# Adagio® Media System w/Advanced Image Processing

The Adagio AIP Media System (AMS-AIP) delivers a high-performance digital home theater and multi-room audio distribution solution in one elegant yet cost-effective package. Right out of the box, the AMS-AIP provides sophisticated surround processing, amplification, and digital video processing for a complete home theater, plus audio signal routing for 4 or more pairs of remote room speakers. Its built-in Crestron control system enables enhanced control and integration capability for AV and home automation.

### **Advanced Image Processing**

The AMS-AIP scales video input signals to match the native resolution of your high-definition display, supporting non-interlaced output resolutions up to 1600 x 1200, including 1080p HDTV, with a choice of HDMI, DVI, RGB, or YP<sub>B</sub>P<sub>B</sub> component connectivity. Featuring Gennum's Visual Excellence Processing™ with TruMotionHD™ fully adaptive deinterlacing, the AMS-AIP achieves exceptional image sharpness and resolution from both SDTV and HDTV sources. RealityExpansion™ 10-bit image processing employing FidelityEngine™ image enhancement delivers astounding realism and detail. FineEdge™ dynamic directional interpolation eliminates jaggy artifacts typical of traditional deinterlacing algorithms. Onscreen graphics provides useful feedback during setup and operation, and can even be customized like an Isvs® touchpanel for a personalized appearance. PIP and PBP processing with alpha blending enable versatile windowing capabilities for displaying combinations of any two video sources, or video plus graphics.

# HDMI™ and DVI Technology

The AMS-AIP's HDMI inputs and output provide simplified connectivity for today's and tomorrow's high-end components, providing a single-cable digital interface that combines uncompressed high-definition video, multi-channel audio, and intelligent format and command data. HDMI (High Definition Multimedia Interface) supports DVD and DTV sources up to 1080p, and can decode digital audio signals from DVD-Audio, SACD, Dolby Digital and DTS sources. The addition of DVI affords increased compatibility for connecting multimedia computers and a wide range of professional video players, displays, and projectors.

### 7.1 Surround Sound

The AMS-AIP features a state-of-the-art surround sound processor and powerful 7-channel amplifier designed to deliver jaw-dropping sonic performance from all of today's digital sources. Dolby® Digital EX and DTS-ES 96/24 decoding achieve superlative sound quality from the latest generation of DVD video and audio titles, with a full set of decoding and processing modes provided to support and enhance the vast range of movies and music available.

# **High-End Audio Performance**

A thunderous 7x100 Watts of amplification, plus discrete subwoofer/LFE balanced line output, are furnished to drive any 5.1, 6.1, or 7.1 theater speaker system with powered subwoofer. An advanced Class G amplifier topology produces the great sound of a classic Class AB design with near-digital efficiency. Independent six-band parametric EQ is provided on each output channel including the subwoofer/LFE output, as well as time-delay affording up to 80mS per channel for proper lip-sync and speaker placement compensation.

Audyssey MultEQ XT facilitates an optimum listening experience for



every seat in your theater using an ingenious equalization solution that corrects for both time and frequency response problems. MultEQ XT is the only technology of its kind capable of properly measuring sound response throughout the listening area, and combining that information to accurately represent the acoustical intricacies of the room. Based on these measurements, MultEQ XT meticulously calculates an equalization solution that effectively minimizes response distortion at every listening position.

# **Copious AV Inputs and Outputs**

To accommodate a full complement of audio sources, the AMS-AIP supplies a total of 10 S/PDIF digital audio inputs, 3 HDMI inputs, 10 analog stereo inputs, and one analog 7.1 surround input. In addition to its speaker and subwoofer outputs, the AMS-AIP furnishes unbalanced line-level audio outputs containing the 7.1 surround signal as well as a stereo downmix signal. High-definition video switching is also provided for 1 DVI and 3 HDMI high-resolution digital sources, plus 8 component, 4 S-Video, and 4 composite analog video sources.

### Multi-Room Audio

In addition to surround sound in the home theater, the AMS-AIP also distributes stereo audio to feed several pairs of remote room speakers. Listeners in each room can enjoy their own choice of radio stations, CDs and MP3s, or even a stereo downmix of the surround sound output. Each room includes its own volume, bass, and treble controls, with the ability to combine a group of rooms easily at the press of the "Party Mode" button.

