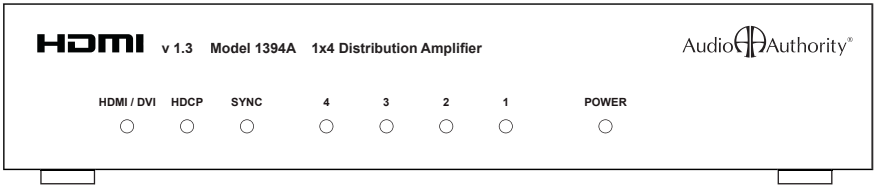
User Manual



Model 1394A, and 1398A
HDMI Distribution Amplifiers

Audio Authority®

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Liability Statement

Every effort has been made to ensure that this product is free of defects. Audio Authority cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly.

Audio Authority reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

1.0 INTRODUCTION

Thanks for purchasing this Model 1394A or 1398A distribution amplifier from Audio Authority. These distribution amplifiers are designed to split an HDMI signal from one source to multiple HDMI displays without signal degradation or loss of encryption. The 1394A and 1398A are HDCP 1.1 compliant, and HDMI v1.3 compliant, supporting deep color video and Dolby TureHD and DTS-HD Master Audio. Ultra high bandwidth, equalized inputs, and amplified outputs insure a flawless installation even with long cable runs. Audio Authority also offers an extensive line of audio and video switchers, converters and distribution amps available for purchase online at www.audioauthority.com.

1.1 FEATURES

- Distributes one HDMI source signal to multiple destinations
- Equalizer/extender circuitry allows up to 30m (100') input cable length
- Amplified outputs allow up to 30m (100') cable runs to HDMI sink
- Outputs may be cascaded to create an extensive distribution network
- Supports 10/12 bit color depth display
- Supports 480i, 480p, 720p, 1080i, 1080p and many PC resolutions
- Supports Dolby Digital +, Dolby® Digital TrueHD and DTS-HD Audio
- HDMI version 1.3 compliant, HDCP 1.1 compliant
- Individual HDCP keys allow each output to handshake with a display sink independently
- Originates EDID for the source or can re-transmit the EDID from a downstream HDMI sink
- Supports automatic discovery of display EDID
- Accepts locking HDMI cables

1.2 SPECIFICATIONS

Compliance	HDMI	1.3 compliant
	HDCP	1.1 compliant
Video Inputs	HDMI (all models)	1x via HDMI connector
Video Output	1394 HDMI	4x via HDMI connector
	1398 HDMI	8x via HDMI connector
Audio Output	HDMI	HD-Audio, including Dolby® TrueHD & DTS-HD
	Audio bandwidth	20Hz to 20 KHz
General	Frequency bandwidth	2.25Gbps (single link)
	Color depth	10/12 bit color depth display
	Supported PC/DVI resolutions	Up to 1920x1200
	Supported HDTV formats	480i, 480p, 576i, 576p, 720p, 1080i and 1080p
	Compliance	HDMI V1.3, HDCP V1.1, DVI V1.0
	Signal equalization	Internal
Maximum Distances	Source to DA	20m (60') for 1080p/8-bit, 15m (45') for 1080p/12-bit
	DA to display	15m (45') for 1080p/8-bit, 10m (30') for 1080p/12-bit
Warranty	Limited warranty	2 years parts and labor
Mechanical	1394 (H-W-D)	1.6x8.6x5.8" (41.5x218x147mm)
	1398 (H-W-D)	1.75"19.0"x6.3" (44x436x160mm)
	1394 weight	1.88lbs (0.85kg) net
	1398 weight	4.4 lbs (2kg) net
Environmental	Operating temperature	0° to +50°C (+32° to +122°F)
	Operating humidity	10% to 90%, non-condensing
	Storage temperature	0° to +50°C (+32° to +122°F)
	Storage humidity	10% to 90%, non-condensing
Power Requirement	External power supply	5VDC@2A (1394), 5VDC@5A (1398)
Regulatory Approvals	HDMI DAs	FCC, CE, RoHS
	Power supply	UL, CUL, CE, PSE, GS, RoHS
Accessories Included	AC power adapter	USA
	Instruction manual	

2.0 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.

