

**Kramer Electronics, Ltd.**



# **USER MANUAL**

## **Models:**

*713 Video-Audio Line Transmitter*

*714-05 Video-Audio Line Receiver*

*714-10 Video-Audio Line Receiver*

*714-15 Video-Audio Line Receiver*

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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 groups<sup>1</sup> that are clearly defined by function.

Congratulations on purchasing your Kramer **713 Video-Audio Line Transmitter** and **714 Video-Audio Line Receiver** which are ideal for:

- Remote monitoring for CCTV, medical and schools
- Existing facilities with TP cable already installed
- Teleconferencing in offices and hospitals using existing intercom or telephone wiring
- Security systems

There are three models of the 714 available that support different distances:

- **714-05** up to 600m (2000ft)
- **714-10** up to 1000m (3000ft)
- **714-15** up to 1600m (5300ft)

All references to the **714** in this manual apply to all three models.

The package includes:

- **713 Video-Audio Line Transmitter** and **714-05/714-10/714-15 Video-Audio Line Receiver**
- Two power adapters (12V DC output)
- This user manual<sup>2</sup>

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<sup>1</sup> 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

<sup>2</sup> Download up-to-date Kramer user manuals from <http://www.kramerelectronics.com>

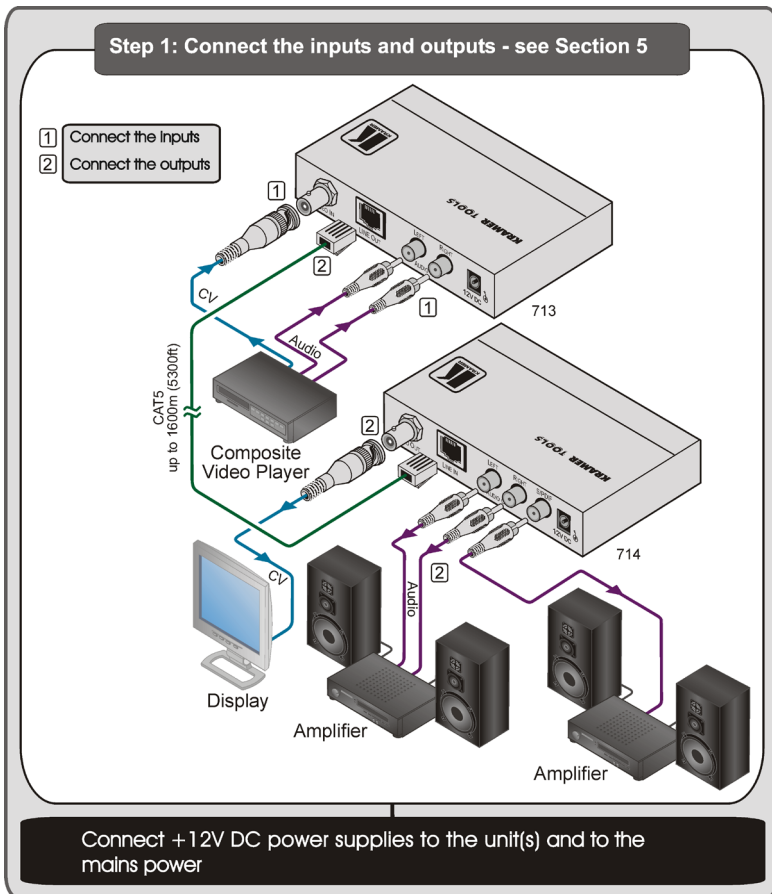
## 2 Getting Started

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<sup>1</sup>

### 2.1 Quick Start

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



<sup>1</sup> The complete list of Kramer cables is available from <http://www.kramerelectronics.com>

### 3 Overview

The **713** and **714** are a TP (Twisted Pair) transmitter and receiver for composite video and unbalanced stereo audio signals. The **713** transmitter converts composite video and stereo audio into a Twisted Pair (TP) signal and the **714** receiver converts the TP signal back to composite video, stereo audio and also provides an S/PDIF digital audio output.

