

User Manual

Model 1399 4K Video Distribution Amplifier



AscenticTM
RETAIL ENGINEERING
by Audio Authority®

Introduction

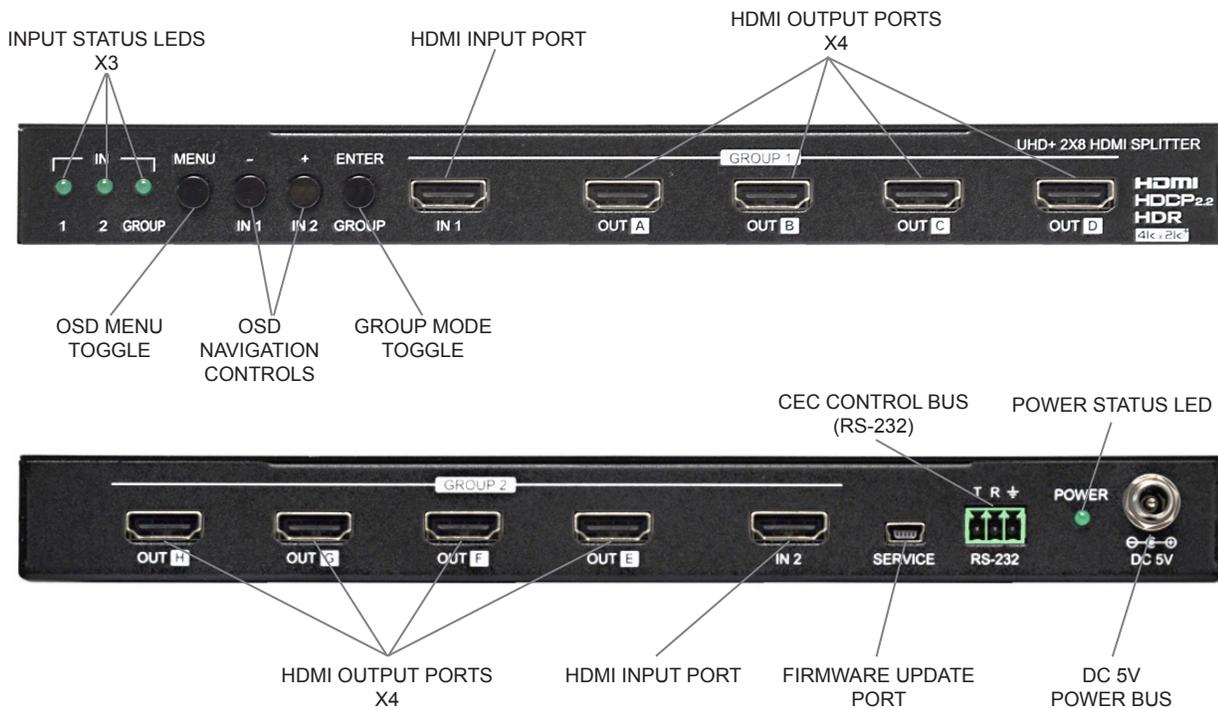
The Model 1399 combines interactivity with video switching and distribution in ultra-high definition 4K resolution. Configure each output to scale 4K to 1080p or apply color space conversion (4:4:4 to 4:2:0), as appropriate. This splitter also includes a special “Group Mode” which allows the unit to function as two independent 1×4 splitters. When Group Mode is enabled, each of the 2 HDMI inputs are routed to their own discrete set of 4 outputs. This unit can also periodically reset input selection on CEC-compatible connected displays. Configurable via an intuitive set of front panel controls, OSD, as well as RS-232.

Package Contents

- 1x HDMI splitter
- 1x 5V 3A DC power adapter
- 1x Terminal block to RS-232 cable
- Operation manual

Features

- HDMI with HDR, 3D & 4K@60Hz support, DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant
- Supports up to 4K UHD (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video signals
- 8 output HDMI splitter with 2 selectable inputs and automatic input switching support
- Special “Group Mode” allows the unit to function as two independent 1×4 splitters in a single box
- Supports current 10-bit and 12-bit HDR (High Dynamic Range) formats
- Supports pass-through of LPCM 7.1, Bitstream and advanced HD Bitstream audio formats
- Per-output, selectable, 4K to 1080p down-scaling/color space conversion (4:4:4 to 4:2:0)
- Independent HDCP management engine for each output ensures stable performance
- Supports eight internal EDIDs, eight external EDIDs copied from connected devices, and two user provided EDIDs
- Support for the CEC “active source” command to periodically reset input selection on CEC-compatible connected displays
- Controllable via front-panel buttons with OSD and RS-232



Eight HDMI Outputs

The model 1399 HDMI outputs deliver up to 4K@60 video + audio content to HDMI display screens, AVRs or sound bars. CEC commands can be used to control the sink device.

Video File Information

MPEG-4 encoded videos are supported with maximum video resolution up to 4K@60. Test all files before deployment.

Two HDMI Inputs

The model 1399 has two HDMI inputs to connect peripheral devices such as MediaHubs, game consoles, and set-top boxes. Each input can control its own group of products (up to two groups).

Group Mode

The Model 1399 distributes content and power two separate presentations utilizing group mode. The interface on the front panel allows the user to set each presentation manually. Also configurable via RS-232 and CEC commands.

Control Port (RS-232)

The model 1399 can send and receive serial commands via RS-232 at 19200. The port connects to a computer, game console, or other device. The model 1399 is unit ID 0, all on-board positions respond to commands addressed to ID 0. All commands are echoed on the RS-232 control port and RS-485 control bus, regardless of ID.

Communication

OSD Menu

All primary functions of this unit can be controlled by using the OSD (On Screen Display) which is activated by pressing the Menu button on the front of the unit. Use the + (PLUS), - (MINUS), and ENTER buttons to navigate the OSD menu. Press the Menu button to back out from any menu item and then press it again to close the menu.

MAIN MENU	LEVEL 2	LEVEL 3
Input Switch	Switch to Select the input to display when Group Mode is disabled	INPUT 1
		INPUT 2
	Auto Switch Enable / Disable auto switch function	ON
		OFF
Input Information	Inputs 1-2	Show current vendor name
	Name	Show current product name
	Fmt	Show current video format
	Reso	Show the resolution and frame rate
	Freq	Show current signal frequency
	Depth	Show current color bit-depth
	Color	Show current color space
	HDCP	Show current HDCP status
	Audio	Show current audio format
Output 4K Converter	All Sets the 4K conversion mode for all outputs. Setting this to bypass will disable the function	BYPASS
		TO YUV420
		TO 1080P
	Out A-H Sets the 4K conversion for each output individually	AUTO
Output Information	Out A-H	Show the connection status, resolution, and framerate for each output
EDID Control	In 1-2 Assign the current EDID to Input 1 or Input 2	INT FHD 2CH
		INT FHD MCH
		INT UHD 2CH
		INT UHD MCH

MAIN MENU	LEVEL 2	LEVEL 3
EDID Control	In 1-2 Assign the current EDID to Input 1 or Input 2	INT UHD+ 2CH
		INT UHD+ MCH
		INT HDR 2CH
		INT HDR MCH
		USER 1
		USER 2
		COPY OUT A
		COPY OUT B
		COPY OUT C
		COPY OUT D
		COPY OUT E
		COPY OUT F
		COPY OUT G
	COPY OUT H	
Vndr	Show current vendor name	
Name	Show current monitor name	
Reso	Show current max supported resolution	
Freq	Show current max supported frequency	
Depth	Show current max supported bit-depth	
YCbCr	Show current supported color spaces	
HDR	Confirm HDR support	
HDCP Control	IN 1-2 Sets the HDCP mode to use with Input 1 or 2	APPLE MODE
		REFER SOURCE
		REFER SINK
Out A-H	Show the current HDCP status for each output	"HDCP Status Information"
CEC	Auto Active Enable or disable CEC "activesource" commands to connected displays every ten minutes	ON
		OFF
	Auto Standby Enable or disable CEC "standby" command to connected displays if no live input is detected for more than ten minutes	
Out A-H	Show the CEC status of each display	
Remote Control	Link With Set the display to accept CEC remote commands from a control unit	OFF
		OUT A~H
	Hot Key Enables or disables support for additional front panel hot key functionality.	ON
		OFF
[Button and Hot Key Assignment] List of where each hotkey is assigned on the remote control unit. Normal functionality is retained in the absence of an assignment.		
OSD Setting	Timeout Sets the time out duration or disables the function	NEVER
		1~60
	Horizontal	0~100
	Vertical	0~100
	Transparency	0~7
Contrast	0~1	

MAIN MENU	LEVEL 2	LEVEL 3
OSD Setting	Panel Color	RED
		GREEN
		BLUE
		GRAY
	Font Color	BLACK
		WHITE
		RED
		GREEN
		BLUE
		YELLOW
		CYAN
	Free Run Set the color to display when no source is detected	MAGENTA
		NO
RED		
GREEN		
BLUE		
Default Reset the OSD settings to factory default	BLACK	
	COLOR	
System Setting	NO	
	YES	
System Settings	VID	[Vendor ID]
	PID	[Product ID]
	SN	[Serial Number]
System Settings	FW Ver	[Firmware Version]
	Factory Reset Reset the unit's configuration to factory defaults	NO
		YES
	Software Control Enable or disable RS-232 support for devices connected to EDID Management Software	OFF
ON		

RS-232 Control

Internal Settings

Port	0
Baud Rate	19200
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

Pinout

Pin	Pinout	Pin	Pinout
1		6	
2	Tx	7	
3	Rx	8	
4		9	
5	Ground		

Command List

Command	Response
?	Show the full command list.
HELP	Show the full command list.
HELP N1	Show details about a specific command.
GET MODEL NAME	Show the unit's model name.
GET FW VR	Show the unit's current firmware version.
SET SYSTEM REBOOT	Reboot the unit.
SET DESCRIPTION N1	Set the description/name of the unit.

