USER MANUAL

MODEL:

VDS
Video Display System

P/N: 2900-300285 Rev 2

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1   Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront 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 11 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 and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **VDS** *Video Display System*, which is ideal for the following typical applications:

- Digital signage
- Media distribution
- Computer-based training

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 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 **VDS** 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/*.

3 Overview

The **VDS** *CAT 5 Video Display System* is a range extender system for computer graphics video signals up to 1080p. The system, that includes a broadcaster, line splitter and receiver, can distribute the signals over CAT 5 cable from the source to up to 512 displays.

The **VDS** system consists of the following:

- Broadcaster and control unit
- Line splitters to expand the system
- Remote units that connect to each remote monitor/computer
- Remote dual screen that connects two monitors to the system

CAT 5 UTP or FTP cables connect the **VDS** system. The remote units can be up to 110m (360ft) away from the broadcaster.

This table defines the models:

Kramer Model	Kramer Part Number	Full Description
VDS-RL (0VS21008)	50-0000869011	Minicom VDS CAT5 Video Display Remote Long
VDS-B (0VS22011)	50-0000879011	Minicom VDS CAT5 Video Display Broadcaster 8-ports
VDS-LS (0VS22012)	50-0000889011	Minicom VDS CAT5 Video Display Line Splitter 8-ports
VDS-CU (0VS22076)	50-0000899011	Minicom VDS/AVDS Control unit
VDS-RD (0VS23022)	50-0000919011	Minicom VDS CAT5 Video Display Remote Dual Screen
VDS-R (0VS23004)	50-0000909011	Minicom VDS CAT5 Video Display Remote

3.1 Multi-Functional VDS System

You can use the **VDS** system in the following ways:

Without the control unit –

The **VDS** system constantly broadcasts a computer screen to all remote monitors.

With the control unit to –

- Broadcast a computer screen to all remote monitors

- Darken all remote screens

- Release the remote screens to allow local monitor viewing (when remote computers are connected)

The screen dark function is useful when carrying out maintenance, changing the broadcast program or in a classroom environment to grab students' attention.

With both applications you can broadcast video up to resolutions of 1920x1080 @60Hz depending on the cable length.

3.2   Defining the VDS Video Display System

The figures below illustrate the broadcaster unit (Figure 1), line splitter (Figure 2), remote units (Figure 3) and remote dual screen (Figure 4).
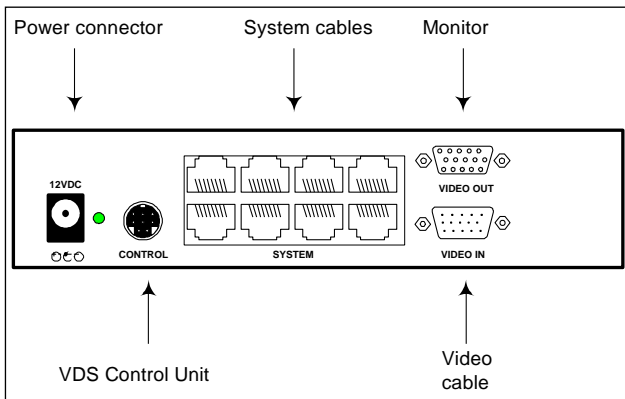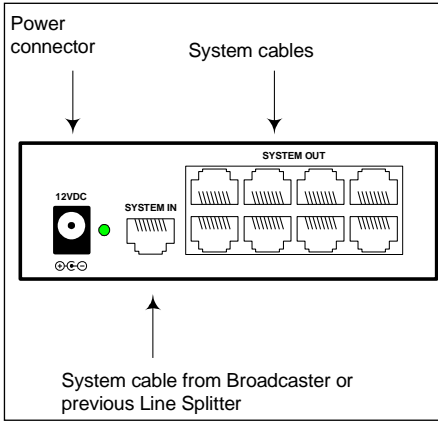

