

**Kramer Electronics, Ltd.**



# **USER MANUAL**

**Model:**

**PT-101H4**

*HDMI Repeater and Format Converter*

## Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Getting Started</b>	<b>1</b>
2.1	Quick Start	2
<b>3</b>	<b>Overview</b>	<b>3</b>
3.1	About HDMI	3
3.2	About HDCP	4
3.3	Defining EDID	4
3.4	Recommendations for Achieving the Best Performance	5
<b>4</b>	<b>Defining the PT-101H4 HDMI Repeater and Format Converter</b>	<b>5</b>
<b>5</b>	<b>Connecting the PT-101H4 HDMI Repeater and Format Converter</b>	<b>6</b>
<b>6</b>	<b>Technical Specifications</b>	<b>7</b>

## Figures

Figure 1: PT-101H4 HDMI Repeater and Format Converter	5
Figure 2: Connecting the PT-101H4 HDMI Repeater and Format Converter	6

## Tables

Table 1: PT-101H4 HDMI Repeater and Format Converter Features	5
Table 2: Technical Specifications of the PT-101H4 HDMI Repeater and Format Converter	7

## 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<sup>1</sup> that are clearly defined by function.

Congratulations on purchasing your Kramer Pico TOOLS™ **PT-101H4 HDMI Repeater and Format Converter**<sup>2</sup> which is ideal for:

- Multimedia installations
- Home cinema installations

The package includes the following:

- **PT-101H4 HDMI Repeater and Format Converter**
- Power adapter (5V DC output)
- This user manual<sup>3</sup>

## 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<sup>4</sup>

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1 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; GROUP 11: Sierra Products

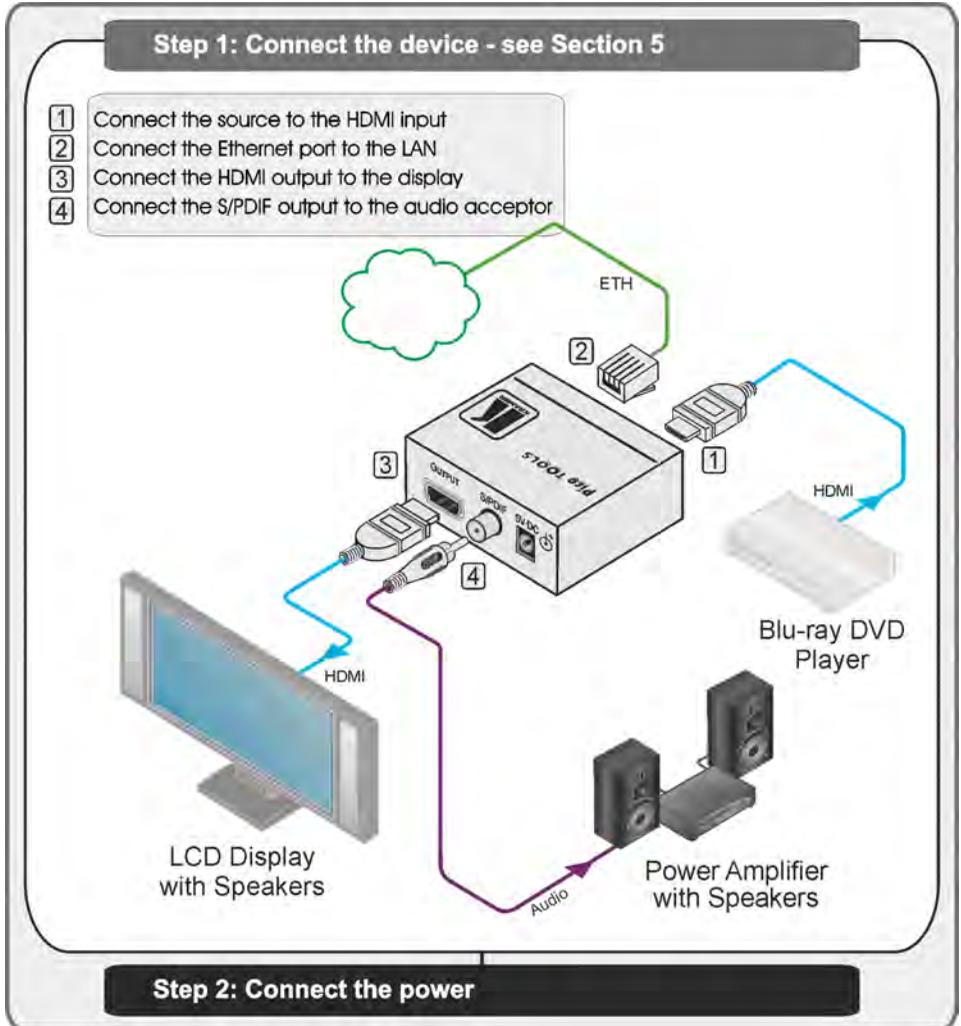
2 Only “PT-101H4 HDMI Repeater” is printed on the front panel of the device

