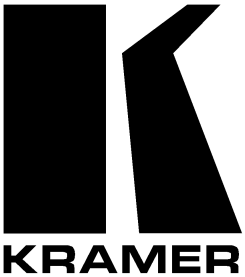
Kramer Electronics, Ltd.



USER MANUAL

Models:

TP-131, ***UXGA Line Transmitter***

TP-132, ***UXGA Line Receiver***

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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 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer TOOLS **TP-131** *UXGA Line Transmitter* and/or Kramer TOOLS **TP-132** *UXGA Line Receiver*, which are ideal for:

- Presentation and multimedia applications
- Long range graphics distribution for schools, hospitals, security, and stores

The package includes the following items:

- **TP-131** *UXGA Line Transmitter* and/or **TP-132** *UXGA Line Receiver*
- Power adapter (12V DC Input) and 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]

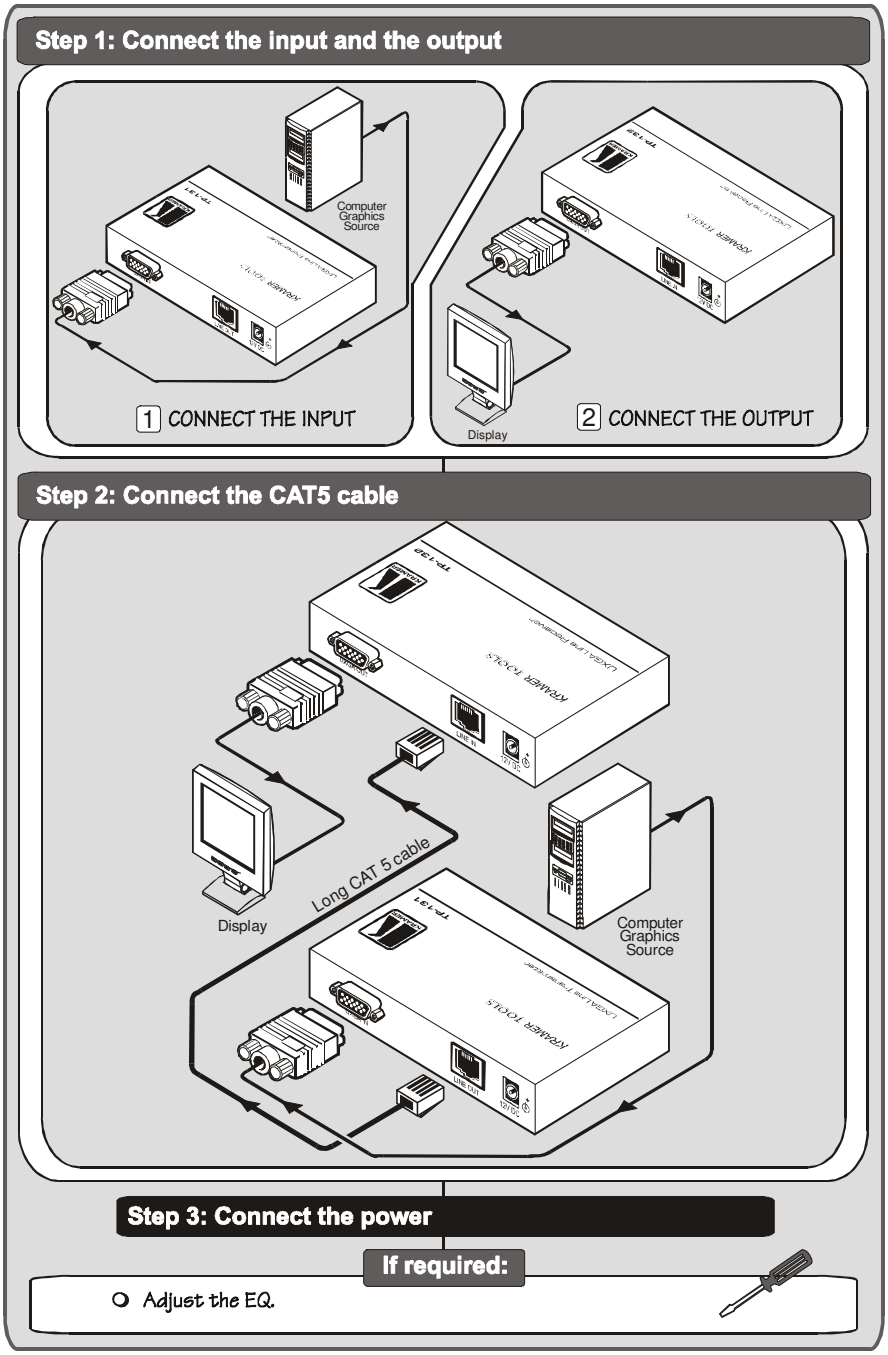
2.1 Quick Start

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

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 this URL: http://www.kramerelectronics.com

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


Step 1: Connect the input and the output
Computer Graphics Source
1 CONNECT THE INPUT
Display
2 CONNECT THE OUTPUT
Step 2: Connect the CAT5 cable
Long CAT 5 cable
Display
Computer Graphics Source
Step 3: Connect the power
If required:
Adjust the EQ.

3 Overview

This section describes:

- Using shielded twisted pair (STP) / unshielded twisted pair (UTP), see section 3.1
- A summary of the **TP-131** *UXGA Line Transmitter*, see section 3.2
- A summary of the **TP-132** *UXGA Line Receiver*, see section 3.3
- Recommendations for achieving the best performance, see section 3.4

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

The decision whether to use shielded twisted pair (STP) cable or unshielded twisted pair (UTP) cable depends on the nature of the application.

It is recommended that in applications with high interference, shielded twisted pair (STP) cable is used. However, the shield itself does create a capacitance that degrades the frequency response of the machines. For shorter distances, of 50m or so, shielded twisted pair (STP) cable is preferred because it provides protection from interference (degradation is not apparent).

