KRAMER

USER MANUAL

MODEL:

VM-400HDCPxl
1:4 DVI Distributor

Contents

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!

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.

Go to www.kramerav.com/downloads/VM-400HDCPxl to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).

- Do not secure the cables in tight bundles or roll the slack into tight coils.

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

- Position your Kramer **VM-400HDCPxl** away from moisture, excessive sunlight and dust.

Safety Instructions

Caution:
- This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

- For products with relay terminals and GPI\O ports, please refer to the permitted rating for an external connection, located next to the terminal or in the User Manual.

- There are no operator serviceable parts inside the unit.

Warning:
- Use only the power cord that is supplied with the unit.

- To ensure continuous risk protection, replace fuses only according to the rating specified on the product label which located on the bottom of the unit.

Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected

and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at www.kramerav.com/support/recycling.

Overview

Congratulations on purchasing your Kramer **VM-400HDCPxl 1:4 DVI Distributor**. The high quality **VM-400HDCPxl** accepts an DVI/HDMI™ signal and distributes the selected signal to up to four DVI output connections.

VM-400HDCPxl is a 1:4 distribution amplifier for up to 4K@60Hz (4:2:0) HDMI signals, complying with HDCP 1.4 content protection standard, via single-link DVI connections. The unit takes one DVI input, equalizes and reclocks the signal, and distributes it to four identical outputs.

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

Exceptional Quality

- High Performance Distributor – Professional 1:4 DVI distributor for up to 4K@60Hz (4:2:0) video resolution signals. Via single-link DVI connections, one HDMI, HDCP 1.4 input signal is amplified and distributed to four identical output signals, with signals rebuilt using Kramer Equalization & re-Klocking™ Technology to gain longer distances.

- Secured Operation – Highly-secured operation is ensured by lockable wiring connectivity with protection against unintentional cables disconnection.

- HDMI Signal Transmission – HDCP 1.4 compliant, supporting deep color, x.v.Color™, lip sync, 7.1 PCM, Dolby TrueHD, DTS-HD, 2K, 4K, and 3D as specified in HDMI 2.0.

- EDID Pass-through – Pass-through algorithm ensures Plug and Play operation for DVI source and display systems.

Advanced and User-friendly Operation

- User-Friendly Operation – Comprehensive signal distribution features and signal mode-forcing options such as RGB forcing, with convenient EDID selection via front panel button.

- Cost-Effective Field Maintenance – Mini-USB connection for simple field firmware upgrade using the Kramer K-Upload tool. Status LED indicators to indicate active input signal, output acceptor connections and acquired EDID usage, for fast and effective troubleshooting.

Flexible Connectivity

- Easy Installation – Compact MegaTOOLS® fan-less enclosure for dropped-ceiling mounting, or side-by-side mounting of 2 units in a 1U rack space with the recommended rack adapter.

Typical Applications

- Highly secured operation of high-quality professional AV deployments via lockable cable connections.

- Medical market operation rooms and other critical multimedia applications.

- Governmental market secured AV applications.

- Rental and staging.

Controlling your VM-400HDCPxl

Control your **VM-400HDCPxl** via front panel push buttons or mini-USB serial commands transmitted by a laptop or PC.

Defining VM-400HDCPxl 1:4 DVI Distributor

Figure 1 defines the front and rear panel of **VM-400HDCPxl**.
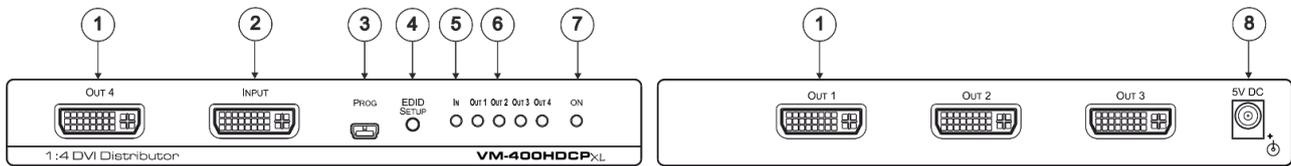
Figure 1: VM-400HDCPxl 1:4 DVI Distributor Front and Rear Panel