The integrated multi-room amplifier delivers a robust 45 watts per channel to each of 4 rooms. A fifth stereo room, or up to 2 mono rooms, can be supported using spare surround channels if the theater is configured as 6.1, 5.1, or lower. And without requiring any programming, the AMS-AIP can easily be expanded to support another six rooms by adding an **AAE Audio Expander**. In fact, a total of three AAE's may be added, with simple setup afforded using Crestron Adagio Composer software, supporting up to 24 rooms in all (plus the theater).

# 2-Channel Steering

For homes that combine their theater with their main living space, some additional signal routing flexibility is needed. Listening to stereo music through the theater's main front speakers can have a distracting effect when there's music playing throughout the house. With 2-channel and multi-channel steering capability, the AMS-AIP lets



in addition to, the front speakers for the most cohesive whole-house listening experience.

### Satellite Radio

Up to 3 dual radio tuner cards can be installed in the AMS-AIP to enable combinations of up to 6 AM/FM, XM and SIRIUS® Satellite Radio tuners, letting listeners in different rooms each enjoy their own choice of music, news, sports and talk. For satellite and most FM stations, the AMS-AIP displays data such as the radio station name, song and artist, traffic, weather, and phone numbers. The AMS-AIP comes with one tuner card included.

### **Audio Servers**

Plug-and-play compatibility with Crestron's AAS Adagio Audio Server\* and CEN-IDOC Interface for Apple iPod® \* delivers instant access to an entire collection of music from any room in the house with full capability for browsing by album, artist, and song title.

### **Enhanced Front Panel Control**

With its large backlit LCD display, Room and Preset buttons, 4 softkeys and dual rotary encoders, the AMS-AIP front panel provides a very powerful, yet friendly user interface for setting up and controlling the theater along with a houseful of speakers. Custom naming of rooms, groups, and sources is facilitated on the LCD display, and also on the custom backlit label strip using Crestron Engraver software. A selection of pre-made labels is also included.

### **Versatile Room Controls**

A choice of basic 12-button keypads or the advanced APAD Wall Mount LCD Controller enables versatile control of the AMS-AIP in every room. A keypad provides the essential controls for adjusting volume, selecting sources, and toggling up and down through tracks and radio channels. For more elegant control, the APAD actually extends the many functions of the AMS-AIP front panel to each room, providing true feedback for display of audio sources, radio stations, CD titles, artists, and tracks by name, plus audio settings and many other parameters.

# 2-Series Ethernet Control System

Adagio brings Crestron's industry-leading Total Home Technology to homes of any size and budget. At the heart of the AMS-AIP is the powerful 2-Series control engine. With both Cresnet and Ethernet connectivity, plus custom programmability using Crestron SystemBuilder™ software, the AMS-AIP allows expansion and customization using Crestron's line of touchpanels, wireless remotes, and hundreds of other devices. The built-in Web server with native e-Control®2 XPanel support enables full remote control over IP from computers and PDA devices, as well as remote diagnostics and updates. Built-in IR, RS-232, relay and digital input ports are included to interface the AMS-AIP with non-Crestron devices ranging from CD changers to security systems.

# **Home Automation and Integration**

More than just a home audio video system, the AMS-AIP can actually grow as part of a complete home automation solution supporting all of Crestron's Cresnet and infiNET™ controllable dimmers, shade controllers, thermostats, and so much more.

- > Integrated surround sound processor and amplifier
- > Audyssey MultEQ XT advanced automatic equalization
- > High-definition analog and HDMI/DVI digital video switching
- > Advanced video image processing

- > Crestron QuickSwitch HD™ technology
- > Audio distribution for 4 to 6 rooms, expandable up to 24
- > Choice of 12-button room keypads or APAD LCD controllers
- > Accepts up to 3 dual radio tuner cards for XM and SIRIUS Satellite Radio, and AM/FM radio with RDS/RBDS (1 tuner card included)
- > Plug-and-play support for Adagio Audio Server and iPod interface\*
- > Set up via front panel or software
- > 2-Series Ethernet control system programmable to support Crestron touchpanels, wireless remotes, lighting dimmers, thermostats, and much more!