3 Download up-to-date Kramer user manuals from <http://www.kramerelectronics.com>

4 The complete list of Kramer cables is available from <http://www.kramerelectronics.com>

## 2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



### 3 Overview

The Kramer **PT-101H4** *HDMI Repeater and Format Converter* is a high quality HDMI repeater that provides connectivity to an:

- HDMI display device
- Ethernet LAN
- S/PDIF digital audio device

The Kramer **PT-101H4** *HDMI Repeater and Format Converter*:

- Extends the transmission range to up to 35m (115ft) with 1080p @60Hz resolution
- Features reclocking and equalization
- Provides HDMI support on the output
- Supports up to 2.25Gbps bandwidth
- Combines an HDMI 1.3 signal with Ethernet to produce an HDMI (1.4 HEAC) signal<sup>1</sup>
- Outputs S/PDIF audio from the Audio Return Channel of the HDMI output signal
- Passes the HPD<sup>2</sup> and CEC<sup>3</sup> signals from the display to the source device
- Provides EDID PassThru—Passes EDID/HDCP signals from source to display

#### 3.1 About HDMI

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital<sup>4</sup> audio/video interface, widely supported in the entertainment and home cinema industry. It delivers the highest high-definition image and sound quality.

In particular, HDMI<sup>5</sup>:

- Provides a simple<sup>6</sup> 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<sup>7</sup> cable

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1 For Ethernet connectivity, an HDMI 1.4 version output cable must be used

2 Hot Plug Detect

3 Consumer Electronics Control

4 Ensuring an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions

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

6 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

7 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<sup>1</sup> on a single cable
- 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<sup>2</sup>, and user-friendly connector
- Is backward-compatible with DVI (Digital Visual Interface)
- Supports 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

HDMI has the capacity to support:

- Existing high-definition video formats (720p, 1080i and 1080p @60), as well as standard definition formats such as NTSC or PAL

### 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 DVI 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<sup>3</sup>) 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 **PT-101H4** to "know" what kind of monitor is connected to the output. The EDID includes the manufacturer's name, product type, timing data supported by the display, display size, luminance data and (for digital displays only) the pixel mapping data.

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1 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

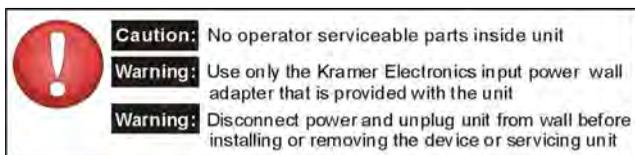
2 HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner

3 Defined by a standard published by the Video Electronics Standards Association (VESA)

### 3.4 Recommendations for Achieving the Best Performance

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding 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 and position your **PT-101H4** away from moisture, excessive sunlight and dust



## 4 Defining the PT-101H4 HDMI Repeater and Format Converter

[Figure 1](#) and [Table 1](#) define the **PT-101H4**.

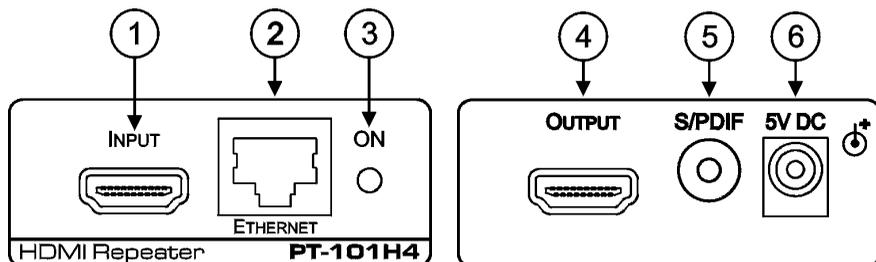


Figure 1: PT-101H4 HDMI Repeater and Format Converter

Table 1: PT-101H4 HDMI Repeater and Format Converter Features

#	Feature	Function
1	INPUT HDMI Connector	Connect to the HDMI source
2	ETHERNET CAT 5 RJ-45 Connector	Connect to the Ethernet LAN
3	ON LED	Lights red when the unit receives power and no devices are connected; lights orange when receiving power and a device is connected to either the input or output; lights green when receiving power and both the input and output are connected to devices
4	OUTPUT HDMI Connector	Connect to the HDMI acceptor
5	S/PDIF RCA Connector	Connect to the digital audio acceptor
6	5V DC Power Connector	Connect to the power adapter, center pin positive

