

Kramer Electronics, Ltd.



USER MANUAL

Model:

VP-12N

1:12 + 3 UXGA / CAT5 Distributor

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This addendum describes the Power Connect feature used with Kramer machines, and the choice between STP and UTP CAT5 cables.

Power Connect Feature¹

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 CAT5 cable.

The Power Connect feature applies as long as the CAT5 cable is heavy gauge cable (that is, it can carry power). The distance does not exceed 50 meters on standard 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 CAT5 cable.

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 will give better results. 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 is preferred because it provides 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 far away from electric cables, motors etc., which are prone to create electrical interference.

¹ This section of the addendum is only relevant to machines that support this feature (for example, the TP-104; not the TP-100)

ADDENDUM: VP-12NHD

This addendum defines two additional switches on the underside panel of the **VP-12N** (the HD version):

Figure 2 on page 3 is replaced by Figure 1A

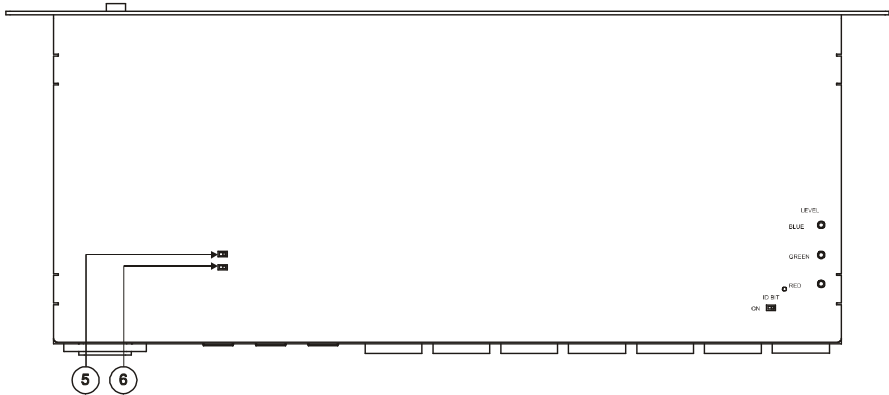


Figure 1A: Underside of the VP-12N 1:12 + 3 UXGA / CAT5 Distributor (HD Version)

Items 5 and 6 are added to Table 2 on page 4:

Table 2: Underside Features of the VP-12N (HD Version)

#	Feature	Function
5	VS Switch	Slide the switch to the left ¹ to change the VS polarity to negative polarity ² Slide the switch to the right to retain the polarity (default)
6	HS Switch	Slide the switch to the left ¹ to change the HS polarity to negative polarity ² Slide the switch to the right to retain the polarity (default)

1 When looking at the machine from the underside, with the BLUE, GREEN and RED trimmers on the right-hand side

2 Downgoing syncs

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 350-plus different models now appear in 8 Groups¹, which are clearly defined by function.

Congratulations on purchasing your Kramer **VP-12N 1:12 + 3 UXGA / CAT5 Distributor**, which is ideal for:

- Presentation and multimedia applications that require high quality computer graphics distribution to multiple monitors and/or projectors
- Long range graphics distribution for schools, hospitals, security, and stores

The package includes the following items:

- **VP-12N 1:12 + 3 UXGA / CAT5 Distributor**
- Power cord
- 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

3 Overview

The Kramer **VP-12N** is a high performance distributor for computer graphics signals, accepting one input, providing necessary buffering and isolation, and distributing the signal to its identical 12 outputs, as well as transmitting it over UTP cabling to 3 CAT5 outputs, each with a transmission range of more than 300 ft. (more than 100 meters).

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>

In particular, the **VP-12N**

- Features a switch on the underside for ID Bit control
- Features three trimmers on the underside for red, green, and blue control
- Has video bandwidth that exceeds 300MHz, ensuring that it remains transparent even at high-resolution UXGA modes
- Can power the receiver over the same CAT5 cable
- Is mains fed and is housed in a 19" enclosure

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 that may adversely influence signal quality and position your Kramer **VP-12N** away from moisture, excessive sunlight and dust

In applications with high interference, shielded twisted pair (STP) cable will give better results.

