KRAMER ELECTRONICS LTD.

# USER MANUAL

MODEL:

**VS-30FW**
FireWire® 800/1394b
Repeater/HUB

P/N: 2900-000014 Rev 2

# VS-30FW Quick Start Guide

This page guides you through a basic installation and first-time use of your **VS-30FW**.
For more detailed information, see the **VS-30FW** user manual. You can download the latest manual at http://www.kramerelectronics.com.

## Step 1: Check what's in the box

☑ The **VS-30FW** FireWire 800/1394b Repeater/HUB
☑ 1 12V DC power adapter (12V, 500mA)
☑ 4 rubber feet and mounting bracket

☑ 1 FireWire® cable (C-FM9/FM9-3)
☑ 1 Quick start sheet
☑ 1 User Manual

Save the original box and packaging materials in case your Kramer product needs to be returned to the factory for service.
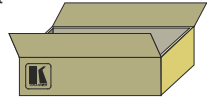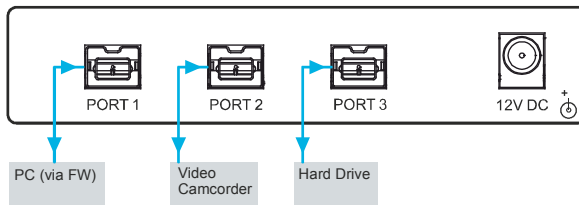
## Step 2: Install the VS-30FW

Mount the machine in a rack (using the RK-2TB rack adapter) or place on a table.

## Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **VS-30FW**.



PORT 1 — PC (via FW)
PORT 2 — Video Camcorder
PORT 3 — Hard Drive
12V DC

For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the **VS-30FW**.

## Step 4: Connect the power

Connect the 12V DC power adapter to the **VS-30FW** and plug the adapter into the mains electricity.

**Each FireWire device can derive its power in one of two ways:**

Independently, by connecting each FireWire device to its own power supply, while the **VS-30FW** is connected to the external 12VDC (12V, 500mA) power supply.

Via the **VS-30FW** that is connected to an external powerful power supply: the 12VDC (12V, 2.1A) (optional with the **VS-30FW**). In this case, each of the (up to) 3 FireWire devices can derive its power (up to 1A per port) from the respective **VS-30FW** FireWire port.

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# 1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups that are clearly defined by function.

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer TOOLS **VS-30FW** FireWire® 800/1394b Repeater/HUB which is ideal for:

- High-speed external disk drives
- Professional scanners and printers
- Portable storage devices
- Digital audio and video
- Home entertainment components

# 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 cables

- Use only the power cord that is supplied with this machine

Go to http://www.kramerelectronics.com to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

## 2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables to avoid 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

- Position your Kramer **VS-30FW** away from moisture, excessive sunlight and dust

**Caution:** No operator serviceable parts inside the unit

**Warning:** Use only the Kramer Electronics input power wall adapter that is provided with the unit

**Warning:** Disconnect the power and unplug the unit from the wall before installing

# 3 Overview

The **VS-30FW** is a high-performance bidirectional hub/repeater for 9-pin FireWire®
800 (IEEE 1394b) signals. It increases the number of ports available and/or extends
the distance of FireWire® cable runs.

The **VS-30FW** features:

- Ports - 3 bidirectional IEEE 1394b 800Mbps (S800)
  The unit also supports legacy FireWire speeds of 400Mbps, 200Mbps, and 100Mbps
  (S400, S200, S100). In fact, you can connect several devices with different speeds,
  and the unit will bridge the gaps!

- Range - Doubles FireWire® cable range from 4.5m (14.75ft) to 9m (29.5ft).
  Multiple units can be cascaded to extend the range to up to 72m (236ft)

- Hot Swapping - Supports Plug and Play

- Transfer Rates - 100, 200, 400 and 800Mbps

- ESD Protection - Incorporates Kramer's Spark-Guard Pro™ signal protection
  circuitry to help protect against EDS (electrostatic discharge) that can
  damage digital equipment

- Alternate Power Sources - Can be powered from the 12V DC power supply or
  through the PC connection

- Requires 9-Pin FireWire® 800 Cable

- Compact Kramer TOOLS™ - 3 units can be rack mounted side-by-side in a
  1U rack space with the optional RK-3T rack adapter

## 3.1 About the VS-30FW FireWire 800/1394b Repeater/HUB

Many computers today come with one or more FireWire ports on the rear panel.
These ports let you attach many devices to your computer quickly and easily. The
operating system also supports FireWire, so the installation of the device drivers is
also quick and easy. Compared to other ways of connecting devices to your
computer (including parallel ports, serial ports and special cards that you install
inside the computer's case), FireWire devices are simple. Many peripheral devices
(including: DV Camcorders, Digital still cameras, Storage devices such as External
Hard Drives and Disk Arrays, Network connections, and scanners and printers) now
come in a FireWire version.

Connecting a FireWire device to a computer is easy – you just plug it into the port. If it is an uninstalled FireWire device, the operating system auto-detects it and installs software support for it automatically. If the device has already been installed, the computer activates it and starts talking to it.

With so many FireWire devices on the market today, you easily run out of ports very quickly. The simple solution to the problem is an inexpensive FireWire hub. The FireWire standard supports up to 63 devices and FireWire hubs are a part of the standard. You plug the hub into your computer, and then plug your devices (or other hubs) into the hub. By chaining hubs together, you can build up dozens of available FireWire ports on a single computer.

A FireWire hub is like a network, with bidirectional signals. The standard defines FireWire as Peer-to-Peer connection; that is why two devices, or a device and a computer can talk to each other.

It is important to note that everything depends on your computer's software, and the firmware of the devices. Sometimes, it is possible that a computer can work with many FireWire devices simultaneously (like a distributor), sometimes it can work with many devices in time-sharing mode (like a switcher). But most often it is possible to work one-to-one. In this case, you have to disconnect all the devices that are unnecessary at this time and leave only two of them. Since the FireWire is hot-plug standard, you can connect/disconnect devices at any time.

Hubs can be powered or unpowered. The FireWire standard lets devices draw their power from their FireWire connection. Obviously, a high-power device, like a professional DV camcorder, will have its own power supply, but low-power devices like a Webcam derive their power from the bus in order to simplify them. The power for this (up to 1 amp at 12 volts) comes from the computer.

If you have several self-powered devices, then your hub does not need to be powered, as none of the devices connecting to the hub needs additional power, and the hub itself can derive power from the computer. If you have many unpowered devices, you probably need a powered hub. The hub has to be powered from an AC adapter, which supplies power to the bus. The **VS-30FW** can supply up to 2.1A to the bus (each port can provide up to 1A).

## 3.2 FireWire Compliance

The **VS-30FW** is based on FireWire which:

- Is a serial bus standard that enables quick universal interfacing between video and computer hardware items
- Is simple to use and operates independently of the host system, letting you connect more items than you otherwise could (as a computer only has limited ports available), and for extended distances. Several can be cascaded to create up to a 63 port FireWire Repeater / HUB

In particular, the **VS-30FW**:

- Fully supports the provisions of the IEEE P1394b Revision 1.33+ at 1-Gigabit signaling rates
- Fully supports the provisions of the IEEE 1394-1995 Standard for High Performance Serial Bus and the P1394a Supplement
- Is fully interoperable with FireWire™ and i.LINK™ implementation of IEEE Std 1394
- Provides three fully backward compatible (1394a-2000 fully compliant) bilingual P1394b cable ports at up to 800 Megabits per second (Mbits/s)
- Is fully compliant with OpenHCI requirements
- Provides P1394a Fully Compliant Cable Ports at 100/200/400 Megabits per Second (Mbits/s)
- Includes full P1394a support, that is, Connection Debounce, Arbitrated Short Reset, Multispeed Concatenation, Arbitration Acceleration, Fly-By Concatenation, Port Disable/Suspend/Resume
- Includes Extended Resume Signaling for Compatibility with Legacy DV Devices

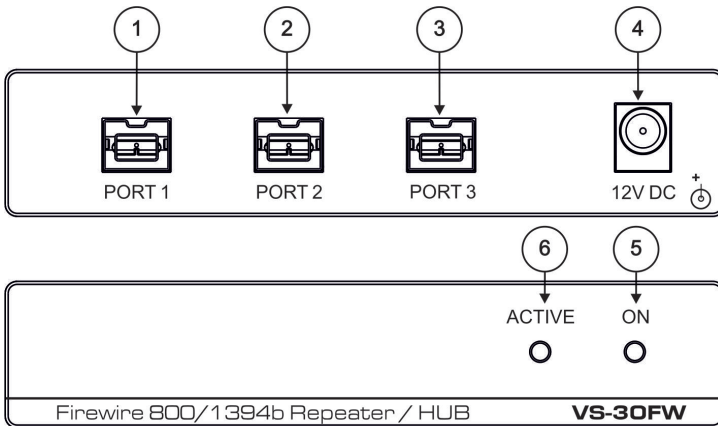# 4 Defining the VS-30FW FireWire 800/1394b Repeater/HUB



Figure 1: VS-30FW FireWire 800/1394b Repeater/HUB Front and Rear Panels

| # | Feature | Function |
|---|---------|----------|
| 1 | PORT 1 | Connects to the FireWire device 1 |
| 2 | PORT 2 | Connects to the FireWire device 2 |
| 3 | PORT 3 | Connects to the FireWire device 3 |
| 4 | 12V DC | +12V DC connector for powering the unit |
| 5 | ON LED | Illuminates when receiving power |
| 6 | ACTIVE LED | Lights when a connection between 2 FireWire devices is established |

# 5 Using the VS 30FW FireWire 800/1394b Repeater / HUB

To use the **VS-30FW** FireWire 800/1394b Repeater / HUB, as the example in Figure 2 illustrates, do the following:

1. Connect up to 3 FireWire devices to up to 3 ports, for example: PORT 1 to a video camcorder, PORT 2 to a hard drive, and PORT 3 to a computer.
   Not all ports need to be connected. Any unused port should simply be left unconnected

2. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 2).
   The ON red LED lights.

3. Be sure that the power on each device is turned ON.
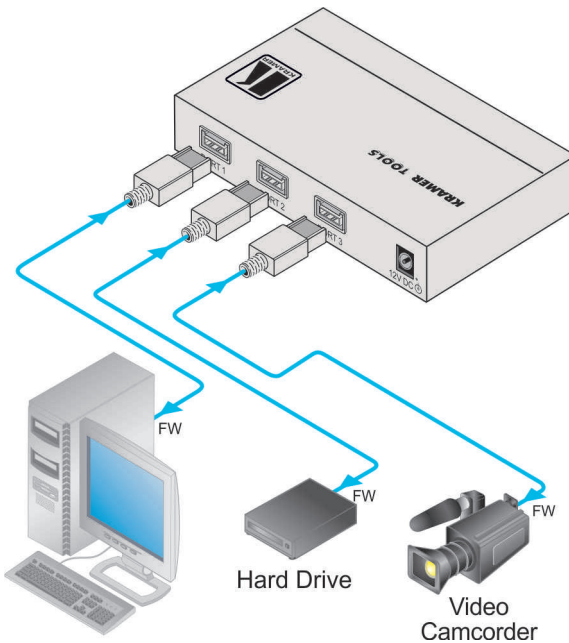   The ACTIVE green LED lights indicating that there is data present on a port.

Figure 2: Connecting the VS-30FW FireWire 800/1394b Repeater / HUB

## 5.1 Powering the FireWire Devices

Each FireWire device can derive its power in one of two ways:

- Independently, by connecting each FireWire device to its own power supply, while the VS 30FW is connected to the external 12VDC (12V, 500mA) power supply (supplied with the VS 30FW)
- Via the VS 30FW that is connected to an external powerful power supply: the 12VDC (12V, 2.1A) (optional with the VS 30FW). In this case, each of the (up to) 3 FireWire devices can derive its power (up to 1A per port) from the respective VS 30FW FireWire port

# 6    Technical Specifications

| PORTS: | 3 bidirectional IEEE 1394b 800Mbps (S800) ports |
|---|---|
| TRANSFER RATE: | 100/200/400/800Mbps (S100, S200, S400, S800) |
| STANDARDS: | IEEE 1394-1995, IEEE P1394a, IEEE P1394b |
| POWER SOURCE: | 12V DC, 500mA or from the attached PC |
| DIMENSIONS: | 12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98") W, D, H |
| WEIGHT: | 0.3kg (0.67lbs) approx. |
| ACCESSORIES: | Power supply, FireWire® cable (C-FM9/FM9-3), mounting bracket |
| OPTIONS: | RK-3T 19" rack adapter |
| Specifications are subject to change without notice Go to our Web site at http://www.kramerelectronics.com to access the list of resolutions | |

## LIMITED WARRANTY

We warrant 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 us 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, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.

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);<br>generic emission standard.<br>Part 1: Residential, commercial and light industry" |
| EN-50082: | "Electromagnetic compatibility (EMC) generic immunity standard.<br>Part 1: Residential, commercial and light industry environment". |
| CFR-47: | FCC* Rules and Regulations:<br>Part 15: "Radio frequency devices<br>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.

   * FCC and CE approved using STP cable (for twisted pair products)

VS-30FW - Technical Specifications

For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

**We welcome your questions, comments, and feedback.**
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com

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**SAFETY WARNING**
Disconnect the unit from the power supply before opening and servicing