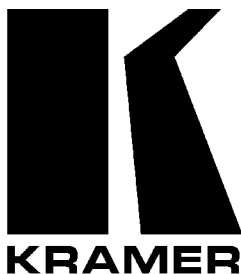


Kramer Electronics, Ltd.



USER MANUAL

Model:

VS - 812

8x1 Composite / s-Video / Audio Switcher

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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 switchers and matrices, and distribution amplifiers, we also offer excellent remote controllers, processors, interfaces and computer-related products. Congratulations on purchasing your Kramer **VS-812** *8x1 Composite / s-Video / Audio Switcher*. This product is ideal for the following typical applications:

- Video duplication studios
- Broadcast, production, or presentation systems requiring high quality signal distribution
- Schools, retail outlets and sports bars

The package includes the following items:

- **VS-812** *8x1 Composite / s-Video / Audio Switcher*
- Power cord
- Windows 95/98/NT™ Kramer control software
- This user manual
- 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

3 Overview

The **VS-812** is a unique *8x1 Composite / s-Video / Audio Switcher* and distribution amplifier (DA) that includes:

- 8 composite video inputs with balanced stereo audio and 8 s-Video (Y/C) inputs with balanced stereo audio
- 2 composite video outputs with balanced stereo audio and simultaneously, independent of the selected input for mat, 2 s-Video (Y/C)

outputs, with balanced stereo audio

- A built-in bi-directional converter between composite video and s-Video (Y/C)
- 8 INPUT SELECTOR buttons and 8 INPUT SETUP switches¹ on the front panel

In addition the **VS-812**:

- Is controllable via the front panel input selector buttons or by RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller
- Switches during the vertical interval²
- Transitions are glitch-free when the sources are genlocked

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 that may adversely influence signal quality
- Positioning your Kramer **VS-812** in a location free from moisture and away from excessive sunlight and dust

4 Your Composite / s-Video / Audio Switcher

Figure 1 illustrates the front and rear panels of the **VS-812**. Tables 1 and 2 define the front and rear panels of the **VS-812**, respectively. Table 3 (on page 6) defines the dipswitch settings³.

¹ To select the input video format, either CV or s-Video (Y/C). For example, as Figure 9 illustrates, inputs 1, 3, 4 and 7 are set to the s-Video (Y/C) video format and inputs 2, 5, 6 and 8 are set to the CV video format

² When using composite video, sync is derived from the CV IN 1 connector. When using s-Video, sync is derived from the s-Video (Y/C) IN 1 connector

³ The dipswitches are located on the underside of the VS-812, as Figure 3 illustrates