# **SPECIFICATIONS**

### **Processor**

CPU: 32-bit Freescale ColdFire® Microprocessor

### **Memory**

Flash: 16 MB SDRAM: 32 MB NVRAM: 256 kB

### **Operating System**

Real-time, preemptive, multitasking kernel, multi-threaded, FAT32 file system with long names; supports SIMPL<sup>TM</sup> Windows@nd SIMPL+®

# **Ethernet**

10/100BaseT, static IP or DHCP/DNS, SSL, autonegotiating, full duplex TCP/IP, UDP/IP, SMTP, SNMP, built-in Web server and e-mail client; supports Crestron e-Control 2 XPanel and RoomView applications

# **Graphic Engine**

16-bit non-palette graphics; 65,536 colors; Synapse image rendering algorithm; multi-mode objects, PNG translucency, full-motion (60 fps) animation, transition effects

# **Graphics Processor**

CPU: 32-bit Freescale ColdFire® Microprocessor

### **Graphics Memory**

Flash: 32 MB SDRAM: 32 MB

# Vi<u>deo</u>

Scaling Processor: Gennum VXP™ with dual channel image processor Input Signal Types: HDMI, DVI, component (YPbPr), S-Video (Y/C), and composite video

Output Signal Types: HDMI, DVI, component (YPbPr), RGB

Input Formats: NTSC or PAL, HDTV up to 1080i/1080p (1080p via HDMI/DVI only)

Input Resolutions, Interlaced: 480i, 576i, 1080i

Input Resolutions, Progressive/Non-Interlaced: 640 x 480 minimum to 1600

x 1200 @ 60Hz maximum



Output Resolutions (Progressive/Non-Interlaced Only): 480p 60Hz, 576p 50Hz, 720p 50Hz, 720p 60Hz, 1080p 50Hz, 1080p 60Hz, 680x480 60Hz, 680x480 75Hz, 800x600 60Hz, 800x600 75Hz, 1024x768 60Hz, 1024x768 75Hz, 1280x768 60Hz, 1280x768 75Hz, 1280x1024 60Hz, 1280x1024 75Hz, 1400x1050 60Hz, 1400x1050 75Hz, 1600x1200 60Hz, 1680x1050 60Hz

 $\textbf{Output Aspect Ratios:}\ 4:3,\ 5:4,\ 15:9,\ or\ 16:9\ based\ on\ resolution$ 

Analog Gain: 0dB (75 ohms terminated)

Analog Bandwidth: 400MHz Analog Crosstalk: >54dB Analog S/N: >70dB

# <u>Audio - Surround Sound Processor</u>

Processor: Texas Instruments DA610 Aureus™ 32-bit floating point DSP w/

Audyssey MultEQ® XT setup algorithms Analog-To-Digital Conversion: 24-bit 48 kHz Digital-To-Analog Conversion: 24-bit 48 kHz

Supported Formats/Modes: Bypass, Stereo, 2-channel steering (surround or rear), Multi-channel stereo, Ambience Effects (Cathedral, Hall, Stadium, Jazz Club), Dolby® Pro Logic IIx, Dolby Digital 5.1, Dolby Digital EX, DTS Neo:6, DTS Digital 5.1 Discrete. DTS ES 6.1 Discrete. DTS ES 6.1 Matrix. DTS 96/24

Surround Sound Master Volume: -80dB to +20dB, 0.5dB steps

Speaker Compensation: ±12dB, 0.5dB steps

Low Frequency Effects (LFE): -10dB to +0dB, 0.5dB steps

Mode Trim (Level Preset): ±12dB, 0.5dB steps (master); ±12dB, 0.5dB steps (per

output); -10dB to +0dB, 0.5dB steps (LFE) Input Compensation: ±10dB, 1 dB steps Mute: -80dB (electronic), >-100dB (relay) Bass Gain Range: ±12dB, 1 dB steps Treble Gain Range: ±12dB, 1 dB steps

EQ Modes: Audyssey MultEQ XT or 6-band parametric or graphic per surround/

subwoofer output channel

PEQ Filter Gain: ±12dB, 0.5dB steps PEQ Filter Bandwidth: 0.02 to 2.0 octaves PEQ Filter Center Frequency: 20Hz to 20kHz GEQ Filter Gain: ±10dB, 0.5dB steps

