Kramer Electronics, Ltd.

USER MANUAL

Model:

VP-108

1:8 XGA / Balanced Stereo Audio DA

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1 Introduction

Dedication by Kramer Electronics since 1981, to the development and manufacture of high quality video/audio equipment, makes the Kramer line an integral part of the finest production and presentation facilities in the world. In recent years, Kramer has redesigned and upgraded most of the line, making the best even better! The Kramer line of professional video/audio electronics is one of the most versatile and complete available, and is a true leader in terms of quality, workmanship, price/performance ratio and innovation.

In addition to our high quality distribution amplifiers, like the Kramer **VP-108** *1:8 XGA / Balanced Stereo Audio DA* (distribution amplifier), we also offer excellent switchers and matrices, remote controllers, processors, interfaces and computer-related products.

Congratulations on purchasing your Kramer **VP-108,** which is ideal for using with presentation systems, and video duplication and production studios.

The package includes the following items:

- **VP-108** *1:8 XGA / Balanced Stereo Audio DA*
- Power cord
- Windows®-based Kramer control software
- Null-modem adapter
- This user manual[1]
- Kramer concise product catalog/CD

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[2]

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1 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com/manuals.html

2 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com (click "Cables and Connectors" in the Products section)

3 Overview

The high-performance **VP-108** *1:8 XGA / Balanced Stereo Audio DA* is an 8-channel distribution amplifier for VGA/XGA and stereo audio (balanced or unbalanced) that uses 15-pin HD connectors for the VGA-type signals, and detachable terminal block connectors for the audio .

In particular, the **VP-108**:

• Is unique in that each of the 8 VGA outputs, and each of the 8 stereo audio outputs, may be individually enabled or disabled[1], replacing a switcher which would typically be used in such setups

• Is controllable (switching of the outputs) via RS-232 or RS-485 serial commands transmitted by a touch screen system, PC, or other serial controller, as well as via external dry contact switches[2]

• Stores the output configuration in non-volatile memory so that the machine will restore its power-down status when power is returned

• Uses solid-state electronic switching, and low-noise amplifying circuitry throughout the unit, and the sync pulses are detected and reconstructed before amplifying and buffering to the outputs

• Has a high video bandwidth, ensuring that each unit remains transparent even at the highest resolution VGA modes such as XGA

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 and positioning your **VP-108** unit in a location free from moisture, excessive sunlight and dust

4 Your VP-108 1:8 XGA / Balanced Stereo Audio DA

Figure 1, Table 1 and Table 2 define the **VP-108** *1:8 XGA / Balanced Stereo Audio DA*:

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1 Using the REMOTE connector (see section 5.3) or via RS-232 or RS-485
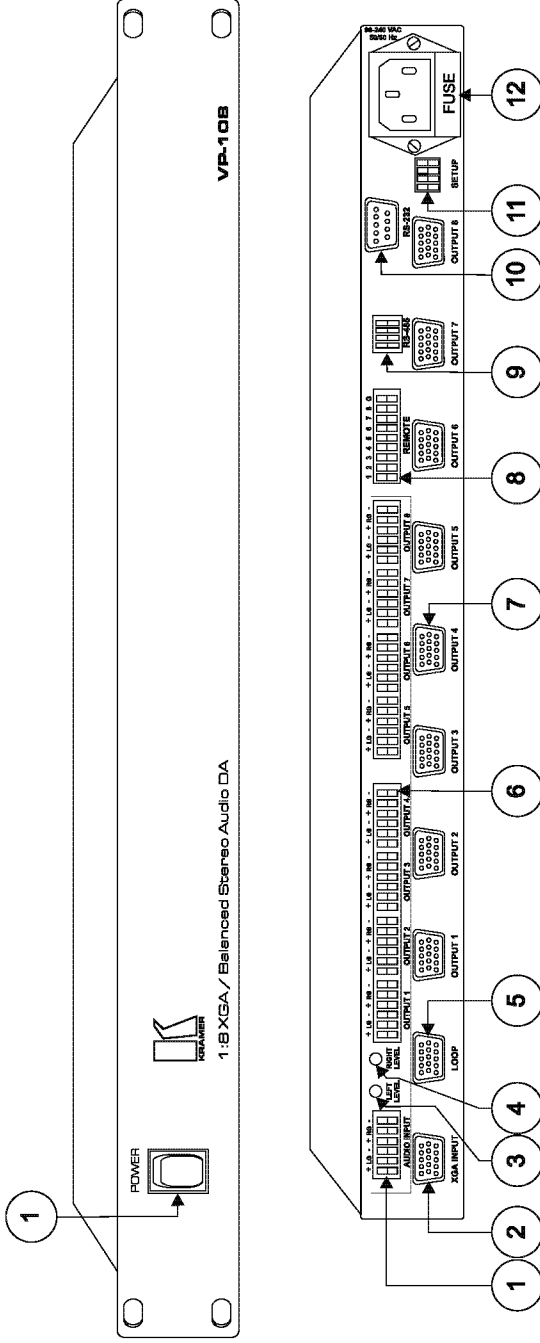
2 Using the REMOTE connector (see section 5.3)

Your VP-108 1:8 XGA / Balanced Stereo Audio DA

Figure 1: VP-108 1:8 XGA / Balanced Stereo Audio DA

Table 1: Front Panel VP 108 1:8 XGA / Balanced Stereo Audio DA Features

#	Feature	Function
1	*POWER* Switch	Illuminated switch supplying power to the unit

Table 2: Rear Panel VP 108 1:8 XGA / Balanced Stereo Audio DA Features

#	Feature	Function
1	*AUDIO INPUT* Terminal Block Connector	Connect to the balanced stereo audio source
2	*XGA INPUT* HD15 Connector	Connect to the XGA source
3	*LEFT LEVEL* Trimmer	Adjusts[1] the left output signal level
4	*RIGHT LEVEL* Trimmer	Adjusts[1] the right output signal level
5	*LOOP* HD15 Connector	For looping to increase output availability
6	AUDIO OUTPUT Terminal Block Connectors	Connect to the balanced stereo audio acceptors (from 1 to 8)[2]
7	XGA *OUTPUT* HD15 Connectors	Connect to the XGA acceptors (from 1 to 8)[2]
8	REMOTE Terminal Block Connectors	Connect to the dry contact switches
9	*RS-485* Connector	RS-485 detachable terminal block port
10	*RS-232* DB 9F Connector	Connect to PC or other Serial Controller
11	SETUP Dipswitches	Dipswitches for setup of the unit
12	Power Connector with *Fuse*	AC connector enabling power supply to the unit

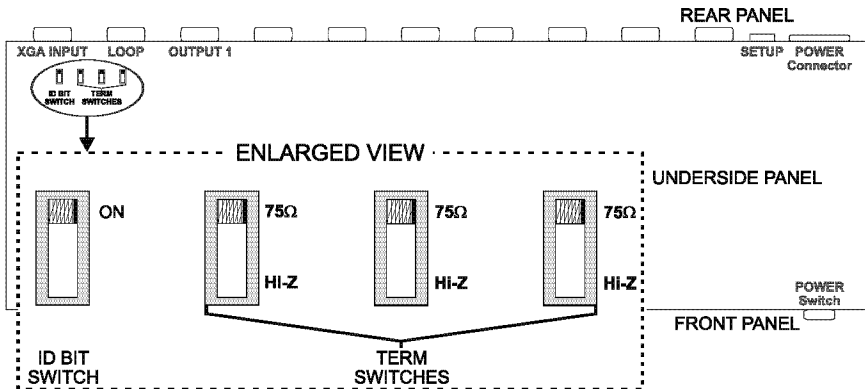Figure 2 and Table 3 define the underside switches:

Figure 2: VP 108 Underside

Table 3: VP 108 Underside Features

Switch(es)	Function
ID BIT	Set to ON position[3] to select the ID BIT[4]
TERM	Set to ON position[3] to terminate with 75Ω, or move to Hi-Z for looping

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

2 As required. Outputs may be connected or left unconnected

3 The factory default

4 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-108 1:8 XGA / Balanced Stereo Audio DA

To connect the **VP-108** *1:8 XGA / Balanced Stereo Audio DA*, as the example in Figure 6 illustrates, do the following[1]:

1.   Connect the XGA graphics source (for example, a PC) to the XGA INPUT HD15 connector, and connect[2] the balanced stereo audio source to the AUDIO INPUT terminal block connector.

2.   Connect up to 8 XGA OUTPUT HD15 connectors to the XGA acceptors (for example, XGA monitors), and connect[2] the corresponding AUDIO OUTPUT terminal block connectors to the stereo audio acceptors (for example, pairs of stereo loudspeakers).

3.   Connect the LOOP HD15 connector (OPTIONAL) to the XGA INPUT HD15 connector on an additional unit to increase video outputs.

4.   Set the dipswitches (see section 5.2.1).

5.   Set the switches on the underside for looping[3] (see Figure 2).

6.   Connect the power cord[4].

7.   Adjust the left and right audio signal levels, if required.

8.   Connect a PC (OPTIONAL) or other RS-232 (see section 5.2) or RS-485 controller, when using, for example, the Windows®-based Kramer control software.

9.   Connect a REMOTE terminal block connector (OPTIONAL) to the Ground terminal block connector to disable that output[5] (see section 5.3).

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1 Switch OFF the power on each device before connecting it to your VP-108. After connecting your VP-108, switch on its power and then switch on the power on each device. Switching on the VP-108, recalls the last status prior to powering down

2 See section 5.1 for a description of how to connect a balanced/unbalanced stereo audio input/output

3 The default settings are for non-looping

4 The power connector is not illustrated in Figure 6

5 An output may also be disabled via RS-232 or RS-485

5.1 Connecting the Balanced/Unbalanced Stereo Audio Input/Output

Figure 3 illustrates how to wire a balanced input/output connection:
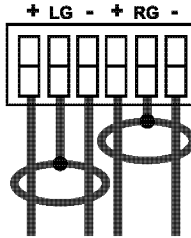

Figure 3: Connecting the Balanced Stereo Audio Input/Output

Figure 4 illustrates how to wire an unbalanced acceptor to the balanced output of the unit:
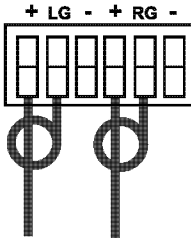

Figure 4: Connecting the Unbalanced Stereo Audio Output

Figure 5 illustrates how to connect an unbalanced source to the balanced input on the **VP-108**:
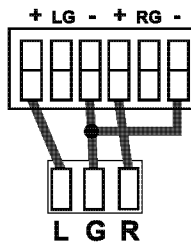

