User Manual

Ultra HD 4K
Video Distribution Amplifier

Model 1398D • Model 1394D • Model 1392D

Audio Authority®

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Introduction

Thanks for purchasing an Ultra HD distribution amplifier from Audio Authority. The 1398D, 1394D, and 1392D are designed to split an Ultra HD or 4K HDMI® signal from one source to a wide spectrum of HDMI displays in retail demo environments. This family of products is the ideal solution for merchandising Ultra HD displays using the latest content at the highest resolutions and refresh rates, including 2160p@60Hz.

Display-source compatibility is ensured by the distribution amplifier's multiple EDID options. Daisy-chain multiple distribution amplifiers or create a hub-and-spoke layout for large distribution systems.

Features

- Supports UHDTV resolutions up to 3840x2160@24/25/30/50/60Hz and 4096x2160@24/25/30/50/60Hz
- HDCP 2.2 compliant
- Wide frequency range: 25MHz~600MHz
- Video bandwidth: 18Gbps
- Supports default EDID and has the ability to learn the EDID of displays
- Mini-USB firmware update for expanding compatibility
- Supports all bitstream audio formats such as Dolby Digital and DTS
- Compact footprint and easy installation

Checking Package Contents

Before attempting to use this device, please check the packaging and make certain the following items are contained in the shipping carton:

- Distribution Amplifier
- 5VDC Power Adapter
- User Manual

Getting the Best Results

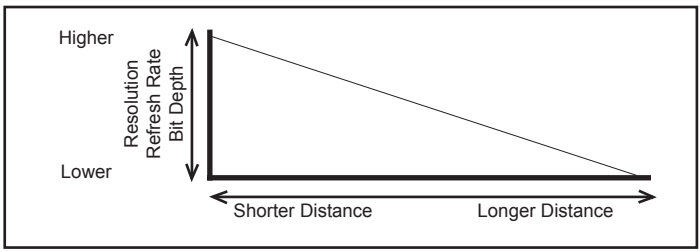
Many factors influence the quality and reliability of HDMI signal distribution installations. The following are the main factors to consider, and basic precautions that will ensure the best possible performance.

- **SYS-RST for Source Switching -** If the source device will be switched often during operation, as in the case of an HDMI switch connected at the head end of the distribution system, set the SYS-RST switch to ON (SYS). This setting prevents the 1398D from interrupting video and audio transmission to re-learn EDID settings each time the source is switched, or a TV is hot-plugged to the distribution system.

- **Resolution tracking -** Set the source to output the best resolution that all TVs are capable of displaying. Utilize the following instructions to ensure that all TVs connected to the DA receive video signal. If the TVs have a wide range of resolution capabilities, the highest resolution sets may be shown at a lower resolution.

- **Source resolution and video/sound quality -** Sources, such as satellite receivers or cable boxes can output at low resolutions or deliver compressed video material that may yield poor results. Consider the source when planning and troubleshooting your system.

- **Output display devices -** The quality of the video image depends upon the type and quality of the HDMI display devices used. The device with the lowest resolution will be the reference standard for the rest of the HDMI displays connected to the DA.



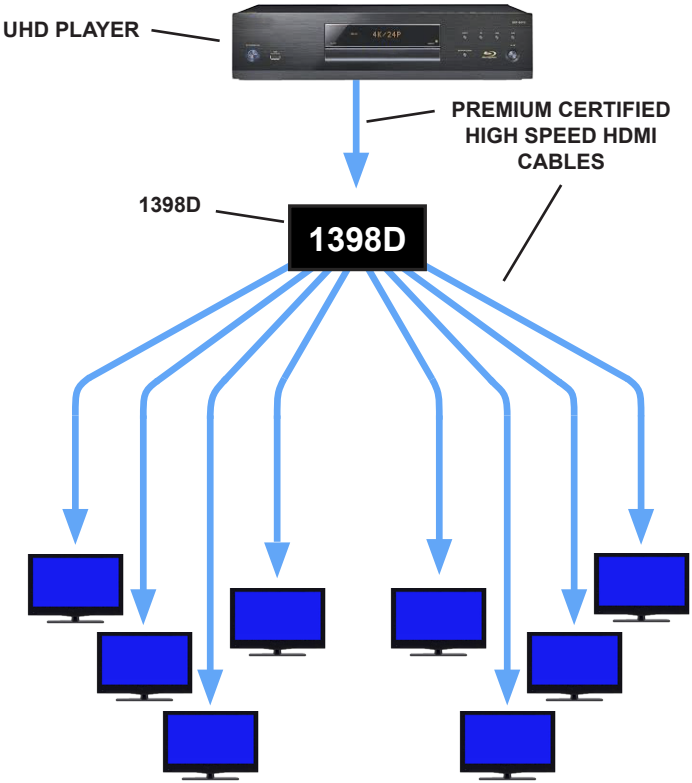
- **Distance between the DA source and the displays -** Use the shortest cables possible, but premium certified high speed cables and advanced HDMI extenders may be necessary for the longest runs.