## 5 Connecting the PT-101H4 HDMI Repeater and Format Converter

To connect the **PT-101H4 HDMI Repeater and Format Converter** as illustrated in the example in [Figure 2](#):

1. Connect the HDMI source (for example, a Blu-ray disc player) to the INPUT HDMI connector on the front of the **PT-101H4**.
2. Connect the ETHERNET RJ-45 connector<sup>1</sup> on the front of the **PT-101H4** to the LAN using CAT 5 Twisted Pair cable.
3. Connect the OUTPUT HDMI connector on the rear of the **PT-101H4** to the HDMI acceptor (for example, an HDMI display).
4. Connect the S/PDIF RCA connector on the rear of the **PT-101H4** to the digital audio acceptor (for example, a home theater system).
5. Connect<sup>2</sup> the 5V DC power adapter to the power socket on the **PT-101H4** and to the mains electricity.

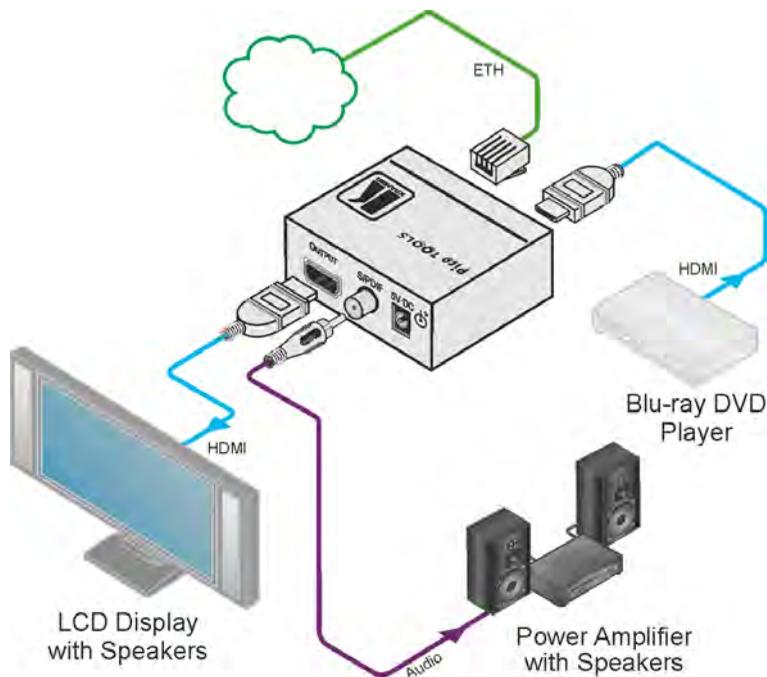


Figure 2: Connecting the PT-101H4 HDMI Repeater and Format Converter

<sup>1</sup> For Ethernet connectivity, an HDMI 1.4 version output cable must be used

<sup>2</sup> Not shown in [Figure 2](#)

## 6 Technical Specifications

[Table 2](#) includes the technical specifications<sup>1</sup>.

*Table 2: Technical Specifications of the PT-101H4 HDMI Repeater and Format Converter*

INPUT:	1 HDMI connector 1 Ethernet on an RJ-45 TP connector
OUTPUTS:	1 HDMI connector 1 S/PDIF on an RCA connector
BANDWIDTH:	Supports up to 2.25Gbps bandwidth per graphic channel
COMPLIANCE WITH HDMI STANDARD:	Input: HDMI Output: HDMI and HDCP
POWER SOURCE:	5V DC, 450mA
DIMENSIONS:	6.2cm x 5cm x 2.4cm (2.44" x 1.97" x 0.94"), W, D, H
WEIGHT:	0.3kg. (0.67lbs) approx.
ACCESSORIES:	Power supply
OPTIONS:	Kramer HDMI cables <sup>2</sup> : regular cable - C-HM/HM; flat cable – C-HM/HM/FLAT(1.3), RK-3T 19" rack adapter

<sup>1</sup> Specifications are subject to change without notice

<sup>2</sup> The complete list of Kramer cables is on our Web site at <http://www.kramerelectronics.com>



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## LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms

### HOW LONG IS THE WARRANTY

Labor and parts are warranted for three 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 Kramer, 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](http://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 installation 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 your 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)



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**For the latest information on our products and a list of Kramer distributors visit [www.kramerelectronics.com](http://www.kramerelectronics.com) where updates to this user manual may be found. We welcome your questions, comments and feedback.**



**Caution**

**Safety Warning:**

Disconnect the unit from the power supply before opening/servicing.



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**Kramer Electronics, Ltd.**

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