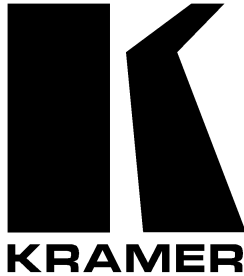


Kramer Electronics, Ltd.



USER MANUAL

Model:

VP-2x2

2x2 XGA/Audio Matrix Switcher

Contents

1	Introduction	1
2	Getting Started	1
3	Overview	1
4	Your XGA/Audio Matrix Switcher	2
4.1	Connecting the XGA/Audio Matrix Switcher	3
4.1.1	Connecting the Balanced Audio Inputs/Outputs	4
4.1.2	Connecting a PC	4
5	Operating Your XGA/Audio Matrix Switcher	5
5.1	Choosing the Audio-Follow-Video or Breakaway Option	5
5.1.1	Setting the Audio-Follow-Video Option	5
5.1.2	Setting the Breakaway Option	5
5.2	Locking the Front Panel	6
6	Technical Specifications	6
7	Table of Hex Codes for Serial Communication	7

Figures

Figure 1: VP-2x2 XGA/Audio Matrix Switcher	2
Figure 2: Connecting a Balanced Stereo Audio Input/Output	4
Figure 3: Connecting a PC without using a Null-modem Adapter	4

Tables

Table 1: Front Panel VP-2x2 XGA/Audio Matrix Switcher Features	3
Table 2: Rear Panel VP-2x2 XGA/Audio Matrix Switcher Features	3
Table 3: Technical Specifications of the VP-2x2 XGA/Audio Matrix Switcher	6
Table 4: Hex Codes	7

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 switchers and matrices, we also offer excellent distribution amplifiers, remote controllers, processors, interfaces and computer-related products. Congratulations on purchasing your Kramer **VP-2x2 2x2 XGA/Audio Matrix Switcher**. This product is ideal for the following typical applications:

- Any professional display system requiring a true 2x2 matrix operation
- Multimedia and presentation sources and acceptors selection
- Remote monitoring of computer activity in schools and businesses

The package includes the following items:

- **VP-2x2 2x2 XGA/Audio Matrix Switcher**
- Power adapter (12V DC Input)¹
- Windows 95/98/2000/NT™ Kramer control software
- Null-modem adapter
- 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

3 Overview

The **VP-2x2** is a high performance matrix switcher for VGA/SVGA/XGA/UXGA signals and balanced stereo audio signals. The user can simultaneously route an input to one or both of the 2 outputs³.

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 12V DC

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

3 Input 1 (or 2) to outputs 1 and 2 simultaneously, or input 1 (or 2) to output 1 and input 2 (or 1) to output 2

In addition, the **VP-2x2** includes:

- Video bandwidth that exceeds 400 MHz, ensuring transparent performance in all applications
- Audio-follow-video switching and audio breakaway (when audio and video are switched separately)
- A “Take” button that allows the user to pre-select a setting and then activate it
- A “Lock” button to prevent tampering via the front panel
- Control via the front panel buttons, or remotely by RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller

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-2x2** in a location free from moisture and away from excessive sunlight and dust

4 Your XGA/Audio Matrix Switcher

Figure 1, Table 1 and Table 2 define the front and rear panels of the **VP-2x2**:

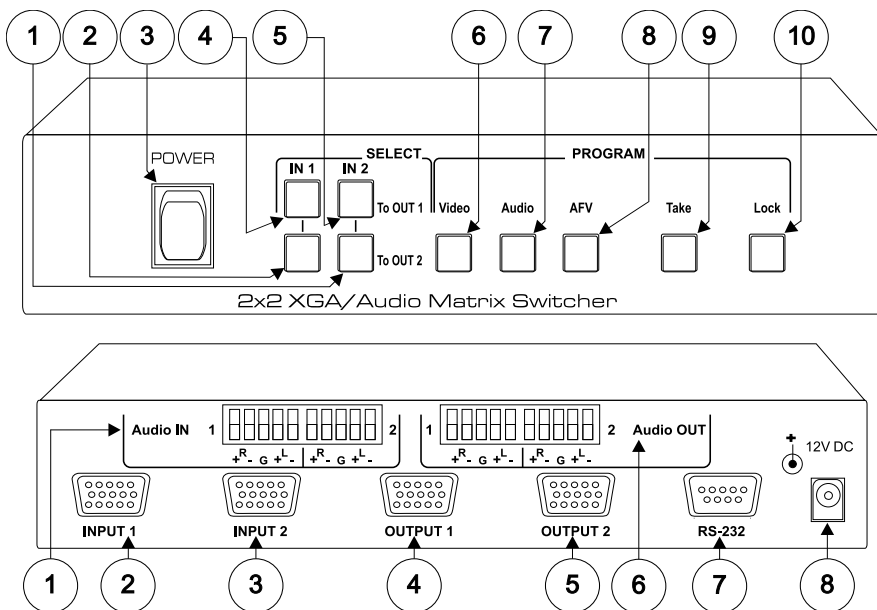


Figure 1: VP-2x2 XGA/Audio Matrix Switcher

Table 1: Front Panel VP-2x2 XGA/Audio Matrix Switcher Features

#	Feature	Function
1	<i>SELECT IN 2 To OUT 2</i> Button ¹	Switches input 2 to output 2
2	<i>SELECT IN 1 To OUT 2</i> Button ¹	Switches input 1 to output 2
3	<i>POWER</i> Switch	Illuminated switch supplying power to the unit
4	<i>SELECT IN 1 To OUT 1</i> Button ¹	Switches input 1 to output 1
5	<i>SELECT IN 2 To OUT 1</i> Button ¹	Switches input 2 to output 1
6	<i>Video</i> Button ¹	When pressed actions relate to video
7	<i>Audio</i> Button ¹	When pressed actions relate to audio
8	<i>AFV</i> Button ¹	When pressed audio channels follow the video channels. The button is illuminated when the <i>AFV</i> mode is selected
9	<i>Take</i> Button ¹	Used to confirm setup and switching ²
10	<i>Lock</i> Button ¹	Disengages the front panel buttons

Table 2: Rear Panel VP-2x2 XGA/Audio Matrix Switcher Features

#	Feature	Function
1	<i>Audio IN</i> Terminal Block Connectors	Connects to the 2 balanced audio inputs
2	<i>Video INPUT 1</i> HD 15F Connector	Connects to the video source 1
3	<i>Video INPUT 2</i> HD 15F Connector	Connects to the video source 2
4	<i>Video OUTPUT 1</i> HD 15F Connector	Connects to the video acceptor 1
5	<i>Video OUTPUT 2</i> HD 15F Connector	Connects to the video acceptor 2
6	<i>Audio OUT</i> Terminal Block Connectors	Connects to the 2 balanced audio outputs
7	<i>RS-232</i> Connector	DB 9F connector connects to PC or Remote Controller
8	12V DC	+12V DC connector for powering the unit

4.1 Connecting the XGA/Audio Matrix Switcher

To connect the **VP-2x2**, connect the following³ to the rear panel ports:

- Video input and output cables
- Audio input and output cables (see section 4.1.1)
- Power adapter
- A PC via the null-modem adapter (when using the Kramer Control software or other controller) if control via RS-232 is required (see section 4.1.2)

¹ When selected, a button illuminates

² Press the Take button to set the CONFIRM mode (the Take button illuminates), in which you can key-in actions and then confirm them. Alternatively, in the AT ONCE mode, actions require no user confirmation and execution is immediate (the Take button does not illuminate)

³ Switch OFF the power on each device before connecting it to your VP-2x2. After connecting your VP-2x2, switch on its power and then switch on the power on each device

4.1.1 Connecting the Balanced Audio Inputs/Outputs

Figure 2 illustrates the principle of how to connect the balanced stereo audio inputs and outputs¹:

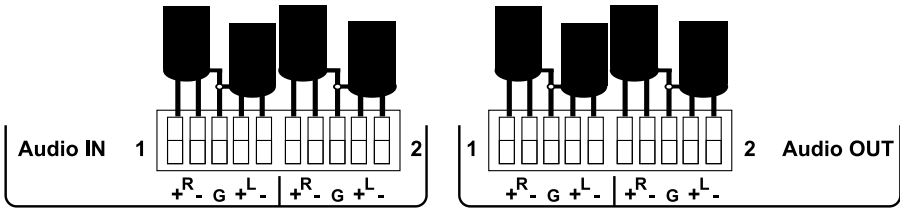


Figure 2: Connecting a Balanced Stereo Audio Input/Output

4.1.2 Connecting a PC

To connect a PC to the **VP-2x2**, using the Null-modem adapter provided with the machine (recommended):

- Connect the “RS-232” DB9 rear panel port on the **VP-2x2** unit to the Null-modem adapter and connect the Null-modem adapter with a 9 wire flat cable² to the RS-232 DB9 port on your PC

To connect a PC to the **VP-2x2**, without using a Null-modem adapter:

- Connect the RS-232 DB9 port on your PC to the “RS-232” DB9 rear panel port on the **VP-2x2** unit, as Figure 3 illustrates (depending on whether the PC has a 9-pin or 25-pin connector)

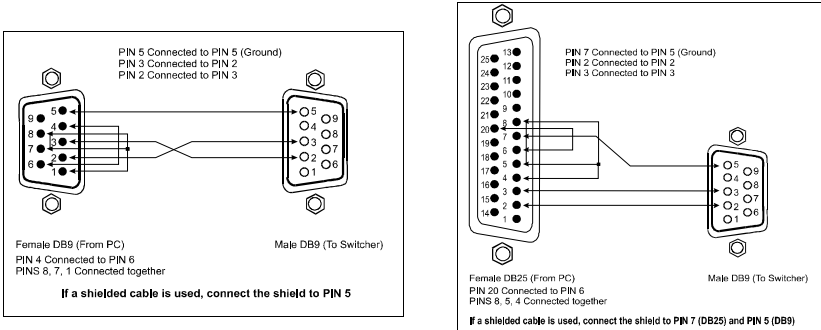


Figure 3: Connecting a PC without using a Null-modem Adapter

1 When using shielded cable, connect the G terminals to the shield

2 Up to 50 feet of cabling may be used for the RS-232 connection

5 Operating Your XGA/Audio Matrix Switcher

Operate your **VP-2x2** via:

- The front panel buttons
- RS-232 serial commands transmitted by a touch screen system, PC¹, or other serial controller

5.1 Choosing the Audio-Follow-Video or Breakaway Option

You can switch balanced stereo audio signals in one of 2 ways, either:

- Audio-follow-video (AFV), in which all operations relate to both the video and the audio channels²; or
- Breakaway, in which video and audio channels switch independently

5.1.1 Setting the Audio-Follow-Video Option

To set the Audio-follow-video (AFV) option:

1. Press the AFV button.
2. If the audio and video configurations are the same, the AFV button illuminates. The audio will follow the video.
3. If the audio configuration differs from the video configuration, the Audio button will blink, and require reconfiguring for AFV operation. Press the TAKE button to confirm the modification (reconfiguring the audio according to the video).

5.1.2 Setting the Breakaway Option

To set the Breakaway option:

1. Press either the Audio (for audio control only) or the Video (for video control only) button.
2. If the Audio button illuminates, all switching operations relate to Audio.
3. If the Video button illuminates, all switching operations relate to Video.

¹ For instructions on using the Windows 95/98/2000/NT™ Control Software, refer to the separate user manual (included on the CD-ROM in .pdf format), *Kramer Control Software*

² Audio and video connections are the same

5.2 Locking the Front Panel

To prevent changing the settings accidentally or tampering with the front panel, lock your **VP-2x2**. Unlocking releases the protection mechanism.

To lock the **VP-2x2**:

- Press the LOCK button for more than 2 seconds

The LOCK button illuminates, freezing the front panel controls. Pressing a button will have no effect, except to cause the LOCK button to blink¹.

Nevertheless, even though the front panel is locked you can still operate your PC control software

To unlock the **VP-2x2**:

- Press the illuminated LOCK button for more than 2 seconds

The **VP-2x2** unlocks and the LOCK button no longer illuminates

6 Technical Specifications

Table 3 includes the technical specifications:

Table 3: Technical Specifications of the VP-2x2 XGA/Audio Matrix Switcher

INPUTS:	2 VGA/UXGA on HD15F connectors 2 balanced stereo audio on detachable terminal block connectors
OUTPUTS:	2 VGA/UXGA on HD15F connectors 2 balanced stereo audio on detachable terminal block connectors
MAX. OUTPUT LEVEL:	Video: 1.7 Vpp; Audio: 7.2 Vpp
BANDWIDTH (-3dB):	Video: 400 MHz, Audio: 100 kHz
DIFF. GAIN:	0.05%
DIFF. PHASE:	0.05 deg.
K-FACTOR:	<0.05%
S/N RATIO:	Video: 78.3 dB; Audio: 95 dB, unweighted
CROSSTALK:	Video: -43 dB; Audio: 77 dB @ 1 kHz
CONTROLS:	Front panel touch switches, RS-232
COUPLING:	DC
AUDIO THD + NOISE:	<0.049%
AUDIO 2nd HARMONIC:	<0.003%
POWER SOURCE:	12 VDC, 150 mA.
DIMENSIONS:	22cm x 18cm x 4.5 cm (8.7" x 7" x 1.7") W, D, H, (half 19", 1U).
WEIGHT:	1.1 kg (2.4 lbs.) approx.
ACCESSORIES:	Power supply, Null modem adapter, Windows 95/98/2000/NT™ Kramer control software
OPTIONS:	19" rack adapters RK-80 (holds 2 units)

¹ Warning that you need to unlock to regain control via the front panel

7 Table of Hex Codes for Serial Communication

Table 4 lists the Hex values for switching on the **VP-2x2**.

For more detailed information, see Protocol 2000 (on our Web site at <http://www.kramerelectronics.com> (click “Communication Protocols and Hex Tables for RS-232 operated switchers, matrix switchers, and other equipment” in the Technical Support section)).

Table 4: Hex Codes

	OUT 1	OUT 2
OUT 1	01 81 81 81	01 81 82 81
OUT 2	01 82 81 81	01 82 82 81

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.



Kramer Electronics, Ltd.

Web site: www.kramerelectronics.com

E-mail: info@kramerelect.com

P/N: 2900-002059 REV 2