- **Connection cables -** HDMI cable design and quality are extremely important in long cable runs where capacitance can severely degrade performance. Use premium certified high speed cables designed to handle 4K resolutions and 3D; low quality cables are susceptible to interference. Always use good strain relief methods to prevent cables from becoming loose over time.

- **Interference from nearby electrical devices -** RF emission can have an adverse effect on signal quality. For example, older computer monitors often emit very high electromagnetic fields that can interfere with the performance of nearby video equipment.

Planning a Distribution System

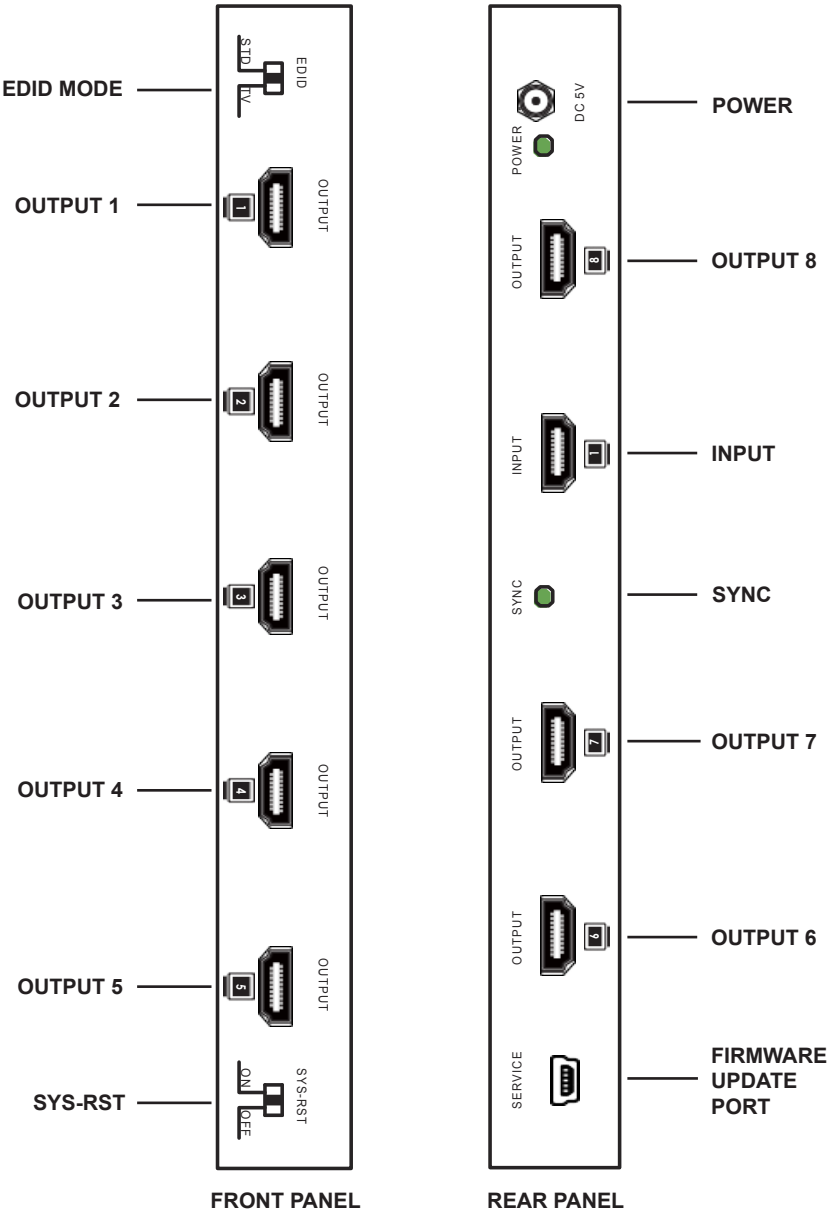
- Each display should be tested with the source(s) being used to ensure basic compatibility before connecting them to a distribution amp and/or switcher. Not all HDMI components and displays are compatible.
- Since all of the displays will be receiving the same video signal resolution and format from the source, make sure the source is set to output the highest resolution that *all of the displays can accept***.** For instance, if one of the displays connected to the distribution system can only accept a maximum input resolution of 1080p, all of the displays will receive only 1080p video signals. You may consider creating two or three separate distribution systems with different sources and different output resolutions so that you can adequately demonstrate the highest resolution HDTV sets.
- Since HDMI connectors can sometimes become loose, mount the switcher or distribution amplifier to a flat surface and add strain relief tie-downs a few inches away from every HDMI cable connector.