Your Composite / s-Video / Audio Switcher

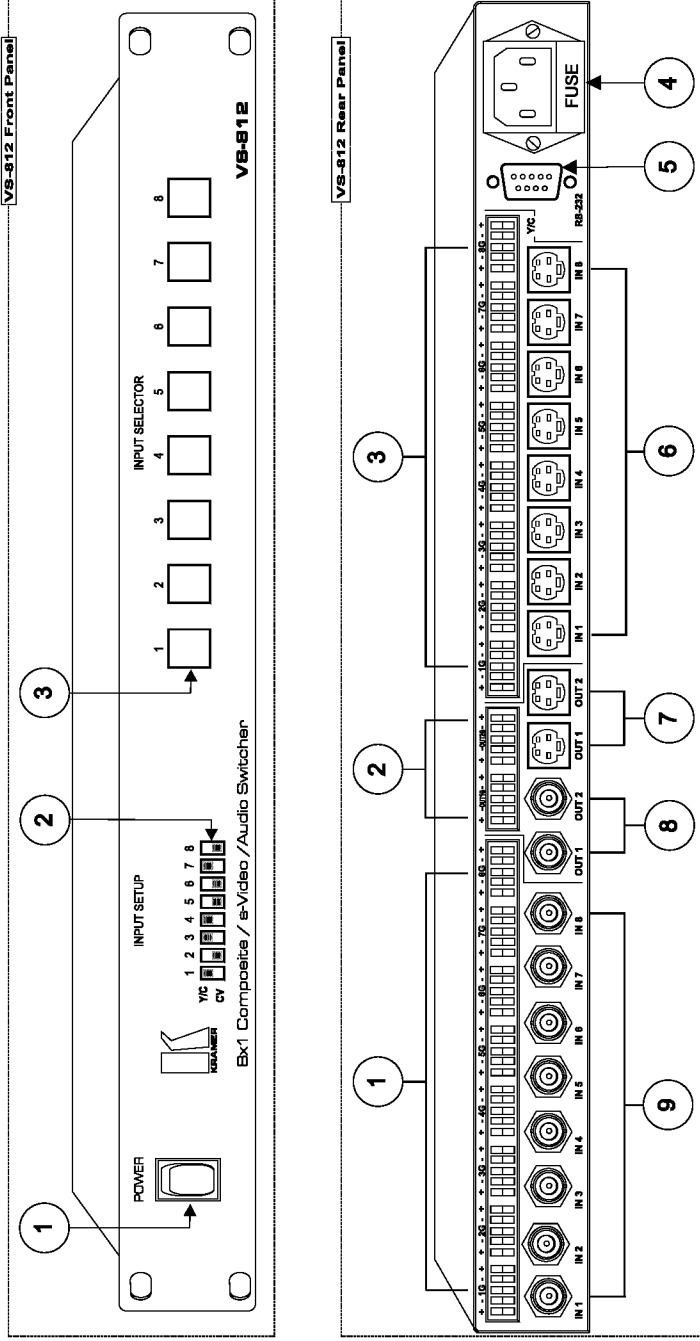


Figure 1: VS-812 8x1 Composite / s-Video / Audio Switcher

Table 1: Front Panel VS-812 8x1 Composite / s-Video / Audio Switcher Features

| # | Feature | Function |
|---|------------------------|---|
| 1 | Power Switch | Illuminated switch supplying power to the unit |
| 2 | INPUT SETUP Switches | Set the video format, Y/C or CV, for each input (from 1 to 8) selected via an INPUT SELECTOR button |
| 3 | INPUT SELECTOR Buttons | Select the video / audio source (from 1 to 8) |

Table 2: Rear Panel VS-812 8x1 Composite / s-Video / Audio Switcher Features

| # | Feature | Function |
|---|--|---|
| 1 | Audio (Composite Video) IN Terminal Block Connectors | Connect up to 8 audio sources (for the composite video) |
| 2 | Audio OUT Terminal Block Connectors | Connect up to 2 audio (composite Video and s-Video) acceptors |
| 3 | Audio (s-Video) IN Terminal Block Connectors | Connect up to 8 audio sources (for the s-Video) |
| 4 | Power Connector with Fuse | AC connector enabling power supply to the unit |
| 5 | RS-232 Connector | DB 9F connector connects to PC or Serial Controller |
| 6 | s-Video IN 4p Connectors | Connect up to 8 s-Video sources |
| 7 | s-Video OUT 4p Connectors | Connect up to 2 s-Video acceptors |
| 8 | Composite Video OUT BNC Connectors | Connect up to 2 composite video acceptors |
| 9 | Composite Video IN BNC Connectors | Connect up to 8 composite video sources |

5 Connecting the Composite / s-Video / Audio Switcher

To connect the **VS-812**, connect the following¹ to the rear panel:

- The Composite video and s-Video (Y/C) sources and acceptors as well as the appropriate audio sources and acceptors
- The power cord

In addition (when using the *Kramer Control software* or other controller), you can choose to connect several independent **VS-812** units to a PC, as section 5.1 describes, and/or to connect a set of **VS-812** units to a PC, as section 5.2 describes.

5.1 Connecting Several Independent VS-812 Units to a PC

This section describes preparing the RS-232 connectors, adjusting Jumpers JMP4 and JMP5, and setting the dials on an independent **VS-812** unit.

¹ Switch OFF the power on each device before connecting it to your VS-812. After connecting your VS-812, switch on its power and then switch on the power on each device

5.1.1 Preparing the RS-232 Connectors

To connect a PC to an independent¹ VS-812 unit, using the Null-modem adapter provided with the machine (recommended):

- Connect the RS-232 DB9 rear panel port on the VS-812 unit to the Null-modem adapter and connect the Null-modem adapter with a 9 wire flat cable to the RS-232 DB9 port on your PC

To connect a PC to an independent¹ VS-812 unit, 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 VS-812 unit, as Figure 2 illustrates (depending on whether the PC has a 9-pin or 25-pin connector)

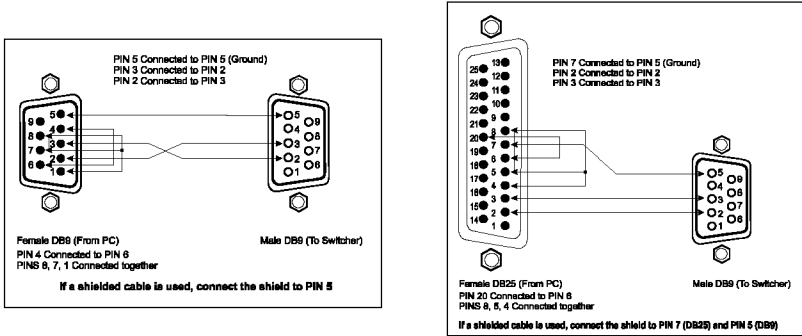


Figure 2: Connecting a VS-812 Unit to a PC without using a Null-modem Adapter

5.1.2 Adjusting Jumpers JMP4 and JMP5

Jumpers JMP4 and JMP5² on the board inside a VS-812 unit, should be:

- Open (the factory default) - when using that VS-812 unit as an independent VS-812 unit
- Closed - when using that VS-812 unit as a VS-812 unit that forms part of a set of VS-812 units³

5.1.3 Setting the Dipswitches on an Independent VS-812 Unit

The VS-812 unit includes a set of 4 dipswitches, as Table 3 defines. Figure 3 illustrates the location of the dipswitches on the underside of the VS-812 unit:

1 A stand-alone VS-812 unit, or up to 7 independent VS-812 (or other Kramer) units that are controlled by a RS-232 port

2 Located as illustrated in Figure 7

3 Refer to section 5.2.2

Connecting the Composite / s-Video / Audio Switcher

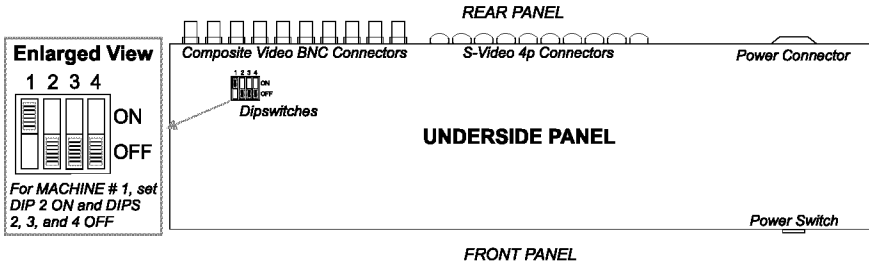


Figure 3: Location of the Dipswitches on a VS-812 Unit

Pull a dipswitch DOWN to set it to OFF. Pull a dipswitch UP to set it to ON.

On a VS-812 unit, set DIP 4¹:

- OFF - when using that VS-812 unit as an independent VS-812 unit
- ON - when using that VS-812 unit as a VS-812 unit that forms part of a set of VS-812 units²

Table 3: MACHINE # Dipswitch Settings for Independent VS-812 Unit(s)

| MACHINE # | DIP 1 | DIP 2 | DIP 3 | DIP 4 |
|-----------|-------|-------|-------|-------|
| 1 | ON | OFF | OFF | OFF |
| 2 | OFF | ON | OFF | OFF |
| 3 | ON | ON | OFF | OFF |
| 4 | OFF | OFF | ON | OFF |
| 5 | ON | OFF | ON | OFF |
| 6 | OFF | ON | ON | OFF |
| 7 | ON | ON | ON | OFF |

The MACHINE # determines the position of a VS-812 unit in the sequence³, specifying which VS-812 unit is being controlled when up to 7 independent VS-812 units or other Kramer units connect to one RS-232 port, as Figure 5 illustrates. Set the MACHINE # on a VS-812 unit via dipswitches 1, 2, and 3, according to the information in Table 3. When using an independent VS-812 unit, set as MACHINE # 1, and set Dip 4 OFF, as Figure 4 illustrates:

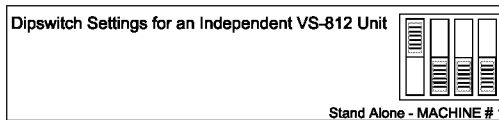


Figure 4: Dipswitch Settings on an Independent VS-812 Unit

¹ DIP 4 (when set to ON) is used to notify a VS-812 unit that it forms part of a set

² Refer to section 5.2.3

³ Set the MACHINE # on the first unit to one, on the second unit to 2, and so on up to a maximum of 7 units

Figure 5 illustrates how to set the dipswitches¹ on up to 7 independent VS-812 units, which are controlled by one RS-232 port:

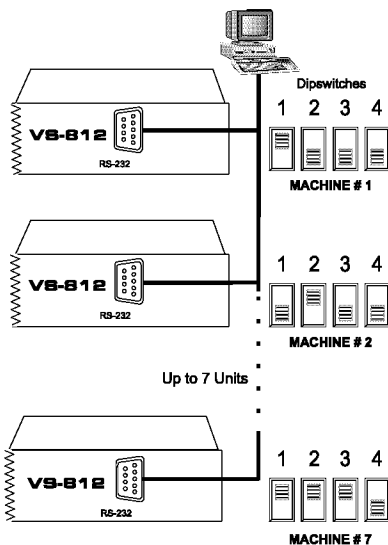


Figure 5: Dipswitch Settings on 7 Independent VS-812 Units

5.2 Connecting a Set of VS-812 Units to a PC

Connecting a set² of VS-812 units enables you to connect several VS-812 units to form a combined VS-812 unit with expanded inputs³ and/or connect several individual VS-812 (or other Kramer) units to the same RS-232 line.

This section describes preparing the RS-232 connectors, shorting Jumpers JMP4 and JMP5, and setting the dipswitches on a set of VS-812 units.

5.2.1 Preparing the RS-232 Connectors

To connect a PC to a set of VS-812 units, do **not** use a Null-modem adapter. Do the following:

1. Prepare the RS-232 DB9F connector (A), by connecting PIN 4 to PIN 6 and connecting PINS 8, 7, and 1 together.

1 Set Dip 4 OFF and set the MACHINE # according to each VS-812 unit's position in the sequence

2 You can only connect one set of VS-812 units to the same RS-232 line

3 By looping 7 VS-812 units you provide up to 49 CV inputs and up to 49 Y/C inputs. You can also connect up to 7 standalone VS-812 units together with these 7 looped VS-812 units, to the same RS-232 line

2. Attach the RS-232 DB9F connector (A) to another RS-232 DB9M connector (B) by connecting PIN 5 to PIN 5, PIN 3 to PIN 2, and PIN 2 to PIN 3.
3. Connect the RS-232 DB9F connector (A) to your PC's RS-232 DB9M port.
4. Attach the RS-232 DB9M connector (B) to another RS-232 DB9M connector (C), by connecting PIN 5 to PIN 5, PIN 8 to PIN 3, PIN 9 to PIN 2.
5. Connect the RS-232 DB9M connector (B) to the RS-232 DB9F port on the first VS-812 unit.
6. Attach the RS-232 DB9M connector (C) to another RS-232 DB9M connector, if required, by connecting PIN 5 to PIN 5, PIN 8 to PIN 3, PIN 9 to PIN 2.
7. Connect the RS-232 DB9M connector (C) to the RS-232 DB9F port on the next VS-812 unit.

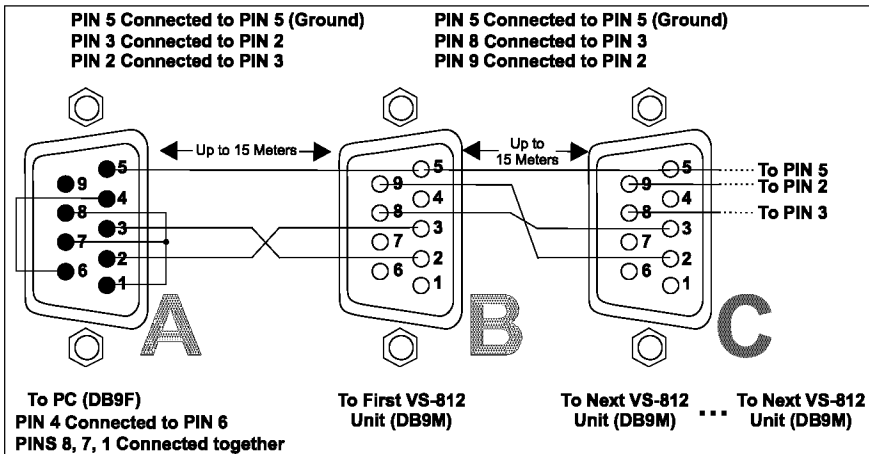


Figure 6: Preparing the RS-232 Connectors

5.2.2 Shorting Jumpers JMP4 and JMP5

When connecting a PC to a set of VS-812 units you need to adjust the factory default by opening each VS-812 unit, shorting (closing) Jumpers JMP4 and JMP5, and then closing each VS-812 unit. Figure 7 illustrates the location of Jumpers JMP4 and JMP5:

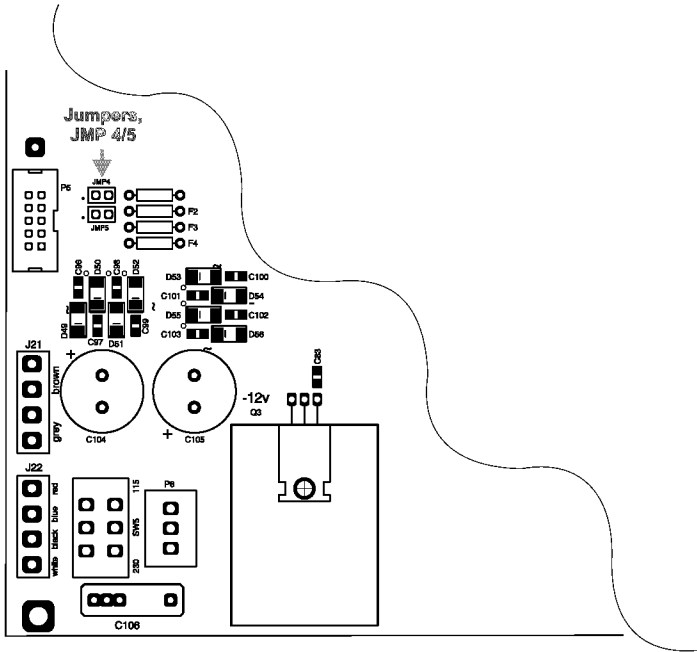


Figure 7: Location of Jumpers JMP4 and JMP5

5.2.3 Setting the Dipswitches on a Set of VS-812 Units

Cascading up to 7 VS-812 units¹ requires using all 4 dipswitches², located on the underside of the VS-812 unit, as Figure 3 illustrates. Set:

- Every VS-812 unit that forms part of the set, as MACHINE # 8
- The MACHINE ADDRESS #³ using DIPS 1, 2, and 3, as Table 4 defines:

Table 4: MACHINE ADDRESS # Dipswitch Settings for a Set of VS-812 Units

| MACHINE ADDRESS # | DIP 1 | DIP 2 | DIP 3 | DIP 4 | INPUT # |
|-------------------|-------|-------|-------|-------|---------|
| 1 | ON | OFF | OFF | ON | 1-7 |
| 2 | OFF | ON | OFF | ON | 8-14 |
| 3 | ON | ON | OFF | ON | 15-21 |
| 4 | OFF | OFF | ON | ON | 22-28 |
| 5 | ON | OFF | ON | ON | 29-35 |
| 6 | OFF | ON | ON | ON | 36-42 |
| 7 | ON | ON | ON | ON | 43-49 |

1 To form a set of VS-812 units with 7 inputs on each of the VS-812 units

2 Setting DIP 4 ON to notify the VS-812 unit that it forms part of a set of VS-812 units

3 Set the MACHINE ADDRESS # on each VS-812 unit that is included in a set, to define its position in the extended switcher system, specifying which VS-812 unit within the set is being controlled

Figure 8 illustrates how to connect and how to set the dipswitches on a set of 3 looped **VS-812** units (with DIP 4 ON) and on an independent **VS-812** unit (with DIP 4 OFF), which are controlled by one RS-232 port.

To connect the set of 3 looped **VS-812** units:

1. Connect the CV OUT 1 connector and the OUT 1 Audio (CV) connector on the first **VS-812** unit to the CV video acceptor.
2. Connect the Y/C OUT 1 connector and the OUT 2 Audio (Y/C) connector on the first **VS-812** unit to the Y/C video acceptor.
3. Connect the CV OUT 1 connector on the second **VS-812** unit to the CV IN 8 connector on the first **VS-812** unit and connect the OUT 1 Audio (CV) connector on the second **VS-812** unit to the IN 8 Audio (CV) connector on the first **VS-812** unit.
4. Connect the Y/C OUT 1 connector on the second **VS-812** unit to the Y/C IN 8 connector on the first **VS-812** unit and connect the OUT 2 Audio (Y/C) connector on the second **VS-812** unit to the IN 8 Audio (Y/C) connector on the first **VS-812** unit.
5. Connect the CV OUT 1 connector on the third **VS-812** unit to the CV IN 8 connector on the second **VS-812** unit and connect the OUT 1 Audio (CV) connector on the third **VS-812** unit to the IN 8 Audio (CV) connector on the second **VS-812** unit.
6. Connect the Y/C OUT 1 connector on the third **VS-812** unit to the Y/C IN 8 connector on the second **VS-812** unit and connect the OUT 2 Audio (Y/C) connector on the third **VS-812** unit to the IN 8 Audio (Y/C) connector on the second **VS-812** unit.

You can switch any one of the 21 CV inputs to the CV video acceptor and any one of the 21 Y/C inputs to the CV video acceptor.