GEQ Filter Center Frequencies: 50, 180, 630, 2.3k, 8k Hz Crossover/High-Pass Frequency: 40 to 200 Hz, 10Hz steps

Maximum Delay: 80mS per channel, picture delay (lip-sync) and speaker

distance compensation combined

**Dynamic Range (compression):** Minimum, Standard, Maximum **Frequency Response:** 20Hz to 20kHz ±0.01dB (preamp);

20Hz to 20kHz ±0.2dB (power amp)

**THD+N:** <0.006% (preamp), 0.03% (power amp), 20Hz to 20kHz

S/N Ratio: >100dB (preamp), 100dB (power amp) 20Hz to 20kHz A-weighted

Dynamic Range: >113dB

Channel Separation: >85dB (preamp), >80dB (power amp)

# **Audio - Multiroom Distribution**

Typical of up to 5 Stereo, or 4 Stereo + 2 Mono Room Outputs: **Controls:** Volume, Balance, Bass, Treble, Loudness, Mute, Mono, Input Compensation

Volume Gain Range: -80dB to +20dB, 1 dB steps Mute: -100dB (electronic), -120dB (relay/room off)

Input Compensation: ±10dB, 1 dB steps
Bass Gain Range: ±12dB, 2 dB steps
Treble Gain Range: ±12dB, 2 dB steps
Frequency Response: 20Hz to 20kHz ±0.4dB
S/N Ratio: >100dB, 20Hz to 20kHz A-weighted

THD+N: <0.08%, 20Hz to 20kHz Stereo Separation: >75dB

### **Connectors - Control**

NET 1 - 6: (6) 4-pin 3.5mm detachable terminal blocks;

Cresnet Master ports, provide data and power for keypads and other Cresnet devices

IR OUT 1 - 8: (8) 3.5mm TRS mini-phone jacks, IR/Serial ports;

IR output up to 1.2 MHz; 1-way serial TTL/RS-232 (0-5V) up to 9600 baud

IR IN: (1) 3.5 mm TRS mini-phone jack;

For connection of the CNXRMIRD IR receiver (sold separately);

Allows IR wireless control from Crestron and third-party remotes using RC-5 IR commands

INPUT 1 - 4: (1) 5-pin 3.5mm detachable terminal block;

Comprises (4) digital inputs;

Rated for 0-24 Volts DC, referenced to GND;

Input Impedance: 2.2k ohms pulled up to 5 Volts DC;

Logic Threshold: 2.5 Volts DC nominal

RELAY OUTPUT 1 - 4: (1) 8-pin 3.5mm detachable terminal block;

Comprises (4) normally open, isolated relays;

Rated 1 Amp, 30 Volts AC/DC;

MOV arc suppression across contacts

COM A - B: (2) DB9 male, bidirectional RS-232 ports;

Up to 115.2k baud, hardware and software handshaking support

**COMPUTER:** (1) 6-pin RJ11 female, bidirectional RS-232 computer console port

LAN: (1) 8-wire RJ45 with 2 LED indicators, 10/100BaseT Ethernet port; Green LED indicates link status, Yellow LED indicates Ethernet activity

**NET:** (2) 4-pin 3.5mm detachable terminal blocks;

Cresnet Master ports, paralleled with NET ports 1 through 6;

Normally connect to **AAE**(s)

**USB** (front): (1) USB Type B female (behind label strip); USB 1.1 computer console port (cable included)

# Connectors - Audio

SLOT 1 - 3: (3) Adagio tuner card slots; accept choice of dual tuner cards;

Outputs from the tuner cards parallel to ANALOG SOURCES 1 - 6

MULTI-CHANNEL SOURCE: (8) RCA female;

Unbalanced line-level 7.1 Surround Sound audio inputs;

Maximum Input: 3.2 Vrms (flat); Input Impedance: 47k ohms

ANALOG SOURCES 1 - 10: (20) RCA female comprising (10) unbalanced

stereo line-level audio inputs;

Inputs 1 through 6 parallel with outputs from tuner card slots;

Maximum Input: 3.2 Vrms (flat); Input Impedance: 47k ohms

DIGITAL SOURCES 1 - 6: (6) RCA female;

S/PDIF coaxial digital audio inputs;