Figure 1: Broadcaster Unit
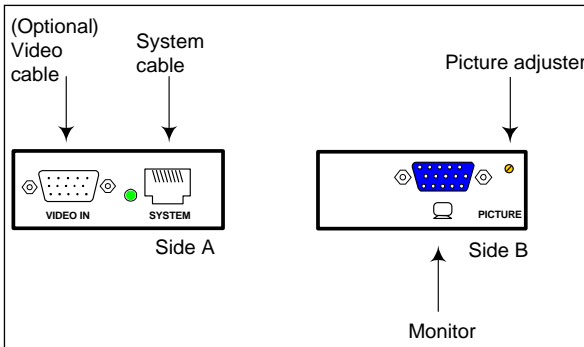
Figure 2: Line Splitter

Figure 3: Remote Unit
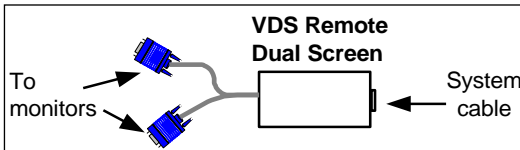

Figure 4: Remote Dual Screen

3.3   Expanding the VDS System

You can expand the **VDS** system to 512 remote units by having two levels of line splitters. Level 1 line splitters can have eight remote units or line splitters connected. Level 2 line splitters can have eight remote units connected.

4 Connecting the VDS

> **Warning!** In the **VDS** system the CAT 5 UTP or FTP cables carry electrical power. Connect them **only** to devices of the **VDS** family. Do **NOT** mix them with devices of other families such as **AVDS**. Damage will occur. To avoid this we recommend you attach the stickers provided to the ends of each cable.

4.1 Connecting an Optional Remote Computer

To work locally, you have the option to connect the remote units to a computer. To do so you need to connect video cable between the remote unit and a computer. Video cables are available from Kramer.

4.2 Connecting the CAT 5 Cables

Note: Connect the CAT 5 cables to the broadcaster and line splitter units when the units are powered off. We recommend that you connect the CAT 5 cables **BEFORE** connecting the power supply.

4.3 Connecting the Power Supply

Connect the broadcaster and line splitters to the power supply with the 12 VDC, 2A from the AC/DC adapter provided. The remote units and the remote Dual Screen receive power via the CAT 5 cables from the broadcaster or line splitter.

4.4 Configuring a CBT Application

Figure 5 illustrates the **VDS** configuration with the **VDS** control unit and the optional remote computers. The remote dual screen has no VGA input and is therefore not suitable for CBT (computer based training) applications.
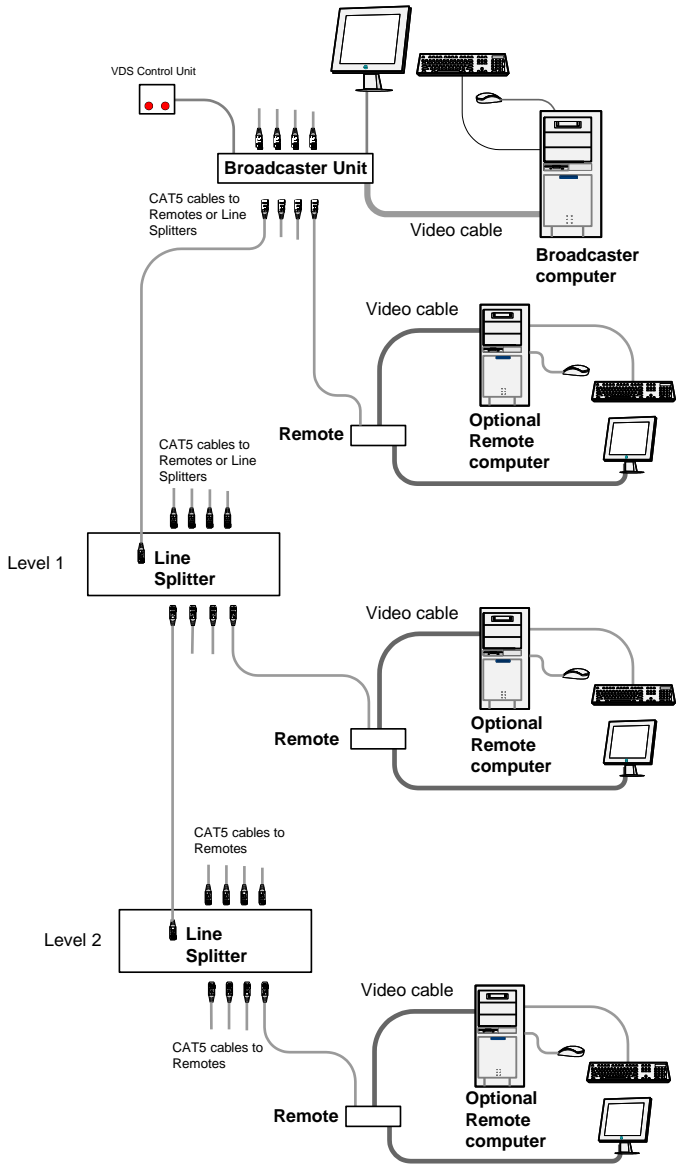
Figure 5: Control Unit and Optional Remote Computers

4.5 VDS Detailed Connections

Figure 6 illustrates the detailed connections of the **VDS** units.
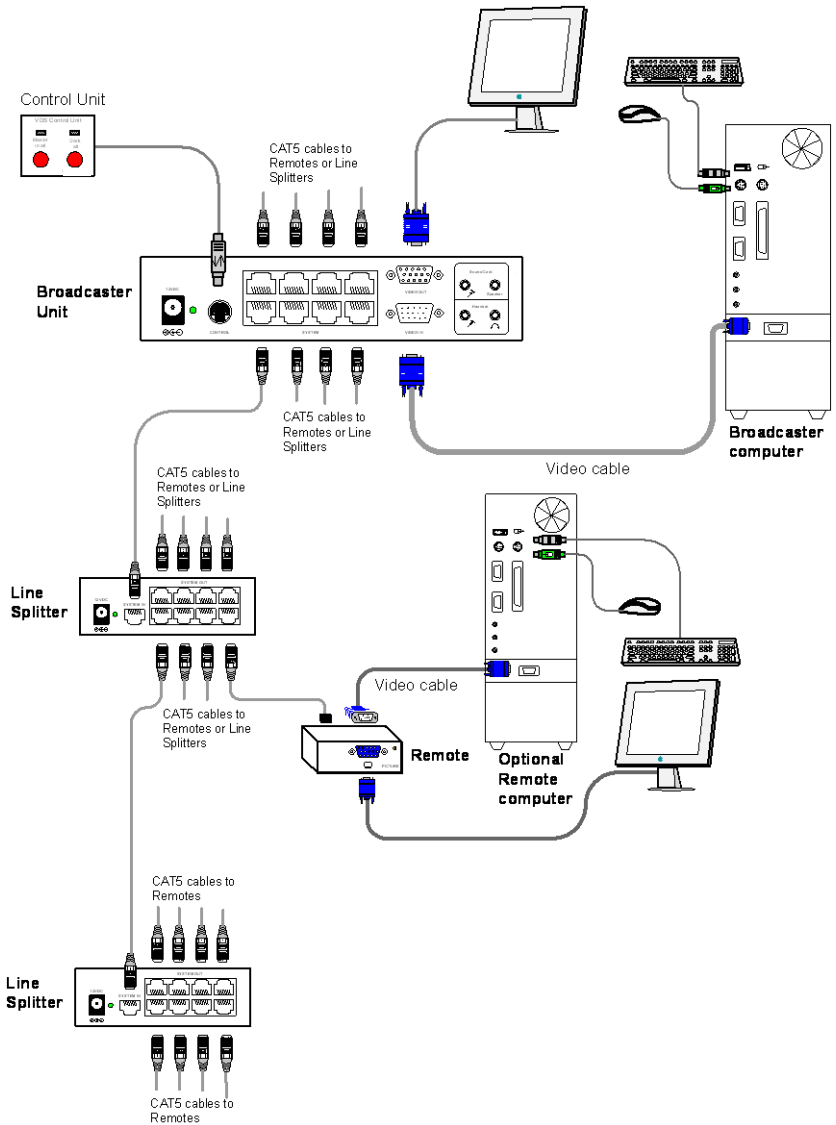
Figure 6: Detailed Connections

