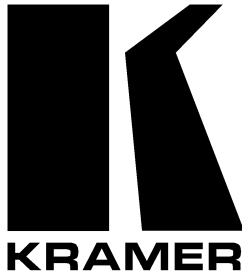


Kramer Electronics, Ltd.



USER MANUAL

Model:

VS-120

20 x 1 Sequential 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 scanners, switchers and matrices, we also offer excellent distribution amplifiers, presentation processors, interfaces, remote controllers and computer-related products. Congratulations on purchasing your Kramer **VS-120 20 x 1 Sequential Video Audio Switcher**. This product is ideal:

- For monitoring large duplication systems
- For automatic error detection in security systems
- As a sophisticated alarm camera scanner

The package includes the following items:

- **VS-120 20 x 1 Sequential Video Audio Switcher**
- Power cord
- Windows 95/98/NT™ Kramer control software
- Null-modem adapter
- This user manual 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

3 Overview

The **VS-120 20 x 1 Sequential Video Audio Switcher** is a programmable scanning video switcher that accepts up to 20 inputs when operating as an independent unit, sequentially cycling the 20 video and audio stereo sources. It is fully programmable with EEPROM/NOV RAM memory for setup saves and recalls. In addition, the **VS-120 20 x 1 Sequential Video Audio Switcher**:

- Supports connecting up to one hundred **VS-120** units to form a combined **VS-120** unit with up to 2000 inputs
- Is controllable via the front panel buttons or by RS-232 or RS-485 commands transmitted by a touch screen system, PC, or other serial controller
- Switches during the vertical interval, ensuring glitch-free transitions between genlocked sources
- Includes operation that is fully microprocessor controlled

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 and positioning your **VS-120 20 x 1 Sequential Video Audio Switcher** in a location free from moisture and away from excessive sunlight and dust

4 Your Sequential Video Audio Switcher

Tables 1 and 2 and Figure 1 define the front and rear panels of the **VS-120**:

Table 1: Front Panel Features and Functions of the VS-120

#	Feature	Function
1	<i>POWER</i> Switch	Illuminated switch supplying power to the unit
2	<i>Program Keys</i>	Use to set the values for the <i>Machine Number</i> , <i>Input Number</i> or <i>Dwell Time</i>
3	<i>Enabled Inputs</i>	LEDs light indicating that the inputs are in use
4	<i>MACHINE</i>	Displays the <i>Machine Number</i> in a 7-segment Display
5	<i>INPUT</i>	Displays the <i>Input Number</i> in a 7-segment Display
6	<i>Down</i> Button	Press to decrease by the value of one digit
7	<i>Up</i> Button	Press to increase by the value of one digit

Your Sequential Video Audio Switcher

#	Feature	Function	
8	Error	<i>List</i> Button	Press to produce a list (during the first scanning cycle) of the video inputs at which a video signal is absent. When scanning, the <i>List</i> LED lights as it detects an absent video signal input. After scanning, press to verify at which input a video signal was absent. The first <i>Machine Number</i> and the first <i>Input Number</i> where a video signal was absent flashes in the <i>MACHINE</i> and <i>INPUT 7</i> -segment Displays. Press the <i>UP</i> and <i>DOWN</i> buttons to show sequentially the video inputs at which video signals were absent. Delete entries from the list using the <i>Del</i> key. Deleting all entries from the list will turn off the <i>List</i> LED. When beginning a new scan, the list is erased and begins from 0
		<i>Ignore</i> Button	Scans independently of the video input signal's characteristics (lights the <i>Ignore</i> LED)
		<i>Stop</i> Button	Stops scanning after detecting a video input error (lights the <i>Stop</i> LED)
		<i>Skip</i> Button	Skips an input after detecting a video input error during scanning (lights the <i>Skip</i> LED) and continues scanning the next input
12	Program	<i>Disable</i> Button	Press to turn off the selected <i>Enabled Inputs</i> LED
13		<i>Enable</i> Button	Press to light the selected <i>Enabled Inputs</i> LED
14		<i>Input Number</i> Button	Press to alter the <i>Enable/Disable</i> status of an input. The current <i>Input Number</i> flashes in the <i>INPUT 7</i> -segment Display. Alter the current <i>Input Number</i> via the <i>UP</i> , <i>DOWN</i> , 0 to 9 and <i>ENT</i> keys. After selecting the <i>Input Number</i> , press the <i>Enable</i> or <i>Disable</i> button. Press again to alter the <i>Enable/Disable</i> status of an additional input repeating the process from the beginning. To escape from the <i>PROGRAM</i> process, press <i>ENT</i>
15		<i>Machine Number</i> Button	Press and then use the <i>UP</i> , <i>DOWN</i> , 0 to 9 and <i>ENT</i> keys to set the Machine #. If the selected Machine # is not the unit in use, the status of the <i>Enabled Inputs</i> LEDs on the unit in use will indicate the present status of the selected machines. The 2 LEDs, <i>AUTO</i> and <i>MANUAL</i> will not light. The <i>AUTO</i> and <i>MANUAL</i> LEDs will only flash on the unit whose input status is being changed. Press <i>ENT</i> to return to normal operation. The <i>AUTO</i> and <i>MANUAL</i> LEDs will revert to their normal status
16	Auto Mode	<i>Continue</i> Button	Starts scanning from the present connected input to the output (functions only when the <i>AUTO</i> LED lights)
		<i>Stop</i> Button	Stops the scanning
		<i>Start</i> Button	Starts scanning (only if the <i>AUTO</i> LED lights) from the first input of the first machine that is in the <i>Enable</i> state. The <i>Dwell Time</i> setting determines the scanning time
		<i>Dwell Time</i> Button	Sets the scanning time (range is between 2 and 99 seconds) and flashes the current setting in the <i>MACHINE</i> and <i>INPUT 7</i> -segment Displays. Alter the current setting via the <i>UP</i> , <i>DOWN</i> , 0 to 9 and <i>ENT</i> keys
20	Setup	<i>Manual</i> Button	Press to activate the (default) switcher mode, which prevents using the unit as a scanner and lights the <i>Manual</i> LED. Use the <i>UP</i> and <i>DOWN</i> keys to route an input to an output. Each pressing switches the next or previous input (according to the order). To switch an input that is not close to the present setting, use the 0 to 9 and <i>ENT</i> keys. To select a single digit number, press 0 followed by the input number. After pressing the first button, the input number flashes until pressing the second digit. After pressing the 2 digits the <i>MACHINE 7</i> -segment Display flashes. Now you can also enter the required Machine #, followed by <i>ENT</i> and then press 2 digits (but it is optional). If the <i>MACHINE 7</i> -segment Display shows the number of the required machine, you can press <i>ENT</i> immediately without pressing the Machine #. For example, if input #13 on machine #1 is connected to the outputs, and you want to connect input #5 to the output, press 0 followed by 5, and then <i>ENT</i> . An additional example: If input #13 on machine #1 is connected to the output, and you want to connect input #7 of machine #2 to the output, press 0 followed by 7, and then 0 followed by 2 and then press <i>ENT</i>
		<i>Auto</i> Button	Press to activate the scanner mode, which prevents using the unit as a switcher and lights the <i>Auto</i> LED
22		<i>Self Address</i> Button	Sets the Machine # (between 1 and 99). Set a single machine as Machine # 1 (the master). When interconnecting several machines, set one of them as Machine # 1. Press to flash the current setting in the <i>MACHINE</i> and <i>INPUT 7</i> -segment Displays. Alter the current setting via the <i>UP</i> , <i>DOWN</i> , 0 to 9 and <i>ENT</i> keys

Connecting the Sequential Video Audio Switcher

Table 2: Rear Panel Features and Functions of the VS-120

#	Feature	Function
1	Audio Inputs RCA Connectors	Connects to the left and right audio sources (from 1 to 20)
2	VIDEO Inputs BNC Connectors	Connects to the video sources (from 1 to 20)
3	VIDEO Outputs/Loop BNC Connectors	Connects to the video acceptor(s) / next unit (from 1 to 2)
4	RS-485 Connector	Detachable terminal block port PINOUT from left: + - G
5	Audio Outputs/Loop RCA Connectors	Connects to the left and right audio connectors on the video acceptor(s) / next unit (from 1 to 2)
6	Power Connector with Fuse	230 VAC 50/60 Hz (115 VAC, U.S.A.) power inlet
7	RS-232 Connector	DB 9F connector connects to PC or Remote Controller

5 Connecting the Sequential Video Audio Switcher

To connect a **VS-120 20 x 1 Sequential Video Audio Switcher** unit, do the following:

1. Connect up to 20 video-audio stereo sources to the appropriate input video BNC connectors and input AUDIO L and AUDIO R RCA connectors.
2. Connect the output video BNC connectors and output AUDIO L and AUDIO R RCA connectors to up to 2 video-audio stereo acceptors.
3. Connect the power cord to the mains electricity.

