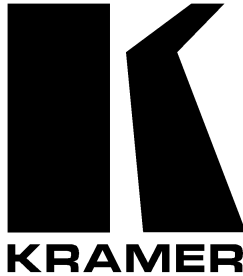


Kramer Electronics, Ltd.



USER MANUAL

Models:

711N, Video-Audio Line Transmitter

712N, Video-Audio 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 Groups¹, which are clearly defined by function.

Congratulations on purchasing your Kramer **711N**, *Video-Audio Line Transmitter* and/or **712N**, *Video-Audio Line Receiver*, which are ideal for:

- 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

The package includes:

- **711N** or **712N**
- Power adapter (12V DC Input) and this user manual²

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 cables³

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>

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 maximal bandwidth of 85MHz
- A LINE IN, LINE LOOP¹ and LINE OUT on RJ-45 connectors
- 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.

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 About the Power Connect Feature

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.

¹ The 712N LINE IN can be looped to add an additional output and includes a selectable input signal termination push button

3.2 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 may be preferred because it provides better protection from interference (degradation is non-apparent).

For a long-range application, unshielded twisted pair (UTP) cable is preferred. However, the unshielded twisted pair (UTP) cable should be installed further away from electric cables, motors etc., which are prone to create electrical interference.

4 Your 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, Figure 2 and Table 1 define the **711N** Video-Audio Line Transmitter:

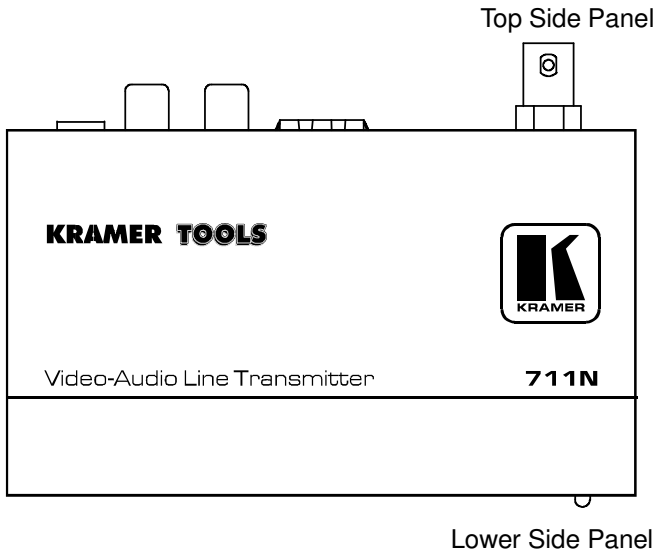


Figure 1: 711N Video-Audio Line Transmitter

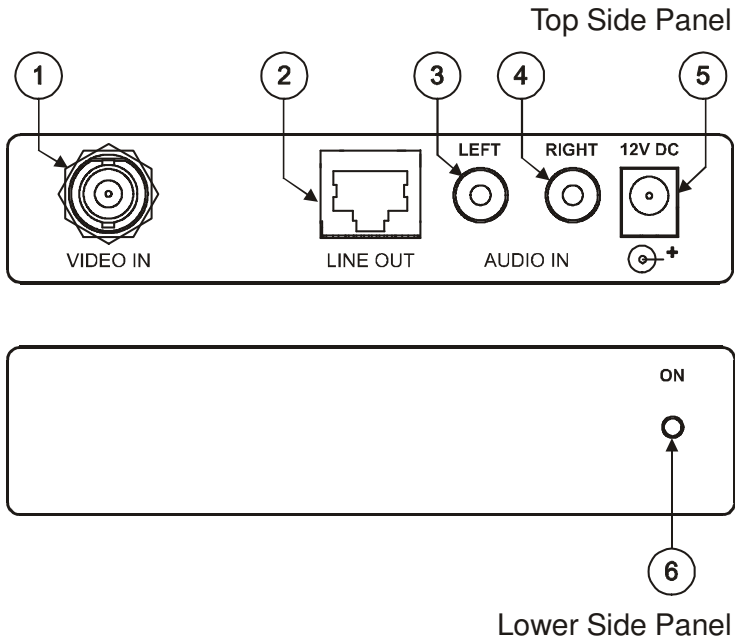


Figure 2: 711N Video-Audio Line Transmitter – Top and Lower Side Panels

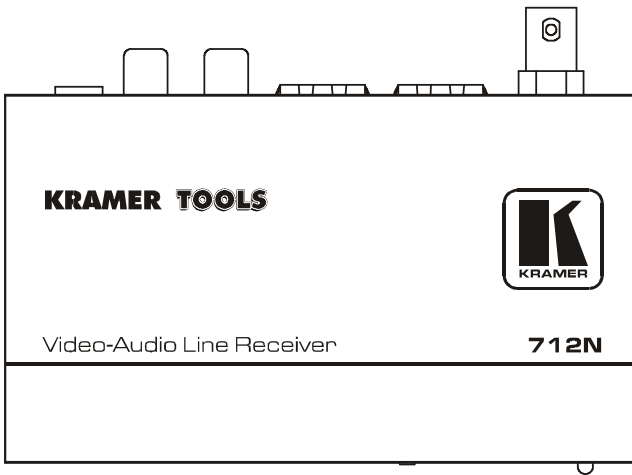
Table 1: 711N Video-Audio Line Transmitter Features

#	Feature	Function	
1	VIDEO IN BNC Connector	Connect to composite video source	
2	LINE OUT CAT5 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 3, Figure 4 and Table 2 define the **712N Video-Audio Line Receiver**:

Top Side Panel



Lower Side Panel

Figure 3: 712N Video-Audio Line Receiver

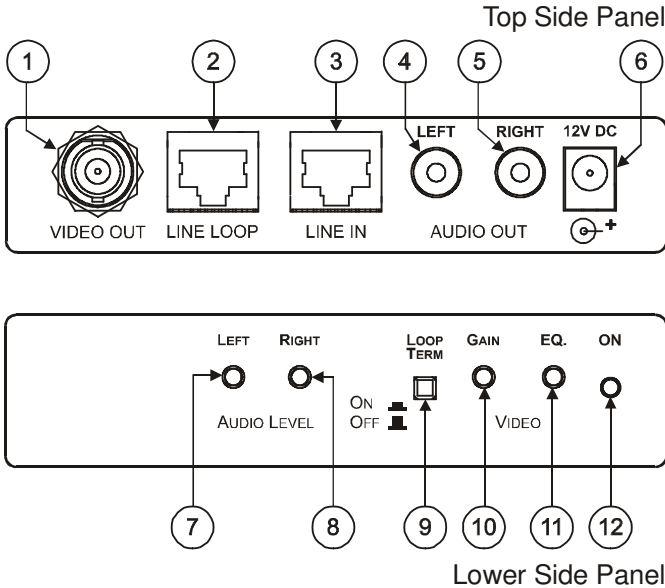


Figure 4: 712N Video-Audio Line Receiver – Top and Lower Side Panels

Table 2: 712N Video-Audio Line Receiver Features

#	Feature	Function	
1	VIDEO OUT BNC Connector	Connect to the composite video acceptor	
2	LINE LOOP CAT5 Connector	Connect to the LINE IN RJ-45 connector of an additional receiver to increase the number of outputs	
3	LINE IN CAT5 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, terminates the unit (not looped)	
10	VIDEO	GAIN Trimmer	Turn to adjust the output video signal level ¹
11		EQ. Trimmer	Turn to adjust the output video signal equalization ¹
12	ON LED	Lights when receiving power	

5 Connecting the 711N and the 712N

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 5, 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 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** unit², via UTP cabling.
5. On each **711N / 712N** unit, connect a 12V DC power adapter³ to the power socket and connect the adapter to the mains electricity.

¹ Insert a screwdriver into the hole and carefully rotate it, to trim the level

² 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

³ 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.