Input Impedance: 75 ohms

**DIGITAL SOURCES 7 - 10:** (4) JIS F05 female (TOSLINK) optical fiber connectors:

S/PDIF optical digital audio inputs

OUTPUT: (2) RCA female;

Unbalanced stereo line-level audio output containing a stereo mix of all

internal surround sound processor outputs;

Maximum Output Level: 2.5 Vrms; Output Impedance: 50 ohms **PRE-AMP OUTPUT**: (8) RCA female;

Unbalanced line-level 7.1 surround sound audio outputs;

Maximum Output Level: 2.5 Vrms (front, surround, back, center); 6.3 Vrms

(sub);

Output Impedance: 50 ohms

SUB (balanced): (1) 3-pin 3.5mm detachable terminal block;

Balanced line-level subwoofer audio output; Maximum Output Level: 12.6 Vrms:

Output Impedance: 100 ohms



**ROOM 1 - 4:** (8) 2-pin 7.62mm detachable terminal blocks;

Multi-room amplifier outputs;

Wire Size: Terminals accept up to 12 AWG;

Output Power: 45 Watts/Ch. at 8 ohms, 60 Watts/Ch. at 4 ohms

FRONT, CENTER, SURROUND, BACK or ROOM 5/6: (7) 2-pin 7.62mm 20A

detachable terminal blocks; Power amplifier outputs;

Wire Size: Terminals accept up to 10 AWG;

Output Power: 100 Watts/Ch. at 8 ohms, 130 Watts/Ch. at 4 ohms

Microphone (front): (1) 3.5mm TRS mini-phone jack (behind label strip);

Input for calibrated microphone (part of **CSSTK** Surround Sound Tuning Kit, sold separately)

# Connectors - Video

COMPONENT INPUTS 1 - 8: (24) RCA female comprising (8) component/HDTV

(YPbPr) video inputs;

Input signal sensing on "Y";

Input Level: 1 Vp-p nominal (Y), 0.7 Vp-p nominal (PbPr);

Input Impedance: 75 ohms nominal

S-VIDEO 1 - 4: (4) 4-pin mini-DIN female;

S-Video (Y/C) video inputs w/input signal sensing on "Y";

Input Level: 1 Vp-p nominal (Y), 0.7 Vp-p nominal (C);

Input Impedance: 75 ohms nominal

**VIDEO 1 - 4:** (4) RCA female; Composite video inputs w/input signal sensing;

Input Level: 1 Vp-p nominal; Input Impedance: 75 ohms nominal

**COMPONENT/RGB OUTPUT:** (5) BNC female;

RGB or component/HDTV video output;

Formats: RGBHV or YPbPr:

RGB Output Level: 0.7 Vp-p nominal; HV Sync Output Level: TTL. 5 Vp-p:

YPbPr Output Level: 1 Vp-p nominal (Y), 0.7 Vp-p nominal (PbPr);

Horizontal Frequency: 31.25 to 75 kHz;

Vertical Frequency: 50 to 75 Hz

DVI-D IN: (1) 24-pin DVI-D female, DVI 1.0 digital video input, includes HDCP 1.1

protocol

**DVI-D OUT:** (1) 24-pin DVI-D female, DVI 1.0 digital video output, includes HDCP

1.1 protocol

HDMI INPUT 1 - 3: (3) 19-pin Type A HDMI (V.1.3 with Deep Color) 1.3 digital

video/audio input; includes HDCP 1.1 protocol

HDMI OUTPUT: (1) 19-pin Type A HDMI (V.1.3 with Deep Color) digital video/

audio output; includes HDCP 1.1 protocol

### **Connectors - Power**

FUSE: Main fuse,T10AH;

(1/4" x 1-1/4", 250V, 10A, time-lag, high-rupture rated)

120V~50-60Hz: (1) IEC Male;

Mates with removable power cord (included)

G: 6-32 screw, chassis ground lug

# LCD Display

Green LCD dot matrix, 128 x 64 resolution, adjustable LED backlight

# **Controls and LED Indicators**

**THEATER OFF:** Pushbutton with green LED, turns off all theater outputs **MUTE:** Pushbutton with red LED, mutes audio in currently selected room (defaults to theater)

