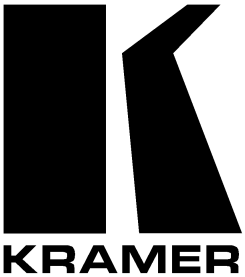
Kramer Electronics, Ltd.



USER MANUAL

Models:

VP-72

Multiformat 1:2 Distribution Amplifier

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 350-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your **VP-72** *Multiformat 1:2 Distribution Amplifier*, which is ideal for:

- Presentation applications that require a preview option
- Stage, PA and educational applications
- Video/graphics studios that need Multiformat signal distribution

The package includes the following items:

- **VP-72** *Multiformat 1:2 Distribution Amplifier*
- Power cord
- This user manual[2]

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[3]

3 Overview

The Kramer **VP-72** *Multiformat 1:2 Distribution Amplifier* is designed as a companion unit to the ProScale™ series of Digital Scaler/Switchers. When placed between two ProScale™ Digital Scaler/Switchers, the **VP-72** allows one ProScale™ to be used as a preview device and the other as the program

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at: http://www.kramerelectronics.com

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

device, simultaneously. The **VP-72** can be used as a 7 input 1:2 DA for all distribution applications. In particular, the **VP-72**:

- Includes two 1:2 composite video distribution amplifiers on BNC connectors, two 1:2 Y/C distribution amplifiers on 4p connectors, two 1:2 VGA distribution amplifiers on HD15 connectors, and one 1:2 YUV distribution amplifier on BNC connectors
- Includes Gain[1] and EQ., control, as well as ID Bit control
- Has video bandwidth exceeding 400MHz, ensuring that it remains transparent in almost any application
- Is housed in a 19-inch rack mountable enclosure requiring one vertical rack space and is fed from any 100-240VAC, 50/60Hz mains supply

Achieving the best performance means:

- Connecting 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)
- Avoiding interference from neighboring electrical appliances that may adversely influence signal quality and positioning your **VP-72** unit in a location free from moisture and away from excessive sunlight and dust

4 Your VP-72 Multiformat 1:2 Distribution Amplifier

This section defines the front panel (see section 4.1), the rear panel (see section 4.2), and the underside (see section 4.3).

4.1 VP-72 Multiformat 1:2 Distribution Amplifier Front Panel

Figure 1 and Table 1 define the **VP-72** front panel:

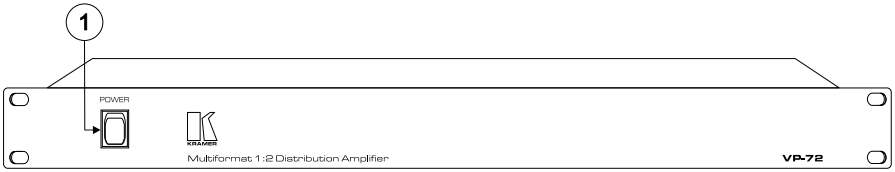

Figure 1: Front Panel VP-72 Multiformat 1:2 Distribution Amplifier

Table 1: Front Panel VP-72 Multiformat 1:2 Distribution Amplifier Features

#	Feature	Function
1	*POWER* Switch	Illuminated switch for turning the unit ON or OFF

1 s-Video controls include separate Y (Luma), C (Chroma) and EQ., control

4.2 VP-72 Multiformat 1:2 Distribution Amplifier Rear Panel

Figure 2 and Table 2 define the **VP-72** rear panel:

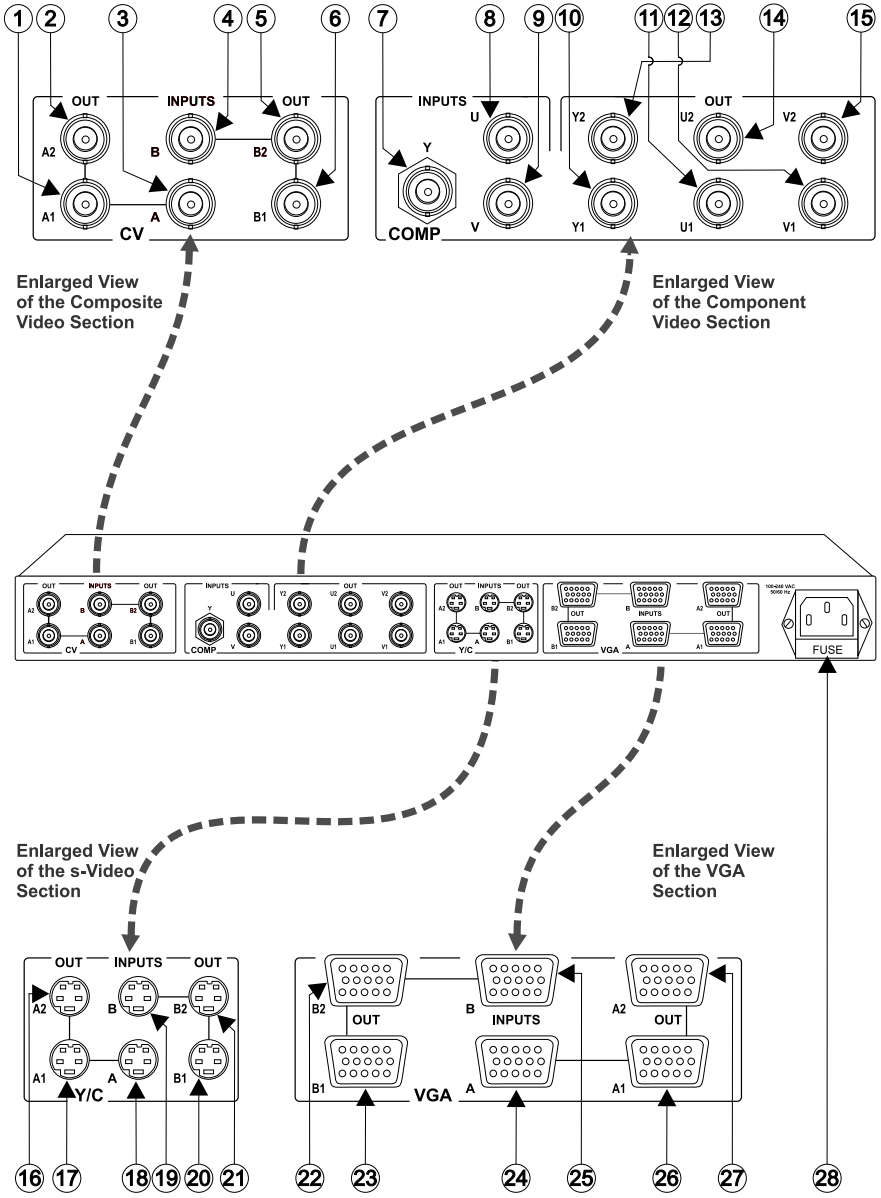

Figure 2: Enlarged Rear Panel VP-72 Multiformat 1:2 Distribution Amplifier

Table 2: Rear Panel VP-72 Multiformat 1:2 Distribution Amplifier Features

#	Feature		Function
1	CV Section	*A1 OUT* BNC Connector	Connects to the composite video acceptor A1
2		*A2 OUT* BNC Connector	Connects to the composite video acceptor A2
3		*A INPUTS* BNC Connector	Connects to the composite video source A
4		*B INPUTS* BNC Connector	Connects to the composite video source B
5		*B2 OUT* BNC Connector	Connects to the composite video acceptor B2
6		*B1 OUT* BNC Connector	Connects to the composite video acceptor B1
7	COMP Section	*Y INPUTS* BNC Connector	Connect to the component[1] video source
8		*U INPUTS* BNC Connector	
9		*V INPUTS* BNC Connector	
10		*Y1 OUT* BNC Connector	Connects to the component[1] video acceptor YUV1
11		*U1 OUT* BNC Connector	
12		*V1 OUT* BNC Connector	
13		*Y2 OUT* BNC Connector	Connects to the component[1] video acceptor YUV2
14		*U2 OUT* BNC Connector	
15		*V2 OUT* BNC Connector	
16	Y/C Section	*A2 OUT* 4p Connector	Connects to the s-Video acceptor A2
17		*A1 OUT* 4p Connector	Connects to the s-Video acceptor A1
18		*A INPUTS* 4p Connector	Connects to the s-Video source A
19		*B INPUTS* 4p Connector	Connects to the s-Video source B
20		*B1 OUT* 4p Connector	Connects to the s-Video acceptor B1
21		*B2 OUT* 4p Connector	Connects to the s-Video acceptor B2
22	VGA Section	*B2 OUT* HD15 Connector	Connects to the VGA acceptor B2
23		*B1 OUT* HD15 Connector	Connects to the VGA acceptor B1
24		*A INPUTS* HD15 Connector	Connects to the VGA source A
25		*B INPUTS* HD15 Connector	Connects to the VGA source B
26		*A1 OUT* HD15 Connector	Connects to the VGA acceptor A1
27		*A2 OUT* HD15 Connector	Connects to the VGA acceptor A2
28	Power Connector with *FUSE*		AC connector enabling power supply to the unit

4.3 VP-72 Multiformat 1:2 Distribution Amplifier Underside

Figure 3 and Table 3 define the underside of the **VP-72**:

1 For component video, connect all three connectors: Y, U, and V (also known as: Y, B-Y, and R-Y, and sometimes called Y, Pb, and Pr)

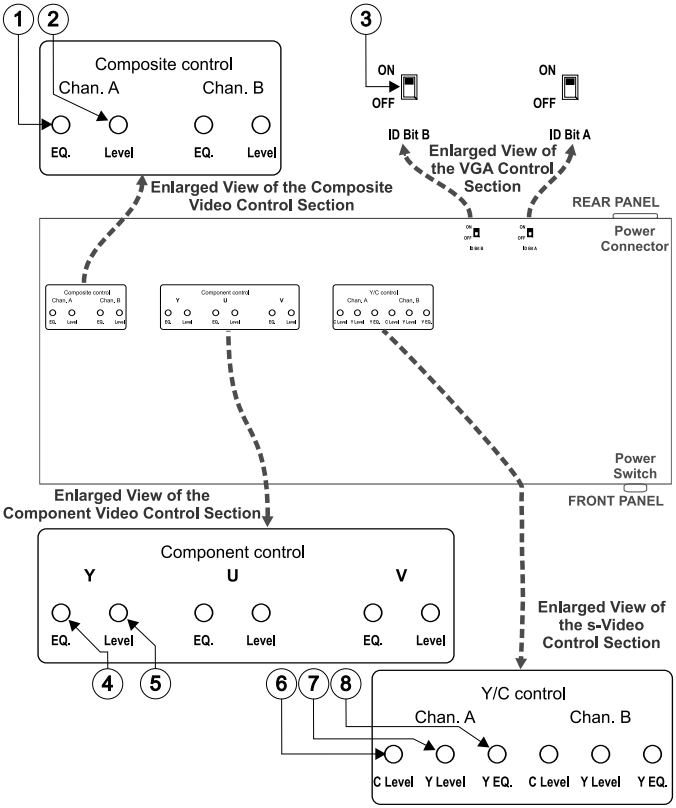

Figure 3: Underside VP-72 Multiformat 1:2 Distribution Amplifier

Table 3: Underside VP-72 Multiformat 1:2 Distribution Amplifier Features

#	Feature	Function
1	EQ. Trimmer	Adjusts[1] the equalization compensation level for the composite video outputs[2]
2	Level Trimmer	Adjusts[1] the signal level for the composite video outputs[2]
3	ID BIT Switch	Set to ON position[3] to select the ID BIT[2]
4	EQ. Trimmer	Adjusts[1] the EQ. (equalization) compensation level for the component video outputs (for channels Y, U, and V)
5	Level Trimmer	Adjusts[1] the signal level for the component video outputs (for channels Y, U, and V)
6	C Level Trimmer	Adjusts[1] the chrominance output signal level for each s-Video output[2]
7	Y Level Trimmer	Adjusts[1] the luminance output signal level for each s-Video output[2]
8	Y EQ. Trimmer	Adjusts[1] the equalization compensation level for each s-Video output[2]

1 Insert a screwdriver into the small hole and carefully rotate it, trimming the level

2 For channels A and B

3 Sometimes notebook computers refuse to output a VGA signal to an external VGA monitor if they do not detect the ID BIT as ON. Set the ID BIT to ON using this switch so that the notebook will output to an external VGA monitor

5 Connecting the VP-72 Multiformat 1:2 Distribution Amplifier

To connect the **VP-72** to two **VP-724xl** units—the first a preview device, and the second a program device—as the example in Figure 4 illustrates, do the following[1]:

1. Connect the composite video sources and acceptors, as follows:
   - Connect the composite video source[2] to the CV A INPUT BNC connector
   - Connect the CV A1 OUT BNC connector of the **VP-72** to the composite video AV1 INPUT connector of the second **VP-724xl** unit
   - Connect the CV A2 OUT BNC connector of the **VP-72** to the composite video AV1 INPUT connector of the first **VP-724xl** unit
2. Connect the component video source and acceptors as follows:
   - Connect the Y, U, and V outputs of a component video source (for example, a BETACAM video player) to the Y, U, and V COMP INPUT BNC connectors
   - Connect the component video Y1, U1, and V1 OUT BNC connectors to the component video Y, PB/CB, and PR/CR COMPONENT INPUT connectors of the second **VP-724xl** unit
   - Connect the component video Y2, U2, and V2 OUT BNC connectors to the component video Y, PB/CB, and PR/CR COMPONENT INPUT connectors of the first **VP-724xl** unit
3. Connect the s-Video sources and acceptors, as follows:
   - Connect the s-Video source[2] to the Y/C A INPUT 4p connector
   - Connect the Y/C A1 OUT 4p connector to the s-Video YC1 INPUT 4p connector of the second **VP-724xl** unit
   - Connect the Y/C A2 OUT 4p connector to the s-Video YC1 INPUT 4p connector of the first **VP-724xl** unit
4. Connect the VGA sources and acceptors, as follows:
   - Connect the VGA source (for example, a graphics card from a PC) to the VGA A INPUT HD15 connector
   - Connect the VGA A1 OUT HD15F connector to the VGA 1 HD15F INPUT connector of the second **VP-724xl** unit
   - Connect the VGA A2 OUT HD15F connector to the VGA 1 HD15F INPUT connector of the first **VP-724xl** unit
5. Connect the power connector (not shown in Figure 4), and adjust the Gain and EQ., controls, if required (see section 4.3).