#	Feature	Function
1	OUT DVI Connectors	Connect to DVI acceptors. OUT 4 is located on the front panel OUT 1 to OUT 3 on the rear panel.
2	INPUT DVI Connector	Connect to an DVI/HDMI (over DVI connection) source.
3	PROG Mini USB Connector	Use to send serial commands. Connect to a PC RS-232 port to perform firmware upgrades (via K-Upload) and work with the EDID Designer. K-Upload and EDID Designer can be downloaded from our website at: www.kramerav.com/manual/VM-400HDCPxl. To use the mini USB port, you need to download and install the Kramer USB driver from our website: www.kramerav.com/support/product_downloads.asp.
4	EDID SETUP Button	Press to capture an output EDID or select the default EDID.
5	IN LED	Lights green when an active input signal is detected.
6	OUT LEDs	Light green when an active output acceptor is detected (from 1 to 4). For EDID and RGB mode indications, see Acquiring and Setting Current EDID on page 7 and Forcing RGB Mode on page 8.
7	ON LED	Lights green when the unit receives power.
8	5V DC Connector	Connects to the 5V DC power supply.

Mounting VM-400HDCPxl

This section provides instructions for mounting **VM-400HDCPxl**. Before installing, verify that the environment is within the recommended range:

- Operation temperature – 0° to 40°C (32 to 104°F).
- Storage temperature – -40° to +70°C (-40 to +158°F).
- Humidity – 10% to 90%, RHL non-condensing.

- **VM-400HDCPxl** must be placed upright in the correct horizontal position.

Caution:
- Mount **VM-400HDCPxl** before connecting any cables or power.

Warning:
- Ensure that the environment (e.g., maximum ambient temperature & air flow) is compatible for the device.
- Avoid uneven mechanical loading.
- Appropriate consideration of equipment nameplate ratings should be used for avoiding overloading of the circuits.
- Reliable earthing of rack-mounted equipment should be maintained.

To mount VM-400HDCPxl in a rack:

Mount the unit in a rack using the recommended rack adapter
(see www.kramerav.com/product/VM-400HDCPxl)

To mount VM-400HDCPxl on a table or shelf:

- Attach the rubber feet and place the unit on a flat surface.
- Fasten a bracket (included) on each side of the unit and attach it to a flat surface.
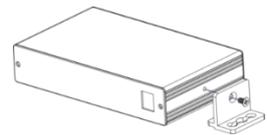
For more information go to www.kramerav.com/downloads/VM-400HDCPxl

Connecting VM-400HDCPxl

(i) Always switch off the power to each device before connecting it to your **VM-400HDCPxl**. After connecting your **VM-400HDCPxl**, connect its power and then switch on the power to each device.
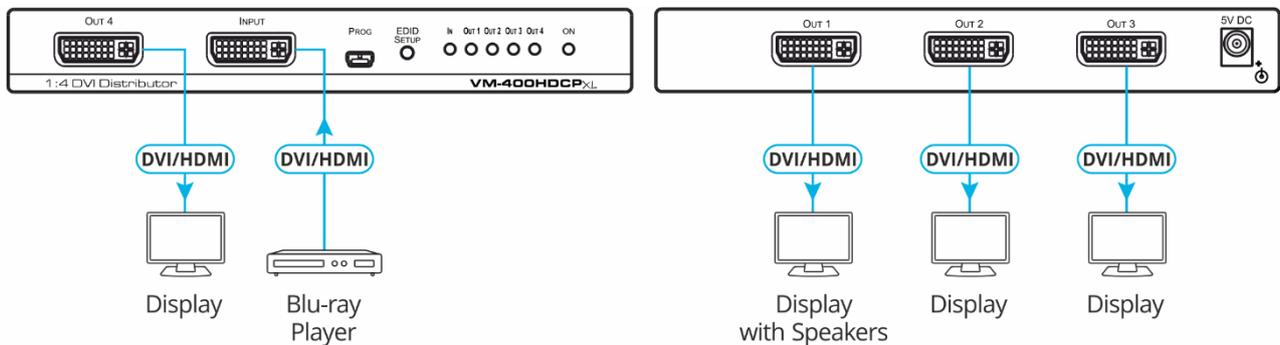