Eight UHD TVs on display

Installation

Study the drawing below and become familiar with the controls, signal input, outputs and power input. The 1398D is shown below, the differences between it and the 1394D and 1392D are the number of HDMI outputs available.



Wiring the System

- Switch off all devices, including monitors.
- Connect a premium certified high speed cable from the HDMI source to the input of the DA. Cable lengths should be kept as short as possible.
- Connect the outputs of the DA to displays or other devices.
- Make certain that the HDMI cables are securely plugged into the source and display devices as well as the DA. Always use premium certified high speed cables, and the shortest length possible, for best results.
- Connect the power adapter to the AC source and then to the DA.
- The unit begins to function as soon as the AC adapter is connected to the unit and AC power. There is no power switch.
- Turn on the HDMI source and HDMI destination devices and observe the source signal on the inputs of all of the destination devices.

Note: Proper operation of HDMI distribution amplifiers depends on the use of premium certified high speed HDMI cables with low loss, high bandwidth signal handling capabilities.

Operation

Supported Resolutions:

DVI and HDMI Resolutions	Input	Output
640x480@60/72/75/85	✓	✓
800x600@56/60/72/75/85	✓	✓
1024x768@60/70/75/85	✓	✓
1280x1024@60	✓	✓
1366x768@60	✓	✓
1600x1200@60	✓	✓
1920x1080@60	✓	✓
1920x1200@60	✓	✓
1440x576i@50	✓	✓
1440x480i@59.94/60	✓	✓
720x480p@59.94/60	✓	✓
720x576p@50	✓	✓
1280x720p@50/59.94/60	✓	✓
1920x1080i@50/59.94/60	✓	✓
1920x1080p@23.97/24/25/29.97/30/50/59.94/60	✓	✓
3840x2160@24/25/30/50/60	✓	✓
4096x2160@24/25/30/50/60	✓	✓

Switch Settings

- EDID: Choose Standard (STD) or TV mode. In TV mode, the DA automatically detects and stores the output 1 sink EDID data (e.g. a TV). Switch to STD mode for 1080p output.

- SYS-RST: The DA checks the EDID of connected displays every eight to ten minutes. Set the SYS-RST switch to ON to prevent the DA from interrupting video and audio transmission to re-learn EDID settings each time the source is switched, or a TV is hot-plugged to the distribution system.

Firmware Updates

Contact Audio Authority Technical Support at 800-322-8346 for information regarding firmware updates.

Troubleshooting

- For 4K resolution, use premium certified high speed HDMI cables and a high speed HDMI Extender (if needed) that supports Ultra-HD. Make certain that the input cable is as short as possible. HDMI cable design and quality are extremely important in long cable runs where capacitance can severely impact performance.
- Make certain that the distribution amplifier's power LED is illuminated and not flickering on and off. Intermittent operation generally means a problem with the DC power adapter or low AC voltage being supplied to the DC adapter's input.
- If some lower resolution TVs do not display a picture, you may need to divide your distribution system into separate 1080p, and 2160p systems with a source for each system.
- If some displays are not receiving video signal, or lose signal, check to see if they are on the wrong input.
- If you still experience problems using the distribution amplifier, troubleshoot by first attaching the source device directly to each of the destination devices in turn using the same cables you are using with the expanded system. This is a way of determining if the problem is due to bad cables or a problem with the other devices. If you are unable to obtain a signal using this simplified path, suspect the cables, the source device or the destination device.