**MODE/MENU:** (8) Pushbuttons, select mode or menu item for adjustment: SOURCE, ROOM, HOUSE, MENU, SURRND, THEATER, DISPLAY, MORE (refer to manual)

**SOFTKEYS:** (4) LCD display-driven pushbuttons, select/activate various functions **ROOMS, SOURCES:** (12) Pushbuttons with green LEDs and backlit labeling strip, select room(s), input source(s), PARTY MODE, and ALL OFF

**SELECT:** Continuous turn rotary encoder with adjoining "ENTER" pushbutton with green LED, for selecting sources, surround modes, rooms, radio stations, and other parameters

**VOLUME:** Continuous turn rotary encoder, adjusts volume of selected room (defaults to theater)

H: Hardware reset button, recessed, reboots the control system S: Software reset button, recessed, restarts the SIMPL program

#### **Power Requirements**

Main Power Consumption: 1000 Watts (8 Amps) @ 120 Volts AC, 50-60Hz Available Cresnet Power: 20 Watts (0.83 Amps @ 24 Volts DC)

# **Environmental**

**Temperature:** 41° to 104°F (5° to 40°C) **Humidity:** 10% to 90% RH (non-condensing)

Heat Dissipation: 1600 BTU/hr @ 8 ohms, 2000 BTU/hr @ 4 ohms; all

channels loaded to 1/8 full power

#### **Enclosure**

Black metal with molded ABS/PC front panel;

Freestanding, side ventilation should not be restricted

### **Dimensions**

**Height:** 7.39 in (18.78 cm) **Width:** 17.16 in (43.59 cm) **Depth:** 18.80 in (47.75 cm)

#### Weight

57.5 lb (26.1 kg)

# **AVAILABLE MODELS**

AMS-AIP: Adagio Media System w/Advanced Image Processing (Includes [1]

ATC-AMFM2 Dual AM/FM Tuner Card)

AMS-AIP-SRD: Adagio Media System w/Advanced Image Processing (Includes [1] ATC-AMFMSRD AM/FM and SIRIUS Satellite Radio Tuner Card)
AMS-AIP-XM: Adagio Media System w/Advanced Image Processing (Includes

[1] ATC-AMFMXM AM/FM and XM Satellite Radio Tuner Card)

### **INTERNATIONAL VERSION (230 VAC)**

**AMSI-AIP** 

All the features and specifications of the AMS-AIP except:

# **Connectors (partial)**

FUSE: Main fuse, T5AH;

(5mm x 20mm, 250V, 5A, time-lag, high-rupture rated)

220V-240V~50-60Hz: (1) IEC Male; mates with removable power cord

(included)

# **Power Requirements**

 $\textbf{Main Power Consumption}: 1000 \ \text{Watts} \ (4 \ \text{Amps}) \ @ \ 220\text{-}240 \ \text{Volts} \ \text{AC},$ 

50-60Hz

Available Cresnet Power: 20 Watts (0.83 Amps @ 24 Volts DC)

### **AVAILABLE ACCESSORIES**

APAD: Wall Mount LCD Controller

C2N-DBF12: 12-Button Decorator Function Keypad ATC-AMFM2: Adagio Dual AM/FM Tuner Card

ATC-AMFMXM: Adagio AM/FM and XM Satellite Radio Tuner Card ATC-AMFMSRD: Adagio AM/FM and Sirius Satellite Radio Tuner Card

**AAE:** Adagio Audio Expander **AAS:** Adagio Audio Server

**CEN-IDOC:** Interface for Apple iPod® **CLS-C6(M):** iLux Integrated Lighting System

CNXRMIRD: IR Receiver

STIRP: IR Probe



CNSP-XX: Custom Serial Interface Cable C2N-TXM-C50: XM Antenna Extension Cable SRD-ANT-1-PAK: Satellite Radio Antenna System

SRD-ANT-1LD-PAK: Satellite Radio Antenna System, Long-Distance

SRD-ANT-4-PAK: Satellite Radio Antenna System, 4-Way SRD-ANT-8-PAK: Satellite Radio Antenna System, 8-Way

**CSSTK:** Surround Sound Tuning Kit

AES/AMS FRONT LABEL: Backlit Engravable Label Strip

\* DHCP Ethernet router required.

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