- **Output display device.** The quality of the output signal depends largely upon the type and quality of the HDMI display device used. For instance, some televisions just look better than others.
- **Distance between the DA sources and the display.** Long distances are possible, but premium quality cables and advanced HDMI extenders with DDC correction may be necessary for the longest runs.
- **Input/output connection cables.** Low quality cables are susceptible to interference. They degrade signal quality due to poor conductor matching and can cause elevated noise levels. Cables should be of the best quality.
- **Interference from nearby electrical devices** can have an adverse effect on signal quality. For example, an older computer monitor often emits very high electromagnetic fields that can interfere with the performance of video equipment in its proximity.

2.1 Resolution Tracking

Since HDTV can be output from the source at any of several different resolutions, the 1390 series DA can sense and accept any standard resolution; however, on the outputs, the DA must sense the resolution capabilities of all of the display devices connected to it and then set the resolution of all outputs to the resolution of the display having the ***lowest*** resolution response characteristics. This behavior insures that all displays can produce a picture. It is best to use display devices having the same maximum resolution; just one display with lower resolution capabilities causes all of the other displays connected to the DA to receive that same low resolution.

3.0 CHECKING PACKAGE CONTENTS

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

- HDMI Distribution Amplifier
- 5 VDC Power Adapter
- User Manual

Note: please keep the original packing material in case the unit ever needs to be returned. If you find any items are missing, contact Audio Authority immediately. Have the model number and invoice available for reference when you call.

4.0 CONNECTING THE HARDWARE

Please study the front and rear panel drawings and become familiar with the signal input, outputs and power inputs.

The 1394 and 1398 are functionally identical with the exception of the number of outputs. Both have a single HDMI input and a 5 VDC power input socket. LEDs on the front panel indicate when the DA is furnishing a signal to an HDMI compliant device.

- Connect an HDMI approved cable from the HDMI source to the input of the DA. Cable length can be up to 30 meters – preferably shorter.
- Connect the outputs of the DA to their destination devices using HDMI approved cables no more than 30 meters long.
- Connect the power adapter to the AC source and then to the DA.
- Turn on the HDMI source and HDMI destination devices and observe the source signal on the inputs of all of the destination devices. The DA's front panel LEDs will light indicating which outputs are active.
- Make certain that the HDMI cables are securely plugged into the source and display devices as well as the HDMI DA. Always use high quality cables, and the shortest length possible, for best results.

The unit begins to function as soon as the AC adapter is connected to the unit and AC power. There is no power switch. There are no other operator interventions required with the possible exception of the EDID jumper (see 5.0 Operating the Unit).

4.1 Using the Positive Cable Securing Feature

If HDMI cables are used that are equipped with locking type connectors, remove the Philips head screws from the rear of the unit just above the HDMI connectors and replace them with the hex nut/screws included with the accessory pack. After screwing these into the threaded holes vacated by the Philips head screws, the hex nut provides a threaded receptacle for the screw that is part of the locking HDMI connector on the cable. Plug in the cable's locking HDMI connector and secure it to the unit with its integral screw.

4.2 Optional Rack Mount Kit

The distribution amplifiers can be mounted in a standard 19" equipment rack. Attach the furnished rack ears the sides of the unit and then attach the unit to the 19" rack using the furnished hardware. To mount the 1394 DA in a rack, the rack mount kit must be used.

5.0 OPERATING THE UNIT

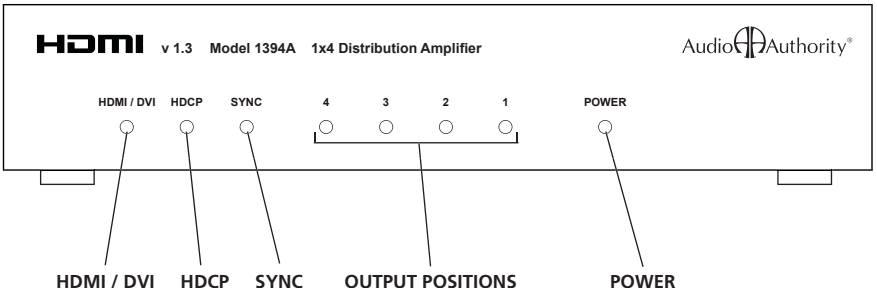
**Note: Proper operation of HDMI distribution amplifiers depends on the use of high quality HDMI cables that provide low loss, high bandwidth signal handling. The distance specification cannot be guaranteed unless cables used throughout the system meet these high standards.*

