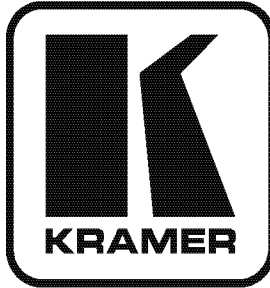


Kramer Electronics, Ltd.



USER MANUAL

Models:

VP-413xl, *Video To WUXGA Scaler*

VP-414xl, *Video To WUXGA / HD Scaler*

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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 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 groups¹ that are clearly defined by function.

Congratulations on purchasing your Kramer TOOLS **VP-413xl** *Video to WUXGA Scaler* and/or **VP-414xl** *Video to WUXGA / HD Scaler*, which are ideal for the following typical applications:

- Multimedia and presentation applications for projecting a composite video or s-Video source using a data projector, plasma, or TFT flat-screen
- Presentation and conference room systems, board rooms and auditoriums
- Rental and Staging

The package includes the following items:

- **VP-413xl** *Video to WUXGA Scaler*, and/or **VP-414xl** *Video to WUXGA / HD Scaler*
- Power adapter: 5V DC Input for **VP-413xl**; 12V DC Input for **VP-414xl**
- This user manual²

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 cables³

2.1 Quick Start

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

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 Download up-to-date Kramer user manuals from our Web site at <http://www.kramerelectronics.com>

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



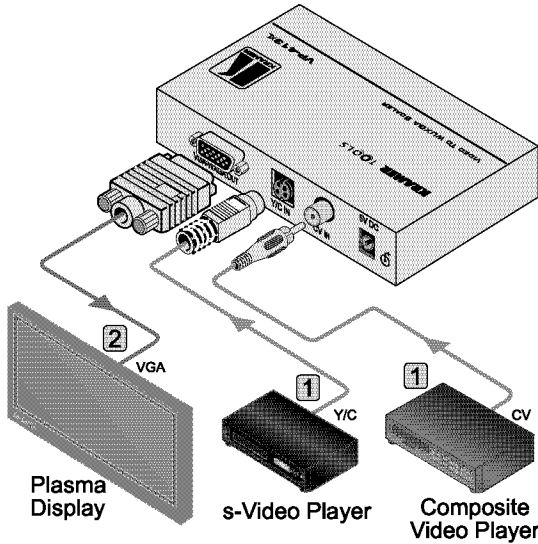
VP-413xl

1 Connect the inputs.

2 Connect the output.

Connect the power

- Press the INPUT SELECT button to select the desired input
- Press the OUTPUT RES. button to set the desired resolution



VP-414xl

1 Connect the inputs.

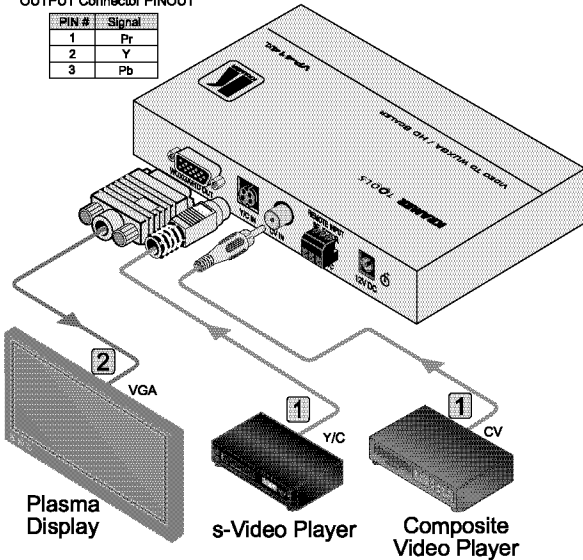
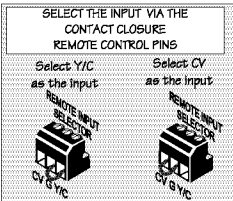
2 Connect the output.

Connect the power

- Press the INPUT SELECT button to select the desired input
- Press the OUTPUT RES. button to set the desired resolution

OUTPUT Connector PINOUT

PIN #	Signal
1	Pr
2	Y
3	Pb



3 Overview

The Kramer **VP-413xl/VP-414xl** is a high quality low cost converter for up-scaling composite video and s-Video that accepts PAL-B/D/G/H/I, NTSC 3.58, and NTSC 4.43 video formats. This compact, multi-standard unit has a built-in 3D de-interlacer and a 3D comb-filter that ensures superb quality.

The **VP-413xl/VP-414xl** features:

- An external DC source¹, making it suitable for field operation
- Side-panel buttons for selecting the input source and the output resolution – indicated by LEDs
- Non-volatile memory that retains the last setting, after switching the power off
- A remote input selector (for the **VP-414xl**)


Table 1 describes the unique characteristics of each scaler:

Table 1: VP-413xl and VP-414xl Scalers

Model	Inputs	Output	Output Connector	Output Resolution	Output Format
VP-413xl	CV or Y/C	VGA	15-pin HD computer graphics video connector	VGA-WUXGA ²	RGBHV
VP-414xl		VGA / HD		VGA-WUXGA ² / HD ³	RGBHV / YPbPr ⁴

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 Kramer **VP-413xl/VP-414xl** away from moisture, excessive sunlight and dust



Caution – No operator-serviceable parts inside unit.

Warning – Use only the Kramer Electronics input power wall adapter that is provided with this unit⁵.

Warning – Disconnect power and unplug unit from wall before installing or removing device or servicing unit.

¹ 5V DC for the VP-413xl; 12V DC for the VP-414xl

² Includes: VGA, SVGA, XGA, WXGA, SXGA, UXGA and WUXGA (for PAL only)

³ Includes: 480p, 576p, 720p, 1080i (a pseudo 1080i format is used in this case, namely a progressive scan 540p) and 1080p

⁴ Component color space

⁵ For example: model number AD2512C, part number 2535-000251

4 Your Scaler

This section describes the **VP-413xl** (see section 4.1), and the **VP-414xl** (see section 4.2).

4.1 Your VP-413xl Video To WUXGA Scaler

The **VP-413xl** cover is perforated to prevent chip overheating. Figure 1 and Table 2 define the **VP-413xl Video To WUXGA Scaler**:

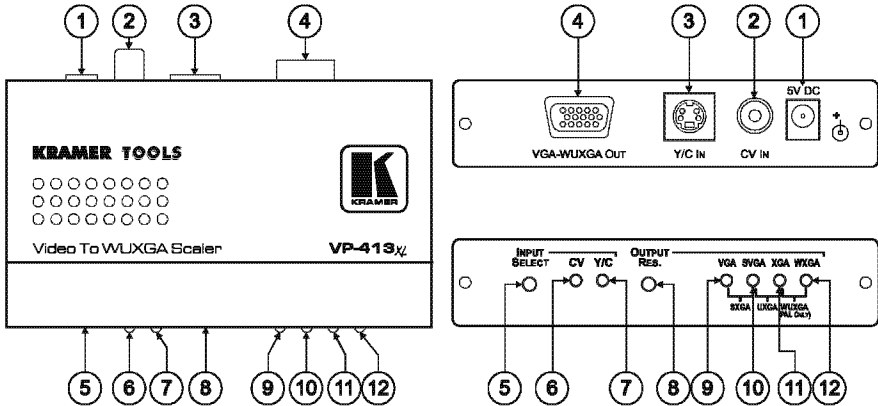


Figure 1: VP-413xl Video To WUXGA Scaler

Table 2: VP-413xl Video To WUXGA Scaler Features

#	Feature	Function
1	5V DC	+5V DC connector for powering the unit
2	CV IN/RCA Connector	Connects to a composite video source
3	Y/C IN 4-pin Connector	Connects to an s-Video source
4	VGA-WUXGA OUT 15-pin HD Connector	Connects to the VGA-WUXGA acceptor
5	INPUT SELECT Button	Press to select between inputs
6	CV LED	Illuminates when the CV input is selected
7	Y/C LED	Illuminates when the Y/C input is selected
8	OUTPUT RES. Button	Press to select the desired output resolution
9	VGA LED	Illuminates when the VGA resolution is selected and also when the SXGA resolution is selected ¹
10	SVGA LED	Illuminates when the SVGA resolution is selected and also when the SXGA or the UXGA resolutions are selected ¹
11	XGA LED	Illuminates when the XGA resolution is selected and also when the UXGA or the WUXGA resolutions are selected (for PAL only) ¹
12	WUXGA LED	Illuminates when the WUXGA resolution is selected and also when the WUXGA resolution is selected (for PAL only) ¹

¹ See Table 3

Figure 2 and Table 3 define the output resolution options:

Table 3: VP-413xl Output Resolution Options

Illuminated LEDs	Output Resolution
VGA	VGA
SVGA	SVGA
XGA	XGA
WXGA	WXGA
VGA and SVGA	SXGA
SVGA and XGA	UXGA
XGA and WXGA	WUXGA (for PAL only)

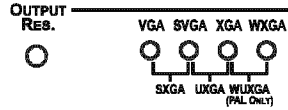


Figure 2: Setting the Output Resolution of the VP-413xl

4.1.1 Sync Enable/Disable Output Function

You can enable or disable the sync output signals when no source is connected, to enable the display/projector to enter its sleep mode, and turn off when no sync is detected.

To toggle between the sync output enable/disable state while no input is connected, do the following:

1. Press and hold the input selection button and connect the power supply cable.
2. Hold the button until one of the input LEDs flashes for a short time (this takes about 12 sec).

To identify the current status of the unit, disconnect and reconnect the power cable to start up the unit:

- If both INPUT LEDs flash for a short time, the sync output signals are disabled
- If both INPUT LEDs remain ON during unit startup, the sync output signals are enabled

4.2 Your VP-414xl Video To WUXGA / HD Scaler

Figure 3 and Table 4 define the **VP-414xl Video to WUXGA / HD Scaler**:

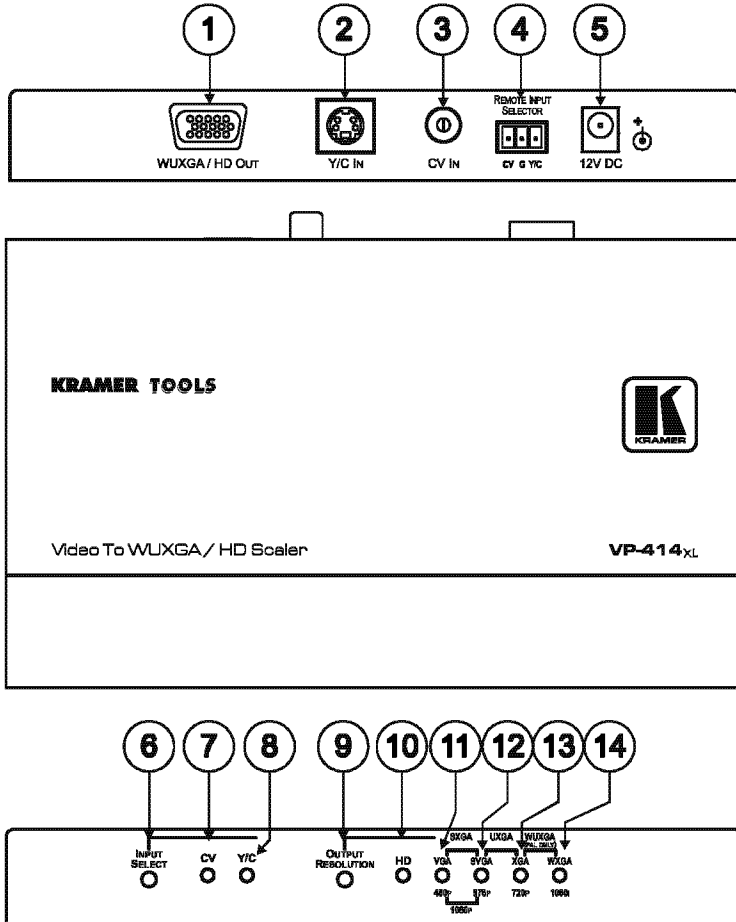


Figure 3: VP-414xl Video To WUXGA / HD Scaler

Table 4: VP-414xl Video To WUXGA / HD Scaler Features

#	Feature	Function
1	WUXGA / HD OUT 15-pin HD Connector	Connects to the WUXGA / HD acceptor
2	Y/C IN 4-pin Connector	Connects to an s-Video source
3	CV IN RCA Connector	Connects to a composite video source
4	REMOTE INPUT SELECTOR PINs	Connects to a contact closure switch for remote selection between Y/C and CV (see section 5.3)
5	12V DC	+12V DC connector for powering the unit
6	INPUT SELECT Button	Press to select between inputs
7	CV LED	Illuminates when the CV input is selected
8	Y/C LED	Illuminates when the Y/C input is selected
9	OUTPUT RESOLUTION Button	Press to select the desired output resolution
10	HD LED	Illuminates when the HD ¹ output resolutions are selected
11	VGA / 480p LED	Illuminates when the VGA or 480p resolution is selected and also when the SXGA or the 1080p resolutions are selected
12	SVGA / 576p LED	Illuminates when the SVGA or 576p resolution is selected and also when the SXGA or the 1080p resolutions are selected ²
13	XGA / 720p LED	Illuminates when the XGA or 720p resolution is selected and also when the UXGA or the WUXGA resolutions are selected ²
14	WXGA / 1080i LED	Illuminates when the WXGA or 1080i resolution is selected ³ and also when the WUXGA resolution is selected (for PAL only) ²

Figure 4 and Table 5 define the output resolution options:

Table 5: VP-414xl Output Resolution Options

Illuminated LEDES	Output Resolution
VGA / 480p	VGA / 480p
SVGA / 576p	SVGA / 576p
XGA / 720p	XGA / 720p
WXGA / 1080i	WXGA / 1080i
VGA and SVGA / 480p and 576p	SXGA / 1080p
SVGA and XGA	UXGA
XGA and WXGA	WUXGA (for PAL only) ⁴

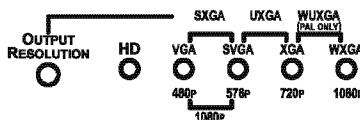


Figure 4: Setting the Output Resolution of the VP-414xl

1 480p, 576p, 720p, 1080i or 1080p

2 See Table 5

3 A pseudo 1080i format is used in this case, such as a progressive scan 540p

4 For NTSC signals, the picture is shifted somewhat when UXGA is selected

5 Connecting the Scalers

The following sections describe how to connect each unit.

5.1 Connecting the VP-413xl

To connect the **VP-413xl**, as illustrated in the example in Figure 5, do the following¹:

1. Connect a composite video source to the CV IN RCA connector (for example, a composite video player) and/or an s-Video source (for example, an s-Video player) to the Y/C 4p input connector.
2. Connect the VGA – WUXGA OUT 15-pin HD computer graphics video connector to an acceptor (for example, a plasma display).
3. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 5).
4. Use the:
 - INPUT SELECT button to select the desired input
 - OUTPUT RES. button to select the desired resolution

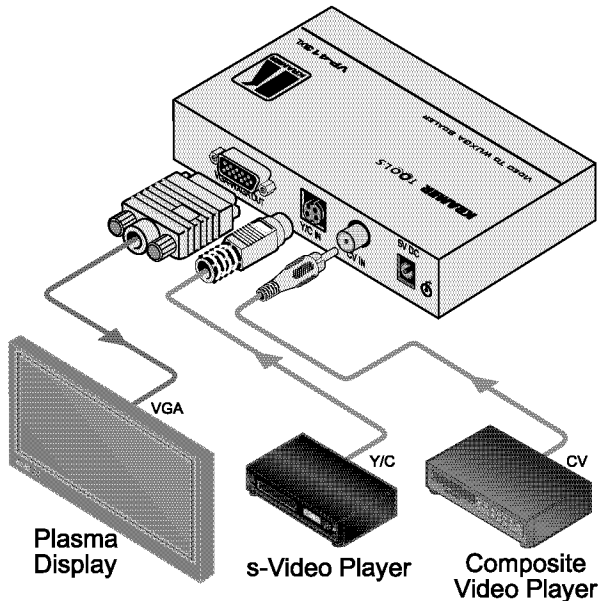


Figure 5: Connecting the VP-413xl

¹ Switch OFF the power on each device before connecting it to your VP-413xl. After connecting your VP-413xl, switch on its power and then switch on the power on each device

5.2 Connecting the VP-414xl

To connect the **VP-414xl**, as illustrated in the example in Figure 6, do the following¹:

1. Connect a composite video source to the CV IN RCA connector (for example, a composite video player) and/or an s-Video source (for example, an s-Video player) to the Y/C 4p input connector.
2. Connect the WUXGA / HD OUT 15-pin HD computer graphics video connector to an acceptor (for example, a plasma display).
3. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 6).
4. If required, connect² the contact closure remote control PINS (see section 5.3).
5. Use the:
 - INPUT SELECT button to select the desired input³
 - OUTPUT RES. button to select the desired resolution⁴

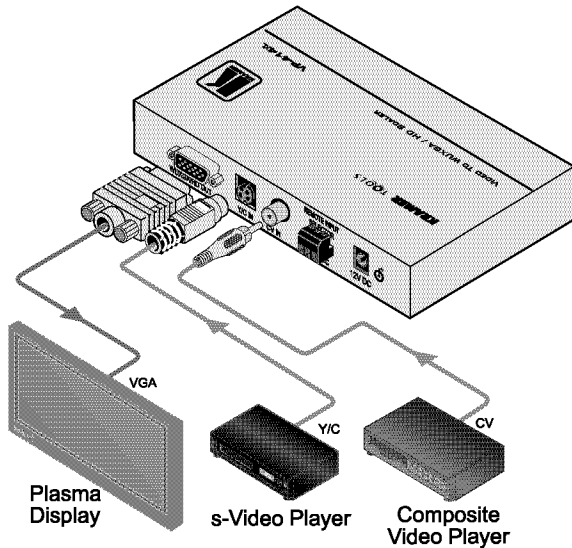


Figure 6: Connecting the VP-414xl

1 Switch OFF the power on each device before connecting it to your VP-414xl. After connecting your VP-414xl, switch on its power and then switch on the power on each device

2 The connection is not illustrated in Figure 6

3 The VP-414xl includes an HD LED, which illuminates when HD resolutions are selected (item 10 in Table 4)

4 Note that the HD resolutions are in YUV colorspace

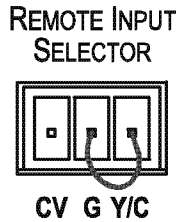
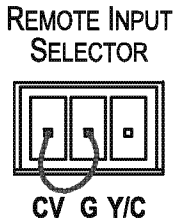
5.3 Connecting the Contact Closure Remote Control PINs

The REMOTE INPUT SELECTOR lets you select the required input via the contact closure remote control pins.

For example, you may override the presently routed input by using the remote control contact closure. To do so, connect momentarily the appropriate input¹ pin on the REMOTE terminal block connector to the G (Ground) pin, as Figure 7 illustrates.

DO NOT connect more than one PIN to the Ground PIN at the same time

To select CV as the input, temporarily attach the CV pin to PIN G (ground)



To select Y/C as the input, temporarily attach the Y/C pin to PIN G (ground)

Figure 7: Connecting the Contact Closure Remote Control PINs

¹ Y/C or CV

6 Technical Specifications

Table 6 includes the technical specifications¹:

Table 6: Technical Specifications of the VP-413xl and VP-414xl

INPUTS:	1 CV 1Vpp/75Ω on an RCA connector 1 Y/C 1Vpp (Y); 0.3Vpp (C)/75Ω on a 4p connector
OUTPUTS:	VP-413xl: 1 VGA (VGA through WUXGA ²) on a 15-pin HD computer graphics video connector VP-414xl: 1 VGA (VGA through WUXGA /HD) on a 15-pin HD computer graphics video connector
OUTPUT RESOLUTIONS:	VP-413xl: VGA (640 x 480), SVGA (800 x 600), XGA (1024 x 768), WXGA (1366 x 768), SXGA (1280x1024), UXGA (1600x1200) and WUXGA (1920x1200) VP-414xl: VGA (640 x 480), SVGA (800 x 600), XGA (1024 x 768), WXGA (1366 x 768), SXGA (1280x1024), UXGA (1600x1200), WUXGA (1920x1200), 480p, 576p, 720p 1080i ³ and 1080p (the output Y signal has a bi-level SYNC)
OUTPUT REFRESH RATE:	VP-413xl: 60Hz VP-414xl: 60Hz for computer graphics resolutions, 50/60Hz for HDTV resolutions
CONTROLS:	Pushbuttons and LEDs for selection of Input Source and Output Resolution VP-414xl: also, YC/CV dry contact input selector (external wires)
POWER SOURCE:	VP-413xl: 5V DC, 800mA (typical) VP-414xl: 12V DC, 500mA (typical)
DIMENSIONS:	VP-413xl: 12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H) VP-414xl: 18.8cm x 11.4cm x 2.4cm (7.41" x 4.5" x 0.95", W, D, H)
WEIGHT:	VP-413xl: 0.3kg (0.67lbs) approx. VP-414xl: 0.4kg (0.88lbs) approx.
ACCESSORIES:	Power supply: 5V for VP-413xl ; 12V for VP-414xl
OPTIONS:	VA-50P Power supply (can be used to power up to 3 VP-414xl units) VA-100P Power supply (can be used to power up to 5 VP-414xl units) 19" rack adapter

1 Specifications are subject to change without notice

2 For PAL only

3 A pseudo 1080i format is used in this case, such as a progressive scan 540p

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 seven 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.
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 installations 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 you 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)



For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found. We welcome your questions, comments and feedback.

 <p>Caution</p>	<p>Safety Warning: Disconnect the unit from the power supply before opening/servicing.</p>
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