For long range applications, unshielded twisted pair (UTP) cable is preferred. However, the unshielded twisted pair (UTP) cable should be installed far away from electric cables, motors and so on, which are prone to create electrical interference.

Some Kramer twisted pair products include the Power Connect feature[1]. The **TP-131** and **TP-132** do not have this feature.

1 The Power Connect feature lets you power a transmitter / receiver system by connecting just one power adapter to either the transmitter or the receiver. The other unit is fed over the same cable. The Power Connect feature applies as long as the cable is heavy gauge cable (that is, it can carry power). The distance does not exceed 50 meters on standard CAT5 cable. For a distance of 100 meters, separate power supplies must be connected to the transmitter and to the receiver simultaneously, unless using heavy gauge cable

3.2 TP-131 UXGA Line Transmitter

The Kramer TOOLS **TP-131** is a UXGA line transmitter that receives a UXGA signal and transmits it over a CAT 5 cable to the **TP-132** receiver. In particular, the **TP-131**:

- Has a resolution of up to UXGA
- Can use the simplest UTP CAT 5 cables, and performs even better with higher quality cables
- Includes EQ. control
- Has ID Bit control
- Is 12VDC fed

3.3 TP-132 UXGA Line Receiver

The Kramer TOOLS **TP-132** is a UXGA line receiver that receives a coded CAT 5 signal transmitted by the **TP-132**, decodes it and converts it to a UXGA output. In particular, the **TP-132**:

- Has an operating range of more than 300 ft. (more than 100 meters) using standard CAT 5 cable and the **TP-131**
- Includes EQ. control
- Is 12VDC fed

3.4 Achieving the Best Performance

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 UXGA Line Transmitter / Receiver 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 unit[1].

