USER MANUAL

MODELS:

TP-780T
HDMI Line Transmitter + POE

TP-780R
HDMI Line Receiver + POE

P/N: 2900-300575 Rev 2

www.kramerAV.com
TP-780T/TP-780R Quick Start Guide

This guide helps you install and use your TP-780T or TP-780R for the first time. For more detailed information, go to http://www.kramerav.com/manual/TP-780T to download the latest manual or scan the QR code on the left.

Step 1: Check what’s in the box

- TP-780T or TP-780R HDMI Line Transmitter or Receiver +POE
- 1 Power supply (48V DC) supplied with TP-780T or TP-780R
- 4 Rubber feet
- 1 Quick start guide
- 1 Bracket installation kit

Step 2: Install the TP-780T/R

To mount the TP-780T/TP-780R in a rack, use an RK-T2B rack adapter. Alternatively, attach the rubber feet to the underside of the machine and place it on a table. You can use the TOOL bracket Installation kit (supplied) to mount the TP-780T/TP-780R on a desktop, wall or similar area. Fasten a bracket on each side of the TOOL using the two M3x8 screws (supplied). Use the flat-head screws (supplied) to fix the TOOL to the mounting surface or enable it to slide in place.

Step 3: Connect inputs and outputs

Always switch OFF the power on each device before connecting it to your TP-780T/TP-780R.
For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the TP-780T/TP-780R.

Step 4: Connect the power

Connect the 48V DC power adapter to the TP-780T and plug the adapter into the mains electricity. Power is distributed to the TP-780R over the HDBT interface.
Step 5: Twisted Pair Pinout

<table>
<thead>
<tr>
<th>PIN</th>
<th>Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Orange / White</td>
</tr>
<tr>
<td>2</td>
<td>Orange</td>
</tr>
<tr>
<td>3</td>
<td>Green / White</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
</tr>
<tr>
<td>5</td>
<td>Blue / White</td>
</tr>
<tr>
<td>6</td>
<td>Green</td>
</tr>
<tr>
<td>7</td>
<td>Brown / White</td>
</tr>
<tr>
<td>8</td>
<td>Brown</td>
</tr>
</tbody>
</table>

For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the TP-780T and TP-780R. For optimum range and performance use Kramer’s BC-HDKat6a cable. Note that the transmission range depends on the signal resolution, graphics card and display used. The distance using non-Kramer CAT 6 cable may not reach these ranges. Use only shielded cable where both ends of the shield are soldered to ground.
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 video, audio, presentation, and broadcasting professionals 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 14 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; 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 Video Products; GROUP 12: Digital Signage; GROUP 13: Audio; and GROUP 14: Collaboration.

Congratulations on purchasing your Kramer TP-780T/R transmitter/receiver pair, which is ideal for the following typical applications:

- Projection systems in conference rooms, boardrooms, auditoriums, hotels and churches, production studios
- Rental and staging

Note that TP-780T and TP-780R are purchased separately, and can be connected to other HDBaseT certified transmitters and receivers, respectively.
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

Go to www.kramerav.com/downloads/TP-780T to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

2.1 Achieving the Best Performance

To achieve the 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 neighbouring electrical appliances that may adversely influence signal quality
- Position your TP-780T/R away from moisture, excessive sunlight and dust

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

2.2 Safety Instructions

Caution: There are no operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics power supply that is provided with the unit

Warning: Disconnect the power and unplug the unit from the wall before installing
2.3 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 http://www.kramerelectronics.com/support/recycling/.
3 Overview

The TP−780T and TP−780R are a 4K UHD, twisted pair receiver and transmitter for HDMI, bidirectional RS−232 and IR signals. They support resolutions up to 4K@60Hz (4:2:0) UHD. The TP−780T converts HDMI, RS−232, and IR signals into a twisted pair signal that it transmits to a TP−780R receiver. The TP−780R converts the twisted pair signal back into HDMI, bidirectional RS−232 and IR signals. The TP−780T and TP−780R support PoE (Power over HDBT). The TP−780T provides power remotely over HDBT to the TP−780R where it might be difficult to connect an external power supply. This allows a single HDBT LAN cable to provide both data and electrical power to compatible devices.

The TP−780T and the TP−780R can form a transmission and reception system either together or each device separately with another certified HDBaseT device.

The TP−780T/R transmitter and receiver feature:

- A data transfer rate of up to 10.2Gbps (3.4Gbps per graphic channel)
- Resolution support of up to 4K @60Hz (4.2.0) UHD
- A range of up to 70m (230ft) at 2K, 40m (130ft) at 4K UHD resolutions.

For optimum range and performance using HDBaseT™, use Kramer's BC−HDKat6a cable. Note that the transmission range depends on the signal resolution, source and display used. The distance using non−Kramer CAT 6 cable may not reach these ranges.

- HDBaseT™ technology
- Power over HDBT that passes electrical power along with data on Ethernet cabling. This allows a single cable to provide both data connection and electrical power to compatible devices
- HDTV compatibility and HDCP compliance
- HDMI support for Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS−HD, CEC.
• EDID pass through, passes EDID/HDCP signals from the source to the display

• Bidirectional RS-232 & IR interface where commands and data can flow in both directions via the RS-232 interface, allowing status requests and remote control of the destination unit (see Section 4.1)

• LED status indicators for input selection, output, link and power

• Compact MegaTOOLS® enclosures, and these can be rack mounted side-by-side in a 1U rack space with the optional RK-T2B universal rack adapters

3.1 About HDBaseT™ Technology

HDBaseT™ is an advanced all-in-one connectivity technology (supported by the HDBaseT Alliance). It is particularly suitable in the consumer home environment as a digital home networking alternative where it enables you to replace numerous cables and connectors by a single LAN cable used to transmit, for example, uncompressed full high-definition video, audio, IR, as well as various control signals.

The products described in this user manual are HDBaseT certified.

3.2 About Power over Ethernet (PoE)

Power over Ethernet (HDBaseT) passes electrical power along with data on Ethernet cabling. This allows a single twisted pair cable to provide both a data connection and electrical power to compatible devices. PoE is convenient, flexible and safe requiring the use of fewer power outlets, simpler configuration and low power connections over standard category cables. A 48V DC power supply connects to the PoE transmitter and can power the PoE receiver up to a distance of 100 meters (320 feet). Beyond this range, a 12V DC power supply must be connected to the PoE receiver.

The **TP-780T** is a PoE injector. It cannot receive power from another PoE injector but only from a 48V DC power supply.
3.3 Using Twisted Pair Cable

Kramer engineers have developed special twisted pair cables to best match our digital twisted pair products; the Kramer BC−HDKat6a (CAT 6 23 AWG cable) significantly outperforms regular CAT 5 / CAT 6 cables.

We strongly recommend that you use shielded twisted pair cable.
### 3.4 Defining the TP-780T HDMI Line Transmitter + POE

#### Figure 1: TP-780T HDMI Line Transmitter + POE

<table>
<thead>
<tr>
<th>#</th>
<th>Feature</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>IN LED</strong></td>
<td>Lights green when an HDMI input device is connected</td>
</tr>
<tr>
<td>2</td>
<td><strong>OUT LED</strong></td>
<td>Lights green when an HDMI output device is detected</td>
</tr>
<tr>
<td>3</td>
<td><strong>LINK LED</strong></td>
<td>Lights green when the TP connection is active</td>
</tr>
<tr>
<td>4</td>
<td><strong>ON LED</strong></td>
<td>Lights green when receiving power</td>
</tr>
<tr>
<td>5</td>
<td><strong>HDBT OUT RJ-45 Connector</strong></td>
<td>Connects to the <strong>HDBT IN RJ-45 connector on the TP-780R</strong></td>
</tr>
<tr>
<td>6</td>
<td><strong>HDMI IN Connector</strong></td>
<td>Connects to the HDMI source</td>
</tr>
<tr>
<td>7</td>
<td><strong>PROG/NORMAL Switch</strong></td>
<td>Slide to PROG to upgrade to the latest Kramer firmware via RS-232, or slide to NORMAL for normal operation</td>
</tr>
<tr>
<td>8</td>
<td><strong>RS-232 9-pin D-sub Connector</strong></td>
<td>Connects to an RS-232 port for firmware upgrade and control of the destination unit</td>
</tr>
<tr>
<td>9</td>
<td><strong>IR 3.5mm Mini Jack Connector</strong></td>
<td>Connects to an external infrared transmitter / sensor (receiver)</td>
</tr>
<tr>
<td>10</td>
<td><strong>48V DC Terminal Block</strong></td>
<td>+48V DC connector for powering the unit</td>
</tr>
</tbody>
</table>
### 3.5 Defining the TP-780R HDMI Line Receiver + POE

![Figure 2: TP-780R HDMI Line Receiver + POE](image)