5.1 Notification LEDs

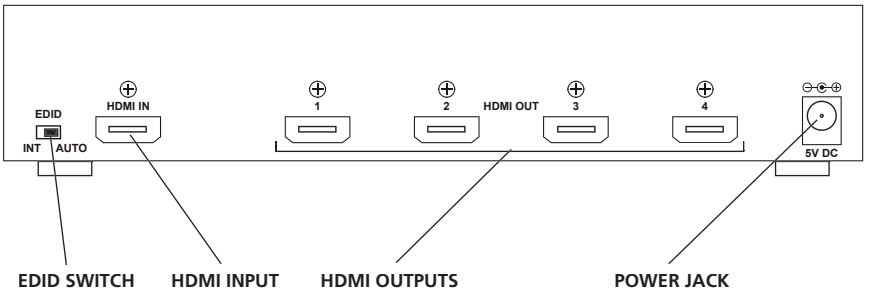
There are LEDs for each output which show whether or not the output has successfully made a connection with the destination device. In addition to these, four more LEDs provide the following information:

- **HDMI / DVI** LED shows whether an HDMI or DVI signal is being received.
- **HDCP** LED shows if the signal is encoded with HDCP (High-bandwidth Digital Content Protection) signals.
- **SYNC** LED shows if the HDMI signal has synchronized.
- **POWER** LED shows the unit is receiving power.

Model 1394A HDMI Distribution Amplifier, front view. Model 1398A is similar.



Model 1394A HDMI Distribution Amplifier, rear view. Model 1398A is similar.



5.2 EDID Jumper Operation

On the rear of the unit you'll find an EDID* Jumper. The default factory setting for the EDID Control Jumper is **AUTO** and you should leave it as it is if the display is operating properly.

The EDID jumper controls whether the DA determines the connected devices' EDID information automatically or uses an internal information table. Switch to **INT** (Internal) to use the built-in EDID information table if communication problems occur.

When the EDID control jumper is in AUTO position, the unit detects the first destination HDMI device's EDID and records the value in the DA. If the first detected output device is DVI, it passes on to the next device in sequence until the first HDMI compliant device has been detected.

If the DA cannot reliably determine the destination device's EDID through the information exchange, switching to the internal table (INT) allows the DA to run through a range of pre-defined resolutions and refresh rates so that a reliable connection can be made.

** The Extended Display Identification Data (EDID) is a data structure provided by a display to describe its capabilities. It's what enables the DA to know what kind of video display is connected to the unit. EDID is defined by a standard published by the Video Electronics Standards Association (VESA). The EDID includes manufacturer name, product type, phosphor or filter type, timings supported by the display, display size, luminance data and (for digital displays only) pixel mapping data.*

6.0 TROUBLESHOOTING

- For 1080p resolution, first make certain that the input cable is as short as possible and none of the output cables are more than 30 meters long. HDMI cable design and quality are extremely important in long cable runs where capacitance can severely effect performance. Our 1391A Extender/DDC Corrector may be a necessary accessory to use in extreme length applications.
- Make certain that the Distribution Amplifier is receiving power by looking at the power LED. It should be illuminated and not flickering on and off. Intermittent operation generally means a problem with the DC power adapter or low AC voltage being applied to the DC adapter's input.
- If you still experience problems using the distribution amplifier, you should attempt to determine what is wrong 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.
- Remember that HDMI devices communicate with one another so the source device and all destination devices must be fully HDMI capable. In addition, HDCP encryption requires processing dependent on the equipment you have connected to both the source and destination devices.

If the 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.

7.0 LIMITED WARRANTY

Should any consumer use product from Audio Authority fail 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 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 debited 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.

8.0 REGULATORY COMPLIANCE

The 1394A, and 1398A Distribution Amplifiers have been tested for compliance with appropriate FCC and CE rules and regulations and are also RoHS compliant.

The Power Adaptor/Supplies have been tested for compliance with UL, CE and CSA rules and regulations and are also RoHS compliant.

9.0 CONTACT INFORMATION

Should you have questions or require assistance with this product in areas not covered by this manual, please contact Audio Authority using the information below.

Audio Authority Technical Service
800-322-8346 M-F 8:30 AM to 5:00 PM, EST
International: 859-233-4599 Fax: 859-233-4510
Send email to: support@audioauthority.com

Audio Authority Corporation
2048 Mercer Road
Lexington, Kentucky 40511-1071
USA

Audio Authority®

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

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