/manuals). This link will provide a list of product manuals arranged in alphabetical order by model number.

List of Related Reference Documents

DOCUMENT TITLE
Adagio AES Entertainment System
Adagio AMS Media System
Adagio AMS-AIP Media System with Advance Image Processing
Crestron Adagio Audio Server User Guide
Crestron e-Control Reference Guide

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling Crestron at 1-888-CRESTRON [1-888-273-7876].

You can also log onto the online help section of the Crestron website (www.crestron.com/onlinehelp) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the AAS, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an "Addendum" in the Download column.

Return and Warranty Policies

Merchandise Returns / Repair Service

- No merchandise may be returned for credit, exchange, or service without prior authorization
 from CRESTRON. To obtain warranty service for CRESTRON products, contact an
 authorized CRESTRON dealer. Only authorized CRESTRON dealers may contact the factory
 and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying
 the nature of the problem, name and phone number of contact person, RMA number, and
 return address.
- 2. Products may be returned for credit, exchange, or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.
- 3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed.

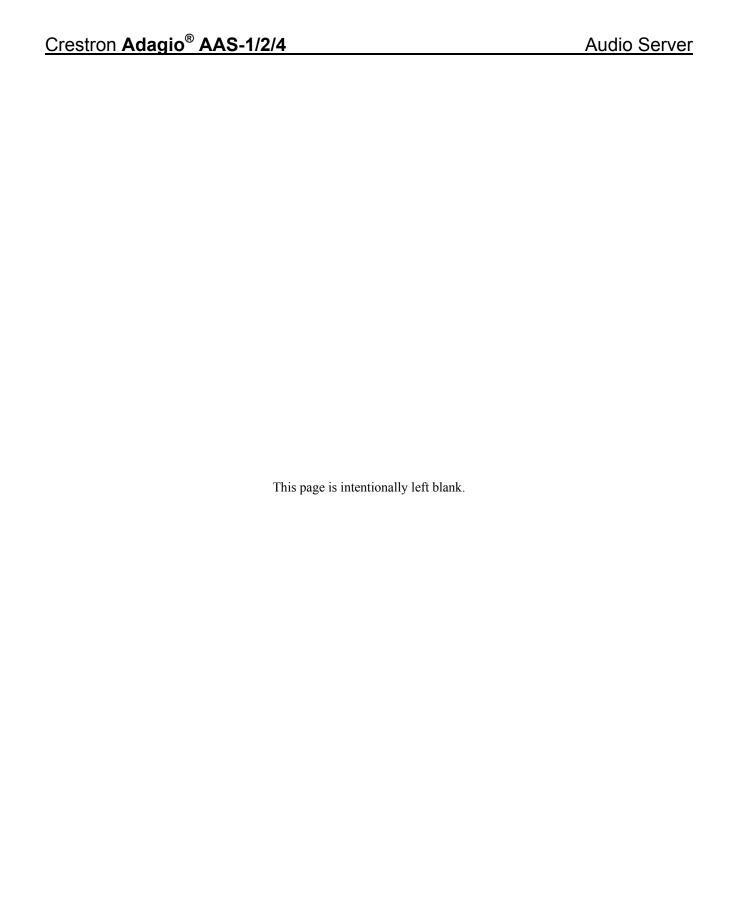
This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

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