<table>
<thead>
<tr>
<th>#</th>
<th>Feature</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IN LED</td>
<td>Lights green when an HDMI input device is connected</td>
</tr>
<tr>
<td>2</td>
<td>OUT LED</td>
<td>Lights green when an HDMI output device is detected</td>
</tr>
<tr>
<td>3</td>
<td>LINK LED</td>
<td>Lights green when the TP connection is active</td>
</tr>
<tr>
<td>4</td>
<td>ON LED</td>
<td>Lights green (DC power) and orange (HDBaseT PoE). When both power sources are detected, lights orange (HDBaseT PoE) if within range and green if exceeds range</td>
</tr>
<tr>
<td>5</td>
<td>HDBT IN RJ-45 Connector</td>
<td>Connects to the HDBT OUT RJ-45 connector on the TP-780T</td>
</tr>
<tr>
<td>6</td>
<td>HDMI OUT Connector</td>
<td>Connects to the HDMI acceptor</td>
</tr>
<tr>
<td>7</td>
<td>PROG/NORMAL Button</td>
<td>Slide to PROG to upgrade to the latest Kramer firmware via RS-232, or slide to NORMAL for normal operation</td>
</tr>
<tr>
<td>8</td>
<td>RS-232 9-pin D-sub Connector</td>
<td>Connects to an RS-232 port for firmware upgrade and control of the destination unit</td>
</tr>
<tr>
<td>9</td>
<td>IR 3.5mm Mini Jack Connector</td>
<td>Connects to an external infrared transmitter / sensor (receiver)</td>
</tr>
<tr>
<td>10</td>
<td>12V DC</td>
<td>+12V DC connector for powering the unit</td>
</tr>
</tbody>
</table>
Always switch off the power to each device before connecting it to your Transmitter and Receiver. After connecting your Transmitter and Receiver, connect their power and then switch on the power to each device.

You can use the **TP-780T/R HDMI Line Transmitter/Receiver + POE** to configure an HDMI transmitter/receiver system, as shown in the example in Figure 3.

To connect the **TP-780T**, connect the:

1. HDMI source (for example, a DVD player) to the HDMI IN connector.
2. RS-232 9-pin D-sub connector to a computer (for example, a laptop to control the projector).
3. IR 3.5mm mini jack to an IR emitter.
4. HDBT OUT RJ-45 connector over twisted pair to the **HDBT IN** connector. Alternatively, you can use any other certified HDBaseT receiver device (for example, the Kramer **WP-580R**).
5. 48V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 3).

To connect the **TP-780R**, connect the:

1. HDMI OUT connector to the HDMI acceptor (for example, a projector).
2. RS-232 9-pin D-sub connector to an RS-232 port (for example, a projector that is controlled by the laptop connected to **TP-780T**).
3. IR 3.5mm mini jack to an IR sensor.
4. HDBT IN RJ-45 connector over twisted pair to the **TP-780T HDBT OUT** connector. Alternatively, you can use any other certified HDBaseT transmitter device (for example, the Kramer **WP-580T**).
5. If the POE does not effectively power the **TP-780R**, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 3).
Figure 3: Connecting the TP-780T/ TP-780R Transmitter/Receiver Pair
4.1 Controlling AV Equipment via an IR Transmitter

Since the IR signal on the **TP-780T/TP-780R** transmitter/receiver pair is bidirectional, you can use a remote control transmitter (that is used for controlling a peripheral device, for example, a DVD player) to send commands (to the AV equipment) from either end of the transmitter /receiver system. To do so, you must use the Kramer external IR sensor on one end (P/N: 95-0104050) and the Kramer IR emitter cable on the other end (P/N: C-A35/IRE-10).

Two IR emitter extension cables are also available: a 15 meter and 20 meter cable.
The example in Figure 4 illustrates how to control the DVD player that is connected to TP-780T using a remote control, via the TP-780R. In this example, the external IR sensor is connected to the IR connector of the TP-780R and an IR emitter is connected between the TP-780T and the DVD player. The DVD remote control sends a command while pointing towards the external IR sensor. The IR signal passes through the TP cable and the IR emitter to the DVD player, which responds to the command sent.

Figure 4: Controlling a DVD Player via the TP-780T/R
The example in Figure 5 illustrates how to control the LCD display that is connected to the TP-780R using a remote control, via the TP-780T. In this example, the external IR sensor is connected to the IR connector of the TP-780T and an IR emitter is connected between the TP-780R and the LCD display. The LCD display remote control sends a command while pointing towards the external IR sensor. The IR signal passes through the TP cable and the IR emitter to the LCD display, which responds to the command sent.

Figure 5: Controlling an LCD Display via the TP-780T/R
4.2 Connecting to a PC

You can connect to the transmitter/receiver system via an RS-232 connection using, for example, a PC.

**Note:** A null-modem adapter/connection is not required.

To connect a PC via RS-232:

- Connect the RS-232 9-pin D-sub rear panel port on the transmitter/receiver system unit via a 9-wire straight cable (only pin 2 to pin 2, pin 3 to pin 3, and pin 5 to pin 5 need to be connected) to the RS-232 9-pin D-sub port on your PC.

Figure 6 shows RS-232 bidirectional control of the projector that is connected to TP-780R, via a PC connected to the **TP-780T**:
Wiring the RJ-45 Connectors

This section defines the TP pinout, using a **straight** pin-to-pin cable with RJ-45 connectors.

Note, that the cable ground shielding must be connected / soldered to the connector shield.

<table>
<thead>
<tr>
<th>PIN</th>
<th>Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Orange / White</td>
</tr>
<tr>
<td>2</td>
<td>Orange</td>
</tr>
<tr>
<td>3</td>
<td>Green / White</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
</tr>
<tr>
<td>5</td>
<td>Blue / White</td>
</tr>
<tr>
<td>6</td>
<td>Green</td>
</tr>
<tr>
<td>7</td>
<td>Brown / White</td>
</tr>
<tr>
<td>8</td>
<td>Brown</td>
</tr>
</tbody>
</table>

EIA /TIA 568B

Figure 7: TP PINOUT
## Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th>TP-780T</th>
<th>TP-780R</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUTS:</strong></td>
<td>1 HDMI connector</td>
<td>1 RJ-45 connector</td>
</tr>
<tr>
<td><strong>OUTPUTS:</strong></td>
<td>1 RJ-45 connector</td>
<td>1 HDMI connector</td>
</tr>
<tr>
<td><strong>PORTS:</strong></td>
<td>1 IR on a 3.5mm mini jack (for emitter or sensor)</td>
<td>1 IR on a 3.5mm mini jack (for emitter or sensor)</td>
</tr>
<tr>
<td></td>
<td>1 RS-232 on a 9-pin D-sub connector</td>
<td>1 RS-232 on a 9-pin D-sub connector</td>
</tr>
<tr>
<td><strong>DATA TRANSFER RATE:</strong></td>
<td>Up to 10.2Gbps (3.4Gbps per graphic channel), supporting 4K @60Hz (4.2.0) resolution</td>
<td></td>
</tr>
<tr>
<td><strong>RS-232 BAUD RATE:</strong></td>
<td>115200</td>
<td></td>
</tr>
<tr>
<td><strong>STANDARDS COMPLIANCE:</strong></td>
<td>Supports HDMI 1.4 and HDCP 1.4</td>
<td></td>
</tr>
<tr>
<td><strong>OPERATING TEMPERATURE:</strong></td>
<td>0° to +40°C (32° to 104°F)</td>
<td></td>
</tr>
<tr>
<td><strong>STORAGE TEMPERATURE:</strong></td>
<td>-40° to +70°C (-40° to 158°F)</td>
<td></td>
</tr>
<tr>
<td><strong>HUMIDITY:</strong></td>
<td>10% to 90%, RHL non-condensing</td>
<td></td>
</tr>
<tr>
<td><strong>POWER CONSUMPTION:</strong></td>
<td>48V DC, 240mA</td>
<td>12V DC, 450mA</td>
</tr>
<tr>
<td><strong>DIMENSIONS:</strong></td>
<td>18.8cm x 11.5cm x 2.5cm (7.4” x 4.5” x 1.0”) W, D, H</td>
<td></td>
</tr>
<tr>
<td><strong>WEIGHT:</strong></td>
<td>0.6kg (1.4lbs)</td>
<td></td>
</tr>
<tr>
<td><strong>INCLUDED ACCESSORIES:</strong></td>
<td>Power supply 48V/1.36A Bracket installation kit</td>
<td>Power supply 12V/2A Bracket installation kit</td>
</tr>
<tr>
<td><strong>OPTIONS:</strong></td>
<td>RK-T2B 19” rack mount; Kramer external IR sensor (P/N: 95-0104050), Kramer IR emitter cable (P/N: C-A35/IRE-10); Kramer BC-HDKat6a cable</td>
<td></td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice
For the most updated resolution list, go to our Web site at [http://www.kramerelectronics.com](http://www.kramerelectronics.com)
LIMITED WARRANTY

The warranty obligations of 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 unsatisfactory installation, any repairs attempted by anyone other than an authorized Kramer Electronics service representative, and any repairs attempted 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 Does this Coverage Last

Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

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 facsimile 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 return Kramer Electronics products, this product must be insured during shipping; with the insurance and shipping charges prepaid by you. If this product is returned unstamped, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal of any product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setup 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 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, please visit our web site at www.kramerelectronics.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must present 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. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to inspect 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 on Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE OF THE PRODUCT. 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. §301, 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, please visit our Web site at www.kramerelectronics.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.
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 Web site to find updates to this user manual.

We welcome your questions, comments, and feedback.

www.kramerAV.com
info@kramerel.com