



KRAMER ELECTRONICS LTD.

USER MANUAL

MODELS:

711N

Video-Audio Line Transmitter

712N

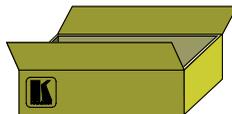
Video-Audio Line Receiver

711N/712N Quick Start Guide

This page guides you through a basic installation and first-time use of your **711N, 712N**. For more detailed information, see the **711N, 712N** user manual. You can download the latest manual at <http://www.kramerelectronics.com>.

Step 1: Check what's in the box

- ✓ The **711N, 712N**
- ✓ 1 power adapter (12V DC)
- ✓ 1 Quick Start sheet
- ✓ 1 User Manual



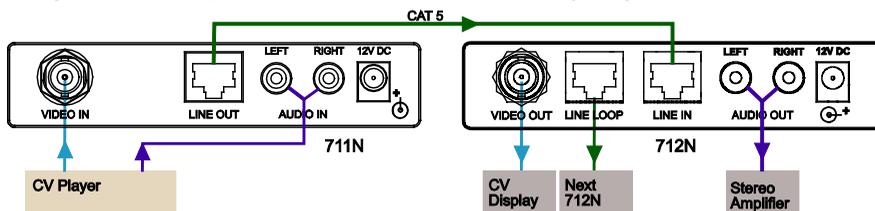
Save the original box and packaging materials in case your Kramer product needs to be returned to the factory for service.

Step 2: Install the 711N/712N

Place the units on a table or mount the machines in a rack (using the **RK-T1** or **RK-T3** rack adapter).

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **711N, 712N**.



For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the **711N, 712N**.

Step 4: Connect the power

Connect the 12V DC power adapter(s) to the **711N** and/or **712N** and plug the adapter(s) into the mains electricity.



Step 5: Operate the 711N, 712N

The **711N** transmitter converts composite video and stereo audio to a twisted pair signal and the **712N** receiver converts the twisted pair signal back into composite video and stereo audio signals.

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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 **711N**, *Video-Audio Line Transmitter* and/or **712N**, *Video-Audio Line Receiver*, which are ideal for the following typical applications:

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

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
- Use only the power cord that is supplied with this machine



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 products 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 **711N** and **712N** are a twisted pair transmitter and receiver for composite video and unbalanced stereo audio signals. The **711N** transmitter converts composite video and stereo audio to a twisted pair signal and the **712N** receiver converts the twisted pair signal back into composite video and stereo audio signals.

The **711N/712N** feature:

- A maximum bandwidth of 85MHz
- LINE IN, LINE LOOP and LINE OUT on RJ-45 connectors
The 712N LINE IN can be looped to add an additional output and includes a selectable input signal termination push button
- A system range of up to 400 meters (1200 feet)
- Level (GAIN) and equalization (EQ) controls (on the 712N)

The **711N/712N** are part of the Kramer TOOLS™ family of compact high-quality and cost effective solutions, and are fed from an external 12V DC source, making them suitable for field operation.

3.1 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. 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.

CAT 5 cable is still suitable for the video/audio transmission, but not for feeding the power at these distances

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

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. Our non-skew-free cable, Kramer **BC-STP** is intended for analog signals where skewing is not an issue. For cases where there is skewing, our UTP skew-free cable, Kramer **BC-XTP**, may be used. Bear in mind, though, that we advise using STP cables where possible, since the compliance to electromagnetic interference was tested using those cables.

Although Unshielded Twisted Pair (UTP) cable might be preferred for long range applications, the UTP cable should be installed far away from electric cables, motors and so on, which are prone to create electrical interference.

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

4 Defining the 711N/712N Video-Audio Line Transmitter/Receiver

This section defines the:

- **711N Video-Audio Line Transmitter** (see [Section 4.1](#))
- **712N Video-Audio Line Receiver** (see [Section 4.2](#))

4.1 Your 711N Video-Audio Line Transmitter

[Figure 1](#) defines the **711N Video-Audio Line Transmitter**:

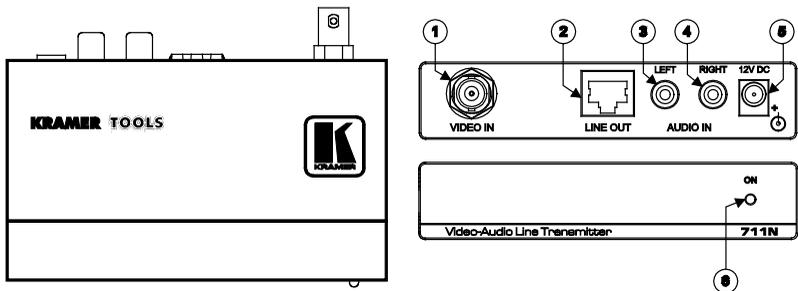


Figure 1: 711N Video-Audio Line Transmitter

#	Feature	Function	
1	VIDEO IN BNC Connector	Connect to composite video source	
2	LINE OUT CAT 5 Connector	Connect to the LINE IN RJ-45 connector on the 712N	
3	AUDIO IN	LEFT RCA connector	Connect to the left unbalanced stereo audio source
4		RIGHT RCA Connector	Connect to the right unbalanced stereo audio source
5	12V DC	+12V DC connector for powering the unit	
6	ON LED	Lights when receiving power from the 712N , or directly from the power adapter	

4.2 Your 712N Video-Audio Line Receiver

Figure 2 defines the 712N Video-Audio Line Receiver.

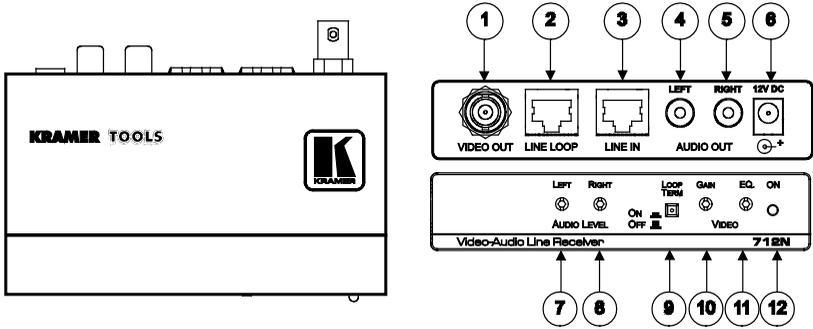


Figure 2: 712N Video-Audio Line Receiver

#	Feature	Function	
1	VIDEO OUT BNC Connector	Connect to the composite video acceptor	
2	LINE LOOP CAT 5 Connector	Connect to the LINE IN RJ-45 connector of an additional receiver to increase the number of outputs	
3	LINE IN CAT 5 Connector	Connect to the LINE OUT RJ-45 connector of the 711N	
4	AUDIO OUT	LEFT RCA Connector	Connect to the left unbalanced stereo audio acceptor
5		RIGHT RCA Connector	Connect to the right unbalanced stereo audio acceptor
6	12V DC	+12V DC connector for powering the unit	
7	AUDIO LEVEL	LEFT Trimmer	Turn to adjust the left audio signal level
8		RIGHT Trimmer	Turn to adjust the right audio signal level
9	LOOP TERM	Push Button	When pressed in, terminates unit (not looped)
10	VIDEO	GAIN Trimmer	Turn to adjust the output video signal level Insert a screwdriver into the hole and carefully rotate it, to trim the level
11		EQ. Trimmer	Turn to adjust the output video signal equalization
12	ON LED	Lights when receiving power	

5 Connecting the 711N and the 712N



Always switch off the power to each device before connecting it to your **711N/712N**. After connecting your **711N/712N**, connect its power and then switch on the power to each device.

You can use the **711N** and **712N** to configure a *Video-Audio* Transmitter and Receiver system.

To connect the **711N** *Video-Audio Line Transmitter* with the **712N** *Video-Audio Line Receiver*, as illustrated in the example in [Figure 3](#), do the following:

1. Connect a composite video source (for example, a composite video player) to the VIDEO IN BNC connector on the **711N**, and connect an unbalanced stereo audio source to the AUDIO IN RIGHT and LEFT RCA connectors.
2. On the **712N**, connect the VIDEO OUT BNC connector to a composite video acceptor (for example, a display).
3. Connect the LINE OUT connector of the **711N** to the LINE IN connector of the **712N**, via UTP cabling.
4. If an additional output is required, connect the LINE LOOP connector on the **712N** to the LINE IN connector of an additional **712N** unit, via UTP cabling.
By connecting the LINE LOOP connector of the additional 712N to the LINE IN connector of a third 712N, you can further increase the number of outputs
5. On each **711N** / **712N** unit, connect a 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
See section [3.1](#) for the power connect feature
6. If required, on the **712N**, adjust the VIDEO GAIN and EQ. levels, by inserting a screwdriver into each of the small holes and carefully rotating them.

