Kramer Electronics, Ltd.

USER MANUAL

Model:

VS-12DPIR

1x2 DisplayPort Selector

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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[1] that are clearly defined by function.

Congratulations on purchasing your Kramer DigiTOOLS® **VS-12DPIR** *1x2 DisplayPort Selector*. The **VS-12DPIR** is ideal for:

- Home theater, presentation and multimedia applications
- Rental and staging

The package includes the following items:

- **VS-12DPIR** *1x2 DisplayPort Selector*
- Power adapter (5V DC input)
- Kramer **RC-IR3** Infrared Remote Control Transmitter (including the required battery and a separate user manual[2])
- This user manual[2]

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[3]

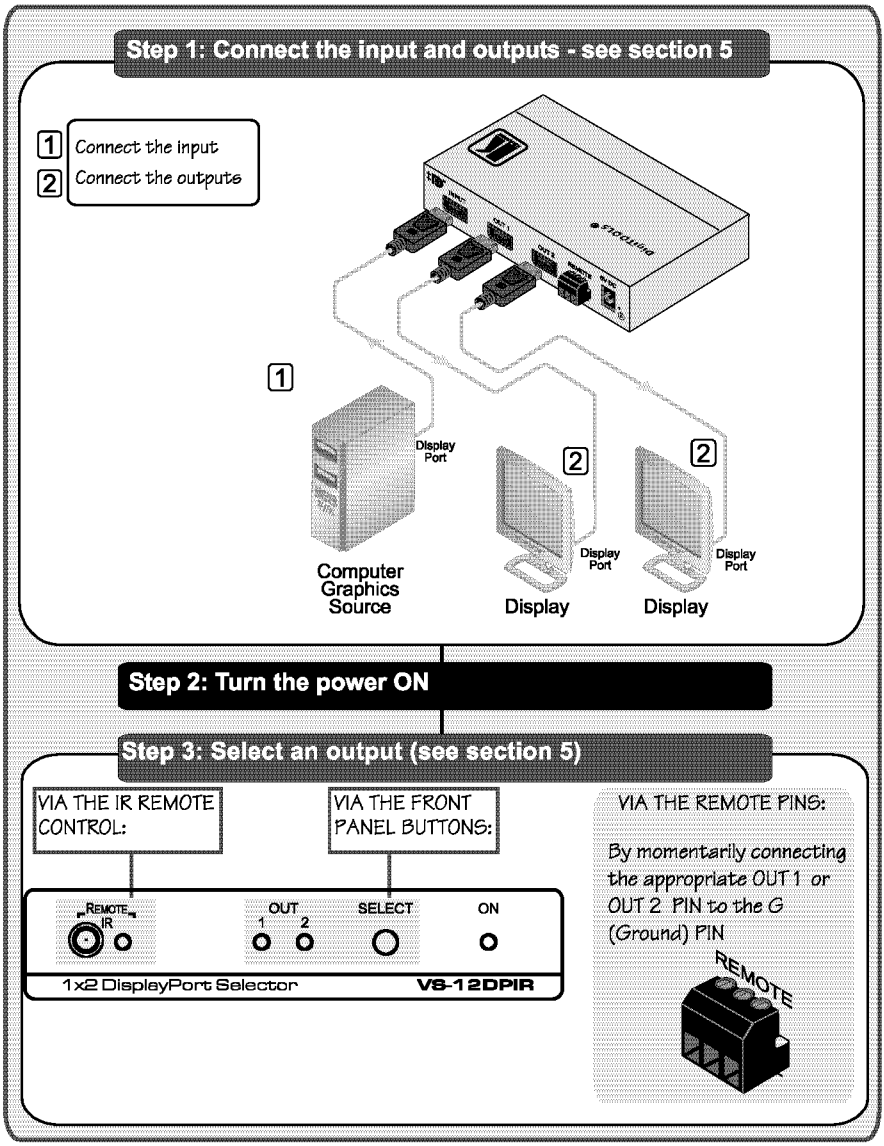
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from our Web site at http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps of the **VS-12DPIR**.



3 Overview

The high-quality **VS-12DPIR** accepts a DisplayPort (DP) input and distributes the signal to one of two selectable outputs.