Figure 2: Connecting to the **VM-400HDCPxl** Rear Panel

To connect VM-400HDCPxl as illustrated in the example in Figure 2:

1. Connect the DVI source (for example, a Blu-ray player) to the DVI Input connector ② on the front panel.

2. Connect the DVI outputs ① to up to four DVI acceptors (for example, an LCD display).

3. Connect the power adapter to **VM-400HDCPxl** and to the mains electricity (not shown in Figure 2).

Acquiring and Setting Current EDID

Press the **EDID SETUP** button ④ once to display the current EDID source: OUT 1, OUT 2, OUT 3, OUT 4, or all OUT LEDs ⑥ flash indicating the **VM-400HDCPxl** default EDID.

To acquire an EDID:

1. Press the **EDID SETUP** button ④.

   The current EDID status is displayed.

2. Press the **EDID SETUP** button ④ (a second time).

   The device enters EDID setup mode.

3. Press the **EDID SETUP** button ④ repeatedly.

   The device cycles through the EDID source options and the OUT LEDs ⑥ light up in the following order: OUT 1 -> OUT 2 -> OUT 3 -> OUT 4 -> all OUT LEDs ⑥ flash.

   Stop pressing the **EDID SETUP** button ④ once the required EDID source is reached.

4. Wait a few seconds, until **VM-400HDCPxl** acquires the EDID.

   When complete, all OUT LEDs ⑥ return to normal operation, displaying the present output connection status.

ⓘ If an unconnected output is chosen or the connected EDID cannot be read, **VM-400HDCPxl** loads the default EDID.

Acquiring a Custom EDID

You can acquire a custom EDID, using the Kramer EDID designer, via the mini USB port on the front panel.

To acquire a custom EDID:

1. Download EDID Designer to your PC from our website at Kramer EDID Designer.

2. Connect the device to your PC via the mini USB port.

3. Follow EDID designer instructions.

ⓘ To use the mini USB port, you need to download and install the Kramer USB driver from our website at: www.kramerav.com/support/product_downloads.asp.

Forcing RGB Mode

Normally (the default state), when acquiring EDID, the device supports any color space that is defined in the acquired EDID parameters. In case of a color space problem, using the Force RGB mode may improve the colors of the image on the display.

To	Do the following:
Force the acquired EDID to support only RGB color space:	Press and hold the **EDID SETUP** button for a few seconds until all the output LEDs flash together four times. Continue to acquire the desired EDID. This acquired EDID is then forced to support the RGB color space only.
Return to the normal EDID mode:	Press and hold the **EDID SETUP** button for a few seconds until the output LEDs flash together once. Continue to acquire the desired EDID.
View the force RGB activation status:	Power cycle the unit. All output LEDs flash together once when in normal EDID mode, and four times when in Force RGB mode.

Upgrading Firmware

Use the Kramer **K-UPLOAD** software to upgrade the firmware via the **VM-400HDCPxl** PROG micro USB port ③.

The latest version of **K-UPLOAD** and installation instructions can be downloaded from our website at: www.kramerav.com/support/product_downloads.asp.

ⓘ Note that in order to use the micro USB port, you need to install the Kramer USB driver, available at: www.kramerav.com/support/product_downloads.asp.

Technical Specifications

Inputs	1 DVI	On a DVI female connector
Outputs	4 DVI	On DVI female connectors
Ports	1 USB	On a Mini-USB female connector for firmware upgrade and sending RS-232 commands
Video	Max Bandwidth	Up to 10.2Gbps bandwidth (3.4Gbps per graphic channel)
	Max Resolution	Up to 4K UHD @60Hz (4:2:0) 24bpp resolution
	Content Protection	HDCP 1.4 signal compliance
	HDMI Support	Supports deep color, x.v.Color™, lip sync, 7.1 PCM, Dolby TrueHD, DTS-HD, 2K, 4K, and 3D as specified in HDMI 2.0
User Interface	Controls	EDID setup button
	Indicator LEDs	OUTPUTS 1 to 4 LEDs
		ACTIVE input LEDs
		Power ON LED
Power	Source	5V DC, 4A
	Consumption	5V DC, 1.1A
Environmental Conditions	Operating Temperature	0° to +40°C (32° to 104°F)
	Storage Temperature	-40° to +70°C (-40° to 158°F)
	Humidity	10% to 90%, RHL non-condensing
Regulatory Compliance	Safety	CE, UL
	Environmental	RoHs, WEEE
Enclosure	Size	MegaTools
	Type	Aluminum
	Cooling	Convection ventilation
General	Net Dimensions	18.8cm x 11.5cm x 2.5cm (7.4" x 4.5" x 1.0") W, D, H
	Shipping Dimensions	34.5cm x 16.5cm x 5.2cm (13.6" x 6.5" x 2.1") W, D, H
	Net Weight	0.5kg (1.0lbs) approx.
	Shipping Weight	1.0kg (2.2lbs) approx.
Accessories	Included	Power adapter
Specifications are subject to change without notice at www.kramerav.com		