The **713/714** feature:

- A system range of up to 1600m (5300ft), depending on the model
- Audio transmission in broadcast quality digital audio format (48kHz/24bit)
- Automatic audio and video equalization (EQ) control (**714**)

The **713** and **714** are part of the Kramer TOOLS™ family of compact high-quality and cost effective solutions which are fed from an external 12V DC source, making them suitable for field operation.

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 TOOLS™ away from moisture, excessive sunlight and dust

#### 3.1 Shielded Twisted Pair/Unshielded Twisted Pair

We recommend that you use Shielded Twisted Pair (STP) cable. There are different levels of STP cable available, and we advise you to use the best quality STP cable that you can afford. Bear in mind, though, that we advise using STP cables where possible, since the compliance to electromagnetic interference has been tested using STP cables.

Although Unshielded Twisted Pair (UTP) cable might be preferred for extended distance applications, the UTP cable should be installed as far as possible from electric cables, motors, and so on, which tend to create electrical interference.

However, since the use of UTP cable might not conform to electromagnetic standards, Kramer does not commit to meeting the standard with UTP cable.

**Note:** There is no requirement and we do not recommend the use of skew-free cable.

#### 3.2 Power Connect

The Power Connect™ feature does not apply to the **713** and **714**.

## 4 Defining the 713/714 Video-Audio Line Transmitter/Receiver

This section defines the:

- **713 Video-Audio Line Transmitter** (see [Section 4.1](#))
- **714 Video-Audio Line Receiver** (see [Section 4.2](#))

### 4.1 Defining the 713 Video-Audio Line Transmitter

[Figure 1](#) and [Table 1](#) define the front and rear panels of the **713 Video-Audio Line Transmitter**.

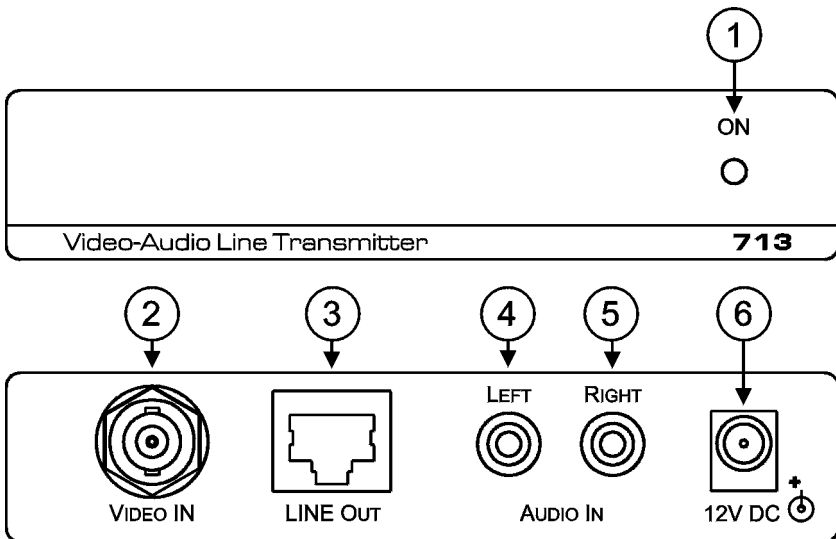


Figure 1: 713 Video-Audio Line Transmitter Front and Rear Panels

Table 1: 713 Video-Audio Line Transmitter Front and Rear Panel Features

#	Feature	Function	
1	ON LED	Lights green when the unit is powered on	
2	VIDEO IN BNC Connector	Connect to the composite video source	
3	LINE OUT RJ-45 Connector	Connect to the LINE IN RJ-45 connector on the <b>714</b> using CAT 5 cable (see <a href="#">Figure 2</a> )	
4	AUDIO IN	LEFT RCA Connector	Connect to the left channel of the unbalanced stereo audio source
5		RIGHT RCA Connector	Connect to the right channel of the unbalanced stereo audio source
6	12V DC Connector	Connect to the supplied power adapter, center pin positive	

## 4.2 Defining the 714 Video-Audio Line Receiver

[Figure 2](#) and [Table 2](#) define the front and rear panels of the **714 Video-Audio Line Receiver**.

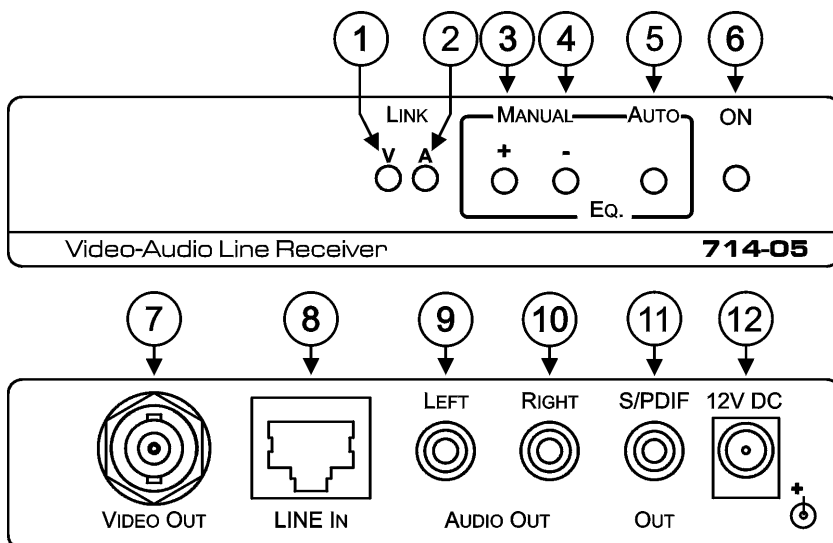


Figure 2: 714-05 Front and Rear Panels

Table 2: 714-05/714-10/714-15 Front and Rear Panel Features

#	Feature		Function
1	LINK LED	V LED	Lights green when video link from the <b>713</b> is established
2		A LED	Lights green when audio link from the <b>713</b> is established
3	MANUAL EQ. Buttons	+	Press to increase the signal equalization
4		-	Press to decrease the signal equalization
5	AUTO EQ. Button		Press to reboot the device and set the equalization automatically
6	ON LED		Lights green when the unit is powered on
7	VIDEO OUT BNC Connector		Connect to the composite video acceptor
8	LINE IN RJ-45 Connector		Connect to the LINE OUT RJ-45 connector on the <b>713</b> using CAT 5 cable (see <a href="#">Figure 1</a> )
9	AUDIO OUT	LEFT RCA Connector	Connect to the left channel of the unbalanced stereo audio acceptor
10		RIGHT RCA Connector	Connect to the right channel of the unbalanced stereo audio acceptor
11	S/PDIF OUT RCA Connector		Connect to the digital audio S/PDIF acceptor
12	12V DC Connector		Connect to the supplied power adapter, center pin positive

Note: [Table 2](#) also applies to the models shown in [Figure 3](#) and [Figure 4](#).