4.6   Configuring VDS without Remote Computers

Figure 7 illustrates the **VDS** configuration without optional computers connected to the remote units and the remote dual screen. Connect the broadcaster and line splitters as illustrated in Figure 5. Figure 6 illustrates the detailed connections of the remote unit.

Figure 7 VDS Configuration without Remote Computers

Figure 8 illustrates the remote unit connection.

CAT5 cable to
Broadcaster or
Line Splitter

Remote

PICTURE
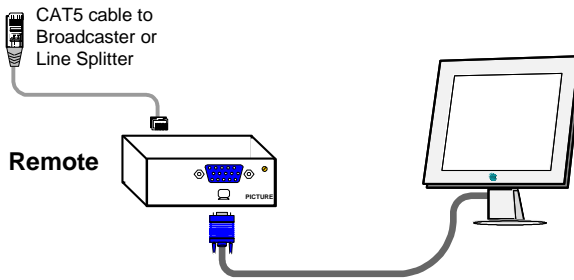
Figure 8: Remote Unit Connection

5 Operating the VDS system

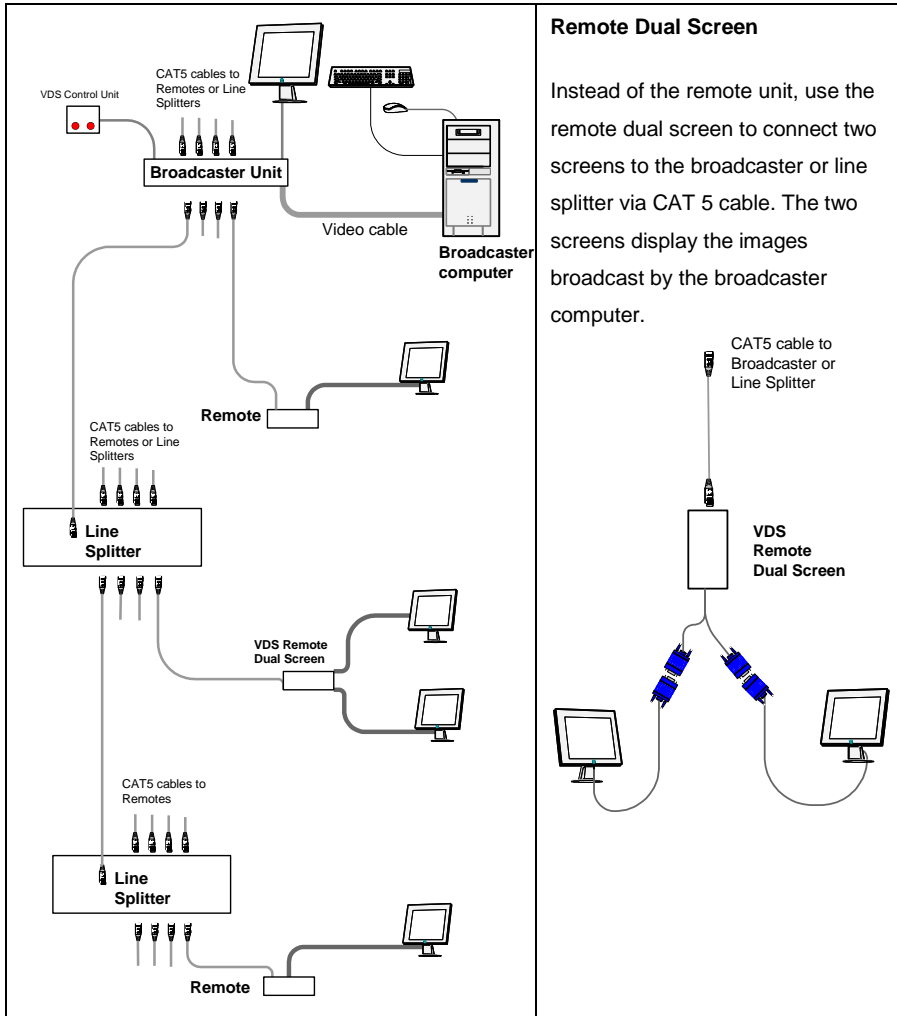Once connected the **VDS** system broadcasts to all remote monitors.

