MODELS:

PT-110xl, UXGA Line Transmitter
WP-110, XGA Line Transmitter
PT-120xl, XGA Line Receiver
TP-120, XGA Line Receiver
PT-110x1, WP-110, PT-120x1, TP-120 Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to [http://bit.ly/k-prod-downloads](http://bit.ly/k-prod-downloads) to download the latest manual or scan the QR code on the left.

Step 1: Check what’s in the box

- PT-110x1, WP-110, PT-120x1, TP-120
- UXGA/XGA Line Transmitters/Receivers
- 1 Power supply (12V DC) per unit
- 4 Rubber feet per unit
- 1 Quick Start sheet

Step 2: Install the PT-110x1, WP-110, PT-120x1, TP-120

Attach the rubber feet and place on a table or mount the PT-110x1, PT-120x1, TP-120 in a rack. Mount the WP-110 on the wall or in a rack.

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your PT-110x1, WP-110, PT-120x1, TP-120.

Step 4: Connect the power

Connect the 12V DC power adapter to the PT-110x1, WP-110, PT-120x1, TP-120 and plug the adapter into the mains electricity.

Step 5: Operate the machines

In the receivers PT-120x1 and TP-120, adjust level and equalization as needed.

LEVEL   EQ.
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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 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.

Thank you for purchasing the Kramer PT-110xl UXGA Line Transmitter, WP-110 XGA Line Transmitter, Kramer Pico TOOLS PT-120xl XGA Line Receiver, and/or Kramer TOOLS TP-120 XGA Line Receiver, which are ideal for:

- Presentation and multimedia applications
- Long-range graphics distribution for schools, hospitals, security, and stores
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 http://www.kramerelectronics.com/support/product_downloads.asp 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 neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer PT-110xl, WP-110, PT-120xl, TP-120 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 input power wall adapter 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/.

2.4 About the Power Connect™ Feature

The Power Connect feature applies as long as the cable can carry power. This feature is available when using TP cable and the distance does not exceed 50m (164ft) on standard CAT 5 cable. For longer distances, use heavier gauge cable (TP cable is still suitable for the video/audio transmission, but not for feeding the power at these distances).

For a TP cable exceeding a distance of 50m, connect separate power supplies to the transmitter and to the receiver simultaneously.

2.5 Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)

We recommend that you use Shielded Twisted Pair (STP) cable, and stress that the compliance to electromagnetic interference was tested using STP cable. There are different levels of STP cable available, and we advise you to use the best quality STP cable that you can afford. Our non-skew-free cable, Kramer BC-STP is intended for analog signals where skewing is not an issue.

In cases where there is skewing, our Unshielded Twisted Pair (UTP) skew-free cable, Kramer BC-XTP, may be advantageous, and UTP cable might also be preferable for long range applications. In any event when using UTP cable, it is advisable to ensure that the cable is installed far away from electric cables, motors and so on, which are prone to create electrical interference.
3 PT-110xl UXGA Line Transmitter

The Kramer Pico TOOLS PT-110xl is an extended range UXGA line transmitter that receives a UXGA signal and transmits it over a CAT 5/6 cable to the PT-120xl or TP-120 receiver. In particular, the PT-110xl features:

- Resolution up to WUXGA & 1080p
- HDTV compatibility up to 1080p
- Extended transmission range of up to 250m (820ft) when used with Kramer’s other twisted pair xl receivers (such as PT-120xl, TP-122xl or TP-126xl)
- EDID capture that copies and stores the EDID from a display device
- An increased level of protection against noise, spikes and interference in adverse environments for the xl models

3.1 Your PT-110xl UXGA Line Transmitter

Figure 1 defines the PT-110xl:

![PT-110xl UXGA Line Transmitter](image)

Figure 1: PT-110xl UXGA Line Transmitter

<table>
<thead>
<tr>
<th>#</th>
<th>Feature</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CAPTURE Button</td>
<td>Press to acquire the EDID information from the display</td>
</tr>
<tr>
<td>2</td>
<td>STATUS LED</td>
<td>Illuminates during normal operation; flashes when acquiring the EDID</td>
</tr>
<tr>
<td>3</td>
<td>LINE OUT RJ-45 Connector</td>
<td>Connects to the LINE IN RJ-45 connector on the PT-120xl or TP-120 XGA Line Receiver</td>
</tr>
<tr>
<td>4</td>
<td>ON LED</td>
<td>Illuminates when receiving power</td>
</tr>
<tr>
<td>5</td>
<td>UXGA INPUT 15-pin HD Connector</td>
<td>Connect to the UXGA source</td>
</tr>
<tr>
<td>6</td>
<td>12V DC</td>
<td>+12V DC connector for powering the unit</td>
</tr>
</tbody>
</table>
3.2 Connecting the PT-110xl UXGA Line Transmitter

To connect the PT-110xl (as shown in Figure 2) do the following:

1. Connect a UXGA source (for example, a computer graphics card) to the 15-pin HD UXGA INPUT connector.

2. Connect a CAT5/6 cable to the RJ-45 LINE OUT connector.

![Diagram of PT-110xl UXGA Line Transmitter](image)

Figure 2: Connecting the PT-110xl UXGA Line Transmitter

3.3 Capturing the EDID

To capture an EDID:

- Connect the device from which you want to capture the EDID (for example, a display, switcher, DA, etc.) directly to the UXGA input of the PT-110xl

- Press the EDID capture button.

  The EDID status LED flashes slowly several times. The new EDID is captured when the LED stops flashing and lights solid.

**Note:** If the status LED flashes quickly for a few seconds and then stays on solid, the PT-110xl could not capture the EDID and loaded the default EDID instead.
3.4 Loading the Default EDID

To load the default EDID:

- Press the EDID capture button.
  The EDID status LED flashes quickly for a few seconds and then stays on solid.
4 **WP-110 XGA Line Transmitter**

The Kramer Wall Plate **WP-110** is an XGA line transmitter that receives an XGA signal and transmits it over a CAT 5 cable to the **PT-120xl** or **TP-120** receiver. The **WP-110** is available in three versions: one for USA, one for Belgium and Germany, and one for UK and most of Europe (excluding Belgium and Germany). In particular, the **WP-110** features:

- Resolution of up to XGA
- Transmission range over 100m (320ft)
- Use of the simplest UTP CAT 5 cables, however, it benefits from better quality cables
- The power connect feature and is 12V DC fed

4.1 **Your WP-110 XGA Line Transmitter**

The **WP-110** is available in three versions: US, Belgium and Germany, and UK and most of Europe (excluding Belgium and Germany), as defined in Figure 3.
Figure 3: WP-110 XGA Line Transmitter

<table>
<thead>
<tr>
<th>#</th>
<th>Feature</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ON LED</td>
<td>Illuminates when receiving power</td>
</tr>
<tr>
<td>2</td>
<td>XGA IN 15-pin HD (F) Connector</td>
<td>Connect to the XGA source</td>
</tr>
<tr>
<td>3</td>
<td>POWER SUPPLY</td>
<td>Connect (-) to the Ground</td>
</tr>
<tr>
<td></td>
<td>GND PIN</td>
<td>Connect (+) to the connector for powering the unit</td>
</tr>
<tr>
<td></td>
<td>+12V DC PIN</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>LINE OUT RJ-45</td>
<td>Connects to the LINE IN RJ-45 connector on the PT-120xl or TP-120 XGA Line Receiver</td>
</tr>
<tr>
<td></td>
<td>Connector</td>
<td>Use a UTP cable with CAT 5 connectors at both ends (the PINOUT is defined in Figure 8)</td>
</tr>
<tr>
<td>5</td>
<td>HS Switch</td>
<td>Slide the switch to the left (by default, both switches are set to the right) to change the HS (horizontal sync) polarity to (NEG.) negative polarity (down-going syncs); slide the switch to the right (NORM.) to retain the polarity</td>
</tr>
<tr>
<td>6</td>
<td>VS Switch</td>
<td>Slide the switch to the left to change the VS (vertical sync) polarity to (NEG.) negative polarity; slide the switch to the right (NORM.) to retain the polarity</td>
</tr>
</tbody>
</table>
4.2 Installing the WP-110 XGA Line Transmitter

To install your WP-110 XGA Line Transmitter:

1. Connect the LINE OUT RJ-45 connector to the pre-installed UTP wiring in the wall box opening that connects via UTP cabling to the LINE IN RJ-45 connector of the PT-120xl or TP-120.

2. Connect your 12V DC power supply to the POWER SUPPLY pins, taking care that **polarity is correct**.
   - Connect the wire labeled “+” to the +12V pin, and the wire labeled “−” to the GND pin.

3. Insert the WP-110 directly into the wall box opening, and then mount the front panel securely using the screws.

4. Connect the XGA source to the XGA IN 15-pin HD (F) connector.

4.3 Connecting the WP-110 to the TP-120

To connect the WP-110 XGA Line Transmitter to the TP-120 XGA Line Receiver, as the example in Figure 4 illustrates, do the following:

1. On the WP-110, connect the XGA source (for example, the 15-pin HD output from a computer’s graphics card) to the XGA INPUT 15-pin HD (F) connector.

2. On the TP-120, connect the XGA OUT 15-pin HD (F) connector to the XGA acceptor (for example, a monitor).

3. Connect the LINE OUTPUT RJ-45 connector on the WP-110 to the LINE IN RJ-45 connector on the TP-120, via UTP cabling (with a range of more than 300ft (>100m)).

4. On both the WP-110 and the TP-120, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
   - The signal from the XGA source is transmitted via CAT 5 cable, decoded and converted at the XGA OUT 15-pin HD (F) connector to the XGA acceptor.
   - For details of the power connect feature see Section 2.4.

5. On the TP-120, using a screwdriver to carefully rotate the trimmer, adjust the output signal level and/or cable compensation equalization level, if required.
6. If necessary, set the H SYNC and V SYNC switches, on the underside of the WP-110. By default, both switches are set for normal H SYNC and V SYNC polarity.

Figure 4: Connecting the WP-110 to a TP-120
The Kramer Pico TOOLS PT-120xl is an XGA line receiver that receives a coded CAT 5 signal transmitted by the WP-110, decodes it and converts it to an XGA output. In particular, the PT-120xl features:

- An operating range of up to 250m (820ft) using standard CAT 5 cable and the PT-110xl
- EQ. and level controls
- Power Connect and is 12V DC fed
- An increased level of protection against noise, spikes and interference in adverse environments when using an xl transmitter

5.1 Your PT-120xl XGA Line Receiver

Figure 5 defines the PT-120xl XGA Line Receiver:

<table>
<thead>
<tr>
<th>#</th>
<th>Feature</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LINE IN RJ-45 Connector</td>
<td>Connects to the LINE OUT RJ-45 connector on the WP-110 XGA Line Receiver&lt;br&gt;Using a UTP cable with CAT 5 connectors at both ends (the PINOUT is defined in Figure 8)</td>
</tr>
<tr>
<td>2</td>
<td>LEVEL Trimmer</td>
<td>Adjusts the output signal level&lt;br&gt;Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level</td>
</tr>
<tr>
<td>3</td>
<td>EQ. Trimmer</td>
<td>Adjusts the cable compensation equalization level&lt;br&gt;Degradation and VGA/XGA signal loss can result from using long cables (due to stray capacitance), sometimes leading to a total loss of sharpness in high-resolution signals</td>
</tr>
<tr>
<td>4</td>
<td>ON LED</td>
<td>Illuminates when receiving power</td>
</tr>
<tr>
<td>5</td>
<td>XGA OUTPUT 15-pin HD (F)</td>
<td>Connect to the XGA acceptor</td>
</tr>
<tr>
<td>6</td>
<td>12V DC</td>
<td>+12V DC connector for powering the unit</td>
</tr>
</tbody>
</table>
5.2 Connecting the PT-120xl XGA Line Receiver

To connect the PT-110xl XGA Line Transmitter to the PT-120xl XGA Line Receiver, as the example in Figure 4 illustrates, do the following:

1. On the PT-110xl, connect the XGA source (for example, the 15-pin HD output from a computer’s graphics card) to the XGA INPUT 15-pin HD (F) connector.

2. On the PT-120xl, connect the XGA OUT 15-pin HD (F) connector to the XGA acceptor (for example, a monitor).

3. Connect the LINE OUTPUT RJ-45 connector on the PT-110xl to the LINE IN RJ-45 connector on the PT-120, via UTP cabling (with a range of up to 300ft (100m)).

4. On both the PT-110xl and the PT-120xl, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity. The signal from the XGA source is transmitted via CAT 5 cable, decoded and converted at the XGA OUT 15-pin HD (F) connector to the XGA acceptor. For details of the power connect feature see Section 2.4.

5. On the PT-120xl, using a screwdriver to carefully rotate the trimmer, adjust the output signal level and/or cable compensation equalization level, if required.

![Diagram of connections](image)

Figure 6: Connecting the PT-110xl to a PT-120xl
6 TP-120 XGA Line Receiver

The Kramer TOOLS TP-120 is an XGA line receiver that receives a coded CAT 5 signal transmitted by the WP-110, decodes it and converts it to an XGA output. In particular, the TP-120:

- Has an operating range of more than 300ft (more than 100m) using standard CAT 5 cable and the WP-110
- Includes EQ. and level controls
- Has the power connect feature and is 12V DC fed

6.1 Your TP-120 XGA Line Receiver

Figure 7 defines the TP-120 XGA Line Receiver:

<table>
<thead>
<tr>
<th>#</th>
<th>Feature</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EQ Trimmer</td>
<td>Adjusts the cable compensation equalization level</td>
</tr>
<tr>
<td>2</td>
<td>LEVEL Trimmer</td>
<td>Adjusts the output signal level</td>
</tr>
<tr>
<td>3</td>
<td>ON LED</td>
<td>Illuminates when receiving power</td>
</tr>
<tr>
<td>4</td>
<td>LINE IN RJ-45 Connector</td>
<td>Connects to the LINE OUT RJ-45 connector on the WP-110 XGA Line Receiver</td>
</tr>
<tr>
<td>5</td>
<td>XGA OUT 15-pin HD (F) Connector</td>
<td>Connect to the XGA acceptor</td>
</tr>
<tr>
<td>6</td>
<td>12V DC</td>
<td>+12V DC connector for powering the unit</td>
</tr>
</tbody>
</table>

6.2 Connecting the TP-120 XGA Line Receiver

To connect the TP-120, refer to Section 4.3.
6.3  Wiring the CAT 5 LINE IN / LINE OUT RJ-45 Connectors

This section defines the CAT 5 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>EIA /TIA 568B</th>
<th>Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIN</td>
<td></td>
</tr>
<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>

Pair 1: 4 and 5
Pair 2: 1 and 2
Pair 3: 3 and 6
Pair 4: 7 and 8
## Technical Specifications

<table>
<thead>
<tr>
<th>WP-110</th>
<th>PT-110xl</th>
<th>PT-120xl</th>
<th>TP-120</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUTS:</strong></td>
<td>1 VGA/UXGA on a 15-pin HD connector</td>
<td>1 VGA / UXGA on a 15-pin HD connector</td>
<td>1 RJ-45 LINE IN connector</td>
</tr>
<tr>
<td><strong>OUTPUTS:</strong></td>
<td>1 RJ-45 LINE OUT connector</td>
<td>1 RJ-45 LINE OUTPUT connector</td>
<td>1 VGA / UXGA on a 15-pin HD connector</td>
</tr>
<tr>
<td><strong>MAX. OUTPUT LEVEL:</strong></td>
<td>1.3Vpp</td>
<td>1.4Vpp</td>
<td></td>
</tr>
<tr>
<td><strong>RESOLUTION:</strong></td>
<td>Up to UXGA</td>
<td>Up to WUXGA, 1080p</td>
<td>Up to WUXGA, 1080p</td>
</tr>
<tr>
<td><strong>RANGE:</strong></td>
<td>Over 100m (320ft)</td>
<td>Up to 250m (820ft)</td>
<td>Up to 250m (820ft)</td>
</tr>
<tr>
<td><strong>S/N RATIO:</strong></td>
<td>Any pair, better than 70dB (worst case)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CONTROLS:</strong></td>
<td>Level: 0.7v to 1.3v, 300m; EQ: 300m @120MHz</td>
<td>Level: –7.5dB to +4.4dB, 130m, EQ: 0dB to +33dB @50MHz</td>
<td></td>
</tr>
<tr>
<td><strong>COUPLING:</strong></td>
<td>AC</td>
<td>AC</td>
<td>DC</td>
</tr>
<tr>
<td><strong>POWER CONSUMPTION/FUSE RECOMMENDATION:</strong></td>
<td>12V DC, 285mA max.</td>
<td>12V DC, 285mA</td>
<td>12V DC, 350mA max.</td>
</tr>
<tr>
<td><strong>OPERATING TEMPERATURE:</strong></td>
<td>0° to +40°C (32° to 104°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STORAGE TEMPERATURE:</strong></td>
<td>-40° to +70°C (-40° to 158°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HUMIDITY:</strong></td>
<td>10% to 90%, RHL non-condensing</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DIMENSIONS:</strong></td>
<td>USA: 6.9cm x 3.8cm x 11.4cm (2.72” x 1.5” x 4.5”) W, D, H</td>
<td>6cm x 6.5cm x 2.5cm (2.36” x 2.56” x 1”) W, D, H</td>
<td>6cm x 6.5cm x 2.5cm (2.36” x 2.56” x 1”) W, D, H</td>
</tr>
<tr>
<td><strong>WEIGHT:</strong></td>
<td>0.14kg (0.31lbs) approx.</td>
<td>0.14kg (0.31lbs) approx.</td>
<td>0.14kg (0.31lbs) approx.</td>
</tr>
<tr>
<td><strong>ACCESSORIES:</strong></td>
<td>Power supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OPTIONS:</strong></td>
<td>19-inch rack adapters</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The power source was measured using a pair of units (transmitter and receiver). Specifications are subject to change without notice 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 excessive 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, any unauthorized tempering 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 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 facilitate the repair of any defective parts within a reasonable period of time, free of 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 any risk 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 setup of 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, please visit our web site at www.kramerelectronics.com or contact the Kramer Electronics office nearest you.

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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.

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