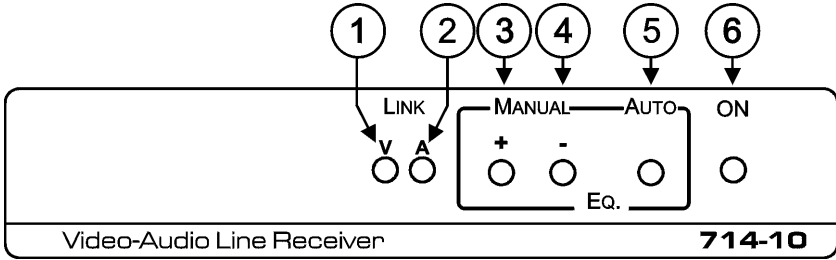


Figure 3: 714-10 Video-Audio Line Receiver Front Panel

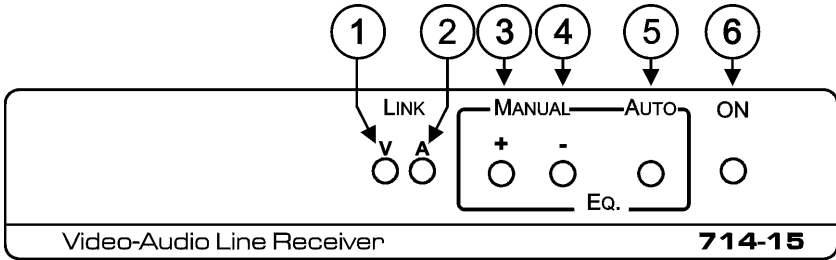


Figure 4: 714-15 Video-Audio Line Receiver Front Panel



## 5 Connecting the 713 and 714

You can use the **713** and **714** to configure a long distance audio-video transmitter and receiver system.

To connect the **713** and the **714** as illustrated in the example in [Figure 5](#):

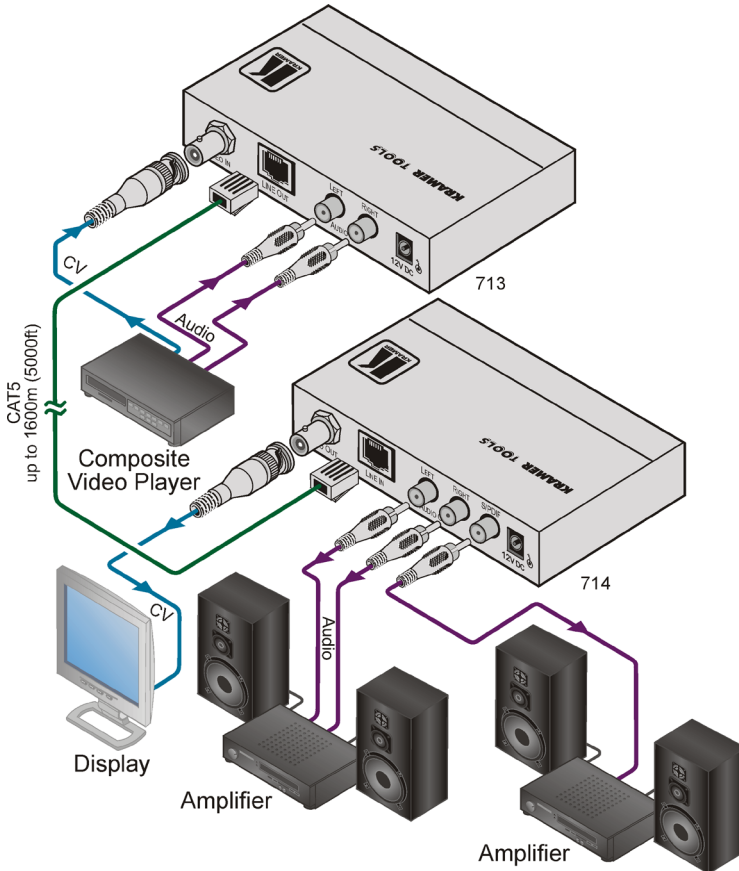


Figure 5: Connecting the Video-Audio Line Transmitter/Receiver System

1. On the **713**, connect a composite video source (for example, a composite video player) to the VIDEO IN BNC connector, and connect the unbalanced stereo audio to the AUDIO IN LEFT and RIGHT AUDIO IN RCA connectors.
2. Using CAT 5 cabling, connect the LINE OUT RJ-45 connector on the **713** to the RJ-45 LINE IN connector on the **714**.

3. On the **714**, connect the VIDEO OUT BNC connector to a composite video acceptor (for example, a display), and connect the AUDIO OUT RIGHT and LEFT RCA connectors to an unbalanced audio acceptor (for example, an amplifier).
4. On the **714**, connect the S/PDIF connector to a digital audio acceptor (for example, an amplifier).
5. Connect the 12V DC power adapters first to the **713** then to the **714**.  
**Note:** This order of connection is mandatory.
6. Connect both power adapters to the mains electricity.
7. If required, adjust the equalization level either automatically or manually on the **714** (see [Section 5.1](#)).

