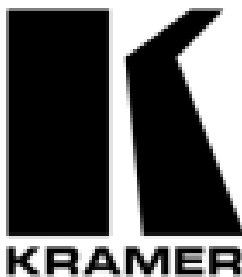


Kramer Electronics, Ltd.



USER MANUAL

Model:

104LN

1:4 Differential Video Line Amplifier

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1 Introduction

Dedication by Kramer Electronics since 1981, to the development and manufacture of high quality video/audio equipment, makes the Kramer line an integral part of the finest production and presentation facilities in the world. In recent years, Kramer has redesigned and upgraded most of the line, making the best even better! The Kramer line of professional video/audio electronics is one of the most versatile and complete available, and is a true leader in terms of quality, workmanship, price/performance ratio and innovation. In addition to our high quality Kramer **TOOLS 104LN 1:4 Differential Video Line Amplifier**, we also offer excellent single-ended distribution amplifiers, switchers and matrices, presentation processors, interfaces, remote controllers and computer-related products. Congratulations on purchasing your **104LN**, which is ideal for:

- Any system requiring a compact distribution amplifier and line driver
- Rental and staging applications

The package includes the following items:

- **104LN 1:4 Differential Video Line Amplifier**
- Power adapter (12V DC Input)¹
- Mounting bracket
- This user manual² and the Kramer concise product catalog/CD

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

3 Overview

The high performance **104LN** is a new version of our **104L** line amplifier,

1 As an option, you can purchase the Kramer VA-50P 6 Port Universal 12-Volt Power Supply, enabling you to supply power to up to 6 Kramer devices that require 12VDC

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

3 The complete list of Kramer cables is on our Web site at <http://www.kramerelectronics.com> (click "Cables and Connectors" in the Products section)

which combines the functions of a distribution amplifier and a line driver.

In particular, the **104LN 1:4 Differential Video Line Amplifier**:

- Accepts a composite video input and provides 4 identical buffered outputs
- Includes recessed Gain and EQ. (equalization) trimmer controls, which compensate for signal losses inherent in long cable runs
- Has a differential input, which helps to eliminate common mode noise picked up by the input cable, and supports the use of long cables (letting you locate it anywhere in the distribution chain)
- Has a bandwidth in excess of 400MHz, ensuring that it remains transparent even in the most critical applications
- Is fully DC coupled, ensuring the best linearity and signal flatness

Achieving the best performance means:

- Connecting 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)
- Avoiding interference from neighboring electrical appliances and positioning your **104LN** away from moisture and excessive sunlight and dust

4 Your 104LN 1:4 Differential Video Line Amplifier

Figure 1 and Table 1 define the **104LN 1:4 Differential Video Line Amplifier**:

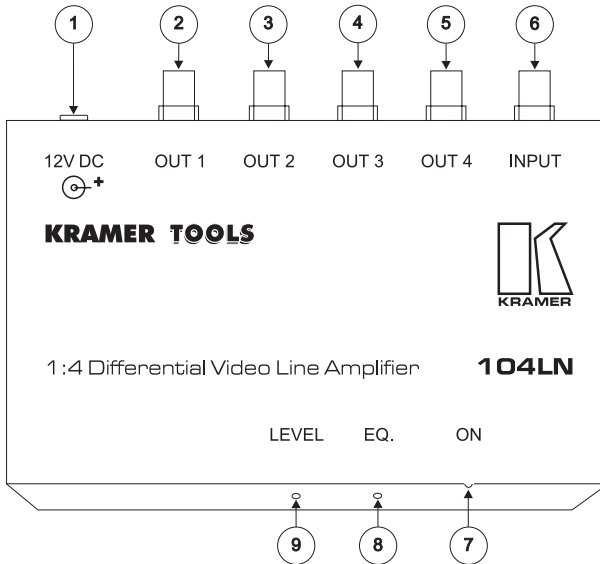


Figure 1: 104LN 1:4 Differential Video Line Amplifier

Table 1: 104LN 1:4 Differential Video Line Amplifier Features

#	Feature	Function
1	12V DC	+12V DC connector for powering the unit
2	OUT 1 BNC Connector	Connects to composite video acceptor 1
3	OUT 2 BNC Connector	Connects to composite video acceptor 2
4	OUT 3 BNC Connector	Connects to composite video acceptor 3
5	OUT 4 BNC Connector	Connects to composite video acceptor 4
6	INPUT BNC Connector	Connects to the composite video source
7	ON LED	Illuminates when receiving power
8	EQ. Trimmer	Adjusts ¹ the cable compensation equalization level
9	LEVEL Trimmer	Adjusts ¹ the output signal level for outputs 1, 2, 3 and 4

5 Connecting the 104LN 1:4 Differential Video Line Amplifier

To connect the **104LN 1:4 Differential Video Line Amplifier**, as the example in Figure 2 illustrates, connect the following²:

1. Connect a composite video source (for example, a satellite decoder and receiver) to the INPUT BNC connector.
2. Connect the 4 OUT BNC connectors to up to 4 composite video acceptors, as follows:
 - Connect the OUT 1 connector to video acceptor 1 (for example, a VCR)
 - Connect the OUT 2 connector to video acceptor 2 (for example, a monitor)
 - Connect the OUT 3 connector to video acceptor 3 (for example, a monitor)
 - Connect the OUT 4 connector to video acceptor 4 (for example, a monitor)
3. Adjust the output signal level and/or cable compensation equalization level, if required.

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

2 Switch OFF the power on each device before connecting it to your 104LN. After connecting your 104LN, switch on its power and then switch on the power on each device

Technical Specifications

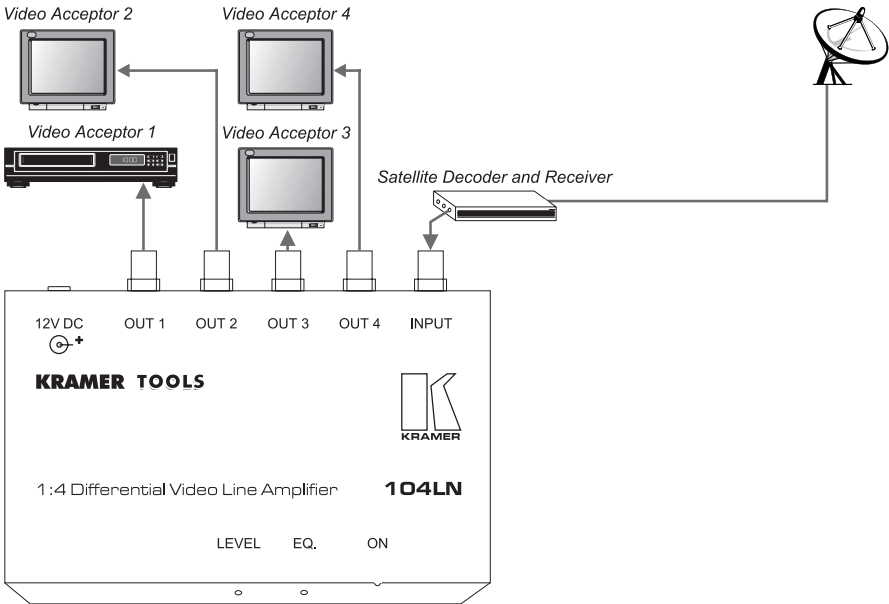


Figure 2: Connecting a 104LN 1:4 Differential Video Line Amplifier

6 Technical Specifications

Table 2: Technical Specifications¹ of the 104LN 1:4 Differential Video Line Amplifier

INPUT:	1 video (CV IN), differential, 1Vpp / 75 Ω , on a BNC type connector
OUTPUTS:	4 video, 1Vpp / 75 Ω on BNC type connectors
MAX. OUTPUT LEVEL:	1.6 Vpp
BANDWIDTH (-3dB):	>400 MHz
DIFF. GAIN:	0.22%
DIFF. PHASE:	0.1 Deg
K-FACTOR:	<0.05%
S/N RATIO:	73.3dB
CONTROLS:	Level: -1.3 to 6dB; EQ. 0 to 10.2dB
COUPLING:	DC
POWER SOURCE:	12 VDC, 95mA
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98"), W, D, H.
WEIGHT:	0.3 kg. (0.66 lbs.) approx.
ACCESSORIES:	Power supply, mounting bracket
OPTIONS:	19" rack adapters RK-T1, RK-T3

¹ Specifications are subject to change without notice

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 three 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.

**Updates to this user manual may be found at
<http://www.kramerelectronics.com/manuals.html>.**

We welcome your questions, comments and feedback.

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