KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

VA-4H
4-Channel HDMI EDID
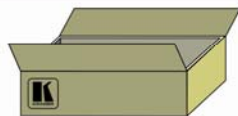Controller

VA-4H Quick Start Guide

This page guides you through a basic installation and first-time use of your **VA-4H**.
For more detailed information, see the **VA-4H** User Manual.
You can download the latest manual at http://www.kramerelectronics.com.

Step 1: Check what's in the box

- ☑ **VA-4H** 4-Channel HDMI EDID Controller
- ☑ 1 Power supply (5V DC)
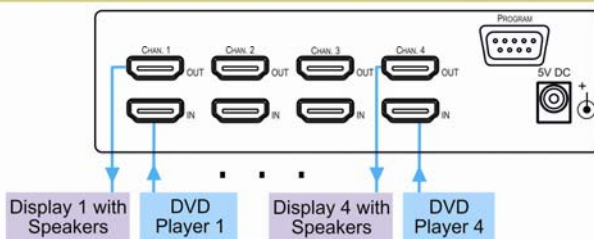- ☑ 4 Rubber feet
- ☑ 1 Quick Start sheet
- ☑ 1 User Manual

Save the original box and packaging in case your VA-4H needs to be returned to the factory for service.

Step 2: Install the VA-4H

Mount the machine in a rack (using the RK-13 rack adapter) or attach the rubber feet and place on a table.

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **VA-4H**.

Display 1 with Speakers | DVD Player 1 | Display 4 with Speakers | DVD Player 4

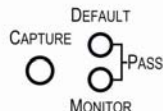Always use Kramer high-performance cables for connecting AV equipment to the **VA-4H.**

Step 4: Connect the power

Connect the 5V DC power adapter to the **VA-4H** and plug the adapter into the mains electricity.

Step 5: Operate the VA-4H

For each channel, press and hold the recessed Capture button to cycle through the settings:
MONITOR, DEFAULT, PASS THROUGH.
Release when the desired setting is reached.

CAPTURE   DEFAULT   PASS   MONITOR

Contents

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1   Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **VA-4H** *4-Channel HDMI EDID Controller*, which is ideal for the following typical applications:

- Distributing presentation graphics

- Using a display at a distance from the computer

- Using in graphics production studios

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment

- Review the contents of this user manual
  Use Kramer high performance high resolution cables

Go to http://www.kramerelectronics.com to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Caution: No operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics input power wall adapter that is provided with the unit

Warning: Disconnect the power and unplug the unit from the wall before installing

2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)

- Avoid interference from neighboring electrical appliances that may adversely influence signal quality

- Position your Kramer **VA-4H** away from moisture, excessive sunlight and dust

3   Overview

The **VA-4H** is an EDID controller for HDMI signals. The unit inputs up to four HDMI channels and lets you select an EDID for each channel from the display, an internal default EDID or to pass the signal through without change.

The **VA-4H** features:

- A maximum data rate of 2.25Gbps per channel for a total of 6.75Gbps

- A maximum input resolution of 1080p

- HDTV compatibility

- Compliance with standards: HDMI and HDCP 1.2

- Support of HDMI (V.1.4 with Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD, CEC)

- Four input/output channels

- Four tamper-proof, recessed selector pushbuttons

- Non-volatile memory that saves final settings

- LED indicators for power and EDID source settings

- An RS-232 port for upgrading firmware

- A 5V DC power source

- A compact MultiTools enclosure that can be rack mounted with an optional RK-13 rack adapter

3.1 About HDMI

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital audio/video interface, widely supported in the entertainment and home cinema industry. HDMI ensures an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions. It delivers the maximum high-definition image and sound quality in use today. Note that Kramer Electronics Limited is an HDMI Adopter and an HDCP Licensee.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI licensing LLC.

In particular, HDMI:

- Provides a simple interface between any audio/video source, such as a set-top box, DVD player, or A/V receiver and video monitor, such as a digital flat LCD / plasma television (DTV), over a single lengthy cable

  SIMPLICITY - With video and multi-channel audio combined into a single cable, the cost, complexity, and confusion of multiple cables currently used in A/V systems is reduced
  LENGTHY CABLE - HDMI technology has been designed to use standard copper cable construction at up to 15m

- Supports standard, enhanced, high-definition video, and multi-channel digital audio on a single cable

  MULTI-CHANNEL DIGITAL AUDIO - HDMI supports multiple audio formats, from standard stereo to multi-channel surround-sound. HDMI has the capacity to support Dolby 5.1 audio and high-resolution audio formats

- Transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements

- Benefits consumers by providing superior, uncompressed digital video quality via a single cable, and user-friendly connector

  HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner

- Is backward-compatible with DVI (Digital Visual Interface)

- Supports CEC, two-way communication between the video source (such as a DVD player) and the digital television, enabling new functionality such as automatic configuration and one-button play

- Has the capacity to support existing high-definition video formats (720p, 1080i, and 1080p, 2K and 4K), standard definition formats such as NTSC or PAL, as well as 480p and 576p

3.2 About HDCP

The High-Bandwidth Digital Content Protection (HDCP) standard developed by Intel, protects digital video and audio signals transmitted over DVI or HDMI connections between two HDCP-enabled devices to eliminate the reproduction of copyrighted material. To protect copyright holders (such as movie studios) from having their programs copied and shared, the HDCP standard provides for the secure and encrypted transmission of digital signals.

3.3 Defining EDID

The Extended Display Identification Data (EDID) is a data-structure provided by a display, to describe its capabilities to a graphics card (that is connected to the display's source). The EDID enables the **VA-4H** to "know" what kind of monitor is connected to the output. The EDID includes the manufacturer's name, the product type, the timing data supported by the display, the display size, luminance data and (for digital displays only) the pixel mapping data.
EDID is defined by a standard published by the Video Electronics Standards Association (VESA).

4 Defining the VA-4H 4-Channel HDMI EDID Controller
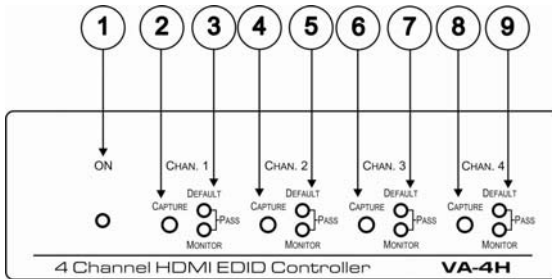
This section defines the **VA-4H**.

Figure 1: VA-4H 4-Channel HDMI EDID Controller Front Panel

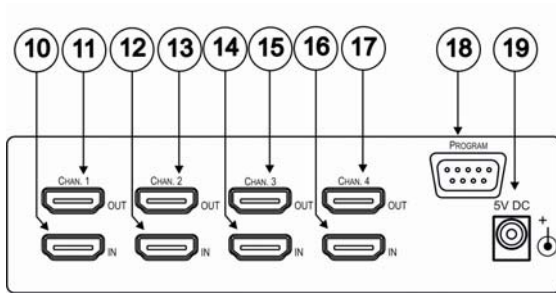| #	Feature		Function
1	*ON* LED		Illuminates green when 5V DC power is connected
2	CHAN. 1	*CAPTURE* Button	Press to choose the channel 1 EDID source
3		*DEFAULT PASS MONITOR* LEDS	Upper LED illuminates red when default EDID is chosen, both LEDS illuminate when pass-through is chosen, lower green LED illuminates when the monitor EDID is chosen
4	CHAN. 2	*CAPTURE* Button	Press to choose the channel 2 EDID source
5		*DEFAULT PASS MONITOR* LEDS	Upper LED illuminates red when default EDID is chosen, both LEDS illuminate when pass-through is chosen, lower green LED illuminates when the monitor EDID is chosen
6	CHAN. 3	*CAPTURE* Button	Press to choose the channel 3 EDID source
7		*DEFAULT PASS MONITOR* LEDS	Upper LED illuminates red when default EDID is chosen, both LEDS illuminate when pass-through is chosen, lower green LED illuminates when the monitor EDID is chosen
8	CHAN. 4	*CAPTURE* Button	Press to choose the channel 4 EDID source
9		*DEFAULT PASS MONITOR* LEDS	Upper LED illuminates red when default EDID is chosen, both LEDS illuminate when pass-through is chosen, lower green LED illuminates when the monitor EDID is chosen

Figure 2: VA-4H 4-Channel HDMI EDID Controller Rear Panel

#	Feature		Function
10	CHAN. 1	*IN* HDMI Connector	Connects to the channel 1 HDMI source
11		*OUT* HDMI Connector	Connects to the channel 1 HDMI acceptor
12	CHAN. 2	*IN* HDMI Connector	Connects to the channel 2 HDMI source
13		*OUT* HDMI Connector	Connects to the channel 2 HDMI acceptor
14	CHAN. 3	*IN* HDMI Connector	Connects to the channel 3 HDMI source
15		*OUT* HDMI Connector	Connects to the channel 3 HDMI acceptor
16	CHAN. 4	*IN* HDMI Connector	Connects to the channel 4 HDMI source
17		*OUT* HDMI Connector	Connects to the channel 4 HDMI acceptor
18	*PROGRAM* RS-232 Connector		Connects to a PC for upgrading the device firmware (see *Upgrading the VA-4H Firmware* document on the Kramer Web site)
19	*5V DC* Connector		Connects to the 5V DC power supply

5 Connecting the VA-4H

> Always switch off the power to each device before connecting it to your **VA-4H**. After connecting your **VA-4H**, connect its power and then switch on the power to each device.