## 5.1 Automatic and Manual Equalization

You can set the equalization on the **714** either manually or automatically.

To set the equalization automatically, press the Auto button. To set the equalization manually, press either the Manual + or – button to increase or decrease the equalization respectively.

On power up, the **714** is set to Auto mode and adjusts the video and audio for the best quality possible. For most situations it is recommended that you leave the device in Auto mode.

When the signal or the link between the **713** and the **714** is lost, pressing the Auto button once is sufficient to set the Auto mode.

When using the Manual mode, the first press of either the + or – button sets the equalization to the 760m (2500ft) setting. Pressing the Auto button returns the device to the Auto mode.

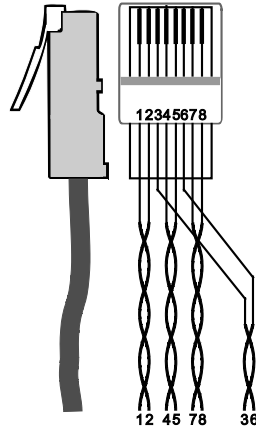
## 5.2 Wiring the CAT 5 LINE IN/LINE OUT RJ-45 Connectors

[Table 3](#) and [Figure 6](#) define the CAT 5 pinout, using a straight pin-to-pin cable with RJ-45 connectors. When using STP cable, connect/solder the cable shield to the connector shield.

*Table 3: CAT 5 PINOUT*

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

*Figure 6: CAT 5 PINOUT*



## 6 Technical Specifications

[Table 4](#) lists the technical specifications<sup>1</sup> of the **713** and the **714-05/714-10/714-15**.

*Table 4: Technical Specifications<sup>2</sup> of the 713 and the 714-05/714-10/714-15*

	713		714-05/714-10/714-15	
INPUT:	Video	1 composite 1Vpp/75Ω on a BNC connector	1 RJ-45 CAT 5 connector (LINE IN)	
	Audio	1 stereo unbalanced audio 4dBm/50kΩ on two RCA connectors		
OUTPUT:	1 RJ-45 CAT 5 connector (LINE OUT)		Video	1 composite on a BNC connector 1Vpp/75Ω
			Audio	1 stereo unbalanced audio 4dBm/50kΩ on two RCA connectors
				1 S/PDIF digital audio on an RCA connector
VIDEO MAX. SIGNAL LEVEL:	1.4Vpp (terminated 75 Ω)			
AUDIO MAX. SIGNAL LEVEL:	2.3Vpp			
VIDEO BANDWIDTH (-3dB):	9MHz			
AUDIO BANDWIDTH (-3dB):	20-20kHz			
VIDEO S/N RATIO (unweighted):	>55dB RMS			
AUDIO S/N RATIO:	>85db @1kHz			
AUDIO CONVERSION:	48kHz/24bit S/PDIF out >0.5V/75 Ω terminated			
CONTROLS:	Equalization; automatic and manual (+/-)			
VIDEO COUPLING:	Input: AC		Output: DC	
AUDIO COUPLING:	Input: AC		Output: DC	
POWER SOURCE:	12 VDC 120mA		12 VDC 130mA	
DIMENSIONS:	12cm x 6.9cm x 2.4cm (4.7" x 2.7" x 0.96") W, D, H			
WEIGHT:	0.3kg (0.67lbs) approx. (each)			
ACCESSORIES:	Power supplies, mounting brackets			
OPTIONS:	RK-T1, RK-T3, 19 inch rack adapters			

1 Specifications are subject to change without notice

2 Specifications are for 100m of CAT 5 UTP cable, unless otherwise specified

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## 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](http://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)





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**For the latest information on our products and a list of Kramer distributors visit [www.kramerelectronics.com](http://www.kramerelectronics.com) where updates to this user manual may be found. We welcome your questions, comments, and feedback.**



**Caution**

**Safety Warning:**

Disconnect the unit from the power supply before opening/servicing.



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