Figure 5: Connecting an Unbalanced Source to the Balanced VP 108 Input
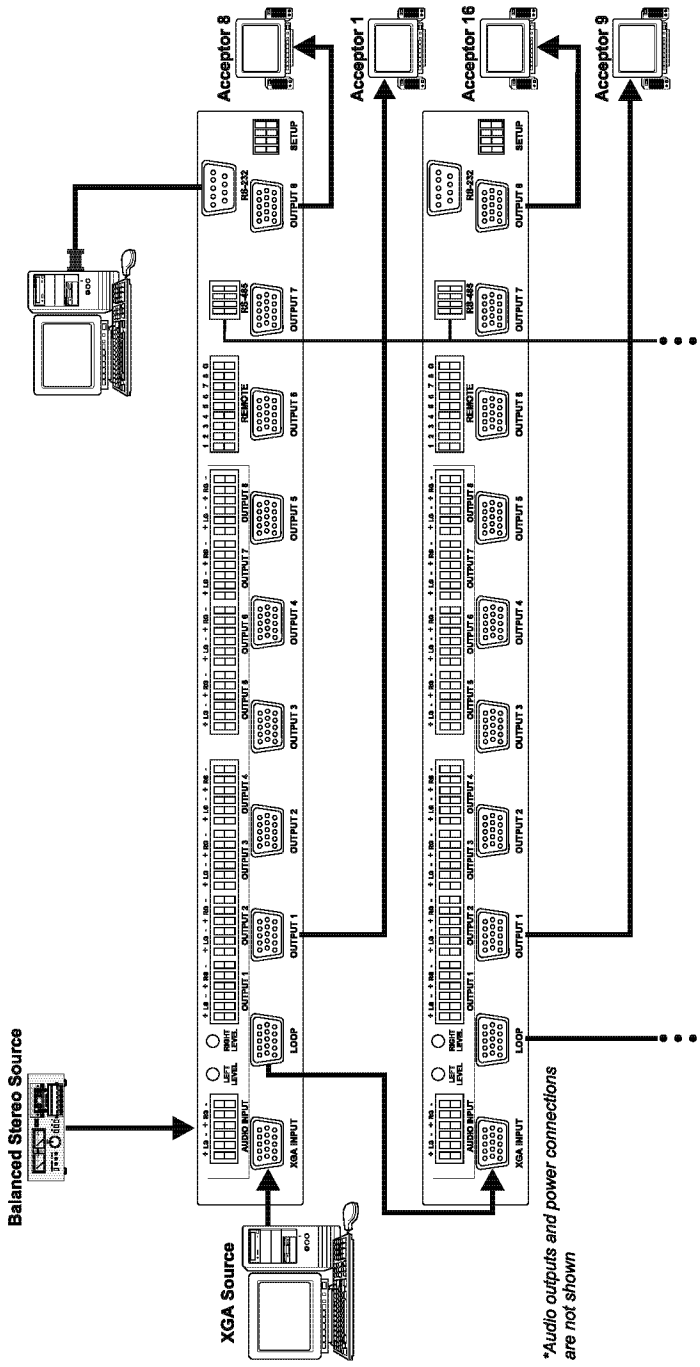
Figure 6: Connecting the VP-108 1:8 XGA / Balanced Stereo Audio DA

5.2 Controlling via RS-232 (for example, using a PC)

To connect a PC to the **VP-108** unit(s), using the Null-modem adapter provided with the machine (recommended):

- Connect the RS-232 DB9 rear panel port on the **VP-108** unit to the Null-modem adapter and connect the Null-modem adapter with a 9 wire flat cable to the RS-232 DB9 port on your PC

To connect a PC to the **VP-108** unit, without using a Null-modem adapter:

- Connect the RS-232 DB9 port on your PC to the RS-232 DB9 rear panel port on the **VP-108** unit, as Figure 7 illustrates (depending on whether the PC has a 9-pin or 25-pin connector)
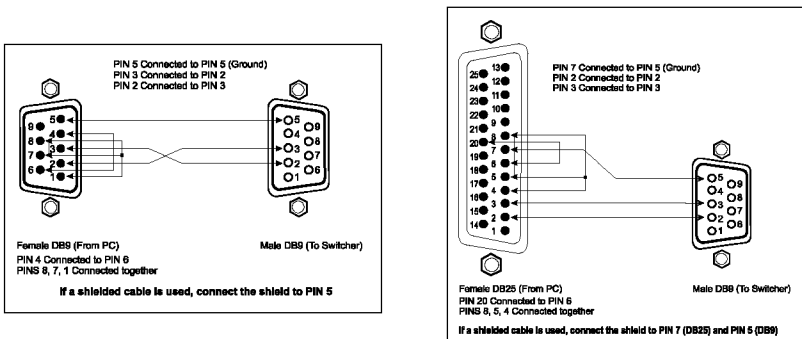
Figure 7: Connecting a VP 108 Unit to a PC without using a Null modem Adapter