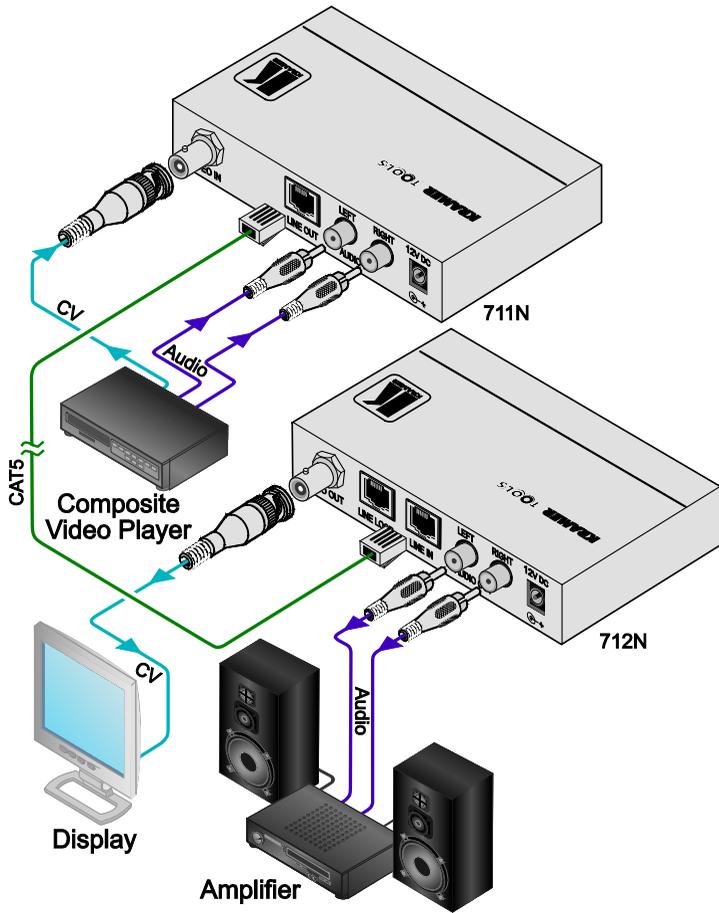


Figure 3: Connecting the Video-Audio Line Transmitter / Receiver System

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

Figure 4 defines the UTP CAT 5 PINOUT, using a straight pin to pin cable with RJ-45 connectors:

Feature	
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

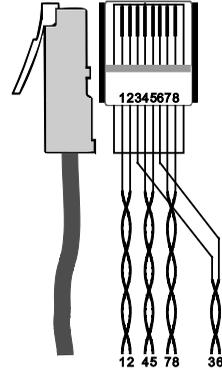


Figure 4: CAT 5 PINOUT

6 Technical Specifications

	711N	712N
INPUT:	1 composite video 1Vpp/75Ω, on a BNC connector; 1 stereo unbalanced audio 4dBm/50kΩ, on two RCA connectors	1 RJ-45 CAT-5 shielded connector (LINE IN)
OUTPUT:	1 RJ-45 CAT-5 shielded connector (LINE OUT)	1 composite video 1Vpp/75Ω, on a BNC connector; 1 stereo unbalanced audio 4dBm/50kΩ, on two RCA connectors
VIDEO MAX. SIGNAL LEVEL:	2.8Vpp	
AUDIO MAX. SIGNAL LEVEL:	7.6Vpp	
VIDEO BANDWIDTH (-3dB):	85MHz	
AUDIO BANDWIDTH (-3dB):	>100kHz	
DIFF. GAIN:	0.04%	
DIFF. PHASE:	0.25Deg.	
K-FACTOR:	0.1%	
VIDEO S/N RATIO:	75dB	
AUDIO S/N RATIO:	77dB	
AUDIO CROSSTALK (all hostile)	-53dB @ 5MHz, video into audio	
CONTROLS		LEVEL: -1.3dB to +6.3dB EQ @ 30MHz: 0dB to +3.7dB
VIDEO COUPLING:	DC	
AUDIO COUPLING:	Input: AC; line output: DC	DC for both line input and output
AUDIO THD + NOISE:	0.026%, 1kHz	
AUDIO 2nd HARMONIC:	0.001% @ 1kHz	
POWER SOURCE:	12V DC 50mA, when 712N is fed by an independent 12V supply; 135mA when feeding 712N	12V DC 45mA, when 711N is fed by an independent 12V supply
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)	
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)	
HUMIDITY:	10% to 90%, RHL non-condensing	
DIMENSIONS:	12cm x 7.15cm x 2.76cm (4.7" x 2.8" x 1.08"), W, D, H	
WEIGHT:	0.3 kg. (0.67 lbs.) approx. (each)	
ACCESSORIES:	Power supply, mounting bracket (each)	
OPTIONS:	RK-T1, RK-T3, 19 inch rack adapters	
Specifications are subject to change without notice For the most updated resolution list, go to our Web site at http://www.kramerelectronics.com		

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

CE



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing