



KRAMER ELECTRONICS LTD.

# USER MANUAL

MODELS:

**PT-110xl**, UXGA Line Transmitter

**WP-110**, XGA Line Transmitter

**PT-120xl**, XGA Line Receiver

**TP-120**, XGA Line Receiver

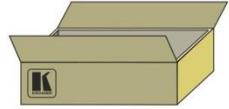


## PT-110xl, WP-110, PT-120xl, TP-120 Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to <http://bit.ly/k-prod-downloads> to download the latest manual or scan the QR code on the left.

### Step 1: Check what's in the box

- PT-110xl, WP-110, PT-120xl, TP-120 UXGA/XGA Line Transmitters/Receivers
- 1 Power supply (12V DC) per unit
- 4 Rubber feet per unit
- 1 Quick Start sheet

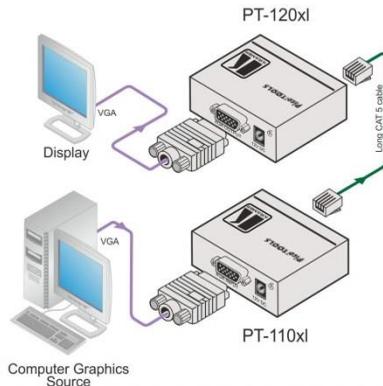


### Step 2: Install the PT-110xl, WP-110, PT-120xl, TP-120

Attach the rubber feet and place on a table or mount the **PT-110xl, PT-120xl, TP-120** in a rack. Mount the **WP-110** on the wall or in a rack.

### Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **PT-110xl, WP-110, PT-120xl, TP-120**.



Always use Kramer high-performance cables for connecting AV equipment to the **PT-110xl, WP-110, PT-120xl, TP-120**.

### Step 4: Connect the power

Connect the 12V DC power adapter to the **PT-110xl, WP-110, PT-120xl, TP-120** and plug the adapter into the mains electricity.



### Step 5: Operate the machines

In the receivers **PT-120xl** and **TP-120**, adjust level and equalization as needed.

LEVEL EQ.



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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 14 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; 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 Video Products; GROUP 12: Digital Signage; GROUP 13: Audio; and GROUP 14: Collaboration.

Thank you for purchasing the Kramer **PT-110xl** *UXGA Line Transmitter*, **WP-110** *XGA Line Transmitter*, Kramer Pico TOOLS **PT-120xl** *XGA Line Receiver*, and/or Kramer TOOLS **TP-120** *XGA Line Receiver*, which are ideal for:

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

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## 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



Go to [http://www.kramerelectronics.com/support/product\\_downloads.asp](http://www.kramerelectronics.com/support/product_downloads.asp) to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

### 2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Do not secure the cables in tight bundles or roll the slack into tight coils
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **PT-110xl**, **WP-110**, **PT-120xl**, **TP-120** away from moisture, excessive sunlight and dust



This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

### 2.2 Safety Instructions



**Caution:** There are no operator serviceable parts inside the unit

**Warning:** Use only the Kramer Electronics input power wall adapter that is provided with the unit

**Warning:** Disconnect the power and unplug the unit from the wall before installing

## 2.3 Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at <http://www.kramerelectronics.com/support/recycling/>.

## 2.4 About the Power Connect™ Feature

The Power Connect feature applies as long as the cable can carry power. This feature is available when using TP cable and the distance does not exceed 50m (164ft) on standard CAT 5 cable. For longer distances, use heavier gauge cable (TP cable is still suitable for the video/audio transmission, but not for feeding the power at these distances).

For a TP cable exceeding a distance of 50m, connect separate power supplies to the transmitter and to the receiver simultaneously.

## 2.5 Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)

We recommend that you use Shielded Twisted Pair (STP) cable, and stress that the compliance to electromagnetic interference was tested using 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. Our non-skew-free cable, Kramer **BC-STP** is intended for analog signals where skewing is not an issue.

In cases where there is skewing, our Unshielded Twisted Pair (UTP) skew-free cable, Kramer **BC-XTP**, may be advantageous, and UTP cable might also be preferable for long range applications. In any event when using UTP cable, it is advisable to ensure that the cable is installed far away from electric cables, motors and so on, which are prone to create electrical interference.

### 3 PT-110xl UXGA Line Transmitter

The Kramer Pico TOOLS **PT-110xl** is an extended range UXGA line transmitter that receives a UXGA signal and transmits it over a CAT 5/6 cable to the **PT-120xl** or **TP-120** receiver. In particular, the **PT-110xl** features:

- Resolution up to WUXGA & 1080p
- HDTV compatibility up to 1080p
- Extended transmission range of up to 250m (820ft) when used with Kramer's other twisted pair xl receivers (such as **PT-120xl**, **TP-122xl** or **TP-126xl**)
- EDID capture that copies and stores the EDID from a display device
- An increased level of protection against noise, spikes and interference in adverse environments for the xl models

#### 3.1 Your PT-110xl UXGA Line Transmitter

[Figure 1](#) defines the **PT-110xl**:

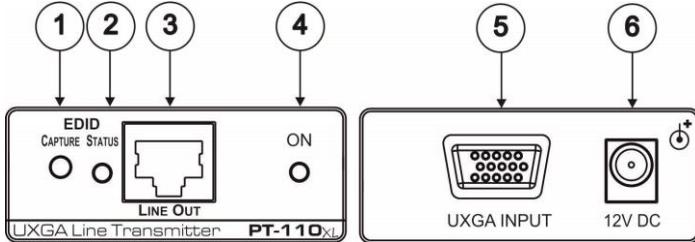


Figure 1: PT-110xl UXGA Line Transmitter

#	Feature	Function
1	CAPTURE Button	Press to acquire the EDID information from the display
2	STATUS LED	Illuminates during normal operation; flashes when acquiring the EDID
3	LINE OUT RJ-45 Connector	Connects to the LINE IN RJ-45 connector on the <b>PT-120xl</b> or <b>TP-120 XGA Line Receiver</b>
4	ON LED	Illuminates when receiving power
5	UXGA INPUT 15-pin HD Connector	Connect to the UXGA source
6	12V DC	+12V DC connector for powering the unit

## 3.2 Connecting the PT-110xl UXGA Line Transmitter

To connect the **PT-110xl** (as shown in [Figure 2](#)) do the following:

1. Connect a UXGA source (for example, a computer graphics card) to the 15-pin HD UXGA INPUT connector.
2. Connect a CAT5/6 cable to the RJ-45 LINE OUT connector.

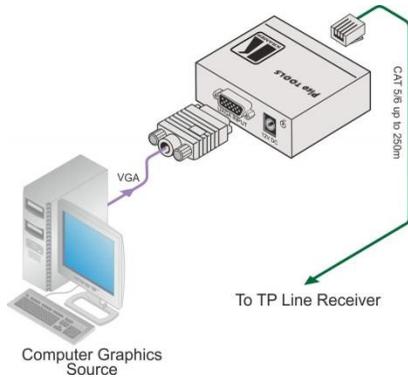


Figure 2: Connecting the PT-110xl UXGA Line Transmitter

## 3.3 Capturing the EDID

To capture an EDID:

- Connect the device from which you want to capture the EDID (for example, a display, switcher, DA, etc.) directly to the UXGA input of the **PT-110xl**
- Press the EDID capture button.  
The EDID status LED flashes slowly several times. The new EDID is captured when the LED stops flashing and lights solid.

**Note:** If the status LED flashes quickly for a few seconds and then stays on solid, the **PT-110xl** could not capture the EDID and loaded the default EDID instead.

## 3.4 Loading the Default EDID

To load the default EDID:

- Press the EDID capture button.  
The EDID status LED flashes quickly for a few seconds and then stays on solid.

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## 4 WP-110 XGA Line Transmitter

The Kramer Wall Plate **WP-110** is an XGA line transmitter that receives an XGA signal and transmits it over a CAT 5 cable to the **PT-120xl** or **TP-120** receiver. The **WP-110** is available in three versions: one for USA, one for Belgium and Germany, and one for UK and most of Europe (excluding Belgium and Germany). In particular, the **WP-110** features:

- Resolution of up to XGA
- Transmission range over 100m (320ft)
- Use of the simplest UTP CAT 5 cables, however, it benefits from better quality cables
- The power connect feature and is 12V DC fed

### 4.1 Your WP-110 XGA Line Transmitter

The **WP-110** is available in three versions: US, Belgium and Germany, and UK and most of Europe (excluding Belgium and Germany), as defined in [Figure 3](#):

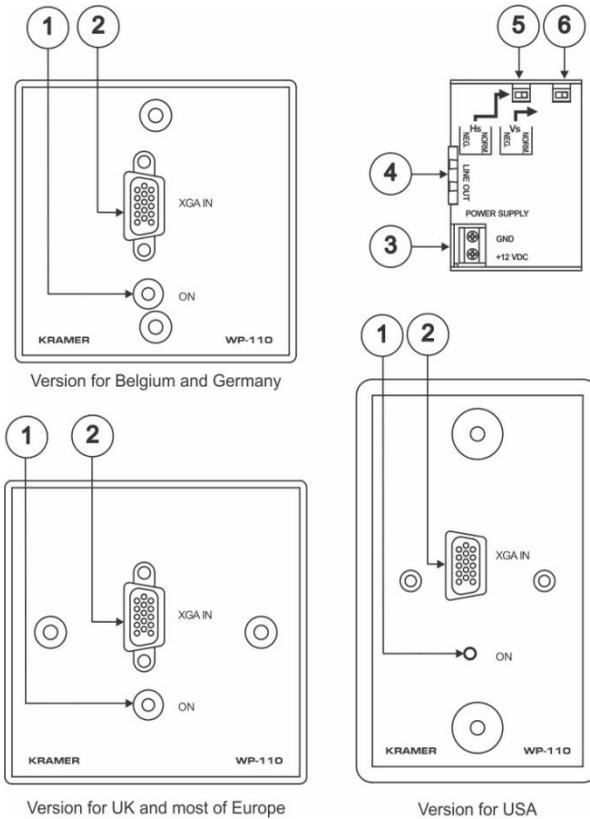


Figure 3: WP-110 XGA Line Transmitter

#	Feature	Function	
1	ON LED	Illuminates when receiving power	
2	XGA IN 15-pin HD (F) Connector	Connect to the XGA source	
3	POWER SUPPLY	GND PIN	Connect (-) to the Ground
		+12V DC PIN	Connect (+) to the connector for powering the unit
4	LINE OUT RJ-45 Connector	Connects to the LINE IN RJ-45 connector on the <b>PT-120xl</b> or <b>TP-120 XGA Line Receiver</b> Use a UTP cable with CAT 5 connectors at both ends (the PINOUT is defined in <a href="#">Figure 8</a> )	
5	HS Switch	Slide the switch to the left (by default, both switches are set to the right) to change the HS (horizontal sync) polarity to (NEG.) negative polarity (down-going syncs); slide the switch to the right (NORM.) to retain the polarity	
6	VS Switch	Slide the switch to the left to change the VS (vertical sync) polarity to (NEG.) negative polarity; slide the switch to the right (NORM.) to retain the polarity	

## 4.2 Installing the WP-110 XGA Line Transmitter

To install your **WP-110 XGA Line Transmitter**:

1. Connect the LINE OUT RJ-45 connector to the pre-installed UTP wiring in the wall box opening that connects via UTP cabling to the LINE IN RJ-45 connector of the **PT-120xl** or **TP-120**.
2. Connect your 12V DC power supply to the POWER SUPPLY pins, taking care that **polarity is correct**.  
Connect the wire labeled "+" to the +12V pin, and the wire labeled "-" to the GND pin.
3. Insert the **WP-110** directly into the wall box opening, and then mount the front panel securely using the screws.
4. Connect the XGA source to the XGA IN 15-pin HD (F) connector.

## 4.3 Connecting the WP-110 to the TP-120

To connect the **WP-110 XGA Line Transmitter** to the **TP-120 XGA Line Receiver**, as the example in [Figure 4](#) illustrates, do the following:

1. On the **WP-110**, connect the XGA source (for example, the 15-pin HD output from a computer's graphics card) to the XGA INPUT 15-pin HD (F) connector.
2. On the **TP-120**, connect the XGA OUT 15-pin HD (F) connector to the XGA acceptor (for example, a monitor).
3. Connect the LINE OUTPUT RJ-45 connector on the **WP-110** to the LINE IN RJ-45 connector on the **TP-120**, via UTP cabling (with a range of more than 300ft (>100m)).
4. On both the **WP-110** and the **TP-120**, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.  
The signal from the XGA source is transmitted via CAT 5 cable, decoded and converted at the XGA OUT 15-pin HD (F) connector to the XGA acceptor.  
For details of the power connect feature see [Section 2.4](#).
5. On the **TP-120**, using a screwdriver to carefully rotate the trimmer, adjust the output signal level and/or cable compensation equalization level, if required.

6. If necessary, set the H SYNC and V SYNC switches, on the underside of the **WP-110**.

By default, both switches are set for normal H SYNC and V SYNC polarity.

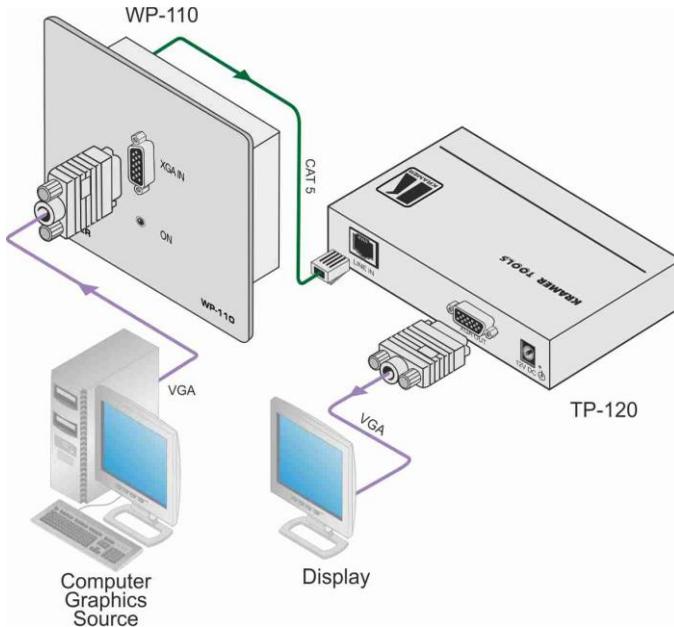


Figure 4: Connecting the WP-110 to a TP-120

## 5 PT-120xl XGA Line Receiver

The Kramer Pico TOOLS **PT-120xl** is an XGA line receiver that receives a coded CAT 5 signal transmitted by the **WP-110**, decodes it and converts it to an XGA output. In particular, the **PT-120xl** features:

- An operating range of up to 250m (820ft) using standard CAT 5 cable and the **PT-110xl**
- EQ. and level controls
- Power Connect and is 12V DC fed
- An increased level of protection against noise, spikes and interference in adverse environments when using an xl transmitter

### 5.1 Your PT-120xl XGA Line Receiver

[Figure 5](#) defines the **PT-120xl XGA Line Receiver**.

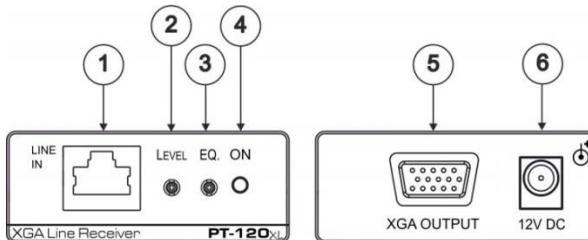


Figure 5: PT-120xl XGA Line Receiver

#	Feature	Function
1	LINE IN RJ-45 Connector	Connects to the <i>LINE OUT</i> RJ-45 connector on the <b>WP-110 XGA Line Receiver</b> Using a UTP cable with CAT 5 connectors at both ends (the PINOUT is defined in <a href="#">Figure 8</a> )
2	LEVEL Trimmer	Adjusts the output signal level Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level
3	EQ. Trimmer	Adjusts the cable compensation equalization level 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
4	ON LED	Illuminates when receiving power
5	XGA OUTPUT 15-pin HD (F) Connector	Connect to the XGA acceptor
6	12V DC	+12V DC connector for powering the unit

## 5.2 Connecting the PT-120xl XGA Line Receiver

To connect the **PT-110xl XGA Line Transmitter** to the **PT-120xl XGA Line Receiver**, as the example in [Figure 4](#) illustrates, do the following:

1. On the **PT-110xl**, connect the XGA source (for example, the 15-pin HD output from a computer's graphics card) to the XGA INPUT 15-pin HD (F) connector.
2. On the **PT-120xl**, connect the XGA OUT 15-pin HD (F) connector to the XGA acceptor (for example, a monitor).
3. Connect the LINE OUTPUT RJ-45 connector on the **PT-110xl** to the LINE IN RJ-45 connector on the **PT -120**, via UTP cabling (with a range of up to 300ft (100m)).
4. On both the **PT-110xl** and the **PT-120xl**, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.  
The signal from the XGA source is transmitted via CAT 5 cable, decoded and converted at the XGA OUT 15-pin HD (F) connector to the XGA acceptor.  
For details of the power connect feature see [Section 2.4](#).
5. On the **PT-120xl**, using a screwdriver to carefully rotate the trimmer, adjust the output signal level and/or cable compensation equalization level, if required.

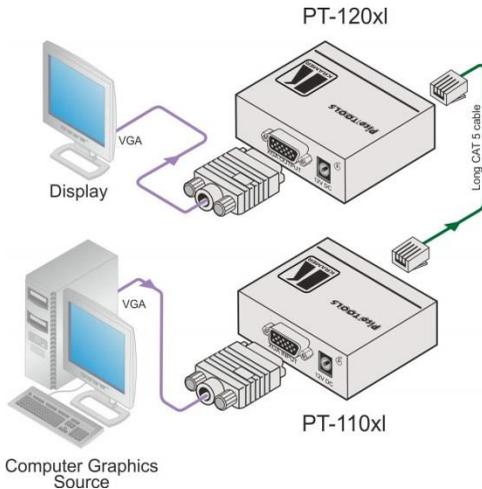


Figure 6: Connecting the PT-110xl to a PT-120xl

## 6 TP-120 XGA Line Receiver

The Kramer TOOLS **TP-120** is an XGA line receiver that receives a coded CAT 5 signal transmitted by the **WP-110**, decodes it and converts it to an XGA output. In particular, the **TP-120**:

- Has an operating range of more than 300ft (more than 100m) using standard CAT 5 cable and the **WP-110**
- Includes EQ. and level controls
- Has the power connect feature and is 12V DC fed

### 6.1 Your TP-120 XGA Line Receiver

[Figure 7](#) defines the **TP-120 XGA Line Receiver**.

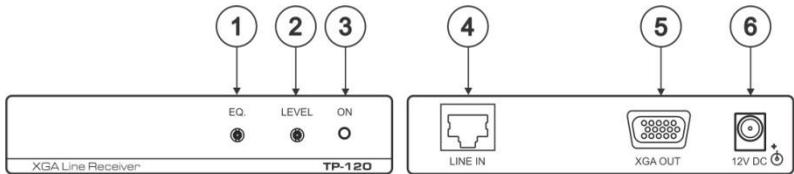


Figure 7: TP-120 XGA Line Receiver

#	Feature	Function
1	EQ Trimmer	Adjusts the cable compensation equalization level
2	LEVEL Trimmer	Adjusts the output signal level
3	ON LED	Illuminates when receiving power
4	LINE IN RJ-45 Connector	Connects to the LINE OUT RJ-45 connector on the WP-110 XGA Line Receiver
5	XGA OUT 15-pin HD (F) Connector	Connect to the XGA acceptor
6	12V DC	+12V DC connector for powering the unit

### 6.2 Connecting the TP-120 XGA Line Receiver

To connect the TP-120, refer to [Section 4.3](#).

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

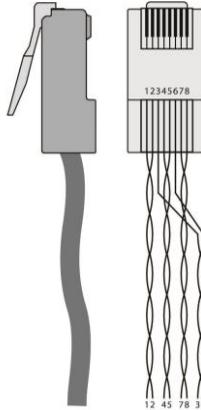
This section defines the CAT 5 pinout, using a straight pin-to-pin cable with RJ-45 connectors.



Note, that the cable ground shielding must be connected / soldered to the connector shield.

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

Figure 8: CAT 5 PINOUT



## 7 Technical Specifications

	WP-110	PT-110xl	PT-120xl	TP-120
INPUTS:	1 VGA/UXGA on a 15-pin HD connector	1 VGA / UXGA on a 15-pin HD connector	1 RJ-45 LINE IN connector	1 RJ-45 LINE IN connector
OUTPUTS:	1 RJ-45 LINE OUT connector	1 RJ-45 LINE OUTPUT connector	1 VGA / UXGA on a 15-pin HD connector	1 VGA / UXGA on a 15-pin HD connector
MAX. OUTPUT LEVEL:			1.3Vpp	1.4Vpp
RESOLUTION:	Up to UXGA	Up to WUXGA, 1080p	Up to WUXGA, 1080p	Up to UXGA
RANGE:	Over 100m (320ft)	Up to 250m (820ft)	Up to 250m (820ft)	More than 100m (320ft)
S/N RATIO:	Any pair, better than 70dB (worst case)			
CONTROLS:			Level: 0.7v to 1.3v, 300m; EQ: 300m @120MHz	Level: -7.5dB to +4.4dB, 130m, EQ: 0dB to +33dB @50MHz
COUPLING:	AC	AC	DC	AC
POWER CONSUMPTION/FUSE RECOMMENDATION:	12V DC, 285mA max.	12V DC, 285mA	12V DC, 350mA max.	12V DC, 300mA max.
OPERATING TEMPERATURE:	0° to +40°C (32° to 104°F)			
STORAGE TEMPERATURE:	-40° to +70°C (-40° to 158°F)			
HUMIDITY:	10% to 90%, RHL non-condensing			
DIMENSIONS:	USA: 6.9cm x 3.8cm x 11.4cm (2.72" x 1.5" x 4.5") W, D, H	6cm x 6.5cm x 2.5cm (2.36" x 2.56" x 1") W, D, H	6cm x 6.5cm x 2.5cm (2.36" x 2.56" x 1") W, D, H	12cm x 7.5cm x 2.5cm (4.7" x 0.98" x 2.95") W, D, H
	Belgium and Germany: 8cm x 3.8cm x 8cm (3.15" x 1.5" x 3.15") W, D, H			
	UK and most of Europe (excluding Germany and Belgium): 8.6cm x 3.8cm x 8.6cm (3.39" x 1.5" x 3.39") W, D, H			
WEIGHT:	0.14kg (0.31lbs) approx.	0.14kg (0.31lbs) approx.	0.14kg (0.31lbs) approx.	0.3kg (0.66lbs) approx.
ACCESSORIES:	Power supply			
OPTIONS:	19-inch rack adapters			
The power source was measured using a pair of units (transmitter and receiver). Specifications are subject to change without notice at <a href="http://www.kramerelectronics.com">http://www.kramerelectronics.com</a>				

## LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

### What is Covered

This limited warranty covers defects in materials and workmanship in this product.

### What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

### How Long Does this Coverage Last

Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

### Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

### What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

### What Kramer Electronics will not do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

### How to Obtain a Remedy under this Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, please visit our web site at [www.kramerelectronics.com](http://www.kramerelectronics.com) or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

### Limitation on Liability

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CE



**SAFETY WARNING**

Disconnect the unit from the power supply before opening and servicing

P/N: 2900-300338



Rev: 3

