

Kramer Electronics, Ltd.



USER MANUAL

Model:

VS-81FW, *8 Port FireWire 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 switchers and matrices, like the Kramer **VS-81FW 8 Port FireWire Switcher**, we also offer excellent distribution amplifiers, presentation processors, interfaces, remote controllers and computer-related products. Congratulations on purchasing your unique **VS-81FW**, which is ideal for digital video editing systems and data switching systems. The package includes the following items:

- **VS-81FW 8 Port FireWire Switcher**
- This user manual¹ 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

FireWire is a serial bus standard² that enables quick universal interfacing between video and computer hardware items³. FireWire is simple to use and operates independently of the host system. In addition, FireWire supports Plug and Play⁴, hot swapping⁵, and isochronous⁶ as well as asynchronous applications.

Achieving the best performance means:

- Positioning your Kramer **VS-81FW** in a location free from moisture and away from excessive sunlight and dust and avoiding interference from neighboring electrical appliances that may adversely influence signal quality

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

2 Originally developed by Apple™ and published as IEEE 1394 by the Institute of Electrical and Electronics Engineers

3 Hardware items include digital cameras, computers, printers, VCRs, CD-ROMs, hard disks, scanners and graphic cards

4 Configures automatically. Whenever a device is added or removed the 1394 bus re-enumerates

5 You can connect and disconnect inputs and outputs dynamically, without having to restart the PC or cycle power

6 Video / audio applications require constant transfer rates, which the serial bus provides by supporting isochronous transfers

- 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)

4 Your FireWire Switcher

The high quality **VS-81FW** is an intelligent¹, passive² 8x1 mechanical switcher for *FireWire* signals, using 6-pin *FireWire* connectors. The **VS-81FW** can also be configured as part of a distribution amplifier³ (DA) system.

In addition, the **VS-81FW**:

- Is ideal for high speed data signals up to 400 MB/s
- With its unpowered design is advantageous for applications in which various regulatory compliances would otherwise be required
- Lets you interconnect up to 8 bi-directional devices (each device can be a receiver and transmitter), with 2 devices able to function at the same time

Figure 1, Table 1 and Table 2 define the **VS-81FW 8 Port FireWire Switcher**:

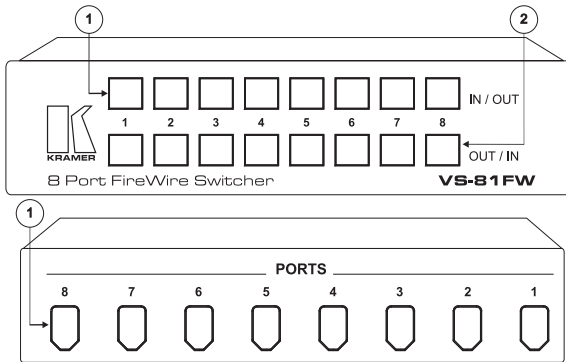


Figure 1: VS 81FW 8 Port FireWire Switcher

Table 1: Front Panel VS 81FW 8 Port FireWire Switcher Features

#	Feature	Function
1	IN / OUT SELECTOR Buttons	Selects a device from 1 to 8
2	OUT / IN SELECTOR Buttons	Selects a device from 1 to 8

Table 2: Rear Panel VS 81FW 8 Port FireWire Switcher Features

#	Feature	Function
1	6-pin PORTS	Connect to the devices from 1 to 8

1 The FireWire protocol is a computer-based protocol used for video, which allows more flexibility than running 2 cables (one from the source and one from the acceptor)

2 Allows power to be transferred if the other device has no power

3 When interconnected with the VS-3FW and/or VS-6FW, as the example in Figure 3 illustrates

5 Using the FireWire Switcher

Section 5.1 describes how to connect and how to operate your **VS-81FW**, as an 8 port FireWire switcher. Section 5.2 describes an example with a connection to distribution amplifiers¹.

5.1 Connecting the FireWire Switcher

You can connect the **VS-81FW 8 Port FireWire Switcher** to up to 8 devices², using 1394 cables with 6 pin connectors. However, only 2 devices can be selected (one per line) at the same time, as the example in Figure 2 illustrates.