Default EDID

Monitor
  Model name............... VM400HDCP
  Manufacturer............ KRM
  Plug and Play ID......... KRM0400
  Serial number........... 505-707455010
  Manufacture date........ 2009, ISO week 10
  Filter driver............ None

  EDID revision............ 1.3
  Input signal type........ Digital
  Color bit depth.......... Undefined
  Display type............. RGB color
  Screen size.............. 520 x 320 mm (24.0 in)
  Power management......... Standby, Suspend, Active off/sleep
  Extension blocs.......... 1 (CEA-EXT)

  DDC/CI.................. n/a
Color characteristics
  Default color space...... Non-sRGB
  Display gamma............ 2.20
  Red chromaticity......... Rx 0.674 - Ry 0.319
  Green chromaticity....... Gx 0.188 - Gy 0.706
  Blue chromaticity........ Bx 0.148 - By 0.064
  White point (default).... Wx 0.313 - Wy 0.329
  Additional descriptors... None
Timing characteristics
  Horizontal scan range.... 30-83kHz
  Vertical scan range...... 56-76Hz
  Video bandwidth.......... 170MHz
  CVT standard............. Not supported
  GTF standard............. Not supported
  Additional descriptors... None
  Preferred timing......... Yes
  Native/preferred timing.. 1280x720p at 60Hz (16:10)
    Modeline.............. "1280x720" 74.250 1280 1390 1430 1650 720 725 730 750 +hsync +vsync
Standard timings supported
   720 x 400p at 70Hz - IBM VGA
   640 x 480p at 60Hz - IBM VGA
   640 x 480p at 75Hz - VESA
   800 x 600p at 60Hz - VESA
   800 x 600p at 75Hz - VESA
  1024 x 768p at 60Hz - VESA
  1024 x 768p at 75Hz - VESA
  1280 x 1024p at 75Hz - VESA
  1280 x 1024p at 60Hz - VESA STD
  1600 x 1200p at 60Hz - VESA STD
  1152 x 864p at 75Hz - VESA STD
EIA/CEA-861 Information
  Revision number.......... 3
  IT underscan............. Supported
  Basic audio.............. Supported
  YCbCr 4:4:4.............. Supported
  YCbCr 4:2:2.............. Supported
  Native formats........... 1
  Detailed timing #1....... 1920x1080p at 60Hz (16:10)
    Modeline.............. "1920x1080" 148.500 1920 2008 2052 2200 1080 1084 1089 1125 +hsync +vsync
  Detailed timing #2....... 1920x1080i at 60Hz (16:10)
    Modeline.............. "1920x1080" 74.250 1920 2008 2052 2200 1080 1084 1094 1124 interlace +hsync +vsync
  Detailed timing #3....... 1280x720p at 60Hz (16:10)
    Modeline.............. "1280x720" 74.250 1280 1390 1430 1650 720 725 730 750 +hsync +vsync
  Detailed timing #4....... 720x480p at 60Hz (16:10)
    Modeline.............. "720x480" 27.000 720 736 798 858 480 489 495 525 -hsync -vsync
CE video identifiers (VICs) - timing/formats supported
  1920 x 1080p at 60Hz - HDTV (16:9, 1:1)
  1920 x 1080i at 60Hz - HDTV (16:9, 1:1)
  1280 x 720p at 60Hz - HDTV (16:9, 1:1) [Native]
   720 x 480p at 60Hz - EDTV (16:9, 32:27)
   720 x 480p at 60Hz - EDTV (4:3, 8:9)
   720 x 480i at 60Hz - Doublescan (16:9, 32:27)
   720 x 576i at 50Hz - Doublescan (16:9, 64:45)
   640 x 480p at 60Hz - Default (4:3, 1:1)
  NB: NTSC refresh rate = (Hz*1000)/1001
CE audio data (formats supported)
  LPCM   2-channel, 16/20/24 bit depths at 32/44/48 kHz
CE vendor specific data (VSDB)
  IEEE registration number. 0x000C03
  CEC physical address..... 1.0.0.0
  Maximum TMDS clock....... 165MHz
CE speaker allocation data
  Channel configuration.... 2.0
  Front left/right......... Yes
  Front LFE................ No
  Front center............. No
  Rear left/right.......... No
  Rear center.............. No
  Front left/right center.. No
  Rear left/right center... No
  Rear LFE................. No
Report information
  Date generated........... 19-Jan-12
  Software revision........ 2.60.0.972
  Data source............. File
  Operating system......... 5.1.2600.2.Service Pack 3
  Raw data
  00,FF,FF,FF,FF,FF,FF,00,2E,4D,00,04,01,01,01,01,0A,13,01,03,80,34,20,78,EA,B3,25,AC,51,30,B4,26,
  10,50,54,A5,4B,00,81,80,A9,40,71,4F,01,01,01,01,01,01,01,01,01,01,1D,00,72,51,D0,1E,20,6E,28,
  55,00,07,44,21,00,00,1E,00,00,00,FF,00,35,30,35,2D,37,30,37,34,35,35,30,31,30,00,00,00,FC,00,56,
  4D,34,30,30,48,44,43,50,20,20,20,0A,00,00,00,FD,00,38,4C,1E,53,11,00,0A,20,20,20,20,20,20,01,74,
  02,03,1B,F1,48,10,05,84,03,02,07,16,01,23,09,07,07,65,03,0C,00,10,00,83,01,00,00,02,3A,80,18,71,
  38,2D,40,58,2C,45,00,07,44,21,00,00,1E,01,1D,80,18,71,1C,16,20,58,2C,25,00,07,44,21,00,00,9E,01,
  1D,00,72,51,D0,1E,20,6E,28,55,00,07,44,21,00,00,1E,8C,0A,D0,8A,20,E0,2D,10,10,3E,96,00,07,44,21,
  00,00,18,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,47