Connecting the Composite / s-Video / Audio Switcher

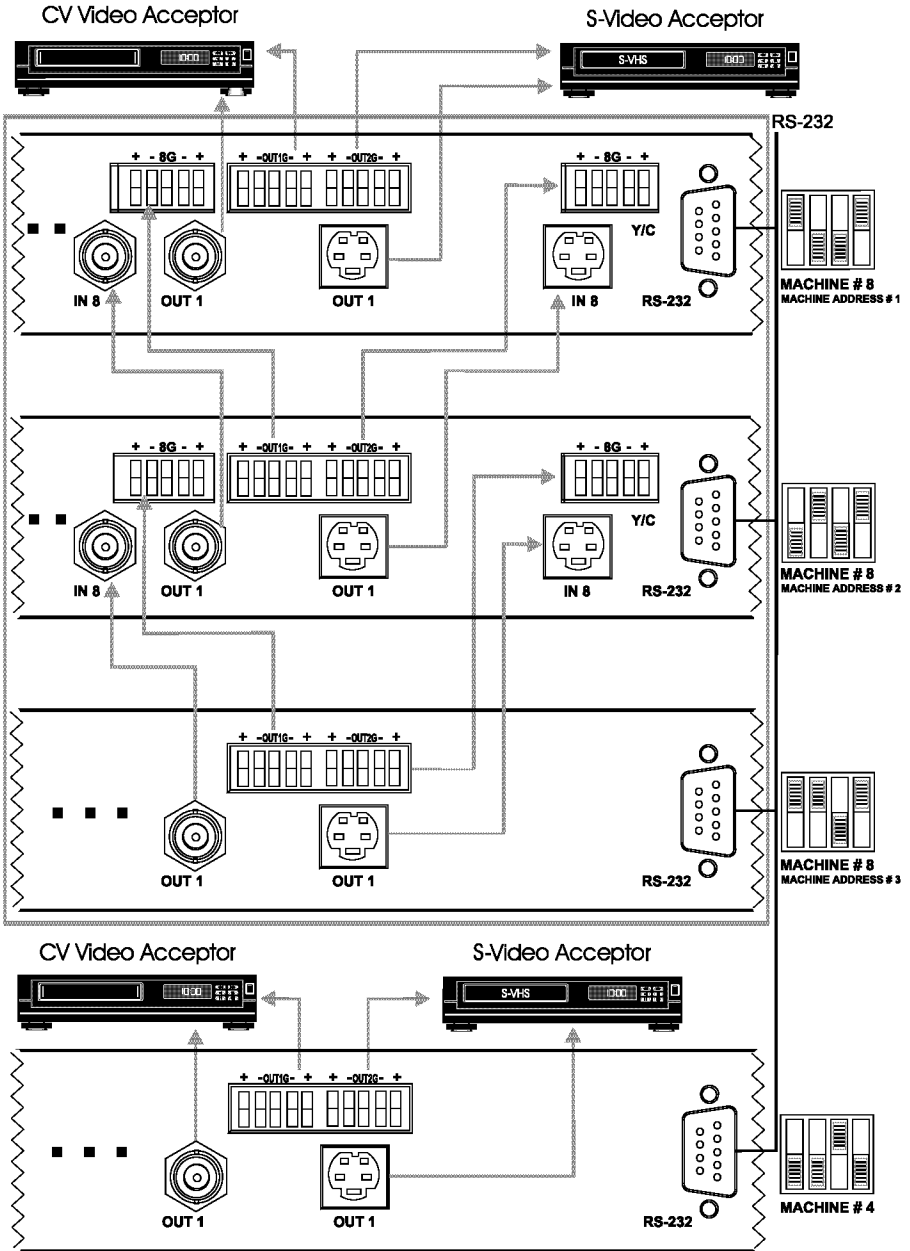


Figure 8: A RS-232 Port Controlling a Set of 3 Units and an Independent Unit

6 Operating Your Composite / s-Video / Audio Switcher

You can operate your **VS-812** via:

- The INPUT SELECTOR buttons (1 to 8) and the INPUT SETUP switches (1 to 8) on the front panel
- RS-232 serial commands transmitted by a touch screen system, PC¹, or other serial controller

6.1 Using the Front Panel Buttons and Switches

You can only select one² video source at a time.

To select a video source:

- Set the appropriate INPUT SETUP switch as required (UP for Y/C; DOWN for CV), or preset up to 8 INPUT SETUP switches, as section 6.1.1 describes
- Press one³ INPUT SELECTOR button

The pressed INPUT SELECTOR button illuminates, indicating selection and outputting of that video and audio source

6.1.1 Presetting up to 8 INPUT SETUP Switches

You can preset⁴ the INPUT SETUP switches of up to 8 connected video sources. For example, as Figure 9 illustrates, pull the INPUT SETUP switches 1, 3, 4 and 7 UP, to preset these INPUT SETUP switches to Y/C. Pull the INPUT SETUP switches 2, 5, 6 and 8 DOWN, to preset these INPUT SETUP switches to CV.

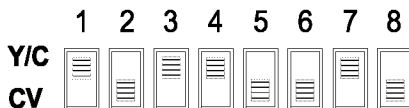


Figure 9: Setting the INPUT SETUP Switches

Section 6.1.2 describes using the INPUT SELECTOR buttons on an independent **VS-812** unit and section 6.1.3 describes using the INPUT SELECTOR buttons on a set of 3 looped **VS-812** units.

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

2 One from the 8 s-Video (Y/C) or 8 composite video sources on an independent VS-812 unit, and one from the 49 s-Video (Y/C) or 49 composite video sources on a set of 7 looped VS-812 units

3 You cannot press more than one INPUT SELECTOR button at a time

4 To save you time when using the same configuration

6.1.2 Selecting a CV or a Y/C Source on an Independent Unit

After connecting a composite video source to CV IN # 1 and an s-Video source to Y/C video IN # 1, set the INPUT SETUP switch # 1, as appropriate, before or after pressing the INPUT SELECTOR button # 1.

To select the CV source # 1:

- Pull the INPUT SETUP switch # 1 DOWN
- Press the INPUT SELECTOR button # 1

The INPUT SELECTOR button # 1 illuminates, indicating selection and outputting¹ of the video and audio CV source # 1

To select the Y/C source # 1, when the INPUT SELECTOR button # 1 illuminates:

- Pull the INPUT SETUP switch # 1 UP

The INPUT SELECTOR button # 1 continues to illuminate, indicating selection and outputting of the video and audio Y/C source # 1

To select the Y/C source # 1, when the INPUT SELECTOR button # 1 does not illuminate:

- Pull the INPUT SETUP switch # 1 UP
- Press the INPUT SELECTOR button # 1

The INPUT SELECTOR button # 1 illuminates, indicating selection and outputting of the video and audio Y/C source # 1