GET DESCRIPTION	Show the unit's current description/name.
SET KEYLOCK N1	Enable or disable the front panel key lock.
GET KEYLOCK	Show the current front panel key lock status.
SET OSD DEFAULT	Reset the OSD configuration to the factory defaults.
SET FACTORY DEFAULT	Reset all configurations to the factory defaults.
GET IN PORT NUMBER	Report the number of inputs supported by the unit.
GET IN TYPE LIST	List the video format supported by each Input.
GET IN N1 FORMAT	Show Input N1's video format.
GET IN N1 COLOR SPACE	Show Input N1's current color space.
GET IN N1 COLOR DEPTH	Show Input N1's current color bit depth.
GET IN N1 TIMING	Show Input N1's current resolution and timing.
GET IN N1 HDCP MODE N2	Set Input N1's HDCP mode to N2.
GET IN N1 HDCP MODE	Get Input N1's current HDCP mode.
GET IN N1 HDCP STATUS	Get Input N1's current HDCP status.
SET IN N1 EDID N2	Assign EDID N2 to be used with Input N1.
GET IN N1 EDID	Show Input N1's current EDID mode.
GET IN N1 EDID DATA	Show the raw hex data for the EDID currently assigned to Input
GET N1 EDID INFORMATION	Show a description of the EDID assigned to Input N1.
GET OUT PORT NUMBER	Report the number of outputs supported by the unit.
GET OUT TYPE LIST	Show the video format supported by each output.
SET OUT ROUTE N1	Route Input N1 to all Outputs.
GET OUT ROUTE	Show the current video routing source.
SET OUT AUTO SWITCH N1	Enable or disable automatic input source switching.
GET OUT AUTO SWITCH	Shows the current automatic input source switching setting.
SET OUT GROUP MODE N1	Enable or disable Group Mode.
GET OUT GROUP MODE	Show the current Group Mode setting
SET OUT N1 CONVERT N2	Sets the 4K source conversion mode to use on Output N1.
GET OUT N1 CONVERT	Show the 4K source conversion mode used by Output N1.
GET OUT N1 HPD	Show the current hot-plug status of Output N1.
GET OUT N1 RSENSE	Show the current receiver sense status of Output N1.
GET OUT N1 HDCP STATUS	Show the current HDCP status of Output N1.
GET OUT N1 EDID DATA	Show the raw hex data of the EDID read from Output N1.
GET OUT N1 EDID INFORMATION	Show the raw hex data of the EDID read from Output N1.
GET USER EDID NUMBER	Show the number of User EDIDs supported by the unit.
SET USER N1 EDID DATA N2	Update the contents of User EDID N1 with new raw hex data.
GET USER N1 EDID DATA	Show the raw hex data of the EDID stored in User EDID N1.
GET USER N1 EDID INFORMATION	Show a description of the EDID stored in User EDID N1.
SET OSD TIMEOUT N1	Set the OSD timeout value.
GET OSD TIMEOUT	Show the current OSD timeout value.
SET OSD HORIZONTAL N1	Set the OSD menu's horizontal position.
GET OSD HORIZONTAL	Show the OSD menu's current horizontal position.
SET OSD VERTICAL N1	Set the OSD menu's vertical position.
GET OSD VERTICAL	Show the OSD menu's current vertical position.
SET OSD TRANSPARENCY N1	Set the OSD menu's transparency level.
GET OSD TRANSPARENCY	Show the OSD menu's current transparency level.
SET OSD CONTRAST N1	Set the OSD menu's contrast level.
GET OSD CONTRAST	Show the OSD menu's current contrast level.
SET OSD PANEL COLOR N1	Set the OSD menu's background color.
GET OSD PANEL COLOR	Show the OSD menu's current background color.
SET OSD FONT COLOR N1	Set the OSD menu's font color.

GET OSD FONT COLOR	Show the OSD menu's current font color.
SET OSD FREERUN COLOR N1	Set the Free Run mode and the color used when the input signal is lost and Free Run is active.
GET OSD FREERUN COLOR	Show the current Free Run color setting.
SET CEC AUTO ACTIVE N1	Enable or disable sending the CEC "active source" command to connected displays every 10 minutes.
GET CEC AUTO ACTIVE	Show the current CEC Active Source setting.
SET CEC AUTO STANDBY N1	Enable or disable sending the CEC "standby" command to connected displays if there has been no live input source detected for more than 10 minutes.
SET CEC REMOTE LINK N1	Select the display/output to accept CEC remote control commands from, control the unit, or disable the feature.
GET CEC REMOTE LINK	Show the current CEC Remote Link setting.

EDID Control

This unit uses an EDID Management application which allows the user to copy the EDID from an attached display, edit an existing EDID file stored on the PC, or create a basic EDID from scratch. The EDID can then be uploaded to the unit for use. Please obtain the EDID Management software from your authorized dealer and save it in a directory where you can easily find it.

Before connecting the unit to your PC, please install the EDID Management software. After the installation has successfully completed, an icon for it will appear on the windows desktop. Launch the software by double-clicking on the icon and the EDID Management device detection window will open up on your screen.

After launching the software, power the unit on and then connect it to the PC/laptop using an RS-232 cable. Click on the "Search" button and any detected units will be displayed in the list. Clicking on a detected unit will open the EDID Management window.