1 Not all inputs and outputs need to be connected. Any unused input or output should simply be left unconnected

2 For example, a video player

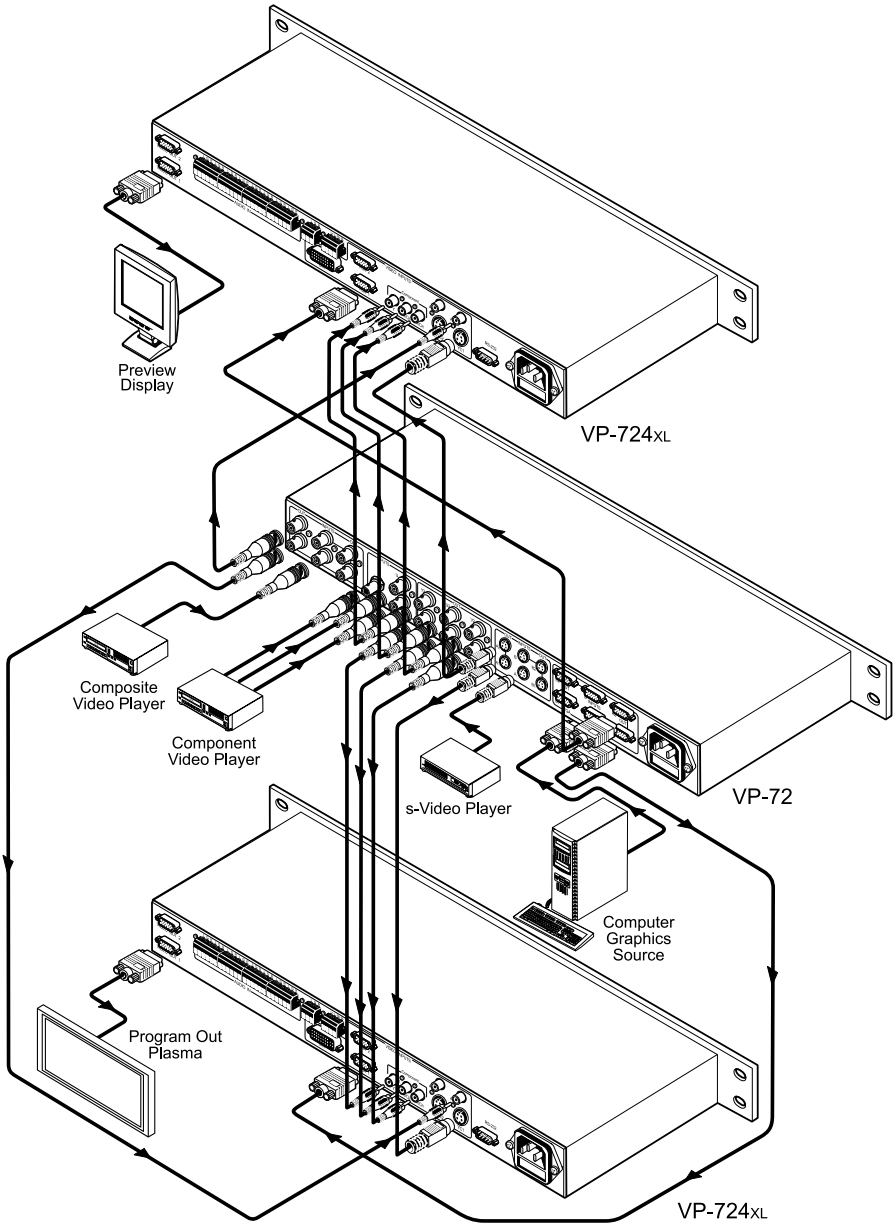

Figure 4: Connecting the VP-72 Multiformat 1:2 Distribution Amplifier

6 Technical Specifications

Table 4 includes the technical specifications:

Table 4: Technical Specifications[1] of the VP-72 Multiformat 1:2 Distribution Amplifier

	CV	COMP (YUV)	Y/C	VGA
INPUTS:	2 composite video 1Vpp/75Ω on BNC connectors	1 component video (Y, B-Y, and R-Y) on BNC connectors	2 s-Video 1Vpp (Y), 0.3Vpp (C) / 75Ω on 4p connectors	2 analog red, green, blue signals 0.7Vpp / 75Ω, H & V sync, TTL level, on HD15F connectors
OUTPUTS:	2 per channel (4 total) composite video 1Vpp/75Ω on BNC connectors	2 component video (Y, B-Y, and R-Y) on BNC connectors	2 per channel (4 total) s-Video 1Vpp (Y), 0.3Vpp (C) / 75Ω on 4p connectors	2 per channel (4 total) analog red, green, blue signals 0.7Vpp / 75Ω, H & V sync, TTL level, on HD15F connectors
MAX. OUTPUT LEVEL:	1.8Vpp	2.3Vpp	2.5Vpp	2.5Vpp
BANDWIDTH (-3dB):	470MHz	473MHz	513MHz	569MHz
DIFF. GAIN:	0.03%	0.03%	0.02%	0.04%
DIFF. PHASE:	0.05 Deg.	0.05 Deg.	0.02 Deg.	0.02 Deg.
K-FACTOR:	<0.05%	<0.05%	<0.05%	<0.05%
S/N RATIO:	76.7dB	75.6dB	83.2dB	75dB
CROSSTALK (all hostile):	–69.1dB	–65.8dB	–61dB	–63.2dB
CONTROLS:	Level: –0.7dB to +6.4dB; EQ.: 0dB to +7.2dB	Level: –1.1dB to +6.4dB; EQ.: 0dB to +7.2dB	C Level: –1.3dB to +6dB; Y Level: –0.9dB to +6.3dB; Y EQ.: 0dB to +8dB	—
COUPLING:	DC			
POWER SOURCE:	100-230 VAC, 50/60 Hz, 3.5VA max.			
DIMENSIONS:	19-inch (W), 7-inch (D) 1U (H) rack-mountable			
WEIGHT:	2.7 kg. (6 lbs.) approx.			
ACCESSORIES:	Power cord			

1 Specifications are subject to change without notice

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.
2. Any product, on which the serial number has been defaced, modified or removed.
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.

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.

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