Protocol 3000

Kramer devices can be operated using Kramer Protocol 3000 commands sent via serial or Ethernet ports.

Understanding Protocol 3000

Protocol 3000 commands are a sequence of ASCII letters, structured according to the following.

- **Command format**:

Prefix	Command Name	Constant (Space)	Parameter(s)	Suffix
#	Command	␣	Parameter	\<CR>

- **Feedback format**:

Prefix	Device ID	Constant	Command Name	Parameter(s)	Suffix
~	nn	@	Command	Parameter	**\<CR>\<LF>**

- **Command parameters** – Multiple parameters must be separated by a comma (,). In addition, multiple parameters can be grouped as a single parameter using brackets ([and]).

- **Command chain separator character** – Multiple commands can be chained in the same string. Each command is delimited by a pipe character (|).

- **Parameters attributes** – Parameters may contain multiple attributes. Attributes are indicated with pointy brackets (<…>) and must be separated by a period (.).

The command framing varies according to how you interface with the **VS-88UT**. The following figure displays how the # command is framed using terminal communication software (such as Hercules):
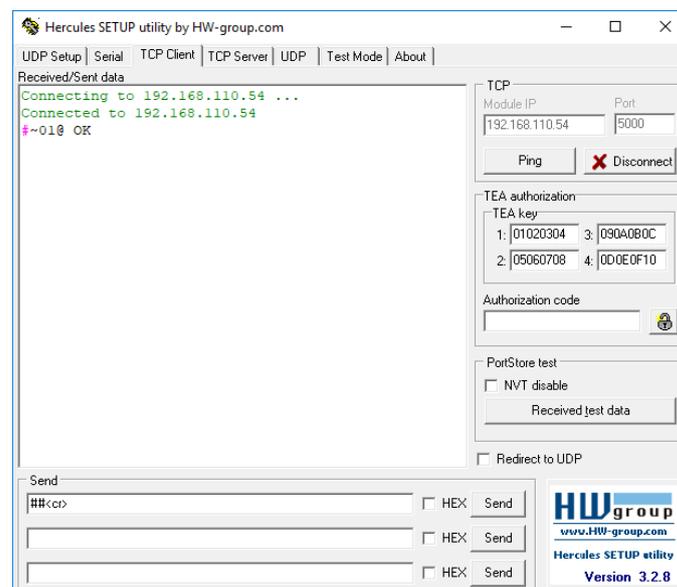
Protocol 3000 Commands

Function	Description	Syntax	Parameters/Attributes	Example
#	Protocol handshaking. ⓘ Validates the Protocol 3000 connection and gets the machine number. Step-in master products use this command to identify the availability of a device.	**COMMAND** **#<CR>** **FEEDBACK** **~nn@ OK<CR><LF>**		**#<CR>**
BUILD-DATE?	Get device build date.	**COMMAND** **#BUILD-DATE? <CR>** **FEEDBACK** **~nn@BUILD-DATE date,time<CR><LF>**	**date** – Format: YYYY/MM/DD where YYYY = Year MM = Month DD = Day **time** – Format: hh:mm:ss where hh = hours mm = minutes ss = seconds	Get the device build date: **#BUILD-DATE?<CR>**
CPEDID	Copy EDID data from the output to the input EEPROM. ⓘ Destination bitmap size depends on device properties (for 64 inputs it is a 64-bit word). Example: bitmap 0x0013 means inputs 1,2 and 5 are loaded with the new EDID. In certain products Safe_mode is an optional parameter. See the HELP command for its availability.	**COMMAND** **#CPEDID src_type,src_id,dst_type,dest_bitmap<CR>** or **#CPEDID src_type,src_id,dst_type,dest_bitmap,safe_mode<CR>** **FEEDBACK** **~nn@CPEDID src_stg,src_id,dst_type,dest_bitmap<CR><LF>** **~nn@CPEDID src_stg,src_id,st_type,dest_bitmap,safe_mode<CR><LF>**	**src_type** – *EDID source type* (usually output) 0 – Input 1 – Output 2 – Default EDID 3 – Custom EDID **src_id** – Number of chosen source stage 0 – Default EDID source 1 – Output 1 2 – Output 2 **dst_type** – *EDID destination* type (usually input) 0 – Input 1 – Output 2 – Default EDID 3 – Custom EDID **dest_bitmap** – Bitmap representing destination IDs. Format: XXXX…X, where X is hex digit. The binary form of every hex digit represents corresponding destinations. 0 – indicates that EDID data is not copied to this destination. 1 – indicates that EDID data is copied to this destination. **safe_mode** – 0 – device accepts the EDID as is without trying to adjust 1 – device tries to adjust the EDID (default value if no parameter is sent)	Copy the EDID data from the Output 1 (EDID source) to the Input: **#CPEDID 1,2,0,0x1<CR>** Copy the EDID data from the default EDID source to the Input: **#CPEDID 2,0,0,0x5<CR>**
DISPLAY?	Get output HPD status.	**COMMAND** **#DISPLAY? out_id<CR>** **FEEDBACK** **~nn@DISPLAY out_id,status<CR><LF>**	**out_id** – Output number 1 – Output 1 2 – Output 2 … n – Output n **status** – HPD status according to signal validation 0 – Signal or sink is not valid 1 – Signal or sink is valid 2 – Sink and EDID is valid	Get the output HPD status of Output 1: **#DISPLAY? 1<CR>**
FACTORY	Reset device to factory default configuration. ⓘ This command deletes all user data from the device. The deletion can take some time. Your device may require powering off and powering on for the changes to take effect.	**COMMAND** **#FACTORY<CR>** **FEEDBACK** **~nn@FACTORY OK<CR><LF>**		Reset the device to factory default configuration: **#FACTORY<CR>**
HDCP-STAT?	Get HDCP signal status. ⓘ Output stage (1) – get the HDCP signal status of the sink device connected to the specified output. Input stage (0) – get the HDCP signal status of the source device connected to the specified input.	**COMMAND** **#HDCP-STAT? stage,stage_id<CR>** **FEEDBACK** **~nn@HDCP-STAT stage,stage_id,status<CR><LF>**	**stage** – Input/Output 0 – Input 1 – Output **stage_id** – Number of chosen stage for the input stage 1 – IN 1 HDMI 1 – OUT 1 HDMI 2 – OUT 2 HDMI 3 – OUT 3 HDMI 4 – OUT 4 HDMI **status** – Signal encryption status - valid values On/Off 0 – HDCP Off 1 – HDCP On	Get the output HDCP-STATUS of IN 1: **#HDCP-STAT? 0,1<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
HELP	Get command list or help for specific command.	**COMMAND** **#HELP`<CR>`** **#HELP`_`command_name`<CR>`** **FEEDBACK** 1. Multi-line: **~nn@Device`_`command,`_`command…`<CR><LF>`** To get help for command use: HELP (COMMAND_NAME)`<CR><LF>` **~nn@HELP`_`command:`<CR><LF>`** **description`<CR><LF>`** **USAGE:usage`<CR><LF>`**	**command** – Name of a specific command	Get the command list: **#HELP`<CR>`** To get help for FACTORY: HELP`_`**FACTORY**`<CR>`
MODEL?	Get device model. ⓘ This command identifies equipment connected to **VM-400HDCPxl** and notifies of identity changes to the connected equipment. The Matrix saves this data in memory to answer REMOTE-INFO requests.	**COMMAND** **#MODEL?`_`<CR>`** **FEEDBACK** **~nn@MODEL`_`model_name`<CR><LF>`**	**model_name** – String of up to 19 printable ASCII chars	Get the device model: **#MODEL?`_`<CR>`**
NAME	Set machine (DNS) name. ⓘ The machine name is not the same as the model name. The machine name is used to identify a specific machine or a network in use (with DNS feature on).	**COMMAND** **#NAME`_`machine_name`<CR>`** **FEEDBACK** **~nn@NAME`_`machine_name`<CR><LF>`**	**machine_name** – String of up to 15 alpha-numeric chars (can include hyphen, not at the beginning or end)	Set the DNS name of the device to room-442: **#NAME`_`room-442`<CR>`**
PROT-VER?	Get device protocol version.	**COMMAND** **#PROT-VER?`_`<CR>`** **FEEDBACK** **~nn@PROT-VER`_`3000:version`<CR><LF>`**	**version** – XX.XX where X is a decimal digit	Get the device protocol version: **#PROT-VER?`_`<CR>`**
RESET	Reset device. ⓘ To avoid locking the port due to a USB bug in Windows, disconnect USB connections immediately after running this command. If the port was locked, disconnect and reconnect the cable to reopen the port.	**COMMAND** **#RESET`<CR>`** **FEEDBACK** **~nn@RESET`_`OK`<CR><LF>`**		Reset the device: **#RESET`<CR>`**
SIGNAL?	Get input signal status.	**COMMAND** **#SIGNAL?`_`inp_id`<CR>`** **FEEDBACK** **~nn@SIGNAL`_`inp_id,status`<CR><LF>`**	**inp_id** – Input number 1 – IN 1 HDMI **status** – Signal status according to signal validation: 0 – Off 1 – On	Get the input signal lock status of IN 1: **#SIGNAL?`_`1`<CR>`**
SN?	Get device serial number.	COMMAND #SN?`_`<CR> FEEDBACK ~nn@SN`_`**serial_number**<CR><LF>	**serial_number** – 14 decimal digits, factory assigned	Get the device serial number: **#SN?`_`<CR>`**

Result and Error Codes

Syntax

In case of an error, the device responds with an error message. The error message syntax:

