

Kramer Electronics, Ltd.



USER MANUAL

Model:

VS-28

8 Channel Video Audio Standby

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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 **VS-28** 8 Channel Video Audio Standby, which is ideal for the following typical applications:

- Broadcast applications to eliminate dead air time
- Security applications for automatic switching of control cameras
- Presentation systems for automatic detection of active wall plate inputs
- Point-of-sale systems requiring uninterrupted demonstrations and advertising

The package includes the following items:

- **VS-28** 8 Channel Video Audio Standby
- Power cord
- 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

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 Sealers; and GROUP 8: Cables and Connectors

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)

3 Overview

The **VS-28 8 Channel Video Audio Standby** is an eight channel standby switcher for composite video and stereo audio signals. Each of the eight channels is a discreet 2x1 standby switcher for composite video using BNC connectors, and stereo audio using detachable screw terminal connectors.

The **VS-28 8 Channel Video Audio Standby** is much like having eight Kramer **VS-24N**'s in a single two-space rack mountable enclosure. Each 2x1 channel is designed to automatically switch to the second input any time the primary video signal is interrupted. At the same time, a front-panel LED illuminates, and an extra relay is activated which can be used to trigger an alarm. If the primary signal reappears, the individual channel will switch back to input one. Each channel can be forced to select input 2 by using a short to ground available on detachable screw terminal connectors. When the power of the **VS-28 8 Channel Video Audio Standby** is removed or turned off, input one will be routed to the output.

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 **VS-28** away from excessive sunlight, moisture and dust

3.1 Several Words on Video/Audio Switchers

A video/audio switcher usually switches between several sources and one or more acceptors. A switcher that allows several inputs to be connected to several outputs simultaneously is called a matrix switcher. Switchers may be of the electronic or mechanic type. Most matrices are of the active electronic type, with many crosspoints.

Vertical Interval Switching, often used in video, assures that the transition from one video source to the other (like switching between two Genlocked cameras) is smooth and without interference. The switching and changeover is done during the blanked vertical interval period, where the transition is hidden from the eyes.

Vertical Interval switching is needed when recording or transmitting a video program involving several video sources, as in live broadcast, to assure "clean", undisturbed picture transitions. The switched sources should be genlocked.

Matrices and switchers may be RS-232 controlled. RS-232 control is a way of remotely controlling a video or audio device using a personal computer with a

serial port or another device that uses a similar communication protocol.

The simplest connection between the RS-232 controller and the controlled device uses two wires (TRANSMIT, RECEIVE) and a common ground wire.

Adding inputs, outputs or both may extend a matrix switcher. In order to add OUTPUTS to a matrix setup, a second switcher is added, and the inputs of both matrices are connected in parallel (while assuring proper input termination and avoiding double termination).

In order to add INPUTS to an existing matrix, a second machine is connected - paralleling the outputs of both machines. When a matrix is to be extended in both directions, both INPUTS and OUTPUTS are paralleled using four or more machines. A matrix can be extended only if it is designed as an extendable matrix, e.g., inputs should be looping and outputs should be able to be internally disconnected or become "floating".

There are many factors affecting quality when signals are transmitted from a source to an acceptor:

- Source and acceptor signal handling capability - different brands offer different quality and the final result is determined by the performance of the lowest quality part. Using a low quality source will always result in low quality duplicates
- The connection cables should be of the best possible quality. Low quality cables are susceptible to interference, deteriorate signal quality due to poor matching and cause elevated noise levels
- Sockets and connectors of the sources and acceptors - so often ignored, should be of best quality, as "Zero Ohm" connection resistance should be assured. Sockets and connectors should match the required impedance (75 ohms in video). Cheap connectors tend to rust, causing breaks in the signal path
- Amplifying circuitry quality is extremely important and is needed for high linearity, low distortion and low noise operation
- The distance between source and acceptors plays a major role in the final result. If there are long distances (over 15 meters) between sources and acceptors, special means should be taken in order to avoid cable loss, such as using higher quality cables or, if necessary, adding line amplifiers
- Interference from neighboring appliances may have an adverse effect on signal quality. Balanced audio lines are less prone to interference, but unbalanced audio and video lines should be installed far away from mains carrying cables, electric motors, transmitters etc., even when cables are shielded

4 Your 8 Channel Video Audio Standby

The **VS-28 8 Channel Video Audio Standby** is an 8 Channel Video-Audio Standby unit, each channel having two video and audio-stereo (or balanced Mono) inputs and one video and audio-stereo (or balanced Mono) output. When a proper video signal exists on the input marked INPUT 1, it is transferred, with the appropriate audio channels, to the output. When the video signal drops for any reason, the **VS-28 8 Channel Video Audio Standby** automatically routes the second video-audio source to the output and at the same time activates a relay (alarm) and lights a LED on the front panel. When the video signal on INPUT 1 reappears, the unit switches back to it automatically. When the power is off, INPUT 1 is routed to the output. The machine can be forced to output the INPUT 2 signal by using a short to ground, where each channel can be remote controlled with a pair of wires.

4.1 Your 8 Channel Video Audio Standby Front Panel

Figure 1 illustrates the front panel of the **VS-28 8 Channel Video Audio Standby**:

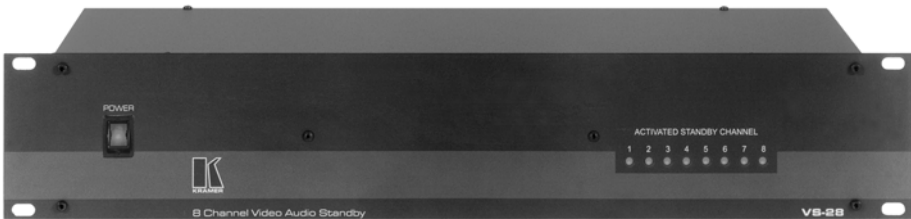


Figure 1: VS-28 8 Channel Video Audio Standby Front Panel

4.2 Your 8 Channel Video Audio Standby Rear Panel

Figure 2 illustrates the rear panel of the **VS-28 8 Channel Video Audio Standby**:

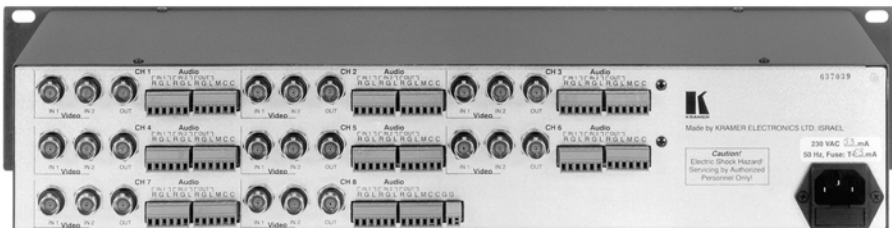


Figure 2: VS-28 8 Channel Video Audio Standby Rear Panel

5 Using Your 8 Channel Video Audio Standby

This section describes how to connect and operate your 8 Channel Video Audio Standby.

Connect the video and audio sources to the appropriate inputs of the **VS-28 8 Channel Video Audio Standby** unit, where input 1 of each channel is the Master input, and input 2 is the standby channel. Be sure to connect the audio channels with the correct polarities.

You can either use the audio as Left, Ground and Right signals (for stereo) or use the "R" for "+" and the "L" for "-" for balanced mono.

Connect up to 8 video/audio acceptors to output sockets. Use the best cables available in order not to impair signal quality and bandwidth.

Each channel has two pins (on the audio connector) each marked as "C". When the main signal (IN 1) of this channel drops, an internal relay shorts both pins to each other. This can be used, for example, to activate an alarm.

Each channel has an additional pin on the "audio block" marked "M". When this pin is remotely connected to the ground (using a pair of wires) this channel is forced to switchover to input 2.

When the master video (IN 1) drops out of any channel, the machine switches over to the standby input (IN 2) of this channel. At the same time, it activates the internal relay that shorts together the pins marked "C" on the audio connector and lights an LED with of appropriate channel number on the front panel.

There are two extra ground connections available on the audio section of channel 8 for any desired use. The connections are each marked "G".

Turn on the **VS-28 8 Channel Video Audio Standby** and all sources and acceptors. The **VS-28 8 Channel Video Audio Standby** detects the existence of Odd/Even sync information; therefore it cannot be misled by erroneous signals. If all master video inputs are available and are standard video signals, all front LEDs will be off.

By using the remote control function with the "M" pin mentioned above, the **VS-28 8 Channel Video Audio Standby** can become an 8x2x1 video/audio switcher.

The channels may be cascaded to increase the number of standby sources, for example: connect the output of channel 1 to IN1 of channel 2 and connect the acceptor to the OUT socket of channel 2. In this case, if IN 1 of channel 1 drops out, IN 2 of channel 1 "kicks" in. If IN 2 of channel one drops out too (and IN 1 is still absent) IN 2 of channel 2 "kicks in", etc.

6 Technical Specifications

Table 1 includes the technical specifications.

Table 1: Technical Specifications¹ of the VS-28 8 Channel Video Audio Standby

INPUTS:	8 x 2 composite video, 1Vpp/75Ω nom. on BNC connectors 8 x 2 audio stereo (or balanced Mono) on terminal blocks
OUTPUTS:	8 x 1 remote control pin (for short to ground) 8 x 1 composite video, 1Vpp/75Ω on a BNC connector 8 x 1 audio stereo (or balanced Mono) on terminal blocks 8 x relay contacts
VIDEO BANDWIDTH:	Up to 500MHz
AUDIO BANDWIDTH:	Up to 100MHz
S/N RATIO:	73dB
DETECTION SYSTEM:	Odd/Even fields
SWITCH DELAY:	Up to 3 frames
CONTROL:	Contact closure, automatic
DIMENSIONS:	19 inch (W), 7 inch (D), 2U (H) rack mountable
POWER:	230 VAC, 50/60Hz (115 VAC U.S.A.) 12.2 VA
WEIGHT:	3.8kg (8.4lbs.) approx.
ACCESSORIES:	Power cord

If the output signal is disturbed or interrupted by very strong external electromagnetic interference, it should return and stabilize when such interference ends. If not, turn the power switch off and on again to reset the machine. The socket-outlet shall be installed near the equipment and shall be easily accessible. To fully disconnect the equipment, remove the power cord from its socket.

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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