To connect the **VS-81FW** to 2 devices, do the following:

1. Connect one device (for example, a digital VCR) to PORT 8 and another device (for example, also a digital VCR) to PORT 4.
2. Push in the IN / OUT button 8.
The IN / OUT button 8 changes color, and the other buttons on that line pop out.
3. Push in the OUT / IN button 4.
The OUT / IN button 4 changes color, and the other buttons on that line pop out.
4. Set the digital VCR that is connected to PORT 8 to record, and the digital VCR that is connected to PORT 4 to play back.

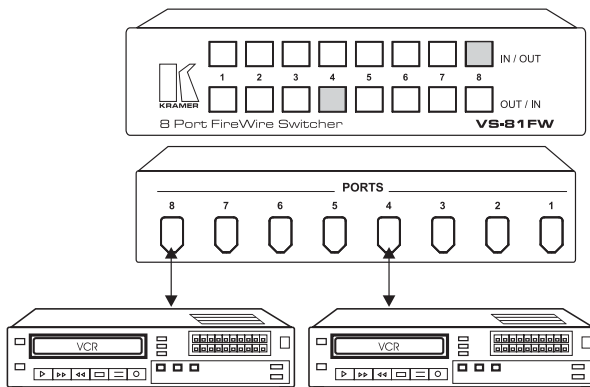


Figure 2: Connecting the FireWire Switcher

1 By interconnecting the VS-81FW with 3 VS-6FW Firewire Repeater / HUB units

2 Each device that is connected to a port can simultaneously constitute a transmitter or receiver (source or acceptor), If the digital FireWire data stream for video and audio is embedded, it identifies if a connected device is a transmitter or receiver communicating with each other in 2 directions, on one line

5.2 Connecting the FireWire Switcher with Distribution Amplifiers

You can configure with a 1:2 or a 1:5 DA by connecting one of the ports on the **VS-81FW** to a port on a **VS-3FW** or **VS-6FW Firewire Repeater / HUB**, respectively¹. The example in Figure 3 illustrates how to configure a 1:12 DA, by interconnecting a **VS-81FW** with 3 **VS-6FW Firewire Repeater / HUB** units.

To configure with a 1:12 DA, interconnect a **VS-81FW** with 3 **VS-6FW Firewire Repeater / HUB** units, using FireWire cables², as follows:

1. From the **VS-81FW**:

- Connect PORT 8 to the FireWire card on the laptop computer and push in the IN/OUT button 8.

The IN/OUT button 8 changes color, and the other buttons on that line pop out. The power from the laptop computer will feed the 3 **VS-6FW Firewire Repeater / HUB** units via the 6-pin connector

- Interconnect PORT 7 with PORT 1 on the first **VS-6FW**.

The OUT/IN button 7 changes color, and the other buttons on that line pop out

- Connect PORTS 1 to 6 (inclusive) to other FireWire devices, as shown³. However, only PORT 8 and PORT 7 are active

2. From the first **VS-6FW**:

- Connect PORT 2 to the Digital VCR 1 and PORT 3 to the Digital VCR 2
- Connect PORT 4 to a digital projector and PORT 6 to a digital monitor
- Interconnect PORT 5 with PORT 1 on the second **VS-6FW**

3. From the second **VS-6FW**:

- Connect PORT 2 to the Digital VCR 3, and PORT 3 to the Digital VCR 4
- Connect PORT 4 to a digital projector, and PORT 6 to a digital monitor
- Interconnect PORT 5 with PORT 1 on the third **VS-6FW**

4. From the third **VS-6FW**⁴:

- Connect PORT 2 to the Digital VCR 5, and PORT 3 to the Digital VCR 6
- Connect PORT 4 to a digital projector, and PORT 6 to a digital monitor

1 Similarly, you can configure a 1:6 DA by connecting one of the ports on the VS-81FW 8 Port FireWire Switcher to a port on a VS-3FW and then connecting another port on that VS-3FW to a port on a VS-6FW

2 Not provided

3 Digital monitors, digital projectors, a digital video camera and a digital scanner

4 By interconnecting PORT 5 with a port on a fourth VS-6FW you could configure a 1:17 DA

Using the FireWire Switcher

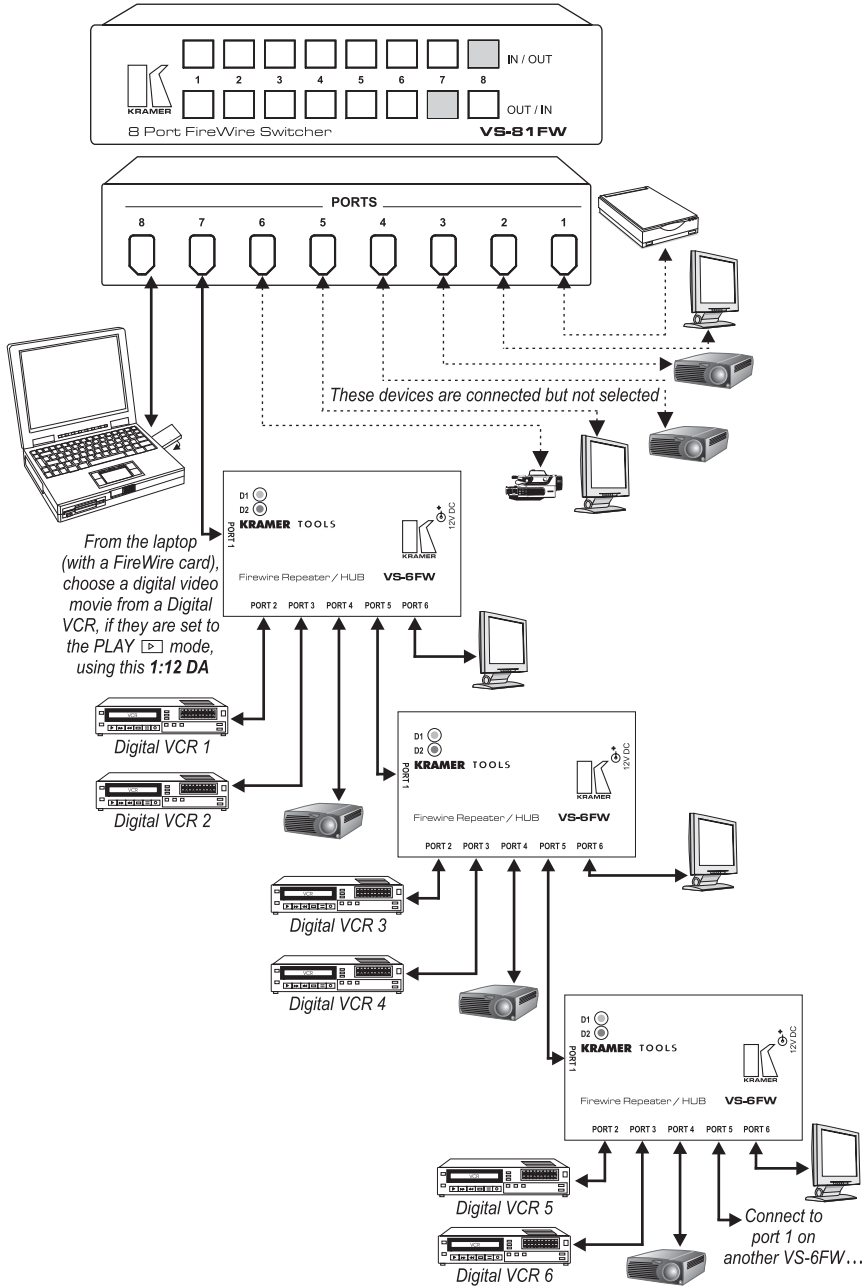


Figure 3: Connecting the FireWire Switcher with a 1:12 Distribution Amplifier

6 Technical Specifications

Table 3: Technical Specifications¹ of the VS 81FW 8 Port FireWire Switcher

PORTS:	Eight 6-pin connectors
SWITCHING SYSTEM:	Mechanical, break-before-make
COMPATIBILITY:	Up to 400 MB/s
STANDARDS:	Compliant with IEEE 1394 - 1995 for high performance serial bus and the P1394a draft 2.0 standard
DIMENSIONS:	18.8cm x 10.2cm x 4.4cm (7.4" x 4" x 1.7"), W, D, H.
WEIGHT:	0.70 kg. (1.55 lbs.) approx.
OPTIONS:	19" rack adapter RK-81

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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