In particular, the **VS-12DPIR** features:

- Up to 2.7Gbps bandwidth per graphic channel
- A maximum resolution of 2560x1600 pixels and a total maximum bandwidth of 10.8Gbps over four lanes
- A high-resolution, and rich colors, and transports audio and multiple video streams
- EDID PassThru – Passes EDID/HDCP signals from source to display
- HDCP compliancy
- 5V DC power
- Remote control capability

3.1 About DisplayPort

DisplayPort (DP) is a digital display interface standard for the PC industry. It delivers the highest resolutions and sound quality.

In addition, DisplayPort:

- Provides a simple interface between a PC and a display, projector or TV
- Supports 1 to 4 data pairs ("lanes") at a transfer rate of 1.62Gb or 2.7Gb per second
- Has a maximum length of 15 meters for video transmission, at a resolution of 1080p/60Hz and 3 meters for full bandwidth transmission
- Video specs include a video path that supports 6 to 16 bits per color channel, a maximum resolution of 2560x1600 pixels and a total maximum bandwidth of 10.8Gbps over four lanes
- Is backward-compatible with HDMI, DVI (Digital Visual Interface) and VGA, via an appropriate adapter
- Version 1.1 supports HDCP (see section 3.2)
- Supports two-way communication over its auxiliary channel between the video source (for example, a PC) and the digital display, enabling new functionality such as automatic configuration and one-button play
- Replaces the interface needed between the PC and an external display, as well as the low voltage differential signaling (LVDS) interface in notebook computers, monitors, to connect to LCD panels

3.2 About HDCP

The High-Bandwidth Digital Content Protection (HDCP) standard[1] protects digital video and audio signals transmitted over DVI or HDMI connections between two HDCP-enabled devices to eliminate the reproduction of copyrighted material. To protect copyright holders (such as movie studios) from having their programs copied and shared, the HDCP standard provides for the secure and encrypted transmission of digital signals.

3.3 Recommendations for Best Performance

To achieve the best performance:

- Use only good quality connection cables[2] 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 and position your Kramer **VS-12DPIR** away from moisture, excessive sunlight and dust

Caution: No operator serviceable parts inside unit

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

Warning: Disconnect power and unplug unit from wall before installing or removing the device or servicing unit

1 Developed by Intel

2 Available from Kramer Electronics on our Web site at http://www.kramerelectronics.com

4 Your VS-12DPIR 1x2 DisplayPort Selector

Figure 1 and Table 1 define the **VS-12DPIR** *1x2 DisplayPort Selector*:

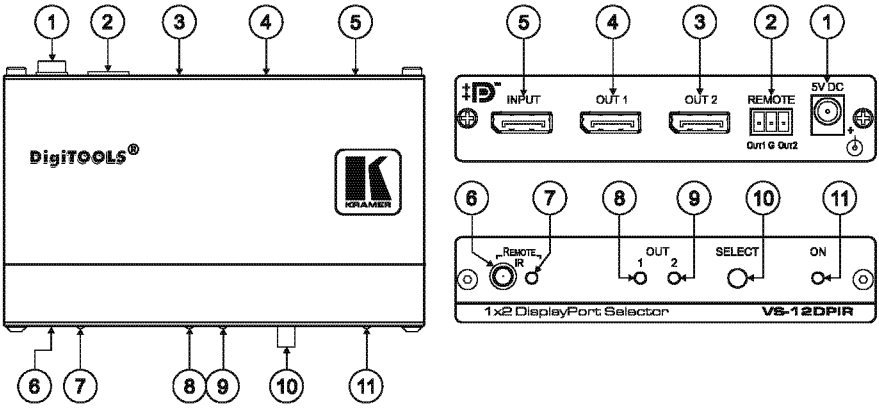


Figure 1: VS-12DPIR 1x2 DisplayPort Selector

Table 1: VS-12DPIR 1x2 DisplayPort Selector Features

#	Feature		Function
1	*5V DC*		+5V DC connector for powering the unit
2	*REMOTE* Terminal Block Connectors		Connect to a contact closure switch
3	*OUT 2* DisplayPort Connector		Connects to the DP acceptor 2
4	*OUT 1* DisplayPort Connector		Connects to the DP acceptor 1
5	*INPUT* DisplayPort Connector		Connects to the DP source
6	*REMOTE IR*	Receiver Window	Receives signals from the infrared remote control transmitter
7		LED	The red LED lights when receiving signals from the infrared remote control transmitter
8	*OUT 1* LED		Illuminates when output 1 is selected
9	*OUT 2* LED		Illuminates when output 2 is selected
10	*SELECT* Button		Press to select the active output
11	*ON* LED		Illuminates when receiving power