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

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

4 Your UXGA Line Transmitter / Receiver

This section defines the UXGA Line Transmitter / Receiver:

- **TP-131** *UXGA Line Transmitter* (see section 4.1)
- **TP-132** *UXGA Line Receiver* (see section 4.2)

4.1 Your TP-131 UXGA Line Transmitter

This section describes the **TP-131** *XGA Line Transmitter*

- Top (see section 4.1.1)
- Underside (see section 4.1.2)

4.1.1 Your TP-131 UXGA Line Transmitter

Figure 1 and Table 1 define the **TP-131**:

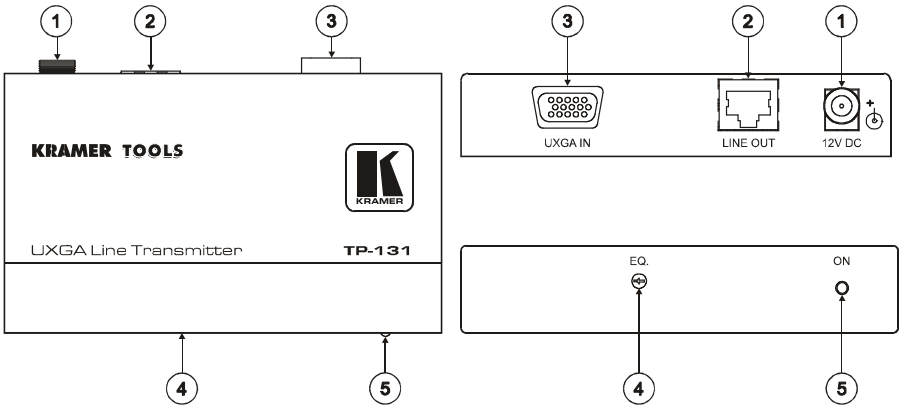


Figure 1: TP-131 UXGA Line Transmitter

Table 1: TP-131 UXGA Line Transmitter Features

#	Feature	Function
1	*12V DC*	+12V DC connector for powering the unit
2	*LINE OUT* RJ-45 Connector	Connects to the *LINE IN* RJ-45 connector on the **TP-132**[1]
3	*UXGA IN* HD15F Connector	Connect to the UXGA source
4	*EQ.*[2] Trimmer	Adjusts[3] the cable compensation equalization level
5	*ON* LED	Illuminates when receiving power

1 Using a UTP cable with CAT 5 connectors at both ends (the PINOUT is defined in Table 4 and Figure 5)

2 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

3 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

4.1.2 Your TP-131 UXGA Line Transmitter (Underside)

Figure 2 and Table 2 define the underside of the **TP-131**:

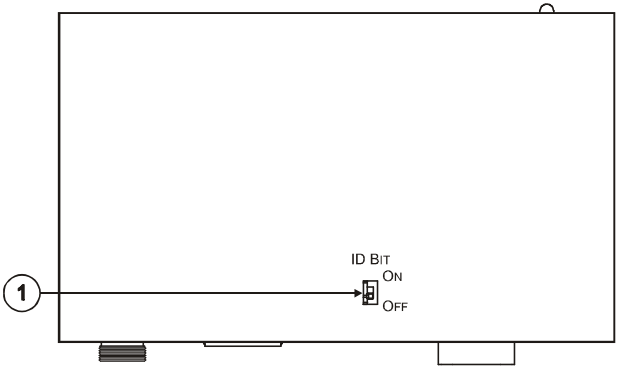


Figure 2: TP-131 Underside

Table 2: TP-131 Underside Features

#	Feature	Function
1	*ID BIT* Switch	Slide up to set to ON[1]; down to set to OFF

1 The default. Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

4.2 Your TP-132 UXGA Line Receiver

Figure 3 and Table 3 define the **TP-132** *UXGA Line Receiver*:

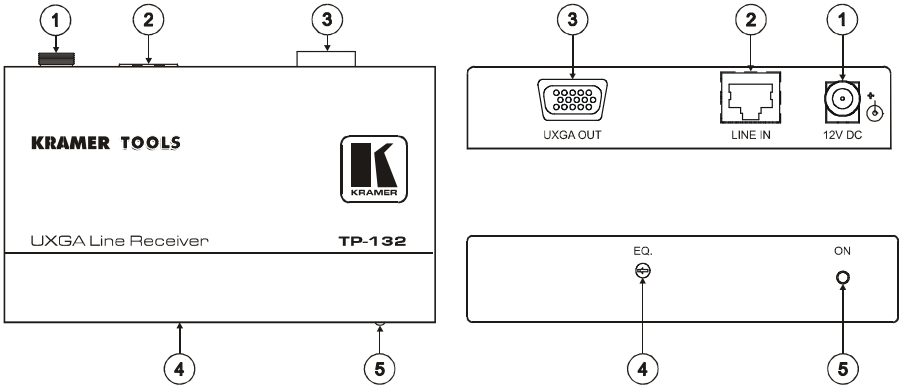


Figure 3: TP-132 UXGA Line Receiver

Table 3: TP-132 UXGA Line Receiver Features

#	Feature	Function
1	*12V DC*	+12V DC connector for powering the unit
2	*LINE IN* RJ-45 Connector	Connects to the *LINE OUT* RJ-45 connector on the **TP-131**[1]
3	*UXGA OUT* HD15F Connector	Connect to the XGA acceptor
4	*EQ.*[2] Trimmer	Adjusts[3] the cable compensation equalization level
5	*ON* LED	Illuminates when receiving power

1 Using a UTP cable with CAT 5 connectors at both ends (the PINOUT is defined in Table 4 and Figure 5)

2 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

3 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

5 Connecting the UXGA Line Transmitter / Receiver

You can use the **TP-131** *UXGA Line Transmitter* and the **TP-132** *UXGA Line Receiver* to configure an XGA-to-Twisted Pair Transmitter and Receiver system.

To connect the **TP-131** *UXGA Line Transmitter* with the **TP-132** *UXGA Line Receiver*, as the example in Figure 4 illustrates, do the following:

1. On the **TP-131**, connect the UXGA source (for example, a computer) to the UXGA IN HD15F connector.
2. On the **TP-132**, connect the UXGA OUT HD15F connector to the UXGA acceptor (for example, a display).
3. Connect the LINE OUT RJ-45 connector on the **TP-131** to the LINE IN RJ-45 connector on the **TP-132**, via UTP cabling (with a range of more than 300ft (>100m)).
4. On both the **TP-131** and the **TP-132**, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 4).
   The signal from the UXGA source is transmitted via CAT 5 cable, decoded and converted at the UXGA OUT HD15F connector to the UXGA acceptor.
5. On the **TP-131** and **TP-132**, adjust[1] the cable compensation equalization level, if required.