To connect the **VA-4H** as illustrated in the example in Figure 3:

1. Connect up to four HDMI sources (as an example, DVD players) to the HDMI IN connectors.

2. Connect the HDMI OUT connectors to up to four HDMI acceptors (as an example, displays with speakers).
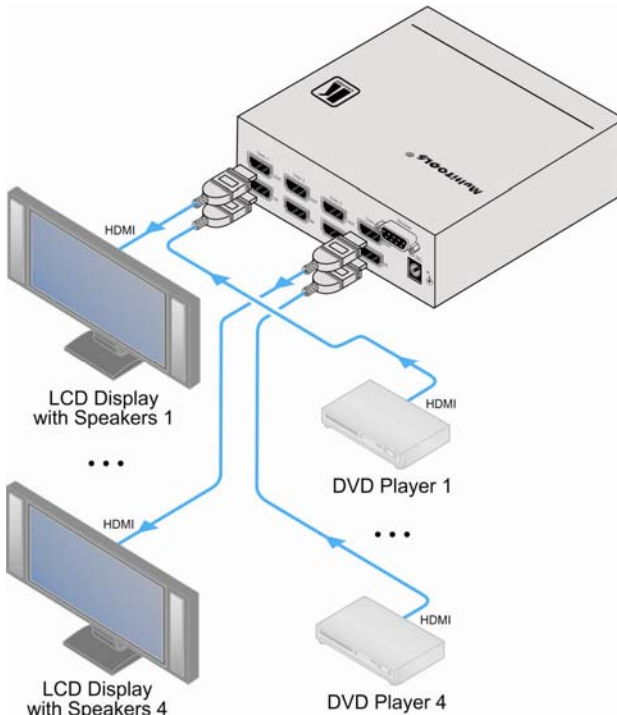

Figure 3: Connecting the VA-4H 4-Channel HDMI EDID Controller

6 Operating the VA-4H

To set the EDID source for each channel as illustrated in the example in <u>Figure 3</u>:

1. Press and hold the CAPTURE pushbutton. The indicator LEDS illuminate in a cycle as follows:
   MONITOR, lower green LED
   DEFAULT, upper red LED
   PASS, both LEDS together.

2. Release the pushbutton at the desired setting.
   The setting is saved in non-volatile memory.

Notes:

- DEFAULT and MONITOR settings do not support HDCP key exchange. For the display to work properly with HDCP encryption, the **VA-4H** must be set to PASS

- If an EDID is captured the MONITOR LED flashes slowly

- If an EDID is not captured, the DEFAULT LED flashes quickly and the default EDID is loaded

7 Technical Specifications

INPUTS:	4 HDMI connectors
OUTPUTS:	4 HDMI connectors
MAX. DATA RATE	2.25Gbps per data channel
COMPLIANCE WITH HDMI STANDARDS:	HDMI, HDCP 1.2
RESOLUTION:	1080p @60Hz
POWER SOURCE:	5V DC, 50mA
CONTROLS:	4 source selector pushbuttons, RS-232 port for firmware upgrade
INDICATORS:	Power and EDID source LEDs
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)
HUMIDITY:	10% to 90%, RHL non-condensing
DIMENSIONS:	14.3cm x 12.2cm x 4.4cm (5.6" x 4.8" x 1.7")
WEIGHT:	0.42kg (0.92lb)
ACCESSORIES:	Power supply
OPTIONS:	RK-13 19" rack adapter
Specifications are subject to change without notice at http://www.kramerelectronics.com	

LIMITED WARRANTY

We warrant this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by us or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.

2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.

3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.

2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.

3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.

2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).

3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:

2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:   "Electromagnetic compatibility (EMC);
             generic emission standard.
             Part 1: Residential, commercial and light industry"
EN-50082:   "Electromagnetic compatibility (EMC) generic immunity standard.
             Part 1: Residential, commercial and light industry environment".
CFR-47:   FCC* Rules and Regulations:
             Part 15: "Radio frequency devices
             Subpart B Unintentional radiators"

CAUTION!

► Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.

► Use the supplied DC power supply to feed power to the machine.

► Please use recommended interconnection cables to connect the machine to other components.

   * FCC and CE approved using STP cable (for twisted pair products)

For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com

CE

ISO 9001:2008
IQC
Institute of
Quality & Control

! **SAFETY WARNING**
Disconnect the unit from the power
supply before opening and servicing