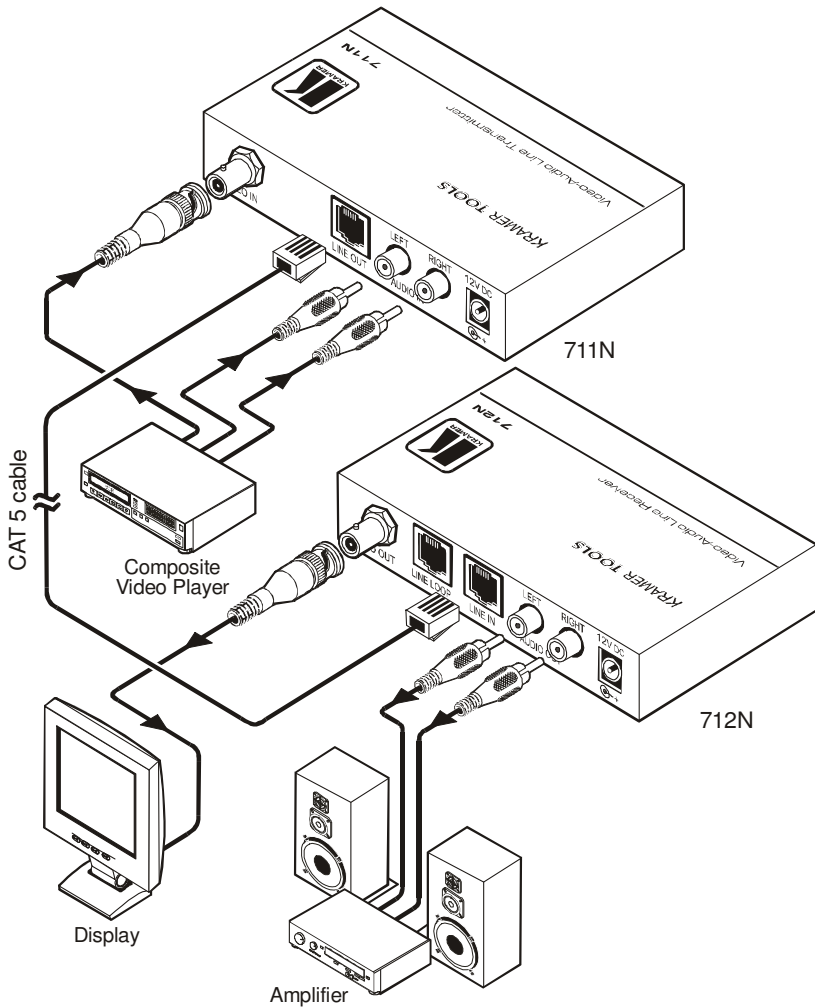


Figure 5: Connecting the Video-Audio Line Transmitter / Receiver System

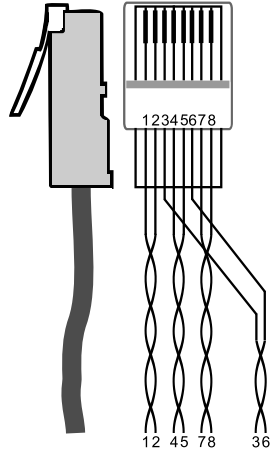
5.1 Wiring the CAT 5 LINE IN / LINE OUT RJ-45 Connectors

Table 3 and Figure 6 define the CAT 5 PINOUT, using a straight pin-to-pin cable with RJ-45 connectors:

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 Specifications¹

Table 4 includes the technical specifications of the **711N**, and the **712N**²:

Table 4: Technical Specifications of the 711N and the 712N

	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:	0.25 Deg.	
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:	12 VDC 50mA, when 712N is fed by an independent 12V supply; 135mA when feeding 712N	12 VDC 45mA, when 711N is fed by an independent 12V supply
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	

¹ Specifications are subject to change without notice

² Specifications for 100m of CAT5 UTP cable, unless otherwise specified

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.



Caution

Safety Warning:

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



Kramer Electronics, Ltd.

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