



KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

TP-122N

XGA/Audio Line Receiver

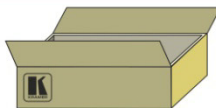
P/N: 2900-300042 Rev 1

TP-122N Quick Start Guide

This page guides you through a basic installation and first-time use of your TP-122N. For more detailed information, see the **TP-122N User Manual**. You can download the latest manual at <http://www.kramerelectronics.com>.

Step 1: Check what's in the box

- TP-122N XGA/Audio Line Receiver
- 1 Power supply (12V DC)
- 4 Rubber feet
- 1 Quick Start sheet
- 1 User Manual



Save the original box and packaging in case your product needs to be returned to the factory for service.

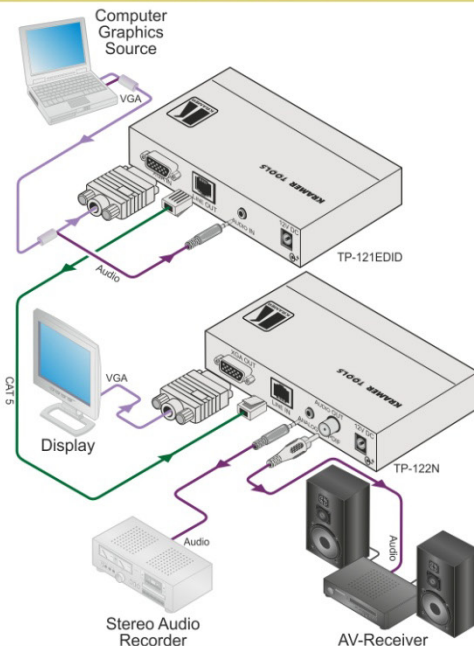
Step 2: Install the TP-122N

Mount the machine in a rack (using the RK-3T rack adapter) or place on a table.

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your TP-122N.

1. Connect the sources to the transmitter (**TP-121EDID**).
2. Connect the Receiver (**TP-122N**) to the acceptors.
3. Connect the LINE output RJ-45 connector on the transmitter to the LINE IN RJ-45 connector on the receiver.



Always use Kramer high-performance cables for connecting AV equipment to the TP-122N.

Step 4: Connect the power

Connect the power to the receiver or transmitter or to both (depending on the distance between them).



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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 that are clearly defined by function: 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 and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **TP-122N** XGA/Audio Line Receiver. This product is ideal for:

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

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



Go to <http://www.kramerelectronics.com> 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 to avoid 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 that may adversely influence signal quality
- Position your Kramer **TP-122N** away from moisture, excessive sunlight and dust



Caution: 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

3 Overview

The Kramer **TP-122N** is an XGA/audio line receiver that receives the coded CAT 5 signal transmitted by a **TP-121EDID XGA / Audio Line Transmitter**, for example, decodes it and converts it to XGA, stereo analog and S/PDIF digital audio outputs. The **TP-122N**, with the **TP-121EDID** transmitter, allows an operation range of more than 300ft (more than 100m) over standard CAT 5 cable.

The **TP-122N**:

- Is HDTV Compatible
- Has a maximum resolution of WUXGA and 1080p
- Includes EQ. and level controls
- Can power or be powered by the transmitter over the same CAT 5 cable when the devices are within 50m (150ft) of each other
- Is 12V DC fed

The **TP-122N** is housed in compact TOOLS[®] enclosure where three units can be rack mounted side-by-side in a 1U rack space with the optional **RK-3T** rack adapter.

3.1 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.

3.2 About the Power Connect™ Feature

The Power Connect feature applies as long as the cable can carry power. This feature is available when using STP cable and the distance does not exceed 50m on standard CAT 5 cable. For longer distances, heavy gauge cable should be used (CAT 5 cable is still suitable for the video/audio transmission, but not for feeding the power at these distances). For units which are connected via RJ-45 connectors, make sure that the shield of the STP cable is connected to the metal casing of the connectors on both ends of the cable. For units which are connected via terminal block connectors, the shield of the STP cable must be connected to a ground terminal on the units at both ends (use the ground terminal of the power supply connection if necessary).

For a CAT 5 cable exceeding a distance of 50m, separate power supplies should be connected to the transmitter and to the receiver simultaneously.

3.3 Defining the TP-122N XGA/Audio Line Receiver

This section defines the **TP-122N**.