5 Connecting the VS-12DPIR 1x2 DisplayPort Selector

To connect the **VS-12DPIR**, as the example in Figure 2 shows, do the following[1]:

1. Connect the DP source (for example, a PC with a DP output) to the INPUT DP connector.
2. Connect the DP OUT connectors to up to two acceptors, as follows:
   - DP OUT 1 connector to a display
   - DP OUT 2 connector to a display
3. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity.

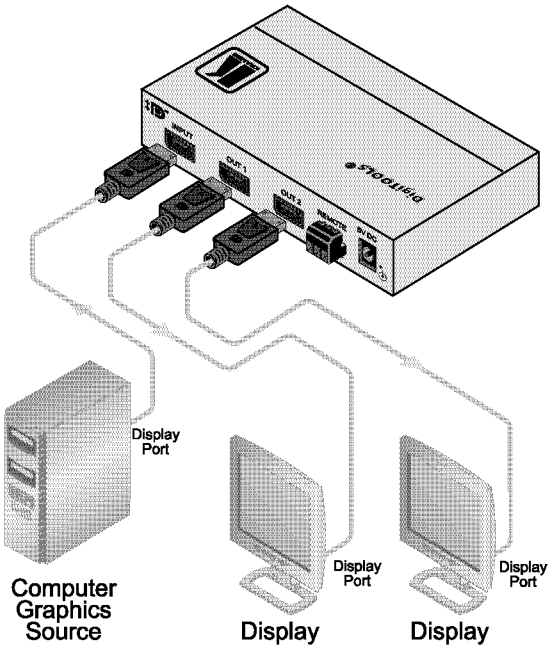


Figure 2: Connecting a VS-12DPIR 1x2 DisplayPort Selector

1 Switch OFF the power on each device before connecting it to your VS-12DPIR. After connecting your VS-12DPIR, switch on its power and then switch on the power on each device

5.1 Controlling via the REMOTE Terminal Block Connector

The contact closure remote control pins operate in a similar way to the output SELECT button. Using the contact closure remote control lets you select an output by remote control. To do so, temporarily connect the required input (OUT1 or OUT2) pin on the REMOTE terminal block connector to the G (ground) pin, as illustrated in the examples in Figure 3.

DO NOT connect more than one PIN to the G PIN at the same time

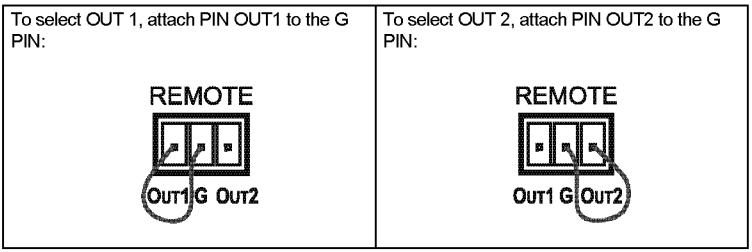


Figure 3: Connecting the REMOTE Input Select Connector

6 Technical Specifications

Table 2 includes the technical specifications[1] of the **VS-12DPIR**:

Table 2: Technical Specifications of the VS-12DPIR

INPUT:	1 DisplayPort Connector
OUTPUTS:	2 DisplayPort Connectors
BANDWIDTH:	Supports up to 2.7Gbps bandwidth per graphic channel
COMPLIANCE WITH HDMI STANDARD:	Supports: DisplayPort 1.1 and HDCP 1.3
CONTROLS:	Output select button, IR remote control, contact closure remote control pins
INDICATOR LEDs:	OUT 1, OUT 2, and ON LEDs
POWER SOURCE:	5V DC, 90mA
DIMENSIONS:	12cm x 7.15cm x 2.44cm (4.7" x 2.81" 0.96") W, D, H
WEIGHT:	0.3kg (0.67lbs) approx.
ACCESSORIES:	Power supply, IR remote control, bracket installation kit
OPTIONS:	Kramer DisplayPort cables[2]

1 Specifications are subject to change without notice

2 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

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, 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); 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.

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

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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