5.1 VDS Control Unit

Figure 9 illustrates the panel of the **VDS** control unit.
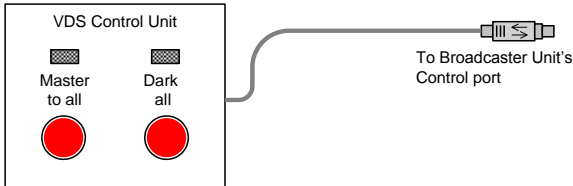
Figure 9: Control Unit Panel

With the **VDS** control unit, carry out the following functions:

5.1.1 Master to All

- Press the MASTER TO ALL button to send the broadcaster's screen to all remote monitors. The LED above the button lights up.

- Press the button again to release the remote monitors.

5.1.2 Dark All

- Press the DARK ALL button to darken all remote screens. The LED above the button lights up.

- Press the button again to release the remote screens.

5.2 Adjusting the Picture Quality

- Use a small screwdriver to turn the picture adjuster on the remote unit to adjust the picture quality (see Figure 3).

6 Technical Specifications

INPUTS:	1 VGA on a 15-pin HD connector (broadcaster); 1 twisted pair on an RJ-45 connector (line splitter); 1 twisted pair on an RJ-45 connector, 1 VGA on a 15-pin HD (M) connector (remote); 1 twisted pair on an RJ-45 connector (remote dual screen)
OUTPUTS:	8 twisted pair on RJ-45 connectors, 1 VGA on a 15-pin HD connector, 1 control on an 8-pin mini-DIN connector (broadcaster); 1 twisted pair on an RJ-45 connector (line splitter); 1 VGA on a 15-pin HD (F) connector (remote); 2 VGA on 15-pin HD (F) connectors (remote dual screen)
RESOLUTION:	Up to 1920x1080 @ 60Hz, 1080p
SYSTEM CABLE:	CAT 5 FTP/UTP cable 2x4x24AWG solid wire conductor
MAX. RANGE:	110m (360ft)
I/O VIDEO SIGNALS:	Analog red, green, blue, 0.7Vpp, 75Ω.
SYNC:	TTL compatible
HORIZONTAL/VERTICAL SYNC POLARITY:	Positive/negative
POWER SUPPLY	12V DC, 2A (broadcaster, line splitter); from previous unit through CAT 5 cable (remote, remote dual screen)
OPERATING TEMPERATURE:	0° to 40°C (32° to 104°F)
STORAGE TEMPERATURE:	−40° to 70°C (−40° to 158°F)
HUMIDITY:	80% non−condensing relative humidity
DIMENSIONS:	175mm x 96mm x 42mm (6.9" x 3.8" x 1.7") (broadcaster); 118mm x 96mm x 42mm (4.6" x 3.8" x 1.7") (line splitter); 78mm x 62mm x 23mm (3.1" x 2.4" x 0.9") (remote)
ACCESSORIES:	Power supply (broadcaster, line splitter)
WARRANTY:	3 years
Specifications are subject to change without notice at 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 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 Does this Coverage Last

Three 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 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, 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 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. 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.

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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.

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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.

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

We welcome your questions, comments, and feedback.
Web site: www.kramerelectronics.com
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SAFETY WARNING
Disconnect the unit from the power
supply before opening and servicing

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