6 Technical Specifications

Table 3: VS-120 Technical Specifications

Inputs:	20 video 1Vpp / 75Ω on BNC connectors 20 audio stereo, 1Vpp / 50kΩ on RCA connectors
Outputs:	1 video, 1Vpp / 75Ω on 2 BNCs, parallel connected 1 audio stereo, 1Vpp / 100Ω on 2x2 RCAs, parallel connected. DB-9 for RS-232, 3 binding posts for RS-485
Display:	4 seven-segment display LEDs, 20 LED status display
Control:	12 key keypad control, 17 touch switch setup controls, RS-232, RS-485
Switching:	Vertical interval
Dwell Time:	1 Sec - 60 Sec
Error Detection:	Sync detection
Video Bandwidth:	25 MHz -3dB
Audio Bandwidth:	20 kHz -1dB
Diff. Gain:	1.3%
K-Factor:	<0.05%
Dimensions:	19 inch (W), 7 inch (D), 2U (H) rack mountable
Power Source:	230 VAC, 50 / 60 Hz (115 VAC, U.S.A) 6.7 VA
Weight:	4.1 kg. (9.1 lbs.) approx.
Accessories:	Power cord, Windows 95/98 control software, Null modem adapter

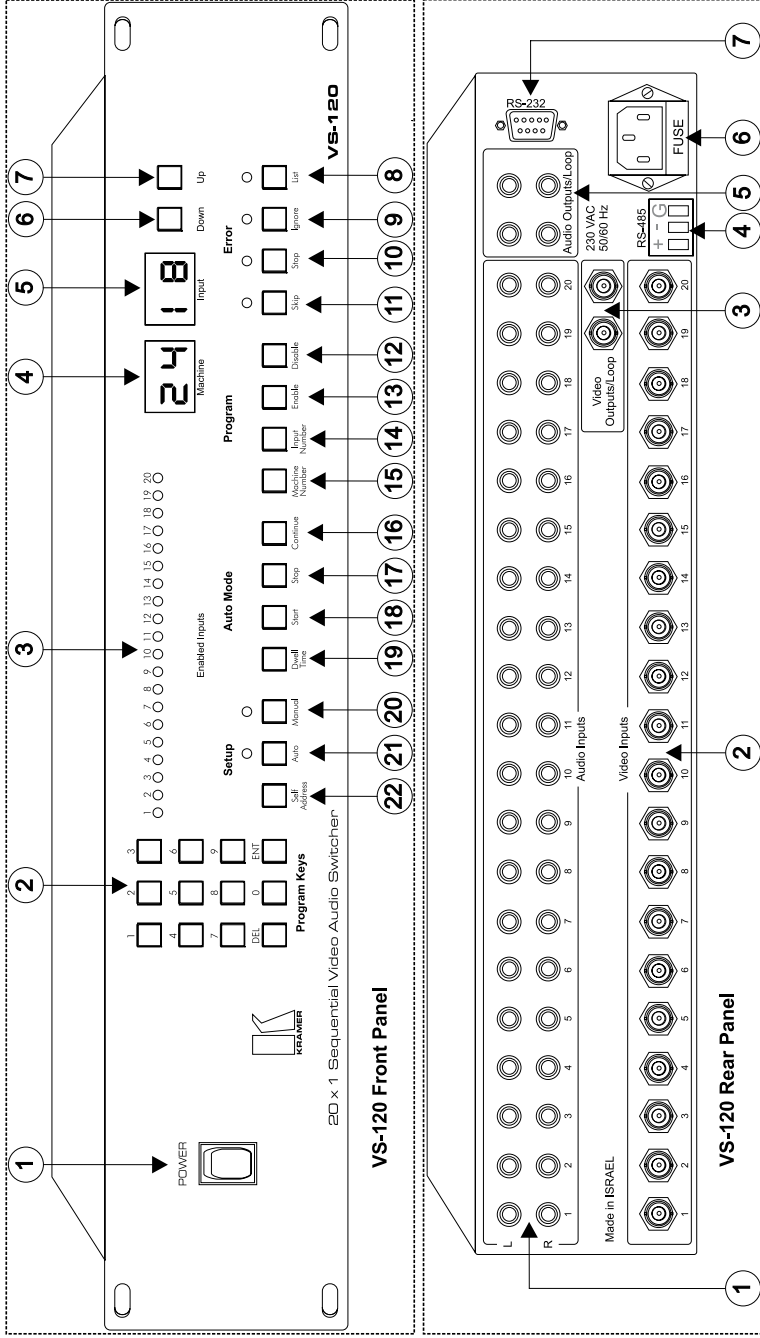


Figure 1: VS-120 x 1 Sequential Video Audio Switcher

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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