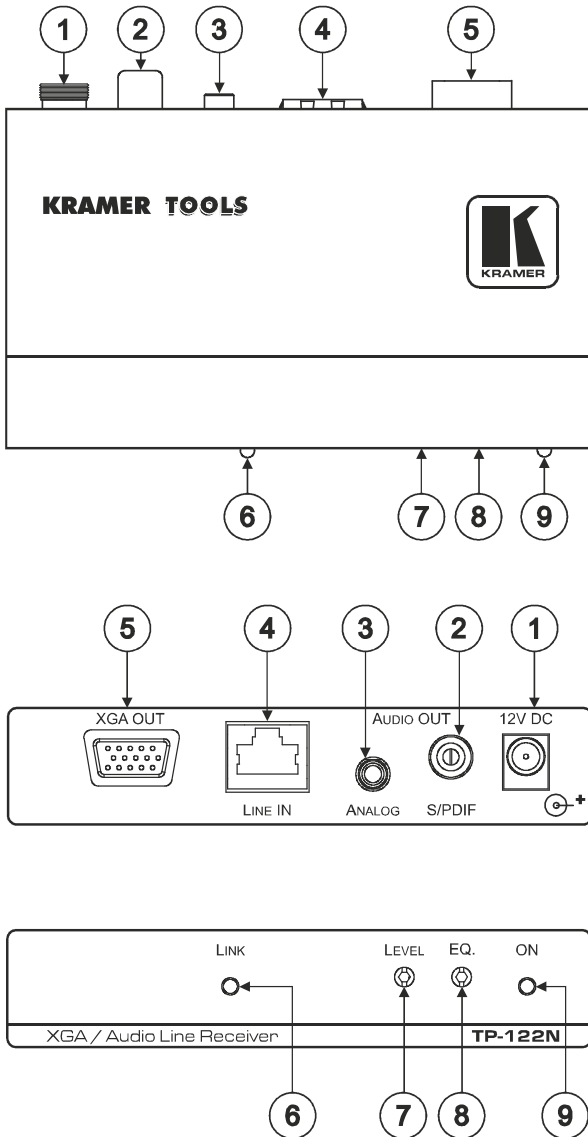


Figure 1: TP-122N XGA/Audio Line Receiver

#	Feature		Function
1	12V DC		+12V DC connector for powering the unit
2	AUDIO OUT	S/PDIF RCA Connector	Connects to the digital audio acceptor
3		ANALOG 3.5mm mini Jack	Connects to the analog audio acceptor
4	LINE IN RJ-45 Connector		Connects to the TP-121EDID or the TP-104 (that does not accept the audio signals) Connect via a UTP CAT 5 cable with RJ-45 connectors at both ends (the PINOUT is defined in Section 4.1)
5	XGA OUT 15-pin HD (F) Connector		Connects to the XGA acceptor
6	LINK LED		Illuminates when receiving the correct input signal
7	LEVEL Trimmer		Adjusts the output signal level Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level
8	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 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level
9	ON LED		Illuminates when receiving power

4 Connecting the TP-122N XGA/Audio Line Receiver

You can use the **TP-121EDID** and **TP-122N** to configure an XGA/Audio Line-to-Twisted Pair Transmitter and Receiver system.

To connect the **TP-121EDID XGA/Audio Line Transmitter** with the **TP-122N XGA/Audio Line Receiver**, as the example in [Figure 2](#) illustrates, do the following:

1. On the **TP-121EDID**, connect the XGA source (for example, a laptop's graphics card) to the XGA INPUT 15-pin HD (F) connector and an audio source to the AUDIO IN 3.5mm mini jack, for example, using a Kramer C-GMA/GMA cable (VGA 15-pin HD (M) +Audio jack to VGA 15-pin HD (M) +Audio jack).
2. On the **TP-122N**, connect the XGA OUT 15-pin HD (F) connector to the XGA acceptor (for example, a display), and connect the AUDIO OUT S/PDIF RCA connector to the digital audio acceptor (for example, an AV Receiver), and the ANALOG 3.5mm mini jack to the analog audio acceptor (for example, a stereo audio recorder).
3. Connect the LINE OUTPUT RJ-45 connector on the **TP-121EDID** to the LINE IN RJ-45 connector on the **TP-122N**, via UTP cabling (with a range of more than 300ft (>100m)), see [Section 4.1](#).
4. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity on both the **TP-121EDID** and the **TP-122N**. 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.
If you cannot connect the power to both the **TP-121EDID** and **TP-122N**, you can just connect the power to the **TP-122N**.
5. On the **TP-122N** adjust the video output signal level and/or cable compensation equalization level, if required.
Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

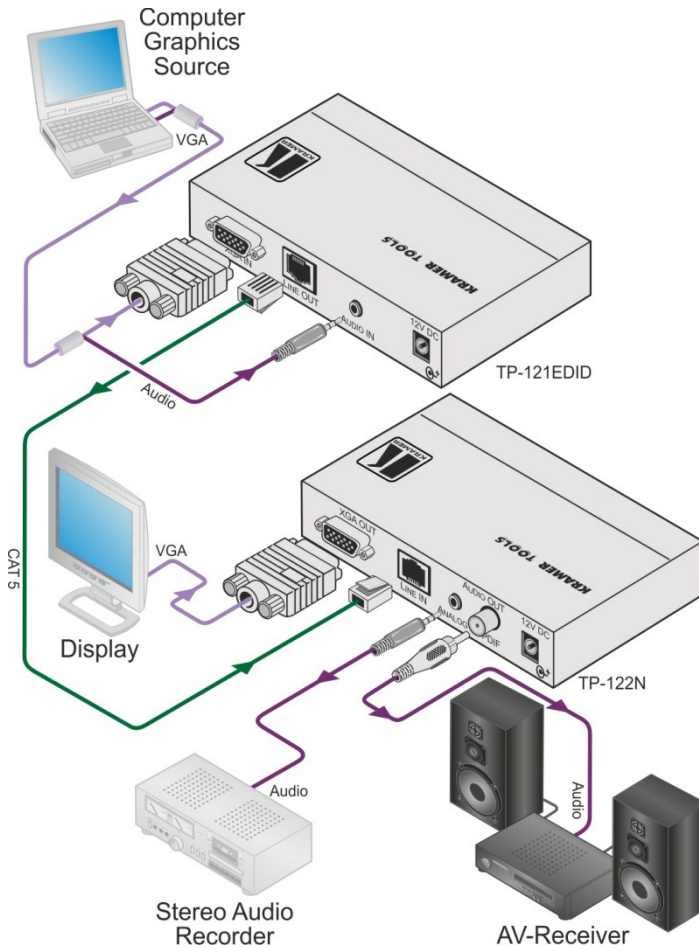


Figure 2: Connecting the XGA/Audio Line Transmitter/Receiver System

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

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
Pairing	
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
Pairing	
Pair 1	4 and 5
Pair 2	1 and 2
Pair 3	3 and 6
Pair 4	7 and 8

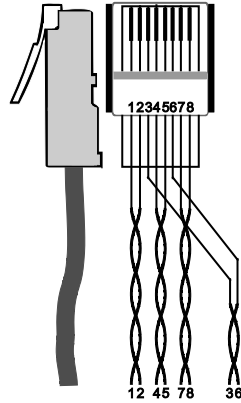


Figure 3: CAT 5 PINOUT

5 Technical Specifications

INPUT:	1 RJ-45 LINE IN connector
OUTPUTS:	VIDEO: 1 VGA/UXGA on a 15-pin HD connector AUDIO: 1 audio S/PDIF RCA connector; 1 audio ANALOG 3.5mm mini jack
MAX. OUTPUT LEVEL:	VIDEO: 1V; AUDIO: 2.5V
CONTROLS:	Level: -7.5dB to +4.4dB, EQ.: 0dB to +33dBm (130m) @ 50MHz
BANDWIDTH (-3dB):	AUDIO: 20Hz to 20kHz @0.5dB For the Transmitter/Receiver pair
S/N RATIO:	VIDEO: 58dB unweighted, 68.3dB @5MHz weighted AUDIO: <-80dB
TOTAL GAIN:	AUDIO: Analog/analog: 0dB; Analog/SPDIF: -12dBFS
COUPLING:	AC
TND+N:	AUDIO: <0.01%
POWER SOURCE:	12V DC 190mA (TP-122N) 12V DC 540mA (TP-121EDID/TP-122N pair when powered from TP-121EDID via Power Connect) 12V DC 390mA (TP-121EDID/TP-122N pair when powered from TP-122N via Power Connect)
DIMENSIONS:	12.1cm x 7.18cm x 2.42cm (4.76" x 2.83" x 0.95") W, D, H
WEIGHT:	0.3kg (0.67lbs) approx.
ACCESSORIES:	Power supply
OPTIONS:	RK-3T 19" rack adapter, C-GMA/GMA cable (VGA 15-pin HD (M) +Audio jack to VGA 15-pin HD (M) +Audio jack)
Specifications are subject to change without notice Go to our Web site at http://www.kramerelectronics.com to access the list of resolutions	

LIMITED WARRANTY

We warrant 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 us 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, 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)



For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

Web site: www.kramerelectronics.com

E-mail: info@kramerel.com



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing