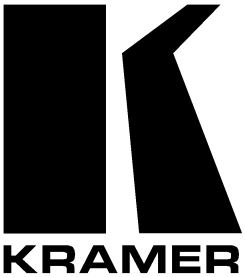
# Kramer Electronics, Ltd.




# USER MANUAL

## Models:

**707,** ***Video Audio Line Transmitter***

**708,** ***Video Audio Line Receiver***

**709,** ***Y/C Line Transmitter***

**710,** ***Y/C Line Receiver***

**711xl,** ***Video-Audio Line Transmitter***

**712xl,** ***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 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer: **707**, *Video Audio Line Transmitter* and/or **708**, *Video Audio Line Receiver*, and/or **709**, *Y/C Line Transmitter* and/or **710**, *Y/C Line Receiver*, and/or **711xl**, *Video-Audio Line Transmitter* and/or **712xl**, *Video-Audio Line Receiver*.

The **707 / 708**, the **709 / 710**, and the **711xl / 712xl** 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 one or more of the following Kramer products:

- **707**, **708**, **709**, **710**, **711xl**, or **712xl**
- Power adapter (12V DC Input) and this user manual[2]

# 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[3]

## 2.1 Quick Start

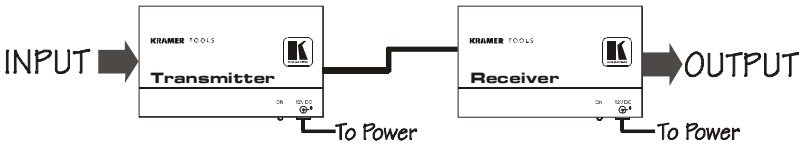
This quick start chart summarizes the basic setup and operation steps.

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

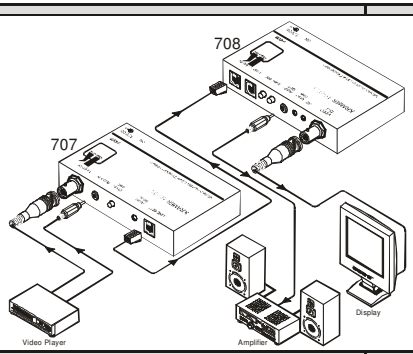
2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

## Step 1: Connect the Transmitter / Receiver System



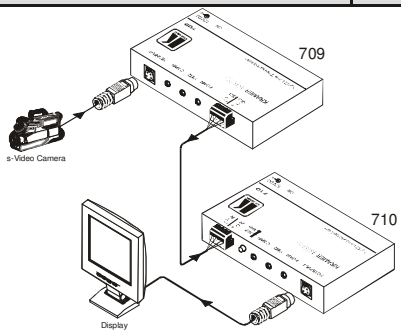

### 707 / 708




Adjust the:
- Audio level (707)
- Video gain and equalization (708)

Options:
- Loop an additional 708
- Invert polarity (708)

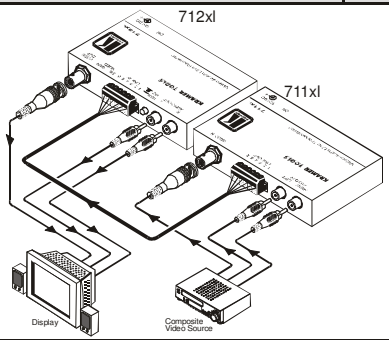
### 709 / 710




Adjust the:
- Y gain, the C gain and the equalization

Options:
- Loop an additional 710

### 711xl / 712xl




Adjust the:
- Video gain and equalization (712xl)

Options:
- Loop an additional 712xl

# 3 Overview

This manual describes the:

- The **707** *Video Audio Line Transmitter* and the **708** *Video Audio Line Receiver* (see section 4)
- The **709** *Y/C Line Transmitter* and the **710** *Y/C Line Receiver* (see section 5)
- The **711xl** *Video-Audio Line Transmitter* and the **712xl** *Video-Audio Line Receiver* (see section 6)

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 products away from moisture, excessive sunlight and dust

**Caution** – No operator-serviceable parts inside unit.

**Warning** – Use only the Kramer Electronics input power wall adapter that is provided with this unit[1].

**Warning** – Disconnect power and unplug unit from wall before installing or removing device or servicing unit.

1 For example: model number AD2512C, part number 2535-000251

# 4 The 707 and 708 Video Audio Line Transmitter and Receiver

This section describes:

- The **707** (see section 4.1)
- The **708** (see section 4.2)
- How to connect the **707**/**708** Video Audio Line Transmitter/Receiver (see section 4.3)

The **707** and **708** are a twisted pair transmitter and receiver for composite video and unbalanced mono audio signals. The **707** transmitter converts a composite video and audio signal to a twisted pair signal and the **708** receiver converts the twisted pair signal back into composite video and audio signals.

The **707** and the **708** feature a bandwidth of 58MHz, RJ-11 twisted pair connections and a system range of up to 1000m (more than 3000ft).

In addition, the **707** features:

- Audio level control
- A selectable line or condenser microphone input

The **708** includes:

- Level (VIDEO GAIN) and equalization (EQ) controls
- A looping input
- A selectable input signal termination button
- A polarity inverter switch that inverts the incoming polarity

## 4.1 Your 707 Video Audio Line Transmitter

Figure 1 and Table 1 define the **707**:

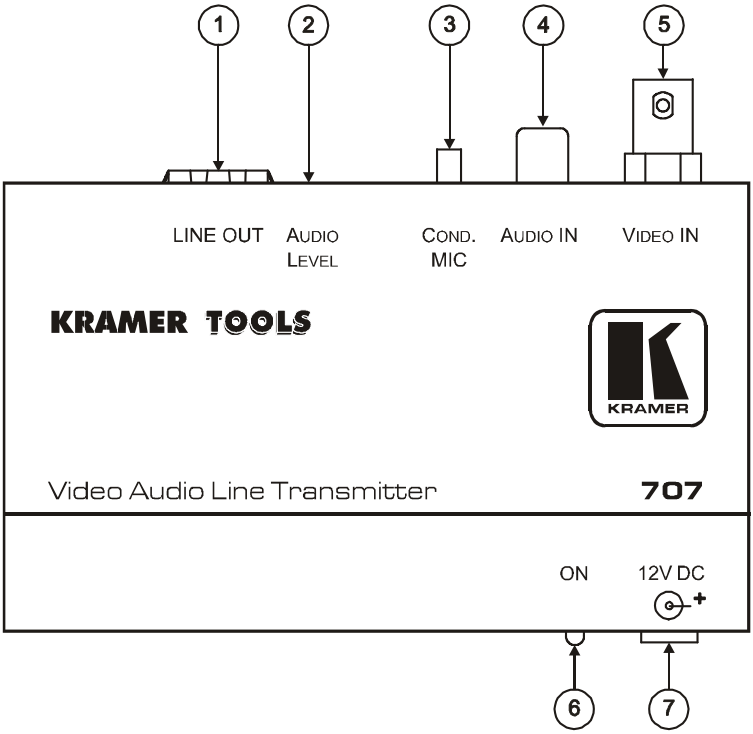



*Figure 1: 707 Video Audio Line Transmitter*

*Table 1: 707 Video Audio Line Transmitter Features*

| # | Feature | Function |
|---|---|---|
| 1 | *LINE OUT* RJ-11 Connector | Connect to the LINE IN connector of the **708** |
| 2 | *AUDIO LEVEL* Trimmer | Turn to adjust the audio level[1] |
| 3 | *COND. MIC* Push Button | Press to provide power to the microphone[2] |
| 4 | AUDIO *IN* RCA Connector | Connect to the unbalanced mono audio source |
| 5 | *VIDEO IN* BNC Connector | Connect to the composite video source |
| 6 | *ON* LED | Lights when receiving power |
| 7 | *12V DC* | +12V DC connector for powering the unit |

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

2 Press this button when a condenser microphone is used with the 707. For other audio sources, you do not need to press this button

## 4.2 Your 708 Video Audio Line Receiver

Figure 2 and Table 2 define the **708**:

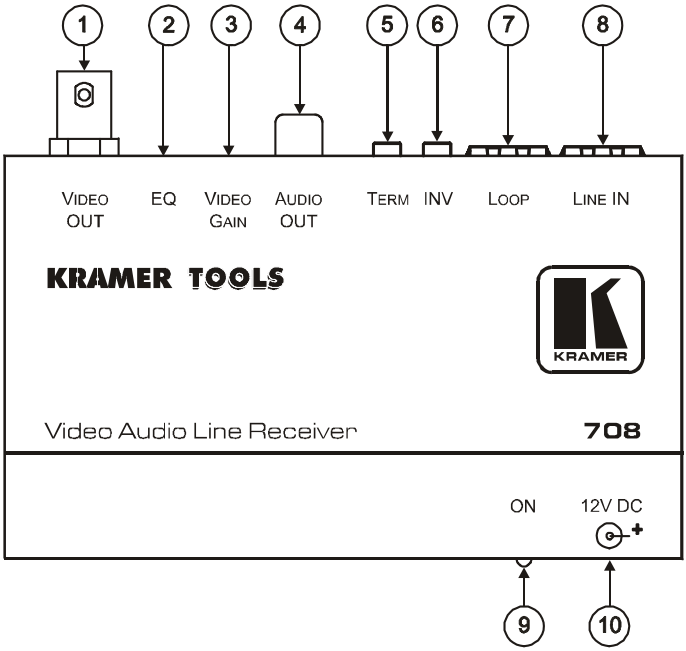



*Figure 2: 708 Video Audio Line Receiver*

*Table 2: 708 Video Audio Line Receiver Features*

| # | Feature | Function |
|---|---|---|
| 1 | *VIDEO OUT* BNC Connector | Connect to the composite video acceptor |
| 2 | *EQ* Trimmer | Turn to adjust the output signal level[1] |
| 3 | *VIDEO GAIN* Trimmer | Turn to adjust the output signal equalization[1] |
| 4 | AUDIO *OUT* RCA Connector | Connect to the unbalanced mono audio acceptor |
| 5 | *TERM* Push Button | When pressed, terminates the unit that is the last in the line (not looped) |
| 6 | *INV* Push Button | When pressed, inverts the incoming video signal |
| 7 | *LOOP* RJ-11 Connector | Connect to the LINE IN terminal block of an additional **708** to increase the number of outputs |
| 8 | *LINE IN* RJ-11 Connector | Connect to the LINE OUT connector of the **707** |
| 9 | *ON* LED | Lights when receiving power |
| 10 | *12V DC* | +12V DC connector for powering the unit |

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

## 4.3 Connecting the 707/708 Video Audio Line Transmitter/Receiver

You can use the **707** and **708** to configure a video audio line transmitter and receiver system.

To connect the **707** *Video Audio Line Transmitter* with the **708** *Video Audio Line Receiver*, as illustrated in the example in Figure 3, do the following:

1. Connect a composite video source (for example, a video player) to the VIDEO IN BNC connector of the **707**.
2. Connect an unbalanced mono audio source (for example, the audio output of the video player[1]) to the AUDIO IN RCA connector of the **707**.
3. Connect the VIDEO OUT BNC connector of the **708** to a composite video acceptor (for example, a display).
4. Connect the AUDIO OUT RCA connector of the **708** to an unbalanced mono audio acceptor (for example, an amplifier with speakers).
5. Connect the LINE OUT RJ-11 connector of the **707** to the LINE IN RJ-11 connector of the **708**, via twisted pair cabling.
6. If required, connect the LOOP RJ-11 connector to the LINE IN RJ-11 connector of an additional **708** unit.
7. On each **707 / 708** unit, connect a 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not illustrated in Figure 3).
8. If required, adjust the AUDIO LEVEL on the **707** and the EQ (equalization) and VIDEO GAIN levels on the **708**, by inserting a screwdriver into each of the small holes and carefully rotating them.

1 Alternatively, you can connect a condenser microphone and press the COND. MIC push button

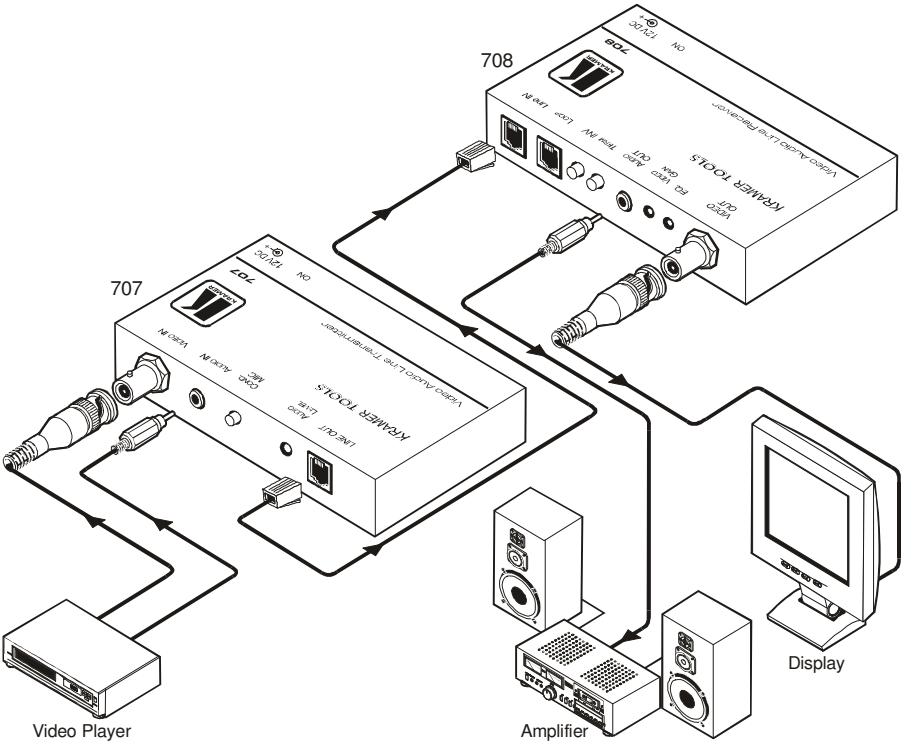



*Figure 3: Connecting the 707/708 Video Audio Line Transmitter/Receiver System*

# 5 The 709 and 710 Y/C Line Transmitter and Receiver

This section describes:

- The **709** (see section 5.1)
- The **710** (see section 5.2)
- How to connect the **709/710** Video-Audio Line Transmitter/Receiver (see section 5.3)

The **709** and **710** are a twisted pair transmitter and receiver for s-Video (Y/C) signals. The **709** transmitter converts an s-Video (Y/C) signal into a twisted pair signal and the **710** receiver converts the twisted pair signal back into an s-Video (Y/C) signal.

The **709** and the **710** feature:

- A bandwidth of 8.4MHz
- Twisted pair inputs and outputs on terminal block connectors
- A system range of up to 100m (more than 300ft)
- Level (GAIN) and equalization (EQ) controls

In addition, the **710** can be looped to add additional outputs and includes a selectable input signal termination push button.

## 5.1 Your 709 Y/C Line Transmitter

Figure 4 and Table 3 define the **709**:

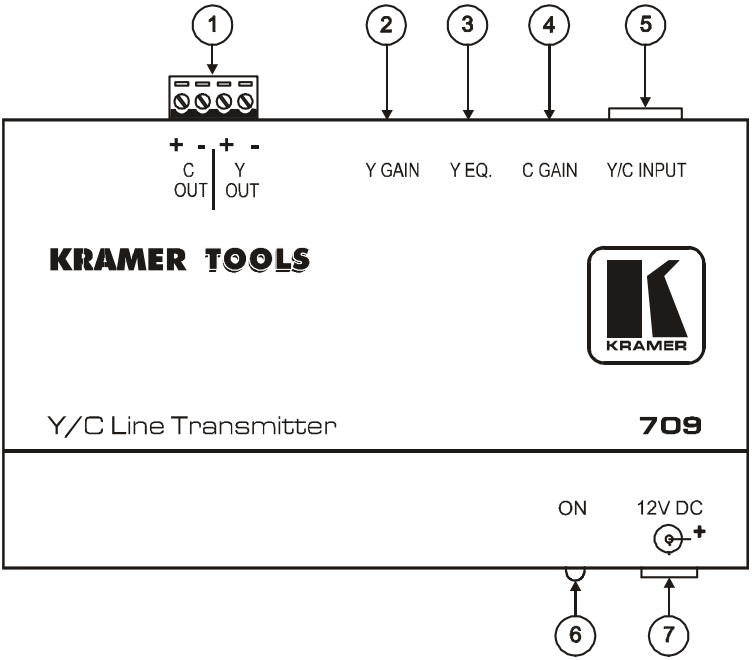



*Figure 4: 709 Y/C Line Transmitter*

*Table 3: 709 Y/C Line Transmitter Features*

| # | Feature | Function |
|---|---|---|
| 1 | *C OUT, Y OUT* Terminal Block Connector | Connect to the C IN and Y IN terminal block connector of the **710** |
| 2 | *Y GAIN* Trimmer | Turn to adjust the Y gain[1] |
| 3 | *Y EQ.* Trimmer | Turn to adjust the Y cable equalization[1] |
| 4 | *C GAIN* Trimmer | Turn to adjust the Chroma gain[1] |
| 5 | *Y/C INPUT* 4p Connector | Connect to the s-Video source |
| 6 | *ON* LED | Lights when receiving power |
| 7 | *12V DC* | +12V DC connector for powering the unit |

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

## 5.2 Your 710 Video-Audio Line Receiver

Figure 5 and Table 4 define the **710**:

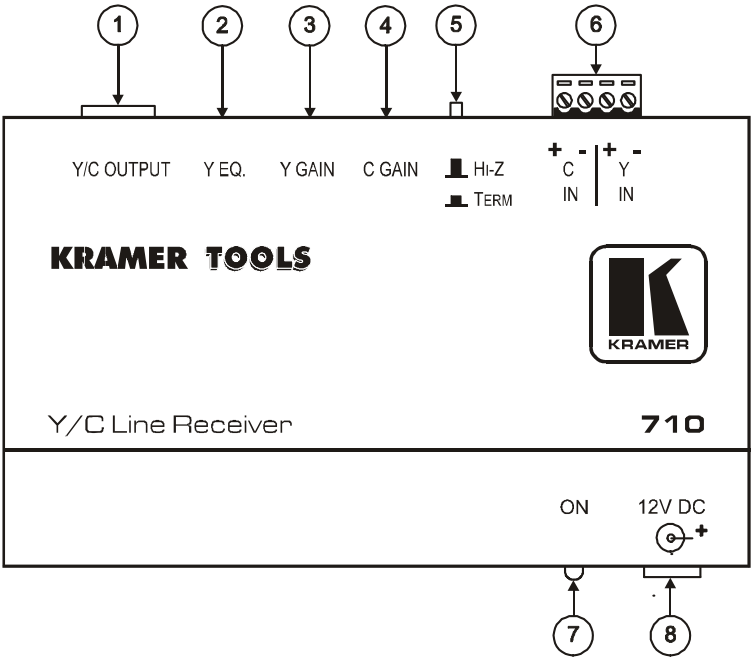



*Figure 5: 710 Y/C Line Receiver*

*Table 4: 710 Y/C Line Receiver Features*

| # | Feature | Function |
|---|---|---|
| 1 | *Y/C OUTPUT* 4p Connector | Connect to the s-Video acceptor |
| 2 | *Y EQ.* Trimmer | Turn to adjust the Y cable equalization[1] |
| 3 | *Y GAIN* Trimmer | Turn to adjust the Y gain[1] |
| 4 | *C GAIN* Trimmer | Turn to adjust the Chroma gain[1] |
| 5 | *Hi-Z / TERM* Push Button | Press to terminate the unit that is the last in the line (not looped) |
| 6 | *C IN, Y IN* Terminal Block Connector | Connect to the C OUT and Y OUT terminal block connector of the **709** |
| 7 | *ON* LED | Lights when receiving power |
| 8 | *12V DC* | +12V DC connector for powering the unit |

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

## 5.3 Connecting the 709/710 Y/C Line Transmitter/Receiver

You can use the **709** and **710** to configure a *Y/C* Transmitter and Receiver system.

To connect the **709** *Y/C Line Transmitter* with the **710** *Y/C Line Receiver*, as illustrated in the example in Figure 6, do the following:

1. Connect an s-Video source (for example, an s-Video camera) to the Y/C INPUT 4p connector on the **709**.
2. On the **710**, connect the Y/C OUTPUT 4p connector to an s-Video acceptor (for example, a display).
3. Connect the C OUT Y OUT terminal block connector of the **709** to the C IN Y IN terminal connector of the **710**, via twisted pair cabling[1].
4. On each **709 / 710** unit, connect a 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 6).
5. On each **709 / 710** unit, if required, adjust the Y GAIN, the C GAIN and the Y EQ. levels, by inserting a screwdriver into each of the small holes and carefully rotating them.
6. If required, connect the C IN Y IN terminal block connector of the **710** to the C IN Y IN terminal block connector[2] of an additional **710** (as illustrated in Figure 7).

1 A straight connection should be made between the units ( C+ OUT to C+ IN, C- OUT to C- IN, and so on)

2 Connect C+ to the C+ of the next 710, C- to the C- of the next 710, Y+ to the Y+ of the next 710, and Y- to the Y- of the next 710

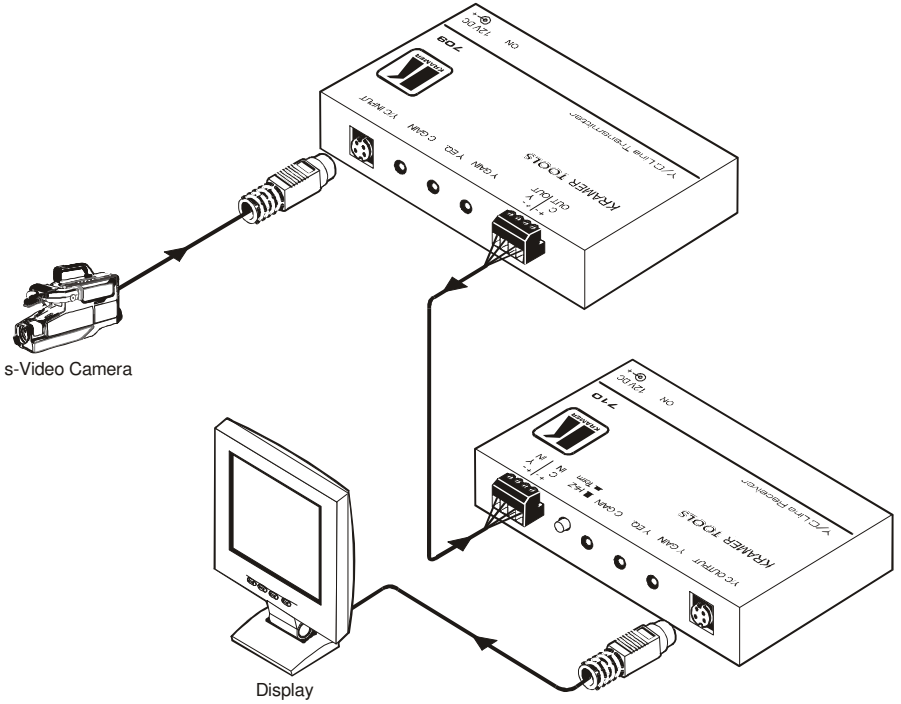



*Figure 6: Connecting the 709/710 Y/C Line Transmitter / Receiver System*

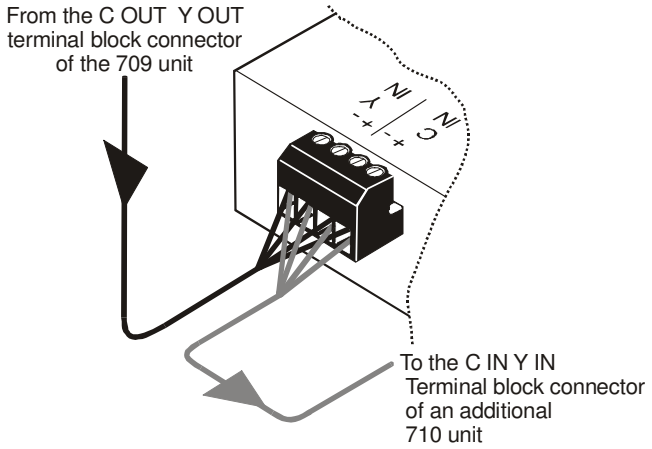



*Figure 7: Connecting an Additional 710 Unit*

# 6 The 711xl and 712xl Video-Audio Line Transmitter and Receiver

This section:

- Describes the **711xl** (see section 6.1)
- Describes the **712xl** (see section 6.2)
- Defines the 6-pole detachable terminal block connector pinout (see section 6.3)
- Describes how to connect the **711xl/712xl** Video-Audio Line Transmitter/Receiver (see section 6.4)

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

The **711xl/712xl** feature:

- A bandwidth of 45MHz
- Twisted pair inputs and outputs on terminal block connectors
- A system range of up to 1000 meters (more than 3000 feet)
- Level (GAIN) and equalization (EQ) controls (for the **712xl**)

In addition, the **712xl** LINE IN can be looped to add additional outputs and includes a selectable input signal termination push button.

## 6.1 Your 711xl Video-Audio Line Transmitter

Figure 8 and Table 5 define the **711xl**:

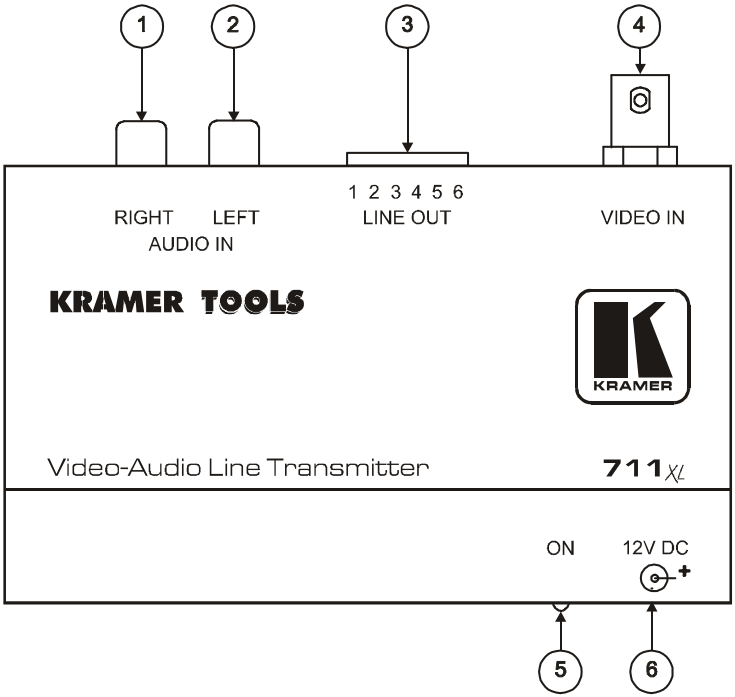



*Figure 8: 711xl Video-Audio Line Transmitter*

*Table 5: 711xl Video-Audio Line Transmitter Features*

| # | Feature | | Function |
|---|---|---|---|
| 1 | *AUDIO IN* | *RIGHT* RCA Connector | Connect to the right unbalanced stereo audio source |
| 2 | | *LEFT* RCA Connector | Connect to the left unbalanced stereo audio source |
| 3 | *LINE OUT* 6-pole Detachable Terminal Block Connector | | Connect to the LINE IN 6-pole detachable block connector of the **712xl** (see section 6.3 for pinout) |
| 4 | *VIDEO IN* BNC Connector | | Connect to composite video source |
| 5 | *ON* LED | | Lights when receiving power |
| 6 | *12V DC* | | +12V DC connector for powering the unit |

## 6.2 Your 712xl Video-Audio Line Receiver

Figure 9 and Table 6 define the **712xl**:

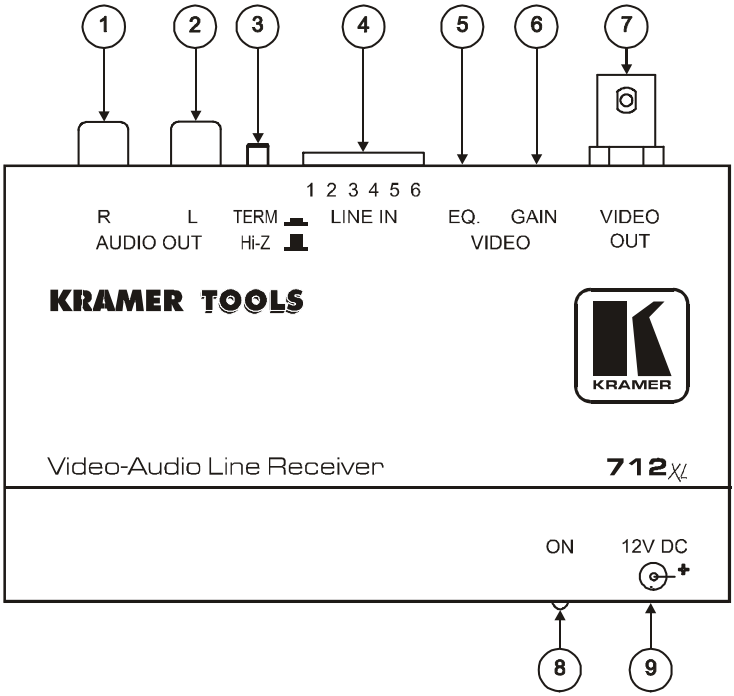



*Figure 9: 712xl Video-Audio Line Receiver*

*Table 6: 712xl Video-Audio Line Receiver Features*

| # | Feature | | Function |
|---|---|---|---|
| 1 | *AUDIO OUT* | *R* RCA Connector | Connect to the right unbalanced stereo audio acceptor |
| 2 | | *L* RCA Connector | Connect to the left unbalanced stereo audio acceptor |
| 3 | *TERM* Push Button | | When pressed, terminates the unit that is the last in the line (not looped) |
| 4 | *LINE IN* 6-pole Detachable Terminal Block Connector | | Connect to the LINE OUT 6-pole detachable block connector of the **711xl** (see section 6.3 for pin-out) |
| 5 | *VIDEO* | *EQ.* Trimmer | Turn to adjust the output signal equalization[1] |
| 6 | | *GAIN* Trimmer | Turn to adjust the output signal level[1] |
| 7 | *VIDEO OUT* BNC Connector | | Connect to the composite video acceptor |
| 8 | *ON* LED | | Lights when receiving power |
| 9 | *12V DC* | | +12V DC connector for powering the unit |

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

## 6.3 The 6-pole Detachable Terminal Block Connector Pinout

Table 7 defines the LINE IN and LINE OUT connector pinout:

*Table 7: 711xl/712xl LINE IN and LINE OUT Connector Pinout*

| PIN | Function |
|---|---|
| 1 | Audio R+ |
| 2 | Audio R- |
| 3 | Audio L+ |
| 4 | Audio L- |
| 5 | Video + |
| 6 | Video - |

## 6.4 Connecting the 711xl and the 712xl

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

To connect the **711xl** *Video-Audio Line Transmitter* with the **712xl** *Video-Audio Line Receiver*, as illustrated in the example in Figure 10, do the following:

1. Connect a composite video source (for example, a composite video player) to the VIDEO IN BNC connector on the **711xl**.
2. Connect an unbalanced stereo source to the AUDIO IN RIGHT and LEFT RCA connectors (for example, a composite video player).
3. On the **712xl**, connect the VIDEO OUT BNC connector to a composite video acceptor (for example, a display).
4. Connect an unbalanced stereo acceptor to the AUDIO OUT R and L RCA connectors (for example, speakers).
5. Connect the LINE OUT 6-pole detachable terminal block connector[1] of the **711xl** to the LINE IN 6-pole detachable terminal connector[1] of the **712xl**, via twisted pair cablin[2].
6. On each **711xl / 712xl** unit, connect a 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
7. On the **712xl**, if required, adjust the VIDEO GAIN and EQ. levels[3].
8. If required, connect the LINE IN terminal block connector of the **710** to the LINE IN terminal block connector[4] of an additional **710** (see Figure 7).

1 See Table 7 for PINOUT

2 A straight connection should be made between the units (PIN 1 to PIN 1, PIN 2 to PIN 2, and so on)

3 By inserting a screwdriver into each of the small holes and carefully rotating them

4 If you want to add an additional 712xl unit, connect the LINE IN 6-pole detachable terminal block connector to the LINE IN connector of that additional 712xl by attaching another set of wires

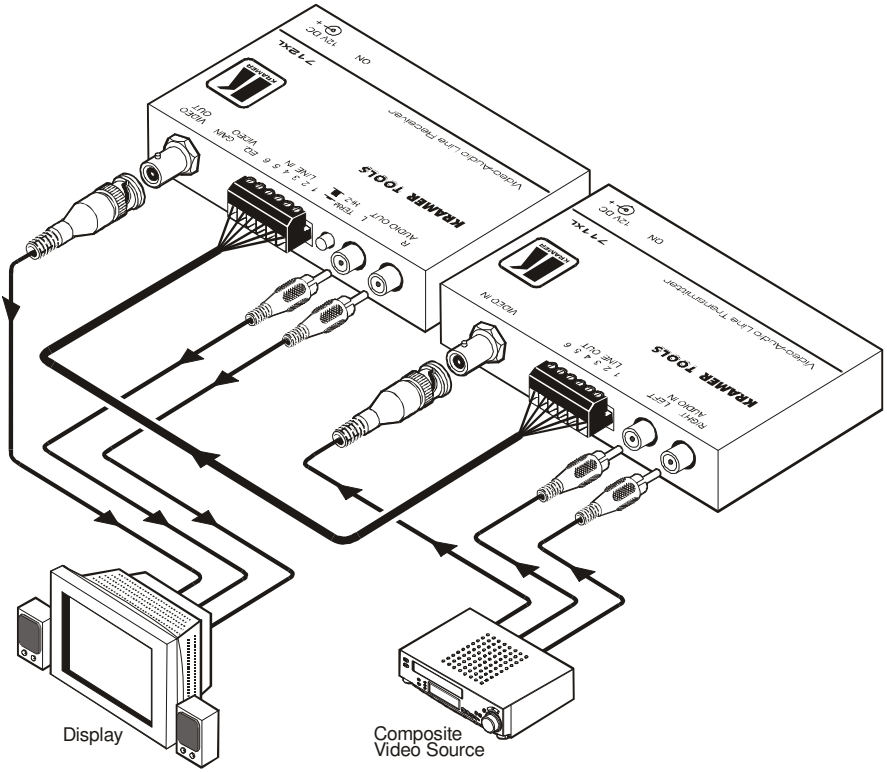



*Figure 10: Connecting the 711xl/712xl*

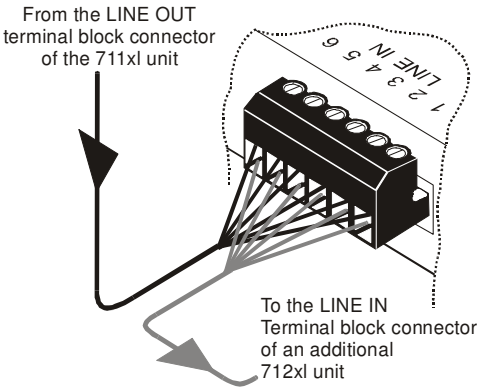



*Figure 11: Connecting an Additional 712xl Unit*

# 7 Technical Specifications[1]

In this section:

- Table 8 includes the technical specifications of the **707** and the **708**
- Table 9 includes the technical specifications of the **709** and the **710**
- Table 10 includes the technical specifications of the **711xl**, and the **712xl**

*Table 8: Technical Specifications of the 707 and the 708*

| | **707** | **708** |
|---|---|---|
| INPUTS: | 1 composite video, 1Vpp/75Ω, on a BNC connector<br>1 audio, 1mV-2V/33k on an RCA connector | Looping balanced 150Ω on a 6/4 standard telephone socket, with termination switch and polarity inversion switch |
| OUTPUTS: | 1 balanced, 150Ω on a 6/4 standard telephone socket | 1 composite video, 1Vpp/75Ω composite video, 1Vpp/75Ω unbalanced on a BNC connector<br>1 audio - line level, up to 4.6Vpp/100Ω on an RCA connector |
| BANDWIDTH: | Video: 58MHz; audio: 30kHz (at 30 meters without lightening arrestors) | |
| NON-LINEARITY: | <0.2% at short distances | |
| DIFF. GAIN: | 0.41% | |
| DIFF. PHASE: | 0.3° | |
| K-FACTOR: | 0.1% | |
| S/N RATIO: | 72dB | |
| CONTROLS: | Video gain: -1.8dB to +2.3dB, EQ above 2.5 MHz: 0dB to 16dB, audio: 0dB to 52dB; **707**: condenser mic power; **708**: loop termination, signal invert | |
| POWER SOURCE: | 12 VDC 40mA | |
| DIMENSIONS: | 12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H) | |
| WEIGHT: | 0.28kg. (0.62lbs.) Approx. (each) | |
| ACCESSORIES: | Power supply, mounting bracket | |
| OPTIONS: | Model VA-50P power supply with six 12VDC outlets; RK-T1, RK-T3, 19" rack adapters | |

1 Specifications are subject to change without notice

*Table 9: Technical Specifications of the 709 and the 710*

| | 709 | 710 |
|---|---|---|
| INPUTS: | s-Video, 1Vpp/75Ω (Y), 0.3Vpp/75Ω (C) on a 4p connector | 4-pin terminal block |
| OUTPUTS: | 4-pin terminal block | s-Video, 1-Vpp/75Ω (Y), 0.3Vpp/75Ω (C) on a 4p connector |
| BANDWIDTH: | 8.4MHz, (Y) at 100m | |
| NON-LINEARITY: | 0.07% | |
| DIFF. GAIN: | 0.04% | |
| K-FACTOR: | 1.4% at 100m | |
| S/N RATIO: | Better than 60dB | |
| CONTROLS: | Y gain: -2.4dB to +6.5dB; Y EQ: -2.7dB to 15.6dB; C gain: -5.8dB to 7.8dB **710**: loop termination | |
| POWER SOURCE: | 12 VDC 40mA | |
| DIMENSIONS: | 12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H) | |
| WEIGHT: | 0.26kg. (0.58lbs.) Approx. | |
| ACCESSORIES: | Power supply, mounting bracket | |
| OPTIONS: | Model VA-50P power supply with six 12VDC outlets; RK-T1, RK-T3, 19" rack adapters | |

*Table 10: Technical Specifications of the 711xl and the 712xl*

| | 711xl | 712xl |
|---|---|---|
| INPUT: | Video, 1Vpp/75Ω on a BNC connector; audio 1Vpp / 33kΩ on RCA connectors | 6-pole detachable terminal block connector |
| OUTPUT: | 6-pole detachable terminal block connector | Video, 1Vpp/75Ω on a BNC connector; audio 1Vpp / 150Ω on RCA connectors |
| MAX. SIGNAL LEVEL: | 2.1Vpp (video), 4.2Vpp (audio) | |
| VIDEO BANDWIDTH (-3dB): | 64MHz | |
| AUDIO BANDWIDTH (-3dB): | 100kHz | |
| DIFF. GAIN: | 1.4% | |
| DIFF. PHASE: | 0.63° | |
| VIDEO S/N RATIO: | 76dB | |
| AUDIO S/N RATIO: | 76dB unweighted | |
| AUDIO THD + NOISE: | 0.033%, 1kHz | |
| AUDIO 2nd HARMONIC: | 0.002% | |
| MAX. SIGNAL LEVEL: | 1.7Vpp (video), 4.2Vpp (audio) | |
| POWER SOURCE: | 12 VDC 80mA | |
| DIMENSIONS: | 12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H) | |
| WEIGHT: | 0.28kg. (0.62lbs.) approx. | |
| ACCESSORIES: | Power supply, mounting bracket | |
| OPTIONS: | RK-T1, RK-T3, 19 inch rack adapters | |

**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);<br>generic emission standard.<br>Part 1: Residential, commercial and light industry" |
| EN-50082: | "Electromagnetic compatibility (EMC) generic immunity standard.<br>Part 1: Residential, commercial and light industry environment". |
| CFR-47: | FCC Rules and Regulations:<br>Part 15: "Radio frequency devices<br>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.**


**Safety Warning**:
Disconnect the unit from the power supply before opening/servicing.

**Kramer Electronics, Ltd.**
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**P/N: 2900-000214 REV 1**