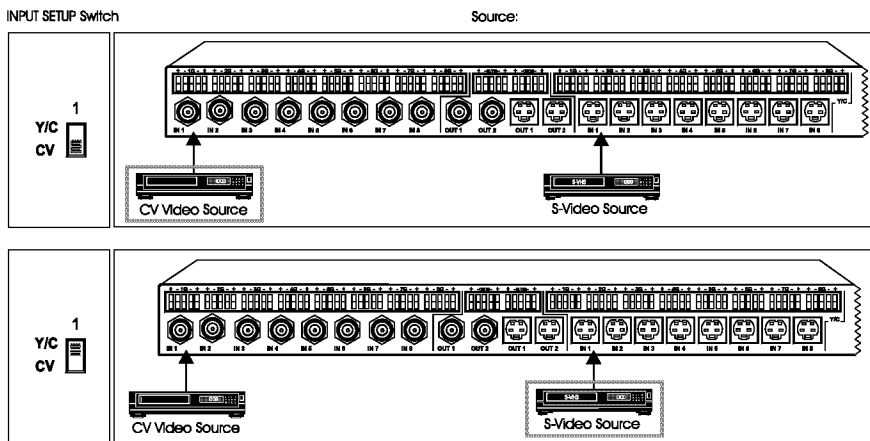


Figure 10: Selecting a CV or a Y/C Source

¹ Figure 9 does not show any acceptor. Refer to Figure 12 and Figure 13 to see how to connect acceptors

6.1.3 Selecting a CV or a Y/C Source on a Set of 3 VS-812 Units

When operating, for example, a set of 3 looped **VS-812** units, not all the INPUT SELECTOR buttons on the front panels of the combined **VS-812** units are active. For example, as Figure 11 illustrates, with a combination of 3 switchers, you cannot use all the 8 INPUT SELECTOR buttons on each looped **VS-812** unit. INPUT SELECTOR button 8 on the first, second and third units are inactive. You cannot connect CV IN 8 on the first and second units to an independent source because CV IN 8 on the first unit is connected to OUT 1 on the second unit and CV IN 8 on the second unit is connected to OUT 1 on the third unit. Similarly, you cannot connect Y/C IN 8 on the first and second units to an independent source because Y/C IN 8 on the first unit is connected to OUT 1 on the second unit and Y/C IN 8 on the second unit is connected to OUT 1 on the third unit.

INPUT SELECTOR buttons marked 1 to 7 on the first looped **VS-812** unit operate CV / Y/C inputs 1 to 7, respectively. INPUT SELECTOR buttons marked 1 to 7 on the second looped **VS-812** unit operate CV / Y/C inputs 8 to 14, respectively. INPUT SELECTOR buttons marked 1 to 7 on the third looped **VS-812** unit operate CV / Y/C inputs 15 to 21, respectively.

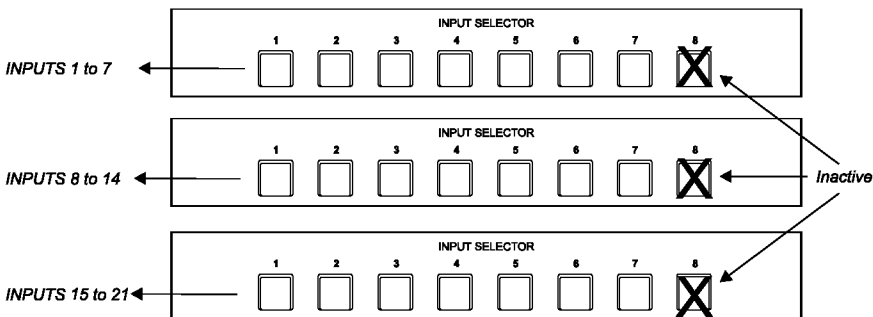


Figure 11: Operating a Set of 3 Switchers

To operate the INPUT SELECTOR buttons on a combination of 3 **VS-812** units:

- Press an active INPUT SELECTOR button on the front panel of one of the looped **VS-812** units

The active INPUT SELECTOR button illuminates and switches that input to the output

6.2 Switching and Distributing

Your **VS-812** is both a switcher and a DA. The **VS-812** simultaneously:

- Switches a converted signal to 2 video acceptors of the other for mat
- Distributes an input signal from the video and audio source to 2 video acceptors of the same format

For example, Figure 12 illustrates how the composite video and audio source # 3 simultaneously:

- Switches (and converts) to s-Video Acceptor 1 at the Y/C video OUT 1 connector and to s-Video Acceptor 2 at the Y/C video OUT 2 connector
- Distributes to CV Video Acceptor 1 at the composite video OUT 1 connector and to CV Video Acceptor 2 at the composite video OUT 2 connector

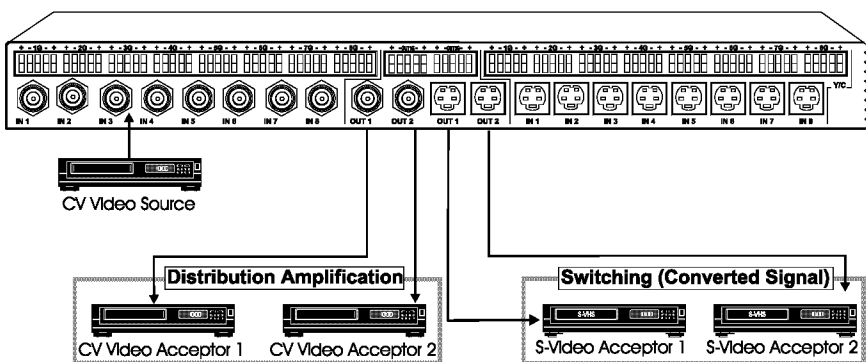


Figure 12: Switching and Distributing

To use your **VS-812** as a 1:2+2 CV DA and a s-Video (Y/C) DA, as the example in Figure 13 illustrates, do the following:

1. Connect the sources and acceptors, as follows:
 - A composite video source to CV IN # 3
 - A s-Video (Y/C) video source to Y/C video IN # 5
 - A composite video acceptor to CV OUT # 1 and another composite video acceptor to CV OUT # 2
 - A s-Video (Y/C) acceptor to Y/C OUT # 1 and another s-Video (Y/C) acceptor to Y/C OUT # 2
2. Set the INPUT SETUP switches, as follows:
 - Pull the INPUT SETUP switch # 3 DOWN
 - Pull the INPUT SETUP switch # 5 UP

3. Press the INPUT SELECTOR button # 3¹.
 INPUT SELECTOR button # 3 illuminates, indicating simultaneous distribution of the:
 - Composite video and audio source # 3 to CV Video Acceptor 1 at the composite video OUT 1 connector and to CV Video Acceptor 2 at the composite video OUT 2 connector
 - Converted composite video and audio source # 3 to s-Video Acceptor 1 at the Y/C video OUT 1 connector and to s-Video Acceptor 2 at the Y/C video OUT 2 connector
4. Press the INPUT SELECTOR button # 5.
 INPUT SELECTOR button # 5 illuminates instead of INPUT SELECTOR button # 3, halting the conversion and distribution of the composite video and audio source # 3 and indicating simultaneous distribution of the:
 - s-Video (Y/C) and audio source # 5 to s-Video Acceptor 1 at the Y/C video OUT 1 connector and to s-Video Acceptor 2 at the Y/C video OUT 2 connector
 - Converted s-Video (Y/C) and audio source # 5 to CV Video Acceptor 1 at the composite video OUT 1 connector and to CV Video Acceptor 2 at the composite video OUT 2 connector

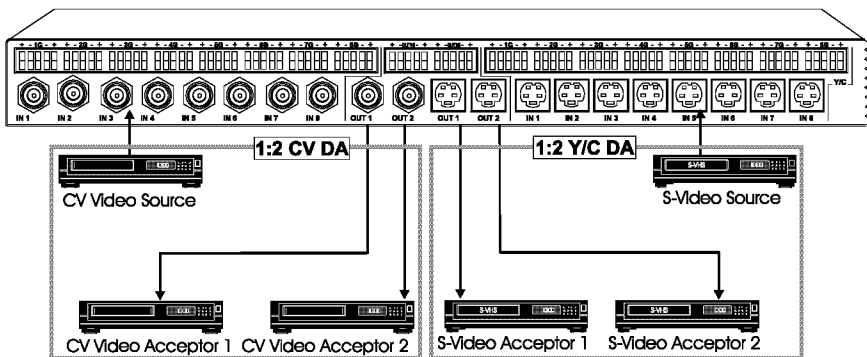


Figure 13: A 1:2 CV Distribution Amplifier and a 1:2 Y/C Distribution Amplifier

7 Technical Specifications

Table 5 includes the technical specifications:

¹ Instead of pressing INPUT SELECTOR button # 3, you can press INPUT SELECTOR button # 5, to use your VS-812 as a 1:2 s-Video (Y/C) DA, as step 4 describes

Table 5: Technical Specifications of the VS-812

| | |
|------------------|---|
| Inputs: | 8 composite video 1pp / 75 Ω on BNC connectors 8 s-Video 1Vpp / 75 Ω (Y); 0.3Vpp / 75 Ω (C) on 4p connectors 16 balanced audio stereo signals, 10 dB / 50 k Ω on detachable terminal blocks |
| Outputs: | 2 composite video 1pp / 75 Ω on BNC connectors 2 s-Video 1Vpp / 75 Ω (Y); 0.3Vpp / 75 Ω (C) on 4p connectors 2 balanced audio stereo signals, 10 dB / 50 Ω on detachable terminal blocks |
| Video Bandwidth: | Exceeding 225 MHz -3dB |
| Video Crosstalk: | -58 dB@ 5MHz |
| Video S/N Ratio: | 73.5 dB |
| Diff. Gain: | 0.26% |
| Diff. Phase: | 0.11 Deg. |
| Audio TND+N: | <0.025% |
| Audio Bandwidth: | 100 kHz -3dB |
| Control: | 8 INPUT SETUP switches; 8 INPUT SELECTOR buttons; RS-232 |
| Dimensions: | 19-inch (W), 7-inch (D) 1U (H) rack-mountable |
| Power Source: | 230 VAC, 50/60 Hz, (115VAC, U.S.A.) 12VA max |
| Weight: | 2.7 kg (6 lbs.) approx |
| Accessories: | Power cord, Windows 95/98/NT™ Kramer control software |

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.



**The list of Kramer distributors appears on our web site:
www.kramerelectronics.com**

We welcome your questions, comments and feedback.

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