4 Your VP-12N 1:12 + 3 UXGA / CAT5 Distributor

This section defines the **VP-12N 1:12 + 3 UXGA / CAT5 Distributor**:

- Front and rear panels (see Figure 1 and Table 1)
- Underside panel (see Figure 2 and Table 2)

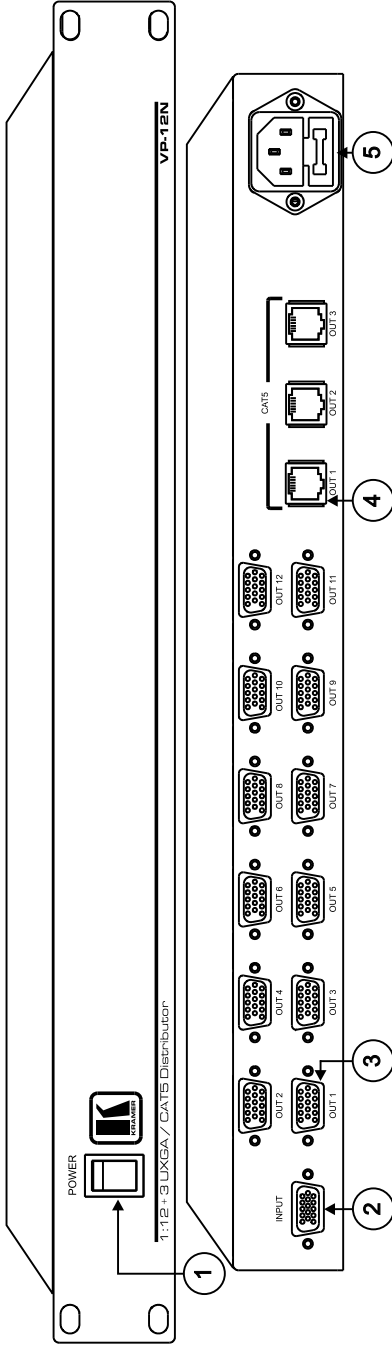


Figure 1: VP-12N 1:12 + 3 UXGA / CAT5 Distributor

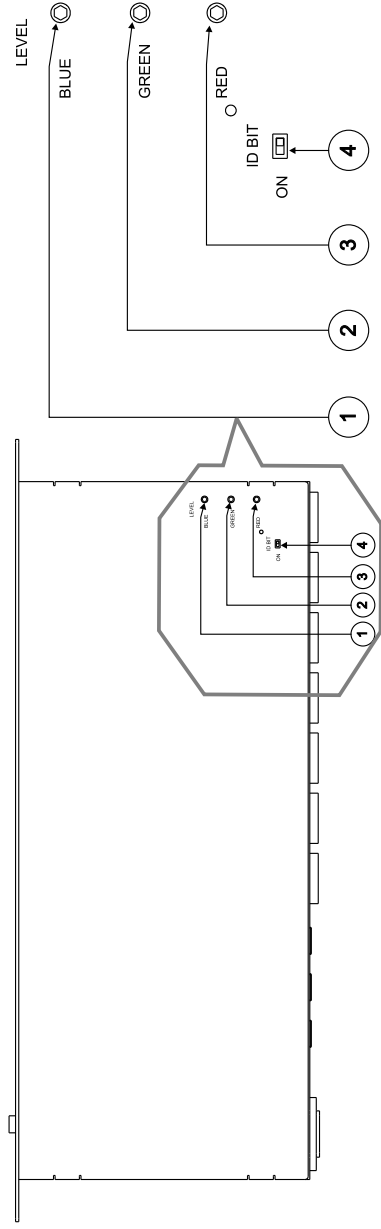


Figure 2: Underside of the VP-12N 1:12 + 3 UXGA / CAT5 Distributor

Table 1: Front and Rear Panel Features of the VP-12N 1:12 + 3 UXGA/CAT5 Distributor

#	Feature	Function
1	POWER Switch	Illuminated switch for turning the unit ON or OFF
2	INPUT HD15F Connector	Connect to the computer graphics (UXGA) source
3	OUT HD15F Connectors	Connect to the computer graphics (UXGA) acceptors (from 1 to 12)
4	OUT RJ-45 Connectors	Connect to ¹ the LINE IN RJ-45 connector ² (from 1 to 3)
5	Power Connector with FUSE	AC connector enabling power supply to the unit

Table 2: Underside Features of the VP-12N 1:12 + 3 UXGA / CAT5 Distributor

#	Feature	Function	
1	LEVEL	BLUE Trimmer	Adjusts the blue level ³
2		GREEN Trimmer	Adjusts the green level ³
3		RED Trimmer	Adjusts the red level ³
4	ID BIT CONTROL Switch	Slide to the left to set to ON ⁴ ; to the right to set to OFF	

5 Using Your VP-12N 1:12 + 3 UXGA / CAT5 Distributor

This section describes how to connect the **VP-12N 1:12 + 3 UXGA / CAT5 Distributor**.

The example in Figure 3 illustrates how to output a computer graphics signal from a computer to up to 12 local monitors, as well as how to transmit it over UTP cabling to 3 **TP-120 XGA Line Receiver** units.

To connect the **VP-12N** and up to 3 **TP-120 XGA Line Receiver** units, do the following:

1. Connect a computer graphics source (for example, a computer) to the INPUT HD15F connector.
2. Connect the OUTPUT HD15F connectors to up to 12 acceptors (for example, Local Display 1 to Local Display 12).
3. Ensure that the ID BIT switch on the underside of the **VP-12N** is set to ON (by sliding it to the left). This would enable a notebook or laptop (if connected instead of a computer) to output a VGA signal to an external VGA monitor.

¹ Using a UTP cable with CAT5 connectors at both ends (the PINOUT is defined in Table 3 and Figure 4)

² For example, on the TP-120 XGA Line Receiver. Refer to the separate user manual: PT-110, WP-110, PT-120, TP-120, which can be downloaded from the Internet at this URL: <http://www.kramerelectronics.com>

³ Insert a screwdriver into the small hole and carefully rotate it to adjust the level

⁴ The default. Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

4. On the **VP-12N**, connect¹ the CAT5 RJ-45²:
 - OUT 1 connector to the LINE IN RJ-45 connector on a **TP-120** unit, and connect the XGA OUT connector on that **TP-120** unit to Display 1
 - OUT 2 connector to the LINE IN RJ-45 connector on a second **TP-120** unit, and connect the XGA OUT connector on that second **TP-120** unit to Display 2
 - OUT 3 connector to the LINE IN RJ-45 connector on a third **TP-120** unit, and connect the XGA OUT connector on that third **TP-120** unit to Display 3
5. Connect the power cord³ (not illustrated in Figure 3).
6. Adjust⁴ the blue, green and red signal levels, if required.

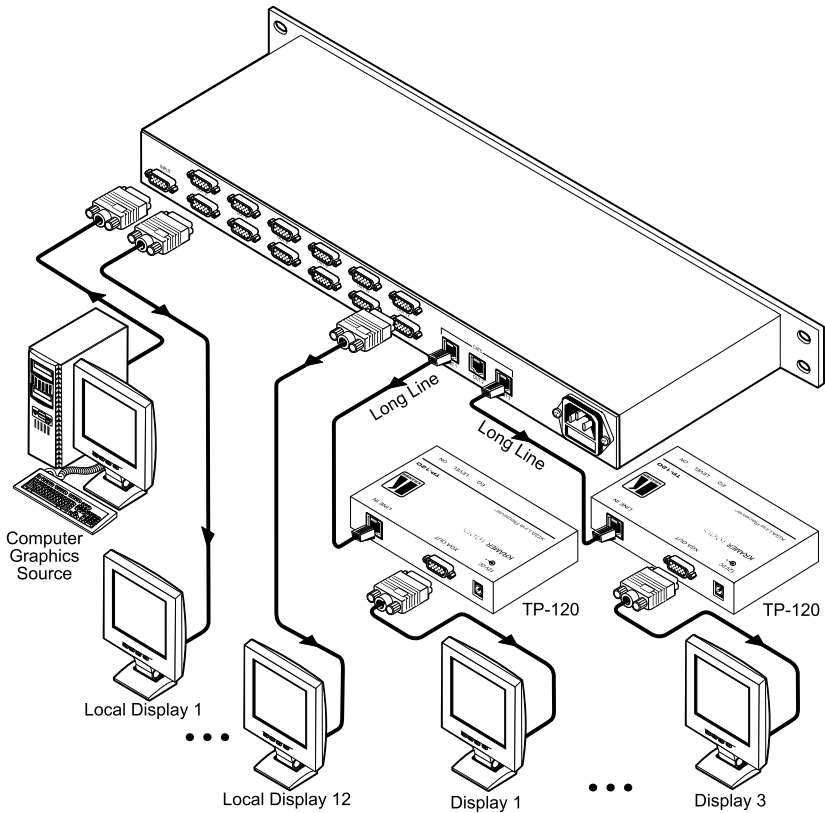


Figure 3: Connecting the VP-12N 1:12 + 3 UXGA / CAT5 Distributor

1 Via UTP cabling, with a range of more than 300ft (>100m): see section 5.1

2 The TP-120 units may be powered via this connector (instead of via the 12VDC external supply)

3 We recommend that you use only the power cord that is supplied with this machine

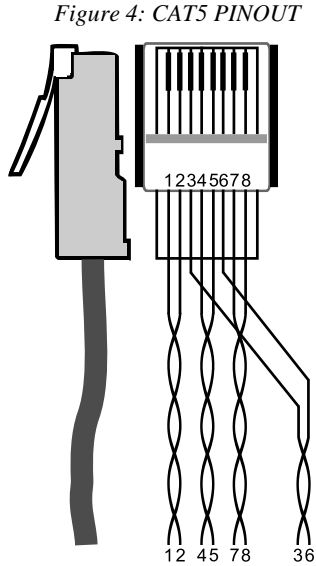
4 Use a screwdriver to carefully rotate the trimmer, adjusting the appropriate level

5.1 Wiring the CAT5 LINE IN / LINE OUT RJ-45 Connectors

Table 3 and Figure 4 define the UTP CAT5 PINOUT, using a straight pin to pin cable with RJ-45 connectors:

Table 3: CAT5 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 2		3 and 6	
Pair 3		1 and 2	
Pair 4		7 and 8	



6 Technical Specifications

Table 4 includes the technical specifications:

Table 4: Technical Specifications¹ of the VP-12N 1:12 + 3 UXGA / CAT5 Distributor

INPUT:	1 UXGA on an HD15F connector
OUTPUTS:	12 UXGA on HD15F connectors 3 RJ-45 OUT connectors
MAX. OUTPUT LEVEL ² :	UXGA: 1.7Vpp; CAT5: 1.3Vpp
BANDWIDTH (-3dB) ³ :	UXGA: 330MHz; CAT5: 156MHz
DIFF. GAIN:	0.17% at UXGA OUT
DIFF. PHASE:	0.44 Deg. at UXGA OUT
K-FACTOR:	<0.05% at UXGA and CAT5 OUT
S/N RATIO:	UXGA: 73dB; CAT5: 70dB
CONTROLS:	Level: -0.8dB to 2.4dB
COUPLING:	UXGA: DC; CAT5: AC
POWER SOURCE:	230 VAC, 50 / 60 Hz (115VAC, U.S.A.) 31VA
DIMENSIONS:	19 inch (W), 7 inch (D) 1U (H) rack mountable
WEIGHT:	2.7 kg. (6 lbs.) approx.
ACCESSORIES:	Power cord

¹ Specifications are subject to change without notice

² The CAT5 output is measured at the TP-120 output, at maximum TP-120 gain of the TP-12N and the TP-120 setup

³ At the TP-120 output on the TP-12N and the TP-120 setup

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 your 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.



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P/N: 2900-00063 REV 3