5.2.1 Setting the Dipswitches

Figure 8 illustrates the factory default *SETUP* dipswitches:
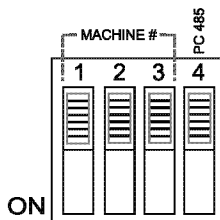
Figure 8: SETUP Set of 4 Dipswitches

Table 4: Dipswitch Settings

Function	DIPS	Description
Machine #	1, 2, 3	Determines the position of a unit in the sequence (refer to section 5.2.2)
PC 485	4	Set ON when connecting the PC (or other controller) via the RS-485 port, set OFF when connecting the PC via the RS-232 port or when not connecting a PC

5.2.2   Setting the MACHINE

The *MACHINE #* determines the position of a **VP-108** unit, specifying which **VP-108** unit is being controlled when several **VP-108** units connect to a PC or serial controller. Set the *MACHINE #* on a **VP-108** unit via DIPS 1, 2 and 3, according to Table 5.

When using a stand-alone **VP-108** unit, set the *MACHINE #* to 1. When connecting more than one **VP-108** unit, set the first machine (the Master) that is closest to the PC, as *MACHINE #* 1[1].

Table 5: Machine # Dipswitch Settings

MACHINE #	DIPSWITCH		
	1	2	3
1 Master	OFF	OFF	OFF
2	ON	OFF	OFF
3	OFF	ON	OFF
4	ON	ON	OFF
5	OFF	OFF	ON
6	ON	OFF	ON
7	OFF	ON	ON
8	ON	ON	ON

5.3 Connecting the REMOTE Connector

Connecting the REMOTE terminal block connector pins to a dry contact switch enables you to disable (and then enable again) output(s) by remote control[2]. To do so, touch (momentarily) the appropriate REMOTE terminal block connector pin to the Ground PIN, as Figure 9 illustrates.

For example to disable outputs 1, 2 and 8, touch (momentarily) PIN 1 to the Ground PIN, and then touch (momentarily) PIN 2 to the Ground PIN, and then touch (momentarily) PIN 8 to the Ground PIN.

Do not touch (momentarily) more than one PIN to the Ground PIN simultaneously.

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1 Set the dipswitches to OFF

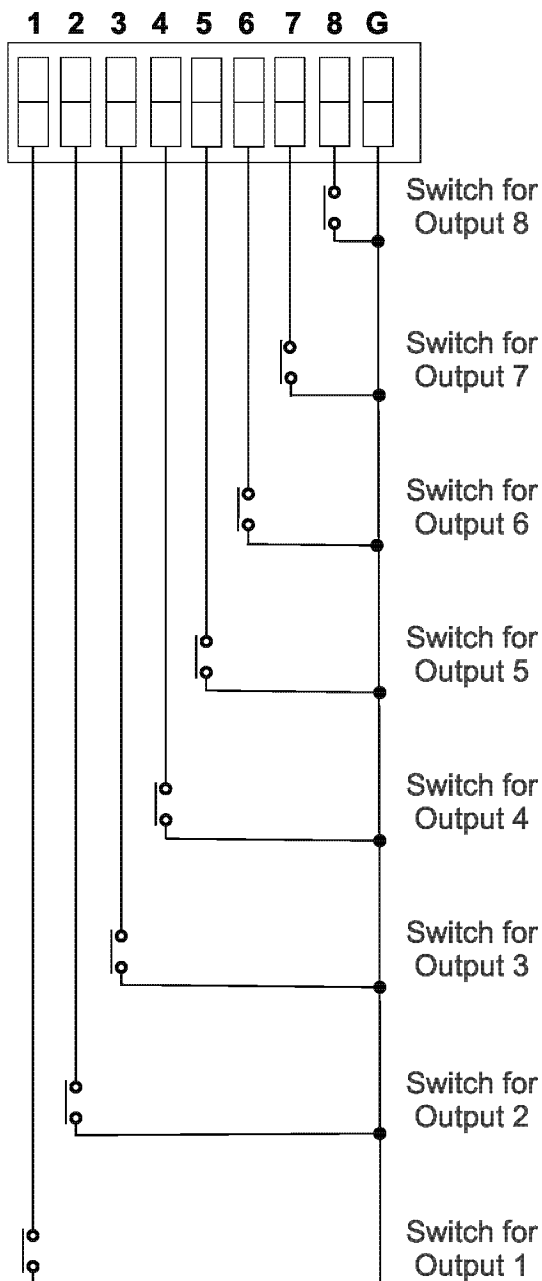2 An output may also be disabled via RS-232 or RS-485