- **~NN@ERR XXX<CR><LF>** – when general error, no specific command

- **~NN@CMD ERR XXX<CR><LF>** – for specific command

- **NN** – machine number of device, default = 01

- **XXX** – error code

Error Codes

Error Name	Error Code	Description
P3K_NO_ERROR	0	No error
ERR_PROTOCOL_SYNTAX	1	Protocol syntax
ERR_COMMAND_NOT_AVAILABLE	2	Command not available
ERR_PARAMETER_OUT_OF_RANGE	3	Parameter out of range
ERR_UNAUTHORIZED_ACCESS	4	Unauthorized access
ERR_INTERNAL_FW_ERROR	5	Internal FW error
ERR_BUSY	6	Protocol busy
ERR_WRONG_CRC	7	Wrong CRC
ERR_TIMEDOUT	8	Timeout
ERR_RESERVED	9	(Reserved)
ERR_FW_NOT_ENOUGH_SPACE	10	Not enough space for data (firmware, FPGA…)
ERR_FS_NOT_ENOUGH_SPACE	11	Not enough space – file system
ERR_FS_FILE_NOT_EXISTS	12	File does not exist
ERR_FS_FILE_CANT_CREATED	13	File can't be created
ERR_FS_FILE_CANT_OPEN	14	File can't open
ERR_FEATURE_NOT_SUPPORTED	15	Feature is not supported
ERR_RESERVED_2	16	(Reserved)
ERR_RESERVED_3	17	(Reserved)
ERR_RESERVED_4	18	(Reserved)
ERR_RESERVED_5	19	(Reserved)
ERR_RESERVED_6	20	(Reserved)
ERR_PACKET_CRC	21	Packet CRC error
ERR_PACKET_MISSED	22	Packet number isn't expected (missing packet)
ERR_PACKET_SIZE	23	Packet size is wrong
ERR_RESERVED_7	24	(Reserved)
ERR_RESERVED_8	25	(Reserved)
ERR_RESERVED_9	26	(Reserved)
ERR_RESERVED_10	27	(Reserved)
ERR_RESERVED_11	28	(Reserved)
ERR_RESERVED_12	29	(Reserved)
ERR_EDID_CORRUPTED	30	EDID corrupted
ERR_NON_LISTED	31	Device specific errors
ERR_SAME_CRC	32	File has the same CRC – no changed
ERR_WRONG_MODE	33	Wrong operation mode
ERR_NOT_CONFIGURED	34	Device/chip was not initialized

The warranty obligations of Kramer Electronics Inc. ("Kramer Electronics") for this product are limited to the terms set forth below:

What is Covered

This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

How Long this Coverage Lasts

The standard limited warranty for Kramer products is seven (7) years from the date of original purchase, with the following exceptions:

1. All Kramer VIA hardware products are covered by a standard three (3) year warranty for the VIA hardware and a standard three (3) year warranty for firmware and software updates; all Kramer VIA accessories, adapters, tags, and dongles are covered by a standard one (1) year warranty.
2. All Kramer fiber optic cables, adapter-size fiber optic extenders, pluggable optical modules, active cables, cable retractors, all ring mounted adapters, all Kramer speakers and Kramer touch panels are covered by a standard one (1) year warranty.
3. All Kramer Cobra products, all Kramer Calibre products, all Kramer Minicom digital signage products, all HighSecLabs products, all streaming, and all wireless products are covered by a standard three (3) year warranty.
4. All Sierra Video MultiViewers are covered by a standard five (5) year warranty.
5. Sierra switchers & control panels are covered by a standard seven (7) year warranty (excluding power supplies and fans that are covered for three (3) years).
6. K-Touch software is covered by a standard one (1) year warranty for software updates.
7. All Kramer passive cables are covered by a ten (10) year warranty.

Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

What Kramer Electronics Will Do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

What Kramer Electronics Will Not Do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy Under This Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, visit our web site at www.kramerav.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required (RMA number). You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

Limitation of Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

Exclusive Remedy

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF KRAMER ELECTRONICS CANNOT LAWFULLY DISCLAIM OR EXCLUDE IMPLIED WARRANTIES UNDER APPLICABLE LAW, THEN ALL IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS PRODUCT AS PROVIDED UNDER APPLICABLE LAW.

IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPLICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

Other Conditions

This limited warranty gives you specific legal rights, and you may have other rights which vary from country to country or state to state.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, visit our web site at www.kramerav.com or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.

KRAMER

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P/N: 2900-300612   Rev: 1

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

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

We welcome your questions, comments, and feedback.

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