- **Mode Select:** Under the "EDID Controller" tab the user may select the EDID to be sent to the selected HDMI input from 8 Internal, 8 External (bypass) or 2 User EDID options. When a new EDID is selected, the EDID used by the unit will change immediately.
- **Save/Upload/Analysis:** EDIDs may also be saved, uploaded or analyzed.
- **Save:** Any EDID from the unit or a connected HDMI display can be saved to your PC as a *.bin file by selecting the EDID source from the drop-down menu and then clicking the "Save" icon.
- **Upload:** Previously saved EDID files (*.bin format) can be re-uploaded into any of the "User" EDID slots by selecting the User EDID to replace from the dropdown and then clicking the "Upload" icon. Before accepting the upload, the software will check and verify that the EDID's header and checksum values are acceptable.
- **Analysis:** To analyze any EDID stored within the unit, select the EDID to view from the dropdown and click on the "Analysis" icon. From the Analyzer window it is possible to open the currently analyzed EDID in the "EDID Creator" by clicking the "Edit" button.
- **Select:** Click on the "EDID Creator" tab to begin designing a new EDID from scratch (select the "New" icon), to modify an existing EDID stored on the PC as a *.bin file (select the "Load" icon) or to edit an EDID copied from the unit via the EDID Analyzer's edit option.
 - Selecting "New" will automatically populate the various EDID fields with basic information that can be easily edited to match the user's preferences.
 - Clicking on the "Load" icon will open a file load window and after the *.bin file has been selected and loaded the EDID fields will be populated with the information from that file. The same will happen when the EDID is copied from the "EDID Analyzer" window.
- **Edit:** The following tabs provide access to a wide range of EDID information which can be edited:
 - **Descriptor:** This tab allows for the editing of various description and information fields within the EDID file such as Manufacturer Name, Monitor Name, etc.
 - **PC Timing & SD/HD/UHD:** These tabs allow for the selection of the resolutions and refresh rates that the EDID will report as supported.
 - **Audio1 & Audio2:** These tabs allow for the selection of which audio formats, audio frequencies, channels and speaker locations are supported.

- **Color Space:** This tab allows for the selection of which color formats and bit depths are supported, including BT.2020 and HDR support options.
- **Others:** This tab contains options for supporting 3D and defining the CEC Address. Once the user is finished editing or creating an EDID it can be saved to a *.bin file locally or uploaded directly to the unit using the “Save” and “Upload” icons respectively.
- **Configuration & Firmware:** Select the “System” tab to edit the software’s description (select the “Rename” icon), to reset the unit to factory defaults (select the “Reset” icon) and to view the unit’s current hardware and firmware version information.

Installation

- Attach the player to a flat surface with the screws provided
- Connect the Model 1399 and MH6-4K to their power supplies
- Connect the MH6-4K to HDMI Input 1
- Connect Outputs A-G to their corresponding devices
- Connect Output H to the next Model 1399 Input A
- Repeat the previous steps until all devices are connected
- For more information check our website: www.audioauthority.com/1399

Product Specifications

HDMI Bandwidth	600MHz/18Gbps	Dimensions	240mm×24mm×103mm (W×H×D)
Input Ports	2×HDMI		[Case Only]
Output Ports	8×HDMI		240mm×25mm×103mm (W×H×D)
Control Interfaces	1×RS-232 [3-pin Terminal Block]		[All Inclusive]
	1×USB [Mini-B]	Weight	616g
HDMI Cable Distance	3m, 4K@60Hz (YUV 4:4:4, 8-bit)	Chassis Material	Metal
	5m, 4K@30Hz (8-bit)	Silkscreen Color	Black
	10m, 1080p@60Hz (12-bit)	Operating Temperature	0 °C–40 °C/32 °F–104 °F
	15m, 1080p@60Hz (8-bit)	Storage Temperature	-20 °C–60 °C/-4 °F–140 °F
Power Supply	5V/3A DC (US/EU standards, CE/FCC/UL certified)	Relative Humidity	20–90% RH (Non-condensing)
ESD Protection	Human Body Model: ±8kV (Air Discharge) ±4kV (Contact Discharge)	Power Consumption	9.57W

Example System

This display leverages a large-scale television display to attract and communicate utilizing the Model 1399's ability to chain together multiple units to demonstrate a variety of products. Each of the eight HDMI ports can play up to 4K resolution, depending on the requirements of the device. The MH6-4K MediaHub is an innovative and effective way to organize your presentation. It connects directly to one of the two HDMI inputs.