1 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

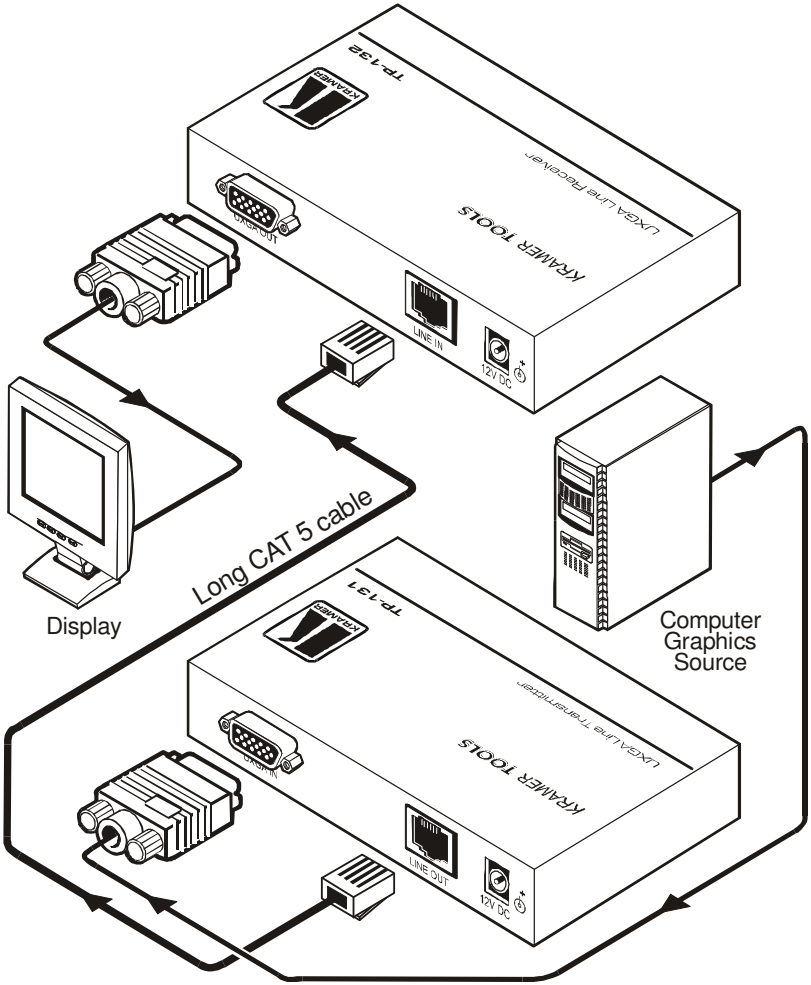


Figure 4: UXGA-to-Twisted Pair Transmitter and Receiver System via UTP Cable

5.1 Wiring the CAT 5 LINE IN / LINE OUT RJ-45 Connectors

Table 4 and Figure 5 define the CAT 5 PINOUT, using a straight pin-to-pin cable with RJ-45 connectors:

Figure 5: CAT 5 PINOUT

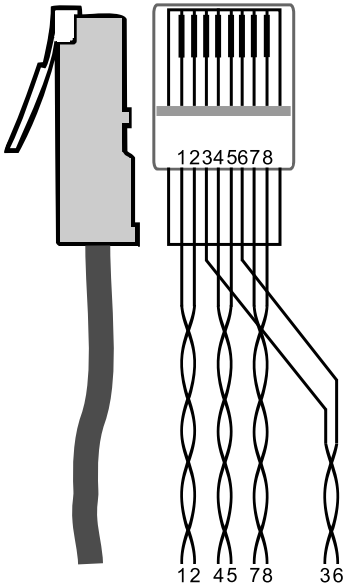


Table 4: CAT 5 PINOUT

EIA /TIA 568A	
PIN	**Wire Color**
1	Green / White
2	Green
3	Orange / White
4	Blue
5	Blue / White
6	Orange
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	3 and 6
Pair 3	1 and 2
Pair 4	7 and 8

EIA /TIA 568B	
PIN	**Wire Color**
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	1 and 2
Pair 3	3 and 6
Pair 4	7 and 8

6 Technical Specifications

Table 5 includes the technical specifications:

Table 5: Technical Specifications[1] of the TP-131 / TP-132

	TP-131	**TP-132**
INPUTS:	1 UXGA on an HD15F connector	1 CAT5 LINE IN connector
OUTPUTS:	1 CAT5 LINE OUT connector	1 UXGA on an HD15F connector
MAX. OUTPUT LEVEL[2]:	2.4Vpp	
RESOLUTION[2]:	Up to UXGA	
DIFF. GAIN[2]:	0.07%	
DIFF. PHASE[2]:	0.12°	
K-FACTOR[2]:	0.3%	
S/N RATIO[2]:	72dB	
CONTROLS:	Equalization: 0 to +9.6dB @25MHz	Equalization: 0 to +6.2dB @25MHz
COUPLING:	DC	
POWER SOURCE:	12V, 190mA	12V, 120mA
DIMENSIONS:	12 cm x 7.15 cm x 2.76 cm (4.7" x 2.81" 1.09", W, D, H)	
WEIGHT:	0.3 kg (0.67 lbs.) approx	
ACCESSORIES:	Power Supply	

1 Specifications are subject to change without notice

2 For the Transmitter/Receiver pair

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.
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.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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P/N: 2900-000217 REV 1