Figure 9: REMOTE Terminal Block Connector

6 Technical Specifications

Table 6 includes the technical specifications:

Table 6: Technical Specifications[1] of the VP-108 1:8 XGA / Balanced Stereo Audio DA

INPUT:	1 XGA on an HD15F connector; 1 balanced audio +4dBm 100kΩ on detachable terminal block connectors 1 LOOP on an HD15F connector	
OUTPUTS:	8 XGA on HD15F connectors; 8 balanced audio +4dBm 100kΩ on detachable terminal block connectors	
MAX. OUTPUT LEVEL:	VIDEO: 1.5 Vpp	AUDIO: 25 Vpp
BANDWIDTH (-3dB):	VIDEO: 400 MHz	AUDIO: >100 kHz
DIFF. GAIN:	0.03%	
DIFF. PHASE:	0.03 Deg.	
K-FACTOR:	<0.05%	
S/N RATIO:	VIDEO: 74.3dB	AUDIO: 93dB unweighted
CONTROLS:	VIDEO: Level : -1.1 to +6.2dB; Equalization: 0dB to +8dB, 50 MHz	AUDIO: Level : -0.9 to +8.6dB
COUPLING:	VIDEO: DC	AUDIO: DC
AUDIO THD + NOISE:	0.005%	
AUDIO 2nd HARMONIC:	0.003%	
POWER SOURCE:	90-260 VAC, 50/60 Hz, 25 VA	
DIMENSIONS:	19-inch (W), 7-inch (D), 1U (H) rack mountable	
WEIGHT:	2.6 kg. (5.7 lbs.) approx.	
ACCESSORIES:	Power cord, Null modem adapter, Windows®-based Kramer control software	

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1 Specifications are subject to change without notice

7   Table of Hex Codes for Serial Communication

Table 7 lists the Hex values for a single machine (*MACHINE* # 1). 4 bytes of information are sent for each instruction. For more detailed information, see Protocol 2000[1].

Table 7: VP 108 Hex Codes

VIDEO[2]:

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	OUT 8	ALL OUTPUTS
ON	01	01	01	01	01	01	01	01	01
	81	81	81	81	81	81	81	81	81
	81	82	83	84	85	86	87	88	80
	81	81	81	81	81	81	81	81	81
OFF	01	01	01	01	01	01	01	01	01
	80	80	80	80	80	80	80	80	80
	81	82	83	84	85	86	87	88	80
	81	81	81	81	81	81	81	81	81

AUDIO[3]:

	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	OUT 8	ALL OUTPUTS
ON	02	02	02	02	02	02	02	02	02
	81	81	81	81	81	81	81	81	81
	81	82	83	84	85	86	87	88	80
	81	81	81	81	81	81	81	81	81
OFF	02	02	02	02	02	02	02	02	02
	80	80	80	80	80	80	80	80	80
	81	82	83	84	85	86	87	88	80
	81	81	81	81	81	81	81	81	81

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1 On our Web site at http://www.kramerelectronics.com (click "Communication Protocols and Hex Tables for RS-232 operated switchers, matrix switchers, and other equipment" in the Technical Support section)

2 For audio-follow-video mode

3 For audio breakaway mode

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.