If a problem still persists after trying the above suggestions, contact the Audio Authority Technical Service department via email: support@audioauthority.com, or call 800-322-8346 or 859-233-4599.

Specifications

Model 1392D	1x2 Distribution Amplifier (Splitter)
Model 1394D	1x4 Distribution Amplifier (Splitter)
Model 1398D	1x8 Distribution Amplifier (Splitter)
HDMI Features	HDMI, 3D & 4K/2K
DVI Compliance	DVI 1.0
HDCP Compliance	HDCP 2.2
Video Bandwidth	Single-link 600MHz (18Gbps)
Maximum Video Resolution and Formats	480i~1080p@24/50/60 4K2K@24/25/30/50/60
Audio Support	DTS-HD Master Audio, Dolby TrueHD, Dolby Atmos, Dolby Digital, DTS, DVD-Audio, LPCM, SACD, MPCM
ESD Protection	Human body model — ±8kV (air-gap discharge) & ±4kV (contact discharge)
Firmware Update	via Mini-USB port
Input/Output 1392D	1x HDMI/2x HDMI
Input/Output 1394D	1x HDMI/4x HDMI
Input/Output 1398D	1x HDMI/8x HDMI
HDMI Connector	Type A (19-pin female)
Control Switch	EDID mode selection
Dimensions (L x W x H) 1392D	108 x 128 x 25mm
Dimensions (L x W x H) 1394D	108 x 231 x 25mm
Dimensions (L x W x H) 1398D	240 x 103 x 25mm
Weight 1392D	358 g
Weight 1394D	616 g
Weight 1398D	690 g
Power Supply	5V DC 3A
Power Consumption	9.5 watts (max)
Regulatory Approvals	US/EU standards, CE, FCC/UL certified
Operation Temperature	0~40°C (32~104°F)
Storage Temperature	-20~60°C (-4~140°F)
Relative Humidity	20~90% RH (no condensation)

Limited Warranty

If this Audio Authority® 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 will replace or repair 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 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 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.

Warranty Service Procedures

If you suspect a product defect, contact Audio Authority's Technical Service Department at 800-322-8346 or 859-233-4599 for assistance in verifying the problem. If a defect or potential defect is suspected, a replacement unit will be shipped immediately on a defect-exchange basis and a Return Authorization Number will be issued for the return of the defective product. Replacement units are sent out at the Manufacturer's Suggested Retail Price which is charged to the Customer's Credit Card at the time of shipment. Once we receive the defective unit back at the factory, it will be evaluated under the conditions of this warranty and if found to be in-warranty, a full credit will be issued to the Customer's Credit Card. Return freight charges for the defective unit are the customer's responsibility. Please contact our Technical Service Department for complete details concerning all in and out of warranty service matters.

We appreciate your confidence in our products and services and will always strive to meet or exceed your needs.

Regulatory Compliance

Model 1392D, 1394D, and 1398D distribution amplifiers have been tested for compliance with appropriate FCC and CE rules and regulations and are also RoHS compliant.

The power adaptor has been tested for compliance with UL, CE and CSA rules and regulations and is also RoHS compliant.

Warnings

Please read all instructions before attempting to unpack or install or operate this equipment, and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water
- Never spill liquid of any kind on or into this product
- Never push an object of any kind into this product through module openings or empty slots, as you may damage parts
- Do not attach the power supply cabling to building surfaces
- Do not allow anything to rest on the power cabling or allow it to be abused by persons walking on it
- To protect the equipment from overheating, do not block the slots and openings in the module housing that provide ventilation

Audio Authority®

2048 Mercer Road, Lexington, KY 40511-1071 USA
800-322-8346 • 859-233-4599 • Fax: 859-233-4510
support@audioauthority.com • www.audioauthority.com

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